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

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant

DATE: September 13, 2005

RE: Tate & Lyle - Sagamore Plant / 157-18832-00003

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

Notice of Decision: Approval - Effective Immediately

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

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

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

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

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

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

Enclosures
FNPER.dot 1/10/05

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

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

September 13, 2005

Richard Dickinson
Environmental Superintendent
Tate & Lyle
2200 East Eldorado Street
Lafayette, IN 47904-1620

Re: 157-18832-00003
Prevention of Significant Deterioration (PSD) and
Significant Source Modification to
Part 70 Permit 157-6009-00003

Dear Mr. Dickinson,

Tate & Lyle was issued a Part 70 operating permit on June 28, 2004 for a corn processing plant located at 2245 North Sagamore Parkway, Lafayette, IN 47904-1620. An application to modify the emission source was received on April 14, 2004. Pursuant to 326 IAC 2-7-10.5, the following emission units are approved for construction at the source:

(1) One (1) Vibrating Corn Cleaning System 14JAA

(2) Corn Storage Silo 13VAA

(3) Corn Storage Silo 13VBB

(4) One (1) Vibrating Corn Cleaning Pneumatic Transfer 21FMM

(5) Corn Bucket Elevator – Silo to Steeps 14UBB

(6) One (1) baghouse 21FMM

(7) Eight (8) Steep Tanks 14VAA, 14VBB, 14VCC, 14VDD, 14VEE, 14VFF, 14VGG and 14VHH

(8) One (1) High DS Starch Vacuum Filter 18FAA

(9) One (1) Gluten Vacuum Filter 21FAA

(10) One (1) Gluten Vacuum Filter Pump 21CBB

(11) Fiber Dewatering Screens 21FNN

(12) 18 Bldg. Process Tanks and Screens

(13) One (1) alkaline scrubber 15FAA

(14) One (1) RST Fiber Pre-Dryer 21DAA.

(15) One (1) product collector/cyclone 21FCC,

(16) One (1) RST Germ Dryer 21DBB

(17) One collector/cyclone 21FEE" and "One (1) Gluten Flash Dryer 48 DAA

(18) Six (6) collectors/cyclones 48FAA-48FFF

(19) Two (2) Natural Gas / Biogas Fired Thermal Oxidation Units 48FGG and 48FHH

(20) Six (6) Propylated Starch Reactors 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF

(21) One (1) Packed Bed Scrubber 45FAA

(22) One (1) Sodium Sulfate Storage Bin 45BVAA

(23) One (1) baghouse 45BFAA

(24) Two (2) Flash 4 Slurry Hold Tanks 44V1 and 44V2

(25) Three (3) Flash 4 Larox Filters 44FKK, 44FLL and 44FMM

(26) One (1) Flash 4 Larox Filter Feed Tank 44V3

(27) One (1) Flash 4 Larox Air Release Tank 44V4

(28) One (1) Flash 4 Larox Air Release Tank 44V5

(29) Two (2) Spray dryer 2 Feed Tanks 46V1 and 46V2

(30) One (1) Spray dryer 2 Overflow Tank 46V3

(31) One (1) Spray dryer 2 Bowl Drain Tank 46V4

(32) One (1) Spray dryer 2 Under Flow Tank 46V5

(33) One (1) Raw Starch Storage Bin 20VAA

(34) One (1) baghouse 20FAA

(35) One (1) Raw Starch Storage Bin 20VBB

(36) One (1) baghouse 20FBB

(37) One (1) Starch Slurry Storage Tank 18AVAA

(38) One (1) baghouse 18AFAA

(39) One (1) Starch Feed Bin 41VAA

(40) One (1) 41FKK

(41) One (1) Starch Weigh Bin 33VAA

(42) One (1) baghouse 33FAA

(43) One (1) Dextrin Fluidizer Reactor 33RAA

(44) One (1) cyclone 33FBB

(45) One (1) baghouse 33FCC

(46) One (1) Dextrin Fluidizer Surge Bin 33VBB

(47) One (1) baghouse 33FDD

(48) One (1) Dextrin Blending and Storage Bin 33VCC

(49) One (1) baghouse 33FFF

(50) One (1) Dextrin Blending and Storage Bin 33VDD

(51) One (1) baghouse 33FGG

(52) One (1) Dextrin Product Screening Receiver 33FEE

(53) One (1) baghouse 33FEE

(54) Starch Roll Dryer #9 41D9

(55) Starch Roll Dryer #10 41D10

(56) Starch Roll Dryer #11 41D11

(57) Starch Roll Dryer #12 41D12

(58) Starch Roll Dryer #13 41D13

(59) Starch Roll Dryer #14 41D14

(60) One (1) Roll Dryer Mill Feed Collector Baghouse 41FAA

(61) One (1) baghouse 41FAA

(62) One (1) Roll Dryer System Mill 41G202

(63) One (1) baghouse 41F202

(64) One (1) Starch Blend Bin #1 07VDD

(65) One (1) baghouse 07FDD

(66) One (1) Starch Blend Bin #2 07VEE

(67) One (1) baghouse 07FEE

(68) One (1) Product Bin #AA 07VAA

(69) One (1) baghouse 07FAA

(70) One (1) Product Bin #BB 07VBB

(71) One (1) baghouse 07FBB

(72) One (1) Product Bin #CC 07VCC

(73) One (1) baghouse 07FCC

(74) One (1) Product Bin #EE 41VEE

(75) One (1) baghouse 41FEB

(76) One (1) Product Bin #HH 41VHH

(77) One (1) baghouse 41FHH

(78) One (1) Mill #3 44GAA

(79) One (1) baghouse 44FII

(80) One (1) Mill #4 44GBB

(81) One (1) baghouse 44FJJ

(82) One (1) Natural Gas Fired Spray Dryer #2 46DAA

(83) Six (6) cyclones 46FAA through 46FFF

(84) Six (6) baghouses 46FGG through 46FLL

(85) One (1) Natural Gas Fired Spray Dryer #3 51DAA

(86) Two (2) cyclones 51FAA and 51FBB

(87) One (1) baghouse 51FCC

(88) One (1) Natural Gas Fired Starch Flash Dryer #4 44DAA

(89) Six (6) collectors/cyclones 44FAA-44FFF

(90) One (1) Wet scrubber 44FGG

(91) One (1) Spray Dryer #3 Packer Baghouse (Pneumatically transferred) 51FDD

(92) One (1) baghouse 51FDD

(93) Two (2) Packer #6 Product Receivers 17FBB and 17FDD

(94) Two (2) baghouse 17FBB and 17FDD

(95) One (1) Packer #6 House Dust Collector, identified as 17FCC

(96) One (1) baghouse 17FCC

(97) One (1) Bulk Bagger #4 Product Receiver 17FAA

(98) One (1) baghouse 17FAA

(99) One (1) #3 Bulk Starch Rail Loadout Receiver 20FAA

(100) One (1) baghouse 20FAA

(101) One (1) #3 Bulk Loadout Screening System Filter Receiver 20FBB

(102) One (1) baghouse 20FBB

(103) One (1) Bag Dump Station Bin Vent, identified as 18FBB

(104) One (1) baghouse 18FBB

(105) One (1) O.S. Starch Product Transfer to Bag Packer #3 (South Spouts) 41FCC

(106) One (1) baghouse 41FCC; and

(107) Modification of the existing emission units to accomplish this project.

The following construction conditions are applicable to the proposed project:

General Construction Conditions

1. The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).

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

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

4. Pursuant to 326 I AC 2-2-8(1) and 326 IAC 2-7-10.5(i), this approval expires if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is discontinued for a period of eighteen months or more, or if construction is not completed within a reasonable period.

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

6. Pursuant to 326 IAC 2-7-10.5(l) the emission units constructed under this approval shall not be placed into operation prior to revision of the source's Part 70 Operating Permit to incorporate the required operation conditions.

This significant source modification authorizes construction of the new emission units. Operating conditions shall be incorporated into the Part 70 operating permit as a significant permit modification in accordance with 326 IAC 2-7-10.5(l)(2) and 326 IAC 2-7-12. Operation is not approved until the significant permit modification has been issued.

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 call (800) 451-6027, press 0 and ask for Dr. Tripurari Sinha or extension 3-3031, or dial (317) 233-3031.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

Attachments
TPS
cc: File - Tippecanoe County
Tippecanoe County Health Department
Air Compliance Section Inspector - Wanda Stanfield
Compliance Data Section
Administrative and Development

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

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

PREVENTION OF SIGNIFICANT DETERIORATION (PSD) and PART 70 SIGNIFICANT SOURCE MODIFICATION OFFICE OF AIR QUALITY

Tate and Lyle - Sagamore Plant
2245 North Sagamore Parkway
Lafayette, IN 47902

(herein known as the Permittee) is hereby authorized to construct subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this Permit.

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

This approval is issued in accordance with 326 IAC 2, 326 IAC 2-2, 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 approval also addresses certain new source review requirements for existing equipment 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.

PSD/Significant Source Modification 157-18832-00003	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: **September 13, 2005**

TABLE OF CONTENTS

SECTION B

G

GENERAL CONSTRUCTION CONDITIONS

B.1 Permit No Defense [IC 13-11 through 13-20][IC 13-22 through 13-25] [IC 13-17]

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

B.2 Effective Date of the Permit [IC 13-15-5-3]

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

B.3 Revocation of Permits [326 IAC 2-2-8]

Pursuant to 326 IAC 2-2-8(a)(1), this permit to construct shall expire if construction is not commenced within eighteen (18) months after receipt of this approval, if construction is discontinued for a period of eighteen (18) months or more, or if construction is not completed within a reasonable time. The IDEM may extend the eighteen (18) month period upon satisfactory showing that an extension is justified.

B.4 Modification to Construction Conditions [326 IAC 2]

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

SECTION D.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(a) Corn Receiving and Conveying Operations, consisting of:

(1) One (1) Railcar Corn Dump Hopper, identified as 12V101, constructed in 1966, with emissions controlled by baghouse, exhausting to stack 136;

(2) One (1) Truck Corn Dump Hopper, identified as 12V102, constructed in 1966, with emissions controlled by baghouse 21F1, exhausting to stack 136;

(3) One (1) Bucket Corn Elevator, identified as 12U2, constructed in 1976, with emissions controlled by baghouse 21F1, exhausting to stack 136;

(4) Two (2) Corn Transfer Conveyors, identified as 12U4 and 12U5, constructed in 1966, with emissions controlled by baghouse 21F1, exhausting to stack 136;

(5) Three (3) Corn Transfer Conveyors, identified as 13U6 through 13U8, constructed in 1986, with emissions controlled by baghouse 21F17, exhausting to stack 136;

(6) Two (2) Co-Product Loadout Conveyors, identified as 8U39 and 8U41, constructed in 1966, with emissions controlled by baghouse 21F17, exhausting to stack 136;

(7) One (1) Bucket Elevator from Silos to Steeps, identified as 14U9, constructed in 1966, with emissions controlled by baghouse 14F2, exhausting to stack 126;

(8) One (1) Corn Weigher, identified as 14V1, constructed in 1986, with emissions controlled by baghouse 14F2, exhausting to stack 126;

(9) Two (2) Corn Cleaners, identified as 14J4 and 14J5, constructed in 1992, with emissions controlled by baghouse 14F2, exhausting to stack 126;

(10) One (1) Corn Cleanings Pneumatic Transfer, identified as 21F2, constructed in 1966, with emissions controlled by baghouse 21F2, exhausting to stack 137;

(11) Five (5) Corn Storage Silos, identified as 13V1, 13V2, 13V3, 13V4 and 13V5, constructed in 1966, with emissions controlled by baghouse 21F1, exhausting to stack 136;

(12) Two (2) Corn Storage Silos, identified as 13VAA and 13VBB, to be constructed, with emissions controlled by baghouse 21F1, exhausting to stack 136;

(13) One (1) Vibrating Corn Cleaning System, identified as 14JAA, to be constructed, with emissions controlled by baghouse 14F2, exhausting to stack 126;

(14) One (1) Bucket Elevator from Silos to Steeps, identified as 14UBB, constructed in 1966, with emissions controlled by baghouse 14F2, exhausting to stack 126; and

(15) One (1) Vibrating Corn Cleaning Pneumatic Transfer, identified as 21FMM, to be constructed, with emissions controlled by baghouse 21FMM, exhausting to stack 394.

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

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

D.1.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2]

Pursuant to 326 IAC 2-2-3:

(a) The following emission units shall be controlled for PM and PM_{10} using best available control technology (BACT):

(1) Vibrating Corn Cleaning Screen Aspiration System 14JAA

(2) Corn Storage Silo 13VAA

(3) Corn Storage Silo 13VBB

(4) Vibrating Corn Cleaning Pneumatic Transfer 21FMM

(5) Corn Bucket Elevator – Silo to Steeps 14UBB

(b) Best available control technology (BACT) for PM and PM_{10} (Filterable and Condensable) is an emission rate of 0.005 gr/dscf for baghouses 14F2, 21F1and 21FMM, and 0.01 gr/dscf for baghouse 14F2 and

(1) The total PM /PM_{10} (Filterable and Condensible) emissions from baghouse 14F2, which controls Vibrating Corn Cleaning System 14JAA, and 14UBB in addition to emission units 14V1, 14J4, 14J5 and 14U9, shall be limited to 0.84 pounds per hour.

(2) The total PM /PM_{10} (Filterable and Condensible) emissions from baghouse 21F1, which controls Corn Silos 13VAA and 13VBB in addition to emission units 12V101, 12V102, 12U2, 12U4, 12U5, 13V1, 13V2, 13V3, 13V4 and 13V5, shall be limited to 0.86 pounds per hour.

(3) The total PM /PM_{10} (Filterable and Condensible) emissions from baghouse 21FMM, which controls Vibrating Corn Cleaning Pneumatic Transfer 21FMM, shall be limited to 0.015 pounds per hour.

(4) The opacity from the baghouses 14F2, 21F1, and 21FMM shall not exceed 3%.

D.1.2 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2] [40 CFR 52, Subpart P]

Pursuant to 326 IAC 6-3-2, particulate emissions from emission units 12V101, 12V102, 12U2, 12U4, 12U5, 13U6, 13U7, 13U8, 8U39, 8U41, 14V1, 14J4, 14J5, 14U9, 21F2, 13V1, 13V2, 13V3, 13V4, 13V5, 13VAA, 13VBB, 14JAA, 14UBB, and 21FMM (all emission units exhausting to stacks 136, 126, 137 and 394) shall be limited using one of the following equations (as applicable):

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

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

Or depending on the process weight rate:

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

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

Note that the specific 326 IAC 6-3-2 limits have not been listed here as the process throughput of the respective facilities is treated as confidential.

D.1.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these emission units and their baghouses.

Compliance Determination Requirements

D.1.4 Particulate Control

In order to comply with Conditions D.1.1 and D.1.2, baghouses 21F1, 21F17, 14F2, 21F2 and 21FMM, used for PM and PM_{10} control, shall be in operation and control emissions from emission units 12V101, 12V102, 12U2, 12U4, 12U5, 13U6, 13U7, 13U8, 8U39, 8U41, 1 4V1, 14J4, 14J5, 14U9, 21F2, 13V1, 13V2, 13V3, 13V4, 13V5, 13VAA, 13VBB, 14JAA, 14UBB, and 21FMM (all emission units exhausting to stacks 136, 126, 137 and 394) at all times when an emission unit that the baghouse controls is in operation.

D.1.5 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

(a) Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup of Vibrating Corn Cleaning Systems 14JAA, and 14UBB, the Permittee shall perform PM and PM_{10} testing on baghouse 14F2 to verify compliance with Condition D.1.1 (b) (1), utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

(b) Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup of Corn Silos 13VAA and 13VBB, the Permittee shall perform PM, and PM_{10} testing on baghouse 21F1 to verify compliance with Condition D.1.1(b)(2), utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. PM_{10} includes filterable and condensable PM_{10}. Testing shall be conducted in accordance with Section C- Performance Testing.

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

D.1.6 Visible Emissions Notations

(a) Visible emission notations of the exhaust from stacks 136, 126, 137, and 394 shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

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

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

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

(e) The Compliance Response Plan for these units shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

D.1.7 Monitoring for Baghouses

(a) The Permittee shall record the total static pressure drop across baghouses 21F1, 21F17, 14F2 and 21FMM, used in conjunction with emission units 12V101, 12V102, 12U2, 12U4, 12U5, 13U6, 13U7, 13U8, 8U39, 8U41, 14V1, 14J4, 14J5, 14U9, 13V1, 13V2, 13V3, 13V4, 13V5, 13VAA, 13VBB, 14JAA, 14UBB, and 21FMM, at least once per shift when the respective emission units are in operation.

(b) When, for any one reading, the pressure drop across the baghouse is outside the normal range of 1 and 8.0 inches of water or a range established during the last stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(c) The instruments used for determining the pressure shall comply with Section C- Pressure Gauge and other Instrument Specifications of this permit and shall be calibrated at least once every six (6) months.

D.1.8 Baghouse Inspections

(a) An external inspection of all baghouses, controlling particulate emissions from emission units 12V101, 12V102, 12U2, 12U4, 12U5, 13V1, 13V2, 13V3, 13V4, 13V5, 13VAA, 13VBB, 14U9, 14V1, 14J4, 14J5, 14JAA, 14UBB, and 21FMM (bags in baghouses 14F2, 21F1 and 21FMM) shall be performed at least once per calendar quarter. Inspections required by this condition shall not be performed in consecutive months.

(b) An internal inspection of all bags, controlling particulate emissions from emission units 12V101, 12V102, 12U2, 12U4, 12U5, 13U6, 13U7, 13U8, 8U39, 8U41, 14V1, 14J4, 14J5, 14U9, 21F2, 13V1, 13V2, 13V3, 13V4, 13V5, 13VAA, 13VBB, 14JAA, 14UBB, and 21FMM (bags in baghouses 14F2, 21F1, 21F2, 21F17 and 21FMM) shall be performed at least once per calendar year. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

(c) Inspections shall also be performed each time that a respective baghouse that has been secured and tagged as being out of service. All defective bags shall be replaced.

D.1.9 Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the

Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit. If operations continue after bag failure has been observed and it will be 10 (ten) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

(b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

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

D.1.10 Record Keeping Requirements

(a) To document compliance with Condition D.1.6, the Permittee shall maintain records of the visible emission notations of the stack exhaust.

(b) To document compliance with Condition D.1.7, the Permittee shall maintain records of the total static pressure drop during normal operation.

(c) To document compliance with Condition D.1.8, the Permittee shall maintain records of the results of the inspections.

(d) To document compliance with Condition D.1.3, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

D.1.11 Clean Unit [326 IAC 2-2.2-2]

Pursuant to 326 IAC 2-2.2-2,

(a) The following emissions units are classified as Clean Units for PM/PM_{10}:

New Units:

(1) Vibrating Corn Cleaning Screen Aspiration System 14JAA

(2) Corn Storage Silo 13VAA

(3) Corn Storage Silo 13VBB

(4) Vibrating Corn Cleaning Pneumatic Transfer 21FMM

(5) Corn Bucket Elevator – Silo to Steeps 14UBB

Existing Units:

(1) Railcar Corn Dump Hopper 12V101

(2) Truck Corn Dump Hopper 12V102

(3) Bucket Corn Elevator 12U2

(4) Two (2) Corn Transfer Conveyors 12U4 and 12U5

(5) Bucket Elevator from Silos to Steeps 14U9

(6) Corn Weigher, identified as 14V1

(7) Two Corn Cleaners 14J4 and 14J5

(8) Five Corn Storage Silos 13V1, 13V2, 13V3, 13V4 and 13V5

(b) The Clean Unit designations for the above emissions units are in effect for ten (10) years after the issuance date of the source modification permit or the date the emission's unit control technology is placed in service, whichever is later.

SECTION D.2 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(b) Wet Milling Operations, consisting of:

(1) One (1) Fiber Dewatering Screen, identified as 21F100, constructed in 1990, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(2) One (1) Fiber Dewatering Screen, identified as 21F101, constructed in 1997, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(3) One (1) Germ Distribution Conveyor, identified as 21U23, constructed in 1978, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(4) One (1) Gluten Filter Receiver Tank, identified as 21V57, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(5) One (1) Germ Scrubber Water Tank, identified as 21V130, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(6) One (1) Gluten Filter Bowl Drain Tank, identified as 21V159, constructed in 1990, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(7) One (1) Gluten Filter Wash Bar Trough Drain Tank, identified as 21V59, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(8) One (1) Fiber Filtrate Tank, identified as 21V58, constructed in 1990, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(9) One (1) Heavy Steep water Tank, identified as 21V56, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(10) One (1) Monitor Tank, identified as 15V210, constructed in 1990, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(11) Fourteen (14) Corn Steep tanks, identified as 14V3 through 14V16, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(12) Seven (7) Grit Starch Screens, identified as Grit Starch Screens 15J15-15J19, 15J21, and 15J22, constructed in 1990, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(13) One (1) Steeped Corn Separator, identified as 15J5A, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(14) One (1) First Pass Germ Feed Tank, identified as 15V23, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17.

(15) Steeped Corn Surge Hopper, identified as 15V21, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(16) One (1) Second Pass Germ Feed Tank, identified as 15V25, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(17) One (1) Grit Starch Feed Tank, identified as 15V26, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(18) Two (2) Germ Wash Screens, identified as 15J99 and 15J100, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(19) Three (3) Germ Washing Screens, identified as 15J101, 15J200, and 15J201, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(20) One (1) Light Steep water Receiver, identified as 14V19, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(21) Germ Wash Screens, identified as 15J53, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(22) One (1) Third Grind Tank, identified as 15V27, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(23) One (1) Clamshell Wash Water Tank, identified as 15V2, constructed in 1991, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(24) One (1) Clamshell Starch Receiver Tank, identified as 15V42, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(25) One (1) Second Grind Receiver Tank, identified as 15V24, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(26) One (1) First Grind receiver Tank, identified as 15V22, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(27) One (1) Steeped Corn Tank, identified as 14V17, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(28) One (1) Germ Water Tank, identified as 15V139, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(29) Thirty-six (36) Fiber Wash Screens, identified as 1st Stage through 5th Stage Fiber Wash Screens, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(30) One (1) Dent Starch Slurry Storage Tank, identified as 15V43, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(31) One (1) Steep water Head Tank, identified as 14V18, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(32) One (1) Mill Acid Tank, identified as 14V96, constructed in 1966, with emissions

controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(33) One (1) Primary Wash Box, identified as 15V17, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(34) One (1) Primary Wash Box, identified as 15V19, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(35) Five (5) Fiber Wash Receivers, identified as 15V110 through 15V114, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(36) One (1) Process Water Tank, identified as 15V30, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(37) One (1) Primary Wash Water Tank, identified as 15V41, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(38) One (1) Wash Water Surge Tank, identified as 15V38, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(39) One (1) Primary Feed Tank, identified as 15V34, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(40) One (1) Primary Underflow Tank, identified as 15V35, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(41) One (1) Gluten Thickener Feed Tank, identified as 15V36, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(42) One (1) Heavy Gluten Tank, identified as 15V37, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(43) One (1) Clarifier Feed Tank, identified as 15V40, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(44) One (1) MST Feed Tank, identified as 15V31, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(45) One (1) Gluten Vacuum Filter Pump, identified as 21C7, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(46) One (1) Gluten Vacuum Filter Pump, identified as 21C8, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(47) One (1) Gluten Vacuum Filter Pump, identified as 21C9, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(48) One (1) Gluten Vacuum Filter Pump, identified as 21C10, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(49) One (1) Gluten Vacuum Filter, identified as 21F7, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(50) One (1) Gluten Vacuum Filter, identified as 21F8, constructed in 1966, with

emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(51) One (1) Gluten Vacuum Filter, identified as 21F9, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(52) One (1) Gluten Vacuum Filter, identified as 21F10, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(53) One (1) High DS Starch Filter, identified as 18F510, constructed in 1995, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(54) One (1) High DS Starch Tank, identified as 18V520, constructed in 1995, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(55) One (1) High DS Starch Wash Water Tank, identified as 18V522, constructed in 1995, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(56) Two (2) Second Grind Screens, identified as 15J14, and 15J24, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(57) Six (6) Sixth Stage Fiber Wash Screens, identified as 15J86, 15J87, 15J88, 15J89, 15J220, and 15J221, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(58) One (1) Steep Acid Tank, identified as 14V20, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(59) One (1) Fiber Supply Tank, identified as 15V33, constructed in 2000, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(60) Eight (8) Steep Tanks, identified as 14VAA, 14VBB, 14VCC, 14VDD, 14VEE, 14VFF, 14VGG and 14VHH, to be constructed, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(61) One (1) High DS Starch Vacuum Filter, identified as 18FAA, to be constructed, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(62) One (1) Gluten Vacuum Filter, identified as 21FAA, to be constructed, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(63) One (1) Gluten Vacuum Filter Pump, identified as 21CBB, to be constructed, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(64) Fiber Dewatering Screens, identified as 21FNN, to be constructed, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17; and

(65) 18 Bldg. Process Tanks and screens, to be constructed, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17.

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

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

D.2.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3:

(a) The following emission units shall be controlled for sulfur dioxide (SO_2) and VOC using the BACT:

New Units:

(1) Steep Tanks 14VAA, 14VBB, 14VCC, 14VDD, 14VEE, 14VFF, 14VGG and 14VHH.

(2) High DS Starch Vacuum Filter 18FAA

(3) The "18 Building" Process Tanks and screens.

(4) Gluten Vacuum Filter 21FAA

(5) Gluten Vacuum Filter Pump 21CBB

(6) Fiber Dewatering Screens 21FNN

Existing Units:

15V210, 14V17, 14V18, 14V20, 14V96, 15J14, 15J24, 15J53, 15J5A, 15V110, 15V111, 15V112, 15V113, 15V114, 15V139, 15V17, 15V19, 15V2, 15V21, 15V22, 15V23, 15V24, 15V27, 15V30, 15V31, 15V34, 15V35, 15V36, 15V37, 15V38, 15V40, 15V41, 15V42, 15V43, 15J100, 15J15, 15J16, 15J17, 15J18, 15J19, 15J20, 15J21, 15J22, 15J220, 15J221, 15J86, 15J87, 15J88, 15J89, 15J99, 15V25, 15V26, 15V33, 14V10, 14V11, 14V12, 14V13, 14V14, 14V15, 14V16, 14V19, 14V3, 14V4, 14V5, 14V6, 14V7, 14V8, 14V9, 15J101, 15J200, 15J201, 18F510, 18V520, 18V522, 21F100, 21F101, 21U23, 21V130, 21V159, 21V56, 21V57, 21V58, 21V59, 21C7, 21F7, 21C8, 21F8, 21C9, 21F9, 21C10, 21F10, 15J60-15J67, 15J80-15J85, 15J68-15J71, 15J92, 15J 212, 15J213, 15J72-15J75, 15J91, 15J76-15J79, 15J90, 15J214, 15J215, 15J217-15J219, 18V413

(b) For these units, the BACT for SO_2 and VOC is the use of alkaline scrubber 15FAA and:

(1) the scrubber shall have a minimum 90% control efficiency of SO_2 and shall not exceed 8.17 lbs/hr SO_2 in the scrubber outlet, when the inlet SO_2 concentration to the scrubber is more than 150 ppmvw, and

(2) the scrubber shall have an outlet SO_2 concentration of less than15 ppmvw, and shall not exceed 8.17 lbs/hr SO_2 in the scrubber outlet if the inlet concentration of SO_2 is 150 ppmvw or less.

(3) the scrubber shall have a minimum 25% control efficiency of VOC and shall not exceed 27.0 lbs/hr.

D.2.2 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

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

Compliance Determination Requirements

D.2.3 Sulfur Dioxide (SO_2) and Volatile Organic Compounds (VOC) Control

In order to comply with Condition D.2.1, the scrubber 15FAA used for SO_2 and VOC control, shall be in operation and control SO2 and VOC emissions at all times when an emission unit that is being aspirated to the scrubber is in operation.

D.2.4 Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]

(a) Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup of the steep tanks, the Permittee shall perform SO_2 and VOC testing on scrubber 15FAA in order to verify compliance with D.2.1(b)(1), (2), and (3), utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

(b) These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C-Performance Testing.

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

D.2.5 Monitoring for Scrubber

(a) The Permittee shall monitor the pH of the scrubbing liquor and scrubber recirculation rate at least once per shift from scrubber 15FAA.

(b) The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and response steps for when the pH and flow rate readings are outside of the normal range for any one reading.

(1) The normal pH range for Scrubber 15FAA is 7.0 to 9.0 or a range established during the latest stack test. The minimum flow rate for Scrubber 15FAA is 400gpm or a minimum rate established during the latest stack test.

(c) A pH or flow reading that is outside the normal range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

(d) The instruments used for determining the pH and flow rate shall comply with Section C-Pressure Gauge and other Instrument Specifications and shall be calibrated at least once every six (6) months.

D.2.6 Scrubber Inspections

External Inspections of scrubber 15FAA shall be performed semiannually. Inspections required by this condition shall not be performed in consecutive months. Repairs or replacement of defective components shall be performed in accordance with the Preventive Maintenance Plan.

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

D.2.7 Record Keeping Requirements

(a) To document compliance with Condition D.2.5, the Permittee shall maintain records of the pH and scrubber recirculation rate from scrubber 15FAA at least once per shift.

(b) To document compliance with Conditions D.2.6, the Permittee shall maintain records of the results of the inspections.

(c) To document compliance with Condition D.2.2, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

D.2.8 Clean Unit [326 IAC 2-2.2-2]

Pursuant to 326 IAC 2-2.2-2,

(a) The following emissions units are classified as Clean Units for SO_2 and VOC:

New Units:

(1) Steep Tanks 14VAA, 14VBB, 14VCC, 14VDD, 14VEE, 14VFF, 14VGG and 14VHH.

(2) High DS Starch Vacuum Filter 18FAA

(3) The “18 Building” Process Tanks and screens.

(4) Gluten Vacuum Filter 21FAA

(5) Gluten Vacuum Filter Pump 21CBB

(6) Fiber Dewatering Screens 21FNN

Existing Units:

15V210, 14V17, 14V18, 14V20, 14V96, 15J14, 15J24, 15J53, 15J5A, 15V110, 15V111, 15V112, 15V113, 15V114, 15V139, 15V17, 15V19, 15V2, 15V21, 15V22, 15V23, 15V24, 15V27, 15V30, 15V31, 15V34, 15V35, 15V36, 15V37, 15V38, 15V40, 15V41, 15V42, 15V43, 15J100, 15J15, 15J16, 15J17, 15J18, 15J19, 15J20, 15J21, 15J22, 15J220, 15J221, 15J86, 15J87, 15J88, 15J89, 15J99, 15V25, 15V26, 15V33, 14V10, 14V11, 14V12, 14V13, 14V14, 14V15, 14V16, 14V19, 14V3, 14V4, 14V5, 14V6, 14V7, 14V8, 14V9, 15J101, 15J200, 15J201, 18F510, 18V520, 18V522, 21F100, 21F101, 21U23, 21V130, 21V159, 21V56, 21V57, 21V58, 21V59, 21C7, 21F7, 21C8, 21F8, 21C9, 21F9, 21C10, 21F10, 15J60-15J67, 15J80-15J85, 15J68-15J71, 15J92, 15J 212, 15J213, 15J72-15J75, 15J91, 15J76-15J79, 15J90, 15J214, 15J215, 15J217-15J219, 18V413

(b) The Clean Unit designations for the above emissions units are in effect for ten (10) years after the issuance date of the source modification permit or the date the emission's unit control technology is placed in service, whichever is later.

SECTION D.3 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(c) Feed/Meal/Germ Production Operations, consisting of:

(1) One (1) Feed Hopper, identified as 21V60, constructed in 1965, with emissions controlled by baghouse 21F14, exhausting indoors to stack 1;

(2) One (1) Meal Hopper, identified as 21V61, constructed in 1965, with emissions controlled by baghouse 21F15, exhausting indoors to stack 2;

(3) One (1) Rail Loadout Conveyor, identified as 12U11, constructed in 1991, with emissions controlled by baghouse 12F40, exhausting to stack 3;

(4) One (1) RST Fiber Pre-Dryer, identified as 21DAA. PM and PM_{10} emissions are controlled by product collector/cyclone 21FCC, then PM, PM_{10} and sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17;

(5) One (1) RST Germ Dryer, identified as 21DBB, PM and PM_{10} emissions are controlled by product collectors/cyclones 21FEE, then PM, PM_{10} and sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17. This new dryer will replace the three existing dryers;

(6) Three (3) existing steam tube dryers constructed in 1966, identified as 21D1, 21D2, and 21D3, PM and PM_{10} are controlled by scrubber 21F13, and exhausting to stack 17. These dryers will be shutdown after the new germ dryer starts up;

(7) One (1) Gluten Flash Dryer, identified as 48DAA. PM and PM1`0 emissions are controlled by product collectors/cyclones 48FAA-48FFF, then PM, PM_{10} and sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17;

(8) One (1) 21D6 natural gas, No. 2 fuel oil, or biogas fired Feed Dryer, identified as 21D6, constructed in 1966, with a heat input capacity of 30 MMBtu/hr. PM and PM10 emissions controlled by integral product collector/cyclone 21F26, then sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17.

(9) One (1) 21D7 natural gas, No. 2 fuel oil, or biogas fired Feed or Meal Dryer, identified as 21D7, constructed in 1966, with a heat input capacity of 30 MMBtu/hr. PM and PM10 emissions controlled by integral product collector/cyclone 21F27, then sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17.

(10) One (1) 21D8 natural gas, No. 2 fuel oil fired, or biogas fired Meal Dryer or backup Feed Dryer-identified as 21D8, constructed in 1966, with a heat input capacity of 30 MMBtu/hr. PM and PM_{10} emissions are controlled by integral

product collector/cyclone 21F28, then sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions are controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17;

(11) One (1) Feed Storage Bin, identified as 8V121, constructed in 1966, with emissions controlled by baghouse 8F1, exhausting to stack 110;

(12) One (1) Feed Storage Bin, identified as 8V122, constructed in 1966, with emissions controlled by baghouse 8F2, exhausting to stack 111;

(13) One (1) Feed Storage Bin, identified as 8V123, constructed in 1966, with emissions controlled by baghouse 8F3, exhausting to stack 112;

(14) One (1) Feed Storage Bin, identified as 8V124, constructed in 1966, with emissions controlled by baghouse 8F4, exhausting to stack 113;

(15) One (1) Feed/Meal Storage Bin, identified as 8V62, constructed in 1966, with emissions controlled by baghouse 8F62, exhausting to stack 114;

(16) One (1) Meal Storage Bin, identified as 8V63, constructed in 1966, with emissions controlled by baghouse 8F63, exhausting to stack 115;

(17) One (1) Meal/Germ Storage Bin, identified as 8V53, constructed in 1966, with emissions controlled by baghouse 8F53, exhausting to stack 116;

(18) One (1) Germ Storage Bin, identified as 8V54, constructed in 1966, with emissions controlled by baghouse 8F54, exhausting to stack 117;

(19) Two (2) Air Conveying Lines to Loadout, identified as AC23 and AC24, constructed in 1966, with emissions controlled by baghouse 12F39, exhausting to stack 125;

(20) One (1) Feed Mill, identified as 21G51, constructed in 1965, with emissions controlled by baghouse 21F37, exhausting to stack 141;

(21) One (1) Feed Mill, identified as 21G52, constructed in 1965, with emissions controlled by baghouse 21F38, exhausting to stack 142;

(22) One (1) D6 Dryer Air Conveying Line to Feed Mill, identified as AC6, constructed in 1966, with emissions controlled by baghouse 21F32, exhausting to stack 143;

(23) One (1) D7 Dryer Air Conveying Line to Feed Mill, identified as AC7, constructed in 1966, with emissions controlled by baghouse 21F35, exhausting to stack 144;

(24) One (1) D8 Dryer Air Conveying Line to Feed Mill, identified as AC8, constructed in 1966, with emissions controlled by baghouse 21F36, exhausting to stack 145;

(25) One (1) Bag Dump Station, identified as 8V99, constructed in 1966, with emissions controlled by baghouse 8F99, exhausting indoors to stack 285; and

(26) Two (2) Natural Gas / Biogas Fired Thermal Oxidation Units, identified as 48FGG and 48FHH, with heat input capacity of 5 million Btu per hour each.

(The information describing the process contained in this facility description box is descriptive information

and does not constitute enforceable conditions.)

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

D.3.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2]

Pursuant to 326 IAC 2-2-3:

(a) The following emission units shall be controlled for PM and PM_{10}, SO_2, VOC, and NOx using the BACT:

(1) Feed Dryer (21D6)

(2) Feed Dryer (21D7)

(3) Feed Dryer (21D8)

(4) RST Fiber Pre-Dryer (21DAA) – No NOx Emissions

(5) Rotary Steam Tube Germ Dryer (21DBB or 21D1 to 21D3) – No NOx Emissions

(6) Gluten Flash Dryer (48DAA)

(7) Regenerative Thermal Oxidizers (48FGG and 48FHH) – BACT only for NOx

(b) The following combined emission limits are established as BACT for the above dryers:

The BACT for PM, and PM_{10} (Filterable and Condensable) is an emission rate of 0.015 gr/scf; and

(1) the total PM, and PM_{10} (Filterable and Condensible) emissions from the thermal oxidizer shall be limited to 7.7 lbs/hr each; and

(2) the opacity from the thermal oxidizer shall not exceed 8%.

(c) For these units, the BACT for SO_2 is the use of pH adjusted scrubber 21F13. The followings are the BACT requirements for SO_2:

(1) The scrubber shall have a minimum 90% control efficiency of SO_2, and shall not exceed 5.97 lbs/hr SO_2 in the scrubber outlet, when the inlet SO_2 concentration to the scrubber is more than 100 ppmvw, and

(2) the scrubber shall have an outlet SO_2 concentration of less than 10 ppmvw and shall not exceed 5.97 lbs/hr SO_2 in the scrubber outlet if the inlet concentration of SO_2 is 100 ppmvw or less.

(d) For these units, the BACT for VOC is the use of the scrubber 21F13 followed by regenerative thermal oxidizers 48FGG and 48FHH; and

(1) When the inlet VOC emission rate to the scrubber is more than 100 lbs/hr, the scrubber and thermal oxidizers shall have a minimum overall 95% control efficiency of VOC, and shall not exceed 4.29 lbs/hr VOC in the thermal oxidizer

outlet; and

(2) If the inlet emission rate of VOC to the scrubber is 100 lbs/hr or less the thermal oxidizers shall have an outlet VOC concentration of less than 10 ppmvw and shall not exceed 4.29 lbs/hr VOC in the thermal oxidizer outlet.

(e) For these units and the regenerative thermal oxidizer, except the rotary steam tube germ dryer, and the rotary steam tube fiber predryer, the BACT for NOx is the use of low-NO_X burners rated at 0.06 lb/MMBtu or less and the total NOx emissions from these burners exhausting to stack S/V 17 shall not exceed 6.0 lbs/hr.

(f) The following existing emission units shall be controlled for PM and PM_{10} (Filterable and Condensable) using best available control technology (BACT):

(1) Feed Storage Bins 8V121, 8V123, 8V124

(2) Meal Storage Bin 8V63

(3) Meal/Germ Storage Bin 8V53

(4) Germ Storage Bin 8V54

For these units, the BACT for PM and PM_{10} is the use of fabric filter dust collectors rated at a maximum emission rate of 0.005 gr/dscf; and

(1) the total PM /PM_{10} (Filterable and Condensible) emissions from baghouses 8F1, 8F3, 8F4, 8F63, 8F53, and 8F54 shall be limited to 0.08 lbs/hr each; and

(2) the opacity from the baghouses shall not exceed 3%.

D.3.2 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2] [40 CFR 52, Subpart P]

Pursuant to 326 IAC 6-3-2, particulate emissions from emission units 21D1, 21D2, 21D3, 21D6, 21D7, 21D8, 21DAA, 21DBB, 48DAA, 21V60, 21V61, 12U11, 8V121 through 8V124, 8V62, 8V63, 8V53, 8V54, AC23, AC24, 21G51, 21G52, AC6, AC7, AC8, and 8V99 shall be limited using one of the following equations (as applicable):

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

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

Or depending on the process weight rate:

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

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

D.3.3 Sulfur Dioxide (SO_2) [326 IAC 7-1.1-2] [326 IAC 7-2-1]

Pursuant to 326 IAC 7-1.1-2 (SO_2 Emissions Limitations), the SO_2 emissions from combustion in dryers 21D6, 21D7, and 21D8 shall not exceed five-tenths (0.5) pounds per million Btu (MMBtu) per dryer when combusting No. 2 fuel oil. Pursuant to 326 IAC 7-2-1, compliance shall be demonstrated on a calendar month average. 326 IAC 7-1.1 and 326 IAC 7-2-1 are not federally enforceable.

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

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

Compliance Determination Requirements

D.3.5 Sulfur Dioxide Emissions and Sulfur Content

Pursuant to 326 IAC 3-7-4, the Permittee shall demonstrate compliance with D.3.3 utilizing one of the following options:

(a) Providing vendor analysis of fuel delivered, if accompanied by a vendor certification, or;

(b) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.

(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.

A determination of noncompliance pursuant to the methods specified above shall not be refuted by evidence of compliance pursuant to the other method.

D.3.6 Particulate, Volatile Organic Compounds (VOC), and Sulfur Dioxide (SO_2) Control

In order to comply with Conditions D.3.1(b), (c), and (d), and D.3.2, the scrubber 21F13 for particulate, VOC, and SO_2 control shall be in operation and control emissions from emission units 21D1, 21D2, 21D3, 21D6, 21D7, 21D8, 21DAA, 21DBB and 48DAA at all times when any emission unit that it controls is in operation. Only three of the four dryers 21D6, 21D7, 21D8, and 48DAA shall operate at one time.

D.3.7 Particulate Control

In order to comply with Conditions D.3.1(f) and D.3.2, baghouses, including those integral to the process, 21F14, 21F15, 12F40, 8F1, 8F2, 8F3, 8F4, 8F62, 8F63, 8F53, 8F54, 12F39, 21F37, 21F38, 21F32, 21F35, 21F36, and 8F99 for particulate control shall be in operation and control particulate emissions from emission units 21V60, 21V61, 12U11, 8V121 through 8V124, 8V62, 8V63, 8V53, 8V54, AC23, AC24, 21G51, 21G52, AC6, AC7, AC8, and 8V99 at all times when any emission unit that it controls is in operation.

D.3.8 Volatile Organic Compounds (VOC) Control

In order to comply with Condition D.3.1(d), the scrubber 21F13, and the Regenerative Thermal Oxidization Units 48FGG and 48FHH for VOC control shall be in operation and control emissions from emission units 21D1, 21D2, 21D3, 21D6, 21D7, 21D8, 21DAA, 21DBB and 48DAA at all times when any emission unit that it controls is in operation.

D.3.9 Thermal Oxidizer Temperature

(a) A continuous monitoring system shall be calibrated, maintained, and operated on the thermal oxidizers for measuring operating temperature. For purposes of this condition continuous shall mean temperature measurement no less than once per minute. The output of this system shall be recorded as 3- hour average. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall operate the thermal oxidizer at or above the 3- hour average temperature of 1400^oF.

(b) The Permittee shall determine the 3- hour average temperature from the most recent valid stack test that demonstrates compliance with limits in condition D.3.1(d), as approved by IDEM.

(c) On and after the date the approved stack test results are available, the Permittee shall operate the thermal oxidizer at or above the 3- hour average temperature as observed during the compliant stack test.

D.3.10 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

Within 60 days after achieving the maximum production rate for dryers 21DAA, 21DBB, and 48DAA but no later than 180 days after startup of the dryers, the Permittee shall perform PM, $PM_{10,}$ VOC, and SO_2 testing on scrubber 21F13 and Thermal Oxidation Units 48FGG and 48FHH in order to determine compliance with D.3.1 (b), (c),and (d) utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. PM_{10} includes filterable and condensable PM_{10}. Testing shall be conducted in accordance with Section C- Performance Testing.

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

D.3.11 Monitoring for Scrubber

(a) The Permittee shall monitor the pH of the scrubbing liquor and scrubber recirculation rates at least once per shift from scrubber 21F13.

(b) The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and response steps for when the pH readings are outside of the normal range, and below minimum flow rate for any one reading. The normal pH range for scrubber 21F13 is 5.0 to 8.0 or the range established during the latest stack test. The minimum 1-hr average flow rate for Scrubber 21F13 is 400 gpm or a minimum flow rate established during the latest stack test.

(c) A pH or flow reading that is outside the normal range or below the minimum flow rate for any one reading is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

(d) The instruments used for determining the pH and flow rate shall comply with Section C- Pressure Gauge and other Instrument Specifications and shall be calibrated at least once every six (6) months. The loss of monitoring data due to the calibration of an instrument while the equipment is in operation does not constitute a deviation from this permit.

D.3.12 Scrubber Inspections

An external inspection shall be performed semiannually for scrubber 21F13. Inspections required by this condition shall not be performed in consecutive months. Repairs or replacement of defective components shall be performed in accordance with the Preventive Maintenance Plan.

D.3.13 Visible Emissions Notations

(a) Visible emission notations of the exhaust from stacks 3 and 17 shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) Visible emission notations of the exhaust from stacks 110, 111, 112, 113, 114, 115, 116, and 117 shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

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

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

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

(f) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

D.3.14 Monitoring for Baghouses

(a) The Permittee shall record the total static pressure drop across the baghouse 12F40, used in conjunction with facility 12U11 at least once per shift when the respective facilities are in operation.

(b) The Permittee shall record the total static pressure drop across the baghouse, used in conjunction with facilities 8V121 through 8V124, 8V62, 8V63, 8V53, and 8V54 at least once per day when the respective facilities are in operation.

(c) When, for any one reading, the pressure drop across the baghouse are outside the normal range of 3.0 and 6.0 inches of water or a range established during the last stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(d) The instruments used for determining the pressure shall comply with Section C- Pressure Gauge and other Instrument Specifications of this permit and shall be calibrated at least once every six (6) months.

D.3.15 Baghouse Inspections

(a) An external inspection of the baghouse controlling particulate emissions from facility 12U11, shall be performed at least once per calendar quarter. Inspections required by this condition shall not be performed in consecutive months.

(b) An internal inspection of all bags, controlling particulate emissions from facilities 12U11, 8V121 through 8V124, 8V62, 8V63, 8V53, and 8V54, shall be performed at least once per calendar year. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

(c) Inspections shall also be performed each time that a respective baghouse that has been secured and tagged as being out of service. All defective bags shall be replaced.

D.3.16 Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit. If operations continue after bag failure has been observed and it will be 10 (ten) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

(b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

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

D.3.17 Record Keeping Requirements

(a) To document compliance with Condition D.3.3, the Permittee shall maintain records in accordance with (1) through (6) below.

(1) Calendar dates covered in the compliance determination period;

(2) Actual fuel oil usage since last compliance determination period and equivalent sulfur dioxide emissions; and

(3) To certify compliance when burning natural gas only, the Permittee shall maintain records of fuel used.

If the fuel supplier certification is used to demonstrate compliance, when burning alternate fuels and not determining compliance pursuant to 326 IAC 3-7-4, the following, as a minimum, shall be maintained:

(4) Fuel supplier certifications;

(5) The name of the fuel supplier; and

(6) A statement from the fuel supplier that certifies the sulfur content of the fuel oil.

The Permittee shall retain records of all recording/monitoring data and support information for a period of five (5) years, or longer if specified elsewhere in this permit, from the date of the monitoring sample, measurement, or report. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit.

(b) To document compliance with Condition D.3.11(a), the Permittee shall maintain records of the pH and scrubber recirculation rate from scrubber 21F13.

(c) To document compliance with Condition D.3.9, the Permittee shall maintain records of the operating temperatures of Thermal Oxidation Units 48FGG and 48FHH.

(d) To document compliance with Condition D.3.13, the Permittee shall maintain records of the visible emission notations of the stack exhaust.

(e) To document compliance with Condition D.3.14, the Permittee shall maintain records of the total static pressure drop during normal operation.

(f) To document compliance with Conditions D.3.12 and D.3.15, the Permittee shall maintain records of the results of the inspections.

(g) To document compliance with Condition D.3.4, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

D.3.18 Clean Unit [326 IAC 2-2.2-2]

Pursuant to 326 IAC 2-2.2-2,

(a) The following emissions units are classified as Clean Units for PM/PM_{10}:

(1) Feed Storage Bins 8V121, 8V123, 8V124

(2) Meal Storage Bin 8V63

(3) Meal/Germ Storage Bin 8V53

(4) Germ Storage Bin 8V54.

(b) The following emissions units are classified as Clean Units for PM/PM_{10}, SO_2 and VOC:

(1) Feed Dryer (21D6)

(2) Feed Dryer (21D7)

(3) Feed Dryer (21D8)

(4) RST Fiber Pre-Dryer (21DAA)

(5) Rotary Steam Tube Germ Dryer (21DBB or 21D1 to 21D3)

(6) Gluten Flash Dryer (48DAA).

(c) The following emissions units are classified as Clean Units for NOx:

(1) Feed Dryer (21D6)

(2) Feed Dryer (21D7)

(3) Feed Dryer (21D8)

(4) Gluten Flash Dryer (48DAA)

(5) Regenerative Thermal Oxidizers (48FGG and 48FHH) – BACT only for NOx.

(d) The Clean Unit designations for the above emissions units are in effect for ten (10) years after the issuance date of the source modification permit or the date the emission's unit control technology is placed in service, whichever is later.

SECTION D.4 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(d) Syrup Refining Operations, consisting of:

(1) One (1) GMH Storage Silo, identified as 9V32, constructed in 1966, with emissions controlled by baghouse 9F32, exhausting to stack 119;

(2) One (1) Filteraid Storage Silo, identified as 9V31, constructed in 1966, with emissions controlled by baghouse 9F31, exhausting to stack 123;

(3) One (1) Powdered Carbon Unloading, identified as 9C30, constructed in 1966, with emissions controlled by baghouse 9F30, exhausting to stack 124;

(4) One (1) Filteraid Conveying System to Precoat Makeup Tank, identified as 18C18, constructed in 1966, with emissions controlled by baghouse 18F118, exhausting to stack 129;

(5) One (1) Soda Ash Storage Tank, identified as 9C40, constructed in 1966, with emissions controlled by eductor/scrubber 9E1, exhausting to stack 149;

(6) One (1) HCl Storage Tank (Concentrated), identified as 9V101, constructed in 1995, with emissions controlled by scrubber 9F102, exhausting to stack 156;

(7) One (1) Jet Cooker system/Jet Conversion Flash Chamber, identified as 18V413, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(8) One (1) Jet Cooker system/Acid Reject Flash Chamber, identified as 18V312, constructed in 1966, with emissions uncontrolled, exhausting to stack 320;

(9) One (1) Powdered Carbon Storage Silo, identified as 9V30, constructed in 1966, with emissions controlled by baghouse 9F37, exhausting to stack 321;

(10) One (1) Refinery Reprocess Bag Dump, identified as 45C43, constructed in 2000, with emissions controlled by baghouse 45F43, exhausting indoors;

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

SECTION D.5 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(e) Starch Modification Operations, consisting of:

(1) One (1) Non-PO Reactor, identified as 45V115, constructed in 1966, exhausting to stack 11;

(2) One (1) Non-PO Reactor, identified as 45V116, constructed in 1966, exhausting to stack 12;

(3) One (1) Non-PO Reactor, identified as 45V222, constructed in 1973, exhausting to stack 31;

(4) One (1) PO Reactor, identified as 45V223, constructed in 1973, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(5) One (1) PO Reactor, identified as 45V240, constructed in 1986, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(6) One (1) PO Reactor, identified as 45V241, constructed in 1986, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(7) One (1) PO Reactor, identified as 45V242, constructed in 1986, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(8) One (1) PO Reactor, identified as 45V243, constructed in 1986, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(9) One (1) PO Reactor, identified as 45V246, constructed in 1988, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(10) One (1) PO Reactor, identified as 45V247, constructed in 1988, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(11) One (1) PO Reactor, identified as 45V248, constructed in 1991, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(12) One (1) PO Reactor, identified as 45V270, constructed in 1995, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(13) One (1) PO Reactor, identified as 45V271, constructed in 1995, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(14) One (1) PO Reactor, identified as 45V280, constructed in 2002, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(15) One (1) PO Reactor, identified as 45V281, constructed in 2002, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(16) One (1) Sodium Sulfate Storage Bin, identified as 45V250, constructed in 1985, with emissions controlled by two baghouses, 45F25 and 45F25a, exhausting to

stack 64;

(17) One (1) Tri-Polyphosphate Storage Bin, identified as 9V103, constructed in 1988, with emissions controlled by baghouse 9F103, exhausting to stack 68;

(18) Two (2) Flash 2 Slurry Hold Tanks, identified as 40V20 and 40V21, constructed in 1990, with emissions uncontrolled, exhausting to stack 80;

(19) Four (4) Belt Dryer Feed Tanks, identified as 45V117 through 45V120, constructed in 1966, with emissions uncontrolled, exhausting to stack 180;

(20) Two (2) Spray Dryer Feed Tanks, identified as 30V1 and 30V2, constructed in 1986, with emissions uncontrolled, exhausting to stack 195;

(21) Three (3) Spray Dryer Process Tanks, identified as 40V11, 40V12, and 40V14, constructed in 1988, with emissions uncontrolled, exhausting to stack 222;

(22) Four (4) Flash 2 Larox Filters, identified as 40F51, 40F52, and 40F53, constructed in 1995, and 40F54, constructed in 2002, with emissions uncontrolled, exhausting to stack 249;

(23) One (1) Dryer Starch Feed Conveyor/Flash 2 Paddle Mixer, identified as 40U23, constructed in 1995, with emissions uncontrolled, exhausting to stack 249;

(24) One (1) Flash 2 Air Release Tank, identified as 40V15, constructed in 1995, with emissions uncontrolled, exhausting to stack 250;

(25) Three (3) Flash 3 Larox Filters, identified as 43F71, 43F72, and 43F73, constructed in 1995, with emissions uncontrolled, exhausting to stack 260;

(26) One (1) Flash 3 Larox Air Release Tank, identified as 43V85, constructed in 1995, with emissions uncontrolled, exhausting to stack 261;

(27) Two (2) Flash 3 Slurry Hold Tanks, identified as 43V71 and 43V72, constructed in 1995, with emissions uncontrolled, exhausting to stack 273;

(28) One (1) Flash 1 Starch Hold Tank, identified as 40V50, constructed in 1996, with emissions uncontrolled, exhausting to stack 289;

(29) One (1) Conveyor 40U2, identified as 40U2, constructed in 1985, with emissions uncontrolled, exhausting to stack 315;

(30) One (1) Flash 1 Slurry Hold Tank, identified as 40V1, constructed in 1985, with emissions uncontrolled, exhausting to stack 315;

(31) One (1) Filtrate Reineveldt Centrifuge Flash Dryer 1, identified as 40Y1, with emissions uncontrolled, constructed in 1985, exhausting to stack 315;

(32) One (1) Flash 3 Larox Air Release Tank, identified as 43V86, constructed in 1995, with emissions uncontrolled, exhausting to stack 318;

(33) One (1) Starch Feed Bin, identified as 33V1, constructed in 1995, with emissions controlled by baghouse 33F1, exhausting via vent 236 to stack 355;

(34) One (1) Starch Feed Bin, identified as 33V2, constructed in 1995, with emissions

controlled by baghouse 33F2, exhausting via vent 237 to stack 355;

(35) One (1) Low Pressure Dry Starch Reactor, identified as 33R1, constructed in 1995, with emissions controlled by baghouses 33F101 and 33F102, exhausting to stack 238;

(36) One (1) Catalyst Bin, identified as 33V5, constructed in 1995, with emissions controlled by baghouse 33F5, exhausting to stack 239;

(37) One (1) High Pressure Dry Starch Reactor, identified as 33R2, constructed in 1995, with emissions controlled by baghouses 33F201 and 33F202, exhausting to stack 240;

(38) One (1) Reactor Surge Bin, identified as 50V61, constructed in 1997, with emissions controlled by baghouse 50F161, exhausting via vent 241 to stack 361;

(39) One (1) Reactor Surge Bin, identified as 50V62, constructed in 1997, with emissions controlled by baghouse 50F162, exhausting via vent 242 to stack 361;

(40) One (1) Dry Starch Product Screening Receiver, identified as 50F48, constructed in 1997, with emissions controlled by baghouse 50F48, exhausting via vent 243 to stack 355;

(41) One (1) Dry Starch Blend Bin, identified as 33V42, constructed in 1995, with emissions controlled by baghouse 33F42, exhausting via vent 244 to stack 355;

(42) One (1) Dry Starch Blend Bin, identified as 33V43, constructed in 1995, with emissions controlled by baghouse 33F43, exhausting via vent 245 to stack 355;

(43) One (1) Dry Starch Blend Bin, identified as 33V40, constructed in 1995, with emissions controlled by baghouse 33F40, exhausting via vent 246 to stack 355;

(44) One (1) Dry Starch Blend Bin, identified as 33V41, constructed in 1995, with emissions controlled by baghouse 33F41, exhausting via vent 247 to stack 355;

(45) One (1) Dry Starch Product Screening Receiver, identified as 50F45, constructed in 1997, with emissions controlled by baghouse 50F45, exhausting via vent 262 to stack 355;

(46) One (1) Flash 2 Air Release Tank, identified as 40V16, constructed in 2002, with emissions uncontrolled, exhausting to stack 251;

(47) Six (6) Propylated Starch Reactors, identified as 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF, with VOC emissions controlled by packed bed scrubbers 45FAA or 45F212, exhausting to stack 399 or stack 50;

(48) One (1) Sodium Sulfate Storage Bin, identified as 45BVAA, with emissions controlled by baghouse 45BFAA, exhausting to stack 400;

(49) Two (2) Flash 4 Slurry Hold Tanks, identified as 44V1 and 44V2, with emissions uncontrolled, exhausting to stack 419;

(50) Three (3) Flash 4 Larox Filters, identified as 44FKK, 44FLL and 44FMM, with emissions uncontrolled, exhausting to stack 420;

(51) One (1) Flash 4 Larox Filter Feed Tank, identified as 44V3, with emissions uncontrolled, exhausting to stack 420;

(52) One (1) Flash 4 Larox Air Release Tank, identified as 44V4, with emissions uncontrolled, exhausting to stack 421;

(53) One (1) Flash 4 Larox Air Release Tank, identified as 44V5, with emissions uncontrolled, exhausting to stack 422;

(54) Two (2) Spray dryer 2 Feed Tanks, identified as 46V1 and 46V2, with emissions uncontrolled, exhausting to stack 423;

(55) One (1) Spray dryer 2 Overflow Tank, identified as 46V3 with emissions uncontrolled, exhausting to stack 424;

(56) One (1) Spray dryer 2 Bowl Drain Tank, identified as 46V4 with emissions uncontrolled, exhausting to stack 424;

(57) One (1) Spray dryer 2 Under Flow Tank, identified as 46V5 with emissions uncontrolled, exhausting to stack 424;

(58) One (1) Raw Starch Storage Bin, identified as 20VAA, with emissions controlled by baghouse 20FAA, exhausting to stack 369;

(59) One (1) Raw Starch Storage Bin, identified as 20VBB, with emissions controlled by baghouse 20FBB, exhausting to stack 370;

(60) One (1) Starch Slurry Storage Tank, identified as 18AVAA, with emissions controlled by baghouse 18AFAA, exhausting to stack 371;

(61) One (1) Starch Feed Bin, identified as 41VAA, with emissions controlled by baghouse 41FKK, exhausting to stack 372;

(62) One (1) Starch Weigh Bin, identified as 33VAA, with emissions controlled by baghouse 33FAA, exhausting to stack 373;

(63) One (1) Dextrin Fluidizer Reactor, identified as 33RAA, with emissions controlled by cyclone 33FBB and baghouse 33FCC, exhausting to stack 374;

(64) One (1) Dextrin Fluidizer Surge Bin, identified as 33VBB, with emissions controlled by baghouse 33FDD, exhausting via vent 375 to stack 355;

(65) One (1) Dextrin Blending and Storage Bin, identified as 33VCC, with emissions controlled by baghouse 33FFF, exhausting via vent 377 to stack 355;

(66) One (1) Dextrin Blending and Storage Bin, identified as 33VDD, with emissions controlled by baghouse 33FGG, exhausting via vent 378 to stack 355; and

(67) One (1) Dextrin Product Screening Receiver, identified as 33FEE, with emissions controlled by baghouse 33FEE, exhausting via vent 376 to stack 355.

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

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

D.5.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2]

Pursuant to 326 IAC 2-2-3:

(a) The following emission units shall be controlled for PM and PM_{10} using best available control technology (BACT):

(1) Sodium Sulfate Storage Bin 45BVAA

(2) Raw Starch Storage Bin 20VAA

(3) Raw Starch Storage Bin 20VBB

(4) Starch Slurry Storage Tank 18AVAA

(5) Starch Feed Bin 41VAA

(6) Starch Weigh Bin 33VAA

(7) Dextrin Fluidizer Reactor 33RAA

(8) Dextrin Fluidizer Surge Bin 33VBB

(9) Dextrin Blending and Storage Bin 33VCC

(10) Dextrin Blending and Storage Bin 33VDD

(11) Dextrin Product Screening Receiver 33FEE

For these units, the BACT for PM, and PM10 (Filterable and Condensable) is the use of fabric filter dust collectors with an emission rate of 0.005 gr/dscf and

(1) as given in the following table:

Emission Units	Control Device ID	Total PM /PM10 (Filterable and Condensible) Emissions Rate (lbs/hr)
45BVAA	45BFAA	0.06
20VAA	20FAA	0.09
20VBB	20FBB	0.09
18AVAA	18AFAA	0.06
41VAA	41FKK	0.09
33VAA	33FAA	0.05
33RAA	33FCC	0.16
33VBB	33FDD	0.04
33VCC	33FFF	0.13
33VDD	33FGG	0.13
33FEE	33FEE	0.07; and

(2) the opacity from the baghouses shall not exceed 3%.

(b) The following emission units shall be controlled for VOC using BACT:

Six (6) Propylated Starch Reactors, identified as 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF.

VOC BACT has been determined to be the use of a low pH packed bed scrubber and hydrolysis and

(1) a VOC emission rate of 3.25 lb per 100,000 lb of acid-killed starch and 6.0 lb per 100,000 lb of non-acid-killed starch for Propylene Oxide Starch Reactors ((equivalent to minimum 95% overall control efficiency); and

(2) the combined propylene oxide input to emission units 45VAA, 45VBB, 45VCC, 45VDD, 45VEE, 45VFF, 40V1, 40U2, 40Y1, 40V50, 40V20, 40V21, 40V15, 40V16, 40F51, 40F52, 40F53, 40F54, 40U23, 43V71, 43V72, 43F71, 43F72, 43F73, 43V85, 43V86, 45V117, 45V118, 45V119, 45V120, 30V1, 30V2, 40V12, 40V11, 40V14, 45V223, 45V240, 45V241, 45V242, 45 V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, 44V1, 44V2, 44V3, 44V4, 44V5, 44FKK, 44FLL, 44FMM, 46V1, 46V2, 46V3, 46V4, 46V5, 40D1, 40D20, 43D71, 41D1, 41D2, 41D3, 41D4, 41D5, 41D6, 41D7, 41D8, 41D9, 41D10, 41D11, 41D12, 41D13, 41D14, 30D1, 16D4, 16D5, 44DAA, and 46DAA shall not exceed 1500 tons per twelve consecutive month period for propylated starch reactions that do not undergo the acid-kill step.

D.5.2 Prevention of Significant Deterioration Minor Limit [326 IAC 2-2]

Pursuant to CP 157-4195-00003, issued August 25, 1995, as amended by A 157-6170-00003, issued July 26, 1996, the particulate matter emissions are limited as indicated in the table below:

Facility	Stack	PM/PM_{10} emission limit (lb/hr)	PM/PM_{10} emission limit (ton/12mo*)
Starch Feed Bin (33V1)	236	0.29	1.26
Starch Feed Bin (33V2)	237	0.29	1.26
Low Pressure Dry Starch Reactor (33R1)	238	0.078	0.34
Catalyst Storage Bin (33V5)	239	0.034	0.15
Dry Starch Blend Bins (33V42, 33V43, 33V40, and 33V41)	244, 245, 246, 247	0.55	2.4
Dry Starch Product Screening Receiver (50F45)	262	0.07	0.31

*12 mo - Twelve consecutive month period with compliance determined at the end of each month.

Compliance with these limits shall render the requirements of 326 IAC 2-2 not applicable to emission units 33V1, 33V2, 33R1, 33V5, 33V42, 33V43, 33V40, 33V41 and 50F45.

D.5.3 Sulfur Dioxide (SO_2) Emission Limitation

The amount of acid-thinned starch produced from the reactors 45V115, 45V116, and 45V222 is limited to fifty million (50,000,000) pounds per twelve (12) consecutive month period with compliance determined at the end of each month.

This voluntary limit, based on sulfur dioxide (SO_2) emissions of 43 pounds SO_2 per 100,000 pounds of acid-thinned starch, has been incorporated to limit the potential to emit SO_2 from reactors 45V115, 45V116, and 45V222 to 10.8 tons per year.

D.5.4 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2] [40 CFR 52, Subpart P]

Pursuant to 326 IAC 6-3-2, particulate emissions from emission units 45V250, 9V103, 33V1, 33V2, 33R1, 33V5, 33R2, 50V61, 50V62, 33V42, 33V43, 33V40, 33V41, 50F45, 50F48, 45BVAA, 20VAA, 20VBB, 18AVAA, 41VAA, 33VAA, 33RAA, 33VBB, 33VCC, 33VDD, and 33FEE shall be limited using one of the following equations (as applicable):

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

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

Or depending on the process weight rate:

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

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

Note that the specific 326 IAC 6-3-2 limits have not been listed here as the process throughput of the respective facilities is being treated as confidential.

D.5.5 Volatile Organic Compounds (VOC) BACT [326 IAC 8-1-6] [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3, and 326 IAC 8-1-6, the VOC BACT for emission units 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, and 45V281, 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF shall be the use of the scrubbers 45F212, and 45FAA ; and

(a) The VOC emissions from the scrubbers 45F212, and 45FAA controlling emissions from emission units 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF shall not exceed 3.25 lb per 100,000 lb of acid-killed starch and 6.0 lb per 100,000 lb of non-acid-killed starch (equivalent to a minimum 95% overall control efficiency).

(b) The combined propylene oxide input to emission units (listed in Section D.5) , 45VAA, 45VBB, 45VCC, 45VDD, 45VEE, 45VFF, 40V1, 40U2, 40Y1, 40V50, 40V20, 40V21, 40V15, 40V16, 40F51, 40F52, 40F53, 40F54, 40U23, 43V71, 43V72, 43F71, 43F72, 43F73, 43V85, 43V86, 45V117, 45V118, 45V119, 45V120, 30V1, 30V2, 40V12, 40V11, 40V14, 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, 44V1, 44V2, 44V3, 44V4, 44V5,44FKK, 44FLL, 44FMM, 46V1, 46V2, 46V3, 46V4, 46V5 (listed in Section D.6) 40D1, 40D20, 43D71, 41D1, 41D2, 41D3, 41D4, 41D5, 41D6, 41D7, 41D8, 41D9, 41D10, 41D11, 41D12, 41D13, 41D14, 30D1, 16D4, 16D5, 44DAA, and 46DAA shall not exceed 1500 tons per twelve consecutive month period for propylated starch reactions that do not undergo the acid-kill step with compliance determined at the end of each month.

D.5.6 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

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

Compliance Determination Requirements

D.5.7 Volatile Organic Compounds (VOC) Control

Pursuant to CP 157-10232-00003, issued October 12, 1999, and in order to comply with Conditions D.5.1(b) and D.5.5(a), scrubbers 45FAA, and 45F212, shall be in operation and control VOC emissions from emission units 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF at all times any of those emission units are in operation.

D.5.8 Particulate Control

In order to comply with Conditions D.5.1(a), D.5.2 and D.5.4, baghouses, including those integral to the process, 45F25, 45F25a, 9F103, 33F1, 33F2, 33F101, 33F102, 33F5, 33F201, 33F202, 50F161, 50F162, 50F48, 33F42, 33F43, 33F40, 33F41, 50F45, 45BFAA, 20FAA, 20FBB, 18AFAA, 41FKK, 33FAA, 33FCC, 33FDD, 33FEE, 33FFF, and 33FGG for particulate control shall be in operation and control particulate emissions at all times when an emission unit that it controls is in operation.

D.5.9 Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]

(a) Within 60 days after achieving the maximum production rate, but no later than 180 days after startup, the Permittee shall perform PM and PM_{10} testing on Dextrim Fluidizer Reactor baghouse 33FCC, and one of Dextrim storage and blending bins baghouses 33FFF or 33FGG, to verify compliance with Condition D.5.1(a), utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

(b) Within 60 days after achieving the maximum production rate, but no later than 180 days after startup, the Permittee shall perform VOC testing on packed bed scrubber 45FAA, to verify compliance with Condition D.5.1(b), utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

(c) Within 60 days after achieving the maximum production rate, but no later than 180 days after startup of emission unit 45VAA, the Permittee shall perform VOC testing on 45F212, to verify compliance with Condition D.5.5(a), utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

These tests shall be repeated at least once every five years from the date of this valid compliance demonstration. PM_{10} includes filterable and condensable PM_{10}.Testing shall be conducted in accordance with Section C - Performance Testing.

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

D.5.10 Visible Emissions Notations

(a) Visible emission notations of the exhaust from stack 355, exhausting emissions from emission units 33V1, 33V2, 33V40, 33V41, 33V42, 33V43, 50F48, 50 F45, 33VBB, 33VCC, 33VDD and 33FEE in addition to emission units (listed in Section D.6) 41C30, 41C35, 41FAA, 41G202 and emission units (listed in Section D.7) 41F7, 41Z5, 41F18, 41Z3, 41F8, 41F81, 41F82, and 41FCC, shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) Visible emission notations of the exhaust from stack 361, exhausting emissions from emission units 50V61 and 50V62 in addition to emission units (listed in Section D.6) 50D101, 50F106, 51DAA and emission unit (listed in Section D.7) 41F44 and 51FDD, shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(c) Visible emission notations of the exhaust from stacks 64, 68, and 240 shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

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

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

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

(g) The Compliance Response Plan for these units shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

D.5.11 Monitoring for Scrubbers

(a) The Permittee shall monitor the pH of the scrubbing liquid and exhaust air stream pressure drop across the scrubber at least once per shift for each of scrubbers 45FAA and 45F212. The normal pH range for scrubber 45FAA is 0.5 to 4.0 or the range established during the latest stack test. The normal pH range for scrubber 45F212 is 0.5 to 4.0 or the range established during the latest stack test. The normal pressure drop range for scrubber 45FAA and fan is 1 to 6.0 inches or the range established during the latest stack test. The normal pressure drop range for scrubber 45F212 and fan is 1 to 6.0 inches or the range established during the latest stack test.

(a) A continuous monitoring system shall be installed and operated at all times when either scrubber 45FAA or 45F212 is in operation. The monitoring system shall continuously measure and record the scrubbers' recirculation rate for each of the scrubbers 45FAA and 45F212. The minimum flow rate for scrubber 45FAA is 390 gallon per minute or a minimum flow rate established during the latest stack test. The minimum flow rate for scrubber 45F12 is 390 gallon per minute or a minimum flow rate established during the latest stack test.

(b) The Compliance Response Plan for the scrubbers shall contain troubleshooting contingency and response steps for when the pH or pressure drop readings are outside of the normal range for any one reading or when any flow rate is below the minimum flow rate.

(c) A pH or pressure drop that is outside the normal range or the flow rate reading that is below the minimum flow rate is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(d) The instruments used for determining the pH, pressure drop, and flow rate shall comply with Section C- Pressure Gauge and other Instrument Specifications and shall be calibrated at least once every six (6) months. The loss of monitoring data due to the calibration of an instrument while the equipment is in operation does not constitute a deviation from this permit.

D.5.12 Scrubbers Inspections

External inspection of scrubbers 45FAA and 45F212 shall be performed semi-annually. Inspections required by this condition shall not be performed in consecutive months Repairs or replacement of defective components shall be performed in accordance with the Preventive Maintenance Plan.

D.5.13 Monitoring for Baghouses

(a) The Permittee shall record the total static pressure drop across baghouses 45BFAA, 20FAA, 20FBB, 18AFAA, 41FKK, 33FAA, 33FCC, 33FDD, 33FEE, 33FFF and 33FGG, used in conjunction with emission units 45BVAA, 20VAA, 20VBB, 18AVAA, 41VAA, 33VAA, 33RAA, 33VBB, 33VCC, 33VDD, and 33FEE, at least once per shift when the respective facilities are in operation.

(b) The Permittee shall record the total static pressure drop across baghouses 50F161 and 50F162, used in conjunction with emission units 50V61 and 50V62, at least once per shift when the respective emission units are in operation.

(c) The Permittee shall record the total static pressure drop across baghouses 45F25, 45F25a, 9F103, 33F201, and 33F202, used in conjunction with facilities 45V250, 9V103, and 33R2, at least once per day when the respective facilities are in operation.

(d) When, for any one reading, the pressure drop across the baghouses are outside the normal range of 1 and 8.0 inches of water or a range established during the last stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(e) The instruments used for determining the pressure shall comply with Section C- Pressure Gauge and other Instrument Specifications of this permit and shall be calibrated at least once every six (6) months.

D.5.14 Baghouse Inspections

(a) An external inspection of the baghouses controlling particulate emissions from emission units 45BVAA, 20VAA, 20VBB, 18AVAA, 41VAA, 33VAA, 33RAA, 33VBB, 33VCC, 33VDD, and 33FEE shall be performed at least once per calendar quarter. Inspections required by this condition shall not be performed in consecutive months.

(b) An external inspection of the baghouses controlling particulate emissions from facilities 50V61 and 50V62, shall be performed at least once per calendar quarter. Inspections required by this condition shall not be performed in consecutive months.

(c) An internal inspection of all bags, controlling particulate emissions from facilities 45V250, 9V103, and 33R2, shall be performed at least once per calendar year. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

(d) Inspections shall also be performed each time that a respective baghouse that has been secured and tagged as being out of service. All defective bags shall be replaced.

D.5.15 Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if there are no visible emissions or if the event qualifies as an emergency and the Permittee satisfies the emergency provisions of this permit (Section B- Emergency Provisions). Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

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

D.5.16 Record Keeping Requirements

(a) To document compliance with Condition D.5.3, the Permittee shall maintain monthly records of the amount of acid-thinned starch produced from 45V115, 45V116, and 45V222.

(b) To document compliance with Condition D.5.5(b), the Permittee shall maintain monthly records for propylated starch reactions that do not undergo the acid-kill step to facilities 45VAA, 45VBB, 45VCC, 45VDD, 45VEE, 45VFF, 40V1, 40U2, 40Y1, 40V50, 40V20, 40V21, 40V15, 40V16, 40F51, 40F52, 40F53, 40F54, 40U23, 43V71, 43V72, 43F71, 43F72, 43F73, 43V85, 43V86, 45V117, 45V118, 45V119, 45V120, 30V1, 30V2, 40V12, 40V11, 40V14, 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, 44V1, 44V2, 44V3, 44V4, 44V5, 44FKK, 44FLL, 44FMM, 46V1, 46V2, 46V3, 46V4, 46V5, 40D1, 40D20, 43D71, 41D1, 41D2, 41D3, 41D4, 41D5, 41D6, 41D7, 41D8, 41D9, 41D10, 41D11, 41D12, 41D13, 41D14, 30D1, 16D4, 16D5, 44DAA, and 46DAA. Note that this record is the same record as required in Condition D.6.14(a).

(c) To document compliance with Condition D.5.10, the Permittee shall maintain records of visible emission notations of the stacks' exhaust.

(d) To document compliance with Condition D.5.11, the Permittee shall maintain records of the following with respect to each of scrubbers 45FAA and 45F212:

(1) The pH of the scrubbing liquid and exhaust air stream pressure drop across the scrubber at least once per shift, and

(2) The scrubber recirculation rate as read by the continuous monitor.

(e) To document compliance with Condition D.5.13, the Permittee shall maintain records of the total static pressure drop during normal operation.

(f) To document compliance with Conditions D.5.12, and D.5.14, the Permittee shall maintain records of the results of the inspections.

(g) To document compliance with Condition D.5.6, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

D.5.17 Clean Unit [326 IAC 2-2.2-2]

Pursuant to 326 IAC 2-2.2-2,

(a) The following emissions units are classified as Clean Units for PM/PM_{10}:

(1) Sodium Sulfate Storage Bin 45BVAA

(2) Raw Starch Storage Bin 20VAA

(3) Raw Starch Storage Bin 20VBB

(4) Starch Slurry Storage Tank 18AVAA

(5) Starch Feed Bin 41VAA

(6) Starch Weigh Bin 33VAA

(7) Dextrin Fluidizer Reactor 33RAA

(8) Dextrin Fluidizer Surge Bin 33VBB

(9) Dextrin Blending and Storage Bin 33VCC

(10) Dextrin Blending and Storage Bin 33VDD

(11) Dextrin Product Screening Receiver 33FEE

(b) Pursuant to 326 IAC 2-2.2-2, the following emissions units are classified as Clean Units for VOC:

Six (6) Propylated Starch Reactors, identified as 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF.

(c) The Clean Unit designations for the above emissions units are in effect for ten (10) years after the issuance date of the source modification permit or the date the emission's unit control technology is placed in service, whichever is later.

SECTION D.6 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(f) Starch Drying and Handling Operation, consisting of:

(1) One (1) Starch Flash Dryer #1, identified as 40D1, constructed in 1986, a heat input capacity of 14.4 MMBtu/hr, with emissions controlled by integral product collector/cyclones 40F1 and 40F2 and scrubber 40F3, exhausting to stack 69;

(2) One (1) Pneumatic Product Transfer, identified as 40F7, constructed in 1986, with emissions controlled by 40F7, exhausting to stack 70;

(3) One (1) Starch Storage Bin #8, identified as 7V8, constructed in 1986, with emissions controlled by baghouse 7F8, exhausting to stack 71;

(4) One (1) Starch Storage Bin #9, identified as 7V9, constructed in 1986, with emissions controlled by baghouse 7F9, exhausting to stack 72;

(5) One (1) Starch Flash Dryer #2, identified as 40D20, constructed in 1990 and modified in 1991, a heat input capacity of 40 MMBtu/hr, with emissions controlled by integral product collector/cyclones 40F20 through 40F25 and scrubber 40F26, exhausting to stack 73;

(6) One (1) Starch Product Bin #20, identified as 7V20, constructed in 1992, with emissions controlled by baghouse 7F20, exhausting to stack 76;

(7) One (1) Starch Product Bin #21, identified as 7V21, constructed in 1992, with emissions controlled by baghouse 7F21, exhausting to stack 77;

(8) One (1) Starch Product Bin #22, identified as 7V22, constructed in 1992, with emissions controlled by baghouse 7F22, exhausting to stack 78;

(9) One (1) Starch Grinder/Mill #1, identified as 40G20, constructed in 1990, with emissions controlled by baghouse 40F28, exhausting via vent 286 to stack 360;

(10) One (1) Starch Grinder/Mill #2, identified as 40G21, constructed in 1990, with emissions controlled by baghouse 40F29, exhausting exhausting via vent 287 to stack 360;

(11) One (1) Grinder Feed Collector 40F27, identified as 40F27, constructed in 1990, with emissions exhausting to the intake of bins 7V20, 7V21, 7V22 and 7V23;

(12) One (1) Starch Flash Dryer #3, identified as 43D71, constructed in 1995, a heat input capacity of 40 MMBtu/hr, with emissions controlled by integral product collector/cyclones 40F81 through 40F86 and scrubber 43F80, exhausting to stack 265;

(13) One (1) Flash #3 Mill, identified as 40G88, constructed in 1996, with emissions controlled by baghouse 40F88, exhausting to stack 266;

(14) One (1) Starch Bin #33, identified as 7V23 (formerly identified as 7V33), constructed in 1995, with emissions controlled by baghouse 7F33, exhausting to

stack 267;

(15) One (1) Starch Bin #34, identified as 7V34, constructed in 1995, with emissions controlled by baghouse 7F34, exhausting to stack 268;

(16) One (1) Starch Bin #35, identified as 7V35, constructed in 1995, with emissions controlled by baghouse 7F35, exhausting to stack 269;

(17) One (1) Adipic Acid Storage Bin, identified as 43V90, constructed in 1996, with emissions controlled by baghouse 43F90, exhausting to stack 274;

(18) One (1) Starch Transfer Bin #91, identified as 7V91, constructed in 1999, with emissions controlled by baghouse 7F91, exhausting to stack 345;

(19) One (1) Starch Transfer Bin #92, identified as 7V92, constructed in 1999, with emissions controlled by baghouse 7F92, exhausting to stack 346;

(20) One (1) Starch Roll Dryer #1, identified as 41D1, constructed in 1986, with emissions uncontrolled, exhausting to stack 91;

(21) One (1) Starch Roll Dryer #2, identified as 41D2, constructed in 1986, with emissions uncontrolled, exhausting to stack 92;

(22) One (1) Starch Roll Dryer #3, identified as 41D3, constructed in 1986, with emissions uncontrolled, exhausting to stack 93;

(23) One (1) Starch Roll Dryer #4, identified as 41D4, constructed in 1993, with emissions uncontrolled, exhausting to stack 94;

(24) One (1) Starch Roll Dryer #5, identified as 41D5, constructed in 1995, with emissions uncontrolled, exhausting to stack 232;

(25) One (1) Starch Roll Dryer #6, identified as 41D6, constructed in 1995, with emissions uncontrolled, exhausting to stack 233;

(26) One (1) Starch Roll Dryer #7, identified as 41D7, constructed in 1997, with emissions uncontrolled, exhausting to stack 234;

(27) One (1) Starch Roll Dryer #8, identified as 41D8, constructed in 2000, with emissions uncontrolled, exhausting to stack 235;

(28) One (1) Pneumatic Product Transfer Roll Dryer, identified as 41F210, constructed in 1986, with emissions controlled by baghouse 41F210, exhausting to the intake of mill 41G202;

(29) One (1) Product Bin #10, identified as 41V10, constructed in 1993, with emissions controlled by baghouse 41F10, exhausting to stack 97;

(30) One (1) Product Bin #11, identified as 41V11, constructed in 1993, with emissions controlled by baghouse 41F11, exhausting to stack 98;

(31) One (1) Pneumatic Product Transfer Roll Dryer, identified as 41F201, constructed in 1993, with emissions controlled by baghouse 41F201, exhausting to the intake of mill 41G202;

(32) One (1) Starch Product Bin #44, identified as 33V44, constructed in 1995, with emissions controlled by baghouse 33F44, exhausting to stack 248;

(33) One (1) Bulk Bag Dump Station, identified as 41F13, constructed in 2000, with emissions controlled by baghouse 41F13, exhausting indoors to stack 344;

(34) One (1) Spray Dryer, identified as 30D1, constructed in 1984, a heat input capacity of 24 MMBtu/hr, with emissions controlled by integral product collector/cyclones 30F7 and 30F8 and baghouses 30F2 and 30F3, exhausting to stack 82;

(35) One (1) Product Transfer to Milling, identified as 30F13, constructed in 1987, with emissions controlled by baghouse 30F13, exhausting via vent 83 to stack 360;

(36) One (1) Dryer Mill, identified as 30G1, constructed in 1987, with emissions controlled by baghouse 30F15, exhausting via vent 84 to stack 360;

(37) One (1) Product Transfer to Bins #14 & #15, identified as 41C30, constructed in 1987, with emissions controlled by baghouses 41F14 and 41F15, exhausting via vent 85 into stack 355;

(38) One (1) Product Transfer to Bins #17, #18, #44 and EE, identified as 41C35, constructed in 1987, with emissions controlled by baghouses 41F20, 41F21, 41F54, and 41FEE, exhausting via vent 86 into stack 355;

(39) One (1) Product Bin #14, identified as 41V14, constructed in 1987, with emissions controlled by baghouse 41F16, exhausting to stack 87;

(40) One (1) Product Bin #15, identified as 41V15, constructed in 1987, with emissions controlled by baghouse 41F17, exhausting to stack 88;

(41) One (1) Product Bin #17, identified as 41V17, constructed in 1987, with emissions controlled by baghouse 41F22, exhausting to stack 89;

(42) One (1) Product Bin #18, identified as 41V18, constructed in 1987, with emissions controlled by baghouse 41F23, exhausting to stack 90;

(43) One (1) Belts Product Conveying Mill Product to Bins #3, #4, and #5, identified as 7F25, constructed in 1966, with emissions controlled by 7F25, exhausting to stack 103;

(44) One (1) Belts Product Conveying Mill Product to Bins #1, #2, and #3, identified as 7F26, constructed in 1966, with emissions controlled by 7F26, exhausting to stack 104;

(45) One (1) Product Bin #5, identified as 7V46, constructed in 1966, with emissions controlled by baghouse 7F69, exhausting to stack 105;

(46) One (1) Product Bin #4, identified as 7V47, constructed in 1966, with emissions controlled by baghouse 7F70, exhausting to stack 106;

(47) One (1) Product Bin #3, identified as 7V48, constructed in 1966, with emissions controlled by baghouse 7F71, exhausting to stack 107;

(48) One (1) Product Bin #2, identified as 7V49, constructed in 1966, with emissions

controlled by baghouse 7F72, exhausting to stack 108;

(49) One (1) Product Bin #1, identified as 7V50, constructed in 1966, with emissions controlled by baghouse 7F73, exhausting to stack 109;

(50) One (1) Belt Dryer Mill, identified as 25G1, constructed in 1968, with emissions controlled by baghouse 25F2, exhausting to stack 146;

(51) One (1) Pneumatic Conveying to Mill Feed Receiver, identified as 25F1, constructed in 1968, with emissions controlled by baghouse 25F1, exhausting to stack 147;

(52) One (1) Regular Belt Dryer D4 and one (1) Special Belt Dryer D5, identified as 16D4 and 16D5, constructed in 1966, with emissions controlled by rotoclone scrubbers 16F26, 17F78, 16F27, and 17F79, exhausting to stack 177;

(53) One (1) Spray Agglomeration System, identified as 50D101, constructed in 2001, a heat input capacity of 6.2 MMBtu/hr, with emissions controlled by integral product collector/cyclones 50F111 and 50F112 and baghouse 50F102, exhausting via vent 349 to stack 361;

(54) One (1) Agglomeration Blender Receiver/Baghouse, identified as 50F106, constructed in 2001, with emissions controlled by baghouse 50F106, exhausting via vent 350 to stack 361;

(55) Starch Roll Dryer #9, identified as 41D9, with emissions uncontrolled, exhausting to stack 405;

(56) Starch Roll Dryer #10, identified as 41D10, with emissions uncontrolled, exhausting to stack 406;

(57) Starch Roll Dryer #11, identified as 41D11, with emissions uncontrolled, exhausting to stack 407;

(58) Starch Roll Dryer #12, identified as 41D12, with emissions uncontrolled, exhausting to stack 408;

(59) Starch Roll Dryer #13, identified as 41D13, with emissions uncontrolled, exhausting to stack 409;

(60) Starch Roll Dryer #14, identified as 41D14, with emissions uncontrolled, exhausting to stack 410;

(61) One (1) Roll Dryer Mill Feed Collector Baghouse, identified as 41FAA, with emissions controlled by baghouse 41FAA, exhausting via vent 365 to stack 355;

(62) One (1) Roll Dryer System Mill, identified as 41G202, with emissions controlled by baghouse 41F202, exhausting via vent 366 to stack 355;

(63) One (1) Starch Blend Bin #1, identified as 07VDD, with emissions controlled by baghouse 07FDD, exhausting to stack 383;

(64) One (1) Starch Blend Bin #2, identified as 07VEE, with emissions controlled by baghouse 07FEE, exhausting to stack 384;

(65) One (1) Product Bin #AA, identified as 07VAA, with emissions controlled by baghouse 07FAA, exhausting to stack 385;

(66) One (1) Product Bin #BB, identified as 07VBB, with emissions controlled by baghouse 07FBB, exhausting to stack 386;

(67) One (1) Product Bin #CC, identified as 07VCC, with emissions controlled by baghouse 07FCC, exhausting to stack 387;

(68) One (1) Product Bin #EE, identified as 41VEE, with emissions controlled by baghouse 41FEB, exhausting to stack 226.

(69) One (1) Product Bin #HH, identified as 41VHH, with emissions controlled by baghouse 41FHH, exhausting to stack 255;

(70) One (1) Mill #3, identified as 44GAA, with emissions controlled by baghouse 44FII, exhausting via vent 389 to stack 388;

(71) One (1) Mill #4, identified as 44GBB, with emissions controlled by baghouse 44FJJ, exhausting via vent 390 to stack 388;

(72) One (1) Natural Gas Fired Spray Dryer #2, identified as 46DAA, with heat input capacity of 45 million Btu per hour, with PM and PM_{10} emissions controlled by cyclones 46FAA through 46FFF and baghouses 46FGG through 46FLL, exhausting via vent 360 to stack 360. Nitrogen oxide (NO_X) emissions are controlled by low-NO_X burners rated at 0.04 lb/MMBtu;

(73) One (1) Natural Gas Fired Spray Dryer #3, identified as 51DAA, with heat input capacity of 16 million Btu per hour, with emissions controlled by cyclones 51FAA and 51FBB and baghouse 51FCC, exhausting via vent 361 to stack 361. Nitrogen oxide (NO_X) emissions are controlled by low-NO_X burners rated at 0.04 lb/MMBtu; and

(74) One (1) Natural Gas Fired Starch Flash Dryer #4, identified as 44DAA, with heat input capacity of 40 million Btu per hour, with emissions controlled by cyclones 44FAA through 44FFF and wet scrubber 44FGG, exhausting to stack 388. Nitrogen oxide (NO_X) emissions are controlled by low-NO_X burners rated at 0.04 lb/MMBtu.

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

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

D.6.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3:

(a) The following emission units shall be controlled for PM and PM_{10} using BACT:

(1) Product Storage Bin #AA (07VAA)

(2) Product Storage Bin #BB (07VBB)

(3) Product Storage Bin #CC (07VCC)

(4) Starch Blend Bin #1 (07VDD)

(5) Starch Blend Bin #2 (07VEE)

(6) Product Storage Bin #10 (41V10)

(7) Product Storage Bin #11 (41V11)

(8) Product Storage Bin #HH (41VHH)

(9) Roll Dryer Mill Feed Collector (41FAA)

(10) Roll Dryer System Mill (41G202).

(11) Product Transfer to Milling (30F13)

(12) Product Transfer to Bins 14& 15 (41C30)

(13) Product Transfer to Bins 17, 18, 44, & EE (41C35)

(14) Product Bin 14 (41V14)

(15) Product Bin 15 (41V15)

(16) Product Bin 17 (41V17)

(17) Product Bin 18 (41V18)

(18) Product Storage Bin #EE (41VEE)

(19) Product Bin (33V44)

(20) Mill #3 (44GAA)

(21) Mill #4 (44GBB)

(22) Starch Grinder/Mill #1 (40G20)

(23) Starch Grinder/Mill #2 (40G21)

(24) Starch Product Bin #20 (7V20)

(25) Starch Product Bin #21 (7V21)

(26) Starch Product Bin #22 (7V22)

(27) Starch Product Bin #23 (7V23)

For these units, the BACT for PM and PM_{10} (Filterable and Condensable) is the use of fabric filter dust collectors rated at a maximum emission rate of 0.005 gr/dscf; and

(1) The total PM/PM_{10} (Filterable and Condensible) emissions from the following baghouses, shall be limited to

Emission Unit	Baghouse	Lbs/hr
07VAA	07FAA	0.12
07VBB	07FBB	0.12
07 VCC	07FCC	0.12
07VDD	07FDD	0.12
07VEE	07FEE	0.12
41V10	41F10	0.05
41V11	41F11	0.05
41VHH	41FHH	0.05
41FAA	41FAA	0.19
41G202	41F202	0.56
30F13	30F13	0.07
41C30	41F14 and 41F15	0.08
41C35	41F20, 41F21, 41F54, 41FEE	0.08
41V14	41F16	0.01
41V15	41F17	0.01
41V17	41F22	0.01
41V18	41F23	0.01
41VEE	41FEB	0.01
33V44	33F44	0.03
44GAA	44FII	0.14
44GBB	44FJJ	0.14
40G20	40F28	0.14
40G21	40F29	0.14
7V20	7F20	0.09
7V21	7F21	0.09
7V22	7F22	0.09
7V23	7F33	0.09 and

(2) except for 30F13, 40F28, 40F29, 44FII, and 44FJJ, the opacity from the baghouse exhausts shall not exceed 3%. The opacity from the baghouses 30F13, 40F28, 40F29, 44FII, and 44FJJ shall not exceed 8%.

Spray Dryer #2 (46DAA)

Spray Dryer #3 (51DAA)

The BACT for PM, and PM_{10} is an emission rate of 0.008 gr/scf; and

(1) The total PM/PM_{10} (Filterable and Condensible) emissions from spray dryer #2 shall be limited to 6.61 lbs/hr;

(2) The total PM/PM_{10} (Filterable and Condensible) emissions from spray dryer #3 shall be limited to 2.20 lbs/hr; and

(3) The opacity from the baghouses' exhausts shall not exceed 8%.

(b) The following emission units shall be controlled for PM and PM_{10} using BACT:

(1) Starch Flash Dryer #2 (40D20)

(2) Starch Flash Dryer #4 (44DAA)

For starch flash dryers, BACT for PM, and PM_{10} is an emission rate of 0.008 gr/acf; and

(1) The total PM/PM_{10} (Filterable and Condensible) emissions from starch flash dryer #2 shall be limited to 7.54 lbs/hr; and

(2) The total PM/PM_{10} (Filterable and Condensible) emissions from starch flash dryer #4 shall be limited to 7.54 lbs/hr; and

(3) The opacity from the scrubber exhausts shall not exceed 8%.

(c) For the following emission units, BACT for NOx is the use of low-NO_X burners rated at 0.04 lb/MMBtu or less and shall not exceed the emission rates as given below:

	Lbs/hr
Starch Spray Dryer #2 (46DAA)	1.8
Starch Spray Dryer #3 (51DAA)	0.64
Starch Flash Dryer #4 (44DAA)	1.6

D.6.2 Prevention of Significant Deterioration Minor Limit [40 CFR 52.21] [326 IAC 2-2]

(a) Pursuant to CP 157-9182-00003, issued April 2, 1998, A 157-10447-00003, issued October 26, 1999, A 157-15029-00003, issued October 24, 2001, and SSM 157-14974-00003, issued December 17, 2002, the PM emissions from emission units 43D71, 40G88, 7V34, 7V35, 7V91, and 7V92 are limited as indicated in the table below:

Facility	Stacks	PM/PM_{10} Limit (pounds per hour)	PM/PM_{10} Limit (tons per 12 mo)
Starch Flash Dryer #3 (43D71)	265	7.54	33.0
Flash #3 Mill (40G88)	266	0.23	0.99
Starch Product Bins (7V34, 7V35, 7V91, 7V92)	268, 269, 345, 346	0.2 each	0.89 each

*12 mo - Twelve consecutive month period with compliance determined at the end of each month.

Compliance with these limits will render the requirements of 40 CFR 52.21 and 326 IAC 2-2 not applicable to emission units 43D71, 40G88, 7V34, 7V35, 7V91, and 7V92.

(b) Pursuant to CP (79) 1599, issued February 28, 1986, and OP 79-10-90-0406, issued October 16, 1987, the PM emissions from emission unit 40D1 shall not exceed 1.2 lb/hr and 5.3 tons per twelve month consecutive period with compliance determined at the end of each month. Compliance with this limit shall render the requirements of 40 CFR 52.21 and 326 IAC 2-2 not applicable to emission unit 40D1.

(c) Pursuant to A 157-6180-00003, issued on August 12, 1996, and CP 157-4569-00003, issued September 21, 1995:

(1) The PM/PM_{10} emissions from emission unit 43V90 shall not exceed 1.2 lb/hr; Compliance with these limits is equivalent to total PM/PM_{10} emissions of less than 15 tons per year and will render the requirements of 40 CFR 52.21 and 326 IAC 2-2 not applicable to emission unit 43V90.

D.6.3 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2][40 CFR 52, Subpart P]

(a) Pursuant to 326 IAC 6-3-2, particulate emissions from emission units 40D1, 40F7, 7V8, 7V9, 40D20, 7V20, 7V21, 7V22, 40G20, 40G21, 43D71, 40G88, 7V23, 7V34, 7V35, 43V90, 7V91, 7V92, 41V10, 41V11, 33V44, 41F13, 30D1, 30F13, 30G1, 41C30, 41C35, 41V14, 41V15, 41V17, 41V18, 7F25, 7F26, 7V46, 7V47, 7V48, 7V49, 7V50, 25G1, 25F1, 16D4, 16D5, 50D101, 50F106, 41FAA, 41G202, 07VDD, 07VEE, 07VAA, 07VBB, 07VCC, 41VEE, 41VHH, 44GAA, 44GBB, 44DAA, 46DAA, and 51DAA shall be limited using one of the following equations (as applicable):

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

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

Or depending on the process weight rate:

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

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

Note that the specific 326 IAC 6-3-2 limits have not been listed here as the process throughput of the respective facilities is treated as confidential.

(b) Pursuant to CP 157-5294-00003, issued September 5, 1996, A157-6170-00003, issued July 26, 1996, A 157-6571-00003, issued October 3, 1996, and in order to comply with 326 IAC 6-3-2:

(1) The PM_{10} emissions from emission units 41F210, 41G200, 41V10, 41V11, 41G201, 41F201, 41F13, 30D1, 30F13, 30G1, 41C30, 41C35, 41V14, 41V15, 41V17, 41V18, and 33V44 are limited as indicated in the table below:

Emission Unit	Stack	PM-10 emission limit (pounds per hour)	PM-10 emission limit (tons per 12 mo)
Pneumatic Product Transfer Roll Dryer 41F210	95	0.21	0.94
Roll Dryer Mill 41G200	96	0.28	1.22
Product Bin #10 (41V10) and Product Bin #11 (41V11)	97 98	0.03	0.14
Roll Dryer Mill 41G201	100	0.39	1.69
Pneumatic Product Transfer to	101	0.3	

Emission Unit	Stack	PM-10 emission limit (pounds per hour)	PM-10 emission limit (tons per 12 mo)
Roll Dryer 41F201			1.3
Bulk Bag Dump Station (41F13)	344	0.03	0.11
Spray Dryer (30D1)	82	4.45	19.49
Product Transfer to Milling (30F13)	83	0.07	0.31
Dryer Mill (30G1)	84	0.95	4.17
Product Transfer to Bins #14, #15 (41C30), Product Transfer to Bins #17, #18 and #44 (41C35)	85 86	0.13	0.57
Product Bin #14 (41V14), Product Bin #15 (41V15), Product Bin #17 (41V17) and Product Bin #18 (41V18)	87 88 89 90	0.02	0.22
Product Bin #44 (33V44)	248	0.05	

*12 mo - Twelve consecutive month period with compliance determined at the end of each month.

(2) The opacity from facilities 41F210, 41G200, 41F201, 41G201, and 33V44 shall not exceed zero percent (0%).

(3) Following modification or shutdown of the facilities listed in Section D.6.3(b)(1), as described in Section D.6.1(a), Section D.6.3(b) shall continue only to apply to facilities 41F13, 30D1, and 30G1

(c) Pursuant to MSM 157-11907-00003, issued May 16, 2000, and in order to ensure compliance with 326 IAC 6-3-2, the allowable PM emission rate from emission units 50D101 and 50F106 shall not exceed 1.10 and 0.10 pounds per hour, respectively.

D.6.4 Volatile Organic Compounds: Best Available Control Technology [326 IAC 8-1-6] [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3, and 326 IAC 8-1-6, the VOC BACT for emission units 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF shall be the use of the scrubbers 45F212, and 45FAA; and

(a) The VOC emissions from scrubbers 45F212, and 45FAA controlling emissions from emission units 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF shall not exceed 3.25 lb per 100,000 lb of acid-killed starch and 6.0 lb per 100,000 lb of non-acid-killed starch (equivalent to a minimum 95% overall control efficiency).

(b) The combined propylene oxide input to facilities (listed in Section D.5) 45VAA, 45VBB, 45VCC, 45VDD, 45VEE, 45VFF, 40V1, 40U2, 40Y1, 40V50, 40V20, 40V21, 40V15, 40V16, 40F51, 40F52, 40F53, 40F54, 40U23, 43V71, 43V72, 43F71, 43F72, 43F73, 43V85, 43V86, 45V117, 45V118, 45V119, 45V120, 30V1, 30V2, 40V12, 40V11, 40V14, 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, 44V1, 44V2, 44V3, 44V4, 44V5,44FKK, 44FLL, 44FMM, 46V1, 46V2, 46V3, 46V4, 46V5, (listed in Section D.6) 40D1, 40D20, 43D71, 41D1, 41D2, 41D3, 41D4, 41D5, 41D6, 41D7, 41D8, 41D9, 41D10, 41D11, 41D12, 41D13, 41D14, 30D1, 16D4, 16D5, 44DAA, and 46DAA shall not exceed 1500 tons for propylated starch reactions that do not undergo the acid-kill step per twelve consecutive month period with compliance determined at the end of each month.

D.6.5 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

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

Compliance Determination Requirements

D.6.6 Particulate Control

(a) In order to comply with Conditions D.6.1, D.6.2 and D.6.3, baghouses, including those integral to the process, 40F7, 7F8, 7F9, 7F20, 7F21, 7F22, 40F28, 40F29, 7F33, 7F34, 7F35, 40F88, 43F90, 7F91, 7F92, 41F210, 41F200, 41F10, 41F11, 41F211, 41F201, 33F44, 41F13, 30F2, 30F3, 30F13, 30F15, 41F14, 41F15, 41F20, 41F21, 41F54, 41F16, 41F17, 41F22, 41F23, 25F1, 25F2, 7F73, 7F72, 7F71, 7F70, 7F69, 7F26, 7F25, 50F102, 50F106, 41FAA, 41F202, 07FDD, 07FEE, 07FAA, 07FBB, 07FCC, 41FEB, 41FEE, 41FHH, 44FII, 44FJJ, 46FGG through 46FLL, and 51FCC for particulate control shall be in operation and control particulate emissions from facilities 40F7, 7V8, 7V9, 7V20, 7V21, 7V22, 40G20, 40G21, 40G88, 7V23, 7V34, 7V35, 43V90, 7V91, 7V92, 41F210, 41G200, 41V10, 41V11, 41G201, 41F201, 33V44, 41F13, 30D1, 30F13, 30G1, 41C30, 41C35, 41V14, 41V15, 41V17, 41V18, 7F25, 7F26, 7V46, 7V47, 7V48, 7V49, 7V50, 25G1, 25F1, 50D101, 50F106, 41FAA, 41G202, 07VDD, 07VEE, 07VAA, 07VBB, 07VCC, 41VEE, 41VHH, 44GAA, 44GBB, 46DAA, and 51DAA at all times those facilities are in operation.

(b) Pursuant to CP 157-5294-00003, issued September 5, 1996, A 157-6571-00003, issued October 3, 1996, and in order to comply with Condition D.6.3, the particulate emissions from facilities 41F210, 41G200, 41V10, 41V11, 41G201 41F201, 41F13, 30D1, 30F13, 30G1, 41C30, 41C35, 41V14, 41V15, 41V17, 41V18 and 33V44 shall be considered in compliance that:

(1) The respective baghouses shall be operated at all times when the facilities are in operation. To facilitate compliance, opacity shall not exceed zero percent (0%).

(2) Following modification or shutdown of the facilities listed in Section D.6.6(b) or the combination of the baghouse exhausts from those facilities, as described in Section D.6.1(a), Section D.6.6(b) shall no longer be effective.

(c) In order to comply with Conditions D.6.1, D.6.2 and D.6.3, scrubbers 40F3, 40F26, 16F26, 17F78, 16F27, 17F79, 43F80, and 44FGG for particulate control shall be in operation and control emissions from facilities 40D1, 40D20, 16D4, 16D5, 43D71, and 44DAA at all times the respective facilities are in operation.

D.6.7 Testing Requirements [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

(a) Within 60 days after achieving the maximum production rate but no later than 180 days after startup of the Flash dryer #4 (44DAA), the Permittee shall perform PM and PM_{10} testing on the Starch Flash Dryer #2 (40D20) and the Starch Flash Dryer #4(44DAA), to verify compliance with Condition D.6.1(b), utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

(b) Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup, the Permittee shall perform PM and PM_{10} testing on one of the storage bins baghouses 07FAA, 07FBB, 07FCC, 07FDD, and 07FEE; the roll dryer mill baghouses 41FAA, and 41F202; and one of the starch milling baghouses 44FII, 44FJJ, 40F28, and

40F29 to verify compliance with Condition D.6.1(a), utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

These tests shall be repeated at least once every five years from the date of this valid compliance demonstration. PM_{10} includes filterable and condensable PM_{10}. Testing shall be conducted in accordance with Section C - Performance Testing.

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

D.6.8 Visible Emissions Notations

(a) Visible emission notations of the exhaust from stacks 265, 360, 388, and 177 shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) Visible emission notations of the exhaust from stacks 73, 76, 77, 78, 105, 106, 107, 108, 109, 266, 267, 268, 269, 274, 345 and 346 shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(c) For processes operated continuously, not including operations associated with 50D101 or 50F106, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(d) In the case of batch or discontinuous operations, not including operations associated with 50D101 or 50F106, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

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

(f) The Compliance Response Plan for these units, not including 50D101 or 50F106, shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(g) For units 50D101 and 50F106, when an abnormal emission is observed, the Permittee shall complete a Pollution Control Equipment Maintenance and Inspection Log sheet.

D.6.9 Monitoring for Scrubbers

(a) A continuous monitoring system shall be installed and operated at all times scrubber 40F26 is in operation. The monitoring system shall continuously measure and record the scrubber recirculation rate from scrubber 40F26 controlling emissions from emission unit 40D20. The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when any recirculation rate is below 300 gallons per minute or a minimum flow rate established during the latest stack test for any one reading. A flow rate reading that is below the minimum flow rate is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(b) A continuous monitoring system shall be installed and operated at all times scrubber

43F80 is in operation. The monitoring system shall continuously measure and record the scrubber recirculation rate from scrubber 43F80 controlling emissions from emission unit 43D71. The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when recirculation rate is below 300 gallons per minute or a minimum flow rate established during the latest stack test for any one reading. A flow rate reading that is below the minimum flow rate is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(c) The Permittee shall monitor the scrubber recirculation rate at least once per shift from scrubbers 40F3, 16F26, 17F78, 16F27, and 17F79 controlling emissions from emission units 40D1, 16D4, and 16D5. The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when the flow rate readings are outside of the normal range, as specified by the manufacturer, or a minimum flow rate established during the latest stack test for any one reading. A flow rate reading that is outside the normal range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(d) A continuous monitoring system shall be installed and operated at all times the scrubber 44FGG is in operation. The monitoring system shall continuously measure and record the scrubber recirculation rate from scrubber 44FGG controlling emissions from emission unit 44DAA. The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when the recirculation rate is below 300 gallons per minute or a minimum flow rate established during the latest stack test for any one reading. A flow rate reading that is below the minimum flow rate is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(e) The instruments used for determining the flow rate shall comply with Section C- Pressure Gauge and other Instrument Specifications of this permit and shall be calibrated at least once every six (6) months. The loss of monitoring data due to the calibration of an instrument while the equipment is in operation does not constitute a deviation from this permit.

D.6.10 Scrubber Inspections

(a) An external inspection of the scrubber controlling emissions from emission units 40D20 and 43D71 shall be performed at least semi-annually. Inspections required by this condition shall not be performed in consecutive months. Repairs or replacement of defective components shall be performed in accordance with the Preventive Maintenance Plan.

(b) An external inspection of the scrubbers controlling emissions from emission units 40D1, 16D4, and 16D5 shall be performed at least semi-annually. Inspections required by this condition shall not be performed in consecutive months Repairs or replacement of defective components shall be performed in accordance with the Preventive Maintenance Plan.

(c) An external inspection of the scrubber 44FGG controlling emissions from emission unit 44DAA shall be performed at least semi-annually. Inspections required by this condition shall not be performed in consecutive months. Repairs or replacement of defective components shall be performed in accordance with the Preventive Maintenance Plan.

D.6.11 Monitoring for Baghouses

(a) The Permittee shall record the total static pressure drop across baghouses 40F88, 43F90, 7F73, 7F72, 7F71, 7F70, 7F69, 41F202, 07FDD, 07FEE, 07FAA, 07FBB, 07FCC, 41FEB, 41FHH, 44FII, 44FJJ, 46FGG through 46FLL, 51FCC 40F28, 40F29, 7F20, 7F21, 7F22, and 7F33 used in conjunction with facilities 40G88, 43V90, 7V46, 7V47, 7V48, 7V49, 7V50, 41G202, 07VDD, 07VEE, 07VAA, 07VBB, 07VCC, 41VEE, 41VHH, 44GAA, 44GBB, 46DAA, 51DAA, 40G20, 40G21, 7V20, 7V21, 7V22, 7V23 at least once per day when the respective facilities are in operation.

(b) When, for any one reading, the pressure drop across the baghouses are outside the normal range of 1 and 8.0 inches of water or a range established during the last stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(c) The instrument used for determining the pressure shall comply with Section C - Pressure Gauge and Other Instrument Specifications, of this permit, and shall be calibrated at least once every six (6) months.

D.6.12 Baghouse Inspections

(a) An external inspection of baghouses 50F102, 50F106, 41F202, 07FDD, 07FEE, 07FAA, 07FBB, 07FCC, 41FEB, 41FHH, 44FII, 44FJJ, 46FGG through 46FLL, 51FCC 40F28, 40F29, 7F20, 7F21, 7F22, and 7F33 shall be performed at least semi-annually. Inspections required by this condition shall not be performed in consecutive months.

(b) An internal inspection of all bags, in baghouses 50F102, 50F106, 40F88, 43F90, 7F69, 7F70, 7F71, 7F72, and 7F73, shall be performed at least once per calendar year. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

(c) Inspections shall also be performed before a respective baghouse that has been secured and tagged as being out of service is returned to service. All defective bags shall be replaced.

D.6.13 Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit. If operations continue after bag failure has been observed and it will be 10 (ten) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

(b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouses pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

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

D.6.14 Record Keeping Requirements

(a) To document compliance with Condition D.6.4, the Permittee shall maintain monthly records for propylated starch reactions that do not undergo the acid-kill step to facilities 45VAA, 45VBB, 45VCC, 45VDD, 45VEE, 45VFF, 40V1, 40U2, 40Y1, 40V50, 40V20, 40V21, 40V15, 40V16, 40F51, 40F52, 40F53, 40F54, 40U23, 43V71, 43V72, 43F71, 43F72, 43F73, 43V85, 43V86, 45V117, 45V118, 45V119, 45V120, 30V1, 30V2, 40V12, 40V11, 40V14, 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, 44V1, 44V2, 44V3, 44V4, 44V5,44FKK, 44FLL, 44FMM, 46V1, 46V2, 46V3, 46V4, 46V5, 40D1, 40D20, 43D71, 41D1, 41D2, 41D3, 41D4, 41D5, 41D6, 41D7, 41D8, 41D9, 41D10, 41D11, 41D12, 41D13, 41D14, 30D1,16D4, 16D5, 44DAA, and 46DAA. This record is the same record as required in Condition D.5.16(b).

(b) The maximum production capacity of the #2 Flash Dryer System is treated as confidential and shall be kept at the emission source for the life of the facility.

(c) To document compliance with Condition D.6.8, the Permittee shall maintain records of the visible emission notations of the stack exhaust.

(d) To document compliance with Conditions D.6.9(a) and D.6.9(b), the Permittee shall maintain records of the scrubber recirculation rate as read by the continuous monitor for 40F26 and 43F80.

(e) To document compliance with Condition D.6.9(c), the Permittee shall maintain records of the scrubber recirculation rate at least once per shift from scrubbers 40F3, 16F26, 17F78, 16F27, and 17F79 controlling emissions from facilities 40D1, 16D4, and 16D5.

(f) To document compliance with Conditions D.6.9(d), the Permittee shall maintain records of the scrubber recirculation rate as read by the continuous monitor for scrubber 44FGG.

(g) To document compliance with Condition D.6.11, the Permittee shall maintain records of the total static pressure drop during normal operation.

(h) To document compliance with Condition D.6.10 and D.6.12, the Permittee shall maintain records of the results of the inspections

(i) To document compliance with Condition D.6.5, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

D.6.15 Reporting Requirements

A quarterly summary of the information used to document compliance with Conditions D.6.4(b) shall be submitted to the address listed in Section C - General Reporting Requirements, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

D.6.16 Clean Unit [326 IAC 2-2.2-2]

Pursuant to 326 IAC 2-2.2-2,

(a) The following emissions units are classified as Clean Units for PM/PM_{10}:

(1) Product Storage Bin #AA (07VAA)

(2) Product Storage Bin #BB (07VBB)

(3) Product Storage Bin #CC (07VCC)

(4) Starch Blend Bin #1 (07VDD)

(5) Starch Blend Bin #2 (07VEE)

(6) Product Storage Bin #10 (41V10)

(7) Product Storage Bin #11 (41V11)

(8) Product Storage Bin #HH (41VHH)

(9) Roll Dryer Mill Feed Collector (41FAA)

(10) Roll Dryer System Mill (41G202).

(11) Product Transfer to Milling (30F13)

(12) Product Transfer to Bins 14& 15 (41C30)

(13) Product Transfer to Bins 17, 18, 44, & EE (41C35)

(14) Product Bin 14 (41V14)

(15) Product Bin 15 (41V15)

(16) Product Bin 17 (41V17)

(17) Product Bin 18 (41V18)

(18) Product Storage Bin #EE (41VEE)

(19) Product Bin (33V44)

(20) Mill #3 (44GAA)

(21) Mill #4 (44GBB)

(22) Starch Grinder/Mill #1 (40G20)

(23) Starch Grinder/Mill #2 (40G21)

(24) Starch Product Bin #20 (7V20)

(25) Starch Product Bin #21 (7V21)

(26) Starch Product Bin #22 (7V22)

(27) Starch Product Bin #23 (7V23)

(28) Spray Dryer #2 (46DAA)

(29) Spray Dryer #3 (51DAA)

(30) Starch Flash Dryer #2 (40D20)

(31) Starch Flash Dryer #4 (44DAA).

(b) The following emissions units are classified as Clean Units for NOx:

Starch Spray Dryer #2 (46DAA)

Starch Spray Dryer #3 (51DAA)

Starch Flash Dryer #4 (44DAA).

(c) The Clean Unit designations for the above emissions units are in effect for ten (10) years after the issuance date of the source modification permit or the date the emission's unit control technology is placed in service, whichever is later.

SECTION D.7 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(g) Starch Packaging and Loadout Operations, consisting of:

(1) One (1) Product Bin #6/House Vacuum System, identified as 17V6 and 17F5, constructed in 1984, with emissions controlled by baghouse 17F6, exhausting via vent 190 into stack 177;

(2) One (1) Product Transfer to Main Packer #1, identified as 16F5, constructed in 1966, with emissions controlled by baghouse 16F5, exhausting to stack 102;

(3) One (1) Cationic Product Receiver for Packer #1, identified as 17F27, constructed in 1966, with emissions controlled by baghouse 17F27, exhausting to stack 102;

(4) One (1) Packer #1, identified as 17Z38, constructed in 1966, with emissions controlled by baghouse 17F10, exhausting into stack 177;

(5) One (1) Reprocess Bag/Tote Dump, identified as 17U58, constructed in 1997, with emissions controlled by baghouse 17F58, exhausting indoors to stack 334;

(6) One (1) Bag Packer #2 House Dust Collector, identified as 17F2, constructed in 1995, with emissions controlled by baghouse 17F2, exhausting to stack 177;

(7) One (1) Bag Packer #2, identified as 17Z01, constructed in 1995, with emissions controlled by baghouse 17F01, exhausting to stack 177;

(8) One (1) Spray Dryer Product Transfer to Bag Packer #3 (North Spouts), identified as 41F7, constructed in 1986, with emissions controlled by baghouse 41F7, exhausting via vent 184 to stack 355;

(9) One (1) Spray Dryer Products Bag Packer #3 (North Spouts), identified as 41Z 3, constructed in 1986, with emissions controlled by baghouse 41F7, exhausting via vent 184 to stack 355;

(10) One (1) Roll Dried, Dry Starch Reaction System, & Malto Products transfer to Bag Packer #3 (South Spouts), identified as 41F18, constructed in 1986, with emissions controlled by baghouse 41F18, exhausting via vent 186 to stack 355;

(11) One (1) Roll Dried, Dry Starch Reaction System, & Malto Bag Packer #3 (South Spouts), identified as 41Z 5, constructed in 1986, with emissions controlled by baghouse 41F18 exhausting via vent 186 to stack 355;

(12) One (1) Bag Packer #4, identified as 17Z03, constructed in 1995, with emissions controlled by baghouses 17F03 and 17F04, exhausting via vent 332 to stack 356;

(13) One (1) House Dust Collection System for Bag Packer #4, identified as 17F15, constructed in 1995, with emissions controlled by baghouse 17F15, exhausting via vent 333 to stack 356;

(14) One (1) Bag Packer #3 House Dust Collector, identified as 41F44, constructed in 1995, with emissions controlled by baghouse 41F44, exhausting via vent 256 to

stack 361;

(15) One (1) Product Transfer for #1 Bulk Bagger, identified as 16F25, constructed in 1988, with emissions controlled by baghouse 16F25, exhausting via vent 191 into stack 177;

(16) One (1) Bulk Bagger #2, identified as 17Z14, constructed in 1996, with emissions controlled by baghouse 17F14, exhausting to stack 254;

(17) Three (3) Product Receivers for #3 Bulk Bagger, identified as 41F8, 41F81, and 41F82, constructed in 1988, 1997, and 1997 respectively, with emissions controlled by baghouses 41F8, 41F81, and 41F82, exhausting via vent 208 to stack 355;

(18) One (1) Bulk Starch Rail Loadout (Track #10), identified as 20F60, constructed in 1993, with emissions controlled by baghouse 20F60, exhausting via vent 79 to stack 404;

(19) One (1) Starch Truck/Rail Loadout (Track #9), identified as 20F61, constructed in 1966, with emissions controlled by baghouse 20F61, exhausting via vent 135 to stack 404;

(20) One (1) J4 Starch Rail Loadout System, identified as 16F100, constructed in 1989, with emissions controlled by baghouse 16F100, exhausting via vent 183 into stack 177;

(21) One (1) Dextrin/Roll/Spray Cooked Starch Bulk Truck Loadout, identified as 33 Bldg. Truck Loadout, constructed in 1988, with emissions controlled by baghouses 41F6 and 41FLL, exhausting to stack 189;

(22) One (1) Pneumatic Truck Loadout, identified as Truck Loadout, constructed in 1997, with emissions controlled by baghouses 20F78 and 20F79, exhausting via vent 264 to stack 404;

(23) One (1) Bulk #1 Product Screening System, identified as 20F1, constructed in 1997, with emissions controlled by baghouse 20F1, exhausting via vent 330 to stack 404;

(24) One (1) Bulk #2 Product Screening System, identified as 20F50, constructed in 1997, with emissions controlled by baghouse 20F50, exhausting via vent 331 to stack 404;

(25) One (1) Spray Dryer #3 Packer Baghouse (Pneumatically transferred), identified as 51FDD, with emissions controlled by baghouse 51FDD, exhausting via vent 362 to stack 361;

(26) Two (2) Packer #6 Product Receivers, identified as 17FBB and 17FDD, with emissions controlled by baghouses 17FBB and 17FDD, exhausting via vent 380 to stack 356;

(27) One (1) Packer #6 House Dust Collector, identified as 17FCC, with emissions controlled by baghouse 17FCC, exhausting via vent 381 to stack 356;

(28) One (1) Bulk Bagger #4 Product Receiver, identified as 17FAA, with emissions

controlled by baghouse 17FAA, exhausting via vent 382 to stack 356;

(29) One (1) #3 Bulk Starch Rail Loadout Receiver, identified as 20FAA, with emissions controlled by baghouse 20FAA, exhausting via vent 263 to stack 404;

(30) One (1) #3 Bulk Loadout Screening System Filter Receiver, identified as 20FBB, with emissions controlled by baghouse 20FBB, exhausting via vent 393 to stack 404;

(31) One (1) Bag Dump Station Bin Vent, identified as 18FBB, with emissions controlled by baghouse 18FBB, exhausting indoors via vent 426; and

(32) One (1) O.S. Starch Product Transfer to Bag Packer #3 (South Spouts), identified as 41FCC, with emissions controlled by baghouse 41FCC, exhausting via vent 223 to stack 355.

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

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

D.7.1 Prevention of Significant Deterioration BACT Requirements [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3,

(a) the following emission units shall be controlled for PM and PM_{10} using BACT:

(1) Spray Dryer #3 Packer Baghouse (51FDD)

(2) Packer #6 Product Receivers (17FBB and 17FDD)

(3) Packer #6 House Dust Collector (17FCC)

(4) Bulk Bagger #4 Product Receiver (17FAA)

(5) #3 Bulk Starch Rail Loadout Receiver (20FAA)

(6) #3 Bulk Loadout Screening System Filter Receiver (20FBB)

(7) Bulk Starch Rail Loadout (20F60)

(8) Bag Dump Station (18FBB)

(b) For these units, the BACT for PM and PM_{10} (Filterable and Condensable) is the use of fabric filter dust collectors with an emission rate of 0.005 gr/dscf; and

(1) the total PM /PM_{10} (Filterable and Condensable) emissions shall be limited to as follows;

Emission Unit	Baghouse	Lbs/hr
51FDD	51FDD	0.06
17FBB &17FDD	17FBB &17FDD	0.13

17FCC	17FCC	0.67
17FAA	17FAA	0.08
20FAA	20FAA	0.08
20FBB	20FBB	0.09
20F60	20F60	0.09
18FBB	18FBB	0.02;

(2) The opacity from the stack exhausts except from Spray Dryer #3 Packer Baghouse (51FDD) and Bagdump Station shall not exceed 3%;

(3) The opacity from Spray Dryer #3 Packer Baghouse (51FDD) shall not exceed 8%; and

(4) The Bag Dump Station (18FBB) shall exhaust inside the building.

D.7.2 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2] [40 CFR 52, Subpart P]

(a) Pursuant to 326 IAC 6-3-2, particulate emissions from emission units 17V6, 17F5, 16F5, 17F27, 17Z38, 17U58, 17Z01, 17F2, 41F7, 41Z5, 41F18, 41Z3, 41F44, 17Z03, 17F15, 16F25, 17Z14, 41F8, 41F81, 41F82, 20F60, 20F61, 16F100, 41F6, 20F78, 20F79, 20F1, 20F50, 41FLL, 41FCC, 51FDD, 17FBB, 17FDD, 17FCC, 17FAA, 20FAA, 20FBB, and 18FBB shall be limited using one of the following equations (as applicable):

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

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

Or depending on the process weight rate:

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

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

(b) Pursuant to CP 157-4160-00003, issued April 5, 1995, and in order to ensure compliance with 326 IAC 6-3-2, the PM emissions from facilities 17Z01, 17F2, 17Z14, and Truck Loadout, are limited as indicated in the table below:

Facility	Stack	PM emission limit lbs/hr
Bag Packer #2 (17Z01)	177	0.17
House Dust Collector Bag Packer #2 (17F2)	177	1.1
Bulk Bagger #2 (17Z14)	254	0.08
Pneumatic Truck Loadout (Truck Loadout)	404	0.12

(c) Pursuant to CP 157-5294-00003, issued September 5, 1996, A 157-6571-00003, issued October 3, 1996, revised through the Part 70 permit, and in order to comply with 326 IAC 6-3-2, the particulate matter emissions from facilities 41F7, 41Z5, 41F18, 41Z3, 41F8, 41FCC, 41F81, 41F82, 41F6**,** and 41FLL are limited as indicated in the table below:

<table>
<tr><th>Facility</th><th>Stack</th><th>PM10 emission limit (pounds per hour)</th><th>PM10 emission limit (tons per 12 mo)</th></tr>
<tr><td>Spray Dryer Product Transfer to Bag Packer #3 (41F7) and Spray Dryer Products Starch Bag Packer #3 North Spouts (41Z3)</td><td>355</td><td>0.12</td><td rowspan="2">0.80</td></tr>
<tr><td>Roll Dried, Dry Starch Reaction System, & Malto Product Transfer to Bag Packer #3 (41F18) and Roll Dried, Dry Starch Reaction System, & Malto Products Bag Packer (South Spouts Packer #3) (41Z5) and O.S. Starch Product Transfer to Bag Packer #3 (41FCC)</td><td>355</td><td>0.18</td></tr>
<tr><td>Product Transfer System for #3 Bulk Bagger (41F8, 41F81, and 41F82)</td><td>355</td><td>0.11</td><td>0.50</td></tr>
<tr><td>Dextrin/Roll/Spray Cooked Starch Bulk Truck Loadout (41F6 and 41FLL)</td><td>189</td><td>0.04</td><td>0.18</td></tr>
</table>

*12 mo - Twelve consecutive month period with compliance determined at the end of each month.

(d) Pursuant to Exemption 157-8071-00003, issued February 7, 1997, the PM emissions from 20F1 and 20F50 are each limited to 1.0 pounds per hour to ensure compliance with 326 IAC 6-3-2.

(e) Pursuant to CP 157-4569-00003, issued September 21, 1995, and A 157-6180-00003:

(1) The PM emissions from 17Z03 (controlled by baghouses 17F15, 17F03 and 17F04) shall not exceed 2.2 pounds per hour (equivalent to less than or equal to 9.63 tons per year) to ensure compliance with 326 IAC 6-3-2.

(2) Only one of the baghouses, 17F03 or 17F04, shall be operated at a time.

D.7.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these emission units and their baghouses.

Compliance Determination Requirements

D.7.4 Particulate Control

(a) In order to comply with Condition D.7.1 and Condition D.7.2, baghouses, including those integral to the process, 17F6, 17F5, 16F5, 17F27, 17F10, 17F58, 17F01, 17F2, 41F7, 41F18, 41F44, 17F03, 17F04, 17F15, 16F25, 17F14, 41F8, 41F81, 41F82, 20F60, 20F61, 16F100, 41F6, 20F78, 20F79, 20F1, 20F50, 41FLL, 41FCC, 51FDD, 17FBB, 17FDD, 17FCC, 17FAA, 20FAA, 20FBB, and 18FBB for particulate control shall be in operation and control particulate emissions from emission units 17V6, 17F5, 16F5, 17F27, 17Z38, 17U58, 17Z01, 17F2, 41F7, 41Z5, 41F18, 41Z3, 41F44, 17Z03, 17F15, 16F25, 17Z14, 41F8, 41F81, 41F82, 20F60, 20F61, 16F100, 41F6, Truck Loadout, 20F1, 20F50, 41FCC, 51FDD, 17FBB, 17FDD, 17FCC, 17FAA, 20FAA, 20FBB, and 18FBB at all times those emission units are in operation.

(b) Pursuant to CP 157-5294-00003, issued September 5, 1996, A 157-6571-00003, issued October 3, 1996, and in order to comply with Condition D.7.1, the particulate emissions from emission units 41F7, 41Z5, 41F18, 41Z3, 41F8, 41F81, 41F82, and 41F6 shall be considered in compliance that:

(1) the respective baghouses shall be operated at all times when the emission units are in operation. To facilitate compliance, opacity shall not exceed zero percent (0%); and

(2) only one of the tote packer product receivers (41F8, 41F81, and 41F82) shall be operated at any one time.

(3) Following the routing of emission units 41F7, 41Z5, 41F18, 41Z3, 41F8, 41F81, and 41F82 to the new starch area stack, S/V 355, opacity limits in D.7.4(b)(1) shall only apply to emission unit 41F6.

D.7.5 Testing Requirements [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup, the Permittee shall perform PM and PM_{10} testing on one of the Packer #6 product receiver baghouses 17FBB, and17FDD; and Packer #6 house dust collector 17FCC to verify compliance with Condition D.7.1, utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

These tests shall be repeated at least once every five years from the date of this valid compliance demonstration. PM_{10} includes filterable and condensable PM_{10}. Testing shall be conducted in accordance with Section C- Performance Testing.

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

D.7.6 Visible Emissions Notations

(a) Visible emission notations of the exhaust from stacks 177, 355, 356, 361, and 404 shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) Visible emission notations of the exhaust from stack 102 shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

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

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

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

(f) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

D.7.7 Monitoring for Baghouses

(a) The Permittee shall record the total static pressure drop across baghouses 17F10, 17F01, 41F44, 17F15, 51FDD, 17FBB, 17FDD, 17FCC, 17FAA, 20FAA, 20FBB, and 20F60, used in conjunction with facilities 17Z38, 17Z01, 41F44, 17F15, 51FDD, 17FBB, 17FDD, 17FCC, 17FAA, 20FBB, and 20F60, at least once per shift when the respective facilities are in operation.

(b) The Permittee shall record the total static pressure drop across baghouses 17F6, 16F5, 17F27, 20F61 and 16F100, used in conjunction with facilities 17V6, 17F5, 17F27, 20F61, and 16F100, at least once per day when the respective facilities are in operation.

(c) When, for any one reading, the pressure drop across the baghouses are outside the normal range of 1 and 8.0 inches of water or a range established during the last stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(d) The instrument used for determining the pressure shall comply with Section C - Pressure Gauge and Other Instrument Specifications, of this permit, and shall be calibrated at least once every six (6) months.

D.7.8 Baghouse Inspections

(a) An external inspection of 41F44, 17F15, 17F6, 17F10, 17F01, 51FDD, 17FAA, 17FBB, 17FCC, 17FDD, 20FAA, 20FBB, and 20F60 shall be performed at least once per calendar quarter. Inspections required by this condition shall not be performed in consecutive months.

(b) An internal inspection of all bags in baghouses 51FDD, 17FBB, 17FDD, 17FCC, 17FAA, 20FAA, 20FBB, 20F60, 17F10, 17F01, 41F44, 17F15, 17F6, 17F5, 17F27, 20F61, and 16F100, shall be performed at least once per calendar year. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

(c) Inspections shall also be performed before a respective baghouse that has been secured and tagged as being out of service is returned to service. All defective bags shall be replaced.

D.7.9 Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit. If operations continue after bag failure has been observed and it will be 10 (ten) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

(b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

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

D.7.10 Record Keeping Requirements

(a) To document compliance with Condition D.7.6, the Permittee shall maintain records of visible emission notations of the stack exhaust.

(b) To document compliance with Condition D.7.7, the Permittee shall maintain records of the total static pressure drop during normal operation.

(c) To document compliance with Condition D.7.8, the Permittee shall maintain records of the results of the inspections.

(d) To document compliance with Condition D.7.3, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

D.7.11 Clean Unit [326 IAC 2-2.2-2]

Pursuant to 326 IAC 2-2.2-2,

(a) The following emissions units are classified as Clean Units for PM/PM_{10}:

(1) Spray Dryer #3 Packer Baghouse (51FDD)

(2) Packer #6 Product Receivers (17FBB and 17FDD)

(3) Packer #6 House Dust Collector (17FCC)

(4) Bulk Bagger #4 Product Receiver (17FAA)

(5) #3 Bulk Starch Rail Loadout Receiver (20FAA)

(6) #3 Bulk Loadout Screening System Filter Receiver (20FBB)

(7) Bulk Starch Rail Loadout (20F60)

(8) Bag Dump Station (18FBB).

(b) The Clean Unit designations for the above emissions units are in effect for ten (10) years after the issuance date of the source modification permit or the date the emission's unit control technology is placed in service, whichever is later.

SECTION D.10 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(j) One (1) Wastewater Treatment Anaerobic Digester, identified as 34V10, constructed in 1985, with emissions controlled by: a scrubber (34V11) and main flare (21Z1) which exhaust to stack 271, and an emergency flare (34Z1) which exhausts to stack 272. Note that the biogas is used by dryers 21D6, 21D7, and 21D8 and if the biogas produced exceeds the dryers' capacity, and then the gas is flared off.

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

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

D.10.1 Prevention of Significant Deterioration [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3, the SO_2 BACT for emission unit 34V10 shall be the use of alkaline scrubber 34V11 and;

(a) the scrubber shall have a minimum 90% control efficiency of H_2S and shall not exceed 9.0 lbs/hr SO_2 (equivalent to 4.78 lbs/hr of H_2S) in the scrubber outlet, when the inlet H_2S concentration to the scrubber is more than 1.1% by volume, and

(b) the scrubber shall have an outlet H_2S concentration of less than 0.11% by volume, and shall not exceed 9.0 lbs/hr SO_2 (equivalent to 4.78 lbs/hr H2S) in the scrubber outlet if the inlet concentration of H_2S is 1.1% by volume or less.

(c) To determine compliance with Condition D.10.1(a) and (b), the hydrogen sulfide content of the untreated biogas, the hydrogen sulfide content of the biogas treated by the biogas scrubber (34V11), the temperature of the biogas at the time of testing, and the total amount of biogas treated by the scrubber (34V11) shall be measured on a daily basis and used to calculate an average hourly sulfur dioxide emission rate and scrubber removal efficiency. If the biogas is directed to the emergency flare (34Z1), the hydrogen sulfide content of the untreated biogas, the temperature of the untreated biogas at the time of testing, and the total amount of untreated biogas burned by the emergency flare (34Z1) shall be measured on a daily basis and used to calculate a daily sulfur dioxide emission rate.

(d) The Permittee shall notify the IDEM, OAQ within two working days of any period if any H_2S is emitted directly to the atmosphere without being burned.

D.10.2 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

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

Compliance Determination Requirements

D.10.3 Sulfur Dioxide (SO_2)

In order to comply with Condition D.10.1:

(a) The scrubber (34V11), used to prevent SO_2 emissions by removing H_2S from biogas, shall be in operation at all times when biogas is produced from the anaerobic treatment system (34V10) and used by dryers 21D6, 21D7, and 21D8.

(b) The main flare (21Z1), used to control H_2S emissions from the exhaust of scrubber 34V11 shall be in operation at all times biogas is routed to scrubber 34V11.

(c) When the amount of the biogas produced by anaerobic treatment system 34V10 exceeds the capacities of dryers 21D6, 21D7, 21D8, and the main flare (21Z1), then the emergency flare (34Z1) shall operate to combust the biogas at all times when biogas may be vented to it.

(d) Whenever inspection or maintenance of the biogas scrubber (34V11) or blowers occurs that requires biogas from the anaerobic digester (34V10) be isolated to allow that maintenance to be performed safely, then the emergency flare (34Z1) shall operate to combust the biogas at all times when biogas may be vented to it.

D.10.4 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

Within 180 days after the issuance of this permit, the Permittee shall perform H_2S testing on the inlet and outlet of the biogas scrubber (34V11) to verify compliance with Condition D.10.1, utilizing methods as approved by the Commissioner and furnish the Commissioner a written report of the results of such performance tests. All hydrogen sulfide measured will be assumed to have been converted to sulfur dioxide in flares 21Z1 and 34Z1 and feed dryers 21D6, 21D7, and 21D8. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C- Performance Testing.

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

D.10.5 Flare Pilot Flame

The presence of a flare pilot flame (for flares 21Z1 and 34Z1) shall be monitored using a thermocouple, or any other equivalent device, to detect the presence of a flame.

D.10.6 Monitoring for Scrubber

(a) The Permittee shall monitor the scrubber pH of the scrubbing liquor at least once per shift from scrubber 34V11 used to scrub the biogas from 34V10.

(b) A continuous monitoring system shall be installed and operated at all times scrubber 34V11 is in operation. The monitoring system shall continuously measure and record the scrubber recirculation rate from scrubber 34V11 controlling emissions from emission unit 34V10. The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when the pH readings are outside of the normal range, and any recirculation rate is below minimum flow rate for any one reading. The normal pH range for scrubber 34V11 is 9.0 to 11.5 or the range established during the latest stack test. The minimum 1-hr average flow rate for Scrubber 34V11 is 70 gpm or a minimum flow rate established during the latest stack test.

(c) A pH or flow reading that is outside the normal range or below the minimum flow rate for any one reading is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

(d) The instruments used for determining the flow rate and pH shall comply with Section C- Pressure Gauge and other Instrument Specifications of this permit and shall be calibrated at least once every six (6) months. The loss of monitoring data due to the calibration of an instrument while the equipment is in operation does not constitute a deviation from this permit.

D.10.7 Scrubber Inspections

An external inspection of scrubber 34V11 shall be performed semiannually. Inspections required by this condition shall not be performed in consecutive months. Repairs or replacement of defective components shall be performed in accordance with the Preventive Maintenance Plan.

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

D.10.8 Record Keeping Requirements

(a) To document compliance with Condition D.10.1, the Permittee shall maintain:

(1) A log of the daily H_2S content before and after the scrubber (34V11), temperature, and the total amount of the biogas burned in the main flare (21Z1), feed dryers (21D6, 21D7, and 21D8), or emergency flare (34Z1). The log shall be kept for at least the past twenty-four (24) month period; and

(2) Records of all calculations used to determine the SO_2 emissions from the combustion of biogas in the main flare (21Z1), feed dryers (21D6, 21D7, and 21D8), and emergency flare (34Z1).

(b) To document compliance with Condition D.10.6, the Permittee shall maintain records of the scrubber pH and scrubber recirculation rate from scrubber 34V11.

(c) To document compliance with Condition D.10.7, the Permittee shall maintain records of the results of the inspections.

(d) To document compliance with Condition D.10.2, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

D.10.9 Clean Unit [326 IAC 2-2.2-2]

Pursuant to 326 IAC 2-2.2-2,

(a) The following emissions unit is classified as Clean Units for SO_2:

One (1) Wastewater Treatment Anaerobic Digester (34V10)

(b) The Clean Unit designation for the above emissions unit is in effect for ten (10) years after the issuance date of the source modification.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
Compliance Data Section

Part 70 Quarterly Report

Source Name:	Tate & Lyle - Sagamore Plant
Source Address:	2245 North Sagamore Parkway, Lafayette, IN 47902
Mailing Address:	2200 E. Eldorado St, Decatur, IL 62521
Part 70 Permit No.:	T157-6009-00003
Facility:	Starch production facilities (listed in Section D.5) 45VAA, 45VBB, 45VCC, 45VDD, 45VEE, 45VFF, 40V1, 40U2, 40Y1, 40V50, 40V20, 40V21, 40V15, 40V16, 40F51, 40F52, 40F53, 40F54, 40U23, 43V71, 43V72, 43F71, 43F72, 43F73, 43V85, 43V86, 45V117, 45V118, 45V119, 45V120, 30V1, 30V2, 40V12, 40V11, 40V14, 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, 44V1, 44V2, 44V3, 44V4, 44V5,44FKK, 44FLL, 44FMM, 46V1, 46V2, 46V3, 46V4, 46V5, (listed in Section D.6) 40D1, 40D20, 43D71, 41D1, 41D2, 41D3, 41D4, 41D5, 41D6, 41D7, 41D8, 41D9, 41D10, 41D11, 41D12, 41D13, 41D14, 30D1, 16D4, 16D5, 44DAA, and 46DAA
Parameter:	Propylene oxide (PO) input
Limit:	Fifteen hundred (1,500) tons propylene oxide per twelve consecutive month period with compliance determined at the end of each month.

YEAR:

Month	VOC Usage	VOC Usage	VOC Usage
	This Month	Previous 11 Months	12 Month Total

No deviation occurred in this quarter.

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

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

Attach a signed certification to complete this report.

Indiana Department of Environmental Management
Office of Air Quality

Addendum to the
Technical Support Document for Prevention of Significant Deterioration (PSD)
and Part 70 Significant Source Modification;
and Part 70 Significant Permit Modification

Source Name:	Tate & Lyle, Sagamore
Source Location:	2245 North Sagamore Parkway, Lafayette, IN 47902
County:	Tippecanoe
SIC Code:	2046
Part 70 Permit No.:	157-6009-00003
Issuance Date:	June 28, 2004
Application No.:	PSD & SSM 157-18832-00003, and SPM 157-20671-00003
Permit Reviewer:	Dr. Trip Sinha

On June 2, 2005, the Office of Air Quality (OAQ) had a notice published in the Lafayette Courier, Lafayette, Indiana, stating that Tate & Lyle had applied for an expansion to the existing plant to increase the corn processing capacity to 100,000 bushels per day from its existing capacity of 70,000 bushels per day along with many new emissions units, and control equipment. The notice also stated that OAQ proposed to issue a permit for this operation and provided information on how the public could review the proposed permit and other documentation. A separate notice for public hearing on Monday, June 20, 2005 at the Lafayette City Council Chambers in Lafayette for the associated Significant Source Modification 157-18832-00003 was also sent to public to attend and provide written or oral comments.

Written comments were received from two citizens and also from Tate & Lyle. Six people provided oral comments during the hearing.

The comments and responses appear below. Any revisions to the permit are shown by the additions being in bold and the deletions being in strikeout. Since some comments are similar in nature, they have been grouped for one response.

Comment 1: Dr. Cramer

Does the hearing have a real purpose for the citizens here today, or is this just a discussion that will likely have no consequences on the permit decision? You said last week in the Tate & Lyle Citizens' Meeting that IDEM will issue the permit unless somebody can show that Tate & Lyle is not in compliance with any of the rules or regulations. However, it would be almost impossible for any of us to do this, because we don't have any data from IDEM or anyone else as to what are the emissions.

Response 1: Indiana law requires that decisions made by regulatory agencies be open to public scrutiny. The permit application has been locally available since April 2004; and the draft permit and technical support document explaining the legal basis for the permit was open for public comment during the month of June 2005. The technical support document provides the emissions-related information that IDEM staff used to develop the draft permit.

This is a particularly complicated permit action. To help the public understand the nature of the project and the applicable air pollution control requirements, IDEM and Tate & Lyle held a public meeting the week prior to IDEM's formal public hearing which was held on June 20, 2005. This addendum to the technical support document responds to questions and comments that were received during the public comment period and during the public hearing.

Comment 2: Dr. Cramer

There is a fancy formula for the emissions in this year's permit. This formula says "E", the rate of emissions, in pounds per hour is equal to 55 times "P", raised to the .11 power minus 40. It's actually a rather hard calculation to figure out. What's the number? There is no number given in this permit.

Response 2: The referenced formula is used to calculate allowable particulate matter emissions uner326 IAC 6-3. The formula is used in the permit because, under this rule, allowable emissions vary depending on the amount of material being process (Process Weight Rate) by a given emissions unit. A process that is operated at less than its full capacity is allowed to emit less than when it is operation at its full hourly capacity. The formula acts in such a way as to decrease the allowable pounds of emission per ton of material processed as process weight rate increases.

A dryer with a capacity of 100 tons per hour would be allowed a maximum emission rate of 52.3 pounds of particulate matter per hour. The same dryer operating at 50 tons per hour would be allowed to emit 44.6 pounds per hour.

It should be noted that under the Best Available Control Technology requirements of this permit, PM emissions are limited levels that are much below the allowable levels in 326 IAC 6-3.

Comment 3: Dr. Cramer

Last week, regarding the presentation from Tate & Lyle, it was said that the reason that it hadn't been possible to do anything about air pollution and the odor previously is because they hadn't realized the thermal oxidation was a technique that could work, but now they know. In fact, in the permit application that was in the library last year, it says that a thermal oxidizer would cost $16,210, per ton of VOC removed and it's not economically feasible. Tate & Lyle is going to spend $7 million on controls. What is the plan? One wonders about the credibility of Tate & Lyle, whether they are going to spend the money on controls or not.

None of us can prove that Tate & Lyle has broken the law and none of us have resources to hire legal counsel to do this. What many of us know is that there is pollution; there is air quality that's noxious, and extremely unpleasant. It has affected the quality of life here. We've often wondered what are the health effects due to the poor air quality. But there's also no data about hydrogen sulfide emissions. In the Merck's index of chemical compounds, hydrogen sulfide is an extremely hazardous reagent. It kills mice by inhalation at 600 parts per million and for humans it's highly toxic.

Response 3: In the original application the cost effectiveness to control one new germ dryer and one new gluten meal dryer by a regenerative thermal oxidizer, of $16,200 per ton was proposed to us as economically infeasible. As this project has evolved over the past year, Tate & Lyle has proposed to control VOC emissions from those new germ and new gluten dryers, new fiber dryer and three existing feed dryers by two regenerative thermal oxidizers (RTOs).This results in an overall cost that is significantly less than $16,000 per ton. The two RTOs operate in parallel. Their capacity is being designed such that if one RTO fails, Tate & Lyle could still operate at 75% capacity and comply with all VOC limits using only the remaining RTO. Tate & Lyle has to operate these thermal oxidizers before they can operate the new dryers, and before they can operate the existing dryers at an increased capacity. This is legally enforceable.

All the new processes will have Best Available Control Technology that keeps the emission increase from that part of the project as small as it is feasible. Best Available Control Technology has been imposed on emission units that either have no controls or controls that are going to be significantly upgraded. Applying BACTs to the existing facilities will reduce the VOC emissions significantly from the three feed dryers, which results in a net reduction in VOC even at the increased capacity after the expansion. The existing facilities actually have very good air pollution controls already installed for some of the pollutants.

The U.S. EPA has established health-based National Air Ambient Quality Standards (NAAQS) to protect public health. These maximum limits for certain air pollutants designated as criteria pollutants are based on scientific evidence. No significant impact on human health or welfare is expected as long as the concentrations of the criteria pollutants remain below the established level. The Appendix D of the technical support document contains an air quality analysis that is based on describing the emissions from the plant to a computer model that predicts concentrations all around the neighborhood. Tate & Lyle meets all health-based national ambient air quality standards established by the U.S. EPA for particulate matter, nitrogen dioxide, carbon monoxide, sulfur dioxide and ozone.

OAQ also used a computer model to predict concentrations of acetaldehyde, formaldehyde, propylene oxide, and hydrogen sulfide. The maximum predicted annual HAP concentrations in comparison to the NATA/CEP cancer risk of one in one million was determined. The cancer risk assumes exposure for a 70-year period.

The cancer risk for acetaldehyde and formaldehyde are less than 1 per million at the fence line. The cancer risk for propylene oxide reached 1.81 per million along the fence line. Only four receptors away from the fence line were above 1. Two receptors were in the rail yard, one was in Tate & Lyle parking lot, and the other was on the road to the south east of the plant. None of these would involve public residences; and none are in locations where extended exposure would occur.

Hydrogen sulfide emissions are controlled by the best available control technology, which is an alkaline scrubber with a minimum 90% control efficiency of H_2S. This is the best control technology for this operation. IDEM is aware of the difficulties that can arise in neighborhoods which are shared by industries and homeowners. The IDEM does not have specific federal or state authority to regulate odors. It does not have the authority to impose a moratorium on increased emissions, or to deny a permit based on odors.

At times the existing feed and by-product dryers are a large source of VOC emissions, which results in odor. The existing feed dryers VOC emissions together with VOC emissions from other dryers will be controlled by two regenerative thermal oxidizers, resulting in a reduction of 145 tons per year of VOC emissions from the dryers even when the dryers will be operating at an increased capacity. There will also be a reduction of 50 tons per year from wet mill area of the plant. It is anticipated that these controls will reduce odor pollution from the plant to a large extent.

Comment 4: James Mietzner

If Tate & Lyle is going to spend $7 million worth on control equipment to control the emissions increase from this expansion to 100 thousand bushels per day, then it would be nice if Tate & Lyle would install the pollution controls before IDEM issues the permit for this expansion. That would please me, my neighbors, my neighborhood association, even my dogs.

I am concerned that Tate & Lyle, as well as other companies, only provide the records they want. Please review all existing records for Tate & Lyle to determine if there are any discrepancies in recordkeeping or any odor violations, before making a final decision on the permit.

Response 4: IDEM has no authority to require Tate & Lyle to install the pollution control equipment prior to the issuance of the permit. The permit does require that the emission reductions happen before operating the new equipment approved by this permit. Equipment may be constructed before the new controls are operational; however, Tate & Lyle may not operate the equipment described by the expansion unless the control equipment is in place and operating.

IDEM inspections are unannounced. During an inspection, the IDEM inspector checks the plant's operation against its permit requirements and as part of the inspection, the inspector reviews the records required by the permit. This enables the inspectors to determine compliance status at the time of the inspection as well as any time in the past. The permit requires Tate & Lyle to monitor the operation of their equipment and their air pollution control equipment at least on a daily basis to make sure it's operating properly, to take appropriate response steps if it is not operating properly, and to keep records of all the monitoring that's done. Tate & Lyle has to report promptly to IDEM when the equipment is not operating as required by the permit.

Comment 5: Alex Intermill and Dr. Cramer

First, what is the timetable for the installation of the thermal oxidizers and the other environmental controls that Tate & Lyle has proposed or that's actually required by the permit, and then thereafter has Tate & Lyle provided a timetable for when the expansion would be completed?

Second, is the increase in capacity related to increased production in their food product line or in their industrial product line? If that's food product based, are there additional certifications that have to be obtained in conjunction with this permit for the expansion, what percentage of any increase in those productions, if it's related, are increase for food production or industrial if that was in their application.

Third, I know that you consider all the global aspects of this increase in the proposed expansion and we discussed at the hearing last week, some safety considerations with respect to increased railway traffic with the possibility of Tate & Lyle said they're looking to increase their capacity over the next two to three years, I believe it was 50 percent. What is the increased railway capacity that they anticipate, if that's been included?

Fourth, what happens if a thermal oxidizer actually shuts down or falls below its functioning level? They mentioned that they will have two thermal oxidizers, I believe of which one is capable of handling the increased capacity. What procedures, if any, have been laid out for what happens if perhaps both thermal oxidizers go down for whatever reason? What is Tate & Lyle's response to that? And if they do go down, I would assume that that would result in immediate increase in the VOCs being emitted just flat out into the atmosphere.

So what happens if Tate & Lyle later say they can't spend $7 million on this, it can only spend $100,000, that's all we've got? IDEM would then terminate the permit?

Response 5: The project is not fully defined and it probably can't be fully defined until the air permit is finalized. The permit is not a done deal until the permit is issued and has cleared any potential challenges, so IDEM can not set a timetable. There are following conditions that Tate & Lyle has to comply with.

(a) The emission reductions will happen first.

(b) This is a prevention of significant deterioration (PSD) permit under the Clean Air Act. Therefore, Tate & Lyle has to commence construction within 18 months of receiving the permit, can not discontinue the construction for 18 months or more, and the project has to be completed in reasonable time.

Tate and Lyle has announced that the Tate & Lyle Corporation has approved the $100 million project for Sagamore plant expansion.

Tate & Lyle has indicated in the hearing that it will take 18 months to finish the construction from the time the air permit is issued by IDEM.

The Air permitting process does not specify as to what percentages of the expansion will constitute food products and industrial products. There may be some FDA certifications required. IDEM does not regulate all global aspects of the expansion. Air emissions from increased unloading and load out have been taken into account.

Tate & Lyle has given an estimate of additional rail traffic for the expansion at 100 thousand bushels per day.

Product	Now Average # - Bulk rail cars per day.	Expansion Average # - Bulk rail cars per day.	Increase Average # - Bulk rail cars per day.
Starch	5.5	7.5	2.0
Corn Germ	1.5	2.2	0.7
Gluten Meal	1.0	1.5	0.5
Corn	0.9	1.4	0.5
Propylene Oxide	0.37	0.55	0.18
Sodium Sulfate	0.5	0.74	0.24
Soda Ash	0.3	0.05	0.02
Total	9.8	13.9	4.1

* Note - assumed 5% of corn received by rail

The two RTOs operate in parallel. Their capacity is being designed such that if one RTO fails, Tate & Lyle could still operate at 75% capacity and comply with all VOC limits using only the remaining RTO.

If both thermal oxidizers shut down, and the plant continues to operate uncontrolled that's a violation of the permit. An emergency, as defined in 326 IAC 2-7-1(12), constitutes a limited affirmative defense to an action brought for noncompliance with a technology-based emission limitation if during the period of an emergency, the Permittee takes all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit. On the other hand if the thermal oxidizer was failing every other day, because it wasn't properly designed or there hasn't been preventative maintenance performed, the emergency defense is not available.

Comment 6: Ms. Sharon McKnight, Dr. Cramer, Richard Johnson, and the Kizers

I realize that IDEM handles water and air, but one question I have is I believe the current usage of water is six million gallons a day between the two facilities, and I'm wondering what the increase will be after the changes. And the other is I guess kind of a realization or a comment or an observation, I think there is somewhat of an unintentional misunderstanding when we have these meetings at City Hall. As you know you get a lot of questions about odor and things like that and I think the reality is as you explain, this is an air quality meeting tonight, that's what this is, and IDEM only handles air quality and water quality.

The people see the notice in the paper about a hearing on Tate & Lyle, and come here thinking they can discuss the variety of issues that affect them. These are quality of life issues whether it's odors, noise and truck traffic or train traffic or property values or things like that. The people would like to see the City have a hearing about good neighbor sort of a thing. If the expansion is a good neighbor, then sure people will approve an expansion. If a large business or industry within a populated area is not a good neighbor, then that would be a City issue to approve or disapprove an expansion. The Kizers want Tate & Lyle to eliminate all the odors as a condition for issuing the permit.

IDEM should put the notice in the paper that there's going to be a hearing, that it specifies that these can only address air issues, water issues, things that go in the ground, but this doesn't involve odors and things like that. And speaking of noise, I would like to know if the expansion will add additional noise. Are there fans, scrubbers, blowers? Will the decibel rating go up and to what level?

Would the water usage increase be proportional to the increase in the expansion?

Response 6: The public notice document which was published in the newspaper specifically said "Comments that are most likely to affect final permit decisions are those based on the rules and laws governing this permitting process (326 IAC 2), air quality issues, and technical issues. IDEM does not have legal authority to regulate zoning, odor or noise. For such issues, please contact your local officials".

The OAQ continually tries to improve communication with members of the general public. This includes working to improve the above language to focus on IDEM's specific regulatory authority.

Response from Kevin Niebrugge, the plant manager at the Sagamore plant regarding noise and water:

For the last several years, whenever Tate & Lyle buys any new equipment, Tate & Lyle requires low decibel equipment. Tate & Lyle only buys fans that have lower decibels, which is a slower running fan or Tate & Lyle puts silencer equipment on those fans to make them quieter.

The side benefit from some of the emissions equipment that Tate & Lyle is going to put in, like additional scrubbers, and additional dust collectors will result in actually reducing the noise as well.

Overall, Tate & Lyle really can't tell you exactly how the noise level will be affected, because we don't have a complete design yet. That is certainly a very important part of the design process and one that Tate & Lyle will watch carefully to make sure we don't have adverse effects on the community.

Tate & Lyle does not have an exact number on water quantity requirement yet. The water will go up certainly. Tate & Lyle is looking at some different technologies for water recovery and that may be part of the project as well.

As a worst case assumption the water usage increase will be proportional to the increase in production.

Comment 7: Richard Johnson

In its material, the Tate & Lyle Company promises to use the "Best Available Technology". Unfortunately, this jargon term means one thing to the public and quite a different thing to polluters:

- To the public, "Best Available" means Tate & Lyle will use the most advanced methods possible to minimize pollution for the sake of our health. With today's advanced scrubbers, it is possible to bring pollution emissions from plants like this one down to zero amounts.

- To the polluters, "Best Available" leaves lots of room for interpretation, allowing them to use economics to argue against implementing the best possible air scrubbing methods.

The plant should be required to use the most advanced scrubbers to bring down their emissions to the lowest amount possible. Right now, the company's plans only call for modest upgrades to the scrubbers. The spirit of the law means Tate & Lyle should use the most advanced scrubbers possible.

Response 7: Best Available Control Technology (BACT) is an emission limitation, determined on a case-by-case basis, taking into account energy, environmental, and economics impacts and other costs.

BACT has been determined as per Indiana 326 IAC 2-2-3 rule. IDEM has determined that the proposed scrubbers are the most advanced control equipment available right now.

Tate & Lyle's Comments and OAQ Responses:

Comment 1: Construction Approval Cover Letter for SSM No. 157-18832-00003

In the first paragraph of the cover letter, it should be noted that Tate & Lyle was issued a Part 70 operating permit on June 28, 2004, rather than April 14, 2004. This same correction should be made to the cover letter of the draft SPM 157-20671-00003.

Response 1: The typo has been corrected.

Comment 2: Construction Approval Cover Letter for SSM No. 157-18832-00003

The following changes and corrections should be made for the emission units and control equipment described in this cover letter:

(12) 18 Bldg. Process Tanks and <u>Screens</u>

Between Items (16) and (17), add "One collector/cyclone 21FEE" and "One (1) Gluten Flash Dryer 48 DAA and then delete current Item (18).

After current Item 20, add "One (1) Packed Bed Scrubber 45FAA".

(29) One (1) Spray Dryer 2 Overflow Tank 46V3.

After current Item 87, add "Six (6) collectors/cyclones 44FAA-44FFF"

Response 2: The changes have been made accordingly.

Comment 3: Since the final SSM will be issued as a Prevention of Significant Deterioration (PSD) permit, Tate & Lyle recommends the following revision to Condition 4 of the construction approval cover letter:

4. Pursuant to ~~326 IAC 2-1.1-~~9 and 326 IAC 2-7-10.5(i), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval ~~or if construction is suspended for a continuous period of one (1) year or more.~~

Response 3: The rule citation has been corrected and the following revision to the condition has been made.

4. Pursuant to ~~326 IAC 2-1.1-9~~ **326 I AC 2-2-8(1)** and 326 IAC 2-7-10.5(i), ~~the Commissioner may revoke~~ this approval **expires** if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is ~~suspended for a continuous period of one (1) year~~ **discontinued for a period of eighteen months** or more, **or if construction is not completed within a reasonable period**.

SECTION A – SOURCE SUMMARY

Comment 4: With the following exceptions, Section A of the draft SPM accurately reflects the emission units and pollution control equipment described in Tate & Lyle's PSD permit application.

Sections A.2(a)(12), (13), and (15) should be revised as follows because Tate & Lyle can not be certain these facilities will be constructed before the end of 2005.

(12) Two (2) Corn Storage Silos, identified as 13VAA and 13VBB, **to be** constructed ~~in 2005~~, with emissions controlled by baghouse 21F1, exhausting to stack 136;

(13) One (1) Vibrating Corn Cleaning System, identified as 14JAA, **to be constructed** ~~permitted in 2005~~, with emissions controlled by baghouse 14F2, exhausting to stack 126;

(15) One (1) Vibrating Corn Cleaning Pneumatic Transfer, identified as 21FMM, **to be constructed** ~~permitted in 2005~~, with emissions controlled by baghouse 21FMM, exhausting to stack 394.

Sections A.2(b)(60) to (65) should be revised as follows because Tate & Lyle can not be certain these facilities will be constructed before the end of 2005.

(60) Eight (8) Steep Tanks, identified as 14VAA, 14VBB, 14VCC, 14VDD, 14VEE,

14VFF, 14VGG and 14VHH, to be constructed ~~in 2005~~, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(61) One (1) High DS Starch Vacuum Filter, identified as 18FAA, to be constructed ~~in 2005~~, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(62) One (1) Gluten Vacuum Filter, identified as 21FAA, to be constructed ~~in 2005~~, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(63) One (1) Gluten Vacuum Filter Pump, identified as 21CBB, to be constructed ~~in 2005~~, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(64) Fiber Dewatering Screens, identified as 21FNN, to be constructed ~~in 2005~~, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17; and

(65) 18 Bldg. Process Tanks and screens, to be constructed ~~in 2005~~, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17.

Response 4: The descriptions have been revised accordingly.

Comment 5: Sections A.2(c)(5), (6), and (9) should be revised as follows to reflect the fact the existing germ dryers will continue to operate until the new germ dryer is constructed, to correct control equipment tag numbers for the new germ and gluten dryers, and to reflect the ability of dryer 21D8 to be a standby feed dryer in the future capable of burning biogas.

(5) One (1) RST Germ Dryer, identified as 21DBB **or three existing steam tube dryers constructed in 1966, identified as 21D1, 21D2, and 21D3**. PM and PM_{10} emissions are controlled by product collectors/cyclones **21FEE** ~~48FAA-48FFF~~, then PM, PM_{10} and sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17;

(6) One (1) Gluten Flash Dryer, identified as 48DAA. **PM and PM_{10} emissions are controlled by product collectors/cyclones 48FAA-48FFF, then** PM, PM_{10} and sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17;

(9) One (1) 21D8 natural gas, ~~or~~ No. 2 fuel oil fired, **or biogas fired** Meal Dryer **or backup Feed Dryer** identified as 21D8, constructed in 1966, with a heat input capacity of 30 MMBtu/hr. PM and PM_{10} emissions are controlled by integral product collector/cyclone 21F28, then sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions are controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17;

Sections A.2(e)(47) should be revised to reflect the fact that scrubber 45F212 exhausts to stack 50.

(47) Six (6) Propylated Starch Reactors, identified as 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF, with VOC emissions controlled by packed bed scrubbers 45FAA or 45F212, exhausting to stack 399 **or stack 50**;

Sections A.2(g)(11), (18), and (20) should be revised as follows to correct equipment tag numbers and to include the vent identification for baghouse 20F60:

(11) One (1) Roll Dried, Dry Starch Reaction System, & Malto Bag Packer #3 (South Spouts), identified as 41Z **5**, constructed in 1986, with emissions controlled by baghouse 41F18 exhausting via vent 186 to stack 355;

(18) One (1) Bulk Starch Rail Loadout (Track #10), identified as 20F60, constructed in 1993, with emissions controlled by baghouse 20F60, exhausting **via vent 79** to stack 404;

(20) One (1) J4 Starch Rail Loadout System, identified as **16F100** ~~16F8~~, constructed in 1989, with emissions controlled by baghouse 16F100, exhausting via vent 183 into stack 177;

Response 5: The descriptions have been revised accordingly except the item (5) of Section A.2(c), which has been stated in two sections.

(5) One (1) RST Germ Dryer, identified as 21DBB, PM and PM_{10} emissions are controlled by product collectors/cyclones **21FEE** ~~48FAA-48FFF~~, then PM, PM_{10} and sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17. This new dryer will replace the three existing dryers;

(6) Three (3) existing steam tube dryers constructed in 1966, identified as 21D1, 21D2, and 21D3, PM and PM_{10} are controlled by scrubber 21F13, and exhausting to stack 17. These dryers will be shutdown after the new germ dryer starts up;

Due to the additional item number, the subsequent item numbers have been changed.

Comment 6: Section B – General Construction Conditions -- SSM

B.5 — Advanced Source Modification Approval

Condition B.5 references “proposed emission units, control equipment or insignificant activities in Sections A.2 and A.3”. There is no Section A included in the draft SSM. Tate & Lyle recommends Section A, as proposed in the draft SPM, is added to the final SSM.

B.6 — Significant Source Modification

Condition 13.6 references 326 IAC 2-7-10.5(h) as the authority to operate following construction of the proposed emission units. 326 IAC 2-7-10.5(h) applies only to a source that has not received a final Part 70 permit. Since Tate & Lyle received its final Part 70 permit on June 28, 2004, this condition should be deleted in its entirety. However, Tate & Lyle is not opposed to the voluntary filing of an Affidavit of Construction for each phase of construction under its PSD permit.

B.7 — General Provisions and NSPS Reporting

Condition B.7 should be deleted in its entirety because Tate & Lyle is not proposing to construct any facilities subject to New Source Performance Standards such as 40 CFR Part 60 Subpart Y.

Response 6: Conditions B.5, B.6, and B.7 do not apply to this modification; therefore these conditions have been removed from SSM 157-18832-00003.

Comment 7: SECTION B - GENERAL CONDITIONS — SPM
The following comments apply to General Conditions in Section B of the draft SPM.

B.8 – Certification

The phrase "or required by an applicable requirement" should be deleted from the first sentence of Condition B.8(a) because a source should not be required to certify compliance with any applicable requirement that is not specifically included in its permit. If a certification is not required by the Part 70 Permit, or a permit modification, it should not be a violation of the permit to omit the certification. The phrase "or its equivalent" should be inserted after the word "Form" in Condition B.8(b). (See also Condition C.22(a) and Section D Reporting Requirement Conditions that do provide for the use of equivalent forms.)

(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 a 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 or **its equivalent** with each submittal requiring certification.

Response 7: All applicable requirements refer to all applicable requirements in Sections A, B, C, and D.1 through D.11, and any other requirements from all the Federal and State rules, when it becomes effective. If some conditions in Sections B or C are not applicable, the Permittee shall state in the certification that these requirements were not applicable to this source at this time.

There will be no changes to the condition B.8 in the final permit as a result of this comment except the suggested change to B.8(b) as shown above.

Comment 8: B.10(a)(1) — Preventive Maintenance Plan

The phrase "by job title," should be inserted after the word "individual(s)" in Condition B.10 (a)(1) because identifying individuals by their given names is inappropriate in a permit that is in effect for five (5) years. Identifying individuals by their job title is a more appropriate way to reflect likely changes in personnel.

(1) Identification of the individual(s), **by job title**, responsible for inspecting, maintaining, and repairing emission control devices;

Response 8: The condition B.10(a)(1) has been changed accordingly.

Comment 9: B.13(b) — Prior Permits Superseded

Tate & Lyle cannot certify compliance with Section B.l3(b) because it is the responsibility of IDEM to ensure that all applicable permit terms and conditions from prior permits are accurately reflected in this permit. Tate & Lyle believes this Section, as written, may require continuing review and certification of compliance with previous permits that should have been superseded by this permit. These requirements are confusing and contrary to the intent of the Part 70 permit process. Therefore, Section 8.13(b) should be revised as follows:

~~(b) Provided that all terms and conditions are accurately reflected in this permit,~~ all **All** previous registrations and permits are superseded by this combined new source review and Part 70 operating permit.

Response 9: The preamble to the Part 70 Operating Permit Program final rule makes clear that it is the responsibility of the source to turn in a complete application and that the application “must contain information which identifies a source, its applicable air pollution control requirements, the current compliance status of the source, the source’s intended operating regime and emission levels, and must be certified as to their truth, accuracy and completeness by a responsible official after making reasonable inquiry.” *Emphasis added,* 57 FR 32250. The responsibility of a Part 70 permit applicant is also made clear by the language in 40 CFR 70.5(b) that states that, “[a]n applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to release of a draft permit”. The responsibility of the applicant to provide IDEM with applicable requirements is borne out also by the language in 40 CFR 70.5 (c) (8) which requires the applicant to provide the permitting agencies with “a description of the compliance status of the source with respect to all applicable requirements.”

Further, IDEM added the language that Tate & Lyle wants to delete at the behest of U.S. EPA, Region V. For the above reasons, the language of B.13(b) will not be changed.

Comment 10: B.22 – Inspection and Entry

The phrase "at reasonable times" should be inserted into subsections (b), (c) and (d) of Condition B.22. The Permit language as it currently stands is contrary to the applicable federal requirement, 40 C.F.R §70.6(c)(2)(ii)-(iv), which includes the phrase "at reasonable times."

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

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

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

Response 10: The corresponding provision of the state rule - 326 IAC 2-7-6(2) - does not specifically limit inspection and entry to "reasonable times." The IDEM, OAQ acknowledges that case law applies a general standard of reasonableness to many actions taken by a regulatory agency, but that does not require that the permit be written differently than the plain language of the applicable rule.

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

SECTION C – GENERAL CONDITIONS -- SPM

Comment 11: C.20 – Emission Statement

Condition C.20 should be changed to require annual, rather than triennial, submission of the emission statement as follows:

(a) Pursuant to **326 IAC 2-6-3(a)(1)** ~~326 IAC 2-6-3(b)(2), starting in 2005 and every three (3) years thereafter~~, 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 proposes of Section 19 of this rule") from the source, for purposes of fee assessment. ~~The statement must be submitted to:~~

(b) The annual emission statement covers the twelve (12) consecutive months time period starting January 1 and ending December 31. The annual emission statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

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

(c) 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.

Response 11: The condition C.20 has been changed accordingly.

Comment 12: C.22(f) – General Reporting Requirements

A time frame for submittal to IDEM of the report required under on C.22(f) is not provided. Tate & Lyle recommends C.22(f) be revised to indicate that this report must be submitted at the same time the annual compliance certification is submitted pursuant to Section B.9. C.22(h) should be C.22(g).

Response 12: Condition C.22(f) has been revised as follows:

(f) If the Permittee is required to comply with the recordkeeping provisions of (c) in Section C- General Record Keeping Requirements for any "project" (as defined in 326 IAC 2-2-1 (qq)) at an existing emissions unit, and the project meets the following criteria, then the Permittee shall submit a report to IDEM, OAQ **at the same time the annual compliance certification is submitted pursuant to**

Section B.9:

Condition C.22(h) has been corrected to C.22(g).

SECTION D – FACILITY OPERATION CONDITIONS

Unless indicated to the contrary, comments offered on Section D of the permits apply to both the draft SSM and the draft SPM except for Sections D.4, D.8, D.9, and D.11 which are not included in the draft SSM. It should be noted that Tate & Lyle remains concerned with the frequency of visible emission observation requirements and any requirement to perform parametric monitoring using total static pressure drop across bagfilters. These requirements are currently the subject of an appeal of Tate & Lyle's Part 70 permit (Cause No. 04-A-J-3401) and for which a joint stipulation for stay is in effect.

Corn Receiving and Conveying Operations

Comment 13: D.1.1(b) – Prevention of Significant Deterioration

A typographical error exists in the first paragraph of Condition D.1.1(b). Baghouse 14F2 is listed as being subject to both emission rates of 0.005 gr/dscf and 0.01 gr/dscf. The first instance of 14F2 should be deleted to clarify that only baghouses 21F1 and 21FMM are subject 0.005 gr/dscf.

Response 13: The condition D.1.1(b) typo has been corrected as follows:

D.1.1(b) Best available control technology (BACT) for PM and PM_{10} (Filterable and Condensable) is an emission rate of 0.005 gr/dscf for baghouses ~~14F2,~~ 21F1 and 21FMM, and 0.01 gr/dscf for baghouse 14F2 and

Comment 14: D.1.5 – Testing Requirements

The draft permits include PM and PM_{10} testing requirements for 46 out of the 52 new or modified material handling bagfilters with new BACT limits including the three bagfilters described in Conditions D.1.5(a) and (b). PM/PM_{10} emission rates for these 52 bagfilters vary between 0.01 lbs/hr and 0.84 lbs/hr. Only four bagfilters will be permitted to emit more than 0.5 lb/hr PM/$PM_{10.}$ The sum of emission rates from all 52 bagfilters is only about 27.5 tpy.

IDEM's "Compliance Monitoring Guidance" dated May 15, 1996 states that a compliance monitoring plan (including testing) is only required for facilities emitting particulate matter in excess of 10 pounds per hour if the emission unit has a device to control emissions. Clearly none of these units approach this level of emissions and the expense of nearly 50 compliance monitoring emission tests every five years is both unreasonably burdensome and expensive considering the very low level of emissions.

The majority of these new and modified material handling bagfilters are used as control devices that are integral to the process (i.e., uncontrolled emissions are equal to actual emissions after the bagfilter). For those control devices (including bin vent filters) that are integral to the process, an exemption from compliance monitoring conditions related to the control device itself (e.g., static pressure drop) should also be considered. In order to demonstrate compliance with the PSD permit (SSM 157-18832-00003), Tate & Lyle is willing to perform emission tests on a representative number of these material handling bagfilters to demonstrate compliance with BACT limits. Since compliance monitoring plans should not be required for these small units, these tests should not be required to be repeated every five years.

Tate & Lyle requests the following Sections of the draft permits allow for PM and PM_{10} emission testing of bagfilters having airflows of 3000 scfm or more as follows:

Section D.1 – Test only 21F1 and 14F2

Section D.5 – Test 33FCC, 33FFF or 33FGG

Section D.6 – Test one of the 5 bins (07FAA, 07FBB, 07FCC, 07FDD, 07FEE); Test one of the four starch mill baghouses 40F28, 40F29, 40FII, and 40FJJ; and Test 41FAA and 41F202

Section D.7 – Delete 18FBB from the list since it vents inside, Test 17FDD or 17FBB; and 17FCC

Response 14: The permit has been revised accordingly. The revised conditions are as follows:

D.1.5 Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]

(a) Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup of Vibrating Corn Cleaning Systems 14JAA, **and** 14UBB, ~~and 21FMM~~, the Permittee shall perform PM and PM_{10} testing on baghouse 14F2 ~~and 21FMM~~ to verify compliance with Condition D.1.1 (b) (1), ~~and (3),~~ utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

(b) Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup of Corn Silos 13VAA and 13VBB, the Permittee shall perform PM, and PM_{10} testing on baghouse 21F1 to verify compliance with Condition D.1.1(b)(2), utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. PM-10 includes filterable and condensable PM-10. Testing shall be conducted in accordance with Section C- Performance Testing.

D.5.9 Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]

(a) ~~To verify compliance with Condition D.5.1(a), w~~Within 60 days after achieving the maximum production rate, but no later than 180 days after startup, the Permittee shall perform PM and PM_{10} testing on ~~Baghouses 45BFAA, 20FAA, 20FBB, 18AFAA, 41FKK, 33FAA, 33FCC, 33FDD, 33FFF, 33FGG, and 33FEE~~ **Dextrim Fluidizer Reactor baghouse 33FCC, and one of Dextrim storage and blending bins baghouses 33FFF or 33FGG**, **to verify compliance with Condition D.5.1(a),** utilizing methods as approved by the Commissioner**, and furnish the Commissioner a written report of the results of such performance tests**.

(b) ~~To verify compliance with Condition D.5.1(b), W~~within 60 days after achieving the maximum production rate, but no later than 180 days after startup, the Permittee shall perform VOC testing on packed bed scrubber 45FAA, **to verify compliance with Condition D.5.1(b),** utilizing methods as approved by the Commissioner**, and furnish the Commissioner a written report of the results of such performance tests**.

(c) ~~To verify compliance with Condition D.5.5(a),~~ W~~w~~ithin 60 days after achieving the maximum production rate, but no later than 180 days after startup of **emission unit 45VAA**, the Permittee shall perform VOC testing on 45F212, **to verify compliance with Condition D.5.5(a),** utilizing methods as approved by the Commissioner**, and furnish the Commissioner a written report of the results of such performance tests**.

These tests shall be repeated at least once every five years from the date of this valid compliance demonstration. **PM_{10} includes filterable and condensable PM_{10}.**Testing shall be conducted in accordance with Section C - Performance Testing.

D.6.7 Testing Requirements [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

(a) **Within 60 days after achieving the maximum production rate but no later than 180 days after startup of the Flash dryer #4 (44DAA),** ~~T~~the Permittee shall perform PM and PM_{10} testing on the Starch Flash Dryer #2 (40D20) and the Starch Flash Dryer #4(44DAA)**,** ~~within 60 days after achieving the maximum production rate but no later than 180 days after startup of Flash dryer #4 (44DAA).~~ **to verify compliance with Condition D.6.1(b),** ~~Testing shall be completed~~ utilizing methods as approved by the Commissioner**, and furnish the Commissioner a written report of the results of such performance tests**.

~~PM_{10} includes filterable and condensable PM_{10}. This testing is necessary to demonstrate compliance with Condition D.6.1(b) and shall be repeated at least once every five (5) years from the date of the valid compliance demonstration.~~

(b) Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup, the Permittee shall perform PM and PM_{10} testing on **one of the** storage bins baghouses ~~(07FDD, 07FEE, 07FAA, 07FBB, 07FCC, 41F10, 41F11, 41FHH, 41F16, 41F17, 41F22, 41F23, 33F44, 41FEB, 41FHH,7F20, 7F21, 7F22, or 7F33), and the starch milling baghouses (41F202, 44FII, 44FJJ, 40F28, 40F29)~~ **07FAA, 07FBB, 07FCC, 07FDD, and 07FEE; the roll dryer mill baghouses 41FAA, and 41F202; and one of the starch milling baghouses 44FII, 44FJJ, 40F28, and 40F29** to verify compliance with Condition D.6.1(a), utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

These tests shall be repeated at least once every five years from the date of this valid compliance demonstration. PM_{10} includes filterable and condensable PM_{10}. Testing shall be conducted in accordance with Section C - Performance Testing.

D.7.5 Testing Requirements [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup, the Permittee shall perform PM and PM_{10} testing on **one of the Packer #6 product receiver** baghouses ~~51FDD, 17FBB, 17FDD, 17FCC, 17FAA, 20FAA, 20FBB, 20F60, and 18FBB~~ **17FBB, and17FDD; and Packer #6 house dust collector 17FCC** to verify compliance with Condition D.7.1, utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

These tests shall be repeated at least once every five years from the date of this valid compliance demonstration. PM_{10} includes filterable and condensable PM_{10}. Testing shall be conducted in accordance with Section C- Performance Testing.

Comment 15: D.1.6 – Visible Emission Notations
Section D.1.6(a) requires that visible emission evaluations of the exhaust from stacks 136, 126, 137, and 394 be performed once per shift during normal daylight operations. Tate & Lyle requests that the Condition be revised to require once per day, rather than once per shift visible emission notations because it is overly burdensome, without legal foundation and, at times, infeasible. Tate & Lyle operates two shifts: 6AM to 6PM and 6PM to 6AM. For a great deal of the year, once per shift visible emissions notations are not possible because there is no daylight during the 6PM to 6AM shift. Even during the summer-time months, there are only about three hours, at most, during the twelve hour second shift in which to perform the emissions notations.

The existing corn cleanings pneumatic transfer system venting through baghouse 21F2 to stack 137 will not be modified as a consequence of this expansion project and does not have a visible emissions notation requirement in the current Part 70 permit. Therefore, Tate & Lyle requests that Section D.1.6(a) be revised to require only daily visible emission evaluations for stacks 136, 126, and 394.

For similar reasons, Tate & Lyle also requests that the following Sections of the draft permits be revised to require once per day visible emission notations rather than once per shift visible emission notations. In addition, Tate & Lyle requests Stacks 177, 355, and 361 be deleted from Section D.7.6(a) since visible emission notations are already required for these stacks under D.5.10(a) & (b) and D.6.8(a):

Section D.3.13 (a) – Stacks 3 and 17
Section D.5.10(a) & (b) – Stacks 355 and 361
Section D.6.8(a) – Stacks 265, 360, 388 and 177
Section D.7.6(a) – Stacks 356 and 404 (Delete 177, 355, and 361)
Section D.8.5(a) – Stacks 199 and 200
Section D.9.18(a) – Stack 197

Response 15: Visible emissions notations are used to determine compliance with 326 IAC 5-1 and particulate matter mass emissions limits. This monitoring requirement is designed: 1) as a trigger for the source to perform some corrective action on the facility if visible emissions are abnormal, and 2) to ensure continuous compliance with the respective emission limitations. IDEM believes that once per shift notations are reasonable, adequate, and necessary to demonstrate continuous compliance with permit requirements. Control device failure can occur suddenly and during any shift, and once per shift visible emission monitoring can minimize lag time in addressing control failure. In addition, IDEM has already evaluated Tate & Lyle's emission units for reduced compliance monitoring; the results of which are reflected in the draft permit.

IDEM recognizes that there may be periods during the year in which it may not be possible to conduct visible emission notations during Tate and Lyle's second shift (6 pm - 6 am). For that reason, the permit requires the respective monitoring to be performed "during normal daylight operations."

In conclusion, (1) Tate & Lyle has not provided sufficient information, for the units in question, that demonstrates that daily visible emission notations will ensure continuous compliance; and 2) IDEM's decision to require per shift visible emission notations is consistent with other, similar source(s) permitting decisions.

The visible emission notations from Stacks 177, 355, and 361 have not been deleted from Section D.7.6(a), because visible emission notations are required for these stacks even when the equipment under D.5.10(a) & (b) and D.6.8(a) are not operating, and equipment under D.7.6(a) is operating.

There will be no changes to the conditions in the final permit as a result of this comment.

Comment 16: D.1.7 – Monitoring for Baghouses

Section D.1.7 of the draft permits requires Tate & Lyle to monitor total static pressure drop across baghouses 21F1, 21F17, 14F2, and 21FMM on a once per shift basis. Emission units exhausting to baghouse 21F17 are not being modified; therefore, the frequency of monitoring should not be changed from once per day to once per shift. Parametric monitoring for bagfilters using total static pressure drop in this industry is ineffective and extremely burdensome. A better and more effective method for determining compliance is daily visible emission observations.

Baghouse pressure drop is a function of air-to-cloth ratio, bag material, cake thickness, inlet loading and cleaning frequency plus the characteristics (e.g., "stickiness") of the product being conveyed and controlled. The air-to-cloth ratio, bag material and cleaning frequency are fixed; however, the dryer operates at different rates and dries different product which will in turn have different effects on the filter cake thickness as starch is conveyed through the system. For this reason, the pressure drop range can vary dramatically depending on the rate of the dryer and the type of starch being dried. The combination of these variables makes the correlation of acceptable pressure drop ranges to compliance with emission limits difficult. In fact, any prescribed pressure drop range other than a fairly wide operating range (e.g., 0.5 to 8.0 inches of water) in these permit conditions would be considered arbitrary because it does not consider these factors for individual collectors. It is probable that a number of collectors at the Sagamore facility operate effectively and in compliance at pressure drops of less than 1.0 inches of water.

Tate & Lyle strongly believes the pressure drop range is not an effective means of monitoring the operational efficiency of a baghouse. It is very possible a baghouse could be operating outside the specified pressure drop range and still be in full compliance with the allowable emission limit. Conversely, because most emission problems are caused by torn, damaged or improperly installed bag(s), it is very likely that a baghouse could be operating within the specified pressure drop range and not be in full compliance with the allowable emission limit. In most excess emission situations, only a few bags in a baghouse become damaged. Therefore, the change in the bagfilter static pressure drop is negligible. Thus, the emission source could exceed emission limitations, but the bagfilter static pressure drop would not indicate this condition and would be within the prescribed pressure drop range. Tate & Lyle has determined this method of compliance monitoring for bagfilters proposed and in use at the Sagamore facility is not suited for the goal intended and will yield erroneous conclusions regarding the compliance status of the emission source. Instead, Tate & Lyle believes visual monitoring is the most suitable means to determine compliance while introducing the least potential for error.

In summary, bagfilter pressure drop ranges correlated to actual emission rates is in no way as reliable as direct visual examination of the exhaust for the types of bagfilters in use at the Sagamore facility. Thus, requirements to monitor bagfilter pressure drop in Section D.1.7 within a prescribed range should be deleted from the draft permits.

For the same reasons provided above, Tate & Lyle requests that the following Sections of the draft permits requiring monitoring of total static pressure across specified bagfilters either on a daily or once/per shift basis be deleted in their entirety.

Sections D.3.14, D.4.8, D.5.13, D.6.11, D.7.7, and D.8.6

Response 16: Monitoring of the static pressure drop can alert the operator to relative changes (such as dust cake resistance) over a period of time. The operator can use this information to chart trends and determine if the unit is operating within the optimal range as determined by baseline testing of the unit and manufacturer's specifications. Pressure drop is an indicator of a variety of conditions within the baghouse. Any deviations from the normal operational range of the unit, whether gradual or sudden, should alert the operator that the unit needs maintenance. The Compliance Response Plan should include response steps to anticipate corrective actions when abnormal conditions arise. Both gradual and sudden changes in the pressure drop could result in damage to the bags or baghouse if not properly addressed. Therefore, the OAQ believes that pressure drop readings are a useful indicator of proper baghouse operation and should be taken at least once per shift rather than daily in such cases where a source operates more than one shift per day.

There will be no changes to the conditions in the final permit as a result of this comment.

Comment 17: D.1.8(a) – Baghouse Inspections

Section D.1.8(a) should be revised as follows to include all emission units that are or will be vented to baghouses 14F2, 21F1, and 21MM. In addition, the sentence “All defective bags should be replaced” should be deleted for external inspections of baghouses as it was in similar sections of the permits (e.g., D.3.15(a) or D.5.14(a)):

(a) An external inspection of all baghouses, controlling particulate emissions from emission units 12V101, 12V102, 12U2, 12U4, 12U5, **13V1, 13V2, 13V3, 13V4, 13V5,** 13VAA, 13VBB, **14U9, 14V1, 14J4, 14J5,**14JAA, 14UBB, and 21FMM (bags in baghouses 14F2, 21F1 and 21FMM) shall be performed at least once per calendar quarter. Inspections required by this condition shall not be performed in consecutive months. ~~All defective bags shall be replaced.~~

Response 17: Condition D.1.8(a) has been revised accordingly.

D.1.9 – Broken or Failed Bag Detection

Comment 18: Section D.1.9(a) should be revised by changing the time limit provided for initiation of response steps from eight (8) hours to twenty-four (24) hours. This facility operates twenty-four (24) business hours per day. If a bagfilter compartment fails during evening hours, the necessary engineering, maintenance and management personnel may not be available until the next morning to implement any additional corrective actions. Because these Conditions require that in the event a bag failure is observed, affected compartments must be "shut down immediately," twenty-four (24) hours is a more reasonable time period for responsive action. Therefore, Section D.1.9(a) should be revised as follows:

For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. **Within twenty-four (24)** ~~eight (8)~~ business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within **twenty-four (24)** ~~eight (8)~~ business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit. If operations continue after bag failure has been observed and it will be 10 (ten) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

For reasons provided above, Tate & Lyle requests that the following identical Sections of the draft permits be revised in accordance with the language recommended for D.1.9(a):

Sections D.3.16(a), D.4.10(a), D.5.15(a), D.6.13(a), D.7.9(a), D.8.8(a), and D.9.20(a)

Response 18: The IDEM, OAQ believes that the Permittee has personnel available within an appropriate time frame to perform response steps if necessary. The fact that Tate & Lyle operates 24 hours a day does not serve as a sufficient justification to allow for additional response time, especially when bag failure could result in a significant increase in emissions.

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

Comment 19: Section D.1.9(b) should reflect, in accordance with the requested deletion of conditions associated with bagfilter pressure drop monitoring, that the primary means of determining bagfilter failure is by observing abnormal visible emissions. Tate & Lyle is not opposed, however, to the inclusion of bagfilter pressure drop as one of several secondary means by which a bag failure may be determined. Therefore, Section D.1.9(b) should be revised as follows:

(b) For single compartment baghouses, if failure is indicated by ~~a significant drop in the baghouse's pressure readings with~~ abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as **a significant drop in the baghouse's pressure readings**, gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

For reasons provided above, Tate & Lyle requests that the following identical Sections of the draft permits be revised in accordance with the language recommended for D.1.9(a):

Sections D.3.16(a), D.4.10(a), D.5.15(a), D.6.13(a), D.7.9(a), D.8.8(a), and D.9.20(a)

Response 19: See Response to Comment 16 regarding the need for parametric monitoring of baghouses. Bagfilter pressure drop monitoring will not be deleted as stated in Response No. 16.

Therefore, there will be no changes to the conditions in the final permit as a result of this comment.

Comment 20: D.1.10 – Record Keeping Requirements

Consistent with Tate & Lyle's recommendations regarding the baghouse pressure drop monitoring conditions described above, related recordkeeping requirements in Section D.1.10(b) should be deleted in their entirety.

Tate & Lyle also requests that the following Sections of the draft permits, which require baghouse pressure drop measurement records be maintained, be deleted in their entirety.

Sections D.3.17 (e), D.4.11(c), D.5.16(e), D.6.14(h), D.7.10(b), and D.8.9(b)

Response 20: Bagfilter pressure drop monitoring will not be deleted as stated in Response No. 16. Therefore, there will be no changes in the record keeping conditions in the final permit as a result of this comment.

Comment 21: D.1.11 – Clean Unit

The following additional existing emission units should also be considered Clean Units and individually listed in Section D.11(a) because they are emission units controlled by bagfilters subject to BACT emission limitations in Section D.1.1.

Baghouse 21F1 – 12V101, 12V102, 12U2, 12U4, 12U5, 13V1, 13V2, 13V3, 13V4, and 13V5

Baghouse 14F2 – 14U9, 14V1, 14J4, 14J5

Section D.1.11(b) is missing from the draft SPM and should be identical to Section D.11(b) of the draft SSM.

Response 21: Emission units 12V101, 12V102, 12U2, 12U4, 12U5, 13V1, 13V2, 13V3, 13V4, 13V5, 14U9, 14V1, 14J4, 14J5 have been added as clean units.

Section D.1.11(b) has been added to the final SPM.

D.1.11(b) **The Clean Unit designations for the above emissions units are in effect for ten (10) years after the issuance date of the source modification permit or the date the emission's unit control technology is placed in service, whichever is later.**

Feed/Meal/Germ Production Operations

Comment 22: D.3.5 – Sulfur Dioxide Emissions and Sulfur Content

The last sentences of Sections D.3.5 and D.9.11, respectively, are directly contrary to the "credible evidence" Condition B.25. These final sentences should be deleted from both conditions.

Response 22: This is an appeal issue pending for resolution. It will be resolved through the appeal resolution process.

Therefore, there will be no changes to the conditions in the final permit as a result of this comment.

Comment 23: D.3.11 – Monitoring for Scrubbers

Section D.3.11(d) requires that pH and flow rate monitoring instruments be calibrated at least once every six months for scrubber 21F13. Calibration of some of these instruments can only be performed when the equipment is operating. Therefore, for clarification purposes and to achieve greater consistency with Condition C.18(f), which states that "all monitoring as required in Section D shall be performed when the emission unit is operating, except for time necessary to perform quality assurance and maintenance activities," (emphasis added), Section D.3.11(d) should be revised as follows:

(d) The instruments used for determining the pH and flow rate shall comply with Section C-Pressure Gauge and other Instrument Specifications and shall be calibrated at least once every six (6) months. **The loss of monitoring data due to the calibration of an instrument while the equipment is in operation does not constitute a deviation from this permit.**

Tate & Lyle also requests that the following Sections of the draft permits, which are similar to Section D.3.11(d), be revised using the language recommended for D.3.11(d).

Sections D.5.11(e), D.6.9(e), and D.10.6(e)

Response 23: The conditions D.3.11(d), D.5.11(e), D.6.9(e) and D.10.6(e) have been revised accordingly. Also the condition D.10.6(c) has been deleted as it is a duplicate of condition D.10.6(b).

D.3.11 Monitoring for Scrubbers

(d) The instruments used for determining the pH and flow rate shall comply with Section C-Pressure Gauge and other Instrument Specifications and shall be calibrated at least once every six (6) months. **The loss of monitoring data due to the calibration of an instrument while the equipment is in operation does not constitute a deviation from this permit.**

D.5.11 Monitoring for Scrubbers

(e) The instruments used for determining the pH, pressure drop, and flow rate shall comply with Section C- Pressure Gauge and other Instrument Specifications and shall be calibrated at least once every six (6) months. **The loss of monitoring data due to the calibration of an instrument while the equipment is in operation does not constitute a deviation from this permit**

D.6.9 Monitoring for Scrubbers

(e) The instruments used for determining the flow rate shall comply with Section C- Pressure Gauge and other Instrument Specifications of this permit and shall be calibrated at least once every six (6) months. **The loss of monitoring data due to the calibration of an instrument while the equipment is in operation does not constitute a deviation from this permit.**

D.10.6 Monitoring for Scrubbers

(a) The Permittee shall monitor the scrubber the pH of the scrubbing liquor at least once per shift from scrubber 34V11 used to scrub the biogas from 34V10.

(b) A continuous monitoring system shall be installed and operated at all times scrubber 34V11 is in operation. The monitoring system shall continuously measure and record the scrubber recirculation rate from scrubber 34V11 controlling emissions from emission unit 34V10. The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when the pH readings are outside of the normal range, and any recirculation rate is below minimum flow rate for any one reading. The normal pH range for scrubber 34V11 is 9.0 to 11.5 or the range established during the latest stack test. The minimum flow rate for Scrubber 34V11 is 70 gpm or a minimum flow rate established during the latest stack test.

(c) ~~The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and response steps for when the pH readings are outside of the normal range, and below minimum flow rate for any one reading. The normal pH range for scrubber 34V11 is 5.0 to 8.0 or the range established during the latest stack test. The minimum flow rate for Scrubber 34V11 is 70 gpm or a minimum flow rate established during the latest stack test.~~

(d) A pH or flow reading that is outside the normal range or below the minimum flow rate for any one reading is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

(e) The instruments used for determining the flow rate and pH shall comply with Section C- Pressure Gauge and other Instrument Specifications of this permit and shall be calibrated at least once every six (6) months. **The loss of monitoring data due to the calibration of an instrument while the equipment is in operation does not constitute a deviation from this permit.**

Syrup Refining Operations

Comment 24: D.4.4 – Monitoring for Eductor/Scrubber

Section D.4.4(a) requires that a visible observation be made for the presence of scrubber recirculation flow for eductor/scrubber 9E1. Tate & Lyle requests that Condition D.4.4(c) be deleted in its entirety because no instrument will be used for determining the flow rate.

Response 24: Condition D.4.4(a) has been deleted.

D.4.4 Monitoring for Eductor/Scrubber

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

Comment 25: Condition D.4.6 – Scrubber Malfunction

Section D.4.6 is identical to scrubber malfunction conditions that have been deleted in their entirety from Sections D.3, D.5, D.6, and D.10 of the draft permits. Tate & Lyle requests that Section D.4.6 also be deleted in its entirety.

Response 25: Condition D.4.6 has been deleted, and subsequent conditions have been renumbered.

~~D.4.6 Scrubber Malfunction~~
~~In the event that a scrubber malfunction has been observed:~~

~~(a) The affected unit will be shut down immediately in accordance with safe operating procedures until the failed unit has been repaired or the appropriate components replaced.~~

~~(b) Based upon the findings of the inspection, any additional corrective actions will be devised within eight (8) hours of discovery and will include a timetable for completion.~~

Comment 26: D.4.7 – Visible Emission Notations;
D.4.8 – Monitoring for Baghouses; and
D.4.9 – Baghouse Inspections

All references to emission unit 9C30 and its corresponding stack 124 should be deleted because this is a totally enclosed system for rail car unloading and no fugitive emissions are generated. The requirements set forth by Conditions D.4.7 (Visible Emissions Notations), D.4.8 (Monitoring for Baghouses) and D.4.9 (Baghouse Inspections), are not applicable to conveyance systems like this one using a bagfilter as an integral control device.

Response 26: This is an appeal issue pending for resolution. It will be resolved through the appeal resolution process.

Therefore, there will be no changes to the conditions in the final permit as a result of this comment.

Starch Modification Operations

Comment 27: D.5.3 – Sulfur Dioxide (SO_2) Emission Limitation

Section D.5.3 is missing from the draft SSM and should be identical to Section D.5.3 of the draft SPM.

Response 27: There was no change to condition D.5.3 due to this modification; therefore it was not shown in the SSM. However, for clarity the condition has been added to the SSM.

Comment 28: D.5.9 – Testing Requirements

Tate & Lyle proposes that the propylene oxide testing language in D.5.9(c) be modified to read:

"To verify compliance with Condition D.5.5(a), within 60 days after achieving the maximum production rate, but no later than 180 days after startup of **emission unit 45VAA**, the Permittee shall perform VOC testing on 45F212 utilizing methods as approved by the Commissioner."

With this language, the triggering event will be the construction of the first new propylated starch reactor even if the reactor doesn't vent to 45F212. The test condition would also be triggered 60 days after reaching maximum production on the existing reactors which is equivalent to a rate of 300 million pounds per year of propylated starch.

Response 28: The condition D.5.9 has been changed accordingly.

D.5.9 Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]

(c) ~~To verify compliance with Condition D.5.5(a),~~ W~~w~~ithin 60 days after achieving the maximum production rate, but no later than 180 days after startup **of emission unit 45VAA**, the Permittee shall perform VOC testing on 45F212, **to verify compliance with Condition D.5.5(a),** utilizing methods as approved by the Commissioner**, and furnish the Commissioner a written report of the results of such performance tests**.

Comment 29: D.5.11(a) – Monitoring for Scrubbers

Tate & Lyle proposes to measure the entire propylene oxide scrubber system pressure drop including the scrubber exhaust fans to resolve issues with trying to measure very low pressure drops across the scrubber columns. The plant has taken several initial readings that indicate this is possible and is in the process of determining steps needed to permanently move the outlet pressure drop monitoring point to the exhaust of the fan. The inlet pressure drop monitoring point will remain at the scrubber inlet. Until more data can be obtained (i.e. during a stack test), Tate & Lyle proposes the pressure drop range be 1 to 6.0 inches of water. My apologies for earlier erroneous comments that the scrubbers were not equipped with fans.

Therefore, Condition D.5.11(a) can be modified as follows.

D.5.11(a)

The Permittee shall monitor the pH of the scrubbing liquid and exhaust air stream pressure drop across the scrubber at least once per shift for each of scrubbers 45FAA and 45F212. The normal pH range for scrubber 45FAA is 0.5 to 4.0 or the range established during the latest stack test. The normal pH range for scrubber 45F212 is 0.5 to 4.0 or the range established during the latest stack test. The normal pressure drop range for scrubber 45FAA **and fan is 1 to 6.0 inches** ~~is 1 to 3.0~~ or the range established during the latest stack test. The normal pressure drop range for scrubber 45F212 **and fan is 1 to 6.0 inches** ~~is 1" to 3.0~~ or the range established during the latest stack test.

Response 29: The condition D.5.11(a) has been revised accordingly.

D.5.11 Monitoring for Scrubbers

(a) The Permittee shall monitor the pH of the scrubbing liquid and exhaust air stream pressure drop across the scrubber at least once per shift for each of scrubbers 45FAA and 45F212. The normal pH range for scrubber 45FAA is 0.5 to 4.0 or the range established during the latest stack test. The normal pH range for scrubber 45F212 is 0.5 to 4.0 or the range established during the latest stack test. The normal pressure drop range for scrubber 45FAA **and fan is 1 to 6.0 inches** ~~is 1 to 3.0~~ or the range established during the latest stack test. The normal pressure drop range for scrubber 45F212 **and fan is 1 to 6.0 inches** ~~is 1" to 3.0~~ or the range established during the latest stack test.

Comment 30: D.5.14(d) – Baghouse Inspections

Section D.5.14(d) should be revised so that it is identical to similar baghouse inspection conditions in D.1.8(c), D.3.15(c), and D.4.9(b).

Response 30: The conditions D.1.8(c), D.3.15(c), D.4.9(b) now D.4.8(b), and D.5.14(d) have been revised as follows:

D.1.8(c) Inspections shall also be performed ~~before~~ **each time that** a respective baghouse that has been secured and tagged as being out of service ~~is returned to service~~. All defective bags shall be replaced.

D.3.15(c) Inspections shall also be performed ~~before~~ **each time that** a respective baghouse that has been secured and tagged as being out of service ~~is returned to service~~. All defective bags shall be replaced.

D.4.8(b) Inspections shall also be performed ~~before~~ **each time that** a respective baghouse that has been secured and tagged as being out of service ~~is returned to service~~. All defective bags shall be replaced.

D.5.14(d) Inspections shall also be performed ~~whenever the~~ **each time that a** respective baghouse ~~is out of service for more than 24 consecutive hours~~ **that has been secured and tagged as being out of service.** All defective bags shall be replaced.

Comment 31: D.5.17(b) – Clean Unit

Section D.5.17(b) should be revised to include the existing twelve propylated starch reactors as well as starch dryer process tanks and dewatering equipment and starch dryers. A VOC BACT requirement and listing for this equipment is included in Section D.5.1(b)(2) of the draft permits. The existing twelve propylated starch reactors are controlled by a packed bed scrubber meeting the same BACT requirements as the new reactors (45VAA to 45VFF) and scrubber (45FAA). As stated on page 43 of Appendix C (Best Available Control Technology Analysis) of the Technical Support Document, “Tate & Lyle feels the proprietary acid-kill step in starch modification should represent BACT for the downstream dryer process tanks and dryers. This step is extremely effective in scavenging residual propylene oxide from the starch slurry after completion of the starch reactions.” Less than 1% of the initial propylene oxide charge to each reaction is expected to remain as propylene oxide at the end of the acid-kill step. Tate & Lyle believes the acid-kill step qualifies as a pollution control project or work practice to reduce air pollutant emissions from these emission units as described in 326 IAC 2-2.2-1(c)(2). Therefore, Tate & Lyle requests that the entire list of emission units included in Section D.5.1(b)(2) be listed as Clean Units for VOC under D.5.17(b).

Response 31: The entire list of emission units included in Section D.5.1(b)(2) may not be listed as Clean Units for VOC under D.5.17(b), because a BACT determination of the emission units which is comparable to current–day BACT requirements and public notice of the proposed clean unit designation are required by rule 326 IAC 2-2.2-1(g)(2).

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

Starch Drying and Handling Operations

Comment 32: D.6.1(a) – Prevention of Significant Deterioration

Section D.6.1(a) includes an incorrect equipment tag number in the emission rate table for the bin vent bagfilter controlling emissions from starch product bin #23 (7V23). The baghouse associated with 7V23 should be 7F33 rather than 7F23.

Response 32: The typo has been corrected.

Comment 33: D.6.2 – Prevention of Significant Deterioration (Minor Limit)

Section D.6.2 is missing from the draft SSM and should be identical to Section D.6.2 of the draft SPM.

Response 33: The section was not affected by this modification. Therefore, it was not included in this permit. However, for clarity purposes the condition has been added in this SSM.

Comment 34: D.6.6(b) – Particulate Control

Section D.6.6(b) will no longer apply to the emission units listed in that section following their modification or shutdown. One emission unit, the spray dryer #1 milling system (30G1), is not being modified or shutdown but will be vented to the new spray dryer #2 system stack (S/V 360) when that system is constructed. Tate & Lyle requests that D.6.6(b)(2) be revised as follows:

(2) Following modification or shutdown of the facilities listed in Section D.6.6(b) **or the combination of the baghouse exhausts from those facilities**, as described in Section D.6.1(a), Section D.6.6(b) shall no longer be effective.

Response 34: The condition has been changed accordingly.

D.6.6 Particulate Control

(a) ---

(b) Pursuant to CP 157-5294-00003, issued September 5, 1996, A 157-6571-00003, issued October 3, 1996, and in order to comply with Condition D.6.3, the particulate emissions from facilities 41F210, 41G200, 41V10, 41V11, 41G201 41F201, 41F13, 30D1, 30F13, 30G1, 41C30, 41C35, 41V14, 41V15, 41V17, 41V18 and 33V44 shall be considered in compliance that:

(1) The respective baghouses shall be operated at all times when the facilities are in operation. To facilitate compliance, opacity shall not exceed zero percent (0%).

(2) Following modification or shutdown of the facilities listed in Section D.6.6(b) **or the combination of the baghouse exhausts from those facilities**, as described in Section D.6.1(a), Section D.6.6(b) shall no longer be effective.

Comment 35: D.6.8(b) – Visible Emissions Notations

Section D.6.8(b) includes a typographical error. Stack number 345 is listed twice. The second entry in Section D.6.8(b) for stack "345" should be "346".

Response 35: The typo has been corrected.

Comment 36: D.6.9 – Monitoring for Scrubbers

The last three paragraphs of Section D.6.9 are labeled as (a), (b), and (c) rather than (c), (d), and (e).

Response 36: The numbering has been corrected.

Comment 37: D.6.14(b) – Record Keeping Requirements

Section D.6.14(b) should be deleted in its entirety. The log of information necessary to document compliance with Condition 6.6, described in Section D.6.14(b), refers to operating conditions in the current Part 70 permit (D.6.5(b)(2) and (3)) which were deleted in the draft permits. These operating conditions specified that only one of the spray dryer product transfer systems could be loaded at any time, only one of the spray dryer product storage bins could be loaded at any time, and only one of the roll dryer product bins could be loaded at any time. Following construction of the new spray dryer #2 system, both product transfer systems and two of the spray dryer product storage bins will have the capability of being loaded at the same time. It should be noted that these original conditions were unnecessary because these systems have physical constraints (blower and transfer piping design) that prevent simultaneous loading of the bins.

Response 37: The condition D.6.14(b) has been deleted, and subsequent conditions renumbered.

D.6.14 Record Keeping Requirements

(a) ---

~~(b) A log of the information necessary to document compliance with Condition D.6.6 shall be maintained.~~

Comment 38: D.6.15 – Reporting Requirements

Section D.6.15 describes a quarterly reporting requirement for a propylated starch production summary that was deleted from Section D.5 in the drafts. There is no form at the end of the permit associated with this report and it is believed Section D.6.15 was inadvertently allowed to remain in the permits. Tate & Lyle requests that Section D.6.15 be deleted in its entirety.

Response 38: The condition D.6.4(b) requires the production limit for combined propylene oxide input per twelve consecutive month period with compliance determined at the end of each month. This BACT condition requires the production reporting quarterly. A reporting form has been added to the permit.

Starch Packaging and Loadout Operations

Comment 39: D.7.2 – Particulate Emission Limitations for Manufacturing Processes

Sections D.7.2 (b), (c), (d), and (e) are missing from the draft SSM and should be identical to Section D.7.2 (b) through (e) of the draft SPM.

Response 39: The conditions were not affected by this modification. Therefore, they were not included in the SSM. The conditions have been added for clarity.

Comment 40: D.7.8(b) – Baghouse Inspections

Section D.7.8(b) includes an incorrect tag number. The tag number “17F101” should be changed to read “17F01”.

Response 40: The typo has been corrected.

Boiler Support Facilities

Comment 41: D.8.7(a) – Baghouse Inspections

Section D.8.7(a) should be revised to duplicate language for quarterly external baghouse inspections included under Sections D.3.15(a), D.5.14(a), and D.6.12(a) as follows:

(a) An external inspection of baghouses ~~bags~~, controlling particulate emissions from facilities 31V1 and 31F10, shall be performed at least once per calendar quarter. Inspections required by this condition shall not be performed in consecutive months. ~~All defective bags shall be replaced~~.

Response 41: The condition has been changed accordingly.

D.8.7 Baghouse Inspections

(a) An external inspection of **baghouses** ~~all bags~~, controlling particulate emissions from facilities 31V1 and 31F10, shall be performed at least once per calendar quarter. Inspections required by this condition shall not be performed in consecutive months. ~~All defective bags shall be replaced.~~

Utility Area

Comment 42: D.9.15 – Opacity Readings

Section D.9.15 is confusing because the condition does not identify the applicable requirement to which it relates. The purpose of the Continuous Opacity Monitor (COM) identified in Section D.9.14 is for compliance with the state opacity rule at 326 IAC 3-5. Yet, Section D.9.15 states that the COM is to monitor particulate emissions. The particulate emission compliance determination requirements are set forth in D.9.6 and 9.7 and the boiler is subject to baghouse inspections. Tate & Lyle requests that Section D.9.15 be revised as follows:

Compliance with opacity limitations specified in 326 IAC 5-1-2 ~~The ability of the continuous opacity monitor (COM) to monitor particulate emissions from boiler 31B1~~ shall be monitored by continuously measuring and recording the opacity of emissions from the stack exhaust.

(a) Appropriate response steps shall be taken in accordance with Section C – Compliance Response Plan – Preparation, Implementation, Records, and Reports whenever the opacity from the boiler exceeds twenty percent (20%) for any three (3) consecutive six-minute average period. Failure to take reasonable response steps in accordance with Section C – Compliance Response Plan – Preparation Implementation, Records, and Reports, shall be considered a deviation from this permit.

(b) The opacity shall be determined by the certified continuous opacity monitor required in Condition D.9.14.

Response 42: The condition has been changed as follows:

D.9.15 Opacity Readings

~~The ability of the continuous opacity monitor (COM) to monitor particulate emissions from boiler 31B1~~ **Compliance with the applicable opacity limitations** shall be monitored by continuously measuring and recording the opacity of emissions from the stack exhaust.

(a) Appropriate response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the opacity from the boiler exceeds twenty percent (20%) for any three (3) consecutive six-minute average periods. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

(b) The opacity shall be determined by the certified continuous opacity monitor required in Condition D.9.14.

Comment 43: D.9.16 – Method 9 Opacity Readings and Visible Emissions Notations

Section D.9.16 is equally confusing because the condition does not identify the applicable requirement that applies to the condition. Subparagraph (a) provides for the appropriate response steps if the COM is malfunctioning, i.e., compliance with Condition C.12, which calls for Method 9 reading. Yet, subparagraph (b) requires the source to undertake response steps, apparently other than the ones found in C.12, for malfunction of the monitor. In fact, Section D.9.16(b) appears to duplicate Section D.9.15(a). For this reason, Tate & Lyle requests that Section D.9.16(b) be deleted in its entirety.

Response 43: The condition D.9.16(b) has been deleted and subsequent conditions have been renumbered.

D.9.16 Method 9 Opacity Readings and Visible Emissions Notations

~~(a)~~ Whenever a continuous opacity monitor (COM) is malfunctioning, the Permittee shall follow the procedures in accordance with Section C - Maintenance of Opacity Monitoring Equipment, until such time that the continuous opacity monitor is back in operation.

~~(b) The Compliance Response Plan for these units shall contain troubleshooting contingency and response steps for when an abnormal emission is observed or whenever the opacity from a boiler exceeds twenty percent (20%) for any three (3) consecutive six-minute average periods. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.~~

Comment 44: D.9.19(a) – Baghouse Inspections

Section D.9.19(a) should be revised to duplicate language for quarterly external baghouse inspections included under Sections D.3.15(a), D.5.14(a), and D.6.12(a) as follows:

(a) An external inspection shall be performed at least once per calendar quarter of **the baghouse** ~~all bags~~ controlling the particulate emissions from facility 31B1. Inspections required by this condition shall not be performed in consecutive months. ~~All defective bags shall be repl~~aced.

Response 44: The condition D.9.19(a) has been revised accordingly.

Anaerobic Waste Treatment System

Comment 45: D.10.4 – Testing Requirements

Section D.10.4 contains conflicting deadlines for testing requirements associated with the biogas scrubber (34V11). A deadline of 36 months from issuance of the Part 70 permit was specified for this scrubber in Tate & Lyle's Part 70 permit issued on June 28, 2004. Tate & Lyle requests that Section D.10.4 be revised as follows:

To verify compliance with Condition D.10.1, within ~~60 days after the issuance of this permit but no later than~~ 180 days after the issuance of this permit, the Permittee shall perform H_2S testing on the inlet and outlet of the biogas scrubber (34V11) utilizing methods as approved by the Commissioner and furnish the Commissioner a written report of the results of such performance tests. All hydrogen sulfide measured will be assumed to have been converted to sulfur dioxide in flares 21Z1 and 34Z1 and feed dryers 21D6, 21D7, and 21D8. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C – Performance Testing.

Response 45: The condition D.10.4 has been revised accordingly.

D.10.4 Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]

~~To verify compliance with Condition D.10.1,~~ Wwithin ~~60~~ **180** days after the issuance of this permit ~~but no later than 180 days after the issuance of this permit~~, the Permittee shall perform H_2S testing on the inlet and outlet of the biogas scrubber (34V11~~)~~ **to verify compliance with Condition D.10.1,** utilizing methods as approved by the Commissioner and furnish the Commissioner a written report of the results of such performance tests. All hydrogen sulfide measured will be assumed to have been converted to sulfur dioxide in flares 21Z1 and 34Z1 and feed dryers 21D6, 21D7, and 21D8. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C- Performance Testing.

Comment 46: D.10.6(c) – Monitoring for Scrubbers

Section D.10.6(c) appears to duplicate the last three sentences of Section D.10.6(b). In addition the normal pH range provided for biogas scrubber 34V11 is incorrect in Section D.10.6(c). The correct range is 9.0 to 11.5. For these reasons, Tate & Lyle requests that Section D.10.6(c) be deleted in its entirety.

Response 46: The condition D.10.6(c) has been deleted.

D.10.6 Monitoring for Scrubbers

(a) The Permittee shall monitor the scrubber the pH of the scrubbing liquor at least once per shift from scrubber 34V11 used to scrub the biogas from 34V10.

(b) A continuous monitoring system shall be installed and operated at all times scrubber 34V11 is in operation. The monitoring system shall continuously measure and record the scrubber recirculation rate from scrubber 34V11 controlling emissions from emission unit 34V10. The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when the pH readings are outside of the normal range, and any recirculation rate is below minimum flow rate for any one reading. The normal pH range for scrubber 34V11 is 9.0 to 11.5 or the range established during the latest stack test. The minimum flow rate for Scrubber 34V11 is 70 gpm or a minimum flow rate established during the latest stack test.

(c) ~~The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and response steps for when the pH readings are outside of the normal range, and below minimum flow rate for any one reading. The normal pH range for scrubber 34V11 is 5.0 to 8.0 or the range established during the latest stack test. The minimum flow rate for Scrubber 34V11 is 70 gpm or a minimum flow rate established during the latest stack test.~~

~~(d)~~ A pH or flow reading that is outside the normal range or below the minimum flow rate for any one reading is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

~~(e)~~ **(d)** The instruments used for determining the flow rate and pH shall comply with Section C- Pressure Gauge and other Instrument Specifications of this permit and shall be calibrated at least once every six (6) months. The loss of monitoring data due to the calibration of an instrument while the equipment is in operation does not constitute a deviation from this permit.

Comment 47: D.10.8(b) – Record Keeping Requirements

Section D.10.8(b) implies scrubber recirculation rate is not to be recorded continuously and that records of scrubber pH do not need to be maintained. Tate & Lyle requests that Section D.10.8(b) be revised as follows:

To document compliance with Condition D.10.6, the Permittee shall maintain ~~once per shift~~ records of the **scrubber pH and** scrubber recirculation rate from scrubber 34V11.

Response 47: The condition D.10.8(b) has been revised accordingly.

D.10.8 Record Keeping Requirements

(b) To document compliance with Condition D.10.6, the Permittee shall maintain ~~once per shift~~ records of the **scrubber pH and** scrubber recirculation rate from scrubber 34V11.

TECHNICAL SUPPORT DOCUMENT (PP. 91-127)

Comments on the Technical Support Document are included as follows:

Comments, concerns, and corrections provided for Sections A and D of the draft permit also apply to similar text contained in the Technical Support Document. For the sake of brevity, those comments, concerns, and corrections are not being repeated here.

Comment 48: Source Status (p. 93): Potential carbon monoxide emissions for the Sagamore plant are only about 160 tons per year which is less than 250 tons per year.

Potential to Emit of Modification After Issuance (p. 94): Tate & Lyle believes there will be a decrease in SO_2 and VOC after the expansion but agreed to PSD review for purposes of expediency and to obtain Clean Unit designations for SO_2 and VOC.

State Rule Applicability – Vibrating Corn Cleaning System: (p. 95): The title of this section should read "Vibrating Corn Cleaning System 14JAA (Controlled by baghouse <u>14F2</u>)"

Clean Unit – Corn Receiving and Conveying Operations (p. 98**)**: The text in paragraph (2) of this section differs and may conflict with text that appears in the permit. Tate & Lyle believes the Clean Unit lifetime language in the permits is correct. This comment also applies to Clean Unit sections for Wet Milling Operations (p. 100), Feed/Meal/Germ Production Operations (p. 107), Starch Modification Operations (p. 114), Starch Drying and Handling Operations (pp. 120-121), Starch Packaging and Loadout Operations (p. 125), and Anaerobic Waste Treatment System (p. 126).

Wet Mill Operations (p. 99):**-**The second reference to S/V 24, 347, 348 on this page appears to be redundant and should be deleted.

State Rule Applicability – Steam Tube Fiber Pre-Dryer (p. 104): In the stack height provision section there is a reference to a previous discussion for S/V in the section on Dryers #6-#8. This section no longer exists.

The description of the six modified bins should be "8V121, 8V123, 8V124, 8V63, 8V53, and 8V54". The bagfilters associated with these bins should be "8F1, 8F3, 8F4, 8F63, 8F53, and 8F54). The stacks associated with these bins should be "S/V 110, S/V112, S/V 113, SV115, SV116, and SV 117".

State Rule Applicability – Dextrin Fluidizer Reactor (p. 109): The emission rate for baghouse 33FCC should be 0.16 lbs/hr rather than 0.016 lbs/hr.

State Rule Applicability – Dextrin Product Screening Receiver (p. 111): Under "Stack Height Provisions", the new stack (S/V 355) is <u>**not**</u> an exhaust stack which has potential emissions greater than 25 tpy

State Rule Applicability – #3 Bulk Loadout System Filter Receiver (p. 124): The correct designation for the #3 Bulk Loadout Filter Receiver is 20FBB rather than 20F60. It should be noted that there is no entry in this section for the bulk starch rail loadout system (20F60) even though it is undergoing PSD review to remove an operating hour's description.

State Rule Applicability – Bag Dump Station Bin Vent (p. 124): An opacity limit of 3% is not appropriate for this source since it vents indoors. This fact is reflected in the permits themselves for the bag dump station bin vent (18FBB).

Response 48: The OAQ prefers that the Technical Support Document reflect the permit that was on public notice. Changes to the permit or technical support material that occur after the public notice are documented in this Addendum to the Technical Support Document. This accomplishes the desired result of ensuring that these types of concerns are documented and part of the record regarding this permit decision.

This Addendum to Technical Support Document becomes the part of Technical Support Document.

TECHNICAL SUPPORT DOCUMENT – APPENDIX A AND B

Comment 49: Comments on Appendix A (Stack/Vent Information) and Appendix B (Emission Calculations) has been included in the following two tables. Only those emission units requiring information or data corrections have been included in these tables.

Comments on TSD Appendix A - Stack/Vent Information

Stack/ Vent ID (S/V)	**Stack Dimension (feet)**	**Stack Height (feet)**	**Air Flow Rate (acfm)**	**Temp. (^{o}F)**	**Comments**
3	0.92	~~20~~ **70**	6,000	80	
17	8.00	200	~~74600~~ **144,596**~~-~~	~~158~~ **207**	
50	~~1.17~~ **1.0**	~~90~~ **102**	~~4,000~~ **1,200**	~~120~~ **90**	
68	0.50	50	500	~~68~~ **60**	
70	1.13	~~55~~ **73**	3,500	100	
73	8.17	120	~~100,000~~ **110,000**	105	
136	7.83	70	~~3,300~~ **23,800**	80	
166	~~4.00~~	~~67~~	~~9,000~~ **1,940**	212	**vents to S/V 395**
177	~~8.00~~ **7.00**	120	~~133,600~~ **138,825**	~~123~~ **122**	
222	0.67	45	~~100~~ **N/A**	90	
240	1.00	75	~~3,000~~ **1,200**	100	
244	~~1.38~~ **1.60**	50	**1,000**/3,000	70	
245	~~1.38~~ **1.60**	50	**1,000/**3,000	70	
246	~~1.38~~ **1.60**	50	**1,000/**3,000	70	
247	~~1.38~~ **1.60**	50	**1,000**/3,000	70	
248	~~0.75~~ **1.50**	~~70~~ **80**	760	100	
250	0.67	30	~~100~~ **N/A**	100	
251	**0.67**	**33**	**N/A**	**100**	

260	2.11	70	**N/A**	120	
261	0.67	40	**N/A**	120	
267	1.38	80	2,100	~~70~~ **80**	
271	**2.57**	**105**	**N/A**	**N/A**	
272	**2.17**	**20**	**N/A**	**N/A**	
274	1.00	40	500	~~80~~ **70**	
320	0.33	64	~~9,000~~ **1,940**	212	
331	**0.70**	**4**	**2,200**	**80**	**vents to S/V 404**
334	**0.50**	**14**	**400**	**80**	
355	**4.50**	**150**	~~2,900~~ **53,629**	~~70~~ **106**	
356	**4.00**	**120**	~~2,000~~ **40,000**	80	
360	**8.00**	**150**	~~3,600~~ **144,540**	~~140~~ **187**	
361	**5.75**	**150**	~~1,500~~ **82,623**	~~80~~ **175**	
374	1.50	~~120~~ **80**	5,000	240	
375	**4.50**	**150**	1,000	160	**vents to S/V 355**
376	**4.50**	**150**	1,600	70	**vents to S/V 355**
377	**4.50**	**150**	**1,000/**3,000	70	**vents to S/V 355**
378	**4.50**	**150**	**1,000/**3,000	70	**vents to S/V 355**
380	**4.00**	**120**	3,000	80	**vents to S/V 356**
395	4.75	82	~~**53,000**~~ **57,931**	90	**vents to S/V 17**
~~**396**~~	~~**4.75**~~	~~**82**~~	~~**55,000**~~	~~**80**~~	
399	1.17	~~100~~ **130**	1,200	120	
421	**0.67**	**50**	**1,200**	**90**	
422	**0.67**	**50**	**1,000**	**90**	
426	0.50	~~30~~	500	70	**vents indoors**

All of thé followings are new calculations

Comments on TSD Appendix B: Emission Calculations

Unit ID	Old S/V ID	New S/V ID	Control Device Details	Air Flow Rate (acfm)	Temp. (^oF)	PM/PM_{10} Emissions (gr/scf)	PM/PM_{10} Emissions (lb/hr)	PM/PM_{10} Emissions (ton/yr)	Comments
14JAA	126	126	baghouse 14F2	10,000	80	0.010	0.84	3.69	
14VBB	126	126	baghouse 14F2						
13V1	136	136	baghouse 21F1	20,500	80	0.005	0.86	3.78	
13V2	136	136	baghouse 21F1						
13V3	136	136	baghouse 21F1						
13V4	136	136	baghouse 21F1						
13V5	136	136	baghouse 21F1						
13VAA	136	136	baghouse 21F1						
13VBB	136	136	baghouse 21F1						
14JAA	394	394	baghouse 1FMM	350	80	0.005	0.015	0.06	
14VAA	17	17	scrubber 15FAA	57,931	100	N/A	N/A	N/A	These sources will vent to the new wetmill aspiration scrubber (S/V 395), then to the atmosphere via S/V 17. Total airflow from S/V 17 will be 144,596 acfm at 207 ^oF.
14VBB	17	17	scrubber 15FAA			N/A	N/A	N/A	
14VCC	17	17	scrubber 15FAA			N/A	N/A	N/A	
14VDD	17	17	scrubber 15FAA			N/A	N/A	N/A	
14VEE	17	17	scrubber 15FAA			N/A	N/A	N/A	
14VFF	17	17	scrubber 15FAA			N/A	N/A	N/A	
14VGG	17	17	scrubber 15FAA			N/A	N/A	N/A	
14VHH	17	17	scrubber 15FAA			N/A	N/A	N/A	
18FAA	17	17	scrubber 15FAA			N/A	N/A	N/A	
18V	17	17	scrubber 15FAA			N/A	N/A	N/A	
21FAA	17	17	scrubber 15FAA			N/A	N/A	N/A	
21CBB	17	17	scrubber 15FAA			N/A	N/A	N/A	
21FNN	17	17	scrubber 15FAA			N/A	N/A	N/A	

21D6	17	17	cyclone (integral) 21F26, scrubber 21F13, thermal oxidation units 48FGG and 48FHH	83,985	280	0.015	7.70	33.7	
21D7	17	17	cyclone (integral) 21F27, scrubber 21F13, thermal oxidation units 48FGG and 48FHH						
21D8	17	17	cyclone (integral) 21F28, scrubber 21F13, thermal oxidation units 48FGG and 48FHH						
21DAA	17	17	cyclone (integral) 21FCC, scrubber 21F13, thermal oxidation units 48FGG and 48FHH						
21DBB	17	17	scrubber 21F13, thermal oxidation units 48FGG and						

			48FHH						
48DAA	17	17	scrubber 21F13						
~~48FGG~~	~~17~~	~~17~~	~~diverges to units 48DAA and 21DBB~~						

Comments on TSD Appendix B: Emission Calculations

Unit ID	Old S/V ID	New S/V ID	Control Device Details	Air Flow Rate (acfm)	Temp. (^oF)	PM/PM_{10} Emissions (gr/scf)	PM/PM_{10} Emissions (lb/hr)	PM/PM_{10} Emissions (ton/yr)	Comments
8V121	110	110	baghouse 8F1	2,000	90	0.005	0.08	0.36	Only one bin may be operated at a time.
8V122	111	111	baghouse 8F2	2,000	90	0.005	0.08		
8V123	112	112	baghouse 8F3	2,000	90	0.005	0.08		
8V124	113	113	baghouse 8F4	2,000	90	0.005	0.08		
8V62	114	114	baghouse 8F62	2,000	90	0.005	0.08		
33VBB	375	355	baghouse 33FDD	1,000	160	0.005	0.037	0.16	
33VCC	377	355	baghouse 33FFF	1,000	70	0.005	0.04	0.19	Worst case is one bin transferring and one bin blending.
33VDD	378		baghouse 33FGG	3,000	70	0.005	0.129	0.56	
20VAA	369	369	baghouse 20FAA	2,200	80	0.005	0.093	0.41	Only one bin may be operated at a time.
20VBB	370	370	baghouse 20FBB	2,200	80	0.005	0.093		
18AVAA	371	371	baghouse 18AFAA	1,500	80	0.005	0.06	0.28	
41VAA	372	372	baghouse 41FKK	2,100	80	0.005	0.09	0.39	
33VAA	373	373	baghouse 33FAA	1,100	80	0.005	0.05	0.20	
33RAA	374	374	baghouse 33FCC	5,000	240	0.005	0.16	0.71	
45VAA	399	399	packed bed scrubber 45FAA	1,200	120	N/A	N/A	N/A	
45VBB	399	399	packed bed scrubber 45FAA						
45VCC	399	399	packed bed scrubber 45FAA						
45VDD	399	399	packed bed scrubber						

			45FAA						
45VEE	399	399	packed bed scrubber 45FAA						
45VFF	399	399	packed bed scrubber 45FAA						
45BVAA	400	400	baghouse 45BFAA	1,500	80	0.005	0.06	0.28	
44V1	419	419	none	3,500	90	N/A	N/A	N/A	
44V2	419	419	none			N/A	N/A	N/A	
44FKK	420	420	none	10,000	90	N/A	N/A	N/A	
44FLL	420	420	none			N/A	N/A	N/A	
44FMM	420	420	none			N/A	N/A	N/A	
44V3	420	420	none			N/A	N/A	N/A	
44V4	421	421	none	1,200	90	N/A	N/A	N/A	
44V5	422	422	none	1,000	90	N/A	N/A	N/A	
46V1	423	423	none	3,500	90	N/A	N/A	N/A	
46V2	423	423	none			N/A	N/A	N/A	
46V3	424	424	none	2,000	90	N/A	N/A	N/A	
46V4	424	424	none			N/A	N/A	N/A	
46V5	424	424	none			N/A	N/A	N/A	

Comments on TSD Appendix B: Emission Calculations

Unit ID	Old S/V ID	New S/V ID	Control Device Details	Air Flow Rate (acfm)	Temp. (^oF)	PM/PM_{10} Emissions (gr/scf)	PM/PM_{10} Emissions (lb/hr)	PM/PM_{10} Emissions (ton/yr)	Comments
40D20	73	73	scrubber 40F26	110,000	105	0.008*	7.54	33.0	* = gr/acf
07V20	76	76	baghouse 7F20	2,100	80	0.005	0.09	0.39	Only one bin may be operated at a time.
07V21	77	77	baghouse 7F21	2,100	80	0.005	0.09		
07V22	78	78	baghouse 7F22	2,100	80	0.005	0.09		
07V23	267	267	baghouse 07F33	2,100	80	0.005	0.09		
41VEE	226	226	baghouse 41FEB	300	100	0.005	0.01	0.13	Operates with S/V 89, 90, and 248. Only one bin may be operated at a time.
41VHH	255	255	baghouse 41FHH	1,200	110	0.005	0.05	0.21	Operates with S/V 97 and 98. Only one bin may be operated at a time.
41FAA	365	355	baghouse 41FAA	5,000	150	0.005	0.19	0.81	
41G202	366	355	baghouse 41F202	15,000	150	0.005	0.56	2.44	
40G20	286	360	baghouse 40F28	3,600	140	0.005	0.14	0.59	
40G21	287	360	baghouse 40F29	3,600	140	0.005	0.14	0.59	
46DAA	360	360	baghouses 46FGG-46FLL	120,000	200	0.008	6.61	28.94	
51DAA	361	361	baghouse 51FCC	40,000	200	0.008	2.20	9.65	
07VDD	383	383	baghouse 07FDD	2,900	70	0.005	0.12	0.54	
07VEE	384	384	baghouse 07FEE	2,900	70	0.005	0.12	0.54	
07VAA	385	385	baghouse 07FAA	2,900	80	0.005	0.12	0.54	
07VBB	386	386	baghouse 07FBB	2,900	80	0.005	0.12	0.54	
07VCC	387	387	baghouse 07FCC	2,900	80	0.005	0.12	0.54	
44DAA	388	388	wet scrubber 44FGG	110,000	105	0.008*	7.54	33.04	* = gr/acf

44GAA	389	388	baghouse 44FII	3,600	140	0.005	0.14	0.60	
44GBB	390	388	baghouse 44FJJ	3,600	140	0.005	0.14	0.60	
41FCC	223	355	baghouse 41FCC	2,700	95	0.008	0.18	0.80	Operates with S/V 184 and 186. Only one transfer process may be operated at a time.
17FAA	382	356	baghouse 17FAA	2,000	80	0.005	0.08	0.37	
17FBB	380	356	baghouse 17FBB	3,000	80	0.005	0.13	0.55	
17FDD	380	356	baghouse 17FDD						
17FCC	381	356	baghouse 17FCC	16,000	80	0.005	0.67	2.95	
51FDD	362	361	baghouse 51FDD	1,500	80	0.005	0.06	0.28	
20FAA	263	404	baghouse 20FAA	2,000	80	0.005	0.08	0.37	
20F60	393	404	baghouse 20F60	2,200	70	0.005	0.094	0.41	
20FBB	393	404	baghouse 20FBB	2,200	80	0.005	0.09	0.41	

.

<u>Additional Comments</u>

1. Page 5 - 48FGG Thermal Oxidizer. Heat Input Capacity should be 5.0 MMBtu/hr. Emissions will change as a result.

2. Need to create a calculation page for 48FHH Thermal Oxidizer. Heat Input Capacity is 5.0 MMBtu/hr.

3. Update page 7 to reflect the above changes.

Response 49: This Addendum to Technical Support Document becomes the part of Technical Support Document. All the above changes to the TSD are true statement of the TSD. The final permit is not affected by these corrections in TSD.

OAQ agrees with the calculations provided in the revised Appendix A (Stack/Vent Information) and Appendix B (Emission Calculations) provided by Tate & Lyle. These tables supplement the Appendices A and B.

<u>Revised calculations for 48FGG and 48FHH</u>

	Heat Input Capacity MMBtu/hr	**Potential Throughput MMCF/yr**
Thermal Oxidizer	**10.000**	**87.6**

	Pollutant					
	PM*	**PM10***	**SO2**	**NOx**	**VOC**	**CO**
Emission Factor in lb/MMCF	**1.9**	**7.6**	**0.6**	**50.0**	**5.5**	**84.0**
	****see below**					
Potential Emission in tons/yr	**0.1**	**0.3**	**0.0**	**2.2**	**0.2**	**3.7**

***PM emission factor is filterable PM only. PM10 emission factor is condensable and filterable PM10 combined.**

****Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32**

	HAPs – Organics				
	Benzene	**DCB***	**Formaldehyde**	**Hexane**	**Toluene**
Emission Factor in lb/MMCF	**2.1E-03**	**1.2E-03**	**7.5E-02**	**1.8E+00**	**3.4E-03**
Potential Emission in tons/yr	**9.2E-05**	**5.3E-05**	**3.3E-03**	**7.9E-02**	**1.5E-04**

***DCB = Dichlorobenzene**

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMCF	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	2.2E-05	4.8E-05	6.1E-05	1.7E-05	9.2E-05

The five highest organic and metal HAPs emission factors are provided above.

Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4; Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98).

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Summary of Fuel Combustion Emissions

		Potential Emissions in tons/yr				
Size	Description	PM*	PM10*	SO_2	VOC	CO
40 MMBtu/hr	Starch Flash Dryer #2			existing unit		
40 MMBtu/hr	Starch Flash Dryer #4	0.33	1.33	0.11	0.96	14.72
45 MMBtu/hr	Spray Dryer #2	0.37	1.50	0.12	1.08	16.56
10 MMBtu/hr	Thermal Oxidizer	0.42	1.66	0.13	1.20	18.40
30 MMBtu/hr	Gluten Flash Dryer	0.25	1.00	0.08	0.72	11.04
30 MMBtu/hr	Feed Dryer #6	0.25	1.00	0.08	0.72	11.04
30 MMBtu/hr	Feed Dryer #7	0.25	1.00	0.08	0.72	11.04
30 MMBtu/hr	Feed Dryer #8	0.25	1.00	0.08	0.72	11.04
16 MMBtu/hr	Spray Dryer #3	0.13	0.53	0.04	0.39	5.89
	TOTAL (ton/yr)	2.26	9.02	0.71	6.53	99.71

NOx Emissions After Controls

Size	Description	Emission Factor		NOx Emissions	
40 MMBtu/hr	Starch Flash Dryer #2	0.06	lb/MMBtu	2.40	lb/hr
40 MMBtu/hr	Starch Flash Dryer #4	0.04	lb/MMBtu	1.60	lb/hr
45 MMBtu/hr	Spray Dryer #2	0.04	lb/MMBtu	1.80	lb/hr
10 MMBtu/hr	Thermal Oxidizer	0.06	lb/MMBtu	0.60	lb/hr
30 MMBtu/hr	Gluten Flash Dryer	0.06	lb/MMBtu	1.80	lb/hr
30 MMBtu/hr	Feed Dryer #6	0.06	lb/MMBtu	1.80	lb/hr
30 MMBtu/hr	Feed Dryer #7	0.06	lb/MMBtu	1.80	lb/hr
30 MMBtu/hr	Feed Dryer #8	0.06	lb/MMBtu	1.80	lb/hr
16 MMBtu/hr	Spray Dryer #3	0.04	lb/MMBtu	0.64	lb/hr
			TOTAL	14.24	lb/hr

TECHNICAL SUPPORT DOCUMENT – APPENDIX C

Comment 50: Comments on Appendix C (Best Available Control Technology Analysis)

(a) PM and PM10 Control Methods (p. 2): The list of new emission units should include Spray Dryer # 2 – 46DAA, Spray Dryer #3 – 51DAA, baghouse - 41FCC, and Flash Dryer #4 – 44DAA. The list of modified units should include the Corn Receiving and Conveying collector 21F1.

(b) Tate & Lyle Proposed BACT for PM/PM10 (p.8): Equipment tag numbers 50F60 and 50F61 should read as 50V60 and 50V61. This error also occurs on page 12 in the paragraph starting with the words “The Spray Dryer #3 ……”

(c) PM/PM10 BACT – Table 2 (p.9 & p.10): The control device ID 7F23 should read 7F33.

(d) VOC Control Technologies – (p.39 & 40): The list of emission units should include all of the existing propylene oxide emission units as defined in section D.5.1(b) for units that will be controlled for VOC using BACT.

(e) VOC Control Technologies – new dryers – (p39): Tate & Lyle believes the sentence "A higher control efficiency of the thermal oxidizer was investigated, but the cost effectiveness to control VOC at 98% will be more than $16,000 per ton." should be deleted. Although Tate & Lyle could not find any vendor to guarantee an control efficiency greater than 95%, we did not do this investigation or cost analysis.

Response 50: This Addendum to Technical Support Document becomes the part of Technical Support Document.

(a) Spray Dryer #2 and #3 BACT analysis is given separately on pages 12 and13 and they are treated as new.

(b) Tate & Lyle has confirmed that their comment should have read "the Equipment tag numbers 50F60 and 50F61 should read as 50V61 and 50V62". This correction to TSD did not change the permit as the IDs in permit are 50V61 and 50V62.

(c) This correction to TSD did not change the permit.

(d) OAQ agrees with Tate & Lyle. This correction to TSD did not change the permit.

(e) This did not change the permit.

The final permit is not affected by these corrections in TSD.

TECHNICAL SUPPORT DOCUMENT – APPENDIX D

Comment 51: It is our understanding that Appendix D (Air Quality Analysis) will be substantially revised to reflect recent hazardous air pollutant modeling performed by ERM on behalf of Tate & Lyle and comments made on an earlier draft of Appendix A in an e-mail to Trip Sinha from Richard Dickinson dated March 31, 2005. Revisions to Table 1 of Appendix D should reflect netting calculations submitted to Dr. Sinha in an e-mail from Richard Dickinson dated on May 4, 2005.

Response 51: The revised summary of the modeling is given below. The calculation is part of the Appendix B. Therefore it is part of the TSD.

Air Quality Analysis

Introduction

Tate & Lyle has applied for a PSD Permit to revise their corn wet milling plant. The facility is located at Lafayette in Tippecanoe County, Indiana. This modification will be subject to Prevention of Significant Deterioration (PSD) review.

On April 14, 2004, Tate & Lyle submitted an application for a PSD Significant Source Modification to the Office of Air Quality. (QAQ) ERM performed the modeling for Tate & Lyle. This document provides an air quality analysis performed by OAQ.

Air Quality Impact Objectives

The air quality impact analysis of the permit application has the following objectives and will be addressed in each section outlined below.

A. Establish which pollutants require an air quality analysis.

B. Determine the significant impact level.

C. Demonstrate that the source will not cause or contribute to a violation of the National Ambient Air Quality Standard (NAAQS) or Prevention of Significant Deterioration (PSD) increment if the applicant exceeds significant impact levels.

D. Perform analysis of any air toxic compound for a health risk factor on the general population.

E. Perform a qualitative analysis of the source's impact on general growth, soils, vegetation and visibility in the impact area.

F. Summary of Air Quality Analysis

Analysis Summary

ISCST3 modeling results showed the Tate & Lyle facility would not violate either the NAAQS or the PSD increment. HAP concentrations were below .5% of the PEL. There were no HAPs above the representative health risk NATA/CEP benchmarks.

Section A

Pollutants Analyzed for Air Quality Impact

The PSD requirements, 326 IAC 2-2, apply in attainment and unclassifiable areas and require an air quality impact analysis of each regulated pollutant emitted in significant amounts by a major stationary source or modification. Significant emission levels for each pollutant are defined in 326 IAC 2-2-1. Particulate Matter less than 10 microns (PM10) and Nitrous Oxides (NOx) are the pollutants that will be emitted above significant emission levels from the plant expansion. Therefore, an air quality analysis is required for these pollutants which exceeded significant emission rates as shown in Table 1:

TABLE 1
Significant Emission Rates for PSD

POLLUTANT	**SOURCE EMISSION RATE**[1] (Facility Totals)	MODELING THRESHOLD EMISSION RATE	**PRELIMINARY AQ ANALYSIS REQUIRED**
	(tons/year)	(tons/year)	
PM10	110.7	15	Yes
VOCs (O_3)	-18.8	100	No

NOx	258.7	40	Yes
SO2	-15.7	40	No
CO	67.4	100	No

[1]Taken from the TSD for a Prevention of Significant Deterioration (PSD) and Part 70 Significant Source Modification.

<u>Section B</u>

Significant Impact Level/Significant Impact Area (SIA)

The OAQ review used the Industrial Source Complex Short Term (ISCST3) model, BEEST Version 9.2 to determine maximum off-property concentrations or impacts for PM_{10} and each HAP. All regulatory default options were utilized in the United States Environmental Protection Agency (U.S. EPA) approved model, as listed in the 40 Code of Federal Register Part 51, Appendix W, Guideline on Air Quality Models. The area is considered primarily rural with a portion of the area classified as industrial; therefore a rural classification was used. The model also utilized the Schulman-Scire algorithm to account for building downwash effects. The stacks associated with the proposed facility are below the Good Engineering Practice (GEP) formula for stack heights. This indicates wind flow over and around surrounding buildings can influence the dispersion of concentrations from the stack. 326 IAC 1-7-3 requires a study to demonstrate that excessive modeled concentrations will not result from stacks with heights less than the GEP stack height formula. The aerodynamic downwash parameters were calculated using U.S. EPA's Building Profile Input Program (BPIP).

The meteorological data used in the ISCST3 model consisted of the latest five years (1990-1994) of available surface data from the Indianapolis, Indiana Airport National Weather Service station merged with the mixing heights from Peoria, Illinois National Weather Service station. The meteorological data was preprocessed into ISCST3-ready format with U.S. EPA's PCRAMMET.

Ground-level receptor points (including terrain elevations) surrounding the source are input into the model to determine the maximum modeled concentrations that would occur at each point. OAQ modeling utilized a Cartesian receptor grid out to 4 kilometers for all pollutants with receptors placed at distances of 100 meter intervals which include fence-line receptors.

The consultant performed an air quality modeling analysis to determine if the source exceeded the significant impact levels (concentrations). If the source's concentrations exceed these levels, IDEM and USEPA guidance requires further air quality analysis. Significant impact levels are defined by the time periods presented in the following Table as well as all maximum modeled concentrations from the worst case operating scenarios.

Since PM_{10} exceeded the significant impact level, further modeling was performed to insure the PSD increments and the NAAQS were maintained. The source impact is above significance level so refined modeling analysis is required.

Table 2
Significant Impact Analysis

POLLUTANT	**TIME AVERAGIN G PERIOD**	**MAXIMUM MODELED IMPACTS** (ug/m^3)	**SIGNIFICANT IMPACT LEVEL** (ug/m^3)	**REFINED AQ ANALYSIS REQUIRED**
PM_{10}	Annual	3.19	1	Yes
PM_{10}	24 Hour	26.9	5	Yes
NOx	Annual	0.21	1	No

Section C

NAAQS and PSD Analysis

Maximum allowable increases (PSD increments) are established by 326 IAC 2-2 for NO_2, SO_2 and PM_{10}. This rule limits a source to no more than 80 percent of the available PSD increment to allow for future growth. 326 IAC 2-2-6 describes the availability of PSD increment and maximum allowable increases as increased emissions caused by the proposed major PSD source will not exceed 80 percent of the available maximum allowable increases over the baseline concentrations for $PM_{10,}$ sulfur dioxide, and nitrogen dioxide. Table 3 shows the results of the PSD increment analysis for PM_{10}. No violations of 80 percent of the PSD increment for PM_{10} occurred and no further modeling was required.

Table 3
Increment Analysis

POLLUTANT	**TIME AVERAGIN G PERIOD**	**MAXIMUM MODELED IMPACTS** (ug/m^3)	CLASS II INCREMENT (ug/m3)	**80% of CLASS II INCREMENT** (ug/m^3)
PM_{10}	Annual	3.0	17	13.6
PM_{10}	24 Hour	22.6	30	24

Emission inventories of PM_{10} sources in Indiana within a 50 kilometer radius of the site were taken from the OAQ emission statement database. OAQ NAAQS modeling results are shown in Table 4. Maximum concentrations of PM_{10} for the 24-hour and annual time-averaged periods were below their respective NAAQS limit and further modeling was not required.

Table 4
NAAQS Analysis

POLLUTANT	TIME AVERAGING PERIOD	YEAR	MAXIMUM MODELED IMPACTS (ug/m^3)	MONITORING BACKGROUND (ug/m3)	TOTAL (ug/m3)	NAAQS STANDARD (ug/m3)
PM_{10}	Annual	1990	13.4	25	38.4	50
PM_{10}	24 Hour	1993	83.3	49	132	150

Section D

Hazardous Air Pollutant Analysis and Results

As part of the air quality analysis, OAQ requests data concerning the emission of 188 Hazardous Air Pollutants (HAPs) listed in the 1990 Clean Air Act Amendments which are either carcinogenic or otherwise considered toxic. These substances are listed as air toxic compounds on construction permit application. Any HAP emitted from a source will be subject to toxic modeling analysis. The modeled emissions for each HAP are the total emissions, based on assumed operation of 8760 hours per year.

Maximum 8-hour concentrations were determined and the concentrations were recorded as a percentage of each HAP Permissible Exposure Limit (PEL). The PELs were established by the Occupational Safety and Health Administration (OSHA) and represent a worker's exposure to a pollutant over an 8-hour workday or a 40-hour workweek. In Table 5 below, the results of the HAP analysis with the emission rates, modeled concentrations and the percentages of the PEL for each HAPs are listed. All HAP concentrations were modeled below 0.5% of their respective PEL. The 0.5% of the PEL represents a safety factor of 200 taken into account when determining the health risk of the general population.

TABLE 5 – Hazardous Air Pollutant Analysis of PEL

Hazardous Air Pollutants	**HAP Emissions**	**Maximum 8-hour impacts**	**PEL**	**% of PEL**
	(tons/year)	(ug/m3)	(ug/m3)	(%)
Acetaldehyde	1.44	0.087	360000	0.0002
Formaldehyde	3.60	0.559	930	0.060
Methanol	0.12	0.007	260000	0.00000
Propylene Oxide	8.90	7.25	240000	0.003

The maximum predicted annual HAP concentrations in comparison to the NATA/CEP cancer risk of one in one million is presented in Table 6. The cancer risk assumes exposure for a 70-year period.

TABLE 6 – HAP Analysis for Cancer Risk

Hazardous Air Pollutants	HAP Emissions	Unit Risk Factor	Maximum annual impacts	Cancer Risk	Less than 1 per million
	(tons/year)	(per ug/m3)	(ug/m3)		
Acetaldehyd	1.44	0.0000022	0.0024	.0000000060	Yes
Formaldehy	3.60	0.000013	0.014	.000000195	Yes
Propylene	8.90	0.0000037	0.49	.00000181	No

The cancer risk for acetaldehyde and formaldehyde are less than 1 per million. The cancer risk for propylene oxide reached 1.81 per million along the fence line. Only four receptors away from the fence line were above 1. Two receptors were in the rail yard, one was in Tate & Lyle parking lot, and the other was on the road to the south east of the plant. None of these would involve public residences.

<u>Section E</u>

Additional Impact Analysis

PSD regulations require an additional impact analysis be conducted to show that impacts associated with the facility would not adversely affect the surrounding area.

Economic Growth and Impact of Construction Analysis

Tate & Lyle will employ no additional people due to the modification. Secondary emissions are not expected. Industrial and residential growth would be none. There will be no adverse impact in the area due to industrial, residential or commercial growth.

Soils Analysis

Secondary NAAQS limits were established to protect general welfare, which includes soils, vegetation, animals and crops. Soils in Tippecanoe County are primarily Russell-Fincastle types. From the modeled concentrations of PM_{10} and HAPs analysis, the soils will not be adversely affected by the facility.

Vegetation Analysis

Due to the agricultural nature of the land, crops in the Tippecanoe County area consist mainly of corn, wheat and soybeans. The maximum modeled concentrations of Tate & Lyle for PM_{10}

are well below the threshold limits necessary to have adverse impacts on surrounding vegetation. (Flora of Indiana - Charles Deam). Livestock in Tippecanoe County consist mainly of hogs, cattle and chickens and will not be adversely impacted from the facility. Trees in the area are mainly hardwoods. These are hardy trees and no significant adverse impacts are expected due to modeled concentrations.

Federal and State Endangered Species Analysis

Federally endangered or threatened species as listed in the U.S. Fish and Wildlife Service, Division of Endangered Species for Indiana includes 12 species of mussels, 4 species of birds, 2 species of bat and butterflies and 1 species of snake. The agricultural nature of the land overall has disturbed the habitats of the butterflies and snake and the proposed modification is not expected to impact the area further. The mussels and birds listed are commonly found along major rivers and lakes while the bats are found near caves. A detailed listing of Federal and State endangered species for Indiana can be found on the internet at www.in.gov/dnr/naturepr/species/. The impacts from Tate & Lyle's facility expansion are not expected to adversely impact these species.

Federally endangered or threatened plants as listed in the U.S. Fish and Wildlife Service, Division of Endangered Species for Indiana list two threatened and one endangered species of plants. The endangered plant is found along the sand dunes in northern Indiana while the two threatened species do not thrive on cultivated or grazing land. The proposed modification is not expected to impact the area further.

The state of Indiana list of endangered, special concern and extirpated nongame species, as listed in the Department of Natural Resources, Division of Fish and Wildlife, contains species of birds, amphibians, fish, mammals, mollusks and reptiles which may be found in the area. However, the impacts are not expected to have any additional adverse effects on the habitats of the species than what has already occurred from the agricultural activity in the area.

Additional Analysis Conclusions

The nearest Class I area to Tate & Lyle is the Mammoth Cave National Park located approximately 250 kilometers to the south in Kentucky. The proposed facility will not adversely affect the visibility at this Class I area. Tate & Lyle is located well beyond 100 kilometers from Mammoth Cave National Park and will not have a significant impact on the Class I area. The results of the additional impact analysis conclude the Tate & Lyle's facility's modification will have no adverse impact on economic growth, soils, vegetation, and endangered or threatened species.

Part F

Summary of Air Quality Analysis

Tate & Lyle has applied for a PSD permit. ERM Environmental prepared the application. Tippecanoe County is attainment for all pollutants. PM10 emission rates exceeded significant emission rates. Modeling results were above significance levels, but refined modeling showed that both the PSD increment and NAAQS for PM10 and NOx were maintained. An air toxic analysis was performed as a precautionary measure and no pollutant was above 0.5% of PEL or above 1 in a million cancer risk level at any residential receptor. The nearest Class I area is Mammoth Cave National Park in Kentucky about 250 kilometers to the south. Additional analysis showed no significant impact on soils vegetation or visibility in the surrounding area.

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Part 70 Significant Source Modification and Significant Permit Modification

Source Background and Description

Source Name:	Tate & Lyle, Sagamore
Source Location:	2245 North Sagamore Parkway, Lafayette, IN 47902
County:	Tippecanoe
SIC Code:	2046
Part 70 Permit No.:	157-6009-00003
Issuance Date:	June 28, 2004
Application No.:	SSM 157-18832-00003, and SPM 157-20671-00003
Permit Reviewer:	Dr. Trip Sinha /Allen R. Davidson

On April 14, 2004, the Office of Air Quality (OAQ) received an application from Tate & Lyle relating to an increase in grind capacity and an expansion of the starch finishing system.

History

Tate & Lyle (Formerly A. E. Staley Manufacturing Company) was issued a Part 70 permit for a corn processing plant on June 28, 2004. This Part 70 permit has since received the following revisions:

(a) Significant Source Modification (SSM) 157-18847-00003, issued on November 19, 2004, approved construction to allow the combustion of waste starch as fuel in Boiler 31B1.

(b) Significant Permit Modification (SPM) 157-19702-00003, issued on November 19, 2004, allowed an increase in airflow through the Flash Dryer #3 Mill, identified as Unit 40G88.

(c) Significant Permit Modification (SPM) 157-18915-00003, issued on December 9, 2004, allowed the combustion of waste starch as fuel in Boiler 31B1.

(d) First Administrative Amendment 157-20551-00003, issued on March 17, 2005, changed the source name to Tate & Lyle, Sagamore to reflect the change in the legal corporate name of A.E. Staley Manufacturing Company to Tate & Lyle Ingredients America, Inc.

This application is the fourth revision to the Part 70 permit. The following changes are being proposed for the Part 70 permit:

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) Corn Receiving and Conveying Operations, consisting of:

(1) One (1) Railcar Corn Dump Hopper, identified as 12V101, constructed in 1966, with emissions controlled by ~~baghouses~~ **baghouse** 21F1~~ and 21F17~~, exhausting to stack 136;

(2) One (1) Truck Corn Dump Hopper, identified as 12V102, constructed in 1966,

with emissions controlled by ~~baghouses~~ **baghouse** 21F1 ~~and 21F17~~, exhausting to stack 136;

(3) One (1) Bucket Corn Elevator, identified as 12U2, constructed in 1976, with emissions controlled by ~~baghouses~~ **baghouse** 21F1 ~~and 21F17~~, exhausting to stack 136;

(4) Two (2) Corn Transfer Conveyors, identified as 12U4 and 12U5, constructed in 1966, with emissions controlled by ~~baghouses~~ **baghouse** 21F1 ~~and 21F17~~, exhausting to stack 136;

(5) Three (3) Corn Transfer Conveyors, identified as 13U6 through 13U8, constructed in 1986, with emissions controlled by ~~baghouses 21F1 and~~ **baghouse** 21F17, exhausting to stack 136;

(6) Two (2) Co-Product Loadout Conveyors, identified as 8U39 and 8U41, constructed in 1966, with emissions controlled by ~~baghouses 21F1 and~~ **baghouse** 21F17, exhausting to stack 136;

(7) One (1) Bucket Elevator from Silos to Steeps, identified as 14U9, constructed in 1966, with emissions controlled by baghouse 14F2, exhausting to stack 126;

(8) One (1) Corn Weigher, identified as 14V1, constructed in 1986, with emissions controlled by baghouse 14F2, exhausting to stack 126;

(9) Two (2) Corn Cleaners, identified as 14J4 and 14J5, constructed in 1992, with emissions controlled by baghouse 14F2, exhausting to stack 126; ~~and~~

(10) One (1) Corn Cleanings Pneumatic Transfer, identified as 21F2, constructed in 1966, with emissions controlled by baghouse 21F2, exhausting to stack 137;

(11) Five (5) Corn Storage Silos, identified as 13V1, 13V2, 13V3, 13V4 and 13V5, constructed in 1966, with emissions controlled by baghouse 21F1, exhausting to stack 136.

(12) Two (2) Corn Storage Silos, identified as 13VAA and 13VBB, constructed in 2005, with emissions controlled by baghouse 21F1, exhausting to stack 136.

(13) One (1) Vibrating Corn Cleaning System, identified as 14JAA, permitted in 2005, with emissions controlled by baghouse 14F2, exhausting to stack 126.

(14) One (1) Bucket Elevator from Silos to Steeps, identified as 14UBB, constructed in 1966, with emissions controlled by baghouse 14F2, exhausting to stack 126; and

(15) One (1) Vibrating Corn Cleaning Pneumatic Transfer, identified as 21FMM, permitted in 2005, with emissions controlled by baghouse 21FMM, exhausting to stack 394.

(b) Wet Milling Operations, consisting of:

(16) One (1) Fiber Dewatering Screen, identified as 21F100, constructed in 1990, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(17) One (1) Fiber Dewatering Screen, identified as 21F101, constructed in 1997, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(18) One (1) Germ Distribution Conveyor, identified as 21U23, constructed in 1978, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(19) One (1) Gluten Filter Receiver Tank, identified as 21V57, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(20) One (1) Germ Scrubber Water Tank, identified as 21V130, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(21) One (1) Gluten Filter Bowl Drain Tank, identified as 21V159, constructed in 1990, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(22) One (1) Gluten Filter Wash Bar Trough Drain Tank, identified as 21V59, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(23) One (1) Fiber Filtrate Tank, identified as 21V58, constructed in 1990, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(24) One (1) Heavy Steep water Tank, identified as 21V56, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(25) One (1) Monitor Tank, identified as 15V210, constructed in 1990, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(26) Fourteen (14) Corn Steep tanks, identified as 14V3 through 14V16, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(27) Seven (7) Grit Starch Screens, identified as Grit Starch Screens 15J15-15J19, 15J21, and 15J22, constructed in 1990, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(28) One (1) Steeped Corn Separator, identified as 15J5A, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(29) One (1) First Pass Germ Feed Tank, identified as 15V23, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17.

(30) Steeped Corn Surge Hopper, identified as 15V21, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17.

(31) One (1) Second Pass Germ Feed Tank, identified as 15V25, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(32) One (1) Grit Starch Feed Tank, identified as 15V26, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(33) Two (2) Germ Wash Screens, identified as 15J99 and 15J100, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(34) Three (3) Germ Washing Screens, identified as 15J101, 15J200, and 15J201, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(35) One (1) Light Steep water Receiver, identified as 14V19, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(36) Germ Wash Screens, identified as 15J53, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(37) One (1) Third Grind Tank, identified as 15V27, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(38) One (1) Clamshell Wash Water Tank, identified as 15V2, constructed in 1991, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(39) One (1) Clamshell Starch Receiver Tank, identified as 15V42, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(40) One (1) Second Grind Receiver Tank, identified as 15V24, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(41) One (1) First Grind receiver Tank, identified as 15V22, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(42) One (1) Steeped Corn Tank, identified as 14V17, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(43) One (1) Germ Water Tank, identified as 15V139, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(44) Thirty-six (36) Fiber Wash Screens, identified as 1st Stage through 5th Stage Fiber Wash Screens, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(45) One (1) Dent Starch Slurry Storage Tank, identified as 15V43, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(46) One (1) Steep water Head Tank, identified as 14V18, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(47) One (1) Mill Acid Tank, identified as 14V96, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(48) One (1) Primary Wash Box, identified as 15V17, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(49) One (1) Primary Wash Box, identified as 15V19, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(50) Five (5) Fiber Wash Receivers, identified as 15V110 through 15V114, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(51) One (1) Process Water Tank, identified as 15V30, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(52) One (1) Primary Wash Water Tank, identified as 15V41, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(53) One (1) Wash Water Surge Tank, identified as 15V38, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(54) One (1) Primary Feed Tank, identified as 15V34, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(55) One (1) Primary Underflow Tank, identified as 15V35, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(56) One (1) Gluten Thickener Feed Tank, identified as 15V36, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(57) One (1) Heavy Gluten Tank, identified as 15V37, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(58) One (1) Clarifier Feed Tank, identified as 15V40, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.**

~~24~~;

(59) One (1) MST Feed Tank, identified as 15V31, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(60) One (1) Gluten Vacuum Filter Pump, identified as 21C7, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~340~~;

(61) One (1) Gluten Vacuum Filter Pump, identified as 21C8, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17** ~~341~~;

(62) One (1) Gluten Vacuum Filter Pump, identified as 21C9, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~342~~;

(63) One (1) Gluten Vacuum Filter Pump, identified as 21C10, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~343~~;

(64) One (1) Gluten Vacuum Filter, identified as 21F7, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~340~~;

(65) One (1) Gluten Vacuum Filter, identified as 21F8, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17** ~~341~~;

(66) One (1) Gluten Vacuum Filter, identified as 21F9, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~342~~; ~~and~~

(67) One (1) Gluten Vacuum Filter, identified as 21F10, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~343~~;

(68) One (1) High DS Starch Filter, identified as 18F510, constructed in 1995, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~348;~~

(69) One (1) High DS Starch Tank, identified as 18V520, constructed in 1995, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~348;~~

(70) One (1) High DS Starch Wash Water Tank, identified as 18V522, constructed in 1995, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~348;~~

(71) Two (2) Second Grind Screens, identified as 15J14, and 15J24, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17** ~~24;~~

(72) Six (6) Sixth Stage Fiber Wash Screens, identified as 15J86, 15J87, 15J88, 15J89, 15J220, and 15J221, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~347~~;

(73) One (1) Steep Acid Tank, identified as 14V20, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~24~~.

(74) One (1) Fiber Supply Tank, identified as 15V33, constructed in 2000, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~347~~.

(75) Eight (8) Steep Tanks, identified as 14VAA, 14VBB, 14VCC, 14VDD, 14VEE, 14VFF, 14VGG and 14VHH, to be constructed in 2005, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(76) One (1) High DS Starch Vacuum Filter, identified as 18FAA, to be constructed in 2005, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(77) One (1) Gluten Vacuum Filter, identified as 21FAA, to be constructed in 2005, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(78) One (1) Gluten Vacuum Filter Pump, identified as 21CBB, to be constructed in 2005, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(79) Fiber Dewatering Screens, identified as 21FNN, to be constructed in 2005, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17; and

(80) 18 Bldg. Process Tanks and screens, to be constructed in 2005, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17.

(c) Feed/Meal/Germ Production Operations, consisting of:

(1) One (1) Feed Hopper, identified as 21V60, constructed in 1965, with emissions controlled by baghouse 21F14, exhausting indoors to stack 1;

(2) One (1) Meal Hopper, identified as 21V61, constructed in 1965, with emissions controlled by baghouse 21F15, exhausting indoors to stack 2;

(3) One (1) Rail Loadout Conveyor, identified as 12U11, constructed in 1991, with emissions controlled by baghouse 12F40, exhausting to stack 3;

~~(4) One (1) 21D1 Steam Tube Germ Dryer, identified as 21D1, constructed in 1966, with emissions controlled by scrubber 21F13, exhausting to stack 17;~~

~~(5) One (1) 21D2 Steam Tube Germ Dryer, identified as 21D2, constructed in 1966, with emissions controlled by scrubber 21F13, exhausting to stack 17;~~

~~(6) One (1) 21D3 Steam Tube Germ Dryer, identified as 21D3, constructed in 1966,~~

~~with emissions controlled by scrubber 21F13, exhausting to stack 17;~~

(4) **One (1) RST Fiber Pre-Dryer, identified as 21DAA. PM and PM_{10} emissions are controlled by product collector/cyclone 21FCC, then PM, PM_{10} and sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17.**

(5) **One (1) RST Germ Dryer, identified as 21DBB. PM and PM_{10} emissions are controlled by product collectors/cyclones 48FAA-48FFF, then PM, PM_{10} and sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17.**

(6) **One (1) Gluten Flash Dryer, identified as 48DAA. PM, PM_{10} and sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17.**

(7) One (1) 21D6 natural gas, No. 2 fuel oil, or biogas fired Feed Dryer, identified as 21D6, constructed in 1966, with a heat input capacity of ~~22~~ **30** MMBtu/hr. PM and PM_{10} emissions controlled by integral product collector/cyclone 21F26, then sulfur dioxide emissions controlled by scrubber 21F13**, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH**, before exhausting to stack 17.

(8) One (1) 21D7 natural gas, No. 2 fuel oil, or biogas fired Feed or Meal Dryer, identified as 21D7, constructed in 1966, with a heat input capacity of ~~22~~ **30** MMBtu/hr. PM and PM_{10} emissions controlled by integral product collector/cyclone 21F27, then sulfur dioxide emissions controlled by scrubber 21F13, **then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH**, before exhausting to stack 17.

(9) One (1) 21D8 natural gas or No. 2 fuel oil fired Meal Dryer, identified as 21D8, constructed in 1966, with a heat input capacity of ~~22~~ **30** MMBtu/hr. PM and PM_{10} emissions are controlled by integral product collector/cyclone 21F28, then sulfur dioxide emissions controlled by scrubber 21F13, **then VOC emissions are controlled by Thermal Oxidation Units 48FGG and 48FHH**, before exhausting to stack 17.

(10) One (1) Feed Storage Bin, identified as 8V121, constructed in 1966, with emissions controlled by baghouse 8F1, exhausting to stack 110;

(11) One (1) Feed Storage Bin, identified as 8V122, constructed in 1966, with emissions controlled by baghouse 8F2, exhausting to stack 111;

(12) One (1) Feed Storage Bin, identified as 8V123, constructed in 1966, with emissions controlled by baghouse 8F3, exhausting to stack 112;

(13) One (1) Feed Storage Bin, identified as 8V124, constructed in 1966, with emissions controlled by baghouse 8F4, exhausting to stack 113;

(14) One (1) Feed/Meal Storage Bin, identified as 8V62, constructed in 1966, with emissions controlled by baghouse 8F62, exhausting to stack 114;

(15) One (1) Meal Storage Bin, identified as 8V63, constructed in 1966, with emissions controlled by baghouse 8F63, exhausting to stack 115;

(16) One (1) Meal/Germ Storage Bin, identified as 8V53, constructed in 1966, with emissions controlled by baghouse 8F53, exhausting to stack 116;

(17) One (1) Germ Storage Bin, identified as 8V54, constructed in 1966, with emissions controlled by baghouse 8F54, exhausting to stack 117;

(18) Two (2) Air Conveying Lines to Loadout, identified as AC23 and AC24, constructed in 1966, with emissions controlled by baghouse 12F39, exhausting to stack 125;

(19) One (1) Feed Mill, identified as 21G51, constructed in 1965, with emissions controlled by baghouse 21F37, exhausting to stack 141;

(20) One (1) Feed Mill, identified as 21G52, constructed in 1965, with emissions controlled by baghouse 21F38, exhausting to stack 142;

(21) One (1) D6 Dryer Air Conveying Line to Feed Mill, identified as AC6, constructed in 1966, with emissions controlled by baghouse 21F32, exhausting to stack 143;

(22) One (1) D7 Dryer Air Conveying Line to Feed Mill, identified as AC7, constructed in 1966, with emissions controlled by baghouse 21F35, exhausting to stack 144;

(23) One (1) D8 Dryer Air Conveying Line to Feed Mill, identified as AC8, constructed in 1966, with emissions controlled by baghouse 21F36, exhausting to stack 145;

(24) One (1) Bag Dump Station, identified as 8V99, constructed in 1966, with emissions controlled by baghouse 8F99, exhausting indoors to stack 285;

(25) Two (2) Natural Gas / Biogas Fired Thermal Oxidation Units, identified as 48FGG and 48FHH, with heat input capacity of 5 million Btu per hour each.

(d) Syrup Refining Operations, consisting of:

(1) One (1) GMH Storage Silo, identified as 9V32, constructed in 1966, with emissions controlled by baghouse 9F32, exhausting to stack 119;

(2) One (1) Filteraid Storage Silo, identified as 9V31, constructed in 1966, with emissions controlled by baghouse 9F31, exhausting to stack 123;

(3) One (1) Powdered Carbon Unloading, identified as 9C30, constructed in 1966, with emissions controlled by baghouse 9F30, exhausting to stack 124;

(4) One (1) Filteraid Conveying System to Precoat Makeup Tank, identified as 18C18, constructed in 1966, with emissions controlled by baghouse 18F118, exhausting to stack 129;

(5) One (1) Soda Ash Storage Tank, identified as 9C40, constructed in 1966, with emissions controlled by eductor/scrubber 9E1, exhausting to stack 149;

(6) One (1) HCl Storage Tank (Concentrated), identified as 9V101, constructed in 1995, with emissions controlled by scrubber 9F102, exhausting to stack 156;

(7) One (1) Jet Cooker system/Jet Conversion Flash Chamber, identified as 18V413, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17** ~~uncontrolled, exhausting to stack 166~~;

(8) One (1) Jet Cooker system/Acid Reject Flash Chamber, identified as 18V312, constructed in 1966, with emissions uncontrolled, exhausting to stack 320;

(9) One (1) Powdered Carbon Storage Silo, identified as 9V30, constructed in 1966, with emissions controlled by baghouse 9F37, exhausting to stack 321; and

(10) One (1) Refinery Reprocess Bag Dump, identified as 45C43, constructed in 2000, with emissions controlled by baghouse 45F43, exhausting indoors.

(e) Starch Modification Operations, consisting of:

(1) One (1) Non-PO Reactor, identified as 45V115, constructed in 1966, exhausting to stack 11;

(2) One (1) Non-PO Reactor, identified as 45V116, constructed in 1966, exhausting to stack 12;

(3) One (1) Non-PO Reactor, identified as 45V222, constructed in 1973, exhausting to stack 31;

(4) One (1) PO Reactor, identified as 45V223, constructed in 1973, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(5) One (1) PO Reactor, identified as 45V240, constructed in 1986, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(6) One (1) PO Reactor, identified as 45V241, constructed in 1986, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(7) One (1) PO Reactor, identified as 45V242, constructed in 1986, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(8) One (1) PO Reactor, identified as 45V243, constructed in 1986, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(9) One (1) PO Reactor, identified as 45V246, constructed in 1988, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(10) One (1) PO Reactor, identified as 45V247, constructed in 1988, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(11) One (1) PO Reactor, identified as 45V248, constructed in 1991, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(12) One (1) PO Reactor, identified as 45V270, constructed in 1995, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(13) One (1) PO Reactor, identified as 45V271, constructed in 1995, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(14) One (1) PO Reactor, identified as 45V280, constructed in 2002, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(15) One (1) PO Reactor, identified as 45V281, constructed in 2002, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(16) One (1) Sodium Sulfate Storage Bin, identified as 45V250, constructed in 1985, with emissions controlled by two baghouses, 45F25 and 45F25a, exhausting to stack 64;

(17) One (1) Tri-Polyphosphate Storage Bin, identified as 9V103, constructed in 1988, with emissions controlled by baghouse 9F103, exhausting to stack 68;

(18) Two (2) Flash 2 Slurry Hold Tanks, identified as 40V20 and 40V21, constructed in 1990, with emissions uncontrolled, exhausting to stack 80;

(19) Four (4) Belt Dryer Feed Tanks, identified as 45V117 through 45V120, constructed in 1966, with emissions uncontrolled, exhausting to stack 180;

(20) Two (2) Spray Dryer Feed Tanks, identified as 30V1 and 30V2, constructed in 1986, with emissions uncontrolled, exhausting to stack 195;

(21) Three (3) Spray Dryer Process Tanks, identified as 40V11, 40V12, and 40V14, constructed in 1988, with emissions uncontrolled, exhausting to stack 222;

(22) Four (4) Flash 2 Larox Filters, identified as 40F51, 40F52, and 40F53, constructed in 1995, and 40F54, constructed in 2002, with emissions uncontrolled, exhausting to stack 249;

(23) One (1) Dryer Starch Feed Conveyor/Flash 2 Paddle Mixer, identified as 40U23, constructed in 1995, with emissions uncontrolled, exhausting to stack 249;

(24) One (1) Flash 2 Air Release Tank, identified as 40V15, constructed in 1995, with emissions uncontrolled, exhausting to stack 250;

(25) Three (3) Flash 3 Larox Filters, identified as 43F71, 43F72, and 43F73, constructed in 1995, with emissions uncontrolled, exhausting to stack 260;

(26) One (1) Flash 3 Larox Air Release Tank, identified as 43V85, constructed in 1995, with emissions uncontrolled, exhausting to stack 261;

(27) Two (2) Flash 3 Slurry Hold Tanks, identified as 43V71 and 43V72, constructed in 1995, with emissions uncontrolled, exhausting to stack 273;

(28) One (1) Flash 1 Starch Hold Tank, identified as 40V50, constructed in 1996, with emissions uncontrolled, exhausting to stack 289;

(29) One (1) Conveyor 40U2, identified as 40U2, constructed in 1985, with emissions uncontrolled, exhausting to stack 315;

(30) One (1) Flash 1 Slurry Hold Tank, identified as 40V1, constructed in 1985, with emissions uncontrolled, exhausting to stack 315;

(31) One (1) Filtrate Reineveldt Centrifuge Flash Dryer 1, identified as 40Y1, with emissions uncontrolled, constructed in 1985, exhausting to stack 315;

(32) One (1) Flash 3 Larox Air Release Tank, identified as 43V86, constructed in 1995, with emissions uncontrolled, exhausting to stack 318;

(33) One (1) Starch Feed Bin, identified as 33V1, constructed in 1995, with emissions controlled by baghouse 33F1, exhausting **via vent 236** to stack **355.** ~~236;~~

(34) One (1) Starch Feed Bin, identified as 33V2, constructed in 1995, with emissions controlled by baghouse 33F2, exhausting **via vent 237** to stack **355.** ~~237;~~

(35) One (1) Low Pressure Dry Starch Reactor, identified as 33R1, constructed in 1995, with emissions controlled by baghouses 33F101 and 33F102, exhausting to stack 238;

(36) One (1) Catalyst Bin, identified as 33V5, constructed in 1995, with emissions controlled by baghouse 33F5, exhausting to stack 239;

(37) One (1) High Pressure Dry Starch Reactor, identified as 33R2, constructed in 1995, with emissions controlled by baghouses 33F201 and 33F202, exhausting to stack 240;

(38) One (1) Reactor Surge Bin, identified as 50V61, constructed in 1997, with emissions controlled by baghouse 50F161, exhausting **via vent 241** to stack **361.** ~~241;~~

(39) One (1) Reactor Surge Bin, identified as 50V62, constructed in 1997, with emissions controlled by baghouse 50F162, exhausting **via vent 242** to stack **361.** ~~242;~~

(40) One (1) Dry Starch Product Screening Receiver, identified as 50F48, constructed in 1997, with emissions controlled by baghouse 50F48, exhausting **via vent 243** to stack **355.** ~~243;~~

(41) One (1) Dry Starch Blend Bin, identified as 33V42, constructed in 1995, with emissions controlled by baghouse 33F42, exhausting **via vent 244** to stack **355** ~~244~~;

(42) One (1) Dry Starch Blend Bin, identified as 33V43, constructed in 1995, with emissions controlled by baghouse 33F43, exhausting **via vent 245** to stack **355** ~~245~~;

(43) One (1) Dry Starch Blend Bin, identified as 33V40, constructed in 1995, with emissions controlled by baghouse 33F40, exhausting **via vent 246** to stack **355** ~~246~~;

(44) One (1) Dry Starch Blend Bin, identified as 33V41, constructed in 1995, with emissions controlled by baghouse 33F41, exhausting **via vent 247** to stack **355** 247;

(45) One (1) Dry Starch Product Screening Receiver, identified as 50F45, constructed in 1997, with emissions controlled by baghouse 50F45, exhausting **via vent 262** to stack **355**; ~~262; and~~

(46) One (1) Flash 2 Air Release Tank, identified ~~s~~ **as** 40V16, constructed in 2002,

with emissions uncontrolled, exhausting to stack 251;

(47) Six (6) Propylated Starch Reactors, identified as 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF, with VOC emissions controlled by packed bed scrubbers 45FAA or 45F212, exhausting to stack 399;

(48) One (1) Sodium Sulfate Storage Bin, identified as 45BVAA, with emissions controlled by baghouse 45BFAA, exhausting to stack 400;

(49) Two (2) Flash 4 Slurry Hold Tanks, identified as 44V1 and 44V2, with emissions uncontrolled, exhausting to stack 419;

(50) Three (3) Flash 4 Larox Filters, identified as 44FKK, 44FLL and 44FMM, with emissions uncontrolled, exhausting to stack 420;

(51) One (1) Flash 4 Larox Filter Feed Tank, identified as 44V3, with emissions uncontrolled, exhausting to stack 420;

(52) One (1) Flash 4 Larox Air Release Tank, identified as 44V4, with emissions uncontrolled, exhausting to stack 421;

(53) One (1) Flash 4 Larox Air Release Tank, identified as 44V5, with emissions uncontrolled, exhausting to stack 422;

(54) Two (2) Spray dryer 2 Feed Tanks, identified as 46V1 and 46V2, with emissions uncontrolled, exhausting to stack 423;

(55) One (1) Spray dryer 2 Overflow Tank, identified as 46V3 with emissions uncontrolled, exhausting to stack 424;

(56) One (1) Spray dryer 2 Bowl Drain Tank, identified as 46V4 with emissions uncontrolled, exhausting to stack 424;

(57) One (1) Spray dryer 2 Under Flow Tank, identified as 46V5 with emissions uncontrolled, exhausting to stack 424;

(58) One (1) Raw Starch Storage Bin, identified as 20VAA, with emissions controlled by baghouse 20FAA, exhausting to stack 369;

(59) One (1) Raw Starch Storage Bin, identified as 20VBB, with emissions controlled by baghouse 20FBB, exhausting to stack 370;

(60) One (1) Starch Slurry Storage Tank, identified as 18AVAA, with emissions controlled by baghouse 18AFAA, exhausting to stack 371;

(61) One (1) Starch Feed Bin, identified as 41VAA, with emissions controlled by baghouse 41FKK, exhausting to stack 372;

(62) One (1) Starch Weigh Bin, identified as 33VAA, with emissions controlled by baghouse 33FAA, exhausting to stack 373;

(63) One (1) Dextrin Fluidizer Reactor, identified as 33RAA, with emissions controlled by cyclone 33FBB and baghouse 33FCC, exhausting to stack 374;

(64) **One (1) Dextrin Fluidizer Surge Bin, identified as 33VBB, with emissions controlled by baghouse 33FDD, exhausting via vent 375 to stack 355;**

(65) **One (1) Dextrin Blending and Storage Bin, identified as 33VCC, with emissions controlled by baghouse 33FFF, exhausting via vent 377 to stack 355;**

(66) **One (1) Dextrin Blending and Storage Bin, identified as 33VDD, with emissions controlled by baghouse 33FGG, exhausting via vent 378 to stack 355;**

(67) **One (1) Dextrin Product Screening Receiver, identified as 33FEE, with emissions controlled by baghouse 33FEE, exhausting via vent 376 to stack; and 355.**

(f) Starch Drying and Handling Operation, consisting of:

(1) One (1) Starch Flash Dryer #1, identified as 40D1, constructed in 1986, a heat input capacity of 14.4 MMBtu/hr, with emissions controlled by integral product collector/cyclones 40F1 and 40F2 and scrubber 40F3, exhausting to stack 69;

(2) One (1) Pneumatic Product Transfer, identified as 40F7, constructed in 1986, with emissions controlled by 40F7, exhausting to stack 70;

(3) One (1) Starch Storage Bin #8, identified as 7V8, constructed in 1986, with emissions controlled by baghouse 7F8, exhausting to stack 71;

(4) One (1) Starch Storage Bin #9, identified as 7V9, constructed in 1986, with emissions controlled by baghouse 7F9, exhausting to stack 72;

(5) One (1) Starch Flash Dryer #2, identified as 40D20, constructed in 1990 and modified in 1991, a heat input capacity of 40 MMBtu/hr, with emissions controlled by integral product collector/cyclones 40F20 through 40F25 and scrubber 40F26, exhausting to stack 73;

(6) One (1) Starch Product Bin #20, identified as 7V20, constructed in 1992, with emissions controlled by baghouse 7F20, exhausting to stack 76;

(7) One (1) Starch Product Bin #21, identified as 7V21, constructed in 1992, with emissions controlled by baghouse 7F21, exhausting to stack 77;

(8) One (1) Starch Product Bin #22, identified as 7V22, constructed in 1992, with emissions controlled by baghouse 7F22, exhausting to stack 78;

(9) One (1) Starch Grinder/Mill #1, identified as 40G20, constructed in 1990, with emissions controlled by baghouse 40F28, exhausting **via vent 286** to stack ~~286;~~ **360.**

(10) One (1) Starch Grinder/Mill #2, identified as 40G21, constructed in 1990, with emissions controlled by baghouse 40F29, exhausting **via vent 287** to stack ~~287;~~ **360.**

(11) One (1) Grinder Feed Collector 40F27, identified as 40F27, constructed in 1990,

with emissions exhausting to the intake of bins 7V20, 7V21, 7V22 and 7V23;

(12) One (1) Starch Flash Dryer #3, identified as 43D71, constructed in 1995, a heat input capacity of 40 MMBtu/hr, with emissions controlled by integral product collector/cyclones 40F81 through 40F86 and scrubber 43F80, exhausting to stack 265;

(13) One (1) Flash #3 Mill, identified as 40G88, constructed in 1996, with emissions controlled by baghouse 40F88, exhausting to stack 266;

(14) One (1) Starch Bin #33, identified as 7V23 (formerly identified as 7V33), constructed in 1995, with emissions controlled by baghouse 7F33, exhausting to stack 267;

(15) One (1) Starch Bin #34, identified as 7V34, constructed in 1995, with emissions controlled by baghouse 7F34, exhausting to stack 268;

(16) One (1) Starch Bin #35, identified as 7V35, constructed in 1995, with emissions controlled by baghouse 7F35, exhausting to stack 269;

(17) One (1) Adipic Acid Storage Bin, identified as 43V90, constructed in 1996, with emissions controlled by baghouse 43F90, exhausting to stack 274;

(18) One (1) Starch Transfer Bin #91, identified as 7V91, constructed in 1999, with emissions controlled by baghouse 7F91, exhausting to stack 345;

(19) One (1) Starch Transfer Bin #92, identified as 7V92, constructed in 1999, with emissions controlled by baghouse 7F92, exhausting to stack 346;

(20) One (1) Starch Roll Dryer #1, identified as 41D1, constructed in 1986, with emissions uncontrolled, exhausting to stack 91;

(21) One (1) Starch Roll Dryer #2, identified as 41D2, constructed in 1986, with emissions uncontrolled, exhausting to stack 92;

(22) One (1) Starch Roll Dryer #3, identified as 41D3, constructed in 1986, with emissions uncontrolled, exhausting to stack 93;

(23) One (1) Starch Roll Dryer #4, identified as 41D4, constructed in 1993, with emissions uncontrolled, exhausting to stack 94;

(24) One (1) Starch Roll Dryer #5, identified as 41D5, constructed in 1995, with emissions uncontrolled, exhausting to stack 232;

(25) One (1) Starch Roll Dryer #6, identified as 41D6, constructed in 1995, with emissions uncontrolled, exhausting to stack 233;

(26) One (1) Starch Roll Dryer #7, identified as 41D7, constructed in 1997, with emissions uncontrolled, exhausting to stack 234;

(27) One (1) Starch Roll Dryer #8, identified as 41D8, constructed in 2000, with emissions uncontrolled, exhausting to stack 235;

(28) One (1) Pneumatic Product Transfer Roll Dryer, identified as 41F210, constructed in 1986, with emissions controlled by baghouse 41F210, exhausting to **the intake**

of mill 41G202 ~~stack 95~~**;**

~~(29) One (1) Roll Dryer Mill, identified as 41G200, constructed in 1986, with emissions controlled by baghouse 41F200, exhausting to stack 96;~~

(29) One (1) Product Bin #10, identified as 41V10, constructed in 1993, with emissions controlled by baghouse 41F10, exhausting to stack 97;

(30) One (1) Product Bin #11, identified as 41V11, constructed in 1993, with emissions controlled by baghouse 41F11, exhausting to stack 98;

(31) One (1) Pneumatic Product Transfer Roll Dryer, identified as 41F201, constructed in 1993, with emissions controlled by baghouse 41F201, exhausting to **the intake of mill 41G202** ~~stack 101~~;

~~(32) One (1) Roll Dryer Mill, identified as 41G201, constructed in 1993, with emissions controlled by baghouse 41F211, exhausting to stack 100;~~

(32) One (1) Starch Product Bin #44, identified as 33V44, constructed in 1995, with emissions controlled by baghouse 33F44, exhausting to stack 248 ~~indoors~~;

(33) One (1) Bulk Bag Dump Station, identified as 41F13, constructed in 2000, with emissions controlled by baghouse 41F13, exhausting **indoors** to stack 344;

(34) One (1) Spray Dryer, identified as 30D1, constructed in 1984, a heat input capacity of 24 MMBtu/hr, with emissions controlled by integral product collector/cyclones 30F7 and 30F8 and baghouses 30F2 and 30F3, exhausting to stack 82;

(35) One (1) Product Transfer to Milling, identified as 30F13, constructed in 1987, with emissions controlled by baghouse 30F13, exhausting **via vent 83** to stack ~~83;~~ **360;**

(36) One (1) Dryer Mill, identified as 30G1, constructed in 1987, with emissions controlled by baghouse 30F15, exhausting **via vent 84** to stack ~~84;~~ **360;**

(37) One (1) Product Transfer to Bins #14 & #15, identified as 41C30, constructed in 1987, with emissions controlled by baghouses 41F14 and 41F15, exhausting ~~to stack 85~~ **via vent 85 into stack 355**;

(38) One (1) Product Transfer to Bins #17, #18, #44 **and EE**, identified as 41C35, constructed in 1987, with emissions controlled by baghouses 41F20, 41F21, 41F54, **and 41FEE**, exhausting ~~to stack 86~~ **via vent 86 into stack 355**;

(39) One (1) Product Bin #14, identified as 41V14, constructed in 1987, with emissions controlled by baghouse 41F16, exhausting to stack 87;

(40) One (1) Product Bin #15, identified as 41V15, constructed in 1987, with emissions controlled by baghouse 41F17, exhausting to stack 88;

(41) One (1) Product Bin #17, identified as 41V17, constructed in 1987, with emissions controlled by baghouse 41F22, exhausting to stack 89;

(42) One (1) Product Bin #18, identified as 41V18, constructed in 1987, with emissions controlled by baghouse 41F23, exhausting to stack 90;

(43) One (1) Belts Product Conveying Mill Product to Bins #3, #4, and #5, identified as 7F25, constructed in 1966, with emissions controlled by 7F25, exhausting to stack 103;

(44) One (1) Belts Product Conveying Mill Product to Bins #1, #2, and #3, identified as 7F26, constructed in 1966, with emissions controlled by 7F26, exhausting to stack 104;

(45) One (1) Product Bin #5, identified as 7V46, constructed in 1966, with emissions controlled by baghouse 7F69, exhausting to stack 105;

(46) One (1) Product Bin #4, identified as 7V47, constructed in 1966, with emissions controlled by baghouse 7F70, exhausting to stack 106;

(47) One (1) Product Bin #3, identified as 7V48, constructed in 1966, with emissions controlled by baghouse 7F71, exhausting to stack 107;

(48) One (1) Product Bin #2, identified as 7V49, constructed in 1966, with emissions controlled by baghouse 7F72, exhausting to stack 108;

(49) One (1) Product Bin #1, identified as 7V50, constructed in 1966, with emissions controlled by baghouse 7F73, exhausting to stack 109;

(50) One (1) Belt Dryer Mill, identified as 25G1, constructed in 1968, with emissions controlled by baghouse 25F2, exhausting to stack 146;

(51) One (1) Pneumatic Conveying to Mill Feed Receiver, identified as 25F1, constructed in 1968, with emissions controlled by baghouse 25F1, exhausting to stack 147;

(52) One (1) Regular Belt Dryer D4 and one (1) Special Belt Dryer D5, identified as 16D4 and 16D5, constructed in 1966, with emissions controlled by rotoclone scrubbers 16F26, 17F78, 16F27, and 17F79, exhausting to stack 177;

(53) One (1) Spray Agglomeration System, identified as 50D101, constructed in 2001, a heat input capacity of 6.2 MMBtu/hr, with emissions controlled by integral product collector/cyclones 50F111 and 50F112 and baghouse 50F102, exhausting **via vent 349** to stack **361** ~~350~~; ~~and~~

(54) One (1) Agglomeration Blender Receiver/Baghouse, identified as 50F106, constructed in 2001, with emissions controlled by baghouse 50F106, exhausting **via vent 350** to stack **361** ~~350~~;

(55) Starch Roll Dryer #9, identified as 41D9, with emissions uncontrolled, exhausting to stack 405;

(56) Starch Roll Dryer #10, identified as 41D10, with emissions uncontrolled, exhausting to stack 406;

(57) Starch Roll Dryer #11, identified as 41D11, with emissions uncontrolled, exhausting to stack 407;

(58) Starch Roll Dryer #12, identified as 41D12, with emissions uncontrolled, exhausting to stack 408;

(59) Starch Roll Dryer #13, identified as 41D13, with emissions uncontrolled, exhausting to stack 409;

(60) Starch Roll Dryer #14, identified as 41D14, with emissions uncontrolled, exhausting to stack 410;

(61) One (1) Roll Dryer Mill Feed Collector Baghouse, identified as 41FAA, with emissions controlled by baghouse 41FAA, exhausting via vent 365 to stack 355;

(62) One (1) Roll Dryer System Mill, identified as 41G202, with emissions controlled by baghouse 41F202, exhausting via vent 366 to stack 355;

(63) One (1) Starch Blend Bin #1, identified as 07VDD, with emissions controlled by baghouse 07FDD, exhausting to stack 383;

(64) One (1) Starch Blend Bin #2, identified as 07VEE, with emissions controlled by baghouse 07FEE, exhausting to stack 384;

(65) One (1) Product Bin #AA, identified as 07VAA, with emissions controlled by baghouse 07FAA, exhausting to stack 385;

(66) One (1) Product Bin #BB, identified as 07VBB, with emissions controlled by baghouse 07FBB, exhausting to stack 386;

(67) One (1) Product Bin #CC, identified as 07VCC, with emissions controlled by baghouse 07FCC, exhausting to stack 387;

(68) One (1) Product Bin #EE, identified as 41VEE, with emissions controlled by baghouse 41FEB, exhausting to stack 226.

(69) One (1) Product Bin #HH, identified as 41VHH, with emissions controlled by baghouse 41FHH, exhausting to stack 255;

(70) One (1) Mill #3, identified as 44GAA, with emissions controlled by baghouse 44FII, exhausting via vent 389 to stack 388;

(71) One (1) Mill #4, identified as 44GBB, with emissions controlled by baghouse 44FJJ, exhausting via vent 390 to stack 388;

(72) One (1) Natural Gas Fired Spray Dryer #2, identified as 46DAA, with heat input capacity of 45 million Btu per hour, with PM and PM_{10} emissions controlled by cyclones 46FAA through 46FFF and baghouses 46FGG through 46FLL, exhausting via vent 360 to stack 360. Nitrogen oxide (NO_X) emissions are controlled by low-NO_X burners rated at 0.04 lb/MMBtu;

(73) One (1) Natural Gas Fired Spray Dryer #3, identified as 51DAA, with heat input capacity of 16 million Btu per hour, with emissions controlled by cyclones 51FAA and 51FBB and baghouse 51FCC, exhausting via vent 361 to stack 361. Nitrogen oxide (NO_X) emissions are controlled by low-NO_X burners rated at 0.04 lb/MMBtu; and

(74) One (1) Natural Gas Fired Starch Flash Dryer #4, identified as 44DAA, with

heat input capacity of 40 million Btu per hour, with emissions controlled by cyclones 44FAA through 44FFF and wet scrubber 44FGG, exhausting to stack 388. Nitrogen oxide (NO_X) emissions are controlled by low-NO_X burners rated at 0.04 lb/MMBtu.

(g) Starch Packaging and Loadout Operations, consisting of:

(75) One (1) Product Bin #6/House Vacuum System, identified as 17V6 and 17F5, constructed in 1984, with emissions controlled by baghouse 17F6, exhausting ~~to stack 190~~ **via vent 190 into stack 177**;

(76) One (1) Product Transfer to Main Packer #1, identified as 16F5, constructed in 1966, with emissions controlled by baghouse 16F5, exhausting to stack 102;

(77) One (1) Cationic Product Receiver for Packer #1, identified as 17F27, constructed in 1966, with emissions controlled by baghouse 17F27, exhausting to stack 102;

(78) One (1) Packer #1, identified as 17Z38, constructed in 1966, with emissions controlled by baghouse 17F10, exhausting into stack 177;

(79) One (1) Reprocess Bag/Tote Dump, identified as 17U58, constructed in 1997, with emissions controlled by baghouse 17F58, exhausting indoors **to stack 334;**

(80) One (1) Bag Packer #2 House Dust Collector, identified as 17F2, constructed in 1995, with emissions controlled by baghouse 17F2, exhausting to stack 177;

(81) One (1) Bag Packer #2, identified as 17Z01, constructed in 1995, with emissions controlled by baghouse 17F01, exhausting to stack 177;

(82) One (1) Spray Dryer Product Transfer to Bag Packer #3 **(North Spouts)**, identified as 41F7, constructed in 1986, with emissions controlled by ~~baghouses~~ **baghouse** 41F7, exhausting **via vent 184** to stack **355.** ~~184;~~

(83) One (1) Spray **Dryer Products Bag Packer #3 (North Spouts),** identified as **41Z 3**, constructed in 1986, with emissions controlled by baghouse 41F7, exhausting **via vent 184** to stack ~~184~~ **355**;

(84) One (1) Roll **Dried, Dry Starch Reaction System, & Malto Products transfer to** Bag Packer #3 **(South Spouts)**, identified as 41F18, constructed in 1986, with emissions controlled by baghouse 41F18, exhausting **via vent 186** to stack **355.** ~~186;~~

(85) One (1) **Roll Dried, Dry Starch Reaction System, &** Malto Bag Packer **#3 (South Spouts),** identified as **41Z** ~~5~~, constructed in 1986, with emissions controlled by baghouse 41F18 exhausting **via vent 186** to stack **355.** ~~186~~;

(86) One (1) Bag Packer #4, identified as 17Z03, constructed in 1995, with emissions controlled by baghouses 17F03 and 17F04, exhausting **via vent 332** to stack ~~332~~ **356** ;

(87) One (1) House Dust Collection System for Bag Packer #4, identified as 17F15, constructed in 1995, with emissions controlled by baghouse 17F15, exhausting **via vent 333** to stack ~~333~~ **356**;

(88) One (1) Bag Packer #3 House Dust Collector, identified as 41F44, constructed in 1995, with emissions controlled by baghouse 41F44, exhausting **via vent 256** to stack ~~256~~ **361**;

(89) One (1) Product Transfer for #1 Bulk Bagger, identified as 16F25, constructed in 1988, with emissions controlled by baghouse 16F25, exhausting ~~to stack 191~~ **via vent 191 into stack 177**;

(90) One (1) Bulk Bagger #2, identified as 17Z14, constructed in 1996, with emissions controlled by baghouse 17F14, exhausting to stack 254;

(91) Three (3) Product Receivers for #3 Bulk Bagger, identified as 41F8, 41F81, and 41F82, constructed in 1988, 1997, and 1997 respectively, with emissions controlled by baghouses 41F8, 41F81, and 41F82, exhausting **via vent 208** to stack **355.** ~~208;~~

(92) One (1) Bulk Starch Rail Loadout (Track #10), identified as 20F60, constructed in 1993, with emissions controlled by baghouse 20F60, exhausting to stack ~~79~~ **404**;

(93) One (1) Starch Truck/Rail Loadout (Track #9), identified as 20F61, constructed in 1966, with emissions controlled by baghouse 20F61, exhausting **via vent 135** to stack ~~135~~ **404**;

(94) One (1) J4 Starch Rail Loadout System, identified as **16F8** ~~16F100~~, constructed in 1989, with emissions controlled by baghouse 16F100, exhausting ~~to stack 183~~ **via vent 183 into stack 177**;

(95) One (1) Dextrin/Roll/Spray Cooked Starch Bulk Truck Loadout, identified as **33 Bldg. Truck Loadout**, constructed in 1988, with emissions controlled by baghouses 41F6 **and 41FLL,** exhausting to stack 189;

(96) One (1) Pneumatic Truck Loadout, identified as Truck Loadout, constructed in 1997, with emissions controlled by baghouses 20F78 and 20F79, exhausting **via vent 264** to stack ~~264~~ **404**;

(97) One (1) Bulk #1 Product Screening System, identified as 20F1, constructed in 1997, with emissions controlled by baghouse 20F1, exhausting **via vent 330** to stack ~~330~~ **404**;

(98) One (1) Bulk #2 Product Screening System, identified as 20F50, constructed in 1997, with emissions controlled by baghouse 20F50, exhausting **via vent 331** to stack ~~331~~ **404**; ~~and~~

(99) One (1) Spray Dryer #3 Packer Baghouse (Pneumatically transferred), identified as 51FDD, with emissions controlled by baghouse 51FDD, exhausting via vent 362 to stack 361;

(100) Two (2) Packer #6 Product Receivers, identified as 17FBB and 17FDD, with emissions controlled by baghouses 17FBB and 17FDD, exhausting via vent 380 to stack 356;

(101) One (1) Packer #6 House Dust Collector, identified as 17FCC, with emissions controlled by baghouse 17FCC, exhausting via vent 381 to stack 356;

(102) One (1) Bulk Bagger #4 Product Receiver, identified as 17FAA, with emissions controlled by baghouse 17FAA, exhausting via vent 382 to stack 356;

(103) One (1) #3 Bulk Starch Rail Loadout Receiver, identified as 20FAA, with emissions controlled by baghouse 20FAA, exhausting via vent 263 to stack 404;

(104) One (1) #3 Bulk Loadout Screening System Filter Receiver, identified as 20FBB, with emissions controlled by baghouse 20FBB, exhausting via vent 393 to stack 404;

(105) One (1) Bag Dump Station Bin Vent, identified as 18FBB, with emissions controlled by baghouse 18FBB, exhausting indoors via vent 426; and

(106) One (1) O.S. Starch Product Transfer to Bag Packer #3 (South Spouts), identified as 41FCC, with emissions controlled by baghouse 41FCC, exhausting via vent 223 to stack 355.

(h) Boiler support facilities, consisting of:

(1) One (1) Boiler Ash Silo and Truck Loading, identified as 31V1, constructed in 1984, with emissions controlled by baghouse 31F1, exhausting to stack 199;

(2) One (1) Boiler Ash Pneumatic Transfer to Ash Silo, identified as 31F10, constructed in 1984, with emissions controlled by baghouse 31F22, exhausting to stack 200;

(3) One (1) Coal Storage Silo, identified as 31V3, constructed in 1984, with emissions controlled by baghouse 31F21, exhausting to stack 203;

(4) One (1) Coal Day Bin, identified as 31V4, constructed in 1984, with emissions controlled by baghouse 31F19, exhausting to stack 204;

(5) One (1) Coal Day Bin, identified as 31V5, constructed in 1984, with emissions controlled by baghouse 31F20, exhausting to stack 205;

(6) One (1) Utilities Lime Storage Silo, identified as 31V10, constructed in 1984, with emissions controlled by baghouse 31F18, exhausting to stack 201;

(i) Utility area, consisting of:

(1) Three (3) natural gas or No. 2 fuel oil-fired Boilers, identified as 11B1, 11B2 and 11B3, each with a heat input capacity of 125 MMBtu/hr, constructed in 1966, with emissions uncontrolled, exhausting to stack 197; and

(2) One (1) coal-fired Boiler, identified as 31B1, with a heat input capacity of 231 MMBtu/hr, constructed in 1985, with low-NOx burners fueled by natural gas or No. 2 fuel oil, with emissions controlled by baghouse 31F2, exhausting to stack 202;

(j) One (1) Wastewater Treatment Anaerobic Digester, identified as 34V10, constructed in 1985, with emissions controlled by: a scrubber (34V11) and main flare (21Z1) which exhaust to stack 271, and an emergency flare (34Z1) which exhausts to stack 272. Note that the biogas is used by dryers 21D6, ~~and~~ 21D7, **and 21D8** and if the biogas produced exceeds the dryers' capacity, and then the gas is flared off.

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

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

(a) Degreasing operations that do not exceed 145 gallons per 12 months, except if subject to 326 IAC 20-6. [326 IAC 8-3-2] [326 IAC 8-3-5]

(b) The following equipment related to manufacturing activities not resulting in the emission of HAPs: brazing equipment cutting torches, soldering equipment, welding equipment. [326 IAC 6-3-2]

(c) Structural steel and bridge fabrication activities using 80 tons or less of welding consumables. [326 IAC 6-3-2]

(d) Covered conveyors for coal or coke conveying of less than or equal to 360 tons per day. [326 IAC 6-3-2]

(e) Uncovered coal conveying of less than or equal to 120 tons per day. [326 IAC 6-3-2]

(f) Coal bunker and coal scale exhausts and associated dust collector vents. [326 IAC 6-3-2]

(g) Vents from ash transport systems not operated at positive pressure. [326 IAC 6-3-2]

(h) Activities with emissions equal to or less than the following thresholds: 5 tons per year PM or PM_{10}, 10 tons per year SO_2, NOx, or VOC, 0.2 tons per year Pb, 1.0 tons per year of a single HAP, or 2.5 tons per year of any combination of HAPs: ~~Corn Storage Silo Bins (13V1 through 13V5) and~~ ten **(10)** dewatering presses. [326 IAC 6-3-2]

(i) Paved and unpaved roads and parking lots with public access. [326 IAC 6-4]

SECTION D.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(a) Corn Receiving and Conveying Operations, consisting of:

(1) One (1) Railcar Corn Dump Hopper, identified as 12V101, constructed in 1966, with emissions controlled by ~~baghouses~~ **baghouse** 21F1~~ and 21F17~~, exhausting to stack 136;

(2) One (1) Truck Corn Dump Hopper, identified as 12V102, constructed in 1966, with emissions controlled by ~~baghouses~~ **baghouse** 21F1~~ and 21F17~~, exhausting to stack 136;

(3) One (1) Bucket Corn Elevator, identified as 12U2, constructed in 1976, with emissions controlled by ~~baghouses~~ **baghouse** 21F1~~ and 21F17~~, exhausting to stack 136;

(4) Two (2) Corn Transfer Conveyors, identified as 12U4 and 12U5, constructed in 1966, with emissions controlled by ~~baghouses~~ **baghouse** 21F1~~ and 21F17~~, exhausting to stack 136;

(5) Three (3) Corn Transfer Conveyors, identified as 13U6 through 13U8, constructed in 1986, with emissions controlled by ~~baghouses 21F1 and~~ **baghouse** 21F17, exhausting to stack 136;

(6) Two (2) Co-Product Loadout Conveyors, identified as 8U39 and 8U41, constructed in 1966, with emissions controlled by ~~baghouses 21F1 and~~ **baghouse** 21F17, exhausting to stack 136;

(7) One (1) Bucket Elevator from Silos to Steeps, identified as 14U9, constructed in 1966, with emissions controlled by baghouse 14F2, exhausting to stack 126;

(8) One (1) Corn Weigher, identified as 14V1, constructed in 1986, with emissions controlled by baghouse 14F2, exhausting to stack 126;

(9) Two (2) Corn Cleaners, identified as 14J4 and 14J5, constructed in 1992, with emissions controlled by baghouse 14F2, exhausting to stack 126; ~~and~~

(10) One (1) Corn Cleanings Pneumatic Transfer, identified as 21F2, constructed in 1966, with emissions controlled by baghouse 21F2, exhausting to stack 137;

(11) Five (5) Corn Storage Silos, identified as 13V1, 13V2, 13V3, 13V4 and 13V5, constructed in 1966, with emissions controlled by baghouse 21F1, exhausting to stack 136.

(12) Two (2) Corn Storage Silos, identified as 13VAA and 13VBB, constructed in 2005, with emissions controlled by baghouse 21F1, exhausting to stack 136.

(13) One (1) Vibrating Corn Cleaning System, identified as 14JAA, constructed in 2005, with emissions controlled by baghouse 14F2, exhausting to stack 126.

(14) One (1) Bucket Elevator from Silos to Steeps, identified as 14UBB, constructed in 1966, with emissions controlled by baghouse 14F2, exhausting to stack 126; and

(15) One (1) Vibrating Corn Cleaning Pneumatic Transfer, identified as 21FMM, constructed in 2005, with emissions controlled by baghouse 21FMM, exhausting to stack 394.

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

D.1.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2]
Pursuant to 326 IAC 2-2-3:

(a) The following emission units shall be controlled for PM and PM_{10} using best available control technology (BACT):

(1) Vibrating Corn Cleaning Screen Aspiration System 14JAA

(2) Corn Storage Silo 13VAA

(3) Corn Storage Silo 13VBB

(4) Vibrating Corn Cleaning Pneumatic Transfer 21FMM

(5) Corn Bucket Elevator – Silo to Steeps 14UBB

(b) Best available control technology (BACT) for PM and PM_{10} (Filterable and Condensible) is an emission rate of 0.005 gr/dscf for baghouses 14F2, 21F1and 21FMM, and 0.01 gr/dscf for baghouse 14F2 and

(1) The total PM /PM_{10} (Filterable and Condensible) emissions from baghouse 14F2, which controls Vibrating Corn Cleaning System 14JAA, and 14UBB in addition to emission units 14V1, 14J4, 14J5 and 14U9, shall be limited to 0.84 pounds per hour.

(2) The total PM /PM_{10} (Filterable and Condensible) emissions from baghouse 21F1, which controls Corn Silos 13VAA and 13VBB in addition to emission units 12V101, 12V102, 12U2, 12U4, 12U5, 13V1, 13V2, 13V3, 13V4 and 13V5, shall be limited to 0.86 pounds per hour.

(3) The total PM /PM_{10} (Filterable and Condensible) emissions from baghouse 21FMM, which controls Vibrating Corn Cleaning Pneumatic Transfer 21FMM, shall be limited to 0.015 pounds per hour.

(4) The opacity from the baghouses 14F2, 21F1, and 21FMM shall not exceed 3%.

~~D.1.1~~ D.1.2 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2] **[40 CFR 52, Subpart P]**

Pursuant to 326 IAC 6-3-2, particulate emissions from ~~facilities~~ **emission units** 12V101, 12V102, 12U2, 12U4, 12U5, 13U6, 13U7, 13U8, 8U39, 8U41, 14V1, 14J4, 14J5, 14U9, ~~and~~ 21F2**, 13V1, 13V2, 13V3, 13V4, 13V5, 13VAA, 13VBB, 14JAA, 14UBB, and 21FMM** (**all emission units** exhausting to stacks 136, 126, ~~and~~ 137 **and 394**) shall be limited using one of the following equations (as applicable):

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

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

Or depending on the process weight rate:

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

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

Note that the specific 326 IAC 6-3-2 limits have not been listed here as the process throughput of the respective facilities is treated as confidential.

~~D.1.2~~ **D.1.3** Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these ~~facilities~~ **emission units** and their baghouses.

~~D.1.3~~ **D.1.4** Particulate Control

In order to comply with ~~Condition~~ **Conditions** D.1.1 **and D.1.2**, baghouses 21F1, 21F17, 14F2, ~~and~~ 21F2 **and 21FMM, used** for ~~particulate~~ **PM and PM_{10}** control**,** shall be in operation and control ~~particulate~~ emissions from ~~facilities~~ **emission units** 12V101, 12V102, 12U2, 12U4, 12U5, 13U6, 13U7, 13U8, 8U39, 8U41, 1 4V1, 14J4, 14J5, 14U9, ~~and~~ 21F2**, 13V1, 13V2, 13V3, 13V4, 13V5, 13VAA, 13VBB, 14JAA, 14UBB, and 21FMM (all emission units exhausting to stacks 136, 126, 137 and 394)** at all times ~~those facilities are~~ **when an emission unit that the baghouse controls is** in operation.

D.1.5 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

(a) Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup of Vibrating Corn Cleaning System 14JAA, 14UBB, and 21FMM, the Permittee shall perform PM and PM_{10} testing on baghouse 14F2 and 21FMM to verify compliance with Condition D.1.1 (b) (1), and (3), utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

(b) Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup of Corn Silos 13VAA and 13VBB, the Permittee shall perform PM, and PM_{10} testing on baghouse 21F1 to verify compliance with D.1.1(b)(2), utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. PM-10 includes filterable and condensable PM-10. **Testing shall be conducted in accordance with Section C- Performance Testing.**

~~D.1.4~~ **D.1.6** Visible Emissions Notations

(a) Visible emission notations of the exhaust from ~~stack~~ **stacks** 136**, 126, 137, and 394** shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

~~(b) Visible emission notations of the exhaust from stack 126 shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.~~

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

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

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

~~(f)~~ **(e)** The Compliance Response Plan for these units shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

~~D.1.5~~ **D.1.7** Monitoring for Baghouses

(a) The Permittee shall record the total static pressure drop across ~~baghouse~~ **baghouses** 21F1, **21F17**, **14F2 and 21FMM,** used in conjunction with ~~facilities~~ **emission units**

12V101, 12V102, 12U2, 12U4, 12U5, **13U6, 13U7, 13U8, 8U39**~~,~~ **8U41**, **14V1, 14J4, 14J5, 14U9, 13V1, 13V2, 13V3, 13V4, 13V5, 13VAA, 13VBB, 14JAA, 14UBB, and 21FMM,** at least once per shift when the respective ~~facilities~~ **emission units** are in operation.

~~(b)~~ ~~The Permittee shall record the total static pressure drop across baghouses 21F17 and 14F2, used in conjunction with facilities 13U6, 13U7, 13U8, 8U39, 8U41, 14V1, 14J4, 14J5, and 14U9, at least once per day when the respective facilities are in operation.~~

~~(c)~~ **(b)** When, for any one reading, the pressure drop across the baghouse is outside the normal range of **1 and 8.0** ~~3.0 and 6.0~~ inches of water or a range established during the last stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

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

~~D.1.6~~ **D.1.8** Baghouse Inspections

(a) An external inspection of all baghouses, controlling particulate emissions from ~~facilities~~ **emission units** 12V101, 12V102, 12U2, 12U4, ~~and~~ 12U5, **13VAA, 13VBB, 14JAA, 14UBB, and 21FMM (bags in baghouses 14F2, 21F1, and 21FMM)** shall be performed at least once per calendar quarter. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

(b) An internal inspection of all bags, controlling particulate emissions from ~~facilities~~ **emission units** 12V101, 12V102, 12U2, 12U4, 12U5, 13U6, 13U7, 13U8, 8U39, 8U41, 14V1, 14J4, 14J5, 14U9, ~~and~~ 21F2, **13V1, 13V2, 13V3, 13V4, 13V5, 13VAA, 13VBB, 14JAA, 14UBB, and 21FMM (bags in baghouses 14F2, 21F1, 21F2, 21F17 and 21FMM)** shall be performed at least once per calendar year. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

(c) Inspections shall also be performed before a respective baghouse that has been secured and tagged as being out of service is returned to service. All defective bags shall be replaced.

~~D.1.7~~ **D.1.9** Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit. If operations continue after bag failure has been observed and it will be 10 (ten) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

(b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

~~D.1.8~~ **D.1.10** Record Keeping Requirements

(a) To document compliance with Condition ~~D.1.5~~ **D.1.6**, the Permittee shall maintain records of the visible emission notations of the stack exhaust.

(b) To document compliance with Condition ~~D.1.6~~ **D.1.7**, the Permittee shall maintain records of the total static pressure drop during normal operation.

(c) To document compliance with Condition ~~D.1.7~~ **D.1.8**, the Permittee shall maintain records of the results of the inspections.

(d) To document compliance with Condition D.1.3, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

D.1.11 Clean Unit [326 IAC 2-2.2]

Pursuant to 326 IAC 2-2.1,

(a) The following emissions units are classified as Clean Units for PM/PM_{10}:

(1) Vibrating Corn Cleaning Screen Aspiration System 14JAA

(2) Corn Storage Silo 13VAA

(3) Corn Storage Silo 13VBB

(4) Vibrating Corn Cleaning Pneumatic Transfer 21FMM

(5) Corn Bucket Elevator – Silo to Steeps 14UBB.

(b) The Clean Unit designations for the above emissions units are in effect for ten (10) years after the issuance date of the source modification permit or the date the emission's unit control technology is placed in service, whichever is later.

SECTION D.2 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(b) Wet Milling Operations, consisting of:

(1) One (1) Fiber Dewatering Screen, identified as 21F100, constructed in 1990, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(2) One (1) Fiber Dewatering Screen, identified as 21F101, constructed in 1997, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(3) One (1) Germ Distribution Conveyor, identified as 21U23, constructed in 1978, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(4) One (1) Gluten Filter Receiver Tank, identified as 21V57, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(5) One (1) Germ Scrubber Water Tank, identified as 21V130, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(6) One (1) Gluten Filter Bowl Drain Tank, identified as 21V159, constructed in 1990, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(7) One (1) Gluten Filter Wash Bar Trough Drain Tank, identified as 21V59, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(8) One (1) Fiber Filtrate Tank, identified as 21V58, constructed in 1990, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(9) One (1) Heavy Steep water Tank, identified as 21V56, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(10) One (1) Monitor Tank, identified as 15V210, constructed in 1990, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(11) Fourteen (14) Corn Steep tanks, identified as 14V3 through 14V16, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(12) Seven (7) Grit Starch Screens, identified as Grit Starch Screens 15J15-15J19, 15J21, and 15J22, constructed in 1990, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24;~~

(13) One (1) Steeped Corn Separator, identified as 15J5A, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(14) One (1) First Pass Germ Feed Tank, identified as 15V23, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17.

(15) Steeped Corn Surge Hopper, identified as 15V21, constructed in 1966, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17.

(16) One (1) Second Pass Germ Feed Tank, identified as 15V25, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(17) One (1) Grit Starch Feed Tank, identified as 15V26, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(18) Two (2) Germ Wash Screens, identified as 15J99 and 15J100, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(19) Three (3) Germ Washing Screens, identified as 15J101, 15J200, and 15J201, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(20) One (1) Light Steep water Receiver, identified as 14V19, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(21) Germ Wash Screens, identified as 15J53, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(22) One (1) Third Grind Tank, identified as 15V27, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(23) One (1) Clamshell Wash Water Tank, identified as 15V2, constructed in 1991, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(24) One (1) Clamshell Starch Receiver Tank, identified as 15V42, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(25) One (1) Second Grind Receiver Tank, identified as 15V24, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(26) One (1) First Grind receiver Tank, identified as 15V22, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(27) One (1) Steeped Corn Tank, identified as 14V17, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(28) One (1) Germ Water Tank, identified as 15V139, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(29) Thirty-six (36) Fiber Wash Screens, identified as 1st Stage through 5th Stage Fiber Wash Screens, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(30) One (1) Dent Starch Slurry Storage Tank, identified as 15V43, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(31) One (1) Steep water Head Tank, identified as 14V18, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(32) One (1) Mill Acid Tank, identified as 14V96, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(33) One (1) Primary Wash Box, identified as 15V17, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(34) One (1) Primary Wash Box, identified as 15V19, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(35) Five (5) Fiber Wash Receivers, identified as 15V110 through 15V114, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(36) One (1) Process Water Tank, identified as 15V30, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(37) One (1) Primary Wash Water Tank, identified as 15V41, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(38) One (1) Wash Water Surge Tank, identified as 15V38, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(39) One (1) Primary Feed Tank, identified as 15V34, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(40) One (1) Primary Underflow Tank, identified as 15V35, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(41) One (1) Gluten Thickener Feed Tank, identified as 15V36, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(42) One (1) Heavy Gluten Tank, identified as 15V37, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(43) One (1) Clarifier Feed Tank, identified as 15V40, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(44) One (1) MST Feed Tank, identified as 15V31, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~24~~;

(45) One (1) Gluten Vacuum Filter Pump, identified as 21C7, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17.** ~~340~~;

(46) One (1) Gluten Vacuum Filter Pump, identified as 21C8, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17** ~~341~~;

(47) One (1) Gluten Vacuum Filter Pump, identified as 21C9, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~342~~;

(48) One (1) Gluten Vacuum Filter Pump, identified as 21C10, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~343~~;

(49) One (1) Gluten Vacuum Filter, identified as 21F7, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~340~~;

(50) One (1) Gluten Vacuum Filter, identified as 21F8, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17** ~~341~~;

(51) One (1) Gluten Vacuum Filter, identified as 21F9, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~342~~; ~~and~~

(52) One (1) Gluten Vacuum Filter, identified as 21F10, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~343~~;

(53) One (1) High DS Starch Filter, identified as 18F510, constructed in 1995, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~348;~~

(54) One (1) High DS Starch Tank, identified as 18V520, constructed in 1995, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~348;~~

(55) One (1) High DS Starch Wash Water Tank, identified as 18V522, constructed in

1995, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~348;~~

(56) Two (2) Second Grind Screens, identified as 15J14, and 15J24, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17** ~~24;~~

(57) Six (6) Sixth Stage Fiber Wash Screens, identified as 15J86, 15J87, 15J88, 15J89, 15J220, and 15J221, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~347~~;

(58) One (1) Steep Acid Tank, identified as 14V20, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~24~~.

(59) One (1) Fiber Supply Tank, identified as 15V33, constructed in 2000, **with emissions controlled by an alkaline scrubber 15FAA,** exhausting to stack **17**~~347~~.

(60) Eight (8) Steep Tanks, identified as 14VAA, 14VBB, 14VCC, 14VDD, 14VEE, 14VFF, 14VGG and 14VHH, to be constructed in 2005, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(61) One (1) High DS Starch Vacuum Filter, identified as 18FAA, to be constructed in 2005, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(62) One (1) Gluten Vacuum Filter, identified as 21FAA, to be constructed in 2005, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(63) One (1) Gluten Vacuum Filter Pump, identified as 21CBB, to be constructed in 2005, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17;

(64) Fiber Dewatering Screens, identified as 21FNN, to be constructed in 2005, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17; and

(65) 18 Bldg. Process Tanks and screens, to be constructed in 2005, with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17.

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

D.2.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3:

(a) The following emission units shall be controlled for sulfur dioxide (SO_2) and VOC using the BACT:

New Units:

(1) Steep Tanks 14VAA, 14VBB, 14VCC, 14VDD, 14VEE, 14VFF, 14VGG and 14VHH.

(2) High DS Starch Vacuum Filter 18FAA

(3) The "18 Building" Process Tanks and screens.

(4) Gluten Vacuum Filter 21FAA

(5) Gluten Vacuum Filter Pump 21CBB

(6) Fiber Dewatering Screens 21FNN

Existing Units:

15V210, 14V17, 14V18, 14V20, 14V96, 15J14, 15J24, 15J53, 15J5A, 15V110, 15V111, 15V112, 15V113, 15V114, 15V139, 15V17, 15V19, 15V2, 15V21, 15V22, 15V23, 15V24, 15V27, 15V30, 15V31, 15V34, 15V35, 15V36, 15V37, 15V38, 15V40, 15V41, 15V42, 15V43, 15J100, 15J15, 15J16, 15J17, 15J18, 15J19, 15J20, 15J21, 15J22, 15J220, 15J221, 15J86, 15J87, 15J88, 15J89, 15J99, 15V25, 15V26, 15V33, 14V10, 14V11, 14V12, 14V13, 14V14, 14V15, 14V16, 14V19, 14V3, 14V4, 14V5, 14V6, 14V7, 14V8, 14V9, 15J101, 15J200, 15J201, 18F510, 18V520, 18V522, 21F100, 21F101, 21U23, 21V130, 21V159, 21V56, 21V57, 21V58, 21V59, 21C7, 21F7, 21C8, 21F8, 21C9, 21F9, 21C10, 21F10, 15J60-15J67, 15J80-15J85, 15J68-15J71, 15J92, 15J 212, 15J213, 15J72-15J75, 15J91, 15J76-15J79, 15J90, 15J214, 15J215, 15J217-15J219, 18V413

(b) For these units, the BACT for SO_2 and VOC is the use of alkaline scrubber 15FAA and:

(1) the scrubber shall have a minimum 90% control efficiency of SO_2 and shall not exceed 8.17 lbs/hr SO_2 in the scrubber outlet, when the inlet SO_2 concentration to the scrubber is more than 150 ppmvw, and

(2) the scrubber shall have an outlet SO_2 concentration of less than15 ppmvw, and shall not exceed 8.17 lbs/hr SO_2 in the scrubber outlet if the inlet concentration of SO_2 is 150 ppmvw or less.

(3) the scrubber shall have a minimum 25% control efficiency of VOC and shall not exceed 27.0 lbs/hr.

D.2.2 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

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

D.2.3 Sulfur Dioxide (SO_2) and Volatile Organic Compounds (VOC) Control

In order to comply with Condition D.2.1, the scrubber 15FAA used for SO_2 and VOC control, shall be in operation and control SO2 and VOC emissions at all times when an emission unit that is being aspirated to the scrubber is in operation.

D.2.4 Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]

(a) Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup of the steep tanks, the Permittee shall perform SO_2 and

VOC testing on scrubber 15FAA in order to verify compliance with D.2.1(b)(1), (2), and (3), utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

(b) These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C- Performance Testing.

D.2.5 Monitoring for Scrubber

(a) The Permittee shall monitor the pH of the scrubbing liquor and scrubber recirculation rate at least once per shift from scrubber 15FAA.

(b) The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and response steps for when the pH and flow rate readings are outside of the normal range for any one reading.

(1) The normal pH range for Scrubber 15FAA is 7.0 to 9.0 or a range established during the latest stack test. The minimum flow rate for Scrubber 15FAA is 400gpm or a minimum rate established during the latest stack test.

(c) A pH or flow reading that is outside the normal range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

(d) The instruments used for determining the pH and flow rate shall comply with Section C- Pressure Gauge and other Instrument Specifications and shall be calibrated at least once every six (6) months.

D.2.6 Scrubber Inspections

External Inspections of scrubber 15FAA shall be performed semiannually. Inspections required by this condition shall not be performed in consecutive months. Repairs or replacement of defective components shall be performed in accordance with the Preventive Maintenance Plan.

D.2.7 Record Keeping Requirements

(a) To document compliance with Condition D.2.5, the Permittee shall maintain records of the pH and scrubber recirculation rate from scrubber 15FAA at least once per shift.

(b) To document compliance with Conditions D.2.6, the Permittee shall maintain records of the results of the inspections.

(c) To document compliance with Condition D.2.2, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

D.2.8 Clean Unit [326 IAC 2-2.2-2]

Pursuant to 326 IAC 2-2.2-2,

(a) The following emissions units are classified as Clean Units for SO_2 and VOC:

New Units:

(1) Steep Tanks 14VAA, 14VBB, 14VCC, 14VDD, 14VEE, 14VFF, 14VGG and 14VHH.

(2) High DS Starch Vacuum Filter 18FAA

(3) The "18 Building" Process Tanks and screens.

(4) Gluten Vacuum Filter 21FAA

(5) Gluten Vacuum Filter Pump 21CBB

(6) Fiber Dewatering Screens 21FNN

Existing Units:

15V210, 14V17, 14V18, 14V20, 14V96, 15J14, 15J24, 15J53, 15J5A, 15V110, 15V111, 15V112, 15V113, 15V114, 15V139, 15V17, 15V19, 15V2, 15V21, 15V22, 15V23, 15V24, 15V27, 15V30, 15V31, 15V34, 15V35, 15V36, 15V37, 15V38, 15V40, 15V41, 15V42, 15V43, 15J100, 15J15, 15J16, 15J17, 15J18, 15J19, 15J20, 15J21, 15J22, 15J220, 15J221, 15J86, 15J87, 15J88, 15J89, 15J99, 15V25, 15V26, 15V33, 14V10, 14V11, 14V12, 14V13, 14V14, 14V15, 14V16, 14V19, 14V3, 14V4, 14V5, 14V6, 14V7, 14V8, 14V9, 15J101, 15J200, 15J201, 18F510, 18V520, 18V522, 21F100, 21F101, 21U23, 21V130, 21V159, 21V56, 21V57, 21V58, 21V59, 21C7, 21F7, 21C8, 21F8, 21C9, 21F9, 21C10, 21F10, 15J60-15J67, 15J80-15J85, 15J68-15J71, 15J92, 15J 212, 15J213, 15J72-15J75, 15J91, 15J76-15J79, 15J90, 15J214, 15J215, 15J217-15J219, 18V413

(b) The Clean Unit designations for the above emissions units are in effect for ten (10) years after the issuance date of the source modification permit or the date the emission's unit control technology is placed in service, whichever is later.

SECTION D.3 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(c) Feed/Meal/Germ Production Operations, consisting of:

(1) One (1) Feed Hopper, identified as 21V60, constructed in 1965, with emissions controlled by baghouse 21F14, exhausting indoors to stack 1;

(2) One (1) Meal Hopper, identified as 21V61, constructed in 1965, with emissions controlled by baghouse 21F15, exhausting indoors to stack 2;

(3) One (1) Rail Loadout Conveyor, identified as 12U11, constructed in 1991, with emissions controlled by baghouse 12F40, exhausting to stack 3;

~~(4) One (1) 21D1 Steam Tube Germ Dryer, identified as 21D1, constructed in 1966, with emissions controlled by scrubber 21F13, exhausting to stack 17;~~

~~(5) One (1) 21D2 Steam Tube Germ Dryer, identified as 21D2, constructed in 1966, with emissions controlled by scrubber 21F13, exhausting to stack 17;~~

~~(6) One (1) 21D3 Steam Tube Germ Dryer, identified as 21D3, constructed in 1966, with emissions controlled by scrubber 21F13, exhausting to stack 17;~~

(4) One (1) RST Fiber Pre-Dryer, identified as 21DAA. PM and PM_{10} emissions are controlled by product collector/cyclone 21FCC, then PM, PM_{10} and sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17.

(5) One (1) RST Germ Dryer, identified as 21DBB. PM and PM_{10} emissions are controlled by product collectors/cyclones 48FAA-48FFF, then PM, PM_{10} and sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17.

(6) One (1) Gluten Flash Dryer, identified as 48DAA. PM, PM_{10} and sulfur dioxide emissions controlled by scrubber 21F13, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH, before exhausting to stack 17.

(7) One (1) 21D6 natural gas, No. 2 fuel oil, or biogas fired Feed Dryer, identified as 21D6, constructed in 1966, with a heat input capacity of ~~22~~ **30** MMBtu/hr. PM and PM_{10} emissions controlled by integral product collector/cyclone 21F26, then sulfur dioxide emissions controlled by scrubber 21F13**, then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH**, before exhausting to stack 17.

(8) One (1) 21D7 natural gas, No. 2 fuel oil, or biogas fired Feed or Meal Dryer, identified as 21D7, constructed in 1966, with a heat input capacity of ~~22~~ **30** MMBtu/hr. PM and PM_{10} emissions controlled by integral product collector/cyclone 21F27, then sulfur dioxide emissions controlled by scrubber 21F13, **then VOC emissions controlled by Thermal Oxidation Units 48FGG and 48FHH**, before exhausting to stack 17.

(9) One (1) 21D8 natural gas or No. 2 fuel oil fired Meal Dryer, identified as 21D8, constructed in 1966, with a heat input capacity of ~~22~~ **30** MMBtu/hr. PM and PM_{10} emissions are controlled by integral product collector/cyclone 21F28, then sulfur dioxide emissions controlled by scrubber 21F13, **then VOC emissions are controlled by Thermal Oxidation Units 48FGG and 48FHH**, before exhausting to stack 17.

(10) One (1) Feed Storage Bin, identified as 8V121, constructed in 1966, with emissions controlled by baghouse 8F1, exhausting to stack 110;

(11) One (1) Feed Storage Bin, identified as 8V122, constructed in 1966, with emissions controlled by baghouse 8F2, exhausting to stack 111;

(12) One (1) Feed Storage Bin, identified as 8V123, constructed in 1966, with emissions controlled by baghouse 8F3, exhausting to stack 112;

(13) One (1) Feed Storage Bin, identified as 8V124, constructed in 1966, with emissions controlled by baghouse 8F4, exhausting to stack 113;

(14) One (1) Feed/Meal Storage Bin, identified as 8V62, constructed in 1966, with emissions controlled by baghouse 8F62, exhausting to stack 114;

(15) One (1) Meal Storage Bin, identified as 8V63, constructed in 1966, with emissions controlled by baghouse 8F63, exhausting to stack 115;

(16) One (1) Meal/Germ Storage Bin, identified as 8V53, constructed in 1966, with emissions controlled by baghouse 8F53, exhausting to stack 116;

(17) One (1) Germ Storage Bin, identified as 8V54, constructed in 1966, with emissions controlled by baghouse 8F54, exhausting to stack 117;

(18) Two (2) Air Conveying Lines to Loadout, identified as AC23 and AC24, constructed in 1966, with emissions controlled by baghouse 12F39, exhausting to stack 125;

(19) One (1) Feed Mill, identified as 21G51, constructed in 1965, with emissions controlled by baghouse 21F37, exhausting to stack 141;

(20) One (1) Feed Mill, identified as 21G52, constructed in 1965, with emissions controlled by baghouse 21F38, exhausting to stack 142;

(21) One (1) D6 Dryer Air Conveying Line to Feed Mill, identified as AC6, constructed in 1966, with emissions controlled by baghouse 21F32, exhausting to stack 143;

(22) One (1) D7 Dryer Air Conveying Line to Feed Mill, identified as AC7, constructed in 1966, with emissions controlled by baghouse 21F35, exhausting to stack 144;

(23) One (1) D8 Dryer Air Conveying Line to Feed Mill, identified as AC8, constructed in 1966, with emissions controlled by baghouse 21F36, exhausting to stack 145;

(24) One (1) Bag Dump Station, identified as 8V99, constructed in 1966, with emissions controlled by baghouse 8F99, exhausting indoors to stack 285;

(25) Two (2) Natural Gas / Biogas Fired Thermal Oxidation Units, identified as 48FGG and 48FHH, with heat input capacity of 5 million Btu per hour each.

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

D.3.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2]

~~Pursuant to CP 157-4160-00003, issued April 5, 1995, the PM/PM10 emissions from scrubber 21F13 (used to control emissions from dryers 21D1, 21D2, 21D3, 21D6, 21D7, and 21D8) shall not exceed 11.5 pounds per hour. Compliance with the limit is equivalent to PM/PM10 emissions of less than or equal to 50.4 tons per year and renders the requirements of 326 IAC 2-2~~

~~(Prevention of Significant Deterioration) not applicable.~~

Pursuant to 326 IAC 2-2-3:

(a) The following emission units shall be controlled for PM and PM_{10}, SO_2, VOC, and NOx using the BACT:

(1) Feed Dryer (21D6)

(2) Feed Dryer (21D7)

(3) Feed Dryer (21D8)

(4) RST Fiber Pre-Dryer (21DAA) – No NOx Emissions

(5) Rotary Steam Tube Germ Dryer (21DBB or 21D1 to 21D3) – No NOx Emissions

(6) Gluten Flash Dryer (48DAA)

(7) Regenerative Thermal Oxidizers (48FGG and 48FHH) – BACT only for NOx

(b) The following combined emission limits are established as BACT for the above dryers:

The BACT for PM, and PM_{10} (Filterable and Condensible)is an emission rate of 0.015 gr/scf; and

(1) the total PM, and PM_{10} (Filterable and Condensible) emissions from the thermal oxidizer shall be limited to 7.7 lbs/hr each; and

(2) the opacity from the thermal oxidizer shall not exceed 8%.

(c) For these units, the BACT for SO_2 is the use of pH adjusted scrubber 21F13. The followings are the BACT requirements for SO_2:

(1) The scrubber shall have a minimum 90% control efficiency of SO_2, and shall not exceed 5.97 lbs/hr SO_2 in the scrubber outlet, when the inlet SO_2 concentration to the scrubber is more than 100 ppmvw, and

(2) the scrubber shall have an outlet SO_2 concentration of less than 10 ppmvw and shall not exceed 5.97 lbs/hr SO_2 in the scrubber outlet if the inlet concentration of SO_2 is 100 ppmvw or less.

(d) For these units, the BACT for VOC is the use of the scrubber 21F13 followed by regenerative thermal oxidizers 48FGG and 48FHH; and

(1) When the inlet VOC emission rate to the scrubber is more than 100 lbs/hr, the scrubber and thermal oxidizers shall have a minimum overall 95% control efficiency of VOC, and shall not exceed 4.29 lbs/hr VOC in the thermal oxidizer outlet; and

(2) If the inlet emission rate of VOC to the scrubber is 100 lbs/hr or less the

thermal oxidizers shall have an outlet VOC concentration of less than 10 ppmvw and shall not exceed 4.29 lbs/hr VOC in the thermal oxidizer outlet.

(e) For these units and the regenerative thermal oxidizer, except the rotary steam tube germ dryer, and the rotary steam tube fiber predryer, the BACT for NOx is the use of low-NO_X burners rated at 0.06 lb/MMBtu or less and the total NOx emissions from these burners exhausting to stack S/V 17 shall not exceed 6.0 lbs/hr.

(f) The following existing emission units shall be controlled for PM and PM_{10} using best available control technology (BACT):

(1) Feed Storage Bins 8V121, 8V123, 8V124

(2) Meal Storage Bin 8V63

(3) Meal/Germ Storage Bin 8V53

(4) Germ Storage Bin 8V54

For these units, the BACT for PM and PM_{10} (Filterable and Condensible) is the use of fabric filter dust collectors with an emission rate of 0.005 gr/dscf; and

(1) the total PM /PM_{10} (Filterable and Condensible) emissions from baghouses 8F1, 8F3, 8F4, 8F63, 8F53, and 8F54 shall be limited to 0.08 lbs/hr each; and

(2) the opacity from the baghouses shall not exceed 3%.

D.3.2 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2] **[40 CFR 52, Subpart P]**

Pursuant to 326 IAC 6-3-2, particulate emissions from ~~facilities 21D1, 21D2, 21D3,~~ **emission units 21D1, 21D2, 21D3,** 21D6, 21D7, 21D8, **21DAA, 21DBB, 48DAA,** 21V60, 21V61, 12U11, 8V121 through 8V124, 8V62, 8V63, 8V53, 8V54, AC23, AC24, 21G51, 21G52, AC6, AC7, AC8, and 8V99 shall be limited using one of the following equations (as applicable):

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

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

Or depending on the process weight rate:

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

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

D.3.3 Sulfur Dioxide (SO_2) [326 IAC 7-1.1-2] [326 IAC 7-2-1]

Pursuant to 326 IAC 7-1.1-2 (SO_2 Emissions Limitations), the SO_2 emissions from **combustion in** dryers 21D6, 21D7, and 21D8 shall not exceed five-tenths (0.5) pounds per million Btu (MMBtu) per dryer when combusting No. 2 fuel oil. Pursuant to 326 IAC 7-2-1, compliance shall be demonstrated on a ~~calender~~ **calendar** month average. 326 IAC 7-1.1 and 326 IAC 7-2-1 are not federally enforceable.

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

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

D.3.5 Sulfur Dioxide Emissions and Sulfur Content

Pursuant to 326 IAC 3-7-4, the Permittee shall demonstrate ~~that the sulfur dioxide emissions from dryers 21D6, 21D7, and 21D8 do not exceed five-tenths (0.5) pounds per million Btu heat input, when burning distillate oil, by~~ **compliance with D.3.3 utilizing one of the following options:**

(a) Providing vendor analysis of fuel delivered, if accompanied by a vendor certification, or;

(b) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.

(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.

A determination of noncompliance pursuant to the methods specified above shall not be refuted by evidence of compliance pursuant to the other method.

D.3.6 Particulate, **Volatile Organic Compounds (VOC),** and Sulfur Dioxide (SO_2) Control

In order to comply with Conditions D.3.1**(b), (c), and (d), and** D.3.2 ~~and D.3.3~~, scrubber 21F13 for particulate, **VOC**, and SO_2 control shall be in operation and control emissions from ~~dryers 21D1, 21D2, 21D3,~~ **emission units 21D1, 21D2, 21D3**, 21D6, 21D7, ~~and~~ 21D8**, 21DAA, 21DBB and 48DAA** at all times **when** any ~~dryer~~ **emission unit that it controls** is in operation**. Only three of the four dryers 21D6, 21D7, 21D8, and 48DAA shall operate at one time.**

D.3.7 Particulate Control

In order to comply with Condition**s D.3.1(f) and** D.3.2, baghouses, including those integral to the process, 21F14, 21F15, 12F40, 8F1, 8F2, 8F3, 8F4, 8F62, 8F63, 8F53, 8F54, 12F39, 21F37, 21F38, 21F32, 21F35, 21F36, and 8F99 for particulate control shall be in operation and control particulate emissions from ~~facilities~~ **emission units** 21V60, 21V61, 12U11, 8V121 through 8V124, 8V62, 8V63, 8V53, 8V54, AC23, AC24, 21G51, 21G52, AC6, AC7, AC8, and 8V99 at all times ~~those facilities are~~ **when any emission unit that it controls is** in operation.

D.3.8 Volatile Organic Compounds (VOC) Control

In order to comply with Condition D.3.1(d), the scrubber 21F13, and the Regenerative Thermal Oxidization Units 48FGG and 48FHH for VOC control shall be in operation and control emissions from emission units 21D1, 21D2, 21D3, 21D6, 21D7, 21D8, 21DAA, 21DBB and 48DAA at all times when any emission unit that it controls is in operation.

D.3.9 Thermal Oxidizer Temperature

(a) A continuous monitoring system shall be calibrated, maintained, and operated on the thermal oxidizers for measuring operating temperature. For purposes of this condition continuous shall mean temperature measurement no less than once per minute. The output of this system shall be recorded as 3- hour average. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall operate the thermal oxidizer at or above the 3- hour average

temperature of 1400^{o}F.

(b) **The Permittee shall determine the 3- hour average temperature from the most recent valid stack test that demonstrates compliance with limits in condition D.3.1(d), as approved by IDEM.**

(c) **On and after the date the approved stack test results are available, the Permittee shall operate the thermal oxidizer at or above the 3- hour average temperature as observed during the compliant stack test.**

~~D.3.8~~ **D.3.10** Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

~~In order to demonstrate compliance with Condition D.3.1, no later than 36 months after issuance of this Part 70 permit, the Permittee shall perform PM and PM-10 testing on stack 17 (exhausting emissions from facilities 21D1, 21D2, 21D3, 21D6, 21D7, and 21D8) utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five years from the date of valid compliance demonstration. PM-10 includes filterable and condensable PM-10. Testing shall be conducted in accordance with Section C - Performance Testing.~~

Within 60 days after achieving the maximum production rate for dryers 21DAA, 21DBB, and 48DAA but no later than 180 days after startup of the dryers, the Permittee shall perform PM, $PM_{10,}$ VOC, and SO_2 testing on scrubber 21F13 and Thermal Oxidation Units 48FGG and 48FHH in order to determine compliance with D.3.1 (b), (c),and (d) utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. PM_{10} includes filterable and condensable PM_{10}. Testing shall be conducted in accordance with Section C- Performance Testing.

~~D.3.9~~ **D.3.11** Monitoring for Scrubbers

(a) The Permittee shall monitor the pH of the scrubbing liquor and scrubber recirculation ~~rate~~ **rates** at least once per shift from ~~scrubber~~ **scrubber** 21F13 ~~controlling emissions from facilities 21D1, 21D2, 21D3, 21D6, 21D7, and 21D8~~.

(b) The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and response steps for when the pH readings are outside of the normal range, and below minimum flow rate for any one reading. **The normal pH range for scrubber 21F13 is 5.0 to 8.0 or the range established during the latest stack test. The minimum 1-hr average flow rate for Scrubber 21F13 is 400 gpm or a minimum flow rate established during the latest stack test.**

(c) A pH or flow reading that is outside the normal range **or below the minimum flow rate for any one reading** is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

(d) The instruments used for determining the pH and flow rate shall ~~be subject to approval by IDEM, OAQ~~ **comply with Section C- Pressure Gauge and other Instrument Specifications** and shall be calibrated at least once every six (6) months.

~~D.3.10~~ **D.3.12** Scrubber Inspections

An external inspection ~~of the scrubber used to control emissions from facilities 21D1, 21D2, 21D3, 21D6, 21D7, and 21D8~~ shall be performed semiannually **for scrubber 21F13**. Inspections required by this condition shall not be performed in consecutive months. Repairs or replacement of defective components shall be performed in accordance with the Preventive Maintenance Plan.

~~D.3.12~~ **D.3.13** Visible Emissions Notations

(a) Visible emission notations of the exhaust from stacks 3 and 17 shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) Visible emission notations of the exhaust from stacks 110, 111, 112, 113, 114, 115, 116, and 117 shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

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

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

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

(f) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

~~D.3.13~~ **D.3.14** Monitoring for Baghouses

(a) The Permittee shall record the total static pressure drop across the baghouse **12F40**, used in conjunction with facility 12U11 at least once per shift when the respective facilities are in operation.

(b) The Permittee shall record the total static pressure drop across the baghouse, used in conjunction with facilities 8V121 through 8V124, 8V62, 8V63, 8V53, and 8V54 at least once per day when the respective facilities are in operation.

(c) When, for any one reading, the pressure drop across the baghouse are outside the normal range of 3.0 and 6.0 inches of water or a range established during the last stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

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

~~D.3.14~~ **D.3.15** Baghouse Inspections

(a) An external inspection of the baghouse controlling particulate emissions from facility 12U11, shall be performed at least once per calendar quarter. Inspections required by this condition shall not be performed in consecutive months.

(b) An internal inspection of all bags, controlling particulate emissions from facilities 12U11, 8V121 through 8V124, 8V62, 8V63, 8V53, and 8V54, shall be performed at least once per calendar year. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

(c) Inspections shall also be performed before a respective baghouse that has been secured and tagged as being out of service is returned to service. All defective bags shall be replaced.

~~D.3.15~~ **D.3.16** Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit. If operations continue after bag failure has been observed and it will be 10 (ten) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

(b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

~~D.3.16~~ **D.3.17** Record Keeping Requirements

(a) To document compliance with Condition D.3.3, the Permittee shall maintain records in accordance with (1) through (6) below.

(1) Calendar dates covered in the compliance determination period;

(2) Actual fuel oil usage since last compliance determination period and equivalent sulfur dioxide emissions; and

(3) To certify compliance when burning natural gas only, the Permittee shall maintain records of fuel used.

If the fuel supplier certification is used to demonstrate compliance, when burning alternate fuels and not determining compliance pursuant to 326 IAC 3-7-4, the following, as a minimum, shall be maintained:

(4) ~~(1)~~Fuel supplier certifications;

(5) ~~(2)~~The name of the fuel supplier; and

(6) ~~(3)~~A statement from the fuel supplier that certifies the sulfur content of the fuel oil.

The Permittee shall retain records of all recording/monitoring data and support information for a period of five (5) years, or longer if specified elsewhere in this permit, from the date of the monitoring sample, measurement, or report. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit.

(b) To document compliance with Condition ~~D.3.9(a)~~ **D.3.11(a)**, the Permittee shall maintain records of the pH and scrubber recirculation rate ~~at least once per shift~~ from **scrubber 21F13** ~~the scrubber controlling emissions from facilities 21D1, 21D2, 21D3, 21D6, 21D7, and 21D8~~.

(c) **To document compliance with Condition D.3.9, the Permittee shall maintain records of the operating temperatures of Thermal Oxidation Units 48FGG and 48FHH.**

(d) To document compliance with Condition ~~D.3.12~~ **D.3.13**, the Permittee shall maintain records of the visible emission notations of the stack exhaust.

(e) To document compliance with Condition ~~D.3.13~~ **D.3.14**, the Permittee shall maintain records of the total static pressure drop during normal operation.

(f) To document compliance with Conditions ~~D.3.10 and D.3.14~~, **D.3.12 and D.3.15,** the Permittee shall maintain records of the results of the inspections.

(g) To document compliance with Condition D.3.4, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

D.3.18 Clean Unit [326 IAC 2-2.2-2]

Pursuant to 326 IAC 2-2.2-2,

(a) The following emissions units are classified as Clean Units for PM/PM_{10}:

(1) Feed Storage Bins 8V121, 8V123, 8V124

(2) Meal Storage Bin 8V63

(3) Meal/Germ Storage Bin 8V53

(4) Germ Storage Bin 8V54.

(b) The following emissions units are classified as Clean Units for PM/PM_{10}' SO_2 and VOC:

(1) Feed Dryer (21D6)

(2) Feed Dryer (21D7)

(3) Feed Dryer (21D8)

(4) RST Fiber Pre-Dryer (21DAA)

(5) Rotary Steam Tube Germ Dryer (21DBB or 21D1 to 21D3)

(6) Gluten Flash Dryer (48DAA).

(c) The following emissions units are classified as Clean Units for NOx:

(1) Feed Dryer (21D6)

(2) Feed Dryer (21D7)

(3) Feed Dryer (21D8)

(4) Gluten Flash Dryer (48DAA)

(5) Regenerative Thermal Oxidizers (48FGG and 48FHH) – BACT only for NOx.

(d) The Clean Unit designations for the above emissions units are in effect for ten (10) years after the issuance date of the source modification permit or the date the emission's unit control technology is placed in service, whichever is later.

SECTION D.4 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(d) Syrup Refining Operations, consisting of:

(1) One (1) GMH Storage Silo, identified as 9V32, constructed in 1966, with emissions controlled by baghouse 9F32, exhausting to stack 119;

(2) One (1) Filteraid Storage Silo, identified as 9V31, constructed in 1966, with emissions controlled by baghouse 9F31, exhausting to stack 123;

(3) One (1) Powdered Carbon Unloading, identified as 9C30, constructed in 1966, with emissions controlled by baghouse 9F30, exhausting to stack 124;

(4) One (1) Filteraid Conveying System to Precoat Makeup Tank, identified as 18C18, constructed in 1966, with emissions controlled by baghouse 18F118, exhausting to stack 129;

(5) One (1) Soda Ash Storage Tank, identified as 9C40, constructed in 1966, with emissions controlled by eductor/scrubber 9E1, exhausting to stack 149;

(6) One (1) HCl Storage Tank (Concentrated), identified as 9V101, constructed in 1995, with emissions controlled by scrubber 9F102, exhausting to stack 156;

(7) One (1) Jet Cooker system/Jet Conversion Flash Chamber, identified as 18V413, constructed in 1966, **with emissions controlled by an alkaline scrubber 15FAA, exhausting to stack 17** ~~uncontrolled, exhausting to stack 166~~;

(8) One (1) Jet Cooker system/Acid Reject Flash Chamber, identified as 18V312, constructed in 1966, with emissions uncontrolled, exhausting to stack 320;

(9) One (1) Powdered Carbon Storage Silo, identified as 9V30, constructed in 1966, with emissions controlled by baghouse 9F37, exhausting to stack 321;

(10) One (1) Refinery Reprocess Bag Dump, identified as 45C43, constructed in 2000, with emissions controlled by baghouse 45F43, exhausting indoors;

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

SECTION D.5 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(e) Starch Modification Operations, consisting of:

(1) One (1) Non-PO Reactor, identified as 45V115, constructed in 1966, exhausting to stack 11;

(2) One (1) Non-PO Reactor, identified as 45V116, constructed in 1966, exhausting to stack 12;

(3) One (1) Non-PO Reactor, identified as 45V222, constructed in 1973, exhausting to stack 31;

(4) One (1) PO Reactor, identified as 45V223, constructed in 1973, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(5) One (1) PO Reactor, identified as 45V240, constructed in 1986, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(6) One (1) PO Reactor, identified as 45V241, constructed in 1986, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(7) One (1) PO Reactor, identified as 45V242, constructed in 1986, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(8) One (1) PO Reactor, identified as 45V243, constructed in 1986, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(9) One (1) PO Reactor, identified as 45V246, constructed in 1988, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(10) One (1) PO Reactor, identified as 45V247, constructed in 1988, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(11) One (1) PO Reactor, identified as 45V248, constructed in 1991, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(12) One (1) PO Reactor, identified as 45V270, constructed in 1995, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(13) One (1) PO Reactor, identified as 45V271, constructed in 1995, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(14) One (1) PO Reactor, identified as 45V280, constructed in 2002, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(15) One (1) PO Reactor, identified as 45V281, constructed in 2002, with emissions controlled by scrubber 45F212, exhausting to stack 50;

(16) One (1) Sodium Sulfate Storage Bin, identified as 45V250, constructed in 1985, with emissions controlled by two baghouses, 45F25 and 45F25a, exhausting to stack 64;

(17) One (1) Tri-Polyphosphate Storage Bin, identified as 9V103, constructed in 1988, with emissions controlled by baghouse 9F103, exhausting to stack 68;

(18) Two (2) Flash 2 Slurry Hold Tanks, identified as 40V20 and 40V21, constructed in 1990, with emissions uncontrolled, exhausting to stack 80;

(19) Four (4) Belt Dryer Feed Tanks, identified as 45V117 through 45V120, constructed in 1966, with emissions uncontrolled, exhausting to stack 180;

(20) Two (2) Spray Dryer Feed Tanks, identified as 30V1 and 30V2, constructed in 1986, with emissions uncontrolled, exhausting to stack 195;

(21) Three (3) Spray Dryer Process Tanks, identified as 40V11, 40V12, and 40V14, constructed in 1988, with emissions uncontrolled, exhausting to stack 222;

(22) Four (4) Flash 2 Larox Filters, identified as 40F51, 40F52, and 40F53, constructed in 1995, and 40F54, constructed in 2002, with emissions uncontrolled, exhausting to stack 249;

(23) One (1) Dryer Starch Feed Conveyor/Flash 2 Paddle Mixer, identified as 40U23, constructed in 1995, with emissions uncontrolled, exhausting to stack 249;

(24) One (1) Flash 2 Air Release Tank, identified as 40V15, constructed in 1995, with emissions uncontrolled, exhausting to stack 250;

(25) Three (3) Flash 3 Larox Filters, identified as 43F71, 43F72, and 43F73, constructed in 1995, with emissions uncontrolled, exhausting to stack 260;

(26) One (1) Flash 3 Larox Air Release Tank, identified as 43V85, constructed in 1995, with emissions uncontrolled, exhausting to stack 261;

(27) Two (2) Flash 3 Slurry Hold Tanks, identified as 43V71 and 43V72, constructed in 1995, with emissions uncontrolled, exhausting to stack 273;

(28) One (1) Flash 1 Starch Hold Tank, identified as 40V50, constructed in 1996, with emissions uncontrolled, exhausting to stack 289;

(29) One (1) Conveyor 40U2, identified as 40U2, constructed in 1985, with emissions

uncontrolled, exhausting to stack 315;

(30) One (1) Flash 1 Slurry Hold Tank, identified as 40V1, constructed in 1985, with emissions uncontrolled, exhausting to stack 315;

(31) One (1) Filtrate Reineveldt Centrifuge Flash Dryer 1, identified as 40Y1, with emissions uncontrolled, constructed in 1985, exhausting to stack 315;

(32) One (1) Flash 3 Larox Air Release Tank, identified as 43V86, constructed in 1995, with emissions uncontrolled, exhausting to stack 318;

(33) One (1) Starch Feed Bin, identified as 33V1, constructed in 1995, with emissions controlled by baghouse 33F1, exhausting **via vent 236** to stack **355.** ~~236;~~

(34) One (1) Starch Feed Bin, identified as 33V2, constructed in 1995, with emissions controlled by baghouse 33F2, exhausting **via vent 237** to stack **355.** ~~237;~~

(35) One (1) Low Pressure Dry Starch Reactor, identified as 33R1, constructed in 1995, with emissions controlled by baghouses 33F101 and 33F102, exhausting to stack 238;

(36) One (1) Catalyst Bin, identified as 33V5, constructed in 1995, with emissions controlled by baghouse 33F5, exhausting to stack 239;

(37) One (1) High Pressure Dry Starch Reactor, identified as 33R2, constructed in 1995, with emissions controlled by baghouses 33F201 and 33F202, exhausting to stack 240;

(38) One (1) Reactor Surge Bin, identified as 50V61, constructed in 1997, with emissions controlled by baghouse 50F161, exhausting **via vent 241** to stack **361.** ~~241;~~

(39) One (1) Reactor Surge Bin, identified as 50V62, constructed in 1997, with emissions controlled by baghouse 50F162, exhausting **via vent 242** to stack **361.** ~~242;~~

(40) One (1) Dry Starch Product Screening Receiver, identified as 50F48, constructed in 1997, with emissions controlled by baghouse 50F48, exhausting **via vent 243** to stack **355.** ~~243;~~

(41) One (1) Dry Starch Blend Bin, identified as 33V42, constructed in 1995, with emissions controlled by baghouse 33F42, exhausting **via vent 244** to stack **355** ~~244~~;

(42) One (1) Dry Starch Blend Bin, identified as 33V43, constructed in 1995, with emissions controlled by baghouse 33F43, exhausting **via vent 245** to stack **355** ~~245~~;

(43) One (1) Dry Starch Blend Bin, identified as 33V40, constructed in 1995, with emissions controlled by baghouse 33F40, exhausting **via vent 246** to stack **355** ~~246~~;

(44) One (1) Dry Starch Blend Bin, identified as 33V41, constructed in 1995, with emissions controlled by baghouse 33F41, exhausting **via vent 247** to stack **355**

247;

(45) One (1) Dry Starch Product Screening Receiver, identified as 50F45, constructed in 1997, with emissions controlled by baghouse 50F45, exhausting **via vent 262** to stack **355**; ~~262; and~~

(46) One (1) Flash 2 Air Release Tank, identified ~~s~~ **as** 40V16, constructed in 2002, with emissions uncontrolled, exhausting to stack 251;

(47) Six (6) Propylated Starch Reactors, identified as 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF, with VOC emissions controlled by packed bed scrubbers 45FAA or 45F212, exhausting to stack 399;

(48) One (1) Sodium Sulfate Storage Bin, identified as 45BVAA, with emissions controlled by baghouse 45BFAA, exhausting to stack 400;

(49) Two (2) Flash 4 Slurry Hold Tanks, identified as 44V1 and 44V2, with emissions uncontrolled, exhausting to stack 419;

(50) Three (3) Flash 4 Larox Filters, identified as 44FKK, 44FLL and 44FMM, with emissions uncontrolled, exhausting to stack 420;

(51) One (1) Flash 4 Larox Filter Feed Tank, identified as 44V3, with emissions uncontrolled, exhausting to stack 420;

(52) One (1) Flash 4 Larox Air Release Tank, identified as 44V4, with emissions uncontrolled, exhausting to stack 421;

(53) One (1) Flash 4 Larox Air Release Tank, identified as 44V5, with emissions uncontrolled, exhausting to stack 422;

(54) Two (2) Spray dryer 2 Feed Tanks, identified as 46V1 and 46V2, with emissions uncontrolled, exhausting to stack 423;

(55) One (1) Spray dryer 2 Overflow Tank, identified as 46V3 with emissions uncontrolled, exhausting to stack 424;

(56) One (1) Spray dryer 2 Bowl Drain Tank, identified as 46V4 with emissions uncontrolled, exhausting to stack 424;

(57) One (1) Spray dryer 2 Under Flow Tank, identified as 46V5 with emissions uncontrolled, exhausting to stack 424;

(58) One (1) Raw Starch Storage Bin, identified as 20VAA, with emissions controlled by baghouse 20FAA, exhausting to stack 369;

(59) One (1) Raw Starch Storage Bin, identified as 20VBB, with emissions controlled by baghouse 20FBB, exhausting to stack 370;

(60) One (1) Starch Slurry Storage Tank, identified as 18AVAA, with emissions controlled by baghouse 18AFAA, exhausting to stack 371;

(61) One (1) Starch Feed Bin, identified as 41VAA, with emissions controlled by baghouse 41FKK, exhausting to stack 372;

(62) **One (1) Starch Weigh Bin, identified as 33VAA, with emissions controlled by baghouse 33FAA, exhausting to stack 373;**

(63) **One (1) Dextrin Fluidizer Reactor, identified as 33RAA, with emissions controlled by cyclone 33FBB and baghouse 33FCC, exhausting to stack 374;**

(64) **One (1) Dextrin Fluidizer Surge Bin, identified as 33VBB, with emissions controlled by baghouse 33FDD, exhausting via vent 375 to stack 355;**

(65) **One (1) Dextrin Blending and Storage Bin, identified as 33VCC, with emissions controlled by baghouse 33FFF, exhausting via vent 377 to stack 355;**

(66) **One (1) Dextrin Blending and Storage Bin, identified as 33VDD, with emissions controlled by baghouse 33FGG, exhausting via vent 378 to stack 355;**

(67) **One (1) Dextrin Product Screening Receiver, identified as 33FEE, with emissions controlled by baghouse 33FEE, exhausting via vent 376 to stack; and 355.**

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

D.5.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2]
Pursuant to 326 IAC 2-2-3:

(a) **The following emission units shall be controlled for PM and PM_{10} using best available control technology (BACT):**

(1) **Sodium Sulfate Storage Bin 45BVAA**

(2) **Raw Starch Storage Bin 20VAA**

(3) **Raw Starch Storage Bin 20VBB**

(4) **Starch Slurry Storage Tank 18AVAA**

(5) **Starch Feed Bin 41VAA**

(6) **Starch Weigh Bin 33VAA**

(7) **Dextrin Fluidizer Reactor 33RAA**

(8) **Dextrin Fluidizer Surge Bin 33VBB**

(9) **Dextrin Blending and Storage Bin 33VCC**

(10) **Dextrin Blending and Storage Bin 33VDD**

(11) **Dextrin Product Screening Receiver 33FEE**

For these units, the BACT for PM, and PM10 (Filterable and Condensible) is the use of fabric filter dust collectors with an emission rate of 0.005 gr/dscf and

(1) as given in the following table:

Emission Units	Control Device ID	Total PM /PM10 (Filterable and Condensible) Emissions Rate (lbs/hr)
45BVAA	45BFAA	0.06
20VAA	20FAA	0.09
20VBB	20FBB	0.09
18AVAA	18AFAA	0.06
41VAA	41FKK	0.09
33VAA	33FAA	0.05
33RAA	33FCC	0.16
33VBB	33FDD	0.04
33VCC	33FFF	0.13
33VDD	33FGG	0.13
33FEE	33FEE	0.07; and

(2) the opacity from the baghouses shall not exceed 3%.

(b) The following emission units shall be controlled for VOC using BACT:

Six (6) Propylated Starch Reactors, identified as 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF.

VOC BACT has been determined to be the use of a low pH packed bed scrubber and hydrolysis and

(1) a VOC emission rate of 3.25 lb per 100,000 lb of acid-killed starch and 6.0 lb per 100,000 lb of non-acid-killed starch for Propylene Oxide Starch Reactors ((equivalent to minimum 95% overall control efficiency); and

(2) the combined propylene oxide input to emission units 45VAA, 45VBB, 45VCC, 45VDD, 45VEE, 45VFF, 40V1, 40U2, 40Y1, 40V50, 40V20, 40V21, 40V15, 40V16, 40F51, 40F52, 40F53, 40F54, 40U23, 43V71, 43V72, 43F71, 43F72, 43F73, 43V85, 43V86, 45V117, 45V118, 45V119, 45V120, 30V1, 30V2, 40V12, 40V11, 40V14, 45V223, 45V240, 45V241, 45V242, 45 V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, 44V1, 44V2, 44V3, 44V4, 44V5, 44FKK, 44FLL, 44FMM, 46V1, 46V2, 46V3, 46V4, 46V5, 40D1, 40D20, 43D71, 41D1, 41D2, 41D3, 41D4, 41D5, 41D6, 41D7, 41D8, 41D9, 41D10, 41D11, 41D12, 41D13, 41D14, 30D1, 16D4, 16D5, 44DAA, and 46DAA shall not exceed 1500 tons per twelve consecutive month period for propylated starch reactions that do not undergo the acid-kill step.

~~D.5.1~~ **D.5.2** Prevention of Significant Deterioration **Minor Limit** [326 IAC 2-2]

Pursuant to CP 157-4195-00003, issued August 25, 1995, as amended by A 157-6170-00003, issued July 26, 1996, the particulate matter emissions are limited as indicated in the table below:

Facility	Stack	PM/PM_{10} emission limit (lb/hr)	PM/PM_{10} emission limit (ton/12mo*)
Starch Feed Bin (33V1)	236	0.29	1.26
Starch Feed Bin (33V2)	237	0.29	1.26
Low Pressure Dry Starch Reactor (33R1)	238	0.078	0.34
Catalyst Storage Bin (33V5)	239	0.034	0.15
Dry Starch Blend Bins (33V42, 33V43, 33V40, and 33V41)	244, 245, 246, 247	**0.55** ~~0.53~~	**2.4** ~~2.3~~
Dry Starch Product Screening Receiver (50F45)	262	**0.07** ~~0.10~~	**0.31** ~~0.45~~

*12 mo - Twelve consecutive month period with compliance determined at the end of each month.

Compliance with these limits shall render the requirements of 326 IAC 2-2 not applicable to emission units 33V1, 33V2, 33R1, 33V5, 33V42, 33V43, 33V40, 33V41 and 50F45.

~~D.5.2~~ **D.5.3** Sulfur Dioxide (SO_2) Emission Limitation

The amount of acid-thinned starch produced from the reactors 45V115, 45V116, and 45V222 is limited to fifty million (50,000,000) pounds per twelve (12) consecutive month period with compliance determined at the end of each month.

This voluntary limit, based on sulfur dioxide (SO_2) emissions of 43 pounds SO_2 per 100,000 pounds of acid-thinned starch, has been incorporated to limit the potential to emit SO_2 from reactors 45V115, 45V116, and 45V222 to 10.8 tons per year.

~~D.5.3~~ **D.5.4** Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2] **[40 CFR 52, Subpart P]**

Pursuant to 326 IAC 6-3-2, particulate emissions from ~~facilities~~ **emission units** 45V250, 9V103, 33V1, 33V2, 33R1, 33V5, 33R2, 50V61, 50V62, 33V42, 33V43, 33V40, 33V41, 50F45, ~~and~~ 50F48**, 45BVAA, 20VAA, 20VBB, 18AVAA, 41VAA, 33VAA, 33RAA, 33VBB, 33VCC, 33VDD, and 33FEE** shall be limited using one of the following equations (as applicable):

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

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

Or depending on the process weight rate:

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

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

Note that the specific 326 IAC 6-3-2 limits have not been listed here as the process throughput of the respective facilities is being treated as confidential.

~~D.5.4~~**D.5.5** Volatile Organic Compounds (VOC) BACT [326 IAC 8-1-6] ~~[40 CFR 52.21]~~ [326 IAC 2-2-3]

~~Pursuant to 326 IAC 8-1-6, and CP 157-10232-00003, issued October 12, 1999:~~

Pursuant to 326 IAC 2-2-3, and 326 IAC 8-1-6, the VOC BACT for emission units 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, ~~and~~ 45V281, 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF shall be the use of the scrubbers 45F212, and 45FAA ; and

~~(b)~~ **(a)** The VOC emissions from ~~scrubber~~ **the scrubbers** 45F212, and **45FAA** controlling emissions from ~~facilities~~ **emission units** 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, ~~and~~ 45V281, **45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF** shall not exceed 3.25 lb per 100,000 lb of acid-killed starch and 6.0 lb per 100,000 lb of non-acid-killed starch (equivalent to a ~~minium~~ **minimum** 95% overall control efficiency).

~~Compliance with this limit is equivalent to total VOC emissions of less than 40 tons per year, shall satisfy the requirements of 326 IAC 8-1-6, and render the requirements of 326 IAC 2-2 and 40 CFR 52.21 not applicable~~

~~(a)~~ **(b)** The combined propylene oxide input to~~ facilities~~ **emission units** (listed in Section D.5) , **45VAA, 45VBB, 45VCC, 45VDD, 45VEE, 45VFF,** 40V1, 40U2, 40Y1, 40V50, 40V20, 40V21, 40V15, 40V16, 40F51, 40F52, 40F53, 40F54, 40U23, 43V71, 43V72, 43F71, 43F72, 43F73, 43V85, 43V86, 45V117, 45V118, 45V119, 45V120, 30V1, 30V2, 40V12, 40V11, 40V14, 45V223, ~~45V224~~, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, **44V1, 44V2, 44V3, 44V4, 44V5,44FKK, 44FLL, 44FMM, 46V1, 46V2, 46V3, 46V4, 46V5** (listed in Section D.6) 40D1, 40D20, 43D71, 41D1, 41D2, 41D3, 41D4, 41D5, 41D6, 41D7, 41D8, **41D9, 41D10, 41D11, 41D12, 41D13, 41D14,** 30D1, 16D4, ~~and~~ 16D5**, 44DAA, and 46DAA** shall not exceed ~~15,000~~ **1500** tons per twelve consecutive month period **for propylated starch reactions that do not undergo the acid-kill step** with compliance determined at the end of each month.

~~D.5.5~~ **D.5.6** Preventive Maintenance Plan [326 IAC 2-7-5(13)]

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

~~D.5.6~~ **D.5.7** Volatile Organic Compounds (VOC) Control

Pursuant to CP 157-10232-00003, issued October 12, 1999, and in order to comply with Condition**s** ~~D.5.4(b)~~ **D.5.1(b) and D.5.5(a)**, scrubber**s 45FAA, and** 45F212, ~~determined to be BACT, for VOC control,~~ shall be in operation and control **VOC** emissions from ~~facilities~~ **emission units** 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, ~~and~~ 45V281, **45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF** at all times any of those ~~facilities~~ **emission units** are in operation. ~~The scrubber must maintain a minimum flow rate of 390 gallons of liquid per minute.~~

~~D.5.7~~ **D.5.8** Particulate Control

In order to comply with Conditions D.5.1**(a),** D.5.2 **and D.5.4**, baghouses, including those integral to the process, 45F25, 45F25a, 9F103, 33F1, 33F2, 33F101, 33F102, 33F5, 33F201, 33F202, 50F161, 50F162, 50F48, 33F42, 33F43, 33F40, 33F41, ~~and~~ 50F45**, 45BFAA, 20FAA, 20FBB, 18AFAA, 41FKK, 33FAA, 33FCC, 33FDD, 33FEE, 33FFF, and 33FGG** for particulate control shall be in operation and control particulate emissions ~~from facilities 45V250, 9V103, 33V1, 33V2, 33R1, 33V5, 50V61, 50V62, 50F48, 33V42, 33V43, 33V40, 33V41, 50F45, and 33R2~~ at all times ~~those facilities are~~ **when an emission unit that it controls is** in operation.

~~D.5.8~~ **D.5.9** Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]

(a) **To verify compliance with Condition D.5.1(a), within 60 days after achieving the**

maximum production rate, but no later than 180 days after startup, the Permittee shall perform PM and PM10 testing on Baghouses 45BFAA, 20FAA, 20FBB, 18AFAA, 41FKK, 33FAA, 33FCC, 33FDD, 33FFF, 33FGG, and 33FEE, utilizing methods as approved by the Commissioner.

(b) **To verify compliance with Condition D.5.1(b), within 60 days after achieving the maximum production rate, but no later than 180 days after startup, the Permittee shall perform VOC testing on packed bed scrubber 45FAA utilizing methods as approved by the Commissioner.**

(c) To verify compliance with Condition ~~D.5.4~~ **D.5.5(a)**, ~~no later than 36 months after issuance of this permit~~ **within 60 days after achieving the maximum production rate, but no later than 180 days after startup**, the Permittee shall perform VOC testing on ~~stack 50 (exhausting VOC emissions from facilities~~ ~~**emission units**~~ ~~45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, and 45V281)~~ **45F212** utilizing methods as approved by the Commissioner.

~~This test~~ **These tests** shall be repeated at least once every five years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

~~D.5.9~~ **D.5.10** Visible Emissions Notations

(a) **Visible emission notations of the exhaust from stack 355, exhausting emissions from emission units 33V1, 33V2, 33V40, 33V41, 33V42, 33V43, 50F48, 50 F45, 33VBB, 33VCC, 33VDD and 33FEE in addition to emission units (listed in Section D.6) 41C30, 41C35, 41FAA, 41G202 and emission units (listed in Section D.7) 41F7, 41Z5, 41F18, 41Z3, 41F8, 41F81, 41F82, and 41FCC, shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.**

~~(a)~~ **(b)** Visible emission notations of the exhaust from ~~stacks 241 and 242~~ **stack 361, exhausting emissions from emission units 50V61 and 50V62 in addition to emission units (listed in Section D.6) 50D101, 50F106, 51DAA and emission unit (listed in Section D.7) 41F44 and 51FDD,** shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

~~(b)~~ **(c)** Visible emission notations of the exhaust from stacks 64, 68, and 240 shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

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

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

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

~~(f)~~ **(g)** The Compliance Response Plan for these units shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

~~D.5.10~~ **D.5.11** Monitoring for Scrubbers

(a) The Permittee shall monitor the pH of the scrubbing liquid and exhaust air stream pressure drop across the scrubber at least once per shift ~~from scrubber~~ **for each of scrubbers 45FAA and** 45F212 ~~controlling emissions from facilities 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, and 45V281~~. **The normal pH range for scrubber 45FAA is 0.5 to 4.0 or the range established during the latest stack test. The normal pH range for scrubber 45F212 is 1 to 4.0 or the range established during the latest stack test. The normal pressure drop range for scrubber 45FAA is 1 to 3.0 or the range established during the latest stack test. The normal pressure drop range for scrubber 45F212 is 1" to 3.0 or the range established during the latest stack test.** ~~The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when the pH or pressure drop readings are outside of the normal range for any one reading. A pH or pressure drop reading that is outside the normal range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.~~

(b) A continuous monitoring system shall be installed and operated at all times **when either** scrubber **45FAA or** 45F212 is in operation. The monitoring system shall continuously measure and record the scrubbers' recirculation rate ~~from scrubber~~ **for each of the scrubbers 45FAA and** 45F212 ~~controlling emissions from facilities 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, and 45V281~~. **The minimum flow rate for scrubber 45FAA is 390 gallon per minute or a minimum flow rate established during the latest stack test. The minimum flow rate for scrubber 45F12 is 390 gallon per minute or a minimum flow rate established during the latest stack test.** ~~The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when any 1-hr average flow rate is below the minimum flow rate specified in Condition D.5.5. A flow rate reading that is below the minimum flow rate is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.~~

(c) The Compliance Response Plan for the ~~scrubber~~ **scrubbers** shall contain troubleshooting contingency and ~~corrective actions~~ **response steps** for when the pH or pressure drop readings are outside of the normal range for any one reading or when any ~~1-hr average~~ flow rate is below the minimum flow rate.

(d) A pH or pressure drop that is outside the normal range or the flow rate reading that is below the minimum flow rate is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(e) The instruments used for determining the pH, pressure drop, and flow rate shall ~~be subject to approval by IDEM, OAQ~~ **comply with Section C- Pressure Gauge and other Instrument Specifications** and shall be calibrated at least once every six (6) months.

~~D.5.11~~ **D.5.12** Scrubbers Inspections

External inspection of ~~scrubber~~ **scrubbers 45FAA and** 45F212 shall be performed semi-annually. Inspections required by this condition shall not be performed in consecutive months Repairs or replacement of defective components shall be performed in accordance with the Preventive Maintenance Plan.

~~D.5.12 Scrubber Malfunction~~

~~In the event that a scrubber malfunction has been observed:~~

~~(a)~~ ~~The affected unit will be shut down immediately in accordance with safe operating procedures until the failed unit has been repaired or the appropriate components replaced@.~~

~~(b)~~ ~~Based upon the findings of the inspection, any additional corrective actions will be devised within eight (8) hours of discovery and will include a timetable for completion.~~

D.5.13 Monitoring for Baghouses

(a) **The Permittee shall record the total static pressure drop across baghouses 45BFAA, 20FAA, 20FBB, 18AFAA, 41FKK, 33FAA, 33FCC, 33FDD, 33FEE, 33FFF and 33FGG, used in conjunction with emission units 45BVAA, 20VAA, 20VBB, 18AVAA, 41VAA, 33VAA, 33RAA, 33VBB, 33VCC, 33VDD, and 33FEE, at least once per shift when the respective facilities are in operation.**

~~(a)~~ **(b)** The Permittee shall record the total static pressure drop across baghouses 50F161 and 50F162, used in conjunction with ~~facilities~~ **emission units** 50V61 and 50V62, at least once per shift when the respective ~~facilities~~ **emission units** are in operation.

~~(b)~~ **(c)** The Permittee shall record the total static pressure drop across baghouses 45F25, 45F25a, 9F103, 33F201, and 33F202, used in conjunction with facilities 45V250, 9V103, and 33R2, at least once per day when the respective facilities are in operation.

~~(c)~~ **(d)** When, for any one reading, the pressure drop across the baghouses are outside the normal range of ~~3.0 and 6.0~~ **1 and 8.0** inches of water or a range established during the last stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

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

D.5.14 Baghouse Inspections

(a) **An external inspection of the baghouses controlling particulate emissions from emission units 45BVAA, 20VAA, 20VBB, 18AVAA, 41VAA, 33VAA, 33RAA, 33VBB, 33VCC, 33VDD, and 33FEE shall be performed at least once per calendar quarter. Inspections required by this condition shall not be performed in consecutive months.**

~~(a)~~ **(b)** An **external** inspection of **the baghouses** ~~all bags~~ controlling particulate emissions from facilities 50V61 and 50V62, shall be performed at least once per calendar quarter. Inspections required by this condition shall not be performed in consecutive months.

~~(b)~~ **(c)** An **internal** inspection of all bags, controlling particulate emissions from facilities 45V250, 9V103, and 33R2, shall be performed at least once per calendar year. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

~~(c)~~ **(d)** Inspections shall also be performed whenever the respective baghouse is out of service for more than 24 consecutive hours. All defective bags shall be replaced.

D.5.15 Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if there are no visible emissions or if the event qualifies as an emergency and the Permittee satisfies the emergency provisions of this permit (Section B- Emergency Provisions). Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

D.5.16 Record Keeping Requirements

(a) To document compliance with Condition ~~D.5.2~~ **D.5.3**, the Permittee shall maintain monthly records of the amount of acid-thinned starch produced from 45V115, 45V116, and 45V222.

(b) To document compliance with Condition ~~D.5.4~~ **D.5.5(b),** the Permittee shall maintain monthly records ~~of the input~~ **for propylated starch reactions that do not undergo the acid-kill step** to facilities **45VAA, 45VBB, 45VCC, 45VDD, 45VEE, 45VFF,** 40V1, 40U2, 40Y1, 40V50, 40V20, 40V21, 40V15, 40V16, 40F51, 40F52, 40F53, 40F54, 40U23, 43V71, 43V72, 43F71, 43F72, 43F73, 43V85, 43V86, 45V117, 45V118, 45V119, 45V120, 30V1, 30V2, 40V12, 40V11, 40V14, 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, **44V1, 44V2, 44V3**, **44V4**, **44V5, 44FKK, 44FLL, 44FMM, 46V1, 46V2, 46V3, 46V4, 46V5**, 40D1, 40D20, 43D71, 41D1, 41D2, 41D3, 41D4, 41D5, 41D6, 41D7, 41D8, **41D9, 41D10, 41D11, 41D12, 41D13, 41D14,** 30D1, 16D4, ~~and~~ 16D5**, 44DAA, and 46DAA**. Note that this record is the same record as required in Condition D.6.14(a).

(c) To document compliance with Condition ~~D.5.9~~ **D.5.10**, the Permittee shall maintain records of visible emission notations of the stacks' exhaust.

(d) To document compliance with Condition ~~D.5.10~~ **D.5.11**, the Permittee shall maintain records of the following with respect to ~~scrubber~~ **each of scrubbers 45FAA and** 45F212:

(68) The pH of the scrubbing liquid and exhaust air stream pressure drop across the scrubber at least once per shift, and

(69) The scrubber recirculation rate as read by the continuous monitor.

(e) To document compliance with Condition D.5.13, the Permittee shall maintain records of the total static pressure drop during normal operation.

(f) To document compliance with Conditions ~~D.5.11~~ **D.5.12,** and D.5.14, the Permittee shall maintain records of the results of the inspections.

(g) To document compliance with Condition ~~D.5.5~~ **D.5.6**, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

D.5.17 Clean Unit [326 IAC 2-2.2-2]

Pursuant to 326 IAC 2-2.2-2,

(a) The following emissions units are classified as Clean Units for PM/PM_{10}:

(12) Sodium Sulfate Storage Bin 45BVAA

(13) Raw Starch Storage Bin 20VAA

(14) Raw Starch Storage Bin 20VBB

(15) Starch Slurry Storage Tank 18AVAA

(16) Starch Feed Bin 41VAA

(17) Starch Weigh Bin 33VAA

(18) Dextrin Fluidizer Reactor 33RAA

(19) Dextrin Fluidizer Surge Bin 33VBB

(20) Dextrin Blending and Storage Bin 33VCC

(21) Dextrin Blending and Storage Bin 33VDD

(22) Dextrin Product Screening Receiver 33FEE

(b) The following emissions units are classified as Clean Units for VOC:

Six (6) Propylated Starch Reactors, identified as 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF.

(c) The Clean Unit designations for the above emissions units are in effect for ten (10) years after the issuance date of the source modification permit or the date the emission's unit control technology is placed in service, whichever is later.

~~D.5.17 Reporting Requirements~~

~~A quarterly summary of the information to document compliance with Condition D.5.4 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting form located at the end of this permit, or its equivalent, within thirty (30) days~~

~~after the end of the three (3) month period being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34). Note that this report is the same report as required in Condition D.6.15.~~

Deletion of Reporting form associated with this section

SECTION D.6 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(f) Starch Drying and Handling Operation, consisting of:

(1) One (1) Starch Flash Dryer #1, identified as 40D1, constructed in 1986, a heat input capacity of 14.4 MMBtu/hr, with emissions controlled by integral product collector/cyclones 40F1 and 40F2 and scrubber 40F3, exhausting to stack 69;

(2) One (1) Pneumatic Product Transfer, identified as 40F7, constructed in 1986, with emissions controlled by 40F7, exhausting to stack 70;

(3) One (1) Starch Storage Bin #8, identified as 7V8, constructed in 1986, with emissions controlled by baghouse 7F8, exhausting to stack 71;

(4) One (1) Starch Storage Bin #9, identified as 7V9, constructed in 1986, with emissions controlled by baghouse 7F9, exhausting to stack 72;

(5) One (1) Starch Flash Dryer #2, identified as 40D20, constructed in 1990 and modified in 1991, a heat input capacity of 40 MMBtu/hr, with emissions controlled by integral product collector/cyclones 40F20 through 40F25 and scrubber 40F26, exhausting to stack 73;

(6) One (1) Starch Product Bin #20, identified as 7V20, constructed in 1992, with emissions controlled by baghouse 7F20, exhausting to stack 76;

(7) One (1) Starch Product Bin #21, identified as 7V21, constructed in 1992, with emissions controlled by baghouse 7F21, exhausting to stack 77;

(8) One (1) Starch Product Bin #22, identified as 7V22, constructed in 1992, with emissions controlled by baghouse 7F22, exhausting to stack 78;

(9) One (1) Starch Grinder/Mill #1, identified as 40G20, constructed in 1990, with emissions controlled by baghouse 40F28, exhausting **via vent 286** to stack ~~286;~~ **360.**

(10) One (1) Starch Grinder/Mill #2, identified as 40G21, constructed in 1990, with emissions controlled by baghouse 40F29, exhausting **via vent 287** to stack ~~287;~~ **360.**

(11) One (1) Grinder Feed Collector 40F27, identified as 40F27, constructed in 1990, with emissions exhausting to the intake of bins 7V20, 7V21, 7V22 and 7V23;

(12) One (1) Starch Flash Dryer #3, identified as 43D71, constructed in 1995, a heat input capacity of 40 MMBtu/hr, with emissions controlled by integral product collector/cyclones 40F81 through 40F86 and scrubber 43F80, exhausting to stack

265;

(13) One (1) Flash #3 Mill, identified as 40G88, constructed in 1996, with emissions controlled by baghouse 40F88, exhausting to stack 266;

(14) One (1) Starch Bin #33, identified as 7V23 (formerly identified as 7V33), constructed in 1995, with emissions controlled by baghouse 7F33, exhausting to stack 267;

(15) One (1) Starch Bin #34, identified as 7V34, constructed in 1995, with emissions controlled by baghouse 7F34, exhausting to stack 268;

(16) One (1) Starch Bin #35, identified as 7V35, constructed in 1995, with emissions controlled by baghouse 7F35, exhausting to stack 269;

(17) One (1) Adipic Acid Storage Bin, identified as 43V90, constructed in 1996, with emissions controlled by baghouse 43F90, exhausting to stack 274;

(18) One (1) Starch Transfer Bin #91, identified as 7V91, constructed in 1999, with emissions controlled by baghouse 7F91, exhausting to stack 345;

(19) One (1) Starch Transfer Bin #92, identified as 7V92, constructed in 1999, with emissions controlled by baghouse 7F92, exhausting to stack 346;

(20) One (1) Starch Roll Dryer #1, identified as 41D1, constructed in 1986, with emissions uncontrolled, exhausting to stack 91;

(21) One (1) Starch Roll Dryer #2, identified as 41D2, constructed in 1986, with emissions uncontrolled, exhausting to stack 92;

(22) One (1) Starch Roll Dryer #3, identified as 41D3, constructed in 1986, with emissions uncontrolled, exhausting to stack 93;

(23) One (1) Starch Roll Dryer #4, identified as 41D4, constructed in 1993, with emissions uncontrolled, exhausting to stack 94;

(24) One (1) Starch Roll Dryer #5, identified as 41D5, constructed in 1995, with emissions uncontrolled, exhausting to stack 232;

(25) One (1) Starch Roll Dryer #6, identified as 41D6, constructed in 1995, with emissions uncontrolled, exhausting to stack 233;

(26) One (1) Starch Roll Dryer #7, identified as 41D7, constructed in 1997, with emissions uncontrolled, exhausting to stack 234;

(27) One (1) Starch Roll Dryer #8, identified as 41D8, constructed in 2000, with emissions uncontrolled, exhausting to stack 235;

(28) One (1) Pneumatic Product Transfer Roll Dryer, identified as 41F210, constructed in 1986, with emissions controlled by baghouse 41F210, exhausting to **the intake of mill 41G202** ~~stack 95~~**;**

~~(29) One (1) Roll Dryer Mill, identified as 41G200, constructed in 1986, with emissions controlled by baghouse 41F200, exhausting to stack 96;~~

(29) One (1) Product Bin #10, identified as 41V10, constructed in 1993, with emissions controlled by baghouse 41F10, exhausting to stack 97;

(30) One (1) Product Bin #11, identified as 41V11, constructed in 1993, with emissions controlled by baghouse 41F11, exhausting to stack 98;

(31) One (1) Pneumatic Product Transfer Roll Dryer, identified as 41F201, constructed in 1993, with emissions controlled by baghouse 41F201, exhausting to **the intake of mill 41G202** ~~stack 101~~;

~~(32) One (1) Roll Dryer Mill, identified as 41G201, constructed in 1993, with emissions controlled by baghouse 41F211, exhausting to stack 100;~~

(32) One (1) Starch Product Bin #44, identified as 33V44, constructed in 1995, with emissions controlled by baghouse 33F44, exhausting to stack 248 ~~indoors~~;

(33) One (1) Bulk Bag Dump Station, identified as 41F13, constructed in 2000, with emissions controlled by baghouse 41F13, exhausting **indoors** to stack 344;

(34) One (1) Spray Dryer, identified as 30D1, constructed in 1984, a heat input capacity of 24 MMBtu/hr, with emissions controlled by integral product collector/cyclones 30F7 and 30F8 and baghouses 30F2 and 30F3, exhausting to stack 82;

(35) One (1) Product Transfer to Milling, identified as 30F13, constructed in 1987, with emissions controlled by baghouse 30F13, exhausting **via vent 83** to stack ~~83;~~ **360;**

(36) One (1) Dryer Mill, identified as 30G1, constructed in 1987, with emissions controlled by baghouse 30F15, exhausting **via vent 84** to stack ~~84;~~ **360;**

(37) One (1) Product Transfer to Bins #14 & #15, identified as 41C30, constructed in 1987, with emissions controlled by baghouses 41F14 and 41F15, exhausting ~~to stack 85~~ **via vent 85 into stack 355**;

(38) One (1) Product Transfer to Bins #17, #18, #44 **and EE**, identified as 41C35, constructed in 1987, with emissions controlled by baghouses 41F20, 41F21, 41F54, **and 41FEE**, exhausting ~~to stack 86~~ **via vent 86 into stack 355**;

(39) One (1) Product Bin #14, identified as 41V14, constructed in 1987, with emissions controlled by baghouse 41F16, exhausting to stack 87;

(40) One (1) Product Bin #15, identified as 41V15, constructed in 1987, with emissions controlled by baghouse 41F17, exhausting to stack 88;

(41) One (1) Product Bin #17, identified as 41V17, constructed in 1987, with emissions controlled by baghouse 41F22, exhausting to stack 89;

(42) One (1) Product Bin #18, identified as 41V18, constructed in 1987, with emissions controlled by baghouse 41F23, exhausting to stack 90;

(43) One (1) Belts Product Conveying Mill Product to Bins #3, #4, and #5, identified as 7F25, constructed in 1966, with emissions controlled by 7F25, exhausting to

stack 103;

(44) One (1) Belts Product Conveying Mill Product to Bins #1, #2, and #3, identified as 7F26, constructed in 1966, with emissions controlled by 7F26, exhausting to stack 104;

(45) One (1) Product Bin #5, identified as 7V46, constructed in 1966, with emissions controlled by baghouse 7F69, exhausting to stack 105;

(46) One (1) Product Bin #4, identified as 7V47, constructed in 1966, with emissions controlled by baghouse 7F70, exhausting to stack 106;

(47) One (1) Product Bin #3, identified as 7V48, constructed in 1966, with emissions controlled by baghouse 7F71, exhausting to stack 107;

(48) One (1) Product Bin #2, identified as 7V49, constructed in 1966, with emissions controlled by baghouse 7F72, exhausting to stack 108;

(49) One (1) Product Bin #1, identified as 7V50, constructed in 1966, with emissions controlled by baghouse 7F73, exhausting to stack 109;

(50) One (1) Belt Dryer Mill, identified as 25G1, constructed in 1968, with emissions controlled by baghouse 25F2, exhausting to stack 146;

(51) One (1) Pneumatic Conveying to Mill Feed Receiver, identified as 25F1, constructed in 1968, with emissions controlled by baghouse 25F1, exhausting to stack 147;

(52) One (1) Regular Belt Dryer D4 and one (1) Special Belt Dryer D5, identified as 16D4 and 16D5, constructed in 1966, with emissions controlled by rotoclone scrubbers 16F26, 17F78, 16F27, and 17F79, exhausting to stack 177;

(53) One (1) Spray Agglomeration System, identified as 50D101, constructed in 2001, a heat input capacity of 6.2 MMBtu/hr, with emissions controlled by integral product collector/cyclones 50F111 and 50F112 and baghouse 50F102, exhausting **via vent 349** to stack **361** ~~350~~; ~~and~~

(54) One (1) Agglomeration Blender Receiver/Baghouse, identified as 50F106, constructed in 2001, with emissions controlled by baghouse 50F106, exhausting **via vent 350** to stack **361** ~~350~~;

(55) Starch Roll Dryer #9, identified as 41D9, with emissions uncontrolled, exhausting to stack 405;

(56) Starch Roll Dryer #10, identified as 41D10, with emissions uncontrolled, exhausting to stack 406;

(57) Starch Roll Dryer #11, identified as 41D11, with emissions uncontrolled, exhausting to stack 407;

(58) Starch Roll Dryer #12, identified as 41D12, with emissions uncontrolled, exhausting to stack 408;

(59) Starch Roll Dryer #13, identified as 41D13, with emissions uncontrolled,

exhausting to stack 409;

(60) **Starch Roll Dryer #14, identified as 41D14, with emissions uncontrolled, exhausting to stack 410;**

(61) **One (1) Roll Dryer Mill Feed Collector Baghouse, identified as 41FAA, with emissions controlled by baghouse 41FAA, exhausting via vent 365 to stack 355;**

(62) **One (1) Roll Dryer System Mill, identified as 41G202, with emissions controlled by baghouse 41F202, exhausting via vent 366 to stack 355;**

(63) **One (1) Starch Blend Bin #1, identified as 07VDD, with emissions controlled by baghouse 07FDD, exhausting to stack 383;**

(64) **One (1) Starch Blend Bin #2, identified as 07VEE, with emissions controlled by baghouse 07FEE, exhausting to stack 384;**

(65) **One (1) Product Bin #AA, identified as 07VAA, with emissions controlled by baghouse 07FAA, exhausting to stack 385;**

(66) **One (1) Product Bin #BB, identified as 07VBB, with emissions controlled by baghouse 07FBB, exhausting to stack 386;**

(67) **One (1) Product Bin #CC, identified as 07VCC, with emissions controlled by baghouse 07FCC, exhausting to stack 387;**

(68) **One (1) Product Bin #EE, identified as 41VEE, with emissions controlled by baghouse 41FEB, exhausting to stack 226.**

(69) **One (1) Product Bin #HH, identified as 41VHH, with emissions controlled by baghouse 41FHH, exhausting to stack 255;**

(70) **One (1) Mill #3, identified as 44GAA, with emissions controlled by baghouse 44FII, exhausting via vent 389 to stack 388;**

(71) **One (1) Mill #4, identified as 44GBB, with emissions controlled by baghouse 44FJJ, exhausting via vent 390 to stack 388;**

(72) **One (1) Natural Gas Fired Spray Dryer #2, identified as 46DAA, with heat input capacity of 45 million Btu per hour, with PM and PM_{10} emissions controlled by cyclones 46FAA through 46FFF and baghouses 46FGG through 46FLL, exhausting via vent 360 to stack 360. Nitrogen oxide (NO_X) emissions are controlled by low-NO_X burners rated at 0.04 lb/MMBtu;**

(73) **One (1) Natural Gas Fired Spray Dryer #3, identified as 51DAA, with heat input capacity of 16 million Btu per hour, with emissions controlled by cyclones 51FAA and 51FBB and baghouse 51FCC, exhausting via vent 361 to stack 361. Nitrogen oxide (NO_X) emissions are controlled by low-NO_X burners rated at 0.04 lb/MMBtu; and**

(74) **One (1) Natural Gas Fired Starch Flash Dryer #4, identified as 44DAA, with heat input capacity of 40 million Btu per hour, with emissions controlled by cyclones 44FAA through 44FFF and wet scrubber 44FGG, exhausting to**

stack 388. Nitrogen oxide (NO_X) emissions are controlled by low-NO_X burners rated at 0.04 lb/MMBtu.

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

D.6.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3:

(a) The following emission units shall be controlled for PM and PM_{10} using BACT:

(1) Product Storage Bin #AA (07VAA)

(2) Product Storage Bin #BB (07VBB)

(3) Product Storage Bin #CC (07VCC)

(4) Starch Blend Bin #1 (07VDD)

(5) Starch Blend Bin #2 (07VEE)

(6) Product Storage Bin #10 (41V10)

(7) Product Storage Bin #11 (41V11)

(8) Product Storage Bin #HH (41VHH)

(9) Roll Dryer Mill Feed Collector (41FAA)

(10) Roll Dryer System Mill (41G202).

(11) Product Transfer to Milling (30F13)

(12) Product Transfer to Bins 14& 15 (41C30)

(13) Product Transfer to Bins 17, 18, 44, & EE (41C35)

(14) Product Bin 14 (41V14)

(15) Product Bin 15 (41V15)

(16) Product Bin 17 (41V17)

(17) Product Bin 18 (41V18)

(18) Product Storage Bin #EE (41VEE)

(19) Product Bin (33V44)

(20) Mill #3 (44GAA)

(21) Mill #4 (44GBB)

(22) Starch Grinder/Mill #1 (40G20)

(23) Starch Grinder/Mill #2 (40G21)

(24) Starch Product Bin #20 (7V20)

(25) Starch Product Bin #21 (7V21)

(26) Starch Product Bin #22 (7V22)

(27) Starch Product Bin #23 (7V23)

For these units, the BACT for PM and PM_{10} (Filterable and Condensible)is the use of fabric filter dust collectors rated at a maximum emission rate of 0.005 gr/dscf; and

(1) The total PM/PM_{10} (Filterable and Condensible) emissions from the following baghouses, shall be limited to

Emission Unit	Baghouse	Lbs/hr
07VAA	07FAA	0.12
07VBB	07FBB	0.12
07 VCC	07FCC	0.12
07VDD	07FDD	0.12
07VEE	07FEE	0.12
41V10	41F10	0.05
41V11	41F11	0.05
41VHH	41FHH	0.05
41FAA	41FAA	0.19
41G202	41F202	0.56
30F13	30F13	0.07
41C30	41F14 and 41F15	0.08
41C35	41F20, 41F21, 41F54, 41FEE	0.08
41V14	41F16	0.01
41V15	41F17	0.01
41V17	41F22	0.01
41V18	41F23	0.01
41VEE	41FEB	0.01
33V44	33F44	0.03
44GAA	44FII	0.14
44GBB	44FJJ	0.14
40G20	40F28	0.14
40G21	40F29	0.14
7V20	7F20	0.09
7V21	7F21	0.09
7V22	7F22	0.09
7V23	7F23	0.09 and

(2) except for 30F13, 40F28, 40F29, 44FII, and 44FJJ, the opacity from the baghouse exhausts shall not exceed 3%. The opacity from the baghouses 30F13, 40F28, 40F29, 44FII, and 44FJJ shall not exceed 8%.

Spray Dryer #2 (46DAA)

Spray Dryer #3 (51DAA)

The BACT for PM, and PM_{10} is an emission rate of 0.008 gr/scf; and

(1) The total PM/PM_{10} (Filterable and Condensible) emissions from spray dryer #2 shall be limited to 6.61 lbs/hr;

(2) The total PM/PM_{10} (Filterable and Condensible) emissions from spray dryer #3 shall be limited to 2.20 lbs/hr; and

(3) The opacity from the baghouses' exhausts shall not exceed 8%.

(b) The following emission units shall be controlled for PM and PM_{10} using BACT:

(1) Starch Flash Dryer #2 (40D20)

(2) Starch Flash Dryer #4 (44DAA)

For starch flash dryers, BACT for PM, and PM_{10} is an emission rate of 0.008 gr/acf; and

(1) The total PM/PM_{10} (Filterable and Condensible) emissions from starch flash dryer #2 shall be limited to 7.54 lbs/hr; and

(2) The total PM/PM_{10} (Filterable and Condensible) emissions from starch flash dryer #4 shall be limited to 7.54 lbs/hr; and

(3) The opacity from the scrubber exhausts shall not exceed 8%.

(c) For the following emission units, BACT for NOx is the use of low-NO_X burners rated at 0.04 lb/MMBtu or less and shall not exceed the emission rates as given below:

	Lbs/hr
Starch Spray Dryer #2 (46DAA)	**1.8**
Starch Spray Dryer #3 (51DAA)	**0.64**
Starch Flash Dryer #4 (44DAA)	**1.6**

~~D.6.1~~ **D.6.2** Prevention of Significant Deterioration **Minor Limit** [40 CFR 52.21] [326 IAC 2-2]

(a) Pursuant to CP 157-9182-00003, issued April 2, 1998, A 157-10447-00003, issued October 26, 1999, A 157-15029-00003, issued October 24, 2001, and SSM 157-14974-00003, issued December 17, 2002, the PM emissions from ~~facilities~~ **emission units** 43D71, 40G88, ~~7V23~~, 7V34, 7V35, 7V91, and 7V92 are limited as indicated in the table below:

Facility	Stacks	PM/PM_{10} Limit (pounds per hour)	PM/PM_{10} Limit (tons per 12 mo)
Starch Flash Dryer	265	7.54	33.0

#3 (43D71)			
Flash #3 Mill (40G88)	266	0.23	0.99
Starch Product Bins (7V34, 7V35, 7V91, 7V92)	268, 269, 345, 346	0.2 each	0.89 each

*12 mo - Twelve consecutive month period with compliance determined at the end of each month.

Compliance with these limits will render the requirements of 40 CFR 52.21 and 326 IAC 2-2 not applicable **to emission units 43D71, 40G88, 7V34, 7V35, 7V91, and 7V92**.

~~(b) Pursuant to SSM 157-14974-00003, issued December 17, 2002, and CP 157-1872-00003, issued on August 10, 1990, amended on November 1, 1991:~~

~~(1) The PM/PM~~ $\cancel{_{10}}$ ~~emissions from the Starch Flash Dryer #2 (40D20) shall not exceed 3.30 pounds per hour. Compliance with this limit, and the on-stream time limit below, is equivalent to PM/PM~~ $\cancel{_{10}}$ ~~emissions of less than 12.5 tons per year.~~

~~(2) The PM/PM~~ $\cancel{_{10}}$ ~~emissions from Starch Grinder/Mill #1 (40G20) shall not exceed 0.22 pounds per hour. Compliance with this limit, and the on-stream time limit below, is equivalent to PM/PM~~ $\cancel{_{10}}$ ~~emissions of less than 0.83 tons per year.~~

~~(3) The PM/PM10 emissions from Starch Grinder/Mill #2 (40G21) shall not exceed 0.22 pounds per hour of PM or PM-10. Compliance with this limit, and the on-stream time limit below, is equivalent to PM/PM~~ $\cancel{_{10}}$ ~~emissions of less than 0.83 tons per year.~~

~~(4) On-stream time for the #2 Flash Dryer System (consisting of 40D20, 40G20, 40G21, and 40F27) and bins 7V20, 7V21, 7V22, and 7V23 shall be limited to 7534 hours of operation per twelve consecutive month period with compliance determined at the end of each month. The "on-stream time" is the amount of time that the #2 Flash Dryer System's dryer starch feed conveyor and the Starch Flash Dryer #2 (40D20) fan are both in operation.~~

~~(5) The Grinder Feed Collector (40F27) shall vent to the intake of the Starch Storage and Transfer Bin System.~~

~~(6) Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the flow rate of the wet scrubber controlling Starch Flash Dryer #2 shall be maintained at a minimum of 300 gallons of liquid per minute.~~

~~(7) Only one of bins 7V20, 7V21, 7V22, and 7V23 shall be loaded at any one time.~~

~~Compliance with these limits will render the requirements of 40 CFR 52.21 and 326 IAC 2-2 not applicable.~~

~~(c)~~ **(b)** Pursuant to CP (79) 1599, issued February 28, 1986, and OP 79-10-90-0406, issued October 16, 1987, the PM emissions from **emission unit** 40D1 shall not exceed 1.2 lb/hr and 5.3 tons per twelve month consecutive period with compliance determined at the end of each month. Compliance with this limit shall render the requirements of 40 CFR 52.21 and 326 IAC 2-2 not applicable **to emission unit 40D1**.

~~(d)~~ **(c)** Pursuant to A 157-6180-00003, issued on August 12, 1996, and CP 157-4569-00003, issued September 21, 1995:

(1) The PM/PM_{10} emissions from **emission unit** 43V90 shall not exceed 1.2 lb/hr;

Compliance with these limits is equivalent to total PM/PM_{10} emissions of less than 15 tons per year and will render the requirements of 40 CFR 52.21 and 326 IAC 2-2 not applicable **to emission unit 43V90**.

~~D.6.2~~ **D.6.3** Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2] **[40 CFR 52, Subpart P]**

(a) Pursuant to 326 IAC 6-3-2, particulate emissions from ~~facilities~~ **emission units** 40D1, 40F7, 7V8, 7V9, 40D20, 7V20, 7V21, 7V22, 40G20, 40G21, 43D71, 40G88, 7V23, 7V34, 7V35, 43V90, 7V91, 7V92, 41V10, 41V11, 33V44, 41F13, 30D1, 30F13, 30G1, 41C30, 41C35, 41V14, 41V15, 41V17, 41V18, 7F25, 7F26, 7V46, 7V47, 7V48, 7V49, 7V50, 25G1, 25F1, 16D4, 16D5, 50D101, ~~and~~ 50F106**, 41FAA, 41G202, 07VDD, 07VEE, 07VAA, 07VBB, 07VCC, 41VEE, 41VHH, 44GAA, 44GBB, 44DAA, 46DAA, and 51DAA** shall be limited using one of the following equations (as applicable):

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

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

Or depending on the process weight rate:

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

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

Note that the specific 326 IAC 6-3-2 limits have not been listed here as the process throughput of the respective facilities is treated as confidential.

(b) Pursuant to CP 157-5294-00003, issued September 5, 1996, A157-6170-00003, issued July 26, 1996, A 157-6571-00003, issued October 3, 1996, and in order to comply with 326 IAC 6-3-2:

(1) The PM_{10} emissions from ~~facilities~~ **emission units** 41F210, 41G200, 41V10, 41V11, 41G201, 41F201, 41F13, 30D1, 30F13, 30G1, 41C30, 41C35, 41V14, 41V15, 41V17, 41V18, ~~AND~~ **and** 33V44 are limited as indicated in the table below:

~~Facility~~ **Emission Unit**	Stack	PM-10 emission limit (pounds per hour)	PM-10 emission limit (tons per 12 mo)
Pneumatic Product Transfer Roll Dryer 41F210	95	0.21	0.94
Roll Dryer Mill 41G200	96	0.28	1.22
Product Bin #10 (41V10) and Product Bin #11 (41V11)	97 98	0.03	0.14

~~Facility~~ **Emission Unit**	Stack	PM-10 emission limit (pounds per hour)	PM-10 emission limit (tons per 12 mo)
Roll Dryer Mill 41G201	100	0.39	1.69
Pneumatic Product Transfer to Roll Dryer ~~41G201~~ **41F201**	101	0.3	1.3
Bulk Bag Dump Station (41F13)	344	0.03	0.11
Spray Dryer (30D1)	82	4.45	19.49
Product Transfer to Milling (30F13)	~~360~~ **83**	0.07	0.31
Dryer Mill (30G1)	~~360~~ **84**	0.95	4.17
Product Transfer to Bins #14, #15 (41C30), Product Transfer to Bins #17, #18 and #44 **(41C35)**	85 86	0.13	0.57
Product Bin #14 (41V14), Product Bin #15 (41V15), Product Bin #17 (41V17) and Product Bin #18 (41V18)	87 88 89 90	0.02	0.22
Product Bin #44 (33V44)	~~285~~ **248**	0.05	

*12 mo - Twelve consecutive month period with compliance determined at the end of each month.

(2) The opacity from facilities 41F210, 41G200, 41F201, 41G201, and 33V44 shall not exceed zero percent (0%).

(3) **Following modification or shutdown of the facilities listed in Section D.6.3(b)(1), as described in Section D.6.1(a), Section D.6.3(b) shall continue only to apply to facilities 41F13, 30D1, and 30G1**

(c) Pursuant to MSM 157-11907-00003, issued May 16, 2000, and in order to ensure compliance with 326 IAC 6-3-2, the allowable PM emission rate from ~~facilities~~ **emission units** 50D101 and 50F106 shall not exceed 1.10 and 0.10 pounds per hour, respectively.

~~D.6.3~~ **D.6.4** Volatile Organic Compounds: Best Available Control Technology [326 IAC 8-1-6] ~~[40 CFR 52.21]~~ [326 IAC 2-2-**3**]

~~Pursuant to 326 IAC 8-1-6, and CP 157-10232-00003, issued October 12, 1999:~~

Pursuant to 326 IAC 2-2-3, and 326 IAC 8-1-6, the VOC BACT for emission units 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, ~~and~~ 45V281, 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF shall be the use of the scrubbers 45F212, and 45FAA ; and

~~(b)~~ **(a)** The VOC emissions from ~~scrubber~~ **scrubbers** 45F212, and **45FAA** controlling emissions from ~~facilities~~ **emission units** 45V223, ~~45V224~~, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, ~~and~~ 45V281, **45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF** shall not exceed 3.25 lb per 100,000 lb of acid-killed starch and 6.0 lb per 100,000 lb of non-acid-killed starch (equivalent to a ~~minium~~ **minimum** 95% overall control efficiency).

~~Compliance with these limitations is equivalent to total VOC emissions of less than 5.15 tons per year, will satisfy the requirements of 326 IAC 8-1-6, and render the requirements~~

~~of 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration) not applicable~~.

~~(a)~~ **(b)** The combined propylene oxide input to facilities (listed in Section D.5) **45VAA, 45VBB, 45VCC, 45VDD, 45VEE, 45VFF,** 40V1, 40U2, 40Y1, 40V50, 40V20, 40V21, 40V15, 40V16, 40F51, 40F52, 40F53, 40F54, 40U23, 43V71, 43V72, 43F71, 43F72, 43F73, 43V85, 43V86, 45V117, 45V118, 45V119, 45V120, 30V1, 30V2, 40V12, 40V11, 40V14, 45V223, ~~45V224~~, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, **44V1, 44V2, 44V3, 44V4**, **44V5,44FKK, 44FLL, 44FMM, 46V1, 46V2, 46V3, 46V4, 46V5,** (listed in Section D.6) 40D1, 40D20, 43D71, 41D1, 41D2, 41D3, 41D4, 41D5, 41D6, 41D7, 41D8, **41D9, 41D10, 41D11, 41D12, 41D13, 41D14,** 30D1, 16D4, 16D5**,** ~~and~~ **44DAA, and 46DAA** shall not exceed ~~15,000~~ **1500** tons **for propylated starch reactions that do not undergo the acid-kill step** per twelve consecutive month period with compliance determined at the end of each month.

~~D.6.4~~ **D.6.5** Preventive Maintenance Plan [326 IAC 2-7-5(13)]

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

~~D.6.5~~ **D.6.6** Particulate Control

(a) In order to comply with Conditions D.6.1**,** ~~and~~ D.6.2 **and D.6.3**, baghouses, including those integral to the process, 40F7, 7F8, 7F9, 7F20, 7F21, 7F22, 40F28, 40F29, 7F33, 7F34, 7F35, 40F88, 43F90, 7F91, 7F92, ~~41 F1, 41F2~~, 41F210, ~~41G200~~, **41F200**, ~~41F1, 41F2~~, 41F10, 41F11, 41F211, 41F201, 33F44, 41F13, 30F2, 30F3, 30F13, 30F15, 41F14, 41F15, 41F20, 41F21, **41F54,** 41F16, 41F17, 41F22, 41F23, 25F1, 25F2, 7F73, 7F72, 7F71, 7F70, 7F69, 7F26, 7F25, 50F102, ~~and~~ 50F106**, 41FAA, 41F202, 07FDD, 07FEE, 07FAA, 07FBB, 07FCC, 41FEB, 41FEE, 41FHH, 44FII, 44FJJ, 46FGG through 46FLL, and 51FCC** ~~40F28, 40F29, 7F20, 7F21, 7F22, and 7F33~~**,** for particulate control shall be in operation and control particulate emissions from facilities 40F7, 7V8, 7V9, 7V20, 7V21, 7V22, 40G20, 40G21, 40G88, 7V23, 7V34, 7V35, 43V90, 7V91, 7V92, 41F210, 41G200, 41V10, 41V11, 41G201, 41F201, 33V44, 41F13, 30D1, 30F13, 30G1, 41C30, 41C35, 41V14, 41V15, 41V17, 41V18, 7F25, 7F26, 7V46, 7V47, 7V48, 7V49, 7V50, 25G1, 25F1, 50D101, ~~and~~ 50F106**, 41FAA, 41G202, 07VDD, 07VEE, 07VAA, 07VBB, 07VCC, 41VEE, 41VHH, 44GAA, 44GBB, 46DAA, and 51DAA** ~~40G20, 40G21, 7V20, 7V21, 7V22, 7V23~~ at all times those facilities are in operation.

(b) Pursuant to CP 157-5294-00003, issued September 5, 1996, A 157-6571-00003, issued October 3, 1996, and in order to comply with Condition ~~D.6.2~~ **D.6.3**, the particulate emissions from facilities 41F210, 41G200, 41V10, 41V11, **41G201** ~~41G210~~, 41F201, 41F13, 30D1, 30F13, 30G1, 41C30, 41C35, 41V14, 41V15, 41V17, 41V18 and 33V44 shall be considered in compliance that:

(1) The respective baghouses shall be operated at all times when the facilities are in operation. To facilitate compliance, opacity shall not exceed zero percent (0%).

(2) ~~The Product Transfer to Bins #14, #15 (41C30), Product Transfer to Bins #17, #18, and #44 (41C35) shall not be operated simultaneously, and only one of the product storage bins (41V14, 41V15, 41V17, 41V18 and 33V44) shall be loaded at any one time.~~

(3) ~~Only one of the Product Bins (41V10 or 41V11) shall be loaded at any one time.~~

(4) Following modification or shutdown of the facilities listed in Section D.6.6(b), as described in Section D.6.1(a), Section D.6.6(b) shall no longer be effective.

(c) In order to comply with ~~Condition D.6.1 and Condition~~ **Conditions D.6.1**, D.6.2 **and D.6.3**, scrubbers 40F3, 40F26, 16F26, 17F78, 16F27, 17F79, ~~and~~ 43F80**, and 44FGG** for particulate control shall be in operation and control emissions from facilities 40D1, 40D20, 16D4, 16D5, ~~and~~ 43D71, **and 44DAA** at all times the respective facilities are in operation.

~~D.6.6~~ **D.6.7** Testing Requirements [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

(a) ~~Pursuant to SSM 157-14974-00003, issued December 17, 2002, t~~ The Permittee shall perform PM and PM_{10} testing on the Starch Flash Dryer #2 (40D20) **and Flash Dryer #4(44DAA**) ~~and either Grinder Mill #1 (40G20) or Grinder Mill #2 (40G21)~~ within 60 days after achieving the maximum production rate but no later than 180 days after startup **of Flash dryer #4 (44DAA).** Testing shall be completed utilizing methods approved by the Commissioner.

PM_{10} includes filterable and condensable PM_{10}. ~~If filterable PM_{10} is assumed to be 100% of filterable PM, only PM tests need to be performed.~~ This testing is necessary to demonstrate compliance with Condition D.6.1(b) and shall be repeated at least once every five (5) years from the date of the valid compliance demonstration.

(b) **Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup, the Permittee shall perform PM and PM_{10} testing on storage bin baghouses (07FDD, 07FEE, 07FAA, 07FBB, 07FCC, 41F10, 41F11, 41FHH, 41F16, 41F17, 41F22, 41F23, 33F44, 41FEB, 41FHH,7F20, 7F21, 7F22, or 7F33), and the starch milling baghouses (41F202, 44FII, 44FJJ, 40F28, 40F29) to verify compliance with D.6.1(a), utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.**

These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. PM_{10} includes filterable and condensable PM10. Testing shall be conducted in accordance with Section C- Performance Testing.

~~D.6.7~~ **D.6.8** Visible Emissions Notations

(a) Visible emission notations of the exhaust from stacks 265**, 360, 388,** ~~355, 361~~, and 177 shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) Visible emission notations of the exhaust from stacks 73, 76, 77, 78, 105, 106, 107, 108, 109, 266, 267, 268, 269, 274, 345 and 345 ~~286, 287, 345, 346, 349, and 350~~ shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(c) For processes operated continuously, not including operations associated with 50D101 or 50F106, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(d) In the case of batch or discontinuous operations, not including operations associated with 50D101 or 50F106, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

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

(f) The Compliance Response Plan for these units, not including 50D101 or 50F106, shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(g) For units 50D101 and 50F106, when an abnormal emission is observed, the Permittee shall complete a Pollution Control Equipment Maintenance and Inspection Log sheet.

~~D.6.8~~ **D.6.9** Monitoring for Scrubbers

(a) A continuous monitoring system shall be installed and operated at all times scrubber 40F26 is in operation. The monitoring system shall continuously measure and record the scrubber recirculation rate from scrubber 40F26 controlling emissions from ~~facility~~ **emission unit** 40D20. The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when any ~~1-hr average~~ recirculation rate is below 300 gallons per minute **or a minimum flow rate established during the latest stack test** for any one reading. A flow rate reading that is below the minimum flow rate is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(b) A continuous monitoring system shall be installed and operated at all times scrubber 43F80 is in operation. The monitoring system shall continuously measure and record the scrubber recirculation rate from scrubber 43F80 controlling emissions from ~~facility~~ **emission unit** 43D71. The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when ~~any 1-hr average~~ recirculation rate is below 300 gallons per minute **or a minimum flow rate established during the latest stack test** for any one reading. A flow rate reading that is below the minimum flow rate is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(c) The Permittee shall monitor the scrubber recirculation rate at least once per shift from scrubbers 40F3, 16F26, 17F78, 16F27, and 17F79 controlling emissions from ~~facilities~~ **emission units** 40D1, 16D4, and 16D5. The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when the flow rate readings are outside of the normal range, as specified by the manufacturer, **or a minimum flow rate established during the latest stack test** for any one reading. A flow rate reading that is outside the normal range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(d) A continuous monitoring system shall be installed and operated at all times the scrubber 44FGG is in operation. The monitoring system shall continuously measure and record the scrubber recirculation rate from scrubber 44FGG controlling emissions from emission unit 44DAA. The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when the recirculation rate is below 300 gallons per minute or a minimum flow rate established during the latest stack test for any one reading. A flow rate reading that is below the minimum flow rate is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance

Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

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

~~D.6.9~~ **D.6.10** Scrubber Inspections

(a) An **external** inspection of the scrubber controlling emissions from ~~facilities~~ **emission units** 40D20 and 43D71 shall be performed at least semi-annually. Inspections required by this condition shall not be performed in consecutive months. Repairs or replacement of defective components shall be performed in accordance with the Preventive Maintenance Plan.

(b) An **external** inspection of the scrubbers controlling emissions from ~~facilities~~ **emission units** 40D1, 16D4, and 16D5 shall be performed at least semi-annually. Inspections required by this condition shall not be performed in consecutive months Repairs or replacement of defective components shall be performed in accordance with the Preventive Maintenance Plan.

(c) An external inspection of the scrubber 44FGG controlling emissions from emission unit 44DAA shall be performed at least semi-annually. Inspections required by this condition shall not be performed in consecutive months. Repairs or replacement of defective components shall be performed in accordance with the Preventive Maintenance Plan.

~~D.6.10 Scrubber Malfunction~~

~~In the event that a scrubber malfunction has been observed:~~

~~(a) The affected unit will be shut down immediately in accordance with safe operating procedures until the failed unit has been repaired or the appropriate components replaced.~~

~~(b) Based upon the findings of the inspection, any additional corrective actions will be devised within eight (8) hours of discovery and will include a timetable for completion.~~

D.6.11 Monitoring for Baghouses

(a) The Permittee shall record the total static pressure drop across baghouses 40F88, 43F90, 7F73, 7F72, 7F71, 7F70, ~~and~~ 7F69, **41F202, 07FDD, 07FEE, 07FAA, 07FBB, 07FCC, 41FEB, 41FHH, 44FII, 44FJJ, 46FGG through 46FLL, 51FCC 40F28, 40F29, 7F20, 7F21, 7F22, and 7F33** used in conjunction with facilities 40G88, 43V90, 7V46, 7V47, 7V48, 7V49, ~~and~~ 7V50, **41G202, 07VDD, 07VEE, 07VAA, 07VBB, 07VCC, 41VEE, 41VHH, 44GAA, 44GBB, 46DAA, 51DAA, 40G20, 40G21, 7V20, 7V21, 7V22, 7V23** at least once per day when the respective facilities are in operation.

(b) When, for any one reading, the pressure drop across the baghouses are outside the normal range of ~~3.0 and 6.0~~ **1 and 8.0** inches of water or a range established during the last stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

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

D.6.12 Baghouse Inspections

(a) An external inspection of **baghouses 50F102**, ~~50D101~~ ~~and~~ 50F106, **41F202, 07FDD, 07FEE, 07FAA, 07FBB, 07FCC, 41FEB, 41FHH, 44FII, 44FJJ, 46FGG through 46FLL, 51FCC 40F28, 40F29, 7F20, 7F21, 7F22, and 7F33** shall be performed at least semi-annually. Inspections required by this condition shall not be performed in consecutive months.

(b) An internal inspection of all bags, ~~controlling emissions from facilities~~ in baghouses 50F102, ~~50D101~~, 50F106, ~~40G88, 43V90, 7V46, 7V47, 7V48, 7V49, and 7V50~~, **40F88, 43F90, 7F69, 7F70, 7F71, 7F72, and 7F73**, shall be performed at least once per calendar year. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

(c) Inspections shall also be performed before a respective baghouse that has been secured and tagged as being out of service is returned to service. All defective bags shall be replaced.

D.6.13 Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit. If operations continue after bag failure has been observed and it will be 10 (ten) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

(b) For single compartment baghouses~~, not including baghouses 50F102 and 50F106~~, if failure is indicated by a significant drop in the baghouses pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(c) ~~The affected compartments of baghouses 50F102 and 50F106 will be shut down immediately until the failed units have been repaired or replaced. If appropriate, an investigation regarding the cause of bag failure will be conducted and an appropriate response will be initiated within 24 hours of discovery.~~

D.6.14 Record Keeping Requirements

~~(a) To document compliance with Condition D.6.1(b), records shall be made and kept of the:~~

~~(1) Scrubbant flow rate for the wet scrubber controlling emissions from facility 40D20.~~

~~(2) On-stream time for 40D20, 40G20, 40G21, 40F27, and 7V20 through 7V23 per calendar month.~~

~~These records are necessary to render 326 IAC 2-2 and 40 CFR 52.21 not applicable.~~

~~(b)~~ **(a)** To document compliance with Condition ~~D.6.3~~ **D.6.4**, the Permittee shall maintain monthly records ~~of the input propylene oxide~~ **for propylated starch reactions that do not undergo the acid-kill step** to facilities **45VAA, 45VBB, 45VCC, 45VDD, 45VEE, 45VFF,** 40V1, 40U2, 40Y1, 40V50, 40V20, 40V21, 40V15, 40V16, 40F51, 40F52, 40F53, 40F54, 40U23, 43V71, 43V72, 43F71, 43F72, 43F73, 43V85, 43V86, 45V117, 45V118, 45V119, 45V120, 30V1, 30V2, 40V12, 40V11, 40V14, 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281**, 44V1, 44V2, 44V3, 44V4, 44V5,44FKK, 44FLL, 44FMM, 46V1, 46V2, 46V3, 46V4, 46V5**, 40D1, 40D20, 43D71, 41D1, 41D2, 41D3, 41D4, 41D5, 41D6, 41D7, 41D8, **41D9, 41D10, 41D11, 41D12, 41D13, 41D14,** 30D1,16D4, ~~and~~ 16D5**, 44DAA, and 46DAA**. This record is the same record as required in Condition ~~D.5.15(b)~~ **D.5.16(b)**.

~~(c)~~ (b) A log of the information necessary to document compliance with Condition ~~D.6.5~~ **D.6.6** shall be maintained.

~~(d)~~ (c) The maximum production capacity of the #2 Flash Dryer System is treated as confidential and shall be kept at the emission source for the life of the facility.

~~(e)~~ (d) To document compliance with Condition ~~D.6.7~~ **D.6.8**, the Permittee shall maintain records of the visible emission notations of the stack exhaust.

~~(f)~~ (e) To document compliance with Conditions ~~D.6.8(a) and D.6.8(b)~~ **D.6.9(a) and D.6.9(b)**, the Permittee shall maintain records of the scrubber recirculation rate as read by the continuous monitor for 40F26 and 43F80.

~~(g)~~ (f) To document compliance with Condition ~~D.6.8(c)~~ **D.6.9(c)**, the Permittee shall maintain records of the scrubber recirculation rate at least once per shift from scrubbers 40F3, 16F26, 17F78, 16F27, and 17F79 controlling emissions from facilities 40D1, 16D4, and 16D5.

(g) To document compliance with Conditions D.6.9(d), the Permittee shall maintain records of the scrubber recirculation rate as read by the continuous monitor for scrubber 44FGG.

(h) To document compliance with Condition D.6.11, the Permittee shall maintain records of the total static pressure drop during normal operation.

(i) To document compliance with Condition ~~D.6.9~~ **D.6.10** and D.6.12, the Permittee shall maintain records of the results of the inspections

~~(j) A record shall be kept of the number of filters replaced from the baghouses controlling emissions from facilities 7V20, 7V21, 7V22, 7V23, 7V34, 7V35, 7V90, and 7V91 in order to document compliance with Condition D.6.1(b)~~

(j) To document compliance with Condition ~~D.6.4~~ **D.6.5**, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

D.6.15 Reporting Requirements

A quarterly summary of the information used to document compliance with Conditions ~~D.6.1(b) D.6.3~~ **D.6.4(b)** shall be submitted to the address listed in Section C - General Reporting Requirements, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34). ~~Note that the report for Condition D.6.3 is the same report as required in Condition D.5.17.~~

D.6.16 Clean Unit [326 IAC 2-2.2-2]

Pursuant to 326 IAC 2-2.2-2,

(a) The following emissions units are classified as Clean Units for PM/PM$_{10}$:

(1) Product Storage Bin #AA (07VAA)

(2) Product Storage Bin #BB (07VBB)

(3) Product Storage Bin #CC (07VCC)

(4) Starch Blend Bin #1 (07VDD)

(5) Starch Blend Bin #2 (07VEE)

(6) Product Storage Bin #10 (41V10)

(7) Product Storage Bin #11 (41V11)

(8) Product Storage Bin #HH (41VHH)

(9) Roll Dryer Mill Feed Collector (41FAA)

(10) Roll Dryer System Mill (41G202).

(11) Product Transfer to Milling (30F13)

(12) Product Transfer to Bins 14& 15 (41C30)

(13) Product Transfer to Bins 17, 18, 44, & EE (41C35)

(14) Product Bin 14 (41V14)

(15) Product Bin 15 (41V15)

(16) Product Bin 17 (41V17)

(17) Product Bin 18 (41V18)

(18) Product Storage Bin #EE (41VEE)

(19) Product Bin (33V44)

(20) Mill #3 (44GAA)

(21) Mill #4 (44GBB)

(22) Starch Grinder/Mill #1 (40G20)

(23) Starch Grinder/Mill #2 (40G21)

(24) Starch Product Bin #20 (7V20)

(25) Starch Product Bin #21 (7V21)

(26) Starch Product Bin #22 (7V22)

(27) Starch Product Bin #23 (7V23)

(28) Spray Dryer #2 (46DAA)

(29) Spray Dryer #3 (51DAA)

(30) Starch Flash Dryer #2 (40D20)

(31) Starch Flash Dryer #4 (44DAA).

(b) The following emissions units are classified as Clean Units for NOx:

Starch Spray Dryer #2 (46DAA)

Starch Spray Dryer #3 (51DAA)

Starch Flash Dryer #4 (44DAA).

(c) The Clean Unit designations for the above emissions units are in effect for ten (10) years after the issuance date of the source modification permit or the date the emission's unit control technology is placed in service, whichever is later.

Reporting form changed to show the limit in condition D.6.4(b).

SECTION D.7 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]: (g) Starch Packaging and Loadout Operations, consisting of: (1) One (1) Product Bin #6/House Vacuum System, identified as 17V6 and 17F5, constructed in 1984, with emissions controlled by baghouse 17F6, exhausting ~~to stack 190~~ **via vent 190 into stack 177**; (2) One (1) Product Transfer to Main Packer #1, identified as 16F5, constructed in

1966, with emissions controlled by baghouse 16F5, exhausting to stack 102;

(3) One (1) Cationic Product Receiver for Packer #1, identified as 17F27, constructed in 1966, with emissions controlled by baghouse 17F27, exhausting to stack 102;

(4) One (1) Packer #1, identified as 17Z38, constructed in 1966, with emissions controlled by baghouse 17F10, exhausting into stack 177;

(5) One (1) Reprocess Bag/Tote Dump, identified as 17U58, constructed in 1997, with emissions controlled by baghouse 17F58, exhausting indoors **to stack 334;**

(6) One (1) Bag Packer #2 House Dust Collector, identified as 17F2, constructed in 1995, with emissions controlled by baghouse 17F2, exhausting to stack 177;

(7) One (1) Bag Packer #2, identified as 17Z01, constructed in 1995, with emissions controlled by baghouse 17F01, exhausting to stack 177;

(8) One (1) Spray Dryer Product Transfer to Bag Packer #3 **(North Spouts)**, identified as 41F7, constructed in 1986, with emissions controlled by ~~baghouses~~ **baghouse** 41F7, exhausting **via vent 184** to stack **355.** ~~184;~~

(9) One (1) Spray **Dryer Products Bag Packer #3 (North Spouts),** identified as **41Z 3**, constructed in 1986, with emissions controlled by baghouse 41F7, exhausting **via vent 184** to stack ~~184~~ **355**;

(10) One (1) Roll **Dried, Dry Starch Reaction System, & Malto Products transfer to** Bag Packer #3 **(South Spouts)**, identified as 41F18, constructed in 1986, with emissions controlled by baghouse 41F18, exhausting **via vent 186** to stack **355.** ~~186;~~

(11) One (1) **Roll Dried, Dry Starch Reaction System, &** Malto Bag Packer **#3 (South Spouts),** identified as **41Z** ~~5~~, constructed in 1986, with emissions controlled by baghouse 41F18 exhausting **via vent 186** to stack **355.** ~~186~~;

(12) One (1) Bag Packer #4, identified as 17Z03, constructed in 1995, with emissions controlled by baghouses 17F03 and 17F04, exhausting **via vent 332** to stack ~~332~~ **356** ;

(13) One (1) House Dust Collection System for Bag Packer #4, identified as 17F15, constructed in 1995, with emissions controlled by baghouse 17F15, exhausting **via vent 333** to stack ~~333~~ **356**;

(14) One (1) Bag Packer #3 House Dust Collector, identified as 41F44, constructed in 1995, with emissions controlled by baghouse 41F44, exhausting **via vent 256** to stack ~~256~~ **361**;

(15) One (1) Product Transfer for #1 Bulk Bagger, identified as 16F25, constructed in 1988, with emissions controlled by baghouse 16F25, exhausting ~~to stack 191~~ **via vent 191 into stack 177**;

(16) One (1) Bulk Bagger #2, identified as 17Z14, constructed in 1996, with emissions controlled by baghouse 17F14, exhausting to stack 254;

(17) Three (3) Product Receivers for #3 Bulk Bagger, identified as 41F8, 41F81, and

41F82, constructed in 1988, 1997, and 1997 respectively, with emissions controlled by baghouses 41F8, 41F81, and 41F82, exhausting **via vent 208** to stack **355.** ~~208;~~

(18) One (1) Bulk Starch Rail Loadout (Track #10), identified as 20F60, constructed in 1993, with emissions controlled by baghouse 20F60, exhausting to stack ~~79~~ **404**;

(19) One (1) Starch Truck/Rail Loadout (Track #9), identified as 20F61, constructed in 1966, with emissions controlled by baghouse 20F61, exhausting **via vent 135** to stack ~~135~~ **404**;

(20) One (1) J4 Starch Rail Loadout System, identified as **16F8** ~~16F100~~, constructed in 1989, with emissions controlled by baghouse 16F100, exhausting ~~to stack 183~~ **via vent 183 into stack 177**;

(21) One (1) Dextrin/Roll/Spray Cooked Starch Bulk Truck Loadout, identified as **33 Bldg. Truck Loadout**, constructed in 1988, with emissions controlled by baghouses 41F6 **and 41FLL,** exhausting to stack 189;

(22) One (1) Pneumatic Truck Loadout, identified as Truck Loadout, constructed in 1997, with emissions controlled by baghouses 20F78 and 20F79, exhausting **via vent 264** to stack ~~264~~ **404**;

(23) One (1) Bulk #1 Product Screening System, identified as 20F1, constructed in 1997, with emissions controlled by baghouse 20F1, exhausting **via vent 330** to stack ~~330~~ **404**;

(24) One (1) Bulk #2 Product Screening System, identified as 20F50, constructed in 1997, with emissions controlled by baghouse 20F50, exhausting **via vent 331** to stack ~~331~~ **404**; ~~and~~

(25) One (1) Spray Dryer #3 Packer Baghouse (Pneumatically transferred), identified as 51FDD, with emissions controlled by baghouse 51FDD, exhausting via vent 362 to stack 361;

(26) Two (2) Packer #6 Product Receivers, identified as 17FBB and 17FDD, with emissions controlled by baghouses 17FBB and 17FDD, exhausting via vent 380 to stack 356;

(27) One (1) Packer #6 House Dust Collector, identified as 17FCC, with emissions controlled by baghouse 17FCC, exhausting via vent 381 to stack 356;

(28) One (1) Bulk Bagger #4 Product Receiver, identified as 17FAA, with emissions controlled by baghouse 17FAA, exhausting via vent 382 to stack 356;

(29) One (1) #3 Bulk Starch Rail Loadout Receiver, identified as 20FAA, with emissions controlled by baghouse 20FAA, exhausting via vent 263 to stack 404;

(30) One (1) #3 Bulk Loadout Screening System Filter Receiver, identified as 20FBB, with emissions controlled by baghouse 20FBB, exhausting via vent 393 to stack 404;

(31) One (1) Bag Dump Station Bin Vent, identified as 18FBB, with emissions controlled by baghouse 18FBB, exhausting indoors via vent 426; and

(32) One (1) O.S. Starch Product Transfer to Bag Packer #3 (South Spouts), identified as 41FCC, with emissions controlled by baghouse 41FCC, exhausting via vent 223 to stack 355.

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

D.7.1 Prevention of Significant Deterioration **BACT Requirements** [326 IAC 2-2**-3**] ~~[40 CFR 52.21]~~

~~Pursuant to SSM 157-14974-00003, issued December 17, 2002, and CP 157-1872-00003, issued on August 10, 1990, amended on November 1, 1991:~~

~~(a) The PM/PM10 emissions from facility 20F60 shall not exceed 0.15 pounds per hour. Compliance with this limit, and the on-stream time limit below, is equivalent to PM/PM10 emissions of less than 0.33 tons per year.~~

~~(b) On-stream time for facility 20F60 shall not exceed 4380 hours of operation per twelve consecutive month period with compliance determined at the end of each month. For this facility, the "on-stream time" is defined as the amount of time that the loadout blower is in operation.~~

~~Compliance with these limitation renders the requirements of 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration) not applicable.~~

(a) Pursuant to 326 IAC 2-2-3, the following emission units shall be controlled for PM and PM_{10} using BACT:

(1) Spray Dryer #3 Packer Baghouse (51FDD)

(2) Packer #6 Product Receivers (17FBB and 17FDD)

(3) Packer #6 House Dust Collector (17FCC)

(4) Bulk Bagger #4 Product Receiver (17FAA)

(5) #3 Bulk Starch Rail Loadout Receiver (20FAA)

(6) #3 Bulk Loadout Screening System Filter Receiver (20FBB)

(7) Bulk Starch Rail Loadout (20F60)

(8) Bag Dump Station (18FBB)

(b) For these units, the BACT for PM and PM_{10} (Filterable and Condensible) is the use of fabric filter dust collectors with an emission rate of 0.005 gr/dscf; and

(1) the total PM /PM_{10} (Filterable and Condensable) emissions shall be limited to as follows;

Emission Unit	**Baghouse**	**Lbs/hr**
51FDD	**51FDD**	**0.06**
17FBB	**17FBB**	**0.13**

&17FDD	**&17FDD**	
17FCC	**17FCC**	**0.67**
17FAA	**17FAA**	**0.08**
20FAA	**20FAA**	**0.08**
20FBB	**20FBB**	**0.09**
20F60	**20F60**	**0.09**
18FBB	**18FBB**	**0.02;**

(2) The opacity from the stack exhausts except from Spray Dryer #3 Packer Baghouse (51FDD) and Bagdump Station shall not exceed 3%;

(3) The opacity from Spray Dryer #3 Packer Baghouse (51FDD) shall not exceed 8%; and

(4) The Bag Dump Station (18FBB) shall exhaust inside the building.

D.7.2 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2] **[40 CFR 52, Subpart P]**

(a) Pursuant to 326 IAC 6-3-2, particulate emissions from ~~facilities~~ **emission units** 17V6, 17F5, 16F5, 17F27, 17Z38, 17U58, 17Z01, 17F2, 41F7, 41Z5, 41F18, 41Z3, 41F44, 17Z03, 17F15, 16F25, 17Z14, 41F8, 41F81, 41F82, 20F60, 20F61, 16F100, 41F6, 20F78, 20F79, 20F1, ~~and~~ 20F50, 41FLL, 41FCC, **51FDD, 17FBB, 17FDD, 17FCC, 17FAA, 20FAA, 20FBB, and 18FBB** ~~20F60~~ shall be limited using one of the following equations (as applicable):

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

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

Or depending on the process weight rate:

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

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

(b) Pursuant to CP 157-4160-00003, issued April 5, 1995, and in order to ensure compliance with 326 IAC 6-3-2, the PM emissions from facilities 17Z01, 17F2, 17Z14, and Truck Loadout, are limited as indicated in the table below:

Facility	Stack	PM emission limit **lbs/hr** (~~tons per 12 mo~~)
Bag Packer #2 (17Z01)	177	~~0.77~~ **0.17**
House Dust Collector Bag Packer #2 (17F2)	177	~~4.81~~ **1.1**
Bulk Bagger #2 (17Z14)	254	~~0.39~~ **0.08**

Pneumatic Truck Loadout (Truck Loadout)	~~264~~ **404**	~~0.64~~ **0.12**

~~*12 mo - Twelve consecutive month period with compliance determined at the end of each month.~~

(c) Pursuant to CP 157-5294-00003, issued September 5, 1996, A 157-6571-00003, issued October 3, 1996, revised through the Part 70 permit, and in order to comply with 326 IAC 6-3-2, the particulate matter emissions from facilities 41F7, 41Z5, 41F18, 41Z3, 41F8, 41FCC, 41F81, 41F82, ~~and~~ 41F6**, and 41FLL** are limited as indicated in the table below:

Facility	Stack	PM10 emission limit (pounds per hour)	PM10 emission limit (tons per 12 mo)
Spray Dryer Product Transfer to Bag Packer #3 (41F7) and Spray Dryer Products Starch Bag Packer #3 North Spouts ~~Packer #3~~ (41Z3)	~~184~~ **355**	0.12	0.80
Roll Dried, Dry Starch Reaction System, **& Malto** Product Transfer to Bag Packer #3 (41F18) and Roll Dried, Dry Starch Reaction System, **& Malto** Products Bag Packer (South Spouts Packer #3) (41Z5) **and O.S. Starch Product Transfer to Bag Packer #3 (41FCC)**	~~186~~ **355**	0.18	
Product Transfer System for #3 Bulk Bagger (41F8, 41F81, and 41F82)	~~208~~ **355**	0.11	0.50
Dextrin/Roll/Spray Cooked Starch Bulk Truck Loadout (41F6 **and 41FLL**)	189	0.04	0.18

*12 mo - Twelve consecutive month period with compliance determined at the end of each month.

(d) Pursuant to Exemption 157-8071-00003, issued February 7, 1997, the PM emissions from 20F1 and 20F50 are each limited to 1.0 pounds per hour to ensure compliance with 326 IAC 6-3-2.

(e) Pursuant to CP 157-4569-00003, issued September 21, 1995, and A 157-6180-00003:

(1) The PM emissions from 17Z03 (controlled by baghouses 17F15, 17F03 and 17F04) shall not exceed 2.2 pounds per hour (equivalent to less than or equal to 9.63 tons per year) to ensure compliance with 326 IAC 6-3-2.

(2) Only one of the baghouses, 17F03 or 17F04, shall be operated at a time.

D.7.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these ~~facilities~~ **emission units** and their baghouses.

D.7.4 Particulate Control

(a) In order to comply with Condition D.7.1 and Condition D.7.2, baghouses, including those integral to the process, 17F6, 17F5, 16F5, 17F27, 17F10, 17F58, 17F01, 17F2, 41F7, 41F18, 41F44, 17F03, 17F04, 17F15, 16F25, 17F14, 41F8, 41F81, 41F82, 20F60, 20F61, 16F100, 41F6, 20F78, 20F79, 20F1, ~~and~~ 20F50, **41FLL, 41FCC**, **51FDD, 17FBB, 17FDD, 17FCC, 17FAA, 20FAA, 20FBB, and 18FBB** ~~20F60~~ for particulate control shall be in operation and control particulate emissions from ~~facilities~~ **emission units** 17V6, 17F5, 16F5, 17F27, 17Z38, 17U58, 17Z01, 17F2, 41F7, 41Z5, 41F18, 41Z3, 41F44, 17Z03, 17F15, 16F25, 17Z14, 41F8, 41F81, 41F82, 20F60, 20F61, 16F100, 41F6, Truck Loadout, 20F1, ~~and~~ 20F50, **41FCC, 51FDD, 17FBB, 17FDD, 17FCC, 17FAA, 20FAA, 20FBB, and 18FBB** ~~20F60~~ at all times those ~~facilities~~ **emission units** are in operation.

(b) Pursuant to CP 157-5294-00003, issued September 5, 1996, A 157-6571-00003, issued October 3, 1996, and in order to comply with Condition D.7.1, the particulate emissions from ~~facilities~~ **emission units** 41F7, 41Z5, 41F18, 41Z3, 41F8, 41F81, 41F82, and 41F6 shall be considered in compliance that:

(1) the respective baghouses shall be operated at all times when the ~~facilities~~ **emission units** are in operation. To facilitate compliance, opacity shall not exceed zero percent (0%); and

(2) only one of the tote packer product receivers (41F8, 41F81, and 41F82) shall be operated at any one time.

(3) Following the routing of emission units 41F7, 41Z5, 41F18, 41Z3, 41F8, 41F81, and 41F82 to the new starch area stack, S/V 355, opacity limits in D.7.4(b)(1) shall only apply to emission unit 41F6.

D.7.5 Testing Requirements [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup, the Permittee shall perform PM and PM_{10} testing on baghouses (51FDD, 17FBB, 17FDD, 17FCC, 17FAA, 20FAA, 20FBB, 20F60, and 18FBB to verify compliance with D.7.1, utilizing methods as approved by the Commissioner, and furnish the Commissioner a written report of the results of such performance tests.

These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. PM_{10} includes filterable and condensable PM10. Testing shall be conducted in accordance with Section C- Performance Testing.

~~D.7.5~~ **D.7.6** Visible Emissions Notations

(a) Visible emission notations of the exhaust from stacks 177, ~~333~~, **355, 356**, **361,** and **404** ~~**and**~~ ~~256~~ shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) Visible emission notations of the exhaust from stack ~~79, 190~~, 102 ~~135, and 183~~ shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

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

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

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

(f) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

~~D.7.6~~ **D.7.7** Monitoring for Baghouses

(a) The Permittee shall record the total static pressure drop across baghouses 17F10, 17F01, 41F44, ~~and~~ 17F15, **51FDD, 17FBB, 17FDD, 17FCC, 17FAA, 20FAA, 20FBB, and 20F60,** used in conjunction with facilities 17Z38, 17Z01, 41F44, ~~and~~ 17F15, **51FDD, 17FBB, 17FDD, 17FCC, 17FAA, 20FBB, and 20F60,** at least once per shift when the respective facilities are in operation.

(b) The Permittee shall record the total static pressure drop across baghouses 17F6, 16F5, 17F27, ~~20F60,~~ 20F61 and 16F100, used in conjunction with facilities 17V6, 17F5, 17F27, ~~20F60,~~ 20F61, and 16F100, at least once per day when the respective facilities are in operation.

(c) When, for any one reading, the pressure drop across the baghouses are outside the normal range of **1** ~~3.0~~ and **8.0** ~~6.0~~ inches of water or a range established during the last stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

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

~~D.7.7~~ **D.7.8** Baghouse Inspections

(a) ~~An external inspection of all bags, controlling emissions from 20F60, shall be performed at least semi-annually. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.~~

~~(b)~~ An external inspection of ~~all bags controlling particulate emissions from facilities~~ **baghouses** ~~17Z38, 17Z01~~, 41F44, ~~and~~ 17F15, **17F6**, **17F10, 17F01**, **51FDD, 17FAA, 17FBB, 17FCC, 17FDD, 20FAA, 20FBB, and 20F60** shall be performed at least once per calendar quarter. Inspections required by this condition shall not be performed in consecutive months. ~~All defective bags shall be replaced~~.

(b) ~~(c)~~ An internal inspection of all bags ~~controlling particulate emissions from facilities~~ **in baghouses 51FDD, 17FBB, 17FDD, 17FCC, 17FAA, 20FAA, 20FBB, 20F60, 17F10, 17F101,** ~~17Z38, 17Z01,~~ 41F44, 17F15, **17F6**, ~~17V6,~~ 17F5, 17F27, 20F61, and 16F100, shall be performed at least once per calendar year. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

(c) ~~(d)~~ Inspections shall also be performed before a respective baghouse that has been secured and tagged as being out of service is returned to service. All defective bags shall be replaced.

~~D.7.8~~ **D.7.9** Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit. If operations continue after bag failure has been observed and it will be 10 (ten) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

(b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

~~D.7.9~~ **D.7.10** Record Keeping Requirements

~~(a) To document compliance with Condition D.7.1:~~

~~(1) Records shall be made and kept of the on-stream time for 20F60 per calendar month.~~

~~(2) The maximum production capacity of facility 20F60, is treated as confidential and shall be kept at the emission source for the life of the facility.~~

~~(b)~~ **(a)** To document compliance with Condition ~~D.7.5~~ **D.7.6**, the Permittee shall maintain records of visible emission notations of the stack exhaust.

~~(c)~~ **(b)** To document compliance with Condition ~~D.7.6~~ **D.7.7**, the Permittee shall maintain records of the total static pressure drop during normal operation.

~~(d)~~ **(c)** To document compliance with Condition ~~D.7.7~~ **D.7.8**, the Permittee shall maintain records of the results of the inspections.

~~(e)~~ **(d)** To document compliance with Condition D.7.3, the Permittee shall maintain ~~of~~ records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

D.7.11 Clean Unit [326 IAC 2-2.2-2]

Pursuant to 326 IAC 2-2.2-2,

(a) The following emissions units are classified as Clean Units for PM/PM_{10}:

(1) Spray Dryer #3 Packer Baghouse (51FDD)

(2) Packer #6 Product Receivers (17FBB and 17FDD)

(3) Packer #6 House Dust Collector (17FCC)

(4) Bulk Bagger #4 Product Receiver (17FAA)

(5) #3 Bulk Starch Rail Loadout Receiver (20FAA)

(6) #3 Bulk Loadout Screening System Filter Receiver (20FBB)

(7) Bulk Starch Rail Loadout (20F60)

(8) Bag Dump Station (18FBB).

(b) The Clean Unit designations for the above emissions units are in effect for ten (10) years after the issuance date of the source modification permit or the date the emission's unit control technology is placed in service, whichever is later.

~~D.7.10 Reporting Requirements~~

~~A quarterly summary of the information to document compliance with Condition D.7.1(b) shall be submitted to the address listed in Section C - General Reporting Requirements, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~

Deletion of Reporting form associated with this section

SECTION D.10 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

One (1) Wastewater Treatment Anaerobic Digester, identified as 34V10, constructed in 1985, with emissions controlled by: a scrubber (34V11) and main flare (21Z1) which exhaust to stack 271, and an emergency flare (34Z1) which exhausts to stack 272. Note that the biogas is used by dryers 21D6, ~~and~~ 21D7, **and 21D8** and if the biogas produced exceeds the dryers' capacity, and then the gas is flared off.

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

D.10.1 Prevention of Significant Deterioration [326 IAC 2-2**-3**] ~~[40 CFR 52.21]~~

Pursuant to **326 IAC 2-2-3** ~~OP 79-08-89-0371, issued March 31, 1986:~~ **the $SO_{2\ BACT}$ for emission unit 34V10 shall be the use of alkaline scrubber 34V11 and;**

~~(a) The total quantity of biogas burned in feed dryers 21D6 and 21D7, the main flare (21Z1), and the emergency flare (34Z1) shall not result in total SO2 emissions greater than or equal to 40 tons per twelve consecutive month period with compliance determined at the end of each month.~~

~~(b) To determine compliance with Condition D.10.1(a), the hydrogen sulfide content of the biogas treated by the biogas scrubber (34V11), the temperature of the biogas at the time of testing, and the total amount of biogas treated by the scrubber (34V11) will be measured on a daily basis and used to calculate a daily sulfur dioxide emission rate. If the biogas is directed to the emergency flare (34Z1), the hydrogen sulfide content of the untreated biogas, the temperature of the untreated biogas at the time of testing, and the total amount of untreated biogas burned by the emergency flare (34Z1) will be measured on a daily basis and used to calculate a daily sulfur dioxide emission rate.~~

~~(c) The Permittee shall notify the Air Pollution Control Board within two working days of any period if:~~

~~(1) The sulfur dioxide emission rate exceeds 9.0 pounds per hour for more than three consecutive days; or~~

~~(2) Any H_2S is emitted directly to the atmosphere without being burned.~~

~~Compliance with these limits is equivalent to total SO_2 emissions from 34V10 of less than 40 tons per year and shall render the requirements of 326 IAC 2-2 not applicable.~~

(a) the scrubber shall have a minimum 90% control efficiency of H_2S and shall not exceed 9.0 lbs/hr SO_2 (equivalent to 4.78 lbs/hr of H_2S) in the scrubber outlet, when the inlet H_2S concentration to the scrubber is more than 1.1% by volume, and

(b) the scrubber shall have an outlet H_2S concentration of less than 0.11% by volume, and shall not exceed 9.0 lbs/hr SO_2 (equivalent to 4.78 lbs/hr H2S) in the scrubber outlet if the inlet concentration of H_2S is 1.1% by volume or less.

(c) To determine compliance with Condition D.10.1(a) and (b), the hydrogen sulfide content of the untreated biogas, the hydrogen sulfide content of the biogas treated by the biogas scrubber (34V11), the temperature of the biogas at the time of testing, and the total amount of biogas treated by the scrubber (34V11) shall be measured on a daily basis and used to calculate an average hourly sulfur dioxide emission rate and scrubber removal efficiency. If the biogas is directed to the emergency flare (34Z1), the hydrogen sulfide content of the untreated biogas, the temperature of the untreated biogas at the time of testing, and the total amount of untreated biogas burned by the emergency flare (34Z1) shall be measured on a daily basis and used to calculate a daily sulfur dioxide emission rate.

(d) The Permittee shall notify the ~~Air Pollution Control Board~~ IDEM, OAQ within two working days of any period if any H_2S is emitted directly to the atmosphere without being burned.

D.10.2 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

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

~~D.10.3 Sulfur Dioxide (SO_2)~~

~~In order to comply with Condition D.10.1:~~

~~(a) The scrubber (34V11), used to prevent SO_2 emissions by removing H_2S from biogas, shall be in operation at all times when biogas is produced from the anaerobic treatment system (34V10) and used by dryers 21D6 and 21D7.~~

~~(b) The main flare (21Z1), used to control H_2S emissions from the exhaust of scrubber 34V11 shall be in operation at all times biogas is routed to scrubber 34V11.~~

~~(c) When the amount of the biogas produced by anaerobic treatment system 34V10 exceeds the capacities of dryers 21D6, 21D7, and the main flare (21Z1), then the emergency flare (34Z1) shall operate to combust the biogas at all times when biogas may be vented to it.~~

D.10.3 Sulfur Dioxide (SO_2)

In order to comply with Condition D.10.1:

(a) The scrubber (34V11), used to prevent SO_2 emissions by removing H_2S from biogas, shall be in operation at all times when biogas is produced from the anaerobic treatment system (34V10) and used by dryers 21D6, 21D7, and 21D8.

(b) The main flare (21Z1), used to control H_2S emissions from the exhaust of scrubber 34V11 shall be in operation at all times biogas is routed to scrubber 34V11.

(c) When the amount of the biogas produced by anaerobic treatment system 34V10 exceeds the capacities of dryers 21D6, 21D7, 21D8, and the main flare (21Z1), then the emergency flare (34Z1) shall operate to combust the biogas at all times when biogas may be vented to it.

(d) Whenever inspection or maintenance of the biogas scrubber (34V11) or blowers occurs that requires biogas from the anaerobic digester (34V10) be isolated to allow that maintenance to be performed safely, then the emergency flare (34Z1) shall operate to combust the biogas at all times when biogas may be vented to it.

D.10.4 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

To verify compliance with Condition D.10.1, within 60 days after the issuance of this permit but no later than 180 days after the issuance of this permit, the Permittee shall perform H_2S ~~SO_2~~ testing **on the inlet and outlet of the biogas scrubber (34V11~~)~~** ~~flares 21Z1 and 34Z1~~ utilizing methods as approved by the Commissioner **and furnish the Commissioner a written report of the results of such performance tests. All hydrogen sulfide measured will be assumed to have been converted to sulfur dioxide in flares 21Z1 and 34Z1 and feed dryers 21D6, 21D7, and 21D8.** This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C- Performance Testing.

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

D.10.5 Flare Pilot Flame

The presence of a flare pilot flame (for flares 21Z1 and 34Z1) shall be monitored using a thermocouple, or any other equivalent device, to detect the presence of a flame.

D.10.6 Monitoring for Scrubbers

(a) The Permittee shall monitor the scrubber **the pH of the scrubbing liquor** at least once per shift from scrubber 34V11 used to scrub the biogas from 34V10.

(b) **A continuous monitoring system shall be installed and operated at all times scrubber 34V11 is in operation. The monitoring system shall continuously measure**

and record the scrubber recirculation rate from scrubber 34V11 controlling emissions from ~~facility~~ emission unit 34V10. The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when ~~the flow rate readings are outside of the normal range, as specified by the manufacturer,~~ **the pH readings are outside of the normal range**, **and any recirculation rate is below minimum flow rate** for any one reading. ~~The Preventive Maintenance Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when the recirculation rate readings are outside of the normal range for any one reading.~~ **The normal pH range for scrubber 34V11 is 9.0 to 11.5 or the range established during the latest stack test. The minimum flow rate for Scrubber 34V11 is 70 gpm or a minimum flow rate established during the latest stack test.** ~~A flow rate reading that is outside the normal range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.~~

(c) **The Compliance Response Plan for the scrubber shall contain troubleshooting contingency and response steps for when the pH readings are outside of the normal range, and below minimum flow rate for any one reading. The normal pH range for scrubber 34V11 is 5.0 to 8.0 or the range established during the latest stack test. The minimum 1-hr average flow rate for Scrubber 34V11 is 70 gpm or a minimum flow rate established during the latest stack test.**

(d) **A pH or flow reading that is outside the normal range or below the minimum flow rate for any one reading is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.**

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

D.10.7 Scrubber Inspections

An **external** inspection of scrubber 34V11 shall be performed **semi**annually. Inspections required by this condition shall not be performed in consecutive months. Repairs or replacement of defective components shall be performed in accordance with the Preventive Maintenance Plan.

~~D.10.8 Scrubber Malfunction~~

~~In the event that a scrubber malfunction has been observed:~~

~~(a) The affected unit will be shut down immediately in accordance with safe operating procedures until the failed unit has been repaired or the appropriate components replaced@.~~

~~(b) Based upon the findings of the inspection, any additional corrective actions will be devised within eight (8) hours of discovery and will include a timetable for completion.~~

~~D.10.9 Record Keeping Requirements~~

~~(a) To document compliance with Condition D.10.1, the Permittee shall maintain:~~

~~(1) A log of the daily H_2S content, temperature, and the total amount of the biogas burned in the main flare (21Z1), feed dryers (21D6 and 21D7), or emergency flare (34Z1). The log shall be kept for at least the past twenty-four (24) month period; and~~

~~(2) Records of all calculations used to determine the SO_2 emissions from the combustion of biogas in the main flare (21Z1), feed dryers (21D6 and 21D7), and emergency flare (34Z1).~~

~~(b) To document compliance with Condition D.10.6, the Permittee shall maintain once per shift records of the scrubber recirculation rate from scrubber 34V11.~~

~~(c) To document compliance with Condition D.10.7, the Permittee shall maintain records of the results of the inspections.~~

~~(d) To document compliance with Condition D.10.2, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.~~

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

D.10.8 Record Keeping Requirements

(a) To document compliance with Condition D.10.1, the Permittee shall maintain:

(1) A log of the daily H_2S content before and after the scrubber (34V11), temperature, and the total amount of the biogas burned in the main flare (21Z1), feed dryers (21D6, 21D7, and 21D8), or emergency flare (34Z1). The log shall be kept for at least the past twenty-four (24) month period; and

(2) Records of all calculations used to determine the SO_2 emissions from the combustion of biogas in the main flare (21Z1), feed dryers (21D6, 21D7, and 21D8), and emergency flare (34Z1).

(b) To document compliance with Condition D.10.6, the Permittee shall maintain once per shift records of the scrubber recirculation rate from scrubber 34V11.

(c) To document compliance with Condition D.10.7, the Permittee shall maintain records of the results of the inspections.

(d) To document compliance with Condition D.10.2, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

D.10.9 Clean Unit [326 IAC 2-2.2-2]

Pursuant to 326 IAC 2-2.2-2,

(a) The following emissions units are classified as Clean Units for SO_2:

One (1) Wastewater Treatment Anaerobic Digester (34V10)

(b) The Clean Unit designations for the above emissions units are in effect for ten (10) years after the issuance date of the source modification.

~~D.10.10 Reporting Requirements~~

~~A quarterly summary of the information to document compliance with Condition D.10.1 shall be submitted to the address listed in Section C - General Reporting Requirements, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the Aresponsible official@ as defined by 326 IAC 2-7-1(34).~~

Deletion of Reporting Form

Enforcement Issues

IDEM received a letter from Tate and Lyle dated August 5, 2004, disclosing that the company has exceeded sulfur dioxide emission limits placed on the wastewater treatment plant's biogas scrubber, identified as 34V11. The limits were placed to avoid the applicability of 326 IAC 2-2, and the exceeding of the limits constitutes an alleged violation of 326 IAC 2-2. The Office of Enforcement is currently evaluating the severity of the alleged violation and will determine appropriate actions.

Stack Summary

See Appendix A of this document for a detailed stack summary.

Recommendation

The staff recommends to the Commissioner that the application be approved as a Significant Source Modification and Significant Permit Modification. 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 April 14, 2004, and additional information throughout the permit review period.

Emission Calculations

Due to claims of confidentiality regarding process weight rates, the detailed calculations are confidential.

The final emissions data is in Appendix B.

Potential To Emit

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

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

Pollutant	Potential to Emit (tons/yr)

PM	>100
PM-10	>100
SO_2	>100
VOC	>100
CO	>100
NO_x	>100

HAPs	Potential to Emit (tons/yr)
Single	>10
Total	>25

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of 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.

County Attainment Status

The source is located in Tippecanoe County.

Pollutant	Status
PM-10	Attainment
PM2.5	Attainment
SO_2	Attainment
NO_2	Attainment
Ozone 8 hr	Attainment
Ozone 1 hr	Attainment
CO	Attainment
Lead	Attainment

(a) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone.Therefore, VOC emissions and NOx are considered when evaluating the rule applicability relating to ozone.Tippecanoe County has been designated as attainment or unclassifiable for ozone.Therefore, VOC emissions and NOx were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.

(b) Tippecanoe County has been classified as unclassifiable or attainment for PM2.5. U.S. EPA has not yet establied the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM 2.5 emissions. Therefore, until the U.S.EPA adopts specific provisions for PSD review for PM2.5 emissions, it has directed states to regulate PM10 emissions as surrogate for PM2.5 emissions. See the State Rule Applicability for the source section.

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

Source Status

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

Pollutant	Emissions (tons/year)
PM	>250
PM-10	>250
SO_2	>250
VOC	>250
CO	>250
NOx	>250

This existing source is a major stationary source for PSD, because an attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.

Potential to Emit of Modification After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

	Potential to Emit (tons/year)						
Process/facility	PM	PM-10	SO_2	VOC	CO	NO_X	HAPs
Expansion to the Plant	>25	>15	>40	>40	<100	>40	

This modification to an existing major stationary source is major because the emissions increase is more than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do apply for PM, PM_{10}, SO_2, VOC, and NOx.

Federal Rule Applicability

326 IAC 12 (New Source Performance Standards)
There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) included in this permit.

326 IAC 20, and 40 CFR 63, Subpart DDDDD (National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters)

All the process heaters are either natural gas direct fired or steam heated process heaters. Therefore none of the process heaters are subject to the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63, Subpart DDDDD.

State Rule Applicability - Entire Source

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

This source is not subject to 326 IAC 2-4.1-1 (New Source Toxics Control). The source existed as of July 27, 1997, this revision is not classified as a reconstruction under 40 CFR 63.41, and the revision does not by itself have potential to emit 10 tons per year of any HAP or 25 tons per year of any combination of HAPs.

326 IAC 2-6 (Emission Reporting)

Since this source is required to have an operating permit under 326 IAC 2-7, this source is subject to 326 IAC 2-6 (Emission Reporting). The source also has potential to emit greater than the thresholds in 326 IAC 2-6-3(a)(1). Therefore, an emission statement covering the previous calendar year must be submitted by July 1 annually. 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.

D.1 Corn Receiving and Conveying Operations

State Rule Applicability - Vibrating Corn Cleaning System (Controlled by baghouse 14JAA)

This is a new emission unit to be controlled by an existing baghouse 14F2, which vents to an existing stack identified as S/V 126. Maximum airflow will remain at 10,000 acfm.

326 IAC 1-7 (Stack Height Provisions)

The existing stack is not subject to 326 IAC 1-7. It is not an exhaust gas stack through which a potential of twenty-five (25) tons per year or more of particulate matter will be emitted.

326 IAC 2-2 (Prevention of Significant Deterioration)

Because this is a new emission unit, it is subject to 326 IAC 2-2-3(3) and must comply with BACT for PM, and PM_{10} emissions.

For PM and PM_{10} emissions, the BACT is considered to be the use of a baghouse with an emission rate of 0.01 gr/dscf, and

(1) the total PM/PM_{10} (Filterable and Condensible) emissions from the baghouse 14F2 shall be limited to 0.84 lbs/hr; and

(1) the opacity shall not exceed 3%.

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

This emission unit is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability - Vibrating Corn Cleaning Pneumatic Transfer (21FMM)

This is a new emission unit to be controlled by a new baghouse 21FMM, which vents to a new stack identified as S/V 394. Maximum airflow will be 350 acfm.

326 IAC 1-7 (Stack Height Provisions)

The new stack is not subject to 326 IAC 1-7. It is not an exhaust gas stack through which a potential of twenty-five (25) tons per year or more of particulate matter will be emitted.

326 IAC 2-2 (Prevention of Significant Deterioration)

Because this is a new emission unit, it is subject to 326 IAC 2-2-3(3) and must comply with BACT for PM and PM_{10} emissions.

For PM and PM_{10} emissions, the BACT is considered to be the use of a baghouse with an emission rate of 0.005 gr/dscf, and

(1) the total PM/PM_{10} (Filterable and Condensible) emissions from the baghouse 21FMM shall be limited to 0.015 lbs/hr; and

(2) the opacity shall not exceed 3%.

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

This emission unit is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability - Corn Silos #1, #2, #3, #4 and #5 (13V1 through 13V5)

These are existing emission units to be controlled by an existing baghouse 21F1, which vents collectively to an existing stack identified as S/V 136. Maximum airflow from S/V 136 will increase from 21,800 acfm to 23,800 acfm. Maximum airflow from baghouse 21F1 will increase from 18,500 acfm to 20,500 acfm.

326 IAC 1-7 (Stack Height Provisions)

The existing stack is not subject to 326 IAC 1-7. It is not an exhaust gas stack through which a potential of twenty-five (25) tons per year or more of particulate matter will be emitted.

326 IAC 2-2 (Prevention of Significant Deterioration)

Since these emission units are existing units not undergoing a physical change or a change in the method of operation, they are not subject to 326 IAC 2-2-3(3).

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

These emission units are subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability - Corn Silos #AA and #BB (13VAA and 13VBB)

These are new emission units to be controlled by an existing baghouse 21F1, which vents collectively to an existing stack identified as S/V 136. Maximum airflow from S/V 136 will increase from 21,800 acfm to 23,800 acfm. Maximum airflow from the baghouse 21F1 will increase from 18,500 acfm to 20,500 acfm.

These emission units are classified as insignificant activities under 326 IAC 2-7-1(21).

326 IAC 1-7 (Stack Height Provisions)

The existing stack is not subject to 326 IAC 1-7. It is not an exhaust gas stack through which a potential of twenty-five (25) tons per year or more of particulate matter will be emitted.

326 IAC 2-2 (Prevention of Significant Deterioration)

Because these are new emission units, they are subject to 326 IAC 2-2-3(3) and must comply with BACT for PM and PM_{10} emissions.

For PM and PM_{10} emissions, the BACT is considered to be the use of a baghouse with an emission rate of 0.005 gr/dscf, and

(1) the total PM/PM_{10} (Filterable and Condensible) emissions from the baghouse 21F1shall be limited to 0.86 lbs/hr; and

(3) the opacity shall not exceed 3%.

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

These emission units are subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

326 IAC 2-2.2-2 (Clean Unit)

(1) The following emissions units are designated as Clean Units pursuant to 326 IAC 2-2.2 (Clean Unit) because:

- - they have been reviewed under the PSD program, and

- - they achieved reductions in emissions by using add-on control.

(2) These new emissions units will be designated as Clean Units for PM and PM_{10}. Since these units air pollution controls have not been placed in service, the Clean Unit designation will be in effect for ten (10) years from the emissions unit's air pollution control technology is place in service or 3 years after the issuance of the source modification permit, whichever is later.

Emissions Units	Pollutant	Control Technology
14JAA	PM/PM10	Baghouse
13VAA	PM/PM10	Baghouse
13VBB	PM/PM10	Baghouse
21FMM	PM/PM10	Baghouse
14UBB	PM/PM10	Baghouse

D.2 Wet Milling Operation

State Rule Applicability - All Emission Units Previously Venting to S/V 4, S/V 340, S/V 341, S/V 342 and S/V 343 and All Emission Units Previously Venting to S/V 24, S/V 347 and S/V 348

These are existing emission units to be controlled by a new scrubber 15FAA, which then exhausts via vent 395 to stack 17.

326 IAC 1-7 (Stack Height Provisions)

The existing stack, S/V 17 is subject to 326 IAC 1-7. It is an exhaust gas stack through which a potential of twenty-five (25) tons per year or more of sulfur dioxide will be emitted. Pursuant to 326 IAC 1-7-3, the exhaust gas stack shall be constructed using good engineering practice (GEP). Stack height shall be sufficient to insure that emissions from the stack will not cause excessive ground level concentrations due to atmospheric downwash, wakes, and eddies.

(a) The GEP stack height shall be calculated by adding the height of the supporting or the nearby structure, whichever is largest, to 1.5 times the lesser dimension (height or width) of the supporting or nearby structure.

(b) The nearby structure shall be within five (5) times the lesser dimension (width or height) of that structure, but shall in no event exceed 0.8 kilometers (one-half (1/2) mile).

GEP = H + 1.5L

326 IAC 2-2 (Prevention of Significant Deterioration)

Since these emission units are existing units not undergoing a physical change or a change in the method of operation, they are not subject to 326 IAC 2-2-3(3).

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)

These emission units are part of a facility where 326 IAC 7-1.1 is applicable. However, there are no limits or restrictions in 326 IAC 7-1.1-2 which apply to the facility or the emission units as the facility or emission units are not combustion units.

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

Since these emission units have potential emissions of less than 25 tons per year, they are not subject to 326 IAC 8-1-6 (General Reduction Requirements).

State Rule Applicability -

All Emission Units Previously Venting to S/V 24, S/V 347 and S/V 348

These are existing emission units to be controlled by a new scrubber 15FAA, which exhausts via vent 395 to stack 17.

326 IAC 2-2 (Prevention of Significant Deterioration)

Since these emission units are existing units not undergoing a physical change or a change in the method of operation, they are not subject to 326 IAC 2-2-3(3).

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)

These emission units are part of a facility where 326 IAC 7-1.1 is applicable. However, there are no limits or restrictions in 326 IAC 7-1.1-2 which apply to the facility or the emission units as the facility or emission units are not combustion units.

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

Since these emission units have potential emissions of less than 25 tons per year, they are not subject to 326 IAC 8-1-6 (General Reduction Requirements).

State Rule Applicability - Gluten Vacuum Filter (21FAA) and Fiber Dewatering Screens (21FNN), Eight (8) Steep Tanks (14VAA, 14VBB, 14VCC, 14VDD, 14VEE, 14VFF, 14FGG, and 14FHH), High DS Starch Vacuum Filter (18FAA) and the "18 Building" Process Tanks and Screens

These are new emission units to be controlled by a new alkaline scrubber 15FAA, which exhausts via vent 395 to stack 17.

326 IAC 2-2 (Prevention of Significant Deterioration)

Since these emission units are new units, they are subject to 326 IAC 2-2-3(3) and must comply with BACT for SO_2 and VOC emissions.

(a) For these units, the BACT for SO_2 and VOC is the use of alkaline scrubber 15FAA and:

(1) the scrubber shall have a minimum 90% control efficiency of SO_2 and shall not exceed 8.17 lbs/hr SO_2 in the scrubber outlet, when the inlet SO_2 concentration to the scrubber is more than 150 ppmvw;

(2) the scrubber shall have an outlet SO_2 concentration of less than15 ppmvw, and shall not exceed 8.17 lbs/hr SO_2 in the scrubber outlet if the inlet concentration of SO_2 is 150 ppmvw or less; and

(b) the scrubber shall have a minimum 25% control efficiency of VOC and shall not exceed 27.0 lbs/hr of VOC.

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)

These emission units are part of a facility where 326 IAC 7-1.1 is applicable. However, there are no limits or restrictions in 326 IAC 7-1.1-2 which apply to the facility or the emission units as the facility or emission units are not combustion units.

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

Since these emission units have potential emissions of less than 25 tons per year, they are not subject to 326 IAC 8-1-6 (General Reduction Requirements).

326 IAC 2-2.2-2 (Clean Unit)

(1) The following emissions units are designated as Clean Units pursuant to 326 IAC 2-2.2 (Clean Unit) because:

- - they have been reviewed under the PSD program, and

- - they achieved reductions in emissions by using add-on controls.

(2) These new emissions units will be designated as Clean Units for SO_2 and VOC. Since

these units air pollution controls have not been placed in service, the Clean Unit designation will be in effect for ten (10) years from the emissions unit's air pollution control technology is place in service or 3 years after the issuance of the source modification permit, whichever is later.

Emissions Units	Pollutant	Control Technology
21FAA	SO_2 and VOC	Alkaline Scrubber
21FNN	SO_2 and VOC	Alkaline Scrubber
14VAA, 14VBB, 14VCC, 14VDD, 14VEE, 14VFF, 14FGG, and 14FHH	SO_2 and VOC	Alkaline Scrubber
18FAA	SO_2 and VOC	Alkaline Scrubber
"18 Building" Process Tanks and Screens	SO_2 and VOC	Alkaline Scrubber
15V210,14V17, 14V18, 14V20, 14V96, 15J14, 15J24, 15J53, 15J5A, 15V110, 15V111, 15V112, 15V113, 15V114, 15V139, 15V17, 15V19, 15V2, 15V21, 15V22, 15V23, 15V24, 15V27, 15V30, 15V31, 15V34, 15V35, 15V36, 15V37, 15V38, 15V40, 15V41, 15V42, 15V43, 15J100, 15J15, 15J16, 15J17, 15J18, 15J19, 15J20, 15J21, 15J22, 15J220, 15J221, 15J86, 15J87, 15J88, 15J89, 15J99, 15V25, 15V26,	SO_2 and VOC	Alkaline Scrubber

15V33, 14V10, 14V11, 14V12, 14V13, 14V14, 14V15, 14V16, 14V19, 14V3, 14V4, 14V5, 14V6, 14V7, 14V8, 14V9, 15J101, 15J200, 15J201, 18F510, 18V520, 18V522, 21F100, 21F101, 21U23, 21V130, 21V159, 21V56, 21V57, 21V58, 21V59, 21C7, 21F7, 21C8, 21F8, 21C9, 21F9, 21C10, 21F10, 15J60-15J67, 15J80-15J85, 15J68-15J71, 15J92, 15J 212, 15J213, 15J72-15J75, 15J91, 15J76-15J79, 15J90, 15J214, 15J215, 15J217-15J219, 18V413		

D.3 Feed/Meal/Germ Production Operations

State Rule Applicability - Dryers #1, #2 and #3 (21D1, 21D2 and 21D3)

These are existing emission units which will be removed from operation upon construction and startup of the new steam tube germ dryer (21DBB).

State Rule Applicability - Dryers #6, #7 and #8 (21D6, 21D7 and 21D8)

These are existing emission units, each connected to existing cyclones, to be collectively controlled by an existing wet scrubber 21F13, followed by new regenerative thermal oxidizer units 48FGG and 48FHH which vents to an existing stack identified as S/V 17. Maximum airflow through S/V 17 will be 144596 acfm which includes the air flow from scrubber 15FAA and the regenerative thermal oxidizer units.

326 IAC 2-2 (Prevention of Significant Deterioration)

Pursuant to CP 157-4160-00003, issued April 5, 1995, the PM/PM_{10} emissions from scrubber 21F13 (used to control emissions from dryers 21D1, 21D2, 21D3, 21D6, 21D7, and 21D8) were limited to 11.5 pounds per hour. Compliance with this limit was equivalent to PM/PM_{10} emissions of less than or equal to 50.4 tons per year and rendered the requirements of 326 IAC 2-2 as not applicable.

Tate & Lyle is seeking to raise the overall plant limits in this application. Thus, 326 IAC 2-2 shall become applicable to these existing emission units for PM and PM_{10} emissions.

Since they are not to be limited these units will be considered as proposed new construction for PM/PM10, and they are being modified, they are subject to 326 IAC 2-2-3(3) for PM, PM10, SO_2, NOx, and VOC emissions.

For feed dryers 21D6, 21D7, and 21D8 along with ST Fiber Pre-Dryer 21DAA, ST Germ Dryer 21DBB, and Gluten Flash Dryer 48DAA,

(a) BACT for PM, and PM_{10} is the use of scrubber 21F13 and regenerative thermal oxidizers 48FGG and 48HH, and

(1) the total PM, and PM_{10} (Filterable and condensable) emissions shall be limited to 0.015 gr/scf; and 7.70 lbs/hr from the thermal oxidizers; and

(2) the opacity from the thermal oxidizer shall not exceed 8%.

(b) BACT for SO_2 is the use of pH adjusted scrubber 21F13, and

(1) the scrubber shall have a minimum 90% control efficiency of SO_2 and 5.97 lbs/hr when the inlet SO_2 concentration to the scrubbers is more than 100 ppmvw, and

(2) the scrubber shall have outlet SO_2 concentration of 10 ppmvw if the inlet concentration of SO_2 is 100 ppmvw or less.

(c) BACT For VOC emissions is the use of scrubber 21F13 and regenerative thermal oxidizer units 48FGG and 48FHH with an overall 95% reduction efficiency and 4.29 lbs/hr VOC from the thermal oxidizers.

(d) BACT for NOx is the use of low-NO_X burners rated at 0.06 lb/MMBtu or less and 6.0 lbs/hr of NOx at the exhaust of the thermal oxidizers.

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

These emission units are subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)

These emission units are part of a facility with a potential to emit twenty-five (25) tons per year of sulfur dioxide and it is a combustion unit. Therefore, 326 IAC 7-1.1 is applicable.

Pursuant to 326 IAC 7-1.1-2 (SO_2 Emissions Limitations), the SO_2 emissions from Dryers 21D6, 21D7 and 21D8 shall not exceed five-tenths (0.5) pounds per million Btu (MMBtu) when combusting No. 2 fuel oil.

326 IAC 7-2-1 (Reporting Requirements; Methods to Determine Compliance)

Pursuant to 326 IAC 7-2-1, the applicant shall submit reports of calendar month average sulfur content, heat content, fuel consumption, and sulfur dioxide emission rate in pounds per million Btu upon request.

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

Since these emission units have potential emissions of less than 25 tons per year, they are not subject to 326 IAC 8-1-6 (General Reduction Requirements).

State Rule Applicability - Steam Tube Fiber Pre-Dryer (21DAA)

This is a new emission unit, connected to a new product collector cyclone, connected to a scrubber 21F13, followed by new regenerative thermal oxidizer units 48FGG and 48FHH, which vents to an existing stack identified as S/V 17.

326 IAC 1-7 (Stack Height Provisions)

The existing stack, S/V 17, is subject to 326 IAC 1-7. See "State Rule Applicability - Dryers #6, #7 and #8 (21D6, 21D7 and 21D8)" for detailed requirements related to this stack.

326 IAC 2-2 (Prevention of Significant Deterioration)

Fiber pre dryer 21DAA is a new unit, this is subject to 326 IAC 2-2-3(3) and must comply with BACT for PM, PM_{10}, SO_2 , and VOC emissions.

For feed dryers 21D6, 21D7, and 21D8 along with ST Fiber Pre-Dryer 21DAA, ST Germ Dryer 21DBB, and Gluten Flash Dryer 48DAA,

(a) BACT for PM, and PM_{10} is the use of scrubber 21F13 and regenerative thermal oxidizers 48FGG and 48HH, and

(1) the total PM, and PM_{10} (Filterable and condensable) emissions shall be limited to 0.015 gr/scf; and 7.70 lbs/hr from the thermal oxidizers; and

(3) the opacity from the thermal oxidizer shall not exceed 8%.

(b) BACT for SO_2 is the use of pH adjusted scrubber 21F13, and

(1) the scrubber shall have a minimum 90% control efficiency of SO_2 and 5.97 lbs/hr when the inlet SO_2 concentration to the scrubbers is more than 100 ppmvw, and

(2) the scrubber shall have outlet SO_2 concentration of 10 ppmvw if the inlet concentration of SO_2 is 100 ppmvw or less.

(c) BACT For VOC emissions is the use of scrubber 21F13 and regenerative thermal oxidizer units 48FGG and 48FHH with an overall 95% reduction efficiency and 4.29 lbs/hr VOC from the thermal oxidizers.

(d) BACT for NOx is the use of low-NO_X burners rated at 0.06 lb/MMBtu or less and 6.0 lbs/hr of NOx at the exhaust of the thermal oxidizers.

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

This emission unit is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)

These emission units are part of a facility where 326 IAC 7-1.1 is applicable. However, there are no limits or restrictions in 326 IAC 7-1.1-2 which apply to the facility or the emission units as the facility or emission units only use steam.

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

These emission units are subject to 326 IAC 8-1-6 (General Reduction Requirements) because the potential emissions of volatile organic compounds is greater than twenty-five (25) tons per year, and was constructed after January 1, 1980. Therefore, the BACT (best available control technology) requirements apply.

Compliance with the VOC BACT requirement under 326 IAC 2-2-3(3) satisfies the requirements of 326 IAC 8-1-6.

State Rule Applicability – Steam Tube Germ Dryer (21DBB) and Gluten Flash Dryer (48DAA)

These are new emission units, connected to a new wet scrubber 21F13, followed by new thermal oxidization units 48FGG and 48FH, which vent to an existing stack identified as S/V 17.

326 IAC 2-2 (Prevention of Significant Deterioration)

Since these emission units are new units, they are subject to 326 IAC 2-2-3(3) and must comply with BACT for PM, PM_{10}, SO_2, NOx (Only for 48DAA), and VOC emissions.

For feed dryers 21D6, 21D7, and 21D8 along with ST Fiber Pre-Dryer 21DAA, ST Germ Dryer 21DBB, and Gluten Flash Dryer 48DAA,

(a) BACT for PM, and PM_{10} is the use of scrubber 21F13 and regenerative thermal oxidizers 48FGG and 48HH, and

(1) the total PM, and PM_{10} (Filterable and condensable) emissions shall be limited to 0.015 gr/scf; and 7.70 lbs/hr from the thermal oxidizers; and

(4) the opacity from the thermal oxidizer shall not exceed 8%.

(b) BACT for SO_2 is the use of pH adjusted scrubber 21F13, and

(3) the scrubber shall have a minimum 90% control efficiency of SO_2 and 5.97 lbs/hr when the inlet SO_2 concentration to the scrubbers is more than 100 ppmvw, and

(4) the scrubber shall have outlet SO_2 concentration of 10 ppmvw if the inlet concentration of SO_2 is 100 ppmvw or less.

(c) BACT For VOC emissions is the use of scrubber 21F13 and regenerative thermal oxidizer units 48FGG and 48FHH with an overall 95% reduction efficiency and 4.29 lbs/hr VOC from the thermal oxidizers.

(d) BACT for NOx is the use of low-NO_X burners rated at 0.06 lb/MMBtu or less and 6.0 lbs/hr of NOx at the exhaust of the thermal oxidizers.

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

This emission unit is subject to 326 IAC 6-3-2.

Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)

326 IAC 7-1.1 is determined to be applicable. However, there are no limits or restrictions in 326 IAC 7-1.1-2 which apply to the emission units, because they only combust natural gas or biogas.

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

These emission units are subject to 326 IAC 8-1-6 (General Reduction Requirements) because the potential emissions of volatile organic compounds is greater than twenty-five (25) tons per year, and was constructed after January 1, 1980. Therefore, the VOC BACT requirements apply.

Compliance with the VOC BACT requirement under 326 IAC 2-2-3 satisfies the requirements of 326 IAC 8-1-6.

State Rule Applicability - Feed Storage Bins 8V121, 8V122, 8V123, 8V124, and 8V62

These are existing emission units, each controlled by an existing particulate control device (baghouses 8F1, 8F2, 8F3, 8F4 and 8F62), which vent to existing stacks identified as S/V 110, S/V 111, S/V 112, S/V 113 and S/V 114, respectively.

326 IAC 2-2 (Prevention of Significant Deterioration)

Since these emission units are existing units and going through PSD review, they are subject to 326 IAC 2-2-3(3) and must comply with BACT for PM, and PM_{10} emissions.

For these units, the BACT for PM and PM_{10} is the use of fabric filter dust collectors with an emission rate of 0.005 gr/dscf; and

(1) the total PM /PM_{10} (Filterable and Condensible) emissions from baghouses 8F1, 8F3, 8F4, 8F63, 8F53, and 8F54 shall be limited to 0.08 lbs/hr each; and

(2) the opacity from the baghouses shall not exceed 3%

326 IAC 2-2.2-2 (Clean Unit)

(1) The following emissions units are designated as Clean Units pursuant to 326 IAC 2-2.2 (Clean Unit) because:

- - they have been reviewed under the PSD program, and

- - they achieved reductions in emissions by using add-on controls.

(2) These new emissions units will be designated as Clean Units for PM, PM_{10}, SO_2, VOC, and NOx. Since these units air pollution controls have not been placed in service, the Clean Unit designation will be in effect for ten (10) years from the emissions unit's air pollution control technology is place in service or 3 years after the issuance of the source modification permit, whichever is later.

Emissions Units	Pollutant	Control Technology
21D6, 21D7, and 21D7	PM, PM_{10}, SO_2 ,VOC, and NOx	Alkaline Scrubber, Regenerative thermal oxidizers, and Low NOx burner
21DAA	PM, PM_{10}, SO_2 and	Alkaline Scrubber, and Regenerative

	VOC	thermal oxidizers
21DBB, 21D1, and 21D3	PM, PM_{10}, SO_2 and VOC	Alkaline Scrubber, and Regenerative thermal oxidizers
48DAA	PM, PM_{10}, SO_2 ,VOC, and NOx	Alkaline Scrubber, Regenerative thermal oxidizers, and Low NOx burner
48FGG and 48FHH	NOx	Low NOx burner

(3) The following emissions units are designated as Clean Units pursuant to 326 IAC 2-2.2 (Clean Unit) because:

- - they have been reviewed under the PSD program, and

- - they achieved reductions in emissions by using add-on controls.

(4) These new emissions units will be designated as Clean Units for PM, and PM_{10}. Since these units air pollution controls have not been placed in service, the Clean Unit designation will be in effect for ten (10) years from the emissions unit's air pollution control technology is place in service or 3 years after the issuance of the source modification permit, whichever is later.

Emissions Units	Pollutant	Control Technology
8V121	PM/PM_{10}	Baghouse
8V123	PM/PM_{10}	Baghouse
8V124	PM/PM_{10}	Baghouse
8V63	PM/PM_{10}	Baghouse
8V53	PM/PM_{10}	Baghouse
8V54	PM/PM_{10}	Baghouse

D.4 Syrup Refining Operations

There are no modifications being proposed for the Syrup Refining Operations.

D.5 Starch Modification Operations

State Rule Applicability - Two (2) Raw Storage Bins (20VAA and 20VBB), Starch Slurry Storage Tank (18AVAA), Starch Feed Bin (41VAA) and Starch Weigh Bin (33VAA)

These are new emission units, each to be controlled by a new baghouse, each of which vents to a new stack identified as S/V 369, S/V 370, S/V 371, S/V 372 and S/V 373, respectively. Maximum airflow through each stack will be 2,200 acfm, 2,200 acfm, 1,500 acfm, 2,100 acfm and 1,100 acfm, respectively.

326 IAC 1-7 (Stack Height Provisions)

The new stacks are not subject to 326 IAC 1-7. None of the stacks is an exhaust gas stack through which a potential of twenty-five (25) tons per year or more of particulate matter will be emitted.

326 IAC 2-2 (Prevention of Significant Deterioration)

For PM or PM_{10} emissions, the BACT is considered to be the use of baghouses with an emission rate of 0.005 gr/dscf, and

(1) the PM, or PM_{10} emissions from Two (2) Raw Storage Bins (20VAA and 20VBB shall be limited to 0.09 lbs/hr each;

(2) the PM, or PM_{10} emissions from Starch Slurry Storage Tank (18AVAA) shall be limited to 0.06 lbs/hr;

(3) the PM, or PM_{10} emissions from Starch Feed Bin (41VAA) shall be limited to 0.09 lbs/hr;

(4) the PM, or PM_{10} emissions from Starch Weigh Bin (33VAA) shall be limited to 0.05 lbs/hr; and

(5) the opacity shall not exceed 3%.

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

These emission units are subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability - Dextrin Fluidizer Reactor (33RAA)

This is a new emission unit, to be controlled by two new particulate control devices in series (cyclone 33FBB followed by baghouse 33FCC), which vents to a new stack identified as S/V 374. Maximum airflow through S/V 374 will be 5,000 acfm.

326 IAC 1-7 (Stack Height Provisions)

The new stack is not subject to 326 IAC 1-7. It is not an exhaust gas stack through which a potential of twenty-five (25) tons per year or more of particulate matter will be emitted.

326 IAC 2-2 (Prevention of Significant Deterioration)

For PM and PM_{10} emissions, the BACT is considered to be the use of a baghouse with an emission rate of 0.005 gr/dscf, and

(1) the total PM/PM_{10} (Filterable and Condensible) emissions from the baghouse 33FCC shall be limited to 0.016 lbs/hr; and

(6) the opacity shall not exceed 3%.

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

This emission unit is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability - Dextrin Fluidizer Surge Bin (33VBB), Dextrin Blending and Storage Bin (33VCC) and Dextrin Blending and Storage Bin (33VDD)

These are new emission units, each to be controlled by a new baghouse, each of which exhausts via vents identified as S/V 375, S/V 377 and S/V 378, respectively to a new starch area stack identified as S/V 355. Maximum airflow through each vent will be 1,000 acfm, 3,000 acfm and 3,000 acfm, respectively.

326 IAC 1-7 (Stack Height Provisions)

The new stack is not subject to 326 IAC 1-7. The stack is an exhaust gas stack through which a potential of twenty-five (25) tons per year or more of particulate matter will not be emitted.

326 IAC 2-2 (Prevention of Significant Deterioration)

For PM or PM_{10} emissions, the BACT is considered to be the use of baghouses with an emission rate of 0.005 gr/dscf, and

(1) the total PM/PM_{10} (Filterable and Condensible) emissions from baghouse (33FDD) shall be limited to 0.04 lbs/hr;

(2) the total PM/PM_{10} (Filterable and Condensible) emissions from baghouse (33FFF) shall be limited to 0.13 lbs/hr;

(3) the total PM/PM_{10} (Filterable and Condensible emissions from the baghouse (33FGG) shall be limited to 0.13 lbs/hr; and

(4) the opacity shall not exceed 3%.

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

These emission units are subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability - Dextrin Product Screening Receiver (33FEE)

This is a new emission unit controlled by a new baghouse (33FEE), which exhausts via a vent identified as S/V 376 to a new starch area stack identified as S/V 355. For pneumatic transfer, the control device is considered to be integral to the process. Maximum airflow will be 1,600 acfm.

326 IAC 1-7 (Stack Height Provisions)

The new stack is subject to 326 IAC 1-7. It is an exhaust gas stack through which a potential of twenty-five (25) tons per year or more of particulate matter will be emitted.

326 IAC 2-2 (Prevention of Significant Deterioration)

For PM or PM_{10} emissions, the BACT is considered to be the use of a baghouse with an emission rate of 0.005 gr/dscf, and

(1) the total PM/PM_{10} (Filterable and Condensible) emissions from baghouse (33FEE) shall be limited to 0.07 lbs/hr; and

(2) the opacity shall not exceed 3%.

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

These emission units are subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability –Existing emission units Starch Flash Dryer #2 (40D20), Starch Grinder/Mill #1 (40G20), Starch Grinder/Mill #2 (40G21), Starch Product Bin #20 (7V20), Starch Product Bin #21 (7V21), Starch Product Bin #22 (7V22), Starch Product Bin #33 (7V23)

326 IAC 2-2-3 (Prevention of Significant Deterioration) and 326 IAC 8-1-6 BACT Requirements

The existing units are going through the PSD review, therefore the previous condition no. D.6.1(b) to limit the PM/PM10 emissions is deleted by this permit.

Airflow for the mills 40F28 and 40F29 is 3600 acfm @ 140 Deg F. Airflow for the bin vents 7F20, 7F21, 7F22, and 7F33 is 2100 acfm each @ 80 Deg. F.

(a) For PM or PM_{10} emissions, the BACT is considered to be the use of baghouses with an emission rate of 0.005 gr/dscf from all emissions units except the Starch Flash Dryer #2 (40D20) which is controlled by a scrubber and an emissions rate of 0.008gr/acf, and

(1) The total PM/PM_{10} (Filterable and Condensable) emissions from the following baghouses, shall be limited to

Emission Unit	Baghouse	Lbs/hr
40G20	40F28	0.14
40G21	40F29	0.14
7V20	7F20	0.o9
7V21	7F21	0.09
7V22	7F22	0.09
7V33	7F33	0.09
40D20	40F26	7.54

(2) except for 40F28, 40F29, and 40D20, the opacity from the baghouses shall not exceed 3%. The opacity from the baghouses 40F28, 40F29, and the scrubber 40F26 shall not exceed 8%.

State Rule Applicability - New Propylated Starch Reactors 45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF; and existing emissions units 45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281

326 IAC 2-2-3 (Prevention of Significant Deterioration) and 326 IAC 8-1-6 BACT Requirements

These are new and existing emission units, to be collectively connected to a new packed bed scrubber 45FAA and an existing packed bed scrubber 45F212 with a VOC control efficiency of 95% for each of the scrubbers.

The existing units are going through the PSD review, therefore the previous condition nos. D.5.4 and D.6.3 to limit the VOC emissions are deleted by this permit.

BACT has been determined to be the use of a low pH packed bed scrubber and hydrolysis and

(1) a VOC emission rate of 3.25 lb per 100,000 lb of acid-killed starch and 6.0 lb per 100,000 lb of non-acid-killed starch for Propylene Oxide Starch Reactors ((equivalent to minimum 95% overall control efficiency); and

(2) the combined propylene oxide input to emission units 45VAA, 45VBB, 45VCC, 45VDD, 45VEE, 45VFF, 40V1, 40U2, 40Y1, 40V50, 40V20, 40V21, 40V15, 40V16, 40F51, 40F52, 40F53, 40F54, 40U23, 43V71, 43V72, 43F71, 43F72, 43F73, 43V85, 43V86, 45V117, 45V118, 45V119, 45V120, 30V1, 30V2, 40V12, 40V11, 40V14, 45V223, 45V240, 45V241, 45V242, 45 V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, 44V1, 44V2, 44V3, 44V4, 44V5, 44FKK, 44FLL, 44FMM, 46V1, 46V2, 46V3, 46V4, 46V5, 40D1, 40D20, 43D71, 41D1, 41D2, 41D3, 41D4, 41D5, 41D6, 41D7, 41D8, 41D9, 41D10, 41D11, 41D12, 41D13, 41D14, 30D1, 16D4, 16D5, 44DAA, and 46DAA shall not exceed 1500 tons per twelve consecutive month period for propylated starch reactions that do not undergo the acid-kill step.

State Rule Applicability - Sodium Sulfate Storage Bin (45BVAA)

This is a new emission unit to be controlled by a new baghouse which vents to a new stack identified as S/V 400. Maximum airflow will be 1,500 acfm.

326 IAC 2-2 (Prevention of Significant Deterioration)

For PM or PM_{10} emissions, the BACT is considered to be the use of a baghouse with an emission rate of 0.005 gr/dscf, and

(3) the total PM/PM_{10} (Filterable and Condensible) emissions from baghouse (45BFAA) shall be limited to 0.06 lbs/hr; and

(4) the opacity shall not exceed 3%.

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

This emission unit are subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

326 IAC 1-7 (Stack Height Provisions)

The new stack is not subject to 326 IAC 1-7. It is not an exhaust gas stack through which a potential of twenty-five (25) tons per year or more of particulate matter will be emitted.

State Rule Applicability - Two (2) Starch Flash Dryer # 4 Slurry Hold Tanks (44V1 and 44V2)

These are new emission units with no control devices, which vent to a new stack identified as S/V 419. The VOC emissions are already included in VOC BACT for starch reactors and associated equipment.

State Rule Applicability - Three (3) Starch Flash Dryer # 4 Larox Filters (44FKK, 44FLL and 44FMM) and Flash 4 Filter Feed Tank (44V3)

These are new emission units with no control devices, which vent collectively to a new stack identified as S/V 420. The VOC emissions are already included in VOC BACT for starch reactors and associated equipment.

State Rule Applicability - Two (2) Starch Flash Dryer # 4 Larox Air Release Tanks (44V4 and 44V5)

These are new emission units with no control devices, each of which vents to a new stack identified as S/V 421 and S/V 422, respectively.

The VOC emissions are already included in VOC BACT for starch reactors and associated equipment.

State Rule Applicability - Two (2) Starch Spray Dryer #2 Feed Tanks (46V1 and 46V2)

These are new emission units with no control device, which vent collectively to a new stack identified as S/V 423.

The VOC emissions are already included in VOC BACT for starch reactors and associated equipment.

State Rule Applicability - Three (3) Starch Spray Dryer #2 Process Tanks (46V3, 46V4 and 46V5)

These are new emission units with no control devices, which vent collectively to a new stack identified as S/V 424.

The VOC emissions are already included in VOC BACT for starch reactors and associated equipment.

326 IAC 2-2.2-2 (Clean Unit)

(1) The following emissions units are designated as Clean Units pursuant to 326 IAC 2-2.2 (Clean Unit) because:

- - they have been reviewed under the PSD program, and

- - they achieved reductions in emissions by using add-on control.

(2) These new emissions units will be designated as Clean Units for PM and PM_{10}. Since these units air pollution controls have not been placed in service, the Clean Unit designation will be in effect for ten (10) years from the emissions unit's air pollution control technology is place in service or 3 years after the issuance of the source modification permit, whichever is later.

Emissions Units	Pollutant	Control Technology
45BVAA	PM/PM10	Baghouse
20VAA	PM/PM10	Baghouse
20VBB	PM/PM10	Baghouse
18AVAA	PM/PM10	Baghouse
41VAA	PM/PM10	Baghouse

33VAA	PM/PM10	Baghouse
33RAA	PM/PM10	Baghouse
33VBB	PM/PM10	Baghouse
33VCC	PM/PM10	Baghouse
33VDD	PM/PM10	Baghouse
33FEE	PM/PM10	Baghouse

(3) These new emissions units will be designated as Clean Units for VOC. Since these units air pollution controls have not been placed in service, the Clean Unit designation will be in effect for ten (10) years from the emissions unit's air pollution control technology is place in service or 3 years after the issuance of the source modification permit, whichever is later.

Emissions Units	Pollutant	Control Technology
45VAA	VOC	Packed bed scrubber and hydrolysis
45VBB	VOC	Packed bed scrubber and hydrolysis
45VCC	VOC	Packed bed scrubber and hydrolysis
45VDD	VOC	Packed bed scrubber and hydrolysis
45VEE	VOC	Packed bed scrubber and hydrolysis
45VFF	VOC	Packed bed scrubber and hydrolysis

D.6 Starch Drying and Handling Operation

State Rule Applicability - Six (6) Starch Roll Dryers (41D9 through 41D14)

These are new emission units with no control devices, each of which vents to a new stack identified as S/V 405, S/V 406, S/V 407, S/V 408, S/V 409 and S/V 410, respectively.

The VOC emissions are already included in VOC BACT for starch reactors and associated equipment.

State Rule Applicability - Product Bin #EE (41VEE), Product Bin #HH (41VHH), Starch Blend Bin #1 (07VDD), Starch Blend Bin #2, (07VEE), Product Bin #AA (07VAA), Product Bin #BB (07VBB), and Product Bin #CC (07VCC)

These are new emission units, each to be controlled by a new baghouse each of which vents to a new stack identified as S/V 226, S/V 255, S/V 383, S/V 384, S/V 385, S/V 386 and S/V 387 respectively. Maximum airflow through each stack will be 300 acfm, 1,200 acfm, 2,900 acfm, 2,900 acfm, 2,900 acfm, 2,900 acfm, and 2,900 acfm, respectively.

326 IAC 1-7 (Stack Height Provisions)

The new stacks are not subject to 326 IAC 1-7, because twenty-five (25) tons per year or more of particulate matter will not be emitted through any of the stacks.

326 IAC 2-2 (Prevention of Significant Deterioration)

(a) For PM or PM_{10} emissions, the BACT is considered to be the use of baghouses with an emission rate of 0.005 gr/dscf, and

(1) The total PM/PM_{10} (Filterable and Condensable) emissions from the following baghouses, shall be limited to

Emission Unit	Baghouse	Lbs/hr
41VEE	41FBE	0.01
41VHH	41FHH	0.05
07VDD	07FDD	0.12
07VEE	07FEE	0.12
07VAA	07FAA	0.12
07VBB	07FBB	0.12
07VCC	07FCC	0.12 and

(2) the opacity from the baghouses shall not exceed 3%.

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

These emission units are subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability - Roll Dryer System Mill Feed Collector (41FAA)

This is a new emission unit to be controlled by a new baghouse, which vents via vent 365 to a new combined stack identified as S/V 355. Maximum airflow from vent 365 is 5,000 acfm.

326 IAC 2-2 (Prevention of Significant Deterioration)

For PM and PM_{10} emissions, the BACT is considered to be the use of baghouse with an maximum emission rate of 0.005 gr/dscf, and

(1) the total PM/PM_{10} (Filterable and Condensible) emissions from the baghouse shall be limited to 0.19lbs/hr; and

(2) the opacity shall not exceed 3%.

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

This emission unit is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability - Roll Dryer System Mill (41G202)

This is a new emission unit to be controlled by a new baghouse, which vents via vent 366 to a new combined stack identified as S/V 355. Maximum airflow from vent 366 is15,000 acfm.

326 IAC 2-2 (Prevention of Significant Deterioration)

For PM and PM_{10} emissions, the BACT is considered to be the use of baghouse with an emission rate of 0.005 gr/dscf, and

(1) the total PM/PM_{10} (Filterable and Condensible) emissions from baghouse shall be limited to 0.56 lbs/hr; and

(2) the opacity shall not exceed 3%.

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

This emission unit is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

P = process weight rate in tons per hour

State Rule Applicability - Mill #3 and Mill #4 (44GAA and 44GBB)

These are new emission units, each to be controlled by a new baghouse, each of which exhausts to a new vent identified as S/V 389 and S/V 390, respectively and then into the new flash dryer #4 stack identified as S/V 388.. Maximum airflow through each vent will be 3,600 acfm.

326 IAC 1-7 (Stack Height Provisions)

The new stacks are not subject to 326 IAC 1-7. S/V 388 has potential PM emissions of about 34 tons per year and will be 150 feet high, is an exhaust gas stack through which a potential of twenty-five (25) tons per year or more of particulate matter will be emitted.

326 IAC 2-2 (Prevention of Significant Deterioration)

For PM and PM_{10} emissions, the BACT is considered to be the use of baghouse with an emission rate of 0.005 gr/dscf, and

(1) the total PM/PM_{10} (Filterable and Condensible) emissions from baghouses 44FII and 44FJJ shall be limited to 0.14 lbs/hr each; and

(2) the opacity shall not exceed 3%.

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

These emission units are subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Or

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability - 45 Million Btu per Hour Natural Gas Fired Spray Dryer #2 (46DAA)

This is a new emission unit, connected to a new particulate control device system (six (6) product collector cyclones, followed by six (6) baghouses, which vents to a new stack identified as S/V 360. Maximum airflow through S/V 360 will be 144,537 acfm. This emission unit contributes 120,000 acfm to the maximum airflow.

326 IAC 2-2 (Prevention of Significant Deterioration)

The BACT for PM, and PM_{10} is an emission rate of 0.008 gr/scf; and

(1) The total PM, and PM_{10} (Filterable and Condensible) emissions from the spray dryer #2 shall be limited to 6.61 lbs/hr; and

(2) The opacity from the baghouses' exhausts shall not exceed 8%.

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

This emission unit is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability - 16 Million Btu per Hour Natural Gas Fired Spray Dryer #3 (51DAA)

This is a new emission unit, connected to two new product collector cyclones, followed by one new baghouse. which vents to a new stack identified as S/V 361. Maximum airflow through S/V 361 will be 82,623 acfm. This emission unit contributes 40,000 acfm to the maximum airflow.

326 IAC 2-2 (Prevention of Significant Deterioration)

The BACT for PM, and PM_{10} is an emission rate of 0.008 gr/scf; and

(1) The total PM, and PM_{10} (Filterable and Condensible) emissions from the spray dryer #2 shall be limited to 2.20 lbs/hr; and

(2) The opacity from the baghouses' exhausts shall not exceed 8%.

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

This emission unit is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability - 40 Million Btu per Hour Natural Gas Fired Starch Flash Dryer #4 (44DAA)

This is a new emission unit, connected to six new product collector cyclones, followed by one wet scrubber, which vents to a new stack identified as S/V 388. Maximum airflow through S/V 388 will be 117,224 acfm. This emission unit contributes 110,000 acfm to the maximum airflow.

326 IAC 2-2 (Prevention of Significant Deterioration)

The BACT for PM, and PM_{10} is an emission rate of 0.008 gr/acf; and

(2) The total PM, and PM_{10} (Filterable and Condensible) emissions from the starch flash dryer #4 shall be limited to 7.54 lbs/hr; and

(2) The opacity from the the scrubber shall not exceed 8%.

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

This emission unit is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

326 IAC 2-2.2-2 (Clean Unit)

(1) The following emissions units are designated as Clean Units pursuant to 326 IAC 2-2.2 (Clean Unit) because:

- - they have been reviewed under the PSD program, and

- - they achieved reductions in emissions by using add-on control.

(2) These emissions units will be designated as Clean Units for PM and PM_{10}. Since these units air pollution controls have not been placed in service, the Clean Unit designation will be in effect for ten (10) years from the emissions unit's air pollution control technology is place in service or 3 years after the issuance of the source modification permit, whichever is later.

Emission Unit	Pollutants	Control technology
New Units		
07VAA	PM/PM_{10}	Baghouse
07VBB	PM/PM_{10}	Baghouse
07 VCC	PM/PM_{10}	Baghouse
07VDD	PM/PM_{10}	Baghouse

07VEE	PM/PM_{10}	Baghouse
41V10	PM/PM_{10}	Baghouse
41V11	PM/PM_{10}	Baghouse
41VHH	PM/PM_{10}	Baghouse
41FAA	PM/PM_{10}	Baghouse
41G202	PM/PM_{10}	Baghouse
41VEE	PM/PM_{10}	Baghouse
44GAA	PM/PM_{10}	Baghouse
44GBB	PM/PM_{10}	Baghouse
46 DAA	PM/PM_{10}	Baghouse
51DAA	PM/PM_{10}	Baghouse
44DAA	PM/PM_{10}	Scrubber
Existing Units		
30F13	PM/PM_{10}	Baghouse
41C30	PM/PM_{10}	Baghouse
41C35	PM/PM_{10}	Baghouse
41V14	PM/PM_{10}	Baghouse
41V15	PM/PM_{10}	Baghouse
41V17	PM/PM_{10}	Baghouse
41V18	PM/PM_{10}	Baghouse
33V44	PM/PM_{10}	Baghouse
40G20	PM/PM_{10}	Baghouse
40G21	PM/PM_{10}	Baghouse
7V20	PM/PM_{10}	Baghouse
7V21	PM/PM_{10}	Baghouse
7V22	PM/PM_{10}	Baghouse
7V23	PM/PM_{10}	Baghouse
40D20	PM/PM_{10}	Scrubber

(3) These emissions units will be designated as Clean Units for NOx. Since these units air pollution controls have not been placed in service, the Clean Unit designation will be in effect for ten (10) years from the emissions unit's air pollution control technology is place in service or 3 years after the issuance of the source modification permit, whichever is later.

Emission Unit	Pollutants	Control technology
New Units		
46DAA	NOx	Low NOx burner
51DAA	NOx	Low NOx burner
44DAA	NOx	Low NOx burner

D.7 Starch Packaging and Loadout Operations

State Rule Applicability - Spray Dryer #3 Packer (51FDD)

This is a new emission unit to be controlled by a new baghouse, which vents collectively to a new stack identified as S/V 361. Maximum airflow through S/V 361 will be 82,623 acfm. This emission unit contributes 1,500 acfm to the maximum airflow.

326 IAC 2-2 (Prevention of Significant Deterioration)

The BACT for PM, and PM_{10} is an emission rate of 0.005 gr/dscf; and

(1) The total PM, and PM_{10} (Filterable and Condensible) emissions from the baghouse 51FDD shall be limited to 0.06 lbs/hr; and

(2) The opacity from the baghouses' exhausts shall not exceed 8%.

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

This emission unit is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability - Two (2) Packer #6 Product Receivers (17FBB and 17FDD), Packer #6 House Dust Collector (17FCC), and Bulk Bagger #4 Product Receiver (17FAA)

These are new emission units, each to be controlled by a new baghouse, which vents collectively to a new stack identified as S/V 356. Maximum airflow through S/V 356 will be 40,000 acfm. Maximum airflow through each vent to S/V 356 will be 3,000 acfm, 16,000 acfm, and 2,000 acfm, respectively.

326 IAC 2-2 (Prevention of Significant Deterioration)

The BACT for PM, and PM_{10} is an emission rate of 0.005 gr/dscf; and

(3) The total PM, and PM_{10} (Filterable and Condensible) emissions from the baghouses 17FBB and17FDD, 17FCC, 17FAA shall be limited to 0.13, 0.67, and 0.08 lbs/hr, respectively; and

(2) The opacity from the baghouses' exhausts shall not exceed 3%.

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

These emission units are subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

326 IAC 1-7 (Stack Height Provisions)

The new stack is not subject to 326 IAC 1-7. It is not an exhaust gas stack through which a potential of twenty-five (25) tons per year or more of particulate matter will be emitted.

State Rule Applicability – Starch Rail Loadout System Filter Receiver (20FAA)

This is a new emission unit to be controlled by a new baghouse, which vents to new S/V 263, and then to a new stack identified as S/V 404. For pneumatic transfer, the control device is considered to be integral to the process. Maximum airflow through S/V 404 will be 14,600 acfm. This emission unit contributes 2,000 acfm to the maximum airflow.

326 IAC 1-7 (Stack Height Provisions)

The new stack is not subject to 326 IAC 1-7. It is not an exhaust gas stack through which a potential of twenty-five (25) tons per year or more of particulate matter will be emitted.

326 IAC 2-2 (Prevention of Significant Deterioration)

The BACT for PM, and PM_{10} is an emission rate of 0.005 gr/dscf; and

(1) The total PM, and PM_{10} (Filterable and Condensible) emissions from the baghouse 20FAA shall be limited to 0.08 lbs/hr; and

(2) The opacity from the baghouse exhaust shall not exceed 3%.

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

This emission unit is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability - #3 Bulk Loadout System Filter Receiver (20FBB)

This is a new emission unit to be controlled by a new baghouse, which vents to new S/V 393, and then to a new stack identified as S/V 404.This emission unit contributes 2,200 acfm to the maximum airflow.

326 IAC 1-7 (Stack Height Provisions)

The new stack is not subject to 326 IAC 1-7. It is not an exhaust gas stack through which a potential of twenty-five (25) tons per year or more of particulate matter will be emitted.

326 IAC 2-2 (Prevention of Significant Deterioration)

The BACT for PM, and PM_{10} is an emission rate of 0.005 gr/dscf; and

(1) The total PM, and PM_{10} (Filterable and Condensible) emissions from the baghouse 20FBB shall be limited to 0.09 lbs/hr; and

(2) The opacity from the baghouses exhaust shall not exceed 3%.

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

This emission unit is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability - #3 Bulk Loadout System Filter Receiver (20F60)

This is a new emission unit to be controlled by a new baghouse, which vents to new S/V 393, and then to a new stack identified as S/V 404.This emission unit contributes 2,200 acfm to the maximum airflow.

326 IAC 1-7 (Stack Height Provisions)

The new stack is not subject to 326 IAC 1-7. It is not an exhaust gas stack through which a potential of twenty-five (25) tons per year or more of particulate matter will be emitted.

326 IAC 2-2 (Prevention of Significant Deterioration)

The BACT for PM, and PM_{10} is an emission rate of 0.005 gr/dscf; and

(2) The total PM, and PM_{10} (Filterable and Condensible) emissions from the baghouse 20FBB shall be limited to 0.09 lbs/hr; and

(2) The opacity from the baghouses exhaust shall not exceed 3%.

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

This emission unit is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

State Rule Applicability - Bag Dump Station Bin Vent (18FBB)

This is a new emission unit to be controlled by a new baghouse, exhausting indoors. Maximum airflow will be 500 acfm.

326 IAC 2-2 (Prevention of Significant Deterioration)

The BACT for PM, and PM_{10} is an emission rate of 0.005 gr/dscf; and

(1) The total PM, and PM_{10} (Filterable and Condensible) emissions from the baghouse 18FBB shall be limited to 0.02 lbs/hr; and

(2) The opacity from the baghouses' exhausts shall not exceed 3%.

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

This emission unit is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2:

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates up to sixty thousand (60,000) pounds per hour:

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

Particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

326 IAC 2-2.2-2 (Clean Unit)

(1) The following emissions units are designated as Clean Units pursuant to 326 IAC 2-2.2 (Clean Unit) because:

- - they have been reviewed under the PSD program, and

- - they achieved reductions in emissions by using add-on control.

(2) These emissions units will be designated as Clean Units for PM and PM_{10}. Since these units air pollution controls have not been placed in service, the Clean Unit designation will be in effect for ten (10) years from the emissions unit's air pollution control technology is place in service or 3 years after the issuance of the source modification permit, whichever is later.

Emission Unit	Pollutants	Control
51FDD	PM/PM_{10}	Baghouse
17FBB &17FDD	PM/PM_{10}	Baghouse
17FCC	PM/PM_{10}	Baghouse
17FAA	PM/PM_{10}	Baghouse
20FAA	PM/PM_{10}	Baghouse
20FBB	PM/PM_{10}	Baghouse
20F60	PM/PM_{10}	Baghouse
18FBB	PM/PM_{10}	Baghouse

D.8 Boiler Support Operations

There are no modifications being proposed for the Boiler Support Operations.

D.9 Boilers

There are no modifications being proposed for the boilers. However, there will be increases in emissions due to utilization of unused capacity. Increased utilization of the four boilers is allocated based on boiler size. See Appendix A

D.10 Anaerobic Waste Treatment System

Since SO_2 is one of the pollutants undergoing PSD review, Tate & Lyle has requested that a BACT limit be established for the existing biogas scrubber (34V11) in order to remove the current synthetic minor emission limit for the anaerobic digester (34V10) of 40 tons/year of sulfur dioxide. Hydrogen sulfide in biogas produced by the anaerobic wastewater treatment system is scrubbed with caustic prior to being burned in the feed dryers or flares. Hydrogen sulfide forms sulfur dioxide in these combustion units.

BACT for SO_2 from the anaerobic wastewater treatment system is use of a caustic scrubber to remove hydrogen sulfide at an efficiency of 90%, when the inlet concentration to the scrubber exceeds 1.1% H_2S by volume. When the inlet concentration is less than 1.1% H_2S by volume, the outlet concentration from the biogas scrubber must be less than 0.11% H_2S but the 90% removal efficiency limit will not apply. This requirement will ensure than emissions of sulfur dioxide from combustion of biogas that has been treated by the scrubber will not exceed 9 lbs/hr SO_2.

The BACT for SO_2 has been established as follows:

The SO_2 BACT for emission unit 34V10 shall be the use of alkaline scrubber 34V11; and,

(1) the scrubber shall have a minimum 90% control efficiency of H_2S and shall not exceed 9.0 lbs/hr SO_2 (equivalent to 4.78 lbs/hr of H_2S) in the scrubber outlet, when the inlet H_2S concentration to the scrubber is more than 1.1% by volume, and

(2) the scrubber shall have an outlet H_2S concentration of less than 0.11% by volume, and shall not exceed 9.0 lbs/hr SO_2 (equivalent to 4.78 lbs/hr H2S) in the scrubber outlet if the inlet concentration of H_2S is 1.1% by volume or less.

326 IAC 2-2.2-2 (Clean Unit)

(1) The following emissions units are designated as Clean Units pursuant to 326 IAC 2-2.2 (Clean Unit) because:

- - they have been reviewed under the PSD program, and

- - they achieved reductions in emissions by using add-on control.

(2) These emissions units will be designated as Clean Units for SO_2. Since these units air pollution controls have not been placed in service, the Clean Unit designation will be in effect for ten (10) years from the emissions unit's air pollution control technology is place in service or 3 years after the issuance of the source modification permit, whichever is later.

Emission Unit	Pollutants	Control
34V10	SO_2	Alkaline Scrubber

Compliance Monitoring Requirements [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

All compliance monitoring conditions are given in individual D sections after the A3 section.

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

All recordkeeping and reporting conditions are given in individual D sections after the A3 section.

Conclusion

The construction and operation of these facilities shall be subject to the conditions of the attached Significant Source Modification No. 157-18832-00003, and Significant Permit Modification 157-20671-00003.

Company Name: Tate and Lyle
Address City IN Zip: 2245 North Sagamore Parkway, Lafayette IN 47904-1620
ID: 157-18832-00003
Reviewer: Dr. Trip Sinha / Allen R. Davidson
Date: 09/13/05

Stack / Vent ID (S/V)	Stack Dimension (feet)	Stack Height (feet)	Air Flow Rate (acfm)	Temp. (^{O}F)
1	0.33	20	300	80
2	0.33	20	300	80
3	0.92	40	6,000	80
11	0.83	70	700	120
12	0.83	70	700	120
17	8.00	200	74,600	158
31	0.83	70	700	120
50	1.17	90	4,000	120
64	0.94	56	1,500	80
68	0.50	50	500	68
69	3.00	120	23,500	100
70	1.13	55	3,500	100
71	0.75	57	650	110
72	0.75	57	650	110
73	8.17	120	100,000	105
76	1.08	70	2,100	80
77	1.08	70	2,100	80
78	1.08	70	2,100	80
80	1.50	80	2,600	100
82	4.00	93	59,000	200
87	0.75	57	300	120
88	0.75	57	300	120
89	0.60	57	300	100
90	0.60	57	300	100
91	2.50	30	8,375	110
92	2.50	30	8,375	110
93	2.50	30	8,375	110
94	2.50	30	8,375	110
95	1.33	36	5,000	150
96	1.50	36	6,500	150
97	0.33	57	1,200	110
98	0.33	57	1,200	110
100	1.70	36	6,500	150
101	1.70	48	5,000	150
102	1.00	44	1,500	80
103	0.50	60	300	80
104	0.50	60	300	80
105	0.75	44	750	80
106	0.75	44	750	80
107	0.75	44	750	80
108	0.75	44	750	80
109	0.75	44	750	80
110	0.94	60	2,000	90
111	0.94	60	2,000	90
112	0.94	60	2,000	90
113	0.94	60	2,000	90
114	0.94	60	2,000	90
115	0.94	60	2,000	90
116	0.94	60	2,000	90
117	0.94	60	2,000	90

Company Name: Tate and Lyle
Address City IN Zip: 2245 North Sagamore Parkway, Lafayette IN 47904-1620
ID: 157-18832-00003
Reviewer: Dr. Trip Sinha / Allen R. Davidson
Date: 09/13/05

Stack / Vent ID (S/V)	Stack Dimension (feet)	Stack Height (feet)	Air Flow Rate (acfm)	Temp. (^{O}F)
119	0.33	90	350	90
123	0.33	90	350	90
124	0.50	30	350	90
125	1.17	35	2,500	80
126	1.50	110	10,000	80
129	0.50	60	350	80
136	7.83	70	3,300	80
137	0.50	80	350	80
141	7.83	70	10,000	80
142	7.83	70	10,000	80
143	7.83	70	10,000	80
144	7.83	70	10,000	80
145	7.83	70	10,000	80
146	1.00	25	2,800	80
147	0.67	20	650	80
149	0.67	30	1,550	90
156	1.00	15	400	80
166	4.00	67	9,000	212
177	8.00	120	133,600	123
180	1.33	70	2,000	120
183	0.67	30	2,000	80
189	0.94	29	1,000	80
190	0.50	40	1,400	80
191	0.92	38	1,500	80
195	1.00	32	200	110
197	6.00	165	45,000	400
199	1.00	70	1,000	200
200	3.00	80	2,100	200
201	0.33	50	675	80
202	5.50	200	88,000	326
203	0.67	95	1,200	80
204	0.67	90	800	80
205	0.67	90	800	80
222	0.67	45	100	90
226	0.75	70	300	100
232	2.50	30	8,375	110
233	2.50	30	8,375	110
234	2.50	30	8,375	110
235	2.50	30	8,375	110
238	0.50	75	1,200	100
239	0.67	40	500	70
240	1.00	75	3,000	100
244	1.38	50	3,000	70
245	1.38	50	3,000	70
246	1.38	50	3,000	70
247	1.38	50	3,000	70
248	0.75	70	760	100
249	1.17	70	2,500	110
250	0.67	30	100	100
251	*	*	*	*

Company Name: Tate and Lyle
Address City IN Zip: 2245 North Sagamore Parkway, Lafayette IN 47904-1620
ID: 157-18832-00003
Reviewer: Dr. Trip Sinha / Allen R. Davidson
Date: 09/13/05

Stack / Vent ID (S/V)	Stack Dimension (feet)	Stack Height (feet)	Air Flow Rate (acfm)	Temp. (^{O}F)
254	0.67	35	1,100	80
255	0.33	57	1,200	110
260	2.11	70	100	120
261	0.67	40	100	120
265	7.75	120	110,000	105
266	0.67	70	3,300	120
267	1.38	80	2,100	70
268	1.38	80	2,900	70
269	1.38	80	2,900	70
271	*	*	*	*
272	*	*	*	*
273	1.00	70	2,600	120
274	1.00	40	500	80
285	0.50	10	500	70
289	0.50	20	10	110
315	1.38	20	1,000	110
318	0.67	25	2,000	120
320	0.33	64	9,000	212
321	0.50	90	350	90
331	*	*	*	*
334	*	*	*	*
351	0.50	28	600	70
355	*	*	2,900	70
356	*	*	2,000	80
360	*	*	3,600	140
361	*	*	1,500	80
367	*	*	*	*
368	*	*	*	*
369	1.38	80	2,200	80
370	1.38	80	2,200	80
371	1.00	35	1,500	80
372	1.38	80	2,100	80
373	0.67	65	1,100	80
374	1.50	120	5,000	240
375	*	*	1,000	160
376	*	*	1,600	70
377	*	*	3,000	70
378	*	*	3,000	70
380	*	*	3,000	80
383	1.38	80	2,900	70
384	1.38	80	2,900	70
385	1.38	80	2,900	80
386	1.38	80	2,900	80
387	1.38	80	2,900	80
388	7.00	150	117,224	107
394	0.50	80	350	80
395	4.75	82	53,000	90
396	4.75	82	55,000	80
399	1.17	100	1,200	120
400	0.94	56	1,500	80

Company Name: Tate and Lyle
Address City IN Zip: 2245 North Sagamore Parkway, Lafayette IN 47904-1620
ID: 157-18832-00003
Reviewer: Dr. Trip Sinha / Allen R. Davidson
Date: 09/13/05

Stack / Vent ID (S/V)	Stack Dimension (feet)	Stack Height (feet)	Air Flow Rate (acfm)	Temp. (^{O}F)
404	2.50	50	14,600	78
405	2.50	30	8,375	110
406	2.50	30	8,375	110
407	2.50	30	8,375	110
408	2.50	30	8,375	110
409	2.50	30	8,375	110
410	2.50	30	8,375	110
419	1.17	65	3,500	90
420	2.00	65	10,000	90
421	*	*	*	*
422	*	*	*	*
423	1.17	45	3,500	90
424	0.83	45	2,000	90
426	0.50	30	500	70
427	*	*	*	*

Appendix B: Emission Calculations

Company Name: A.E. Staley Manufacturing Company
Address City IN Zip: 2245 North Sagamore Parkway, Lafayette IN 47904-1620
ID: 157-18832-00003
Reviewer: Allen R. Davidson
Date: 05/25/05

D Section of Permit	Unit ID	Unit Description	Year	Old Stack / Vent ID (S/V)	New Stack / Vent ID (S/V)	Control Device Details	Air Flow Rate (acfm)	Temp. (^{O}F)		PM/PM_{10} Emission (gr/acf)	PM/PM_{10} Emission (lb/hr)	PM/PM_{10} Emission (ton/yr)
1	14JAA	Vibrating Corn Cleaning System		126	126	baghouse 14F2, then to outdoors	0	80		0.010	0.000	0.00
1	13V1	Corn Silo #1	1966	136	136	baghouse 21F1, then to outdoors	*	*		*	*	*
1	13V2	Corn Silo #2	1966	136	136	baghouse 21F1, then to outdoors	*	*		*	*	*
1	13V3	Corn Silo #3	1966	136	136	baghouse 21F1, then to outdoors	*	*		*	*	*
1	13V4	Corn Silo #4	1966	136	136	baghouse 21F1, then to outdoors	*	*		*	*	*
1	13V5	Corn Silo #5	1966	136	136	baghouse 21F1, then to outdoors	*	*		*	*	*
1	13VAA	Corn Silo #AA		136	136	baghouse 21F1, then to outdoors	2,000	80		0.005	0.086	0.38
1	13VBB	Corn Silo #BB		136	136	baghouse 21F1, then to outdoors	*	*		*	*	*
1	21FMM	Vibrating Corn Cleaning Pneumatic Transfer		394	394	baghouse 21FMM, then to outdoors	350	80		0.005	0.015	0.07
2	41YAA	Vacuum Filter		367	367	(insignificant activity)	*	*		N/A	N/A	N/A
2	41YBB	Vacuum Filter		368	368	(insignificant activity)	*	*		N/A	N/A	N/A
2	14VAA	Steep Tank		395	395	scrubber 15FAA, then to outdoors	53,000	90		N/A	N/A	N/A
2	14VBB	Steep Tank		395	395	scrubber 15FAA, then to outdoors	*	*		N/A	N/A	N/A
2	14VCC	Steep Tank		395	395	scrubber 15FAA, then to outdoors	*	*		N/A	N/A	N/A
2	14VDD	Steep Tank		395	395	scrubber 15FAA, then to outdoors	*	*		N/A	N/A	N/A
2	14VEE	Steep Tank		395	395	scrubber 15FAA, then to outdoors	*	*		N/A	N/A	N/A
2	14VFF	Steep Tank		395	395	scrubber 15FAA, then to outdoors	*	*		N/A	N/A	N/A
2	14VGG	Steep Tank		395	395	scrubber 15FAA, then to outdoors	*	*		N/A	N/A	N/A
2	14VHH	Steep Tank		395	395	scrubber 15FAA, then to outdoors	*	*		N/A	N/A	N/A
2	18FAA	High DS Starch Vacuum Filter		395	395	scrubber 15FAA, then to outdoors	*	*		N/A	N/A	N/A
2	18V	18 Building Process Tanks		395	395	scrubber 15FAA, then to outdoors	*	*		N/A	N/A	N/A
2	21FAA	Gluten Vacuum Filter		396	396	packed bed scrubber 21FBB, then to outdoors	55,000	80		N/A	N/A	N/A
2	21FNN	Fiber Dewatering Screens		396	396	packed bed scrubber 21FBB, then to outdoors	*	*		N/A	N/A	N/A
3	21D6	22 MMBtu/hr NG / #2 Fuel Oil / Biogas Fired Feed Dryer	1966	17	17	integral product collector/cyclone 21F26, then to scrubber 21F13, then to thermal oxidation units 48FGG and 48FHH, then to outdoors	144,596	1400		0.015	18.591	81.43
3	21D7	22 MMBtu/hr NG / #2 Fuel Oil / Biogas Fired Feed or Meal Dryer	1966	17	17	integral product collector/cyclone 21F27, then to scrubber 21F13, then to thermal oxidation units 48FGG and 48FHH, then to outdoors	*	*		*	*	*
3	21D8	22 MMBtu/hr NG / #2 Fuel Oil / Biogas Fired Meal Dryer	1966	17	17	integral product collector/cyclone 21F28, then to scrubber 21F13, then to thermal oxidation units 48FGG and 48FHH, then to outdoors	*	*		*	*	*
3	21DAA	Fiber Pre-Dryer		17	17	integral product collector/cyclone 21FCC, then to scrubber 21FDD, then to scrubber 21F13, then to thermal oxidation units 48FGG and 48FHH, then to outdoors	*	*		*	*	*
3	21DBB	Fluid Bed Germ Dryer		17	17	scrubber 21F13, then to thermal oxidation units 48FGG and 48FHH, then to outdoors	*	*		*	*	*
3	48DAA	Gluten Flash Dryer		17	17	scrubber 21F13, then to outdoors	*	*		*	*	*
3	48FGG	50 MMBtu/hr NG / Biogas Fired Thermal Oxidizer		17	17	diverges to unit 48DAA and to unit 21DBB	*	*		*	*	*
3	8V121	Feed Storage Bin	1966	110	110	baghouse 8F1, then to outdoors	2,000	90		0.005	0.086	0.38
3	8V122	Feed Storage Bin	1966	111	111	baghouse 8F2, then to outdoors	2,000	90		0.005	0.086	0.38
3	8V123	Feed Storage Bin	1966	112	112	baghouse 8F3, then to outdoors	2,000	90		0.005	0.086	0.38
3	8V124	Feed Storage Bin	1966	113	113	baghouse 8F4, then to outdoors	2,000	90		0.005	0.086	0.38
3	8V62	Feed/Meal Storage Bin	1966	114	114	baghouse 8F62, then to outdoors	2,000	90		0.005	0.086	0.38
5	33FEE	Dextrin Product Screening Receiver		376	355	baghouse 33FEE, then to outdoors via S/V 355	1,600	70		0.005	0.069	0.30
5	33VBB	Dextrin Fluidizer Storage Bin		375	355	baghouse 33FDD, then to outdoors via S/V 355	1,000	160		0.005	0.043	0.19
5	33VCC	Dextrin Blending and Storage Bin		377	355	baghouse 33FFF, then to outdoors via S/V 355	3,000	70		0.005	0.129	0.56
5	33VDD	Dextrin Blending and Storage Bin		378	355	baghouse 33FGG, then to outdoors via S/V 355	3,000	70		0.005	0.129	0.56
5	20VAA	Raw Starch Storage Bin		369	369	baghouse 20FAA, then to outdoors	2,200	80		0.005	0.094	0.41
5	20VBB	Raw Starch Storage Bin		370	370	baghouse 20FBB, then to outdoors	2,200	80		0.005	0.094	0.41
5	18AVAA	Starch Slurry Storage Tank		371	371	baghouse 18AFAA, then to outdoors	1,500	80		0.005	0.064	0.28
5	41VAA	Starch Feed Bin		372	372	baghouse 41FAA, then to outdoors	2,100	80		0.005	0.090	0.39
5	33VAA	Starch Weigh Bin		373	373	baghouse 33FAA, then to outdoors	1,100	80		0.005	0.047	0.21
5	33RAA	Dextrin Fluidizer Reactor		374	374	cyclone 33FBB & baghouse 33FCC, then to outdoors	5,000	240		0.005	0.214	0.94
5	45VAA	Propylated Starch Reactor		399	399	packed bed scrubber 45FAA, then to outdoors	1,200	120		N/A	N/A	N/A
5	45VBB	Propylated Starch Reactor		399	399	packed bed scrubber 45FAA, then to outdoors	*	*		N/A	N/A	N/A
5	45VCC	Propylated Starch Reactor		399	399	packed bed scrubber 45FAA, then to outdoors	*	*		N/A	N/A	N/A
5	45VDD	Propylated Starch Reactor		399	399	packed bed scrubber 45FAA, then to outdoors	*	*		N/A	N/A	N/A
5	45VEE	Propylated Starch Reactor		399	399	packed bed scrubber 45FAA, then to outdoors	*	*		N/A	N/A	N/A
5	45VFF	Propylated Starch Reactor		399	399	packed bed scrubber 45FAA, then to outdoors	*	*		N/A	N/A	N/A
5	45BVAA	Sodium Sulfate Storage Bin		400	400	baghouse 45BFAA, then to outdoors	1,500	80		0.005	0.064	0.28
5	44V1	Flash 4 Slurry Hold Tank		419	419	to outdoors, no controls	3,500	90		N/A	N/A	N/A
5	44V2	Flash 4 Slurry Hold Tank		419	419	to outdoors, no controls	*	*		N/A	N/A	N/A
5	44FKK	Flash 4 Larox Filter		420	420	to outdoors, no controls	10,000	90		N/A	N/A	N/A
5	44FLL	Flash 4 Larox Filter		420	420	to outdoors, no controls	*	*		N/A	N/A	N/A
5	44FMM	Flash 4 Larox Filter		420	420	to outdoors, no controls	*	*		N/A	N/A	N/A

Appendix B: Emission Calculations

Company Name: A.E. Staley Manufacturing Company
Address City IN Zip: 2245 North Sagamore Parkway, Lafayette IN 47904-1620
ID: 157-18832-00003
Reviewer: Allen R. Davidson
Date: 05/25/05

D Section of Permit	Unit ID	Unit Description	Year	Old Stack / Vent ID (S/V)	New Stack / Vent ID (S/V)	Control Device Details	Air Flow Rate (acfm)	Temp. (^oF)		PM/PM_{10} Emission (gr/acf)	PM/PM_{10} Emission (lb/hr)	PM/PM_{10} Emission (ton/yr)
5	44V3	Flash 4 Filter Feed Tank		420	420	to outdoors, no controls	*	*		N/A	N/A	N/A
5	44V4	Flash 4 Larox Air Release Tank		421	421	to outdoors, no controls	*	*		N/A	N/A	N/A
5	44V5	Flash 4 Larox Air Release Tank		422	422	to outdoors, no controls	*	*		N/A	N/A	N/A
5	46V1	Spray 2 Feed Tank		423	423	to outdoors, no controls	3,500	90		N/A	N/A	N/A
5	46V2	Spray 2 Feed Tank		423	423	to outdoors, no controls	*	*		N/A	N/A	N/A
5	46V3	Spray 2 Process Tank		424	424	to outdoors, no controls	2,000	90		N/A	N/A	N/A
5	46V4	Spray 2 Process Tank		424	424	to outdoors, no controls	*	*		N/A	N/A	N/A
5	46V5	Spray 2 Process Tank		424	424	to outdoors, no controls	*	*		N/A	N/A	N/A
5	45BVCC	Sodium Sulfate Storage Tank		427	427	(insignificant activity)	*	*		N/A	N/A	N/A
6	40D20	40 MMBtu/hr NG Fired Starch Flash Dryer #2	1990	73	73	integral product collector/cyclones 40F20 - 40F25 & scrubber 40F26, then to outdoors	100,000	105		0.008	8.571	37.54
6	07V20	Starch Product Bin #20	1992	76	76	baghouse 7F20, then to outdoors	2,100	80		0.005	0.090	0.39
6	07V21	Starch Product Bin #21	1992	77	77	baghouse 7F21, then to outdoors	2,100	80		0.005	0.090	0.39
6	07V22	Starch Product Bin #22	1992	78	78	baghouse 7F22, then to outdoors	2,100	80		0.005	0.090	0.39
6	41VEE	Product Bin #EE		226	226	baghouse 41FEB, then to outdoors	300	100		0.005	0.013	0.06
6	41VHH	Product Storage Bin #HH		255	255	baghouse 41FHH, then to outdoors	1,200	110		0.005	0.051	0.23
6	07V23	Starch Bin #23	1995	267	267	baghouse 7F33, then to outdoors	2,100	80		0.005	0.090	0.39
6	41FAA	Roll Dryer Mill Feed Collector Baghouse		365	355	to S/V 355	5,000	150		0.005	0.214	0.94
6	41G202	Roll Dryer System Mill		366	355	baghouse 41F202, then to S/V 355	15,000	150		0.005	0.643	2.82
6	40G20	Starch Grinder/Mill #1	1990	286	360	baghouse 40F28, then to S/V 360	3,600	140		0.005	0.154	0.68
6	40G21	Starch Grinder/Mill #2	1990	287	360	baghouse 40F29, then to S/V 360	3,600	140		0.005	0.154	0.68
6	46DAA	45 MMBtu/hr NG Fired Spray Dryer #2		360	360	integral product collector/cyclones 46FAA through 46FFF then to baghouses 46FGG through 46FLL, then to outdoors	120,000	187		0.008	8.229	36.04
6	51DAA	16 MMBtu/hr NG Fired Spray Dryer #3		361	361	integral product collector/cyclones 51FAA and 51FBB then to baghouse 51FCC, then to outdoors	40,000	166		0.008	2.743	12.01
6	07VDD	Starch Blend Bin #1		383	383	baghouse 07FDD, then to outdoors	2,900	70		0.005	0.124	0.54
6	07VEE	Starch Blend Bin #2		384	384	baghouse 07FEE, then to outdoors	2,900	70		0.005	0.124	0.54
6	07VAA	Product Storage Bin		385	385	baghouse 07FAA, then to outdoors	2,900	80		0.005	0.124	0.54
6	07VBB	Product Storage Bin		386	386	baghouse 07FBB, then to outdoors	2,900	80		0.005	0.124	0.54
6	07VCC	Product Storage Bin		387	387	baghouse 07FCC, then to outdoors	2,900	80		0.005	0.124	0.54
6	44DAA	40 MMBtu/hr NG Fired Starch Flash Dryer #4		388	388	integral product collector/cyclones 44FAA through 44FFF then to wet scrubber 44FGG, then to outdoors	110,000	107		0.008	7.543	33.04
6	44GAA	Mill #3		389	388	baghouse 44FII, then to S/V 388	3,600	140		0.005	0.154	0.68
6	44GBB	Mill #4		390	388	baghouse 44FJJ, then to S/V 388	3,600	140		0.005	0.154	0.68
6	41D9	Starch Roll Dryer #9		405	405	to outdoors, no controls	8,375	110		N/A	N/A	N/A
6	41D10	Starch Roll Dryer #10		406	406	to outdoors, no controls	8,375	110		N/A	N/A	N/A
6	41D11	Starch Roll Dryer #11		407	407	to outdoors, no controls	8,375	110		N/A	N/A	N/A
6	41D12	Starch Roll Dryer #12		408	408	to outdoors, no controls	8,375	110		N/A	N/A	N/A
6	41D13	Starch Roll Dryer #13		409	409	to outdoors, no controls	8,375	110		N/A	N/A	N/A
6	41D14	Starch Roll Dryer #14		410	410	to outdoors, no controls	8,375	110		N/A	N/A	N/A
7	41FCC	Packer #3 South Spouts Product Receiver		223	355	baghouse 41FCC, then to S/V 355	*	*		*	*	*
7	17FAA	Bulk Bagger #4 Product Receiver		382	356	baghouse 17FAA, then to S/V 356	2,000	80		0.005	0.086	0.38
7	17FBB	Packer #6 Product Receiver		380	356	to S/V 356	3,000	80		0.005	0.129	0.56
7	17FCC	Packer #6 House Dust Collector		381	356	baghouse 17FCC, then to S/V 356	16,000	80		0.005	0.686	3.00
7	17FDD	Packer #6 Product Receiver		380	356	to S/V 356	*	*		*	*	*
7	51FDD	Spray Dryer #3 Packer Baghouse		362	361	baghouse 51FDD, then to S/V 361	1,500	80		0.005	0.064	0.28
7	20F60	Bulk Starch Loadout System Filter Receiver		393	404	baghouse 20F60, then to S/V 404	2,200	80		0.005	0.094	0.41
7	20FAA	Starch Rail Loadout Filter Receiver		263	404	baghouse 20FAA, then to S/V 404	2,000	80		0.005	0.086	0.38
7	20FBB	#3 Bulk Loadout System Filter Receiver		393	404	baghouse 20FBB, then to S/V 404	2,200	80		0.005	0.094	0.41
7	18FBB	Bag Dump Station Bin Vent		426	426	to indoors	500	70		0.005	0.021	0.09
Total for PM / PM_{10}:											51.023	223.481

Appendix B: Emission Calculations
Natural Gas Combustion Only
MM BTU/HR <100

Company Name: A.E. Staley Manufacturing Company
Address City IN Zip: 2245 North Sagamore Parkway, Lafayette IN 47904-1620
ID: 157-18832-00003
Reviewer: Allen R. Davidson
Date: 05/26/05

Unit Description:	Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
44DAA Starch Flash Dryer #4	40.000	350.4

Pollutant

	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.3	1.3	0.1	17.5	1.0	14.7

*PM emission factor is filterable PM only. PM10 emission factor is condensable and filterable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	3.679E-04	2.102E-04	1.314E-02	3.154E-01	5.957E-04

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	8.760E-05	1.927E-04	2.453E-04	6.658E-05	3.679E-04

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Methodology

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

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98).
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix B: Emission Calculations
Natural Gas Combustion Only
MM BTU/HR <100

Company Name: A.E. Staley Manufacturing Company
Address City IN Zip: 2245 North Sagamore Parkway, Lafayette IN 47904-1620
ID: 157-18832-00003
Reviewer: Allen R. Davidson
Date: 05/26/05

Unit Description:	Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
46DAA Spray Dryer #2	45.000	394.2

Pollutant

	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.4	1.5	0.1	19.7	1.1	16.6

*PM emission factor is filterable PM only. PM10 emission factor is condensable and filterable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	4.139E-04	2.365E-04	1.478E-02	3.548E-01	6.701E-04

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	9.855E-05	2.168E-04	2.759E-04	7.490E-05	4.139E-04

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Methodology

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

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98).
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix B: Emission Calculations
Natural Gas Combustion Only
MM BTU/HR <100

Company Name: A.E. Staley Manufacturing Company
Address City IN Zip: 2245 North Sagamore Parkway, Lafayette IN 47904-1620
ID: 157-18832-00003
Reviewer: Allen R. Davidson
Date: 05/26/05

Unit Description:	Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
48FGG Thermal Oxidizer	50.000	438.0

Pollutant

	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.4	1.7	0.1	21.9	1.2	18.4

*PM emission factor is filterable PM only. PM10 emission factor is condensable and filterable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	4.599E-04	2.628E-04	1.643E-02	3.942E-01	7.446E-04

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	1.095E-04	2.409E-04	3.066E-04	8.322E-05	4.599E-04

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Methodology

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

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98).
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix B: Emission Calculations
Natural Gas Combustion Only
MM BTU/HR <100

Company Name: A.E. Staley Manufacturing Company
Address City IN Zip: 2245 North Sagamore Parkway, Lafayette IN 47904-1620
ID: 157-18832-00003
Reviewer: Allen R. Davidson
Date: 09/13/05

Unit Description:	Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
44DAA Spray Dryer #3	16.000	140.2

Pollutant

	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.1	0.5	0.0	7.0	0.4	5.9

*PM emission factor is filterable PM only. PM10 emission factor is condensable and filterable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	1.472E-04	8.410E-05	5.256E-03	1.261E-01	2.383E-04

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	3.504E-05	7.709E-05	9.811E-05	2.663E-05	1.472E-04

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Methodology

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

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98).
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix B: Emission Calculations

Company Name: A.E. Staley Manufacturing Company
Address City IN Zip: 2245 North Sagamore Parkway, Lafayette IN 47904-1620
ID: 157-18832-00003
Reviewer: Allen R. Davidson
Date: 09/13/05

Summary of Fuel Combustion Emissions

Size		Description	PM*	PM10*	SO_2	NOx	VOC	CO
40	MMBtu/hr	Starch Flash Dryer #2			existing unit			
40	MMBtu/hr	Starch Flash Dryer #4	0.33	1.33	0.11	17.52	0.96	14.72
45	MMBtu/hr	Spray Dryer #2	0.37	1.50	0.12	19.71	1.08	16.56
50	MMBtu/hr	Thermal Oxidizer	0.42	1.66	0.13	21.90	1.20	18.40
16	MMBtu/hr	Spray Dryer #3	0.13	0.53	0.04	7.01	0.39	5.89
		TOTAL (ton/yr)	1.26	5.03	0.40	66.14	3.64	55.56

NOx Emissions After Controls

Size		Description			NOx	
40	MMBtu/hr	Starch Flash Dryer #2	0.06	lb/MMBtu	2.40	lb/hr
40	MMBtu/hr	Starch Flash Dryer #4	0.06	lb/MMBtu	2.40	lb/hr
45	MMBtu/hr	Spray Dryer #2	0.06	lb/MMBtu	2.70	lb/hr
50	MMBtu/hr	Thermal Oxidizer	0.06	lb/MMBtu	3.00	lb/hr
16	MMBtu/hr	Spray Dryer #3	0.06	lb/MMBtu	0.96	lb/hr
		TOTAL			11.46	lb/hr

APPENDIX C

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) ANALYSIS

Tate & Lyle Sagamore Plant

Tate & Lyle operates two corn processing plants in Lafayette, Indiana. The affected plant is the Sagamore plant. This plant has several existing operations that process corn to produce starch and starch products.

The Sagamore corn wet milling facility can be separated into two production components: grind capacity and starch finishing capacity. Plant operations also include support operations, including fossil fuel-fired boilers.

Grind capacity includes all processing up to the point of raw starch slurry production. Tate & Lyle is proposing to increase the corn grind capacity of the existing Sagamore corn wet milling facility to 100,000 bushels/day (110,000 bushels/day peak). Operation of the facility will be continuous (24 hours/day) except for brief periods of downtime required for maintenance. Typically, the wet milling and feed house sections of the plant will be on-line at least 350 days/year.

Tate & Lyle is proposing several modifications to its operations including the addition of new emission units. In addition, a number of new starch finishing facilities are proposed, including a new propylated starch modification system, a new dextrin fluidizer system, two new spray dryer systems, a new flash dryer system, and an expansion of the existing roll drying system. To support these new starch systems, a new reslurry system, blend bins, bag packer, bulk bagger, and rail loadout system are also being proposed.

A PSD analysis is required based on potential emission increases above the significant levels of particulate matter (PM), particulate matter 10 microns (PM_{10}), volatile organic compounds (VOC), sulfur dioxide (SO_2) and nitrogen dioxide (NO_2) associated with this project. The BACT analysis is required for the pollutants PM, PM10, NOx, VOC, and SO_2. Tate & Lyle is also required to perform a BACT analysis under 326 IAC 8-1-6 for any new emission unit with uncontrolled emissions of more than 25 tons per year of VOC.

BACT Definition and Applicability

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 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 each emission unit and for each pollutant 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 applied to similar source categories.

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.

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 each pollutant of concern. 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 each pollutant of concern. 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.

PM and PM10 Control Methods

The following equipment is subject to BACT requirement, because they are new emission units or modified units:

<u>New Units</u>

(1) corn storage silos 13VAA and 13VBB

(2) Bucket elevator from silo to steeps 14UBB

(3) Vibrating corn cleaning system 14JAA

(4) Vibrating Corn Cleaning Pneumatic Transfer 21FMM

(5) Sodium Sulfate Storage Bin 45BVAA

(6) Raw Starch Storage Bin 20VAA

(7) Raw Starch Storage Bin 20VBB

(8) Starch Slurry Storage Tank 18AVAA

(9) Starch Feed Bin 41VAA

(10) Starch Weigh Bin 33VAA

(11) Dextrin Fluidizer Reactor 33RAA

(12) Dextrin Fluidizer Surge Bin 33VBB

(13) Dextrin Blending and Storage Bin 33VCC

(14) Dextrin Blending and Storage Bin 33VDD

(15) Dextrin Product Screening Receiver 33FEE

(16) Roll Dryer Mill Feed Collector 41FAA

(17) Roll Dryer System Mill 41G202

(18) Starch Blend Bin #1 07VDD.

(19) Starch Blend Bin #2 07VEE

(20) Product Storage Bin #AA 07VAA

(21) Product Storage Bin #BB 07VBB

(22) Product Storage Bin #CC 07VCC

(23) Product Storage Bin #EE 41VEE

(24) Product Storage Bin #HH 41VHH

(25) Mill #3 44GAA

(26) Mill #4 44GBB

(27) Spray Dryer #3 Packer Baghouse 51FDD

(28) Packer #6 Product Receivers 17FBB and 17FDD

(29) Packer #6 House Dust Collector 17FCC

(30) Bulk Bagger #4 Product Receiver 17FAA

(31) #3 Bulk Starch Rail Loadout Receiver 20FAA

(32) #3 Bulk Loadout Screening System Filter Receiver 20FBB

(33) Bag Dump Station 18FBB

Modified Emissions Units

The air flows from the following emissions units are increased:

(1) Feed Storage Bins 8V121, 8V123, 8V124

(2) Meal Storage Bin 8V63

(3) Meal/Germ Storage Bin 8V53

(4) Germ Storage Bin 8V54

(5) Product Transfer to Milling 30F13

PSD Minor limits are being removed from the following emissions units:

(1) Product Storage Bin #10 41V10

(2) Product Storage Bin #11 41V11

(3) Product Transfer to Bins 14& 15 41C30

(4) Product Transfer to Bins 17, 18, 44, & EE 41C35

(5) Product Bin 14 41V14

(6) Product Bin 15 41V15

(7) Product Bin 41V17

(8) Product Bin 41V18

(9) Product Bin 33V44

(10) Starch Grinder/Mill #1 40G20

(11) Starch Grinder/Mill #2 40G21

(12) Starch Product Bin #20 7V20

(13) Starch Product Bin #21 7V21

(14) Starch Product Bin #22 7V22

(15) Starch Product Bin #23 7V23

(16) Bulk Starch Rail Loadout 20F60

Step 1: Identify Potential Control Technologies

PM and PM_{10} emissions are generally controlled through the use of add-on control equipment designed to capture the emissions prior to the time they are exhausted to the atmosphere. In cases where the material being emitted is organic, particulate matter may be controlled through a combustion process. Generally, PM and PM_{10} emissions are controlled through one of the following mechanisms:

1. Mechanical collectors (such as cyclones or multiclones);
2. Wet scrubbers;
3. Electrostatic precipitators; and
4. Fabric filter dust collectors.

The choice of which technology is most appropriate for a specific application depends upon several factors, including particle size to be collected, particle loading, stack gas flow rate, stack gas physical characteristics (e.g., temperature, moisture content, presence of reactive materials), and desired collection efficiency.

Step 2: Eliminate Technically Infeasible Options

Fabric Filter Dust Collectors

The applicant is proposing the fabric filter as control device for the above emission units.

Step 3: Rank The Remaining Control Technologies By Control Effectiveness

The highest ranked control technology is fabric filter dust collectors. Control efficiencies can easily exceed 99.9%.

The second ranked control technology is wet scrubbers. Control efficiencies are in the range of 95% to 99%.

Mechanical collectors and electrostatic precipitators were not ranked in this analysis. Those control options are not commonly used by the corn processing industry.

Step 4: Evaluate The Most Effective Controls And Document The Results

A summary of RBLC findings for material handling operations is provided in Table 2-2 below.

Table 1: RBLC Entries for PM/PM_{10} Emissions from Corn Processing Facilities

Company (RBLC Entry Number)	Process Description	Control Type	Emission Limit (Standard Emission)
Red Trail Energy, LLC, Richardson Plant ND-0020 Issued on 08-04-2004	Hammer milling	Baghouse	PM_{10} 0.004 gr/dscf
Red Trail Energy, LLC, Richardson Plant ND-0020 Issued on 08-04-2004	Grain Receiving	Baghouse	PM_{10} 0.004 gr/dscf
Grain Processing Corporation (IN-0075)	Corn Cleaner and Cleaner Drag Conveyor	Baghouse	PM_{10} 0.005 gr/dscf
Grain Processing Corporation (IN-0075)	Starch Blending Bins	Baghouse	PM 0.005 gr/dscf
Grain Processing Corporation (IN-0075)	Starch Loading	Baghouse	PM 0.005 gr/dscf
Grain Processing Corporation (IN-0075)	Germ Storage Receiver	Baghouse	PM 0.005 gr/dscf
Grain Processing Corporation (IN-0075)	Dry Gluten Transfer System	Baghouse	PM 0.005 gr/dscf
Grain Processing Corporation (IN-0075)	Material Transfer and Storage	Baghouse	PM 0.005 gr/dscf

Cargill, Inc. (IA-0053)	Fiber Hammermill	Baghouse	PM 0.004 gr/dscf
Cargill, Inc. (IA-0053)	Feed House Conveyor	Baghouse	PM 0.005 gr/dscf
Cargill, Inc. (IA-0053)	Feed Loadout — Truck System	Baghouse	PM 0.005 gr/dscf
Cargill, Inc. (IA-0053)	Meal Transfer Receiver	Baghouse	PM 0.004 gr/dscf
Cargill, Inc. (IA-0029)	Material Transfer Gluten Sizing	Bagfilter	PM: 0.005 gr/dscf
Cargill, Inc. (IA-0029)	Material Handling Corn Receiving II	Bagfilter	PM: 0.005 gr/dscf
Cargill, Inc. (IA-0029)	Germ Storage Aspiration	Bagfilter	PM: 0.005 gr/dscf
Cargill, Inc. (IA-0029)	Gluten Loadout Conveying I	Fabric Filter	PM 0.004 gr/dscf
Cargill, Inc. (IA-0029)	Feed Storage & Loadout/Rail	Fabric Filter	PM 0.005 gr/dscf
Cargill, Inc. (IA-0029)	Fiber Hammermill Aspiration I	Fabric Filter	PM 0.004 gr/dscf
Cargill, Inc. (IA-0029)	Gluten Flash Dryer Conveying	Fabric Filter	PM 0.0045 gr/dscf
Cargill, Inc. (IA-0029)	Gluten Flash Dryer Conveying II	Fabric Filter	PM 0.004 gr/dscf
Cargill, Inc. (IA-0029)	Meal Transfer Receiving/Pneumatic Conveying	Fabric Filter	PM 0.004 gr/dscf
MN Corn Processors (NE-0014)	Gluten Transfer Conveyor	Fabric Filter Baghouse	PM 0.005 gr/dscf
MN Corn Processors (NE-0014)	Fines Transfer	Fabric Filter Baghouse	PM 0.13 lbs/hr Gr loading not available
MN Corn Processors (MN-0038)	Material Handling/ Fines Transfer	Fabric Filter Baghouse	PM/PM10 0.14 lbs/hr 0.004 gr/dscf
MN Corn Processors (MN-0038)	Gluten Transfer Conveyor	Fabric Filter Baghouse	PM/PM10 0.17 lbs/hr 0.005 gr/dscf

MN Corn Processors (MN-0038)	Fines Storage	Fabric Filter Baghouse	PM/PM10 0.06 lbs/hr 0.014 gr/dscf
MN Corn Processors (MN-0038)	Corn Silo	Fabric Filter Baghouse	PM/PM10 0.18 lbs/hr 0.01 gr/dscf
MN Corn Processors (MN-0026)	Material Handling/ Fines Transfer	Fabric Filter Baghouse	PM/PM10 0.37 lbs/hr grain loading not available

Table 1 indicates that the best controlled emission units in the material handling category are controlled through the use of fabric filters. Emission limitations are all within the range of 0.004 to 0.005 gr/dscf. The best controlled unit has PM_{10} emission limit of 0.004 gr/dscf from the grain receiving operation of Red Trail Energy, LLC, Richardson Plant. This unit has not been installed and has not achieved this limit in practice.

There are two PM emissions limits of 0.004 gr/dscf for Fiber Hammer mill operations. The particle size of fiber is considerably larger than starch, corn dust and gluten meal.

MN Corn Processors data for Material Handling/Fines Transfer is stated as 0.004 gr/dscf, whereas in the same permit fines storage has emission rate of 0.014 gr/dscf. Also MN Corn Processors RBLC No. MN-26 has the BACT limit of 0.37 lbs/hr and no grain loading. In the same permit gluten transfer conveyor has BACT emission rate of 0.005 gr/dscf. The particle size of gluten is larger than the fines and gluten transfer emissions rate should be higher than fines.

All of the new or modified material handling systems of Tate and Lyle's controlled by baghouses are for starch products. Starch, corn dust, and gluten meal are fine powders compared to corn wet milling products (fiber, feed, or germ). The particle size of fiber, feed, and germ is considerably larger than corn dust, feed, sodium sulfate, or starch. There is only one baghouse (Stack 394, 21FMM) proposed for the corn receiving and feed, meal, and germ production areas that would be affected by a 0.004 gr/dscf limit. This baghouse 21FMM only has an airflow of 350 acfm.

<u>Tate & Lyle Proposed BACT for PM/PM10</u>

(1) New bucket elevator (14VBB) and new corn cleaner (14JAA) - Aspiration pickups will be added for the new bucket elevator (14UBB) and new corn cleaner (14JAA). The existing capacity of the 14F2 bagfilter aspiration system is 10,000 cfm. No increase in airflow will be required from the addition of this new corn cleaner and bucket elevator to ensure that fugitive emissions from this equipment is controlled. Only 1,037 cfm of aspiration is needed for the new corn cleaner compared to the current and future bagfilter airflow rate of 10,000 acfm. Because most of the aspiration points and airflow controlled by bagfilter 14F2 are for existing equipment and because no increase in emissions will result from the system (no increase in total airflow rate), Tate & Lyle does not consider a BACT emission rate of 0.005 gr/dscf to be appropriate for this system. Since the majority of emissions controlled by this bagfilter are from existing emission units, Tate & Lyle proposes an emission limit of 0.01 gr/dscf for this baghouse 14F2 (S/V 126). The mass emission rate for this baghouse would be 0.84 lbs/hr based on 10,000 acfm and an exhaust temperature of 80^0F. The applicant has opted to limit the opacity not to exceed 3%.

(2) The starch area stack (Stack ID 355) combines emissions from 20 bagfilter exhausts. Existing emission units include Spray Dryer #1 Product Transfer Systems 41C30 and 41C35, Starch Packer #3 Systems 41F7 and 41Z3 (S/V 184), 41F18, 41Z5, and 41FCC (S/V 186), and 41FCC (S/V 223), Product Transfer System for #3 Bulk Bagger 41F8, 41F81, and 41F82 (S/V 208), Dextrin Feed Bins 33V1 and 33V2 (S/V 236 & 237), Dextrin Screening Systems 50F48 and 50F45 (S/V 243 & 262) and Dextrin Storage/Blend Bins 33V42, 33V43, 33V40, and 33V41(S/V 244, 245, 246, & 247) that will be routed to the new stack. New emission units that will be routed to Stack 355 include Dextrin Fluidizer Sources 33VBB, 33FEE, 33VCC, 33VDD, and Roll Dryer Expansion Sources 41FAA, 41G202. A limit of 0% opacity currently applies to 41C30 and 41C35 (Previous Condition D.6.5(b)) and S/V 184, 186, and 208 (Previous Condition D.7.4(b)). The 3% opacity limit for Stack 355 reflects the contribution of new sources, existing sources with a 0% opacity limit, and existing sources with no opacity limit.

(3) The Flash Dryer #4 44DAA Stack (Stack ID 388) combines emissions from the new dryer scrubber exhaust and two new Mill #3 and Mill #4 exhausts (44GAA and 44GBB). The opacity limit for Stack 388 reflects the fact that the majority of airflow to the stack is from the flash dryer scrubber which will result in a water vapor plume much of the year. Opacity readings for stacks with vapor plumes are more difficult and subjective than readings from stacks without water vapor. Tate & Lyle has proposed 8% opacity from this stack, to which emission units 44GAA and 44GBB vent.

(4) The Spray Dryer #2 46DAA stack (Stack ID 360) combines emissions from 4 existing bagfilter exhausts in addition to the spray dryer bagfilter exhaust. Existing emission units include the Spray Dryer #1 Milling System 30F13 and 30G1(S/V 83 & 84) and the Flash Dryer #2 Milling System 40G20 and 40G21(S/V 286 & 287). A limit of 0% opacity currently applies to 30F13 and 30G1 (Previous Condition D.6.5(b)).The opacity limit for Stack 360 reflects the fact that the majority of airflow to the stack is from the spray dryer which will result in a water vapor plume much of the year. Opacity readings for stacks with vapor plumes are more difficult and subjective than readings from stacks without water vapor. Tate & Lyle has proposed 8% opacity from this stack.

(5) The Spray Dryer #3 51DAA stack (Stack ID 361) combines emissions from 5 existing bagfilter exhausts in addition to the new spray dryer #3 bagfilter exhaust and spray dryer #3 packer baghouse 51FDD (S/V 362). Existing emission units include the spray agglomerator system 50D101 and 50F106 (S/V 349 & 350), dextrin reactor surge bins 50F60 and 50F61(S/V 241 & 242), and packer #3 house dust collector 41F44(S/V 256).The opacity limit for Stack 361 reflects the fact that the majority of airflow to the stack is from the agglomerator and spray dryer #3 which will result in a water vapor plume much of the year. Opacity readings for stacks with vapor plumes are more difficult and subjective than readings from stacks without water vapor. Tate & Lyle has proposed 8% opacity from this stack.

From the above notes no. (3), (4), and (5), Tate and Lyle has established opacity from the emissions units 44GAA, 44GBB, 30F13, 30G1, 40G20 and 40G21 to be 8%.

IDEM evaluated the cost effectiveness figure to control PM/PM10 emissions from new bucket elevator (14VBB) and new corn cleaner (14JAA). The PM/PM10 emissions from these two emission units are 0.38 tons per year. The cost effectiveness factor to control these emission units is estimated to be approximately $ 26,316 per ton (Based on ball park figure of $ 10,000 for the annualized cost of the baghouse). Therefore, the IDEM determined that a new baghouse to control emissions from 14VBB and14JAA was not economically feasible.

Step 5: Select BACT

PM/PM10 BACT has been determined to be as given in the following table:

Table 2

Emission Units	Control Device ID	Type of Control Device	PM/PM10 Emissions Rate (gr/dscf)	Total PM /PM10 (Filterable and Condensible) Emissions Rate (lbs/hr)	Opacity	Permit Condition No.
Section D.1						
13VAA 13VBB	21F1	Baghouse	0.005	0.86	3%	D.1.1
21FMM	21FMM	Baghouse	0.005	0.015	3%	D.1.1
14VBB 14JAA	14F2	Baghouse	0.01	0.84	3%	D.1.1
Section D.3						
8V121	8F1	Baghouse	0.005	0.08	3%	D.3.1(f)
8V123	8F3	Baghouse	0.005	0.08	3%	D.3.1(f)
8V124	8F4	Baghouse	0.005	0.08	3%	D.3.1(f)
8V63	8F63	Baghouse	0.005	0.08	3%	D.3.1(f)
8V53	8F53	Baghouse	0.005	0.08	3%	D.3.1(f)
8V54	8F54	Baghouse	0.005	0.08	3%	D.3.1(f)
Section D.5						
45BVAA	45BFAA	Baghouse	0.005	0.06	3%	D.5.1(b)
20VAA	20FAA	Baghouse	0.005	0.09	3%	D.5.1(b)
20VBB	20FBB	Baghouse	0.005	0.09	3%	D.5.1(b)
18AVAA	18AFAA	Baghouse	0.005	0.06	3%	D.5.1(b)
41VAA	41FKK	Baghouse	0.005	0.09	3%	D.5.1(b)
33VAA	33FAA	Baghouse	0.005	0.05	3%	D.5.1(b)
33RAA	33FCC	Baghouse	0.005	0.16	3%	D.5.1(b)
33VBB	33FDD	Baghouse	0.005	0.04	3%	D.5.1(b)
33VCC	33FFF	Baghouse	0.005	0.13	3%	D.5.1(b)
33VDD	33FGG	Baghouse	0.005	0.13	3%	D.5.1(b)
33FEE	33FEE	Baghouse	0.005	0.07	3%	D.5.1(b)
Section D.6						
07VAA	07FAA	Baghouse	0.005	0.12	3%	D.6.1(a)
07VBB	07FBB	Baghouse	0.005	0.12	3%	D.6.1(a)
07VCC	07FCC	Baghouse	0.005	0.12	3%	D.6.1(a)
07VDD	07FDD	Baghouse	0.005	0.12	3%	D.6.1(a)
07VEE	07FEE	Baghouse	0.005	0.12	3%	D.6.1(a)
41V10	41F10	Baghouse	0.005	0.05	3%	D.6.1(a)
41V11	41F11	Baghouse	0.005	0.05	3%	D.6.1(a)
41VHH	41FHH	Baghouse	0.005	0.05	3%	D.6.1(a)
41FAA	41FAA	Baghouse	0.005	0.19	3%	D.6.1(a)

Emission Units	Control Device ID	Type of Control Device	PM/PM10 Emissions Rate (gr/dscf)	Total PM /PM10 (Filterable and Condensable) Emissions Rate (lbs/hr)	Opacity	Permit Condition No.
41G202	41F202	Baghouse	0.005	0.56	3%	D.6.1(a)
30F13	30F13	Baghouse	0.005	0.07	8%	D.6.1(a)
41C30	41F14 & 41F15	Baghouse	0.005	0.08	Opacity from stack 3%	D.6.1(a)
41C35	41F20, 41F21, 41F54,& 41FEE	Baghouse	0.005	0.08		
41V14	41F16	Baghouse	0.005	0.01	3%	D.6.1(a)
41V15	41F17	Baghouse	0.005	0.01	3%	D.6.1(a)
41V17	41F22	Baghouse	0.005	0.01	3%	D.6.1(a)
41V18	41F23	Baghouse	0.005	0.01	3%	D.6.1(a)
41VEE	41FEB	Baghouse	0.005	0.01	3%	D.6.1(a)
33V44	33F44	Baghouse	0.005	0.03	3%	D.6.1(a)
44GAA	44FII	Baghouse	0.005	0.14	8%	D.6.1(a)
44GBB	44FJJ	Baghouse	0.005	0.14	8%	D.6.1(a)
40G20	40F28	Baghouse	0.005	0.14	8%	D.6.1(a)
40G21	40F29	Baghouse	0.005	0.14	8%	D.6.1(a)
7V20	7F20	Baghouse	0.005	0.09	3%	D.6.1(a)
7V21	7F21	Baghouse	0.005	0.09	3%	D.6.1(a)
7V22	7F22	Baghouse	0.005	0.09	3%	D.6.1(a)
7V23	7F23	Baghouse	0.005	0.09	3%	D.6.1(a)
Section D.7						
51FDD	51FDD	Baghouse	0.005	0.06	8%	D.7.1(b)
17FBB and 17FDD	17FBB and 17FDD	Baghouses	0.005	0.13	3%	D.7.1(b)
17FCC	17FCC	Baghouse	0.005	0.67	3%	D.7.1(b)
17FAA	17FAA	Baghouse	0.005	0.08	3%	D.7.1(b)
20FAA	20FAA	Baghouse	0.005	0.08	3%	D.7.1(b)
20FBB	20FBB	Baghouse	0.005	0.09	3%	D.7.1(b)
20F60	20F60	Baghouse	0.005	0.09	3%	D.7.1(b)
18FBB	18FBB	Baghouse	0.005	0.02	Exhausts inside the building	D.7.1(b)

(b) Spray Dryers #2 and #3

Step 1: Identify Potential Control Technologies

PM and PM_{10} emissions are generally controlled through the use of add-on control equipment designed to capture the emissions prior to the time they are exhausted to the atmosphere. In cases where the material being emitted is organic, particulate matter may be controlled through a combustion process. Generally, PM and PM_{10} emissions are controlled through one of the following mechanisms:

1. Mechanical collectors (such as cyclones or multiclones);
2. Wet scrubbers;
3. Electrostatic precipitators; and
4. Fabric filter dust collectors.

The choice of which technology is most appropriate for a specific application depends upon several factors, including particle size to be collected, particle loading, stack gas flow rate, stack gas physical characteristics (e.g., temperature, moisture content, presence of reactive materials), and desired collection efficiency.

Step 2: Eliminate Technically Infeasible Options

Generally dryers are not controlled by fabric filters. The fabric filters are appropriate for these units since (1) the moisture content of the exhaust streams for these dryers is not as close to saturation as other applications, and (2) the nature of the particulate to be collected is such that material handling issues can arise from handling collected material from scrubbers.

The applicant is proposing the fabric filter as control device for the above emission units.

Step 3: Rank The Remaining Control Technologies By Control Effectiveness

The highest ranked control technology is fabric filter dust collectors. Control efficiencies can easily exceed 99.9%.

Mechanical collectors and electrostatic precipitators were not ranked in this analysis. Those control options are not commonly used by the corn processing industry.

Step 4: Evaluate The Most Effective Controls And Document The Results

Baghouse is the only effective control device.

No entries were found for spray dryers in BACT/LAER Clearing house data.

These two dryers have outlet temperatures from the bagfilters of 200 Deg. F and 120,000 acfm and 40,000 acfm respectively. The moisture content (humidity) of this stream is 0.0897 lbs water/lb dry air or 0.1261 cu. ft. water per cu. ft. wet air. However, this humidity can vary depending on the water content of the starch slurry injected into the spray dryer, dryer operating temperatures, and production rates since the dryers are controlled by bagfilters rather than scrubbers; although, it won't be higher than the stated humidity.

Therefore, for Spray Dryer #2

scfm = 120,000 acfm* 528 Deg R/660 Deg R = 96000 scfm

dscfm = 120,000 acfm *528 Deg R/660 Deg R *(1-0.1261 cu. ft dry air per cu ft wet air) = 83894 dscfm

In this situation 0.008 gr/scf = 0.0092 gr/dscf, which is less than the RBLC rate of 0.01 gr/dscf for dryers

Therefore, for Spray Dryer #3

SCFM = 40,000 acfm* 528 Deg R/660 Deg R = 32000 scfm

DSCFM = 40,000 acfm *528 Deg R/660 Deg R *(1-0.1261 cu. ft dry air per cu ft wet air) = 27965 dscfm

In this situation 0.008 gr/scf = 0.0092 gr/dscf which is less grain loading from other dryers (i.e. <0.01 gr/dscf as described in Table 2). Basing the limit on gr/scf rather than gr/dscf provides assurance to the source that it is meeting its mass emission limit under all operating circumstances since design airflows (scfm) are based on maximum moisture content in the exhaust.

Tate and Lyle considers all controlled emissions from spray dryers to be less than 10 microns due to the high efficiencies of the bagfilters. Therefore, a single PM/PM10 emission rate is proposed based on the sum of filterable and condensable PM10 emissions.

The Spray Dryer #2 46DAA stack (Stack ID 360) combines emissions from 4 existing bagfilter exhausts in addition to the spray dryer bagfilter exhaust. Existing emission units include the Spray Dryer #1 Milling System 30F13 and 30G1(S/V 83 & 84) and the Flash Dryer #2 Milling System 40G20 and 40G21(S/V 286 & 287). A limit of 0% opacity currently applies to 30F13 and 30G1 (Previous Condition D.6.5(b)).The opacity limit for Stack 360 reflects the fact that the majority of airflow to the stack is from the spray dryer which will result in a water vapor plume much of the year. Opacity readings for stacks with vapor plumes are more difficult and subjective than readings from stacks without water vapor. Tate & Lyle has proposed 8% opacity from this stack to which Spray Dryer #2 vents.

The Spray Dryer #3 51DAA stack (Stack ID 361) combines emissions from 5 existing bagfilter exhausts in addition to the new spray dryer #3 bagfilter exhaust and spray dryer #3 packer baghouse 51FDD (S/V 362). Existing emission units include the spray agglomerator system 50D101 and 50F106 (S/V 349 & 350), dextrin reactor surge bins 50F60 and 50F61(S/V 241 & 242), and packer #3 house dust collector 41F44(S/V 256).The opacity limit for Stack 361 reflects the fact that the majority of airflow to the stack is from the agglomerator and spray dryer #3 which will result in a water vapor plume much of the year. Opacity readings for stacks with vapor plumes are more difficult and subjective than readings from stacks without water vapor. Tate & Lyle has proposed 8% opacity from this stack.

Tate & Lyle proposes a PM and PM_{10} limit of 0.008 gr/scf and an opacity of 8% as BACT for spray dryers.

Step 5: Select BACT

The applicant is adopting the top most control, i.e. baghouse.

IDEM does not consider controlled emissions from spray dryers to be only less than 10 microns. IDEM feels that both PM (filterable) and PM10 (Filterable and Condensible) are present in the controlled gas streams of the dryers, therefore limits for both PM, and PM10 have been established as BACT.

BACT has been determined to be

(1) Spray dryers #2 and #3 - The BACT for PM, and PM_{10} is an emission rate of 0.008 gr/scf; and

(i) The total PM, and PM_{10} (Filterable and Condensible) emissions from the spray dryer #2 shall be limited to 6.61 lbs/hr;

(ii) PM, and PM_{10} emissions from the spray #3 shall be limited to 2.20 lbs/hr; and

(iii) The opacity from the baghouses' exhausts shall not exceed 8%; and

(2) The opacity from Spray Dryer #3 Packer Baghouse (51FDD) shall not exceed 8%.

(c) Feed, Prefiber, Germ, Gluten, and Starch Flash Dryers– The followings are the new or modified equipment:

New Emissions Units

(1) RST Fiber Pre-Dryer (21DAA)

(2) Rotary Steam Tube Germ Dryer (21DBB)

(3) Gluten Flash Dryer (48DAA**)**

(4) Starch flash dryer #4 (44DAA)

Modified Emissions Units

(1) Feed Dryer (21D6)

(2) Feed Dryer (21D7)

(3) Feed Dryer (21D8)

PSD Minor limit is being removed from the following emissions unit:

(1) Starch flash dryer #2 (40D20)

Step 1: Identify Potential Control Technologies

PM and PM_{10} emissions are generally controlled through the use of add-on control equipment designed to capture the emissions prior to the time they are exhausted to the atmosphere. In cases where the material being emitted is organic, particulate matter may be controlled through a combustion process. Generally, PM and PM_{10} emissions are controlled through one of the following mechanisms:

1. Mechanical collectors (such as cyclones or multiclones);
2. Wet scrubbers;
3. Electrostatic precipitators; and
4. Fabric filter dust collectors.

The choice of which technology is most appropriate for a specific application depends upon several factors, including particle size to be collected, particle loading, stack gas flow rate, stack gas physical characteristics (e.g., temperature, moisture content, presence of reactive materials), and desired collection efficiency.

There are number of different types of dryers that might be encountered at a corn processing facility. These can generally be placed into two categories. Those with moisture content near saturation (such as starch flash dryers, gluten dryers, and germ dryers) and those with moisture content not approaching saturation (such as spray dryers).

Step 2: Eliminate Technically Infeasible Options

Mechanical collectors and electrostatic precipitators were not ranked in this analysis. Those control options are not commonly used by the corn processing industry.

Dryers that have high exhaust temperatures and moisture content near saturation are not conducive to the use of a fabric filter as a control system. High temperature may cause fire in the baghouse as the product may contain oil etc. Also with high moisture content bags will get plugged and cause bag failures. The bagfilter is not a technically feasible control for these types of dryers.

Step 3: Rank The Remaining Control Technologies By Control Effectiveness

A summary of RBLC findings for dryers is provided in Table 3 below.

Table 3: PM Emissions from Dryers at Corn Processing Facilities

Company (RBLC Entry Number)	Process Description	Control Type	Emission Limit (Standard Emission)
Midwest grain Products of Illinois Inc.(IL-0077)	Feed Dryer	Not Identified	PM 0.01 gr/dscf
Grain Processing Corporation (IN-0075)	CGF Final Dryer	50% Caustic Scrubber	PM_{10} 0.915 lb/hr (0.01 gr/dscf)
Grain Processing Corporation (IN-0075)	Germ Dryer	50% Caustic Scrubber	PM 0.685 lb/hr (0.01 gr/dscf)
Grain Processing Corporation (IN-0075)	Starch Dryer	Water Scrubber	PM_{10} 5.4 lb/hr (0.01 gr/dscf)
Grain Processing Corporation (IN-0075)	Gluten Dryer	Water Scrubber	PM_{10} 3.65 lb/hr (0.01 gr/dscf)
Archer Daniels Midland Company (IL-0089)	Wet Corn Mills 5 & 6 Feed Dryer	Venturi Scrubber	PM: 0.015 gr/dscf PM: 39.5 tons/yr (0.015 gr/dscf PM10)
Corn Products (IL-0010)	New Feed Dryer	Cyclones, High Efficiency	PM: 8.4 lb/hr
Cargill, Inc. (NE-0016)	Meal Dryer and Cooler, Germ Extraction Plant	Cyclones/Wet Scrubber	PM: 0.5 lb/hr PM_{10}: 0.38 lb/hr

Cargill, Inc. (NE-0016)	Germ Dryer	Cyclone/Wet Scrubber	PM: 2.5 lb/hr (0.5 lb/MMBtu) PM_{10} 1.53 lb/hr (0.31 lb/MMBtu)
Cargill, Inc. (NE-0016)	Fiber PreDryer	Cyclone/ Scrubber	PM: 5.42 lb/hr (0.072 lb/MMBtu) PM10 3.31 lb/hr (0.044 lb/MMBtu)
Cargill, Inc. (IA-0029)	Fiber Dryer System	Wet Scrubber	PM: 5 lb/hr PM: 21.9 ton/yr
Cargill, Inc. (IA-0029)	Corn Germ Dryers & Coolers	Wet Scrubber with Caustic	PM: 0.01 gr/dscf PM: 1.05 lb/hr (0.01 gr/ dscf PM10)
Cargill, Inc. (IA-0029)	Meal Dryer/Cooler	Cyclone Scrubber	PM: 0.01 gr/dscf PM: 1.377 lb/hr (0.01 gr/dscf)
Cargill, Inc. (IA-0029)	Conditioning Dryer	Bagfilter	PM: 0.005 gr/dscf PM: 0.705 lb/hr
MN Corn Processors (NE-0039)	Corn gluten dryer (30 MMBtu/hr)	Wet Scrubber	PM/PM10 17.5 lbs/hr 0.019 gr/dscf
MN Corn Processors (MN-0038)	Corn gluten dryer (30 MMBtu/hr)	Wet Scrubber	PM/PM10 11.8 lbs/hr 0.016 gr/dscf
MN Corn Processors (NE-0014)	Germ Dryers	Wet Scrubber	PM: 7.81 lb/hr PM_{10}: 3.82 lb/hr gr loading not available
MN Corn Processors (NE-0014)	Starch Dryer	Wet Scrubber	PM: 24.33 lb/hr PM_{10}: 11.92 lb/hr Gr. Loading not available
MN Corn Processors (NE-0014)	Fluidized Bed Germ Dryer	Spray Tower	PM: 1.6 lb/hr PM: 0.01 gr/scf (0.044 lb/MMBtu)
MN Corn Processors (NE-0014)	Gluten Meal Flash Dryer #1	Cyclone/Scrubber	PM only 0.0090 gr/scf 3.3400 lb/hr
MN Corn Processors (NE-0014)	Gluten Meal Flash Dryer #2	Cyclone/Scrubber	PM only 0.01 gr/scf 3.94 lbs/hr

ADM IL-0089	Wet corn Mills 5 & 6 Dryer	Venturi Scrubber	0.015 gr/dscf Venturi Scrubber Did Not Control Emissions to meet limits in permit.

Of the dryers summarized in Table 3, only one is controlled through the use of a fabric filter. That dryer is a rotary steam tube dryer that is utilized to adjust the moisture content of a sugar product. The moisture content of that dryer's exhaust would be expected to be considerably less than would be encountered in most of Tate & Lyle's dryers.

All other dryers have a scrubber as a control for PM, and PM10. The most stringent emissions limits from the dryers are as shown in the table below:

Dryer	RBLC Data		Tested Units from GPC, Indiana	
	PM (gr/dscf)	PM10 (gr/dscf)	PM (gr/dscf)	PM10 (gr/dscf)
Germ dryers	0.01	0.01	0.002	0.007
Gluten dryers		0.01	0.01	0.04
Starch Flash dryers		0.01	0.006	0.01
Feed dryers	0.01	0.015		
Fiber predryer	0.072 lb/MMBtu	0.044 lb/MMBtu		

<u>Tate & Lyle Proposed BACT</u>

All germ, meal, and feed dryers share the same emission control system (i.e., alkaline scrubber followed by two RTO's). Tate & Lyle considers all controlled PM emissions to be less than 10 microns due to the high efficiencies of the scrubber and RTO's. Therefore, a single PM/PM_{10} emission rate is proposed based on the sum of filterable and condensable PM_{10} emissions rather than separate filterable emissions (expressed as PM).

Only three of the four new 30 MMBtu/hr dryer furnaces (21D6, 21D7, 21D8, and 48DAA) will operate at any time. Two 5-mmbtu/hr regenerative thermal oxidizers will be constructed instead of one 10-mmbtu/hr unit to allow for maintenance of one of the units during reduced production rates. PM_{10} emission rates include combustion emissions.

<u>PM or PM_{10} Inlet Loading to Alkaline Scrubber</u>

Feed, Gluten, or Germ Dryer	Dryer Furnace Heat Input (MMBtu/hr)	acfm	temp	scfm	gr/scf	lbs/hr	tons/yr
Feed Dryer (21D6)	30	85606	230	79084	0.03	22.3	97.6
Feed Dryer (21D7)	30						

Feed Dryer (21D8)	30						
RST Fiber Predryer (21DAA)	Steam Only	18257	250				
RST Germ Dryer (21DBB)	Steam Only	10313	250	7669	0.05	3.29	14.4
Gluten Meal Flash Dryer (48DAA)	30	17581	200	14065	0.15	18.1	79.2
Regenerative Thermal Oxidizer (48FGG)	5	N/A					
Regenerative Thermal Oxidizer (48FHH)	5	N/A					
Total (3 of 4 Dryer Furnaces)	100.0	131766	230	100830	0.05	43.7	191
Current Dryer Scrubber Inlet (70 KBPD)	66.0	130000	145	113455	0.03	32.0	140.

Airflow to the scrubber from the existing feed and new fiber dryer at 100,000 bushel per day is 79,084 scfm. Therefore, Part 70 PM_{10} uncontrolled emissions at 70,000 bushel per day are reduced by the ratio of 79,084/113,455 scfm assuming the same grain loading to the scrubber in order to calculate uncontrolled feed dryer emissions at 100,000 bushel per day.

PM_{10} Emission Characteristics – 100K bushel/day	Scrubber Inlet	Scrubber Outlet	RTO Exhaust
Airflow (acfm)	131776	69324	83985
Temperature (Deg. F)	230	180	280
Airflow (scfm)	100837	57192	59924
Concentration (gr/scf)	0.05	0.020	0.015
Emission Rate (lbs/hr)	43.7	9.80	7.70
Emission Rate (tons/yr)	191.2	42.9	33.7
Efficiency		78%	21%
		Overall Efficiency	82%

Step 4: Evaluate the Most Effective Controls and Document the Results

Based on the RBLC data and GPC test data, the best emission rates from the Tate & Lyle dryers are as follows:

Dryers	PM (gr/dscf)	PM10 (gr/dscf)	Airflow (dscfm)	PM (lbs/hr)	PM10 (lbs/hr)
Feed dryers includes Prefiber dryer	0.01	0.015	79084	6.78	10.2
germ dryer	0.002	0.007	7669	0.132	0.46
Gluten dryer	0.01	0.04	14065	1.21	4.82
Total				8.12	15.5

The most effective control for PM, and PM_{10} emissions from the feed, meal, and germ dryers is a scrubber. Tate & Lyle's proposed scrubber will have a condensing section which will condense the condensable. The scrubber's exhaust is further sent to a regenerative thermal oxidizer for VOC control. The PM_{10} will be further controlled by the regenerative thermal oxidizer.

Tate & Lyle is of the opinion that the PM emissions after the thermal oxidizer will be almost negligible as all organic PM particles will be converted to water and carbon dioxide and only PM_{10} particles will be released.

Tate & Lyle's has proposed a single hourly PM_{10} emission rate of 7.7 lbs/hr (33.7 tpy) from the feed, meal, and germ drying system RTO's to Stack 17, based on 0.015 gr/scf PM_{10} (filterable and condensable), as the BACT for PM, or PM10.

Tate & Lyle requested that the PM/PM10 limit be based on gr/scf rather than gr/dscf because the humidity of the air stream entering the RTO is variable. Humidity is a function of a number of factors including undesired fresh air infiltration into the dryers, the amount of water that is condensed by scrubber and heat recovery systems, and dryer production rates. Maximum airflow analyses for the RTO exhaust were on the basis of 59,924 scfm at 280 Deg. F (178 Deg F WB) which is equivalent to 0.55 lb water/lb dry air or 0.47 cu. ft H_20 per cu. ft wet air. In practice, Tate & Lyle would maximize recovery of heat through condensation of water prior to the RTO to improve energy efficiency and operating costs since the heat capacity of water is much higher than the heat capacity or air. It takes more energy to raise the temperature of water to 1400 Deg. F in an RTO compared to air. As water is removed from the stream, humidity is reduced and scfm approaches dscfm. Thus, using a gr/scf basis provides more assurance to the source that it is meeting its mass emission limit since airflow rates will decrease as water is removed from the exhaust.

A visible water vapor plume will be present from stack 17 for most of the year, therefore, there will be difficulty in reading opacity in vapor plumes. Tate & Lyle proposed 8% opacity from these dryers.

Starch Flash Dryer #2 and Starch Flash Dryer #4

These two dryers have exhaust airflow of 110,000 acfm at 105 Deg. F from the scrubber. We can assume the scrubber exhaust is saturated meaning the moisture is 0.05061 lbs water/lb dry air or 0.0753 cu. ft. H_20 per cu ft. wet air. Therefore:

scfm = 110,000 acfm* 528 Deg R/565 Deg R = 102,796 scfm

dscfm = 110,000 acfm *528 Deg R/565 Deg R *(1-0.0753 cu. ft dry air per cu ft wet air) = 95,056 dscfm

In this situation 0.008 gr/acf = 0.0086 gr/scf = 0.0093 gr/dscf which is less than the RBLC rate of 0.01 gr/dscf for dryers. This is also the emission rate basis for the existing Flash Dryer #3 scrubber. A common emission rate basis for the three starch flash dryers is desirable to Tate & Lyle.

Tate & Lyle requests that BACT be established at 0.008 gr/acf for the flash dryers.

A visible water vapor plume will be present for the flash dryer #2 and #4 stacks most of the year; therefore, a 3% limit is not practical due to the difficulty of reading opacity in vapor plumes. Tate & Lyle proposed 8% opacity from these dryers.

Due to the high efficiencies of the scrubbers, all PM emissions are considered to be less than 10 microns. Therefore, a single PM/PM_{10} emission rate is proposed based on the sum of filterable and condensable PM emissions. Tate & Lyle proposes a PM_{10} limit of 0.008 gr/acf as BACT for these units, which is better than outlet grain loading from other starch dryers (i.e. <0.01 gr/dscf as described in Table 3).

Step 5: Select BACT

IDEM does not consider controlled particulate emissions from feed dryers, germ dryer, prefiber dryer, gluten flash dryer, and starch flash dryers to be only less than 10 microns. IDEM feels that both PM (filterable) and PM10 (Filterable and Condensible) are present in the controlled gas streams of the dryers, therefore limits for both PM, and PM10 has been established as BACT.

Modified feed dryers (21D6, 21D7, and 21D8)

New steam tube fiber predryer (21DAA)

New steam tube germ dryer (21DBB)

New Gluten flash dryer (48DAA)

The following combined emission limits are established as BACT for the above dryers:

For the feed, fiber, germ, and gluten dryers, the BACT for PM, and PM_{10} is an emission rate of 0.015 gr/scf; and

(1) the total PM, and PM_{10} (Filterable and Condensible) emissions from the thermal oxidizer shall be limited to 7.7 lbs/hr each; and

(2) the opacity from the thermal oxidizer shall not exceed 8%.

Starch flash dryer #2 (40D20)

Starch flash dryer #4 (44DAA)

For starch flash dryers, the BACT for PM, and PM_{10} is an emission rate of 0.008 gr/acf;

and

(1) The total PM, and PM_{10} (Filterable and Condensible) emissions from starch flash dryer #2 shall be limited to 7.54 lbs/hr each; and

(2) The total PM, and PM_{10} (Filterable and Condensible) emissions from starch flash dryer #4 shall be limited to 7.54 lbs/hr; and

(3) The opacity from the scrubber exhausts shall not exceed 8%.

SO_2 Control Technologies

(a) The following equipment is new units where the BACT applies.

New Emissions Unit

Steep Tanks (14VAA, 14VBB, 14VCC, 14VDD, 14VEE, 14VFF, 14VGG and 14VHH)

High DS Starch Vacuum Filter, identified as (18FAA)

Gluten Vacuum Filter (21FAA)

Gluten Vacuum Filter Pump (21CBB)

Fiber Dewatering Screens (21FNN)

18 Bldg. Process Tanks and Screens

Step 1: Identify Potential Control Technologies

Sulfur dioxide is formed from the oxidation of sulfur compounds in waste streams. In the case of corn wet milling, sulfur dioxide is added as part of the corn steeping process. Control measures are the use of add-on controls.

Add-on control measures are generally based upon exposure of sulfur dioxide molecules to reagents that react with sulfur dioxide to form a sulfate molecule that can then be captured as a particulate. Sulfur dioxide control systems vary in reagent utilized to react with sulfur dioxide, the manner in which the reagent is exposed to sulfur dioxide, and the manner in which sulfate molecules are captured.

Flue Gas Desulfurization System (Wet or Dry Scrubber) – A flue gas desulfurization system (FGD) is comprised of a spray dryer that uses lime as a reagent followed by particulate control or wet scrubber that uses limestone as a reagent. FGD is an established technology. FGD typically operates at an inlet temperature of approximately 400^0F to 500^0F. The concentration of SO_2 in the exhaust gas is the driving force for the reaction between SO_2 and the reagent. Therefore, removal efficiencies are significantly reduced with lower inlet concentrations of SO_2. FGD systems are listed in the RBLC as BACT for sources high in SO_2 emissions. Even though the SO_2 concentrations in the exhaust gases are very low, and the airflow volume is large, the scrubbing systems are technically feasible. Wet scrubbing FGD system is considerably cheaper than dry scrubbing.

Caustic scrubbing system that controls emissions by 90% at a higher concentration is a proven system which operates at or below 250^0F.

Step 2: Eliminate Technically Infeasible Options

The FGD system is not feasible as Tate & Lyle's temperatures of operations are from ambient to 150^0F

Step 3: Rank The Remaining Control Technologies By Control Effectiveness

A summary of RBLC findings for Wet Milling and SO_2 emitting Facilities is provided in Table 4 below:

Table 4:

SO_2 Emissions from Wet Milling at Corn Processing Facilities and from Eli Lilly and Company PSD BACT analysis.

Company (RBLC Entry Number)	Process Description	Control Type	Emission Limit (Standard Emission)	Control Efficiency
Minnesota Corn Processors (MN-0026)	Wet milling and aspiration	Packed Tower Scrubber	14.96 lbs/hr	90%
Cargill – Eddyville (IA-0043) issued on 8-27-1998	Steep house aspiration III 10,100 tons/day	None	0.41 lbs/hr	NA
Cargill – Eddyville (IA-0043) issued on 8-27-1998	Mill aspiration II	None	1.4 lbs/hr	NA
Minnesota Corn Processors (NE-0014)	Wet Corn Milling	Wet Scrubber	5.64 lbs/hr	NA
Eli Lilly and Company, Indiana Permit No. 157-6879-00006, issued in 2004	Bulk Pharma Manufacturing combined vents	Wet Scrubber	100 ppmvdc	Not Available
Eli Lilly and Company, Indiana Permit No. 157-6879-00006, issued in 2004	Waste Incinerator	Wet Scrubber	400 ppmvdc	Not Available

No other control technology was found in RBLC.

Best control technology is found to be a wet scrubber with 90% control efficiency and the second best control technology was found to be outlet gas concentration of 100 ppmv SO_2 averaged over 24 hours.

Step 4: Evaluate The Most Effective Controls And Document The Results

The caustic scrubber system is the best control technology available for controlling SO_2 emissions from the dryers.

Alkaline scrubber for Wet Milling Aspiration System

Design airflow of scrubber exhaust = 57,931 acfm at 100 Deg. F

lbs/hr SO_2 = (15 ppmvw SO_2/1000000)*(57931 acfm)*(528 Deg. R/560 Deg. R)*(1 lb-mole/385.3 ft3)*(64 lbs SO_2/lb-mole)*(60 min/hr) = 8.17 lbs/hr

The maximum hourly SO_2 emission rate out of the wet milling scrubber is calculated on the basis of 15 ppmvw SO_2 which is equivalent to 8.17 lbs/hr SO_2. At a removal rate of 90%, the inlet concentration would need to be greater than 150 ppm. Tate & Lyle has measured SO_2 concentrations as high as 150 ppm in aspiration systems at other facilities (see Appendix A of April 2004 PSD permit application)

Tate & Lyle has proposed the following as SO_2 BACT for wet milling operations.

(1) When the inlet SO_2 concentration to the scrubber is more than 150 ppmvw, the scrubber shall have a minimum 90% control efficiency of SO_2 and shall not exceed 8.17 lbs/hr (Based on 10 ppmmw and 57,932 acfm at 100 deg. F) SO_2 in the scrubber outlet, and

(2) If the inlet concentration of SO_2 is 150 ppmvw or less, the scrubber shall have an outlet SO_2 concentration of less than 15 ppmvw, and shall not exceed 8.17 lbs/hr SO_2 in the scrubber outlet.

Step 5: Select BACT

The IDEM agrees that SO_2 BACT is the use of a caustic scrubber system with 90% control efficiency for wet milling operations.

The followings have been established as SO_2 BACT for the wet milling operations:

(1) When the inlet SO_2 concentration to the scrubber is more than 150 ppmvw, the scrubber shall have a minimum 90% control efficiency of SO_2 and shall not exceed 8.17 lbs/hr (Based on 10 ppmmw and 57,932 acfm at 100 deg. F) SO_2 in the scrubber outlet, and

(2) If the inlet concentration of SO_2 is 150 ppmvw or less, the scrubber shall have an outlet SO_2 concentration of less than 15 ppmvw, and shall not exceed 8.17 lbs/hr SO_2 in the scrubber outlet.

(b) Dryers

New Units

ST Fiber Pre-Dryer (21DAA)

ST Germ Dryer (21DBB)

Gluten Flash Dryer (48DAA)

Modified Units

Feed Dryers (21D6, 21D7, and 21D8)

Step 1: Identify Potential Control Technologies

Sulfur dioxide is formed from the oxidation of sulfur compounds in waste streams. In the case of corn wet milling, sulfur dioxide is added as part of the corn steeping process. Control measures are the use of add-on controls.

Add-on control measures are generally based upon exposure of sulfur dioxide molecules to reagents that react with sulfur dioxide to form a sulfate molecule that can then be captured as a particulate. Sulfur dioxide control systems vary in reagent utilized to react with sulfur dioxide, the manner in which the reagent is exposed to sulfur dioxide, and the manner in which sulfate molecules are captured.

Flue Gas Desulfurization System (Wet or Dry Scrubber) – A flue gas desulfurization system (FGD) is comprised of a spray dryer that uses lime as a reagent followed by particulate control or wet scrubber that uses limestone as a reagent. FGD is an established technology. FGD typically operates at an inlet temperature of approximately 400^0F to 500^0F. The concentration of SO_2 in the exhaust gas is the driving force for the reaction between SO_2 and the reagent. Therefore, removal efficiencies are significantly reduced with lower inlet concentrations of SO_2. FGD systems are listed in the RBLC as BACT for sources high in SO_2 emissions. Even though the SO_2 concentrations in the exhaust gases are very low, and the airflow volume is large, the scrubbing systems are technically feasible. Wet scrubbing FGD system is considerably cheaper than dry scrubbing.

Caustic scrubbing system that controls emissions by 90% at a higher concentration is a proven system which operates at or below 250^0F.

Step 2: Eliminate Technically Infeasible Options

The FGD system is not feasible as Tate & Lyle's temperatures of operations are from ambient to 150^0F

Step 3: Rank The Remaining Control Technologies By Control Effectiveness

A summary of RBLC findings for similar dryers and SO_2 emitting facilities is provided in Table 5 below.

Table 5:

SO_2 Emissions from Dryers at Corn Processing Facilities and from Eli Lilly and Company PSD BACT analysis.

Company (RBLC Entry Number)	Process Description	Control Type	Emission Limit (Standard Emission)	Control Efficiency
Cargill – Eddyville (IA-0043) issued on 8-27-1998	Fiber flash dryer	None	10 lbs/hr	NA
Minnesota Corn Processors (MN-0026)	Corn Gluten Dryer	Pollution Prevention	3.15 lbs/hr	
Cargill (NE-0016) issued on 8-27-1998	Germ Dryer	None	0.03 lbs/hr, 0.0006 lb/MMBtu	
Eli Lilly and Company, Indiana Permit No. 157-6879-00006, issued in 2004	Bulk Pharma Manufacturing combined vents	Wet Scrubber	100 ppmvdc	Not Available
Eli Lilly and Company, Indiana Permit No. 157-6879-00006, issued in 2004	Waste Incinerator	Wet Scrubber	400 ppmvdc	Not Available

No other control technology was found in RBLC.

Step 4: Evaluate The Most Effective Controls And Document The Results

The caustic scrubber system is the best control technology available for controlling SO_2 emissions from the dryers.

From Table 5, the best control technology is found to be a wet scrubber with 90% control efficiency and the second best control technology was found to be outlet gas concentration of 100 ppmv SO_2 averaged over 24 hours.

Analysis of SO_2 BACT for dryers

Feed, Meal, or Germ Dryer	Dryer Furnace Heat Input MMBtu/hr	Uncontrolled Emissions Permit Application tons/year	lbs/hr
Feed Dryer (21D6)	30	311	71.0
Feed Dryer (21D7)	30		
Feed Dryer (21D8)	30		
RST Fiber Pre-Dryer (21DAA)	Steam Only		
RST Germ Dryer (21DBB)	Steam Only	65.7	15.0

Gluten Meal Flash Dryer (48DAA)	30	123.2	28.1
Regenerative Thermal Oxidizer (48FGG)	5	Negligible	
Regenerative Thermal Oxidizer (48FHH)	5	Negligible	
Total (3 of 4 Dryer Furnaces)	100.0	500	114.2

	Scrubber Inlet 500 TPY Basis	Scrubber Inlet 90% Eff. Basis	RTO Exhaust
Airflow (acfm)	131776	131776	83985
Temperature (Deg. F)	230	230	280
Concentration (ppmvw)	113.6	59.4	10
Emission Rate (lbs/hr)	114.2	59.7	5.97
Efficiency	95%	90%	

All germ, meal, and feed dryers share the same emission control system (i.e., alkaline scrubber followed by two RTO's). Only three of four new 30 MMBtu/hr dryer furnaces (three feed dryers and one gluten flash dryer) will operate at any time. Two 5-mmbtu/hr regenerative thermal oxidizers will be constructed to allow for maintenance of one of the units during reduced production rates.

SO_2 emissions from the feed dryers include the new steam tube fiber pre-dryer. Airflow into the existing feed dryer scrubber includes air that is recycled to the feed dryers (D6 and D7) after the scrubber but before the RTO's. SO_2 emissions from combustion of natural gas and biogas in feed and meal dryers is included in uncontrolled emissions. SO_2 emissions from combustion of natural gas in the RTO's are negligible (10 MMBtu/hr * AP-42 Factor of 0.0006 lbs/MMBtu = 0.006 lbs/hr).

The maximum hourly SO_2 emission rate after the RTO's is calculated on the basis of 10 ppmvw and maximum airflow (no heat recovery after scrubber). The maximum hourly emission rate of SO_2 shall not exceed 5.97 lbs/hr (26.2 tpy) from the feed, meal, and germ drying system to Stack 17 (after the RTO's). Two scrubber inlet concentration cases were evaluated above (500 TPY Uncontrolled and 90% Scrubber Efficiency). To achieve greater than 90% removal (but less than 95% removal) based on outlet conditions, the inlet concentration to the scrubber must be greater than 60 ppmvw (but less than 114 ppmvw). However, compliance must also be demonstrated during any period when the airflow exiting the scrubber is not recycled to the dryers. Therefore, the 90% removal requirement applies only when the inlet concentration to the scrubber exceeds 100 ppmvw. When the inlet concentration is less than 100 ppmvw, the outlet concentration from the RTO's must be less than 10 ppmvw but the 90% control efficiency requirement will not apply.

Tate & Lyle has proposed the following as SO_2 BACT for the dryers.

(1) The scrubber shall have a minimum 90% control efficiency of SO_2, and shall not exceed 5.97 lbs/hr SO_2 in the scrubber outlet, when the inlet SO_2 concentration to the scrubber is more than 100 ppmvw, and

(2) the scrubber shall have an outlet SO_2 concentration of less than 10 ppmvw and shall not exceed 5.97 lbs/hr SO_2 in the scrubber outlet if the inlet concentration of SO_2 is 100 ppmvw or less.

Step 5: Select BACT

The IDEM agrees that SO_2 BACT is the use of a caustic scrubber system with 90% efficiency for the dryers.

The followings have been established as SO_2 BACT for the dryers.

(1) The scrubber shall have a minimum 90% control efficiency of SO_2, and shall not exceed 5.97 lbs/hr SO_2 in the scrubber outlet, when the inlet SO_2 concentration to the scrubber is more than 100 ppmvw, and

(2) the scrubber shall have an outlet SO_2 concentration of less than 10 ppmvw and shall not exceed 5.97 lbs/hr SO_2 in the scrubber outlet if the inlet concentration of SO_2 is 100 ppmvw or less.

(c) Biogas scrubber system

Since SO_2 is one of the pollutants undergoing PSD review, Tate & Lyle has requested that a BACT limit be established for the existing biogas scrubber (34V11) in order to remove the current synthetic minor emission limit for the anaerobic digester (34V10) of 40 tons/year of sulfur dioxide. Hydrogen sulfide in biogas produced by the anaerobic wastewater treatment system is scrubbed with caustic prior to being burned in the feed dryers or flares. Hydrogen sulfide forms sulfur dioxide in these combustion units.

Step 1: Identify Potential Control Technologies

The waste water treatment plant's digester plant produces biogas which contains H_2S gases. Sulfur dioxide is formed from the oxidation of sulfur compounds in waste streams. Control measures are the use of add-on controls to reduce H_2S concentration the gas streams.

Add-on control measures are generally based upon exposure of hydrogen disulfide molecules to reagents that react with hydrogen sulfide to form a sulfate molecule that can then be captured as a particulate. Hydrogen disulfide control systems vary in reagent utilized to react with hydrogen disulfide, the manner in which the reagent is exposed to hydrogen disulfide, and the manner in which sulfate molecules are captured.

Flue Gas Desulfurization System (Wet or Dry Scrubber) – A flue gas desulfurization system (FGD) is comprised of a spray dryer that uses lime as a reagent followed by particulate control or wet scrubber that uses limestone as a reagent. FGD is an established technology. FGD typically operates at an inlet temperature of approximately 400^0F to 500^0F. The concentration of H_2S in the exhaust gas is the driving force for the reaction between H_2S and the reagent.

Therefore, removal efficiencies are significantly reduced with lower inlet concentrations of H_2S. FGD systems are listed in the RBLC as BACT for sources high in H_2S emissions. Even though the H_2S concentrations in the exhaust gases are very low, and the airflow volume is large, the scrubbing systems are technically feasible. Wet scrubbing FGD system is considerably cheaper than dry scrubbing.

Caustic scrubbing system that controls emissions by 90% at a higher concentration is a proven system which operates at or below 250^0F.

Step 2: Eliminate Technically Infeasible Options

The FGD system is not feasible as Tate & Lyle's temperatures of operations are from ambient to 150^0F.

The caustic scrubber system is the control technology available for controlling H_2S emissions from any gas stream containing Sulfur gases.

Step 3: Rank The Remaining Control Technologies By Control Effectiveness

A summary of RBLC findings for biogas was searched, but no entry was found.

Step 4: Evaluate the Most Effective Controls and Document the Results

The caustic scrubber system is the best control technology available for controlling H_2S emissions from removing H_2S emissions. A 90% efficiency for SO_2 control is generally achieved.

Tate & Lyle Proposed BACT:

BACT for H_2S from the anaerobic wastewater treatment system is use of a caustic scrubber to remove hydrogen sulfide at an efficiency of 90%, when the inlet concentration to the scrubber exceeds 1.1% H_2S by volume. When the inlet concentration is less than 1.1% H_2S by volume, the outlet concentration from the biogas scrubber must be less than 0.11% H_2S but the 90% removal efficiency limit will not apply. This requirement will ensure than emissions of sulfur dioxide from combustion of biogas that has been treated by the scrubber will not exceed 9 lbs/hr SO_2.

The SO_2 BACT for emission unit 34V10 shall be the use of alkaline scrubber 34V11; and,

(1) When the inlet H_2S concentration to the scrubber is more than 1.1% by volume, the scrubber shall have a minimum 90% control efficiency of H_2S and shall not exceed 9.0 lbs/hr SO_2 (equivalent to 4.78 lbs/hr of H_2S) in the scrubber outlet, and

(2) If the inlet concentration of H_2S is 1.1% by volume or less, the scrubber shall have an outlet H_2S concentration of less than 0.11% by volume, and shall not exceed 9.0 lbs/hr SO_2 (equivalent to 4.78 lbs/hr H_2S) in the scrubber outlet.

Step 5: Select BACT

IDEM agrees with Tate & Lyle in regards to the BACT determination for biogas. The SO_2 BACT for biogas system is established as follows:

The SO_2 BACT for emission unit 34V10 shall be the use of alkaline scrubber 34V11; and,

(1) When the inlet H_2S concentration to the scrubber is more than 1.1% by volume, the scrubber shall have a minimum 90% control efficiency of H_2S and shall not exceed 9.0 lbs/hr SO_2 (equivalent to 4.78 lbs/hr of H_2S) in the scrubber outlet, and

(2) If the inlet concentration of H_2S is 1.1% by volume or less, the scrubber shall have an outlet H_2S concentration of less than 0.11% by volume, and shall not exceed 9.0 lbs/hr SO_2 (equivalent to 4.78 lbs/hr H_2S) in the scrubber outlet.

NO_X Control Technologies

Gluten Flash Dryer (48DAA)

Feed Dryer (21D6)

Feed Dryer (21D7)

Feed Dryer (21D8)

Regenerative Thermal Oxidizers (48FGG and 48 FHH)

Spray Dryer #2 (46DAA)

Spray Dryer #3 (51DAA)

Starch Flash Dryer #4 (44DAA)

Nitrogen oxide (NO_X) emissions include nitric oxide (NO) and nitrogen dioxide (NO_2). Approximately 95 percent of the NO_X formed during combustion processes is NO, with most of the remaining emitted as NO_2. Because NO_X emissions tend to oxidize as NO_2 in the atmosphere, NO_X emissions are generally expressed in units of NO_2 equivalent emissions. NO_X is formed from the chemical reaction between nitrogen and oxygen at high temperatures. NO_X formation during combustion occurs in three ways:

1. Oxidation of nitrogen in the combustion air which occurs at elevated temperatures (thermal NO_X);

2. A reaction of hydrocarbons and nitrogen followed by oxidation (prompt NO_X); and

3. Oxidation of nitrogen chemically bound in the fuel (fuel NO_X)

Step 1: Identify Potential Control Technologies

The general approaches to controlling NO_X emissions from stationary sources includes:

1. Limiting the nitrogen content of fuels combusted;

2. Add-on controls; or

3. Combustion controls

Combustion Controls

NO_X emissions can be reduced significantly by minimizing the rate at which NO_X is formed in the combustion process. This can be accomplished by manipulating the combustion process to occur under fuel rich conditions or by reducing the peak flame temperature.
NO_X reduction technologies using combustion controls include the following approaches:

• Low Excess Air (LEA)

• Off-Stoichiometric (OS) Firing

• Low NO_X Burners (LNB)

• Flue Gas Recirculation (FGR)

Potential control options for achieving fuel rich combustion include Low Excess Air (LEA) operation, Off-Stoichiometric (OS) Firing, [which here refers to Burners Out Of Service (BOOS) or Overfire Air (OFA)], and Low NO_X Burners (LNBs). Reducing the flame temperature inhibits thermal NO_X production and can be implemented by Flue Gas Recirculation (FGR).

Add-on control technologies and combustion control approaches are discussed below.

Step 2: Eliminate Technically Infeasible Options

Selective Catalytic Reduction

Selective Catalytic Reduction (SCR) process involves the mixing of anhydrous or aqueous ammonia vapor with flue gas and passing the mixture through a catalytic reactor to reduce NO_X to N_2. Under optimal conditions, SCR can have a removal efficiency up to 90% when used on steady state processes. The efficiency of removal will be reduced for processes that are not stable or require frequent changes in the mode of operation.

The most important factor affecting SCR efficiency is temperature. SCR can operate in a flue gas window ranging from 500°F to 1100°F, although the optimum range for SCR to be effective is 625°F to 700°F.

SCR was determined to be technologically infeasible for the following dryers because they operate at much lower temperature than 500°F:

Feed/Gluten dryers

Starch Spray Dryers

Starch Flash Dryers

Thermal Oxidizers

Selective Non-Catalytic Reduction

With selective non-catalytic reduction (SNCR), NO_X is selectively removed by the injection of ammonia or urea into the flue gas at an appropriate temperature window of 1600°F to 2000°F and without employing a catalyst. Similar to SCR without a catalyst bed, the injected chemicals selectively reduce the NO_X to molecular nitrogen and water. This approach avoids the problem related to catalyst fouling but the temperature window and reagent mixing residence time is critical for conducting the necessary chemical reaction. At the proper temperature, urea decomposes to produce ammonia which is responsible for NO_X reduction. At a lower temperature, the rates of NO_X reduction reactions become too slow resulting in urea slip (i.e., emissions of unreacted urea).

SNCR was determined to be technologically infeasible for the following dryers because they operate at much lower temperature than 1600°F:

Feed/Gluten dryers

Starch Spray Dryers

Starch Flash Dryers

Thermal Oxidizers

Step 3: Rank The Remaining Control Technologies By Control Effectiveness

The only remaining control technology that is technologically feasible is combustion controls. Thus, it is the highest ranked option.

Information from fuel-fired dryers contained in the RACT/BACT/LAER Clearinghouse (RBLC) for corn processing facilities is summarized in Table 4 below.

Table 4 NO_X Emissions from Dryers at Corn Processing Facilities

Company (RBLC Entry Number)	Process Description	Control Type	Emission Limit (Standard Emission)	Control Efficiency
Grain Processing Corporation (IN-0075)	Germ Dryer	Water Quench and Low NO_X Burner	NO_X: 0.06 lb/MMBtu (0.06 lb/MMBtu)	Not Identified
Grain Processing Corporation (IN-0075)	Gluten Dryer	Water Quench and Low NO_X Burner	NO_X: 0.06 lb/MMBtu (0.06 lb/MMBtu)	Not Identified
Grain Processing Corporation (IN-0075)	Maltodextrin Dryer	Low NO_X Burner	NO_X: 0.075 lb/MMBtu	Not Identified
Grain Processing Corporation (IN-0075)	Starch Dryer	Low NO_X Burner	NO_X: 0.075 lb/MMBtu (0.075 lb/MMBtu)	99%
Cargill, Inc. (NE-0016)	Germ Dryer	Not Identified	NO_X: 10 lb/hr (0.2 lb/MMBtu)	Not Identified
Cargill, Inc. (NE-0016)	Fiber PreDryer	Not Identified	NO_X: 15 lb/hr (0.2 Ib/ MMBtu)	Not Identified

Step 4: Evaluate The Most Effective Controls And Document The Results

The data from RBLC indicates that the emissions are from 0.06 to 0.2 lbs/MMBtu. Low NO_X burners are the most effective controls. This control option of low NOx burners is commonly used and cannot be eliminated based on adverse energy, environmental, or economic impacts.

Step 5: Select BACT

BACT has been determined to be the use of low-NO_X burners as follows, for the feed dryers, meal dryers, and thermal oxidizers.

	Dryer Furnace Heat Input (MMBtu/hr)	Proposed BACT Limit (lbs/MMBtu)	Proposed BACT Limit (lbs/hr)
Starch Spray Dryers #2 and #3	45 and 16	0.04	1.8 and 0.64
Starch Flash Dryer #4	40		1.6
Feed Dryer (21D6)	30	0.06	1.8
Feed Dryer (21D7)	30	0.06	1.8
Feed Dryer (21D8)	30	0.06	1.8
Gluten Meal Flash Dryer (48DAA)	30	0.06	1.8
Regenerative Thermal Oxidizer (48FGG)	5	0.06	0.3
Regenerative Thermal Oxidizer (48FHH)	5	0.06	0.3
Total (3 of 4 Dryer Furnaces)	100.0		6.0

There is only a single hourly NOx emission rate of 6.0 lbs/hr (26.3 tpy) from the feed, meal, and germ drying system to Stack 17. All of the dryers share the same emission control system (scrubber followed by RTO's) and each of the combustion burners are subject to the same BACT limit on a lb/MMBtu basis. Measurement of natural gas usage at each combustion unit (dryer furnace or RTO) is not anticipated or necessary. Similarly, measurement of biogas is not anticipated or necessary for each of the three feed dryers (21D6 to 21D7). Therefore, compliance during an emission test should be determined at the exhaust of the RTO's to Stack 17 by determining the mass emission rate and by measurement of total natural gas and biogas usage in the feed, meal, and germ drying system.

The combined NOx BACT from all three feed and gluten flash dryers; and thermal oxidizers will be an emission rate of 0.06 lbs/MMBtu and 6.0 lbs/hr.

The NOx BACT for spray dryers #2 and #3 and flash dryer #4 will be an emission rate of 0.04 lbs/MMBtu and 1.8, 0.64, and1.6 lbs/hr, respectively.

VOC Control Technologies

VOC emissions can occur from two types of operations at corn processing facilities. These are e feed products drying operations and certain general aspiration operations. In addition, Tate & Lyle is proposing a Starch Modification process that will have potential

VOC emissions.

(a) Wet Mill Aspiration System

Steep Tanks (14VAA, 14VBB, 14VCC, 14VDD, 14VEE, 14VFF, 14VGG and 14VHH)

High DS Starch Vacuum Filter, identified as (18FAA)

Gluten Vacuum Filter (21FAA)

Gluten Vacuum Filter Pump (21CBB)

Fiber Dewatering Screens (21FNN)

18 Bldg. Process Tanks and Screens

Step 1: Identify Potential Control Technologies

There are two categories of controls for volatile organic compounds (VOCs); destruction processes and reclamation processes. Destruction technologies reduce the VOC concentration by high temperature oxidation into carbon dioxide and water vapor. Reclamation is the capture of VOCs for reuse or disposal. There are also commercially available combinations of reclamation and destruction technologies.

<u>Destruction Control Methods</u>

The destruction of organic compounds usually requires temperatures ranging from 1200°F to 2200°F for direct thermal oxidizers or 600°F to 1200°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.

Fume oxidizers 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 oxidizer heat input is usually needed to stabilize the burner flame. Natural gas is the most common fuel for VOC oxidizers, but fuel oil is an option in some circumstances.

Combustion control technologies include recuperative thermal oxidation, regenerative thermal oxidation, recuperative catalytic oxidation, regenerative catalytic oxidation, and flares.

<u>Reclamation Control Methods</u>

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 the 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 and reclaimed or destroyed.

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 non volatile hydrocarbons, are suitable absorption solvents. The choice of solvent depends on cost and the solubility of the pollutant in the solvent. As a part of its analysis of BACT for the Starch Modification process, Tate & Lyle will consider an absorption process that utilizes hydrolysis to destroy the pollutant (propylene oxide) following its absorption in water.

Condensation is the separation of VOCs from an emission stream through a phase change, by either 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.

Combination 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 from several vendors. 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 requirements 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.

Innovative Technologies

Review of the literature indicates that other technologies may destroy VOC pollutants.
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, also show promise.

Step 2: Eliminate Technically Infeasible Options

None of the innovative applications are well documented, with little information on process costs. Thus, none of the novel technologies can be considered commercially available.

Adsorption is not used in this industry as the sieves are likely to be plugged up. Condensation is also not used for the aspiration system in this industry.

Thermal oxidation and absorption control technologies may be used in this industry.

Step 3: Rank The Remaining Control Technologies By Control Effectiveness

1. Thermal oxidation
2. Absorption

Information from Aspirations contained in the RACT/BACT/LAER Clearinghouse (RBLC) for corn processing facilities is summarized in Table 4 below.

Table 4 RBLC Entries and Permit Limits for VOC Emissions from Aspirations of Corn Processing Facilities

Company (RBLC Entry Number)	Process Description	Control Type	Emission Limit (Standard Emission)	Control Efficiency
Cargill, Inc. (IA-0029)	Mill Aspiration II	None	None	0%
Cargill, Inc. (IA-0043)	Mill Aspiration III	None	None	0%
Minnesota Corn Processors (MN-0038)	Feed house Ventilation	None	None	0%
Cargill, Inc. (NE-0016)	Process Aspiration	None	None	0%
Cargill, Inc. (NE-0016)	Steep House	None	None	0%
Minnesota Corn Processors (MN-0026)	Wet Milling and Steeping	None	None	0%
Minnesota Corn Processors (MN-0014)	Wet Milling	None	None	0%

Step 4: Evaluate The Most Effective Controls And Document The Results

Tate & Lyle evaluated thermal oxidation to control VOC emissions from aspiration. This control option is believed to have a minimum 95% overall control efficiency for the aspiration system. IDEM concluded that the estimated cost of $ 10,546 per ton of VOC to control VOC emissions using thermal oxidation was economically infeasible. Tate & Lyle proposes absorption using a wet scrubber to control VOC emissions from wet milling aspiration system. The VOC control efficiency of this scrubber is 25%.The same scrubber also controls SO_2 emissions from the wet milling aspiration system.

Tate & Lyle evaluated increasing the VOC (ethanol) removal efficiency for the wet mill aspiration scrubber. While it is possible to increase the efficiency of the scrubber by increasing the purge rate of the scrubber, the additional wastewater flow can not be managed by practical means.

Henry's Law (y=Hx) describes the equilibrium relationship of ethanol in air compared to dilute solutions of ethanol in water. This relationship is applicable to Tate & Lyle's scrubber design. Henry's Law dictates that it is necessary to decrease the ethanol concentration in the scrubbing solution in order to reduce the concentration of ethanol in the exhaust of the scrubber. Additional freshwater must be added (and scrubbant purged) in order to lower these liquid concentrations. The alternate case selected in the analysis was for once-through use of fresh water. The recycle rate for the scrubber is 400 gpm based on an appropriate liquid to gas ratio for a scrubber of this design. The purge rate for the 25% removal case is 29 gpm. In the alternate case, there is no recycle, the makeup rate becomes 401 gpm, and the purge rate becomes 400 gpm.

A maximum ethanol removal efficiency of 82% will result based on the purge rate of 400 gpm. The liquid concentration necessary to obtain 82% removal can be calculated from the ratio of the concentrations of ethanol in the scrubber exhaust and scrubbant at 25% removal compared to the ratio of ethanol in the scrubber exhaust and scrubbant at 82% removal. These ratios are equal based on the Henry's Law constant. The daily purge rate at 82% removal is about 580,000 gallons/day and annual water use and treatment costs are about $969,124 compared to costs of $83,587 per year at 25% removal (>10X increase in costs and flows). The cost effectiveness for VOC control efficiency of 82% is an additional $9,800 per ton when compared to the cost effectiveness at 25% removal. However, this figure does not include the significant capital required to expand Tate & Lyle's pretreatment facility to handle the additional wastewater flow.

Step 5: Select BACT

BACT has been determined to be the use of an absorption system using wet scrubber to control VOC emissions from wet milling aspiration and the scrubber shall have a minimum 25% control efficiency of VOC and shall not exceed 27.0 lbs/hr.

(b) New Dryers

ST Fiber Pre-Dryer (21DAA)

ST Germ Dryer (21DBB)

Gluten Flash Dryer (48DAA)

Modified Dryers

Feed Dryer (21D6)

Feed Dryer (21D7)

Feed Dryer (21D8)

Step 1: Identify Potential Control Technologies

There are two categories of controls for volatile organic compounds (VOCs); destruction processes and reclamation processes. Destruction technologies reduce the VOC concentration by high temperature oxidation into carbon dioxide and water vapor. Reclamation is the capture of VOCs for reuse or disposal. There are also commercially available combinations of reclamation and destruction technologies.

<u>Destruction Control Methods</u>

The destruction of organic compounds usually requires temperatures ranging from 1200°F to 2200°F for direct thermal oxidizers or 600°F to 1200°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.

Fume oxidizers 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 oxidizer heat input is usually needed to stabilize the burner flame. Natural gas is the most common fuel for VOC oxidizers, but fuel oil is an option in some circumstances.

Combustion control technologies include recuperative thermal oxidation, regenerative thermal oxidation, recuperative catalytic oxidation, regenerative catalytic oxidation, and flares.

<u>Reclamation Control Methods</u>

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 the 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 and reclaimed or destroyed.

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 non volatile hydrocarbons, are suitable absorption solvents. The choice of solvent depends on cost and the solubility of the pollutant in the solvent. As a part of its analysis of

BACT for the Starch Modification process, Tate & Lyle will consider an absorption process that utilizes hydrolysis to destroy the pollutant (propylene oxide) following its absorption in water.

Condensation is the separation of VOCs from an emission stream through a phase change, by either 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.

Combination 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 from several vendors. 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 requirements 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.

Innovative Technologies

Review of the literature indicates that other technologies may destroy VOC pollutants. 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, also show promise.

Step 2: Eliminate Technically Infeasible Options

None of the innovative applications are well documented, with little information on process costs. Thus, none of the novel technologies can be considered commercially available.

Adsorption is not used in this industry as the sieves are likely to be plugged up. Condensation is also not used for the aspiration system in this industry.

Thermal oxidation and absorption control technologies are used in this industry.

Step 3: Rank The Remaining Control Technologies By Control Effectiveness

(1) Thermal oxidation

(2) Absorption

Information from fuel-fired dryers contained in the RACT/BACT/LAER Clearinghouse (RBLC) for corn processing facilities is summarized in Table 5 below.

Table 5 RBLC Entries and Permit Limits for VOC Emissions from dryers of Corn Processing Facilities

Company (RBLC Entry Number)	Process Description	Control Type	Emission Limit (Standard Emission)	Control Efficiency
Grain Processing Corporation (IN-0075)	Starch Dryer	Good Combustion Practices	VOC: 1.0 lb/hr	0%
Grain Processing Corporation (IN-0075)	Germ Dryer*	Thermal Oxidation	VOC 5.25 lb/hr	95%
Grain Processing Corporation (IN-0075)	CGF Dryer*	Thermal Oxidation	VOC 5.25 lb/hr	95%
Grain Processing Corporation (IN-0075)	Gluten Dryer*	Thermal Oxidation	VOC lb/hr	95%
Grain Processing Corporation (IN-0075)	Maltodextrin Dryer*	Good Combustion Practices	VOC: 1.0 lb/hr	0%
Cargill (IA-0057)	Barr-Rosin Fiber Flash Dryer System	None	VOC: 0.981 t/yr	0%
Cargill, Inc. (IA-0029)	Fiber Dryer System	None	VOC: 0.8 t/yr	0%
Cargill, Inc. (IA-0029)	Gluten Flash Dryers	None	VOC: 0.07 lb/hr	0%

* Emission units were not identified in RBLC, but in proposed permit T027-14200-00046

Step 4: Evaluate The Most Effective Controls And Document The Results

Tables 5 indicates that thermal oxidation has been proposed to control VOC emissions from feed, meal, and germ dryers. This control option is believed to have a minimum 95% overall control efficiency for dryers.

The maximum hourly VOC emission rate out of the RTO's is calculated on the basis of 10 ppmvw VOC (calculated as ethanol) which is equivalent to 4.29 lbs/hr

VOC. An inlet concentration limit was not recommended due to numerous compounds in the scrubber inlet comprising total VOC. To achieve more than 95% removal of VOC, the mass emission rate to the inlet of the scrubber must be greater than 100 lbs/hr based on the outlet emission limit of 4.29 lbs/hr. Tate & Lyle is not convinced that the RTO system will continue to achieve a demonstrable 95% removal rate when inlet emissions rates are below 100 lbs/hr. For instance, if the inlet rate is only 30 lbs/hr VOC, the outlet rate would only be 1.5 lbs/hr VOC or 3.5 ppm VOC. Current test methods have limitations accurately measuring VOC's at very low concentrations making it difficult to demonstrate a 95% removal efficiency under all circumstances.

Tate & Lyle has proposed the use of a scrubber followed by a regenerative thermal oxidation rated at an overall reduction efficiency of 95%, for feed dryers, gluten flash dryer, steam tube fiber dryer, and steam tube germ dryer.

Tate & Lyle has proposed the following BACT for the dryers:

(1) When the inlet VOC emission rate to the scrubber is more than 100 lbs/hr, the scrubber and thermal oxidizers shall have a minimum overall 95% control efficiency of VOC, and shall not exceed 4.29 lbs/hr VOC in the thermal oxidizer outlet; and

(2) If the inlet emission rate of VOC to the scrubber is 100 lbs/hr or less the thermal oxidizers shall have an outlet VOC concentration of less than 10 ppmvw and shall not exceed 4.29 lbs/hr VOC in the thermal oxidizer outlet.

A higher control efficiency of the thermal oxidizer was investigated, but the cost effectiveness to control VOC at 98% will be more than $16,000 per ton.

Step 5: Select BACT

VOC BACT for the above dryers has been determined to be the use of a scrubber followed by a regenerative thermal oxidation and

(3) When the inlet VOC emission rate to the scrubber is more than 100 lbs/hr, the scrubber and thermal oxidizers shall have a minimum overall 95% control efficiency of VOC, and shall not exceed 4.29 lbs/hr VOC in the thermal oxidizer outlet; and

(4) If the inlet emission rate of VOC to the scrubber is 100 lbs/hr or less the thermal oxidizers shall have an outlet VOC concentration of less than 10 ppmvw and shall not exceed 4.29 lbs/hr VOC in the thermal oxidizer outlet.

(c)

Six (6) Propylated Starch Reactors (45VAA, 45VBB, 45VCC, 45VDD, 45VEE and 45VFF)

Twelve Propylated starch reactors (45V223, 45V240, 45V241, 45V242, 45V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, and 45V281)

Two Flash 4 Slurry Hold Tanks (44V1 and 44V2)

Three Flash 4 Larox Filters (44FKK, 44FLL and 44FMM)

One Flash 4 Larox Filter Feed Tank (44V3)

One Flash 4 Larox Air Release Tank (44V4)

One Flash 4 Larox Air Release Tank (44V5)

Two Spray dryer #2 Feed Tanks (46V1 and 46V2)

Three Spray dryer #2 Process Tanks (46V3, 46V4 and 46V5)

One Spray Dryer #2 (46DAA).

One Spray Dryer #3 (51DAA)

One Starch Flash Dryer #4 (44DAA).

Step 1: Identify Potential Control Technologies

There are two categories of controls for volatile organic compounds (VOCs); destruction processes and reclamation processes. Destruction technologies reduce the VOC concentration by high temperature oxidation into carbon dioxide and water vapor. Reclamation is the capture of VOCs for reuse or disposal. There are also commercially available combinations of reclamation and destruction technologies.

Destruction Control Methods

The destruction of organic compounds usually requires temperatures ranging from 1200°F to 2200°F for direct thermal oxidizers or 600°F to 1200°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.

Fume oxidizers 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 oxidizer heat input is usually needed to stabilize the burner flame. Natural gas is the most common fuel for VOC oxidizers, but fuel oil is an option in some circumstances.

Combustion control technologies include recuperative thermal oxidation, regenerative thermal oxidation, recuperative catalytic oxidation, regenerative catalytic oxidation, and flares.

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 the 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 and reclaimed or destroyed.

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 non volatile hydrocarbons, are suitable absorption solvents. The choice of solvent depends on cost and the solubility of the pollutant in the solvent. As a part of its analysis of BACT for the Starch Modification process, Tate & Lyle will consider an absorption process that utilizes hydrolysis to destroy the pollutant (propylene oxide) following its absorption in water.

Condensation is the separation of VOCs from an emission stream through a phase change, by either 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.

Combination 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 from several vendors. 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 requirements 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.

Innovative Technologies

Review of the literature indicates that other technologies may destroy VOC pollutants. 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, also show promise.

Step 2: Eliminate Technically Infeasible Options

None of the innovative applications are well documented, with little information on process costs. Thus, none of the novel technologies can be considered commercially available.

Adsorption is not used in this industry as the sieves are likely to be plugged up. Condensation is also not used for the aspiration system in this industry.

Thermal oxidation and absorption control technologies are used in this industry.

Step 3: Rank The Remaining Control Technologies By Control Effectiveness

(1) Thermal oxidation

(2) Absorption

Low pH packed bed scrubber and hydrolysis is the control device used to control VOC emissions from these types of starch dryers

Step 4: Evaluate The Most Effective Controls And Document The Results

There are no entries for Propylated Starch Reactors.

Tate & Lyle has proposed to control VOC emissions from the six new and twelve existing propylated starch reactors utilizing low pH packed bed scrubbers and hydrolysis that is expected to control VOC emissions in the exhaust stream by 95%. There will be emissions of approximately 0.3 tons per year from vent fans on the reactors that are not captured by the control system, resulting in an overall control efficiency of 94.4% for the process. Tate & Lyle has proposed BACT for the propylated starch reactors are as follows:

(1) 3.25 lb of VOC per 100,000 lb of acid-killed starch; and

(2) 6.0 lb of VOC per 100,000 lb of non-acid-killed starch (equivalent to minimum 95% overall control efficiency).

Step 5: Select BACT

VOC BACT for the above starch reactors are as follows:

BACT has been determined to be the use of a low pH packed bed scrubber and hydrolysis and

(1) a VOC emission rate of 3.25 lb per 100,000 lb of acid-killed starch and 6.0 lb per 100,000 lb of non-acid-killed starch for Propylene Oxide Starch Reactors ((equivalent to minimum 95% overall control efficiency); and

(2) the combined propylene oxide input to emission units 45VAA, 45VBB, 45VCC, 45VDD, 45VEE, 45VFF, 40V1, 40U2, 40Y1, 40V50, 40V20, 40V21, 40V15, 40V16, 40F51, 40F52, 40F53, 40F54, 40U23, 43V71, 43V72, 43F71, 43F72, 43F73, 43V85, 43V86, 45V117, 45V118, 45V119, 45V120, 30V1, 30V2, 40V12, 40V11, 40V14, 45V223, 45V240, 45V241, 45V242, 45 V243, 45V246, 45V247, 45V248, 45V270, 45V271, 45V280, 45V281, 44V1, 44V2, 44V3, 44V4, 44V5, 44FKK, 44FLL, 44FMM, 46V1, 46V2, 46V3, 46V4, 46V5, 40D1, 40D20, 43D71, 41D1, 41D2, 41D3, 41D4, 41D5, 41D6, 41D7, 41D8, 41D9, 41D10, 41D11, 41D12, 41D13, 41D14, 30D1, 16D4, 16D5, 44DAA, and 46DAA shall not exceed 1500 tons per twelve consecutive month period for propylated starch reactions that do not undergo the acid-kill step.

(d) BACT for Spray Dryer #2 (46DAA) , Spray Dryer #3 (51DAA), and Starch Flash Dryer #4 (44DAA)

VOC emissions from these dryers include negligible amounts of natural gas combustion byproducts and very small amounts of residual propylene oxide. Propylated starch will not be dried on Spray dryer #3. Propylene oxide emissions from the dryers range from 6 lbs per 100,000 lbs of production for propylated starch that undergoes the acid-kill step to 20 lbs per 100,000 lbs of production for the 7% of propylated starch production that cannot undergo this proprietary step. Less than 1% of the initial propylene oxide charge to each reaction is expected to remain as propylene oxide at the end of the acid-kill step. Most of the remaining propylene oxide in the starch slurry remains in starch filtrates sent to the wastewater treatment plant after dewatering. However, airflow for these dryers exceeds 100,000 cfm. This means the uncontrolled propylene oxide concentration exiting the dryers will be less than 5 ppm. It is not technically feasible to control gas streams containing such low concentrations of VOC.

(e) VOC BACT for Starch Dryer Process Tanks

There are only 18 tons/yr (about 4 lbs/hr) of propylene oxide that have the potential to be emitted from all existing and new starch dryer systems (including dryer process tanks and the new roll dryers) based on propylated starch production limits. Most of this 18 tons per year will be emitted from the various dryers although there will be some small amount emitted by the various dryer process tanks. Requiring a control device for the small amount of propylene oxide emitted (much less than 4 lbs/hr) from the flash dryer 4 and spray dryer 2 tanks systems does not address where the majority of the P.O. emissions wind up (dryer exhausts). The combined air flow rate for the flash dryer #4 and spray dryer 2 process tanks is about 21,000 acfm**.** Tate & Lyle feels the proprietary acid-kill step in starch modification should represent BACT for the downstream dryer process tanks and dryers. This step is extremely effective in scavenging residual propylene oxide from the starch slurry after completion of the starch reactions. This means the uncontrolled propylene oxide concentration exiting the dryers will be less very low. It is not technically feasible to control gas streams containing such low concentrations of VOC.

Startup, and Shutdown

For the units being constructed or modified, Tate & Lyle is not aware of any limits proposed in the permits that will be exceeded during the startup or shutdown of affected emission units.

Appendix D

Air Quality Analysis

<u>Introduction</u>

Tate & Lyle has applied for a PSD Permit to revise their corn wet milling plant. The facility is located at Lafayette in Tippecanoe County, Indiana. This modification will be subject to Prevention of Significant Deterioration (PSD) review.

On April 14, 2004, Tate & Lyle submitted an application for a PSD Significant Source Modification to the Office of Air Quality. (QAQ) ERM performed the modeling for Tate & Lyle. This document provides an air quality analysis performed by OAQ.

<u>Air Quality Impact Objectives</u>

The air quality impact analysis of the permit application has the following objectives and will be addressed in each section outlined below.

A. Establish which pollutants require an air quality analysis.

B. Determine the significant impact level.

C. Demonstrate that the source will not cause or contribute to a violation of the National Ambient Air Quality Standard (NAAQS) or Prevention of Significant Deterioration (PSD) increment if the applicant exceeds significant impact levels.

D. Perform analysis of any air toxic compound for a health risk factor on the general population.

E. Perform a qualitative analysis of the source's impact on general growth, soils, vegetation and visibility in the impact area.

F. Summary of Air Quality Analysis

<u>Analysis Summary</u>

ISCST3 modeling results showed the Tate & Lyle facility would not violate either the NAAQS or the PSD increment. HAP concentrations were below .5% of the PEL. There were no HAPs above the representative health risk NATA/CEP benchmarks.

<u>Section A</u>

Pollutants Analyzed for Air Quality Impact

The PSD requirements, 326 IAC 2-2, apply in attainment and unclassifiable areas and require an air quality impact analysis of each regulated pollutant emitted in significant amounts by a major stationary source or modification. Significant emission levels for each pollutant are defined in 326 IAC 2-2-1. Particulate Matter less than 10 microns (PM10) and Nitrous Oxides (NOx) are the pollutants that will be emitted above significant emission levels from the plant expansion. Therefore, an air quality analysis is required for this pollutant which exceeded significant emission rates as shown in Table 1:

TABLE 1
Significant Emission Rates for PSD

POLLUTANT	SOURCE EMISSION RATE[1] (Facility Totals)	MODELING THRESHOLD EMISSION RATE	PRELIMINARY AQ ANALYSIS REQUIRED
	(tons/year)	(tons/year)	
PM10	110.7	15	Yes
VOCs (O_3)	-18.8	100	No
NOx	258.7	40	Yes
SO2	-15.7	40	No
CO	67.4	100	No

[1]Taken from the TSD for a Prevention of Significant Deterioration (PSD) and Part 70 Significant Source Modification.

Section B

Significant Impact Level/Significant Impact Area (SIA)

The OAQ review used the Industrial Source Complex Short Term (ISCST3) model, BEEST Version 9.2 to determine maximum off-property concentrations or impacts for PM_{10} and each HAP. All regulatory default options were utilized in the United States Environmental Protection Agency (U.S. EPA) approved model, as listed in the 40 Code of Federal Register Part 51, Appendix W, Guideline on Air Quality Models. The area is considered primarily rural with a portion of the area classified as industrial; therefore a rural classification was used. The model also utilized the Schulman-Scire algorithm to account for building downwash effects. The stacks associated with the proposed facility are below the Good Engineering Practice (GEP) formula for stack heights. This indicates wind flow over and around surrounding buildings can influence the dispersion of concentrations from the stack. 326 IAC 1-7-3 requires a study to demonstrate that excessive modeled concentrations will not result from stacks with heights less than the GEP stack height formula. The aerodynamic downwash parameters were calculated using U.S. EPA's Building Profile Input Program (BPIP).

The meteorological data used in the ISCST3 model consisted of the latest five years (1990-1994) of available surface data from the Indianapolis, Indiana Airport National Weather Service station merged with the mixing heights from Peoria, Illinois National Weather Service station. The meteorological data was preprocessed into ISCST3-ready format with U.S. EPA's PCRAMMET.

Ground-level receptor points (including terrain elevations) surrounding the source are input into the model to determine the maximum modeled concentrations that would occur at each point. OAQ modeling utilized a Cartesian receptor grid out to 4 kilometers for all pollutants with receptors placed at distances of 100 meter intervals which include fence-line receptors.

The consultant performed an air quality modeling analysis to determine if the source exceeded the significant impact levels (concentrations). If the source's concentrations exceed these levels, IDEM and USEPA guidance requires further air quality analysis. Significant impact levels are defined by the time periods presented in the following Table as well as all maximum modeled concentrations from the worst case operating scenarios.

Since PM_{10} exceeded the significant impact level, further modeling was performed to insure the PSD increments and the NAAQS were maintained. The source impact is above significance level so refined modeling analysis is required.

Table 2
Significant Impact Analysis

POLLUTANT	TIME AVERAGING PERIOD	MAXIMUM MODELED IMPACTS (ug/m^3)	SIGNIFICANT IMPACT LEVEL (ug/m^3)	REFINED AQ ANALYSIS REQUIRED
PM_{10}	Annual	3.19	1	Yes
PM_{10}	24 Hour	26.9	5	Yes
NOx	Annual	0.21	1	No

Section C

NAAQS and PSD Analysis

Maximum allowable increases (PSD increments) are established by 326 IAC 2-2 for NO_2, SO_2 and PM_{10}. This rule limits a source to no more than 80 percent of the available PSD increment to allow for future growth. 326 IAC 2-2-6 describes the availability of PSD increment and maximum allowable increases as increased emissions caused by the proposed major PSD source will not exceed 80 percent of the available maximum allowable increases over the baseline concentrations for $PM_{10,}$ sulfur dioxide, and nitrogen dioxide. Table 3 shows the results of the PSD increment analysis for PM_{10}. No violations of 80 percent of the PSD increment for PM_{10} occurred and no further modeling was required.

Table 3
Increment Analysis

POLLUTANT	TIME AVERAGING PERIOD	MAXIMUM MODELED IMPACTS (ug/m^3)	CLASS II INCREMENT (ug/m3)	80% of CLASS II INCREMENT (ug/m^3)
PM_{10}	Annual	3.0	17	13.6
PM_{10}	24 Hour	22.6	30	24

Emission inventories of PM_{10} sources in Indiana within a 50 kilometer radius of the site were taken from the OAQ emission statement database. OAQ NAAQS modeling results are shown in Table 4. Maximum concentrations of PM_{10} for the 24-hour and annual time-averaged periods were below their respective NAAQS limit and further modeling was not required.

Table 4
NAAQS Analysis

POLLUTANT	TIME AVERAGING PERIOD	YEAR	MAXIMUM MODELED IMPACTS (ug/m^3)	MONITORING BACKGROUND (ug/m^3)	TOTAL (ug/m3)	NAAQS STANDARD (ug/m^3)
PM_{10}	Annual	1990	13.4	25	38.4	50
PM_{10}	24 Hour	1993	83.3	49	132	150

Section D

Hazardous Air Pollutant Analysis and Results

As part of the air quality analysis, OAQ requests data concerning the emission of 188 Hazardous Air Pollutants (HAPs) listed in the 1990 Clean Air Act Amendments which are either carcinogenic or otherwise considered toxic. These substances are listed as air toxic compounds on construction permit application. Any HAP emitted from a source will be subject to toxic modeling analysis. The modeled emissions for each HAP are the total emissions, based on assumed operation of 8760 hours per year.

Maximum 8-hour concentrations were determined and the concentrations were recorded as a percentage of each HAP Permissible Exposure Limit (PEL). The PELs were established by the Occupational Safety and Health Administration (OSHA) and represent a worker's exposure to a pollutant over an 8-hour workday or a 40-hour workweek. In Table 5 below, the results of the HAP analysis with the emission rates, modeled concentrations and the percentages of the PEL for each HAPs are listed. All HAP concentrations were modeled below 0.5% of their respective PEL. The 0.5% of the PEL represents a safety factor of 200 taken into account when determining the health risk of the general population.

TABLE 5 – Hazardous Air Pollutant Analysis of PEL

Hazardous Air Pollutants	HAP Emissions	Maximum 8-hour impacts	PEL	% of PEL
	(tons/year)	(ug/m3)	(ug/m3)	(%)
Acetaldehyde	1.44	0.87	360000	0.0002
Formaldehyde	3.60	0.559	930	0.060
Methanol	0.12	0.007	260000	0.00000
Propylene Oxide	8.90	7.25	240000	0.003

The maximum predicted annual HAP concentrations in comparison to the NATA/CEP cancer risk of one in one million is presented in Table 6. The cancer risk assumes exposure for a 70-year period.

TABLE 6 – HAP Analysis for Cancer Risk					
Hazardous Air Pollutants	**HAP Emissions**	**Unit Risk Factor**	**Maximum annual impacts**	**Cancer Risk**	**Less than 1 per million ?**
	(tons/year)	(per ug/m3)	(ug/m3)		
Acetaldehyde	1.44	0.0000022	0.0024	.0000000060	Yes
Formaldehyde	3.60	0.000013	0.014	.000000195	Yes
Propylene Oxide	8.90	0.0000037	0.49	.00000181	No

The cancer risk for acetaldehyde and formaldehyde are less than 1 per million. The cancer risk for propylene oxide reached 1.81 per million along the fence line. Only four receptors away from the fence line were above 1. Two receptors were in the rail yard, one was in Tate & Lyle parking lot, and the other was on the road to the south east of the plant. None of these would involve public residences.

Section E

Additional Impact Analysis

PSD regulations require an additional impact analysis be conducted to show that impacts associated with the facility would not adversely affect the surrounding area.

Economic Growth and Impact of Construction Analysis

Tate & Lyle will employ no additional people due to the modification. Secondary emissions are not expected. Industrial and residential growth would be none. There will be no adverse impact in the area due to industrial, residential or commercial growth.

Soils Analysis

Secondary NAAQS limits were established to protect general welfare, which includes soils, vegetation, animals and crops. Soils in Tippecanoe County are primarily Russell-Fincastle types. From the modeled concentrations of PM_{10} and HAPs analysis, the soils will not be adversely affected by the facility.

Vegetation Analysis

Due to the agricultural nature of the land, crops in the Tippecanoe County area consist mainly of corn, wheat and soybeans. The maximum modeled concentrations of Tate & Lyle for PM_{10} are well below the threshold limits necessary to have adverse impacts on surrounding vegetation. (Flora of Indiana - Charles Deam). Livestock in Tippecanoe County consist mainly of hogs, cattle and chickens and will not be adversely impacted from the facility. Trees in the area are mainly hardwoods. These are hardy trees and no significant adverse impacts are expected due to modeled concentrations.

Federal and State Endangered Species Analysis

Federally endangered or threatened species as listed in the U.S. Fish and Wildlife Service, Division of Endangered Species for Indiana includes 12 species of mussels, 4 species of birds, 2 species of bat and butterflies and 1 species of snake. The agricultural nature of the land overall has disturbed the habitats of the butterflies and snake and the proposed modification is not expected to impact the area further. The mussels and birds listed are commonly found along major rivers and lakes while the bats are found near caves. A detailed listing of Federal and State endangered species for Indiana can be found on the internet at www.in.gov/dnr/naturepr/species/. The impacts from Tate & Lyle's facility expansion are not expected to adversely impact these species.

Federally endangered or threatened plants as listed in the U.S. Fish and Wildlife Service, Division of Endangered Species for Indiana list two threatened and one endangered species of plants. The endangered plant is found along the sand dunes in northern Indiana while the two threatened species do not thrive on cultivated or grazing land. The proposed modification is not expected to impact the area further.

The state of Indiana list of endangered, special concern and extirpated nongame species, as listed in the Department of Natural Resources, Division of Fish and Wildlife, contains species of birds, amphibians, fish, mammals, mollusks and reptiles which may be found in the area. However, the impacts are not expected to have any additional adverse effects on the habitats of the species than what has already occurred from the agricultural activity in the area.

Additional Analysis Conclusions

The nearest Class I area to Tate & Lyle is the Mammoth Cave National Park located approximately 250 kilometers to the south in Kentucky. The proposed facility will not adversely affect the visibility at this Class I area. Tate & Lyle is located well beyond 100 kilometers from Mammoth Cave National Park and will not have a significant impact on the Class I area. The results of the additional impact analysis conclude the Tate & Lyle's facility's modification will have no adverse impact on economic growth, soils, vegetation, and endangered or threatened species.

Part F

Summary of Air Quality Analysis

Tate & Lyle has applied for a PSD permit. ERM Environmental prepared the application. Tippecanoe County is attainment for all pollutants. PM10 emission rates exceeded significant emission rates. Modeling results were above significance levels, but refined modeling showed that both the PSD increment and NAAQS for PM10 and NOx were maintained. An air toxic analysis was performed as a precautionary measure and no pollutant was above 0.5% of PEL or above 1 in a million cancer risk level at any residential receptor. The nearest Class I area is Mammoth Cave National Park in Kentucky about 250 kilometers to the south. Additional analysis showed no significant impact on soils vegetation or visibility in the surrounding area.