INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant

DATE: April 14, 2008

RE: Ultra Soy of America / 087-24953-00069

FROM: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Notice of Decision: Approval – Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-15-5-3, this permit is effective immediately, unless a petition for stay of effectiveness is filed and granted, 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 4-21.5-3-7 and IC 13-15-6-1(b) or IC 13-15-6-1(a) require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Suite N 501E, Indianapolis, IN 46204.

For an **initial Title V Operating Permit**, a petition for administrative review must be submitted to the Office of Environmental Adjudication within **thirty (30)** days from the receipt of this notice provided under IC 13-15-5-3, pursuant to IC 13-15-6-1(b).

For a **Title V Operating Permit renewal**, a petition for administrative review must be submitted to the Office of Environmental Adjudication within **fifteen (15)** days from the receipt of this notice provided under IC 13-15-5-3, pursuant to IC 13-15-6-1(a).

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.

Pursuant to 326 IAC 2-7-18(d), any person may petition the U.S. EPA to object to the issuance of an initial Title V operating permit, permit renewal, or modification within sixty (60) days of the end of the forty-five (45) day EPA review period. Such an objection must be based only on issues that were raised with reasonable specificity during the public comment period, unless the petitioner demonstrates that it was impractible to raise such issues, or if the grounds for such objection arose after the comment period.

To petition the U.S. EPA to object to the issuance of a Title V operating permit, contact:

U.S. Environmental Protection Agency
401 M Street
Washington, D.C. 20406

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
FNTVOP.dot 3/27/08

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

New Source Construction, Prevention of Significant Deterioration (PSD) and Part 70 Operating Permit
OFFICE OF AIR QUALITY

Ultra Soy of America, LLC
7500 C.R. 700 South
South Milford, Indiana 46786

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

The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. 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 permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.
This permit also addresses certain new source review requirements for new 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

Operation Permit No.: T087-24953-00069	
Original signed by: Matthew Stuckey, Chief Permits Branch Office of Air Quality	Issuance Date: April 14, 2008 Expiration Date: April 14, 2013

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SECTION A SOURCE SUMMARY

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

A.1 General Information [326 IAC 2-7-4(c)][326 IAC 2-7-5(15)][326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary soybean based biodiesel production plant and soybean processing plant.

Source Address: 7500 C.R. 700 South, South Milford, Indiana 46786
Mailing Address: P.O. Box 8977, Fort Wayne, Indiana 46898-8977
General Source Phone Number: (260) 489-2549
SIC Code: 2075, 2869, 2079
County Location: LaGrange
Source Location Status: Attainment for all criteria pollutants
Source Status: Part 70 Operating Permit Program
Major Source, under PSD Rules
Major Source, Section 112 of the Clean Air Act
Not 1 of 28 Source Categories

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

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

(a) Material handling and processing equipment approved for construction in 2008 as follows:

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
R1	Hopper Truck Receiving Dump #1	270	Fabric Filter Dust Collector DC-1	EP-1
R2	Hopper Truck Receiving Dump #2	270	Fabric Filter Dust Collector DC-1	EP-1
R3	Rail Receiving Dump	270	Fabric Filter Dust Collector DC-1	EP-1
R4	Receiving Dump Drag #1	270	Fabric Filter Dust Collector DC-1	EP-1
R5	Receiving Dump Drag #2	270	Fabric Filter Dust Collector DC-1	EP-1
R6	Receiving Dump Leg	270	Fabric Filter Dust Collector DC-1	EP-1
R7	Receiving Crossyard Conveyor	270	Fabric Filter Dust Collector DC-1	EP-1
R8	Distribution Conveyor A	270	Fabric Filter Dust Collector DC-1	EP-1
R9	Distribution Conveyor B	270	Fabric Filter Dust Collector DC-1	EP-1

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
R10	Distribution Conveyor C	270	Fabric Filter Dust Collector DC-2	EP-2
P1	Discharge Conveyor A	270	Fabric Filter Dust Collector DC-2	EP-2
P2	Discharge Conveyor B	270	Fabric Filter Dust Collector DC-2	EP-2
P3	Leg Feed Conveyor	270	Fabric Filter Dust Collector DC-2	EP-2
P4	Discharge Leg	270	Fabric Filter Dust Collector DC-2	EP-2
P5	Prep Crossyard Conveyor A	270	Fabric Filter Dust Collector DC-2	EP-2
P6	Prep Crossyard Conveyor B	270	Fabric Filter Dust Collector DC-2	EP-2
P7	Prep Crossyard Conveyor C	270	Fabric Filter Dust Collector DC-3	EP-3
P8	Whole Bean Scale Belt	270	Fabric Filter Dust Collector DC-3	EP-3
P9 – P10	Scalper/Destoner	270	Fabric Filter Dust Collector DC-3	EP-3
P11 – P12	Whole Bean Aspirator	270	Fabric Filter Dust Collector DC-3 and Cyclone CY-1	EP-3
P11A	Cleaner A	270	Fabric Filter Dust Collector DC-3	EP-3
P12A	Cleaner B	27	Fabric Filter Dust Collector DC-3	EP-3
P13	Vertical Seed Conditioner (VSC) Feed Conveyor	270	Fabric Filter Dust Collector DC-3	EP-3
P14	Vertical Seed Conditioner 1	90	VSC & Jet Dryer Cyclone System CY2-CY3	EP-13
P15	Vertical Seed Conditioner 2	90	VSC & Jet Dryer Cyclone System CY2-CY3	EP-13
P16	Vertical Seed Conditioner 3	90	VSC & Jet Dryer Cyclone System CY2-CY3	EP-13
P17	Jet Dryer 1	90	VSC & Jet Dryer Cyclone System CY4-CY5	EP-13
P18	Jet Dryer 2	90	VSC & Jet Dryer Cyclone System CY6-CY7	EP-13
P19	Jet Dryer 3	90	VSC & Jet Dryer Cyclone System CY8-CY9	EP-13
P20	Conditioned Bean L-Path	270	Fabric Filter Dust Collector DC-3	EP-3
P21	Jet Dryer Feed Conveyor	270	Fabric Filter Dust Collector DC-3	EP-3

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
P22 – P27	Hulloosenator 1 through 6	270 (total)	Fabric Filter Dust Collector DC-3	EP-3
P28 – P33	Cascade Dryers 1 through 6	270 (total)	Fabric Filter Dust Collector DC-3 and CCD Cyclone	EP-3
P34 – P39	Crackers 1 through 6	270 (total)	Fabric Filter Dust Collector DC-3	EP-3
P40 – P45	Cascade Coolers 1 through 6	270 (total)	Fabric Filter Dust Collector DC-3 and CCC Cyclone	EP-3
P46	Flaker Feed Conveyor	256.6	Fabric Filter Dust Collector DC-3 and Cyclone CY-12	EP-3
P47 – P66	Flakers	256.6	Fabric Filter Dust Collector DC-3 and Cyclone CY-12	EP-3
P67	Flaker Discharge Conveyor	256.6	Fabric Filter Dust Collector DC-4	EP-4
P68	DC-3 Bottoms Leg	19	Fabric Filter Dust Collector DC-3	EP-3
D1	Cleaning Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D2	Cleaning Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D3	Cleaner Distribution Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D4	Cleaner A	27	Fabric Filter Dust Collector DC-2	EP-2
D5	Cleaner B	27	Fabric Filter Dust Collector DC-2	EP-2
D6	Screenings Collection Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D7	Screenings Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D8	Cleaned Bean Collection Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D9	Dryer Wet Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D10	Dryer Distribution Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D11	Dryer Collection Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D12	Dry Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D13	Transfer Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
F1	Primary Whole Hull Conveyor	19	Fabric Filter Dust Collector DC-3	EP-3
F2	Secondary Whole Hull Conveyor	19	Fabric Filter Dust Collector DC-3	EP-3

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
F3 – F6	Hull Screeners	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-13	EP-3
F7 – F10	Secondary Mid Aspirators	14.2	Fabric Filter Dust Collector DC-3 and Cyclone CY-14	EP-3
F11 – F14	Secondary “Overs” Aspirators	4.6	Fabric Filter Dust Collector DC-3 and Cyclone CY-15	EP-3
F15	Secondary Whole Hull Recycle	19	Fabric Filter Dust Collector DC-3	EP-3
F16	Whole Hull Conveyor	19	Fabric Filter Dust Collector DC-3	EP-3
F17	Whole Hull Grinding Feed Conveyor	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-16	EP-3
F18 – F22	Whole Hull Grinding	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-16	EP-3
F23	Ground Hull Conveyor	19	Fabric Filter Dust Collector DC-3	EP-3
F24	Ground Hull Leg	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-16	EP-3
F26	Ground Hull Storage Outfeed Conveyor	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F27	Pellet Feed Leg	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F28	Pellet Feed Conveyor A	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F29 – F32	Pelleter	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F33	Pelleter Discharge Conveyor	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
F34	Pellet Leg	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F35	Pellet Cooler	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F36	Pellet Cooler Discharge Conveyor	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F37	Pellet Leg	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F39	Pellet Leg Feed Conveyor	19	Fabric Filter Dust Collector DC-7	EP-7
F40	Fiber/Pellet Loadout Leg	19	Fabric Filter Dust Collector DC-7	EP-7
F41	Fiber/Pellet Conveyor A	19	Fabric Filter Dust Collector DC-7	EP-7
F42	Fiber/Pellet Conveyor B	19	Fabric Filter Dust Collector DC-7	EP-7
F43	Fiber/Pellet Conveyor C	19	Fabric Filter Dust Collector DC-7	EP-7
F44	Fiber/Pellet Loading Spout	19	Fabric Filter Dust Collector DC-7	EP-7
F45	Fiber/Pellet Rail Loading Spout	19	Fabric Filter Dust Collector DC-7	EP-7
M1	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-5	EP-5
M2	Meal Leg	207.4	Fabric Filter Dust Collector DC-5	EP-5
M3	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-5	EP-5
M4 – M7	Meal Screens	207.4	Fabric Filter Dust Collector DC-5	EP-5
M8	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-5	EP-5
M9 – M13	Meal Grinders	207.4	Fabric Filter Dust Collector DC-5	EP-5
M14	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-5	EP-5
M15	Meal Leg	207.4	Fabric Filter Dust Collector DC-5	EP-5
M16	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-5	EP-5
M17	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M18	Meal Leg	207.4	Fabric Filter Dust Collector DC-6	EP-6

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
M19	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M20	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M21	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M22 – M24	Meal Storage Silos	207.4	Fabric Filter Dust Collector DC-6	EP-6
M25	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M26	M-11 Meal Loadout Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M27	Meal Rail Loading Spout	207.4	Fabric Filter Dust Collector DC-6	EP-6
S121	Ground Hull Storage	19	Bin Vent Fabric Filter DC-8	EP-8
S122	Pellet Storage	19	Bin Vent Fabric Filter DC-9	EP-9
S211	Silica Storage	0.114	Bin Vent Fabric Filter DC-10	EP-10
S209	Bleach Clay Storage	0.114	Bin Vent Fabric Filter DC-11	EP-11
S210	Filter Aid Storage	0.114	Bin Vent Fabric Filter DC-12	EP-12
S212	Kaolin Storage	1.14	Bin Vent Fabric Filter DC-13	EP-19
	Crown Shallow Bed Oil Extractor	6,500 Tons Per Day	DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
DT	Desolventizer/Toaster	330	Cyclone Scrubber and DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
DTDC	Meal Dryer	218.8	DTDC Cyclone System CY20 – CY23	EP-15
DTDC	Meal Cooler	207.4	DTDC Cyclone System CY18 – CY19	EP-15
	Solvent Contactor	409 gpm Hexane		
	First and Second Stage Evaporators		DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
	Soybean Oil Stripper		Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
	Soybean Oil Dryer		Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
	Mineral Oil Economizer			
	Main Vent Mineral Oil Condenser		Mineral Oil Absorber AB-1	EP-14
AB-1	Mineral Oil Absorber			EP-14
	Mineral Oil Stripper			EP-14
	Mineral Oil Cooler			
	Solvent Water Separator		DT/Extractor Condenser	
	DT/Extractor Condenser		Mineral Oil Absorber AB-1	EP-14
	Distillation Condenser		Mineral Oil Absorber AB-1	EP-14
	Cooling Tower			
CY-1	Whole Bean Aspirator Cyclone	10,000 acfm		EP-3
CY10 – CY11	Cyclones for CCC and CCD operations	37,500 acfm		EP-3
CY-12	Flaker Cyclone	20,500 acfm		EP-3
CY13 and CY14	Secondary Mids Cyclones	21,000 acfm		EP-3
CY-15	Secondary Coarse Aspirator Cyclone	10,500 acfm		EP-3
CY-16	Hull Grinding Conveyor Cyclone	12,500 acfm		EP-3
CY-17	Fiber Pellet System Cyclone	12,500 acfm		EP-3
S100 – S107	Eight (8) soybean storage silos	500,000 bushels each	No control	Fugitive
S120	Soybean feed bin silo	20,000 bushels	Fabric Filter Dust Collector DC-2	EP-2
S130	Meal Storage	170,000 tons	Fabric Filter Dust Collector DC-6	EP-6
S131	Loadout Meal Storage Silo A	750 tons	Fabric Filter Dust Collector DC-6	EP-6
S132-S135	Loadout Meal Storage Silos B, C, D, and E	750 tons each	Fabric Filter Dust Collector DC-6	EP-6

(b) One (1) Biodiesel production operation approved for construction in 2008 including the following units:

(1) Feed Economizer
(2) High Shear Mixer
(3) Retention Mixer
(4) Centrifuge
(5) Primary Methylester Reactor
(6) Primary Decanter
(7) Secondary Methylester Reactor
(8) Inline Mixer
(9) Secondary Decanter

(10) Water Wash Mixer
(11) Wet Glycerin Surge Tank
(12) Glycerin Demethylizer Dryer
(13) Water Wash Decanter
(14) Wet Methylester Surge Tank
(15) Water Wash Surge Tank
(16) Methylester Vacuum Dryer
(17) Wet Methanol Tank
(18) Filter Slurry Tank
(19) Methylester Finishing Filter
(20) Final Polishing Filter
(21) Soy Oil Absorber, identified as AB-2, exhausting through stack EP-16
(22) Methanol Water Scrubber, identified as AB-3, exhausting through stack EP-16

(c) Two (2) natural gas-fired boilers, identified as B1 and B2, approved for construction in 2008, each with a maximum heat input capacity of 197.7 million British thermal units (MMBtu) per hour, equipped with low-NOx burners and flue gas recirculation for NOx control, exhausting to stack EP-17;

(d) Three (3) No. 2 distillate fuel oil fired emergency generators, identified as EMG-1, EMG-2, and EMG-3, approved for construction in 2008, each rated at 575 horsepower, exhausting to stack EP-18;

(e) Three (3) natural gas-fired column grain dryers, identified as D100, D102, and D103, approved for construction in 2008, each with a maximum heat input capacity of 45.0 MMBtu per hour and a maximum drying capacity of 5,000 bushels per hour, equipped with low-NOx burners for NOx control, exhausting fugitively;

(f) The following storage tanks:

Unit ID	**Description**	**Capacity (gallons)**
S200	Solvent Water Separator OversTank	28,000
S200A	Hexane Storage A	25,380
S200B	Hexane Storage B	25,380
S201	Dry Methanol Storage Tank A	19,450
S202	Dry Methanol Storage Tank B	19,450
S203	Dry Methanol Storage Tank C	19,450
S204	Dry Methanol Storage Tank D	19,450
S205	Sodium Methoxide Tank A	19,450
S206	Sodium Methoxide Tank B	19,450
S207	Phosphoric Acid Tank	19,450
S208	Hydrochloric Acid Tank	19,450
S213	Inorganic Chemical Storage	15,000
S214	Inorganic Chemical Storage	15,000
S215	Potassium Hydroxide A	19,450

Unit ID	Description	Capacity (gallons)
S216	Potassium Hydroxide B	19,450
S217	Once Refined Oil Storage	1,500,000
S218	Bleached Oil Storage	250,000
S220	Crude Glycerin Storage Tank A	33,843
S221	Crude Glycerin Storage Tank B	33,843
S222	Miscella Surge Tank	5,000
S224	Intermediate B100	250,000
S225	Intermediate B100	250,000
S226	Finished B100	1,500,000
S227	Finished B100	1,500,000
S230	Crude Oil Storage Tank 1	1,500,000
S231	Crude Oil Storage Tank 2	1,500,000
S250	No. 2 diesel fuel storage tank	10,000
S251	No. 2 diesel fuel storage tank	640
S252	No. 2 diesel fuel storage tank	640
S253	No. 2 diesel fuel storage tank	640

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 one hundred forty-five (145) gallons per twelve (12) months, except if subject to 326 IAC 20-6. [326 IAC 8-3-2][326 IAC 8-3-5]

(b) Paved and unpaved roads and parking lots with public access [326 IAC 6-4][326 IAC 6-5].

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

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

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

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

SECTION B GENERAL CONDITIONS

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

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

B.2 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 or if construction is discontinued for a period of eighteen (18) months or more.

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

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

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

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

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

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

(a) This permit, T087-24953-00069, is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.

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

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

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

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

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

B.6 Enforceability [326 IAC 2-7-7]

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

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

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

B.8 Property Rights or Exclusive Privilege [326 IAC 2-7-5(6)(D)]

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

B.9 Duty to Provide Information [326 IAC 2-7-5(6)(E)]

(a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The submittal by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34). Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.

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

B.10 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

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

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

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

B.11 Annual Compliance Certification [326 IAC 2-7-6(5)]

(a) The Permittee shall annually submit a compliance certification report which addresses the status of the source’s compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. The initial certification shall cover the time period from the date of final permit issuance through December 31 of the same year. All subsequent certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than July 1 of each year to:

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

and

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

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

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

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

(2) The compliance status;

(3) Whether compliance was continuous or intermittent;

(4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-7-5(3); and

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

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

B.12 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)][326 IAC 2-7-6(1) and (6)][326 IAC 1-6-3]

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) within ninety (90) days after issuance of this permit, including the following information on each facility:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If, due to circumstances beyond the Permittee’s control, the PMPs cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

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

The PMP extension notification does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(b) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or potential to emit. The PMPs do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

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

B.13 Emergency Provisions [326 IAC 2-7-16]

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

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

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

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

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

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

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section), or
Telephone Number: 317-233-0178 (ask for Compliance Section)
Facsimile Number: 317-233-6865
Northern Regional Office phone: (574) 245-4870; fax: (574) 245-4877.

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

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

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

The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:

(A) A description of the emergency;

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

(C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

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

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

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

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

(f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.

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

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

B.14 Permit Shield [326 IAC 2-7-15][326 IAC 2-7-20][326 IAC 2-7-12]

(a) Pursuant to 326 IAC 2-7-15, the Permittee has been granted a permit shield. The permit shield provides that compliance with the conditions of this permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that either the applicable requirements are included and specifically identified in this permit or the permit contains an explicit determination or concise summary of a determination that other specifically identified requirements are not applicable. The Indiana statutes from IC 13 and rules from 326 IAC, referenced in conditions in this permit, are those applicable at the time the permit was issued. The issuance or possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a Part 70 permit under 326 IAC 2-7 or for applicable requirements for which a permit shield has been granted.

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

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

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

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

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

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

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

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

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

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

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

B.15 Termination of Right to Operate [326 IAC 2-7-10][326 IAC 2-7-4(a)]

The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least nine (9) months prior to the date of expiration of the source’s existing permit, consistent with 326 IAC 2-7-3 and 326 IAC 2-7-4(a).

B.16 Deviations from Permit Requirements and Conditions [326 IAC 2-7-5(3)(C)(ii)]

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

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

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

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

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

B.17 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-7-5(6)(C)][326 IAC 2-7-8(a)][326 IAC 2-7-9]

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

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

(1) That this permit contains a material mistake.

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

(3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-7-9(a)(3)]

(c) Proceedings by IDEM, OAQ to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-7-9(b)]

(d) The reopening and revision of this permit, under 326 IAC 2-7-9(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ may provide a shorter time period in the case of an emergency. [326 IAC 2-7-9(c)]

B.18 Permit Renewal [326 IAC 2-7-3][326 IAC 2-7-4][326 IAC 2-7-8(e)]

(a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-7-4. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(40). The renewal application does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Request for renewal shall be submitted to:

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

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

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

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

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

B.19 Permit Amendment or Modification [326 IAC 2-7-11][326 IAC 2-7-12]

(a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this permit.

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

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

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

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

B.20 Permit Revision Under Economic Incentives and Other Programs [326 IAC 2-7-5(8)][326 IAC 2-7-12(b)(2)]

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

(b) Notwithstanding 326 IAC 2-7-12(b)(1) and 326 IAC 2-7-12(c)(1), minor Part 70 permit modification procedures may be used for Part 70 modifications involving the use of economic incentives, marketable Part 70 permits, emissions trading, and other similar approaches to the extent that such minor Part 70 permit modification procedures are explicitly provided for in the applicable State Implementation Plan (SIP) or in applicable requirements promulgated or approved by the U.S. EPA.

B.21 Operational Flexibility [326 IAC 2-7-20][326 IAC 2-7-10.5]

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

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

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

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

(4) The Permittee notifies the:

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

and

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

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

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

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

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

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

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

(3) Any change in emissions; and

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

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

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

(d) Alternative Operating Scenarios [326 IAC 2-7-20(d)]
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-7-5(9). No prior notification of IDEM, OAQ, or U.S. EPA is required.

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

B.22 Source Modification Requirement [326 IAC 2-7-10.5]

(a) A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2 and 326 IAC 2-7-10.5.

(b) Any modification at an existing major source is governed by the requirements of 326 IAC 2-2.

B.23 Inspection and Entry [326 IAC 2-7-6][IC 13-14-2-2][IC 13-30-3-1][IC 13-17-3-2]

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

(a) Enter upon the Permittee's premises where a Part 70 source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

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

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

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

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

B.24 Transfer of Ownership or Operational Control [326 IAC 2-7-11]

(a) The Permittee must comply with the requirements of 326 IAC 2-7-11 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.

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

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

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

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

B.25 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-7-5(7)][326 IAC 2-1.1-7]

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

(b) Except as provided in 326 IAC 2-7-19(e), failure to pay may result in administrative enforcement action or revocation of this permit.

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

B.26 Advanced Source Modification Approval [326 IAC 2-7-5(16)] [326 IAC 2-7-10.5]

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

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

B.27 Credible Evidence [326 IAC 2-7-5(3)][326 IAC 2-7-6][62 FR 8314] [326 IAC 1-1-6]

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

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

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

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

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

C.2 Opacity [326 IAC 5-1]

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

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

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

C.3 Open Burning [326 IAC 4-1] [IC 13-17-9]

The Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1. 326 IAC 4-1-3 (a)(2)(A) and (B) are not federally enforceable.

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

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

C.5 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

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

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be controlled according to the plan submitted on December 17, 2007. The plan is included as Attachment A.

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

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted. The provisions of 326 IAC 1-7-1(3), 326 IAC 1-7-2, 326 IAC 1-7-3(c) and (d), 326 IAC 1-7-4, and 326 IAC 1-7-5(a), (b), and (d) are not federally enforceable.

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

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

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

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

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

(A) Asbestos removal or demolition start date;

(B) Removal or demolition contractor; or

(C) Waste disposal site.

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

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

All required notifications shall be submitted to:

Indiana Department of Environmental Management
Asbestos Section, Office of Air Quality
100 North Senate Avenue
MC 61-52 IGCN 1003
Indianapolis, Indiana 46204-2251

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

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

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

(g) Indiana Accredited Asbestos Inspector
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Accredited Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos. The requirement to use an Indiana Accredited Asbestos inspector is not federally enforceable.

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

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

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

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

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

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

(b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

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

Compliance Requirements [326 IAC 2-1.1-11]

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

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

C.11 Source Construction Requirements [326 IAC 2-2]

The source shall not commence construction until such time as the Permittee owns, and has control of, all property identified within the property line in the Air Quality Analysis summarized in Appendix C of the Technical Support Document for this New Source Construction, PSD and Part 70 Operating Permit (T087-24953-00069).

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

C.12 Compliance Monitoring [326 IAC 2-7-5(3)][326 IAC 2-7-6(1)]

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

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

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

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

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

C.13 Maintenance of Continuous Opacity Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)]

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

(b) All COMS shall meet the performance specifications of 40 CFR 60, Appendix B, Performance Specification No. 1, and are subject to monitor system certification requirements pursuant to 326 IAC 3-5.

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

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

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

    (2) Method 9 opacity readings shall be repeated for a minimum of five (5) consecutive six (6) minute averaging periods at least twice per day during daylight operations, with at least four (4) hours between each set of readings, until a COMS is online.

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

(4) Any opacity exceedances determined by Method 9 readings shall be reported with the Quarterly Opacity Exceedances Reports.

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

C.14 Maintenance of Continuous Emission Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)]

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

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

(c) Whenever a continuous emission monitor other than an opacity monitor is malfunctioning or will be down for calibration, maintenance, or repairs for a period of four (4) hours or more, a calibrated backup CEMS shall be brought online within four (4) hours of shutdown of the primary CEMS, and shall be operated until such time as the primary CEMS is back in operation.

(d) Nothing in this permit shall excuse the Permittee from complying with the requirements to operate a continuous emission monitoring system pursuant to 40 CFR 60.48b and 326 IAC 3-5.

C.15 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

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

C.16 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

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

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

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

C.17 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]

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

(a) The Permittee shall prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.

(b) These ERPs shall be submitted for approval to:

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

within ninety (90) days after the date of issuance of this permit.

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

(c) If the ERP is disapproved by IDEM, OAQ, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP.

(d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.

(e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.

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

C.18 Risk Management Plan [326 IAC 2-7-5(12)] [40 CFR 68]

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

C.19 Response to Excursions or Exceedances [326 IAC 2-7-5] [326 IAC 2-7-6]

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

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

(1) initial inspection and evaluation;

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

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

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

(1) monitoring results;

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

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

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

(e) The Permittee shall maintain the following records:

(1) monitoring data;
(2) monitor performance data, if applicable; and

(3) corrective actions taken.

C.20 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5][326 IAC 2-7-6]

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

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

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

The response action documents submitted pursuant to this condition do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

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

C.21 Emission Statement [326 IAC 2-7-5(3)(C)(iii)][326 IAC 2-7-5(7)][326 IAC 2-7-19(c)][326 IAC 2-6]

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

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

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

The statement must be submitted to:

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

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

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

C.22 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6] [326 IAC 2-2][326 IAC 2-3]

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

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

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

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

(A) A description of the project.

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

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

(i) Baseline actual emissions;

(ii) Projected actual emissions;

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

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

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

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

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

C.23 General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11] [326 IAC 2-2][326 IAC 2-3]

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Reports required in this part shall be submitted to:

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

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

Stratospheric Ozone Protection

C.24 Compliance with 40 CFR 82 and 326 IAC 22-1

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

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

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

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

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

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

(a) Material handling and processing equipment approved for construction in 2008 as follows:

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
R1	Hopper Truck Receiving Dump #1	270	Fabric Filter Dust Collector DC-1	EP-1
R2	Hopper Truck Receiving Dump #2	270	Fabric Filter Dust Collector DC-1	EP-1
R3	Rail Receiving Dump	270	Fabric Filter Dust Collector DC-1	EP-1
R4	Receiving Dump Drag #1	270	Fabric Filter Dust Collector DC-1	EP-1
R5	Receiving Dump Drag #2	270	Fabric Filter Dust Collector DC-1	EP-1
R6	Receiving Dump Leg	270	Fabric Filter Dust Collector DC-1	EP-1
R7	Receiving Crossyard Conveyor	270	Fabric Filter Dust Collector DC-1	EP-1
R8	Distribution Conveyor A	270	Fabric Filter Dust Collector DC-1	EP-1
R9	Distribution Conveyor B	270	Fabric Filter Dust Collector DC-1	EP-1
R10	Distribution Conveyor C	270	Fabric Filter Dust Collector DC-2	EP-2
P1	Discharge Conveyor A	270	Fabric Filter Dust Collector DC-2	EP-2
P2	Discharge Conveyor B	270	Fabric Filter Dust Collector DC-2	EP-2
P3	Leg Feed Conveyor	270	Fabric Filter Dust Collector DC-2	EP-2
P4	Discharge Leg	270	Fabric Filter Dust Collector DC-2	EP-2
P5	Prep Crossyard Conveyor A	270	Fabric Filter Dust Collector DC-2	EP-2
P6	Prep Crossyard Conveyor B	270	Fabric Filter Dust Collector DC-2	EP-2
P7	Prep Crossyard Conveyor C	270	Fabric Filter Dust Collector DC-3	EP-3
P8	Whole Bean Scale Belt	270	Fabric Filter Dust Collector DC-3	EP-3
P9 – P10	Scalper/Destoner	270	Fabric Filter Dust Collector DC-3	EP-3
P11 – P12	Whole Bean Aspirator	270	Fabric Filter Dust Collector DC-3 and Cyclone CY-1	EP-3
P11A	Cleaner A	270	Fabric Filter Dust Collector DC-3	EP-3

P12A	Cleaner B	27	Fabric Filter Dust Collector DC-3	EP-3
P13	Vertical Seed Conditioner (VSC) Feed Conveyor	270	Fabric Filter Dust Collector DC-3	EP-3
P14	Vertical Seed Conditioner 1	90	VSC & Jet Dryer Cyclone System CY2-CY3	EP-13
P15	Vertical Seed Conditioner 2	90	VSC & Jet Dryer Cyclone System CY2-CY3	EP-13
P16	Vertical Seed Conditioner 3	90	VSC & Jet Dryer Cyclone System CY2-CY3	EP-13
P17	Jet Dryer 1	90	VSC & Jet Dryer Cyclone System CY4-CY5	EP-13
P18	Jet Dryer 2	90	VSC & Jet Dryer Cyclone System CY6-CY7	EP-13
P19	Jet Dryer 3	90	VSC & Jet Dryer Cyclone System CY8-CY9	EP-13
P20	Conditioned Bean L-Path	270	Fabric Filter Dust Collector DC-3	EP-3
P21	Jet Dryer Feed Conveyor	270	Fabric Filter Dust Collector DC-3	EP-3
P22 – P27	Hulloosenator 1 through 6	270 (total)	Fabric Filter Dust Collector DC-3	EP-3
P28 – P33	Cascade Dryers 1 through 6	270 (total)	Fabric Filter Dust Collector DC-3 and CCD Cyclone	EP-3
P34 – P39	Crackers 1 through 6	270 (total)	Fabric Filter Dust Collector DC-3	EP-3
P40 – P45	Cascade Coolers 1 through 6	270 (total)	Fabric Filter Dust Collector DC-3 and CCC Cyclone	EP-3
P46	Flaker Feed Conveyor	256.6	Fabric Filter Dust Collector DC-3 and Cyclone CY-12	EP-3
P47 – P66	Flakers	256.6	Fabric Filter Dust Collector DC-3 and Cyclone CY-12	EP-3
P67	Flaker Discharge Conveyor	256.6	Fabric Filter Dust Collector DC-4	EP-4
P68	DC-3 Bottoms Leg	19	Fabric Filter Dust Collector DC-3	EP-3
D1	Cleaning Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D2	Cleaning Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D3	Cleaner Distribution Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2

D4	Cleaner A	27	Fabric Filter Dust Collector DC-2	EP-2
D5	Cleaner B	27	Fabric Filter Dust Collector DC-2	EP-2
D6	Screenings Collection Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D7	Screenings Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D8	Cleaned Bean Collection Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D9	Dryer Wet Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D10	Dryer Distribution Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D11	Dryer Collection Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D12	Dry Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D13	Transfer Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
F1	Primary Whole Hull Conveyor	19	Fabric Filter Dust Collector DC-3	EP-3
F2	Secondary Whole Hull Conveyor	19	Fabric Filter Dust Collector DC-3	EP-3
F3 – F6	Hull Screeners	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-13	EP-3
F7 – F10	Secondary Mid Aspirators	14.2	Fabric Filter Dust Collector DC-3 and Cyclone CY-14	EP-3
F11 – F14	Secondary “Overs” Aspirators	4.6	Fabric Filter Dust Collector DC-3 and Cyclone CY-15	EP-3
F15	Secondary Whole Hull Recycle	19	Fabric Filter Dust Collector DC-3	EP-3
F16	Whole Hull Conveyor	19	Fabric Filter Dust Collector DC-3	EP-3
F17	Whole Hull Grinding Feed Conveyor	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-16	EP-3
F18 – F22	Whole Hull Grinding	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-16	EP-3
F23	Ground Hull Conveyor	19	Fabric Filter Dust Collector DC-3	EP-3
F24	Ground Hull Leg	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-16	EP-3

F26	Ground Hull Storage Outfeed Conveyor	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F27	Pellet Feed Leg	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F28	Pellet Feed Conveyor A	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F29 – F32	Pelleter	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F33	Pelleter Discharge Conveyor	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F34	Pellet Leg	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F35	Pellet Cooler	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F36	Pellet Cooler Discharge Conveyor	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F37	Pellet Leg	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F39	Pellet Leg Feed Conveyor	19	Fabric Filter Dust Collector DC-7	EP-7
F40	Fiber/Pellet Loadout Leg	19	Fabric Filter Dust Collector DC-7	EP-7
F41	Fiber/Pellet Conveyor A	19	Fabric Filter Dust Collector DC-7	EP-7
F42	Fiber/Pellet Conveyor B	19	Fabric Filter Dust Collector DC-7	EP-7
F43	Fiber/Pellet Conveyor C	19	Fabric Filter Dust Collector DC-7	EP-7
F44	Fiber/Pellet Loading Spout	19	Fabric Filter Dust Collector DC-7	EP-7
F45	Fiber/Pellet Rail Loading Spout	19	Fabric Filter Dust Collector DC-7	EP-7
M1	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-5	EP-5
M2	Meal Leg	207.4	Fabric Filter Dust Collector DC-5	EP-5

M3	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-5	EP-5
M4 – M7	Meal Screens	207.4	Fabric Filter Dust Collector DC-5	EP-5
M8	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-5	EP-5
M9 – M13	Meal Grinders	207.4	Fabric Filter Dust Collector DC-5	EP-5
M14	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-5	EP-5
M15	Meal Leg	207.4	Fabric Filter Dust Collector DC-5	EP-5
M16	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-5	EP-5
M17	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M18	Meal Leg	207.4	Fabric Filter Dust Collector DC-6	EP-6
M19	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M20	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M21	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M22 – M24	Meal Storage Silos	207.4	Fabric Filter Dust Collector DC-6	EP-6
M25	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M26	M-11 Meal Loadout Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M27	Meal Rail Loading Spout	207.4	Fabric Filter Dust Collector DC-6	EP-6
S121	Ground Hull Storage	19	Bin Vent Fabric Filter DC-8	EP-8
S122	Pellet Storage	19	Bin Vent Fabric Filter DC-9	EP-9
S211	Silica Storage	0.114	Bin Vent Fabric Filter DC-10	EP-10
S209	Bleach Clay Storage	0.114	Bin Vent Fabric Filter DC-11	EP-11
S210	Filter Aid Storage	0.114	Bin Vent Fabric Filter DC-12	EP-12
S212	Kaolin Storage	1.14	Bin Vent Fabric Filter DC-13	EP-19
	Crown Shallow Bed Oil Extractor	6,500 Tons Per Day	DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14

DT	Desolventizer/Toaster	330	Cyclone Scrubber and DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
DTDC	Meal Dryer	218.8	DTDC Cyclone System CY20 – CY23	EP-15
DTDC	Meal Cooler	207.4	DTDC Cyclone System CY18 – CY19	EP-15
	Solvent Contactor	409 gpm Hexane		
	First and Second Stage Evaporators		DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
	Soybean Oil Stripper		Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
	Soybean Oil Dryer		Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
	Mineral Oil Economizer			
	Main Vent Mineral Oil Condenser		Mineral Oil Absorber AB-1	EP-14
AB-1	Mineral Oil Absorber			EP-14
	Mineral Oil Stripper			EP-14
	Mineral Oil Cooler			
	Solvent Water Separator		DT/Extractor Condenser	
	DT/Extractor Condenser		Mineral Oil Absorber AB-1	EP-14
	Distillation Condenser		Mineral Oil Absorber AB-1	EP-14
	Cooling Tower			
CY-1	Whole Bean Aspirator Cyclone	10,000 acfm		EP-3
CY10 – CY11	Cyclones for CCC and CCD operations	37,500 acfm		EP-3
CY-12	Flaker Cyclone	20,500 acfm		EP-3
CY13 and CY14	Secondary Mids Cyclones	21,000 acfm		EP-3
CY-15	Secondary Coarse Aspirator Cyclone	10,500 acfm		EP-3
CY-16	Hull Grinding Conveyor Cyclone	12,500 acfm		EP-3
CY-17	Fiber Pellet System Cyclone	12,500 acfm		EP-3
S100 – S107	Eight (8) soybean storage silos	500,000 bushels each	No control	Fugitive

S120	Soybean feed bin silo	20,000 bushels	Fabric Filter Dust Collector DC-2	EP-2
S130	Meal Storage	170,000 tons	Fabric Filter Dust Collector DC-6	EP-6
S131	Loadout Meal Storage Silo A	750 tons	Fabric Filter Dust Collector DC-6	EP-6
S132-S135	Loadout Meal Storage Silos B, C, D, and E	750 tons each	Fabric Filter Dust Collector DC-6	EP-6

(b) One (1) Biodiesel production operation approved for construction in 2008 including the following units:

(1) Feed Economizer
(2) High Shear Mixer
(3) Retention Mixer
(4) Centrifuge
(5) Primary Methylester Reactor
(6) Primary Decanter
(7) Secondary Methylester Reactor
(8) Inline Mixer
(9) Secondary Decanter
(10) Water Wash Mixer
(11) Wet Glycerin Surge Tank
(12) Glycerin Demethylizer Dryer
(13) Water Wash Decanter
(14) Wet Methylester Surge Tank
(15) Water Wash Surge Tank
(16) Methylester Vacuum Dryer
(17) Wet Methanol Tank
(18) Filter Slurry Tank
(19) Methylester Finishing Filter
(20) Final Polishing Filter
(21) Soy Oil Absorber, identified as AB-2, exhausting through stack EP-16
(22) Methanol Water Scrubber, identified as AB-3, exhausting through stack EP-16

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

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

D.1.1 Volatile Organic Compounds (VOC) [326 IAC 2-2-3][326 IAC 8-1-6]

Pursuant to 326 IAC 2-2-3 (BACT) and 326 IAC 8-1-6 (New Facilities, General Reduction Requirements), the following limits shall apply:

(a) For the soybean oil extraction process utilizing DT technology exhausting through stack EP-14, BACT has been determined to be the following:

(1) A combined condenser and mineral oil absorber system shall be used for control of VOC emissions from the extractor vent system and VOC emissions shall not exceed 0.048 pound per ton of soybean received and 13.02 pounds per hour.

(2) For the first twelve (12) months of operation, the overall solvent loss ratio shall not exceed 0.20 gallons per ton of soybean crushed from the entire source. After the first twelve (12) months of operation, the overall solvent loss ratio shall not exceed 0.134 gallons per ton of soybean crushed from the entire plant.

The first year solvent loss ratio is established as 0.2 gals/ton of soybean crushed to allow for start-up of these new emission units.

(3) The maximum annual soybean received shall not exceed 2,366,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(4) BACT for the fugitive hexane loss shall include an enhanced inspection, maintenance, and repair program Within 60 days of achieving full production, but no later than 180 days after initial startup, the Permittee shall institute the following enhanced inspection, maintenance, and repair program for the solvent extraction portion of the installation:

Table1

	Leak Standard
Pumps	500 ppm
Valves	500 ppm
Pressure relief Devices	500 ppm
Flanges, Connectors, and Seals	10,000 ppm

(A) The Permittee shall determine compliance with the standards in Table 1 by using the procedures of 40 CFR Part 60, Appendix A, Method 21. The instrument shall be calibrated before each day of its use by the procedures as specified in Method 21. A leak is defined as an instrument reading of 500 ppm above background or greater, except for flanges, connectors and seals where a leak is defined as 10,000 ppm above background.

(B) The Permittee shall immediately tag all detected leaks with a weatherproof and readily visible identification tag with a distinct number. Once a leaking component is detected, a first-attempt at repair must be made within five days and be completed within 15 days of detecting the leaking components. If the repair can not be accomplished within 15 days then the Permittee shall send a notice of inability to repair to the IDEM, OAQ. The notice must be received by the Compliance Branch, Office of Air Quality, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204 within 20 days after the leak was detected. At a minimum the notice shall include the following:

(i) equipment, operator, and instrument identification number;
(ii) date of leak detector;
(iii) measured concentration (ppm) and background (ppm);
(iv) leak identification number associated with the corresponding tag; and
(v) reason of inability to repair within 15 days of detection.

(C) The Permittee shall maintain records of the following to verify compliance with the enhanced inspection, maintenance, and repair program:

(i) equipment inspected;
(ii) date of inspection; and
(iii) determination of whether a leak was detected.

(D) If a leak is detected, the Permittee shall record the following information to verify compliance with the enhanced inspection, maintenance, and repair program:

(i) the equipment, operator, and instrument identification number;
(ii) measured concentration;
(iii) leak identification number associated with the corresponding tag;
(iv) date of repair;
(v) reason for non-repair if unable to repair within 15 days of detection;
(vi) maintenance re-check, if repaired, with date of re-check, measured concentration during re-check and background concentration.

(b) For the meal dryer and cooler (DTDC) exhausting through stack EP-15, BACT for VOC emissions has been determined to be the following:

(1) Total VOC emissions from the meal dryer and meal cooler, exhausting through stack EP-15, shall not exceed 0.17 pound per ton of soybean received, 0.03 gallons per ton of soybean, and 45.92 pounds of hexane per hour.

(2) The maximum annual soybean received shall not exceed 2,366,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(c) For the biodiesel production operation exhausting through stack EP-16, BACT has been determined to be the following:

(1) VOC emissions shall be controlled by a soy oil absorber followed by a water scrubber with a combined VOC control efficiency of 99%;

(2) VOC emissions shall not exceed 0.22 pound per hour without methanol unloading and 0.43 pounds per hour with methanol unloading.

D.1.2 Particulate Matter (PM) and Particulate Matter Less than or Equal to 10 microns (PM10) [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (BACT), the following limits shall apply:

(a) For the grain receiving (R1 through R9) exhausting through stack EP-1, BACT has been determined to be the following:

(1) PM emissions from stack EP-1 shall not exceed 0.76 pound per hour and 0.004 gr/dscf;

(2) PM10 emissions from stack EP-1 shall not exceed 0.40 pound per hour and 0.0025 gr/dscf;

(3) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-1.

(4) Hopper trucks shall be used for the truck receiving operations.

(5) Enclosures and intake hoods designed to minimize fugitive losses for the specific receiving application will have the air drawn to the fabric filter for the receiving areas. The conveying equipment shall be totally enclosed and the air drawn from the enclosed conveying equipment through the fabric filter will result in negative pressure within the conveying enclosure. This will ensure zero emissions from the conveying units.

(5) Fugitive emissions shall meet an opacity limit of 0% for the grain receiving.

(b) For the Grain Storage and Handling Operations (R10, P1 through P6, D1 through D13) exhausting through stack EP-2, BACT has been determined to be the following:

(1) PM emissions from stack EP-2 shall not exceed 0.68 pound per hour and 0.006 gr/dscf;

(2) PM10 emissions from stack EP-2 shall not exceed 0.38 pound per hour and 0.003 gr/dscf;

(3) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-2.

(4) The conveying equipment shall be totally enclosed by design and the air drawn from the enclosed conveying equipment through the fabric filter will result in negative pressure with the conveying enclosure. This will ensure zero emissions from the conveying units.

(5) Fugitive emissions shall meet an opacity limit of 0% for the grain handling and storage operations.

(c) For the Soybean Preparation and Handling Operations (P7 through P13, P11A, P12A, P17, P18, P22 through P66, P68, F1 through F24, F26 through F37) exhausting through stack EP-3, BACT has been determined to be the following:

(1) PM emissions from stack EP-3 shall not exceed 5.92 pounds per hour and 0.006 gr/dscf;

(2) PM10 emissions from stack EP-3 shall not exceed 3.16 pounds per hour and 0.003 gr/dscf;

(3) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-3.

(4) PM and PM10 emissions from the following operations shall be additionally controlled by the cyclone identified:

(A) Cyclone (CY-1) for the whole bean aspirator (P11-P12);
(B) Cyclones (CCD and CCC) for the cascade dryers 1 through 6 (P28-P33) and the cascade coolers 1 through 6 (P40-P45), respectively;
(C) Cyclone (CY-12) for the flaker feed conveyor (P46) and the flakers (P47-P66);
(D) Cyclone (CY-13) for the hull screeners (F3-F6);
(E) Cyclone (CY-14) for the secondary mid aspirators (F7-F10);
(F) Cyclone (CY-15) for the secondary “overs” aspirators (F11-F14);
(G) Cyclone (CY-16) for the whole hull grinding feed conveyor (F17), whole hull grinding (F18-F22), and the ground hull leg (F24);

(H) Cyclone (CY-17) for the ground hull storage outfeed conveyor (F26), the pellet feed leg (F27), pellet feed conveyor A (F28), the pelleter (F29-F32), the pelleter discharge conveyor (F33), the pellet leg (F34), the pellet cooler (F35), the pellet cooler discharge conveyor (F36), and the pellet leg (F37).

(5) Fugitive emissions shall meet an opacity limit of 0% for the soybean preparation and handling operations.

(d) For the Jet Dryers and Vertical Seed Conditioners (VSCs) (P14 through P19) exhausting through stack EP-13, BACT has been determined to be the following:

(1) PM emissions from stack EP-13 shall not exceed 1.81 pounds per hour and 0.006 gr/dscf.

(2) PM10 emissions from stack EP-13 shall not exceed 0.66 pound per hour and 0.001 gr/dscf.

(3) PM and PM10 emissions from the three (3) vertical seed conditioners (VSC) shall be controlled by the high efficiency cyclones in series identified as the VSC & Jet Dryer Cyclone System CY2-CY3.

(4) PM and PM10 emissions from Jet Dryer 1 shall be controlled by the high efficiency cyclones in series identified as cyclones CY4 and CY5.

(5) PM and PM10 emissions from Jet Dryer 2 shall be controlled by the high efficiency cyclones in series identified as cyclones CY6 and CY7.

(6) PM and PM10 emissions from Jet Dryer 3 shall be controlled by the high efficiency cyclones in series identified as cyclones CY8 and CY9.

(e) For the Flaker Discharge Conveyor (P67) exhausting through stack EP-4, BACT has been determined to be the following:

(1) PM emissions from stack EP-4 shall not exceed 0.16 pound per hour and 0.006 gr/dscf.

(2) PM10 emissions from stack EP-4 shall not exceed 0.09 pound per hour and 0.003 gr/dscf.

(3) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-4.

(4) The conveying equipment shall be totally enclosed by design and the air drawn from the enclosed conveying equipment through the fabric filter will result in negative pressure with the conveying enclosure. This will ensure zero emissions from the conveying units.

(5) Fugitive emissions shall meet an opacity limit of 0% for the flaker discharge conveyor.

(f) For the Meal Grinding and Handling Operations (M1 – M16) exhausting through stack EP-5, BACT has been determined to be the following:

(1) PM emissions from stack EP-5 shall not exceed 2.57 pounds per hour and 0.006 gr/dscf.

(2) PM10 emissions from stack EP-5 shall not exceed 1.58 pounds per hour and 0.003 gr/dscf.

(3) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-5.

(4) Fugitive emissions shall meet an opacity limit of 0% for the meal grinding and handling operations (M1 – M16).

(g) For the Meal Loading Operations (M17-M27) exhausting through stack EP-6, BACT has been determined to be the following:

(1) PM emissions from stack EP-6 shall not exceed 0.94 pound per hour and 0.006 gr/dscf.

(2) PM10 emissions from stack EP-6 shall not exceed 0.54 pound per hour and 0.003 gr/dscf.

(3) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-6.

(4) The conveying equipment shall be totally enclosed by design and the air drawn from the enclosed conveying equipment through the fabric filter will result in negative pressure with the conveying enclosure. This will ensure zero emissions from the conveying units.

(5) Fugitive emissions shall meet an opacity limit of 0% for the meal loading operations.

(h) For the Meal Drying and Cooling Operations (DTDC) exhausting through stack EP-15, BACT for PM and PM10 emissions has been determined to be the following:

(1) Total PM emissions from stack EP-15 shall not exceed 7.17 pounds per hour and 0.0075 gr/dscf.

(2) Total PM10 emissions from stack EP-15 shall not exceed 4.46 pounds per hour and 0.005 gr/dscf.

(3) PM and PM10 emissions from the meal dryer shall be controlled by the high efficiency cyclones in series identified as Cyclones CY20 – CY23.

(4) PM and PM10 emissions from the meal cooler shall be controlled by the high efficiency cyclones in series identified as Cyclones CY18 and CY19.

(i) For the Fiber Loading and Handling Operations (F39-F45) exhausting through stack EP-7, BACT has been determined to be the following:

(1) PM emissions from stack EP-7 shall not exceed 0.15 pound per hour and 0.006 gr/dscf.

(2) PM10 emissions from stack EP-7 shall not exceed 0.08 pound per hour and 0.0024 gr/dscf.

(3) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-7.

(4) The conveying equipment shall be totally enclosed by design and the air drawn from the enclosed conveying equipment through the fabric filter will result in negative pressure with the conveying enclosure. This will ensure zero emissions from the conveying units.

(5) Fugitive emissions shall meet an opacity limit of 0% for the fiber loading and handling operations.

(j) For the Dry Material Handling and Storage Operations (S209 – S211) exhausting through stacks EP-10 – EP-12, BACT has been determined to be the following:

(1) PM emissions from each of stacks EP-10, EP-11, and EP-12 shall not exceed 0.03 pound per hour and 0.006 gr/dscf.

(2) PM10 emissions from each of stacks EP-10, EP-11, and EP-12 shall not exceed 0.005 pound per hour and 0.003 gr/dscf.

(3) PM and PM10 emissions shall be controlled by bin vent fabric filters identified as DC-10, DC-11, and DC-12.

(4) Fugitive emissions shall meet an opacity limit of 0% for each of the stacks EP-10, EP-11 and EP-12.

(k) For the Ground Hull, Pellet, and Kaolin Storage Units (S121, S122, and S212) exhausting through stacks EP-8, EP-9, and EP-19, BACT has been determined to be the following:

(1) PM emissions from each of stacks EP-8, EP-9, and EP-19 shall not exceed 0.03 pound per hour and 0.006 gr/dscf.

(2) PM10 emissions from each of stacks EP-8 and EP-9 shall not exceed 0.01 pound per hour and 0.002 gr/dscf.

(3) PM10 emissions from stack EP-19 shall not exceed 0.005 pound per hour and 0.002 gr/dscf.

(4) PM and PM10 emissions shall be controlled by bin vent fabric filters identified as DC-8, DC-9, and DC-19.

(5) Fugitive emissions shall meet an opacity limit of 0% for each of the stacks EP-8, EP-9 and EP-19.

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 and their control device.

Compliance Determination Requirements

D.1.4 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

(a) Within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, in order to demonstrate compliance with Condition D.1.1, the Permittee shall perform VOC testing for the soybean oil extraction process utilizing DT technology exhausting through stack EP-14, the meal dryer and cooler (DTDC) exhausting through stack EP-15, and the biodiesel production operation exhausting through stack EP-16 utilizing methods as approved by the Commissioner. 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.

(b) Within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, in order to demonstrate compliance with Condition D.1.2, the Permittee shall perform PM and PM10 testing for the following operations utilizing methods as approved by the Commissioner:

(1) grain receiving (R1 through R9) exhausting through stack EP-1;
(2) the Grain Storage and Handling Operations (R10, P1 through P6, D1 through D13) exhausting through stack EP-2;
(3) the Soybean Preparation and Handling Operations (P7 through P13, P11A, P12A, P17, P18, P22 through P66, P68, F1 through F24, F26 through F37) exhausting through stack EP-3;
(4) the Jet Dryers and Vertical Seed Conditioners (VSCs) (P14 through P19) exhausting through stack EP-13;
(5) the Flaker Discharge Conveyor (P67) exhausting through stack EP-4;
(6) the Meal Grinding and Handling Operations (M1 – M16) exhausting through stack EP-5;
(7) the Meal Loading Operations (M17-M27) exhausting through stack EP-6;
(8) the meal dryer and cooler (DTDC) exhausting through stack EP-15; and
(9) the Fiber Loading and Handling Operations (F39-F45) exhausting through stack EP-7.

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 condensible PM-10. Testing shall be conducted in accordance with Section C- Performance Testing.

D.1.5 VOC Control [326 IAC 2-2-3] [326 IAC 8-1-6]

(a) In order to comply with Condition D.1.1(a), the combined condenser and mineral oil absorber system shall be in operation and control VOC emissions from the soybean oil extraction process at all times the soybean oil extraction process is in operation.

(b) In order to comply with Condition D.1.1(c), the soy oil absorber followed by a water scrubber shall be in operation and control VOC emissions from the biodiesel production operation at all times that biodiesel production is in operation.

D.1.6 Particulate Control

In order to comply with condition D.1.2, the following control equipment for PM and PM10 control shall be in operation and control emissions from the listed facilities at all times that the facilities are in operation:

(a) Dust Collector DC-1 for control of grain receiving (R1 through R9);
(b) Dust Collector DC-2 for control of the Grain Storage and Handling Operations (R10, P1 through P6, D1 through D13);

(c) Dust Collector DC-3 for control of the Soybean Preparation and Handling Operations (P7 through P13, P11A, P12A, P17, P18, P22 through P66, P68, F1 through F24, F26 through F37);
(d) Cyclone (CY-1) for control of the whole bean aspirator (P11-P12);
(e) Cyclones (CCD and CCC) for control of the cascade dryers 1 through 6 (P28-P33) and the cascade coolers 1 through 6 (P40-P45), respectively;
(f) Cyclone (CY-12) for control of the flaker feed conveyor (P46) and the flakers (P47-P66);
(g) Cyclone (CY-13) for control of the hull screeners (F3-F6);
(h) Cyclone (CY-14) for control of the secondary mid aspirators (F7-F10);
(i) Cyclone (CY-15) for control of the secondary "overs" aspirators (F11-F14);
(j) Cyclone (CY-16) for control of the whole hull grinding feed conveyor (F17), whole hull grinding (F18-F22), and the ground hull leg (F24);
(k) Cyclone (CY-17) for control of the ground hull storage outfeed conveyor (F26), the pellet feed leg (F27), pellet feed conveyor A (F28), the pelleter (F29-F32), the pelleter discharge conveyor (F33), the pellet leg (F34), the pellet cooler (F35), the pellet cooler discharge conveyor (F36), and the pellet leg (F37);
(l) The high efficiency cyclones in series identified as the VSC & Jet Dryer Cyclone System CY2-CY3 for control of the three (3) vertical seed conditioners (VSC) (P14-P16);
(m) The high efficiency cyclones in series identified as cyclones CY4 and CY5 for control of Jet Dryer 1 (P17);
(n) The high efficiency cyclones in series identified as cyclones CY6 and CY7 for control of Jet Dryer 2 (P18);
(o) The high efficiency cyclones in series identified as cyclones CY8 and CY9 for control of Jet Dryer 3 (P19);
(p) Dust Collector DC-4 for control of the Flaker Discharge Conveyor (P67);
(q) Dust Collector DC-5 for control of the Meal Grinding and Handling Operations (M1 – M16);
(r) Dust Collector DC-6 for control of the Meal Loading Operations (M17-M27);
(s) The high efficiency cyclones in series identified as Cyclones CY20 – CY23 for control of the meal dryer;
(t) The high efficiency cyclones in series identified as Cyclones CY18 and CY19 for control of the meal cooler;
(u) Dust Collector DC-7 for control of the Fiber Loading and Handling Operations (F39-F45);
(v) Bin vent fabric filters identified as DC-10, DC-11, and DC-12 for control of the Dry Material Handling and Storage Operations (S209 – S211); and
(w) Bin vent fabric filters identified as DC-8, DC-9, and DC-19 for control of the Ground Hull, Pellet, and Kaolin Storage Units (S121, S122, and S212).

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

D.1.7 Visible Emissions Notations

(a) Daily visible emission notations of the stack exhausts EP-1, EP-2, EP-3, EP-4, EP-5, EP-6, EP-7, EP-8, EP-9, EP-10, EP-11, EP-12, EP-13, EP-15 and EP-19 shall be performed during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.

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

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

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

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

D.1.8 Parametric Monitoring

(a) The Permittee shall record the pressure drop across each of the dust collectors used in conjunction with the processes listed below, at least once per day when the process is in operation:

(1) Dust Collector DC-1 for control of grain receiving (R1 through R9);
(2) Dust Collector DC-2 for control of the Grain Storage and Handling Operations (R10, P1 through P6, D1 through D13);
(3) Dust Collector DC-3 for control of the Soybean Preparation and Handling Operations (P7 through P13, P11A, P12A, P17, P18, P22 through P66, P68, F1 through F24, F26 through F37);
(4) Dust Collector DC-4 for control of the Flaker Discharge Conveyor (P67);
(5) Dust Collector DC-5 for control of the Meal Grinding and Handling Operations (M1 – M16);
(6) Dust Collector DC-6 for control of the Meal Loading Operations (M17-M27);
(7) Dust Collector DC-7 for control of the Fiber Loading and Handling Operations (F39-F45);
(8) Bin vent fabric filters identified as DC-10, DC-11, and DC-12 for control of the Dry Material Handling and Storage Operations (S209 – S211); and
(9) Bin vent fabric filters identified as DC-8, DC-9, and DC-19 for control of the Ground Hull, Pellet, and Kaolin Storage Units (S121, S122, and S212).

When for any one reading, the pressure drop across any of the dust collectors listed above is outside the normal range of 3.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

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

(b) Alarms shall be operational on all cyclones' high level indicators. If an alarm sounds, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

D.1.9 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

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

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

D.1.10 Cyclone Failure Detection

In the event that cyclone failure has been observed:

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

D.1.11 Parametric Monitoring for Mineral Oil Absorber AB-1

(a) The Permittee shall monitor and record the mineral oil flow rate to the mineral oil absorber AB-1 at lease once per day.

(b) A continuous monitoring system shall be calibrated, maintained, and operated on the mineral oil absorber AB-1 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 a 3-hour average. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall operate the mineral oil absorber AB-1 at or above the 3-hour average temperature as recommended by the manufacturer.

  (1) The Permittee shall determine the 3-hour average temperature from the most recent valid stack test that demonstrates compliance with the limits in condition D.1.1(a), as approved by IDEM.

  (2) On and after the date the approved stack test results are available, the Permittee shall maintain the temperature of the mineral oil to the absorber at or above the 3-hour average temperature as observed during the compliant stack test.

(c) If any of the following operating conditions occur, the Permittee shall take reasonable response steps in accordance with Section C – Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

  (1) When the mineral oil flow rate reading is below the minimum mineral oil flow rate for any one reading. The minimum mineral oil flow rate to the mineral oil absorber will be as recommended by the manufacturer or the minimum flow rate established during the latest compliant stack test.

  (2) When the temperature reading of the mineral oil to the absorber is below the minimum temperature for any one reading. The minimum temperature of the mineral oil to the absorber will be as recommended by the manufacturer or the minimum temperature established during the latest stack test.

(d) A flow rate or temperature reading that is below the minimum flow rate or temperature reading is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

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

D.1.12 Parametric Monitoring for Soy Oil Absorber AB-2 and Water Scrubber AB-3

(a) The Permittee shall monitor and record the soy oil flow rate to the soy oil absorber AB-2 at lease once per day.

(b) The Permittee shall monitor and record the water flow rate to the water scrubber AB-3 at lease once per day.

(c) A continuous monitoring system shall be calibrated, maintained, and operated on the soy oil absorber AB-2 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 a 3-hour average. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall operate the soy oil absorber AB-2 at or above the 3-hour average temperature as recommended by the manufacturer.

(1) The Permittee shall determine the 3-hour average temperature from the most recent valid stack test that demonstrates compliance with the limits in condition D.1.1(c), as approved by IDEM.

(2) On and after the date the approved stack test results are available, the Permittee shall maintain the temperature of the soy oil to the absorber at or above the 3-hour average temperature as observed during the compliant stack test.

(d) A continuous monitoring system shall be calibrated, maintained, and operated on the water scrubber AB-3 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 a 3-hour average. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall operate the water scrubber AB-3 at or above the 3-hour average temperature as recommended by the manufacturer.

(1) The Permittee shall determine the 3-hour average temperature from the most recent valid stack test that demonstrates compliance with the limits in condition D.1.1(c), as approved by IDEM.

(2) On and after the date the approved stack test results are available, the Permittee shall maintain the temperature of the water to the scrubber at or above the 3-hour average temperature as observed during the compliant stack test.

(e) If any of the following operating conditions occur, the Permittee shall take reasonable response steps in accordance with Section C – Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

(1) When the soy oil flow rate reading is below the minimum soy oil flow rate for any one reading. The minimum soy oil flow rate to the soy oil absorber will be 116.7 gallons per minute (gpm) or the minimum flow rate established during the latest compliant stack test.

(2) When the temperature reading of the soy oil to the absorber is below the minimum temperature for any one reading. The minimum temperature of the soy oil to the absorber will be as recommended by the manufacturer or the minimum temperature established during the latest stack test.

(3) When the water flow rate reading is below the minimum water flow rate for any one reading. The minimum water flow rate to the water scrubber will be 116 gpm or the minimum flow rate established during the latest compliant stack test.

(4) When the temperature reading of the water to the scrubber is below the minimum temperature for any one reading. The minimum temperature of the water to the scrubber will be as recommended by the manufacturer or the minimum temperature established during the latest stack test.

(f) A flow rate or temperature reading that is below the minimum flow rate or temperature reading is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

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

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

D.1.13 Record Keeping Requirement

(a) To document compliance with Conditions D.1.1(a)(3) and D.1.1(b)(2), the Permittee shall maintain records of the tons of annual soybean received.

(b) To document compliance with Condition D.1.7, the Permittee shall maintain records of visible emission notations of the stack exhausts EP-1, EP-2, EP-3, EP-4, EP-5, EP-6, EP-7, EP-8, EP-9, EP-10, EP-11, EP-12, EP-13, EP-15 and EP-19 once per day. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).

(c) To document compliance with Condition D.1.8(a), the Permittee shall maintain records once per day of the pressure drop across each of the dust collectors. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g. the process did not operate that day).

(d) To document compliance with Condition D.1.8(b), the Permittee shall maintain records of the alarm activation of the cyclones.

(e) To document compliance with Condition D.1.11, the Permittee shall maintain records of the mineral oil flow rate and the temperature of the mineral oil absorber. The Permittee shall include in its record when a flow rate reading or a temperature reading is not taken and the reason for the lack of a flow rate or temperature reading (e.g. the process did not operate that day).

(f) To document compliance with Condition D.1.12, the Permittee shall maintain records of the soy oil flow rate and the temperature of the soy oil absorber and records of the water flow rate and the temperature of the water scrubber. The Permittee shall include in its record when a flow rate reading or a temperature reading is not taken and the reason for the lack of a flow rate or temperature reading (e.g. the process did not operate that day).

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

D.1.14 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.1.1(a)(3) and D.1.1(b)(2) shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

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

(c) Two (2) natural gas-fired boilers, identified as B1 and B2, approved for construction in 2008, each with a maximum heat input capacity of 197.7 million British thermal units (MMBtu) per hour, equipped with low-NOx burners and flue gas recirculation for NOx control, exhausting to stack EP-17;

(e) Three (3) natural gas-fired column grain dryers, identified as D100, D102, and D103, approved for construction in 2008, each with a maximum heat input capacity of 45.0 MMBtu per hour and a maximum drying capacity of 5,000 bushels per hour, equipped with low-NOx burners for NOx control, exhausting fugitively;

(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 (BACT) the following requirements apply to the boilers B1 and B2:

(a) For the Boilers B1 and B2 exhausting through stack EP-17, BACT for NOx emissions has been determined to be the following:

(1) NOx emissions from each of the two natural gas fired boilers (197.7 MMBtu/hr each) shall not exceed the allowable NOx emission rate of 0.037 pounds/MMBtu heat input; and

(2) Each of the boilers shall be equipped with low NOx burners and flue gas recirculation systems. Installation and operation of the low NOx burners and the flue gas recirculation systems for the boilers are necessary to comply with the BACT emissions limits.

(b) For the Boilers B1 and B2 exhausting through stack EP-17, BACT for CO emissions has been determined to be the following:

(1) CO emissions from each of the 197.7 MMBtu per hour boilers shall not exceed 0.04 pounds per million Btu, corrected to 3% dry excess air in the exhaust gas of the boilers.

(2) Emissions of CO from the boilers shall be controlled through the use of tight control on the combustion variables; especially the supply of fuel and air and the air/fuel mixing.

D.2.2 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (BACT) the following requirements apply to the grain dryers identified as D100, D102, and D103:

(a) For the three (3) grain dryers, BACT for NOx emissions has been determined to be the following:

(1) NOx emissions from each of the 45 MMBtu/hr natural gas fired grain dryers shall not exceed 0.12 pound per MMBtu heat input;

(2) Each of the grain dryers shall be equipped with a low NOx burner. Installation and operation of the low NOx burner for each of the grain dryers is necessary to comply with the BACT emissions limit.

(b) For the three (3) grain dryers exhausting fugitively, BACT for CO emissions has been determined to be the following:

(1) CO emissions from each of the 45 MMBtu per hour grain dryers shall not exceed 0.29 pounds per million Btu, corrected to 3% dry excess air in the exhaust gas of the dryers.

(2) Emissions of CO from the grain dryers shall be controlled through the use of tight control on the combustion variables; especially the supply of fuel and air and the air/fuel mixing.

(c) The following limit shall also apply to the three (3) grain dryers pursuant to 326 IAC 2-2 as a result of the air dispersion modeling analysis performed for PM10 emissions:

(1) The three (3) grain dryers shall not operate more than 876 hours per twelve (12) consecutive month period combined, with compliance determined at the end of each month.

D.2.3 Particulate [326 IAC 6-2-4]

(a) Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating), particulate emissions from each of the boilers B1 and B2 shall be limited to 0.23 pound per MMBtu of heat input.

This limitation is based on the following equation:

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

Where:
Pt = Pounds of particulate matter emitted per million Btu (lb/mmBtu) heat input.
Q = Total source maximum operating capacity rating in million Btu per hour (mmBtu/hr) heat input = 395.4 MMBtu/hr

D.2.4 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the three (3) grain dryers shall not exceed 37.31 pounds per hour combined when operating at a process weight rate of 27 tons per hour.

The pound per hour limitation was calculated with the following equation:

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

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

D.2.5 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 and their control devices.

Compliance Determination Requirements

D.2.6 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

(a) Within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, in order to demonstrate compliance with Condition D.2.1(b), the Permittee shall perform CO testing on one (1) of the identical boilers B1 or B2 utilizing methods as approved by the Commissioner. 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.

(b) Within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, in order to demonstrate compliance with Condition D.2.2, the Permittee shall perform NOx and CO testing on one (1) of the three (3) grain dryers D100, D102 or D103 utilizing methods as approved by the Commissioner. 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.

D.2.7 NOx and CO Control

(a) In order to comply with Condition D.2.1(a), the low NOx burners and flue gas recirculation system, used to control NOx emissions, shall be in operation at all times boiler B1 or boiler B2 is in operation.

(b) In order to comply with Condition D.2.1(b), the combustion controls, used to minimize CO emissions, shall be in operation at all times boiler B1 or boiler B2 is in operation. The controls will measure the oxygen content of the flue gas to determine the efficient operating conditions.

(c) In order to comply with Condition D.2.2(a), the low NOx burners, used to control NOx emissions, shall be in operation at all times grain dryer D100, D102 or D103 is in operation.

(d) In order to comply with Condition D.2.2(b), the combustion controls, used to minimize CO emissions, shall be in operation at all times grain dryer D100, D102 or D103 is in operation. The controls will measure the oxygen content of the flue gas to determine the efficient operating conditions.

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

D.2.8 Continuous Emissions Monitoring [326 IAC 3-5]

(a) Pursuant to 326 IAC 3-5, continuous emission monitoring systems (CEMS) for boiler B1 and boiler B2 shall be installed, calibrated, maintained, and operated for measuring NOx and O_2 which meet all applicable performance specifications of 326 IAC 3-5-2.

(b) All continuous emission monitoring systems are subject to monitor system certification requirements pursuant to 326 IAC 3-5-3.

(c) Pursuant to 326 IAC 3-5-4, if revisions are made to the continuous monitoring standard operating procedures (SOP), the Permittee shall submit updates to the department biennially.

(d) Relative accuracy tests and routine quarterly audits shall be performed in accordance with the contents of the standard operating procedures (SOP) pursuant to 326 IAC 3-5-5.

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

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

D.2.9 Record Keeping Requirements

(a) To document compliance with Condition D.2.2(c), the Permittee shall maintain monthly records of the hours of operation for the three (3) grain dryers.

(b) To document compliance with Condition D.2.8, the Permittee shall maintain records of the continuous emission monitoring data for NO_x and O_2 in accordance with 326 IAC 3-5.

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

D.2.10 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.2.2(c) shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS

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

Insignificant Activity

(a) Degreasing operations that do not exceed one hundred forty-five (145) gallons per twelve (12) months, except if subject to 326 IAC 20-6. [326 IAC 8-3-2][326 IAC 8-3-5]

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

Degreasing operations

Emission Limitations and Standards [326 IAC 2-7-5(1)] (Cold Cleaning Degreaser Operations)

D.3.1 Volatile Organic Compounds (VOC) [326 IAC 8-3-2]

Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operations), for cold cleaning operations constructed after January 1, 1980, the Permittee shall:

(a) Equip the cleaner with a cover;

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

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

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

(e) Provide a permanent, conspicuous label summarizing the operation requirements;

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

D.3.2 Volatile Organic Compounds (VOC) [326 IAC 8-3-5]

(a) Pursuant to 326 IAC 8-3-5(a) (Cold Cleaner Degreaser Operation and Control), for cold cleaner degreaser operations without remote solvent reservoirs constructed after July 1, 1990, the Permittee shall ensure that the following control equipment requirements are met:

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

(A) The solvent volatility is greater than two (2) kiloPascals (fifteen (15) millimeters of mercury or three-tenths (0.3) pounds per square inch) measured at thirty-eight degrees Celsius (38OC) (one hundred degrees Fahrenheit (100OF));

(B) The solvent is agitated; or

(C) The solvent is heated.

(2) Equip the degreaser with a facility for draining cleaned articles. If the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38OC) (one hundred degrees Fahrenheit (100OF)), then the drainage facility must be internal such that articles are enclosed under the cover while draining. The drainage facility may be external for applications where an internal type cannot fit into the cleaning system.

(3) Provide a permanent, conspicuous label which lists the operating requirements outlined in subsection (b).

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

(5) Equip the degreaser with one (1) of the following control devices if the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38OC) (one hundred degrees Fahrenheit (100OF)), or if the solvent is heated to a temperature greater than forty-eight and nine-tenths degrees Celsius (48.9OC) (one hundred twenty degrees Fahrenheit (120OF)):

(A) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.

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

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

(b) Pursuant to 326 IAC 8-3-5(b) (Cold Cleaner Degreaser Operation and Control), the owner or operator of a cold cleaning facility construction of which commenced after July 1, 1990, shall ensure that the following operating requirements are met:

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

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

(3) Store waste solvent only in covered containers and prohibit the disposal or transfer of waste solvent in any manner in which greater than twenty percent (20%) of the waste solvent by weight could evaporate.

SECTION E.1 EMISSIONS UNIT CONDITIONS

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

(a) Material handling and processing equipment approved for construction in 2008 as follows:

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
R1	Hopper Truck Receiving Dump #1	270	Fabric Filter Dust Collector DC-1	EP-1
R2	Hopper Truck Receiving Dump #2	270	Fabric Filter Dust Collector DC-1	EP-1
R3	Rail Receiving Dump	270	Fabric Filter Dust Collector DC-1	EP-1
R4	Receiving Dump Drag #1	270	Fabric Filter Dust Collector DC-1	EP-1
R5	Receiving Dump Drag #2	270	Fabric Filter Dust Collector DC-1	EP-1
R6	Receiving Dump Leg	270	Fabric Filter Dust Collector DC-1	EP-1
R7	Receiving Crossyard Conveyor	270	Fabric Filter Dust Collector DC-1	EP-1
R8	Distribution Conveyor A	270	Fabric Filter Dust Collector DC-1	EP-1
R9	Distribution Conveyor B	270	Fabric Filter Dust Collector DC-1	EP-1
R10	Distribution Conveyor C	270	Fabric Filter Dust Collector DC-2	EP-2
P1	Discharge Conveyor A	270	Fabric Filter Dust Collector DC-2	EP-2
P2	Discharge Conveyor B	270	Fabric Filter Dust Collector DC-2	EP-2
P3	Leg Feed Conveyor	270	Fabric Filter Dust Collector DC-2	EP-2
P4	Discharge Leg	270	Fabric Filter Dust Collector DC-2	EP-2
P5	Prep Crossyard Conveyor A	270	Fabric Filter Dust Collector DC-2	EP-2
P6	Prep Crossyard Conveyor B	270	Fabric Filter Dust Collector DC-2	EP-2
D1	Cleaning Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D2	Cleaning Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D3	Cleaner Distribution Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D4	Cleaner A	27	Fabric Filter Dust Collector DC-2	EP-2
D5	Cleaner B	27	Fabric Filter Dust Collector DC-2	EP-2
D6	Screenings Collection Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2

D7	Screenings Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D8	Cleaned Bean Collection Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D9	Dryer Wet Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D10	Dryer Distribution Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D11	Dryer Collection Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D12	Dry Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D13	Transfer Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
S100 – S107	Eight (8) soybean storage silos	500,000 bushels each	No control	Fugitive

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

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

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

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60 Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1 for the above listed facilities except as otherwise specified in 40 CFR Part 60, Subpart DD.

(b) Pursuant to 40 CFR 60.10, the Permittee shall submit all required notifications and reports to:

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

E.1.2 New Source Performance Standards for Grain Elevators [40 CFR Part 60, Subpart DD] [326 IAC 12]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart DD (included as Attachment C), which are incorporated by reference as 326 IAC 12:

(1) 40 CFR 60.300
(2) 40 CFR 60.301
(3) 40 CFR 60.302(b), (c)(1), (c)(2), and (c)(3)
(4) 40 CFR 60.303
(5) 40 CFR 60.304

SECTION E.2 EMISSIONS UNIT CONDITIONS

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

(b) One (1) Biodiesel production operation approved for construction in 2008 including the following units:

(1) Feed Economizer
(2) High Shear Mixer
(3) Retention Mixer
(4) Centrifuge
(5) Primary Methylester Reactor
(6) Primary Decanter
(7) Secondary Methylester Reactor
(8) Inline Mixer
(9) Secondary Decanter
(10) Water Wash Mixer
(11) Wet Glycerin Surge Tank
(12) Glycerin Demethylizer Dryer
(13) Water Wash Decanter
(14) Wet Methylester Surge Tank
(15) Water Wash Surge Tank
(16) Methylester Vacuum Dryer
(17) Wet Methanol Tank
(18) Filter Slurry Tank
(19) Methylester Finishing Filter
(20) Final Polishing Filter
(21) Soy Oil Absorber, identified as AB-2, exhausting through stack EP-16
(22) Methanol Water Scrubber, identified as AB-3, exhausting through stack EP-16

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

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

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

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60 Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1 for the above listed facilities except as otherwise specified in 40 CFR Part 60, Subpart VV or 40 CFR 60, Subpart RRR.

(b) Pursuant to 40 CFR 60.10, the Permittee shall submit all required notifications and reports to:

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

E.2.2 New Source Performance Standards for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry [40 CFR Part 60, Subpart VV] [326 IAC 12]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart VV (included as Attachment D), which are incorporated by reference as 326 IAC 12:

(1) 40 CFR 60.480(a), (b) and (c)
(2) 40 CFR 60.481
(3) 40 CFR 60.482-1
(4) 40 CFR 60.482-2
(5) 40 CFR 60.482-4
(6) 40 CFR 60.482-5
(7) 40 CFR 60.482-6
(8) 40 CFR 60.482-7
(9) 40 CFR 60.482-8
(10) 40 CFR 60.482-9
(11) 40 CFR 60.482-10(a), (e), (f), (g), (h), (i), (j), (k), (l), and (m)
(12) 40 CFR 60.483-1
(13) 40 CFR 60.483-2
(14) 40 CFR 60.484
(15) 40 CFR 60.485
(16) 40 CFR 60.486
(17) 40 CFR 60.487
(18) 40 CFR 60.489

E.2.3 New Source Performance Standards for Volatile Organic Compound Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes [40 CFR Part 60, Subpart RRR] [326 IAC 12]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart RRR (included as Attachment F), which are incorporated by reference as 326 IAC 12:

(1) 40 CFR 60.700(a), (b), (c)(4)
(2) 40 CFR 60.701
(3) 40 CFR 60.704(g)
(4) 40 CFR 60.705(h), (l)(4), (o)

SECTION E.3 EMISSIONS UNIT OPERATION CONDITIONS

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

(a) Material handling and processing equipment approved for construction in 2008 as follows:

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
	Crown Shallow Bed Oil Extractor	6,500 Tons Per Day	DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
DT	Desolventizer/Toaster	330	Cyclone Scrubber and DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
DTDC	Meal Dryer		DTDC Cyclone System CY20 – CY23	EP-15
DTDC	Meal Cooler		DTDC Cyclone System CY18 – CY19	EP-15
	Solvent Contactor	409 gpm Hexane		
	First and Second Stage Evaporators		DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
	Soybean Oil Stripper		Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
	Soybean Oil Dryer		Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
	Mineral Oil Economizer			
	Main Vent Mineral Oil Condenser		Mineral Oil Absorber AB-1	EP-14
AB-1	Mineral Oil Absorber			EP-14
	Mineral Oil Stripper			EP-14
	Mineral Oil Cooler			
	Solvent Water Separator		DT/Extractor Condenser	
	DT/Extractor Condenser		Mineral Oil Absorber AB-1	EP-14
	Distillation Condenser		Mineral Oil Absorber AB-1	EP-14
	Cooling Tower			

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

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

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

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60 Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1 for the above listed facilities except as otherwise specified in 40 CFR Part 60, Subpart NNN.

(b) Pursuant to 40 CFR 60.10, the Permittee shall submit all required notifications and reports to:

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

E.3.2 New Source Performance Standards for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations [40 CFR Part 60, Subpart NNN] [326 IAC 12]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart NNN (included as Attachment E), which are incorporated by reference as 326 IAC 12:

(1) 40 CFR 60.660(a), (b), (c)(4)
(2) 40 CFR 60.661
(3) 40 CFR 60.662(a)
(4) 40 CFR 60.664(a), (b), (g)
(5) 40 CFR 60.667
(6) 40 CFR 60.668

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-7-5(1)]

E.3.3 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants under 40 CFR Part 63 [326 IAC 20-1] [40 CFR Part 63, Subpart A]

(a) Pursuant to 40 CFR 63.2870, the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 20-1-1 for the soybean oil extraction process as specified in Table 1 of 40 CFR 63, Subpart GGGG in accordance with schedule in 40 CFR 63 Subpart GGGG.

(b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

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

E.3.4 National Emission Standards for Hazardous Air Pollutants for Solvent Extraction for Vegetable Oil Production Requirements [40 CFR Part 63, Subpart GGGG] [326 IAC 20-60]

The Permittee shall comply with the following provisions of 40 CFR 63, Subpart GGGG (included as Attachment G), which are incorporated by reference as 326 IAC 20-60:

(1) 40 CFR 63.2830
(2) 40 CFR 63.2831
(3) 40 CFR 63.2832(a)
(4) 40 CFR 63.2833(a)
(5) 40 CFR 63.2834
(6) 40 CFR 63.2840(a), (b), (c), and (d)
(7) 40 CFR 63.2850(a), (c), (e)
(8) 40 CFR 63.2851
(9) 40 CFR 63.2852
(10) 40 CFR 63.2853
(11) 40 CFR 63.2854
(12) 40 CFR 63.2855
(13) 40 CFR 63.2860(b), (c), and (d)
(14) 40 CFR 63.2861
(15) 40 CFR 63.2862
(16) 40 CFR 63.2863
(17) 40 CFR 63.2870
(18) 40 CFR 63.2871
(19) 40 CFR 63.2872

SECTION E.4 EMISSIONS UNIT OPERATION CONDITIONS

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

(c) Two (2) natural gas-fired boilers, identified as B1 and B2, approved for construction in 2008, each with a maximum heat input capacity of 197.7 million British thermal units (MMBtu) per hour, equipped with low-NOx burners and flue gas recirculation for NOx control, exhausting to stack EP-17;

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

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.4.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1] [40 CFR Part 60, Subpart A]

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60 Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1 for the above listed facilities except as otherwise specified in 40 CFR Part 60, Subpart Db.

(b) Pursuant to 40 CFR 60.10, the Permittee shall submit all required notifications and reports to:

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

E.4.2 New Source Performance Standards for Industrial-Commercial-Institutional Steam Generating Units [40 CFR Part 60, Subpart Db] [326 IAC 12]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart Db (included as Attachment B), which are incorporated by reference as 326 IAC 12:

(1) 40 CFR 60.40b(a), (f), (g) and (j)
(2) 40 CFR 60.41b
(3) 40 CFR 60.44b(a), (h), (i), (l)(1)
(4) 40 CFR 60.46b(a), (c), (e)(1) and (4)
(5) 40 CFR 60.48b(b)(1), (c), (d), (e)(2) and (3), (f), (g), (j)(2)
(6) 40 CFR 60.49b(a)(1), (2) and (3), (b), (c), (d), (g), (h)(2) and (4), (i), (o), (v), (w)

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

Source Name:	Ultra Soy of America, LLC
Source Address:	7500 C.R. 700 South, South Milford, Indiana 46786
Mailing Address:	P.O. Box 8977, Fort Wayne, Indiana 46898-8977
Part 70 Permit No.:	T087-24953-00069

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

Please check what document is being certified:

☐ Annual Compliance Certification Letter

☐ Test Result (specify)

☐ Report (specify)

☐ Notification (specify)

☐ Affidavit (specify)

☐ Other (specify)

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
Signature:
Printed Name:
Title/Position:
Phone:
Date:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY

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

PART 70 OPERATING PERMIT
EMERGENCY OCCURRENCE REPORT

Source Name:	Ultra Soy of America, LLC
Source Address:	7500 C.R. 700 South, South Milford, Indiana 46786
Mailing Address:	P.O. Box 8977, Fort Wayne, Indiana 46898-8977
Part 70 Permit No.:	T087-24953-00069

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

☐ This is an emergency as defined in 326 IAC 2-7-1(12)
- The Permittee must notify the Office of Air Quality (OAQ), within four (**4**) business hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and
- The Permittee must submit notice in writing or by facsimile within two (**2**) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16.

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

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

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

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

Form Completed by:______________________________

Title / Position: _________________________________

Date:____

Phone: ____

A certification is not required for this report.

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

Part 70 Quarterly Report

Source Name:	Ultra Soy of America, LLC
Source Address:	7500 C.R. 700 South, South Milford, Indiana 46786
Mailing Address:	P.O. Box 8977, Fort Wayne, Indiana 46898-8977
Part 70 Permit No.:	T087-24953-00069
Facility:	Entire source
Parameter:	VOC emissions from the soybean oil extraction process and meal dryer and meal cooler
Limit:	The maximum annual soybean received shall not exceed 2,366,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

QUARTER : YEAR:

Month	Column 1	Column 2	Column 1 + Column 2
	Soybeans Received This Month (tons)	Soybeans Received Previous 11 Months (tons)	12 Month Total Soybeans Received (tons)
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:

Submitted by: ______________________________
Title / Position: ______________________________
Signature: ______________________________
Date: ______________________________
Phone: ______________________________

Attach a signed certification to complete this report.

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

Part 70 Quarterly Report

Source Name: Ultra Soy of America, LLC
Source Address: 7500 C.R. 700 South, South Milford, Indiana 46786
Mailing Address: P.O. Box 8977, Fort Wayne, Indiana 46898-8977
Part 70 Permit No.: T087-24953-00069
Facility: Three (3) grain dryers
Parameter: Fugitive PM10 emissions
Limit: The three (3) grain dryers shall not operate more than 876 hours per twelve (12) consecutive month period combined, with compliance determined at the end of each month.

QUARTER : YEAR:

Month	Column 1	Column 2	Column 1 + Column 2
	Hours of Operation This Month	Hours of Operation Previous 11 Months	12 Month Total Hours of Operation
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:

Submitted by: ______________________________________
Title / Position: ______________________________________
Signature:______________________________________
Date: ______________________________________
Phone: ______________________________________

Attach a signed certification to complete this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION
PART 70 OPERATING PERMIT
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT

Source Name:	Ultra Soy of America, LLC
Source Address:	7500 C.R. 700 South, South Milford, Indiana 46786
Mailing Address:	P.O. Box 8977, Fort Wayne, Indiana 46898-8977
Part 70 Permit No.:	T087-24953-00069

Months: __________ to __________ Year: ____________

Page 1 of 2

This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".	
☐ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.	
☐ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD	
Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Page 2 of 2

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

Form Completed by:_______________________________

Title / Position: _________________________________

Date:____

Phone: ____

Attach a signed certification to complete this report.

Mail to: Permit Administration & Development Section
Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

Ultra Soy of America, LLC
7500 C.R. 700 South
South Milford, Indiana 46786

Affidavit of Construction

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

1. I live in ______________________________ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.

2. I hold the position of ________________________ for ________________________.
(Title) (Company Name)

3. By virtue of my position with __________________________________, I have personal
(Company Name)

knowledge of the representations contained in this affidavit and am authorized to make

these representations on behalf of ____.
(Company Name)

4. I hereby certify that Ultra Soy of America, LLC 7500 C.R. 700 South, South Milford, Indiana 46786, completed construction of the soybean based biodiesel production plant and soybean processing plant on__________, in conformity with the requirements and intent of the construction permit application received by the Office of Air Quality on June 21, 2007 and as permitted pursuant to New Source Construction Permit and Part 70 Operating Permit No. T087-24953-00069, Plant ID No. 087-00069 issued on __________.

Further Affiant said not.

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

Signature____

Date____

STATE OF INDIANA)
)SS

COUNTY OF ____________________)

Subscribed and sworn to me, a notary public in and for ______________________ County and State of Indiana

on this ____________________ day of __________________, 20 _____. My Commission expires: ______________.

Signature______________________________

Name__________________________ (typed or printed)

ATTACHMENT A
FUGITIVE DUST CONTROL PLAN

Truck Receiving Dump #1 and #2
(1) Dumps will be located inside with fast moving bi-fold doors and all trucks will be hopper bottom.
(2) Pits will have a dust collection system.

Rail Receiving Dump
(1) Dumps will be located inside and all cars will be hopper bottom.
(2) Pits will have a dust collection system.

Truck Loading Fiber
(1) Loading station will be located indoors with fast moving bi-fold doors.

Rail Loading Fiber
(1) Loading station will be located indoors and hopper car tops will be dusted prior to shipment.

Truck Loading Protein
(1) Loading station will be located indoors with fast moving bi-fold doors
(2) Truck loading station will have a dust collection hood to collect fugitive dust the length of the truck.

Rail Loading Protein
(1) Loading station will be located indoors and hopper car tops will be dusted prior to shipment
(2) Rail loading will be equipped with a dust collection hood the length of the car to collect fugitive dust.

Soybean Storage Silos
(1) The silos will have bin vents to collect fugitive dust emissions.

1 million bushel Soybean Temporary Storage Pile
(1) Temporary Storage pile will be covered with a tarp.

Soybean Grain Dryers
(1) The dryers will operate no more than 876 hours per year.

Vehicle Traffic
(1) Roads will be paved and a street sweeper will be used to clean the roads on a weekly basis.

Attachment B, NSPS Subpart Db
Ultra Soy of America, LLC
Permit No. T087-24953-00069

Subpart Db—Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

§ 60.40b Applicability and delegation of authority.

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

(f) Any change to an existing steam generating unit for the sole purpose of combusting gases containing total reduced sulfur (TRS) as defined under §60.281 is not considered a modification under §60.14 and the steam generating unit is not subject to this subpart.

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

(1) Section 60.44b(f).

(2) Section 60.44b(g).

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

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

§ 60.41b Definitions.

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

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

Byproduct/waste means any liquid or gaseous substance produced at chemical manufacturing plants, petroleum refineries, or pulp and paper mills (except natural gas, distillate oil, or residual oil) and combusted in a steam generating unit for heat recovery or for disposal. Gaseous substances with carbon dioxide (CO_2) levels greater than 50 percent or carbon monoxide levels greater than 10 percent are not byproduct/waste for the purpose of this subpart.

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

Coal means all solid fuels classified as anthracite, bituminous, sub-bituminous, or lignite by the American Society of Testing and Materials in ASTM D388 (incorporated by reference, see §60.17), coal refuse, and petroleum coke. Coal-derived synthetic fuels, including but not limited to solvent refined coal, gasified coal, coal-oil mixtures, coke oven gas, and coal-water mixtures, are also included in this definition for the purposes of this subpart.

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

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

Coke oven gas means the volatile constituents generated in the gaseous exhaust during the carbonization of bituminous coal to form coke.

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

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

Distillate oil means fuel oils that contain 0.05 weight percent nitrogen or less and comply with the specifications for fuel oil numbers 1 and 2, as defined by the American Society of Testing and Materials in ASTM D396 (incorporated by reference, see §60.17).

Dry flue gas desulfurization technology means a SO_2control system that is located downstream of the steam generating unit and removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gases with an alkaline reagent and water, whether introduced separately or as a premixed slurry or solution and forming a dry powder material. This definition includes devices where the dry powder material is subsequently converted to another form. Alkaline slurries or solutions used in dry flue gas desulfurization technology include but are not limited to lime and sodium.

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

Emerging technology means any SO_2control system that is not defined as a conventional technology under this section, and for which the owner or operator of the facility has applied to the Administrator and received approval to operate as an emerging technology under §60.49b(a)(4).

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

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

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

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

Gaseous fuel means any fuel that is present as a gas at ISO conditions.

Gross output means the gross useful work performed by the steam generated. For units generating only electricity, the gross useful work performed is the gross electrical output from the turbine/generator set. For cogeneration units, the gross useful work performed is the gross electrical or mechanical output plus 75 percent of the useful thermal output measured relative to ISO conditions that is not used to generate additional electrical or mechanical output (i.e., steam delivered to an industrial process).

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

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

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

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

ISO Conditions means a temperature of 288 Kelvin, a relative humidity of 60 percent, and a pressure of 101.3 kilopascals.

Lignite means a type of coal classified as lignite A or lignite B by the American Society of Testing and Materials in ASTM D388 (incorporated by reference, see §60.17).

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

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

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

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

Natural gas means: (1) A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface, of which the principal constituent is methane; or (2) liquefied petroleum gas, as defined by the American Society for Testing and Materials in ASTM D1835 (incorporated by reference, see §60.17).

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

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

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

Potential sulfur dioxide emission rate means the theoretical SO_2emissions (nanograms per joule (ng/J) or lb/MMBtu heat input) that would result from combusting fuel in an uncleaned state and without using emission control systems.

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

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

Pulverized coal-fired steam generating unit means a steam generating unit in which pulverized coal is introduced into an air stream that carries the coal to the combustion chamber of the steam generating unit where it is fired in suspension. This includes both conventional pulverized coal-fired and micropulverized coal-fired steam generating units. Residual oil means crude oil, fuel oil numbers 1 and 2 that have a nitrogen content greater than 0.05 weight percent, and all fuel oil numbers 4, 5 and 6, as defined by the American Society of Testing and Materials in ASTM D396 (incorporated by reference, see §60.17).

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

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

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

Very low sulfur oil means for units constructed, reconstructed, or modified on or before February 28, 2005, an oil that contains no more than 0.5 weight percent sulfur or that, when combusted without SO_2emission control, has a SO_2emission rate equal to or less than 215 ng/J (0.5 lb/MMBtu) heat input. For units constructed, reconstructed, or modified after February 28, 2005, *very low sulfur oil* means an oil that contains no more than 0.3 weight percent sulfur or that, when combusted without SO_2emission control, has a SO_2emission rate equal to or less than 140 ng/J (0.32 lb/MMBtu) heat input.

Wet flue gas desulfurization technology means a SO_2control system that is located downstream of the steam generating unit and removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gas with an alkaline slurry or solution and forming a liquid material. This definition applies to devices where the aqueous liquid material product of this contact is subsequently converted to other forms. Alkaline reagents used in wet flue gas desulfurization technology include, but are not limited to, lime, limestone, and sodium.

Wet scrubber system means any emission control device that mixes an aqueous stream or slurry with the exhaust gases from a steam generating unit to control emissions of PM or SO_2.

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

§ 60.44b Standard for nitrogen oxides (NO_X).

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

Fuel/steam generating unit type	Nitrogen oxide emission limits (expressed as NO_2) heat input	
	ng/J	lb/MMBTu
(1) Natural gas and distillate oil, except (4):		
(ii) High heat release rate	86	0.20

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

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

(l) On and after the date on which the initial performance test is completed or is required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commenced construction or reconstruction after July 9, 1997 shall cause to be discharged into the atmosphere from that affected facility any gases that contain NO_X(expressed as NO_2) in excess of the following limits:

(1) If the affected facility combusts coal, oil, or natural gas, or a mixture of these fuels, or with any other fuels: A limit of 86 ng/J (0.20 lb/MMBtu) heat input unless the affected facility has an annual capacity factor for coal, oil, and natural gas of 10 percent (0.10) or less and is subject to a federally enforceable requirement that limits operation of the facility to an annual capacity factor of 10 percent (0.10) or less for coal, oil, and natural gas;

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

(a) The PM emission standards and opacity limits under §60.43b apply at all times except during periods of startup, shutdown, or malfunction. The NO_X emission standards under §60.44b apply at all times.

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

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

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

(4) Following the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, the owner or operator of an affected facility that has a heat input capacity of 73 MW (250 MMBtu/hr) or less and that combusts natural gas, distillate oil, or residual oil having a nitrogen content of 0.30 weight percent or less shall upon request determine compliance with the NO_X standards under §60.44b through the use of a 30-day performance test. During periods when performance tests are not requested, NO_X emissions data collected pursuant to §60.48b(g)(1) or §60.48b(g)(2) are used to calculate a 30-day rolling average emission rate on a daily basis and used to prepare excess emission reports, but will not be used to determine compliance with the NO_X emission standards. A new 30-day rolling average emission rate is calculated each steam generating unit operating day as the average of all of the hourly NO_X emission data for the preceding 30 steam generating unit operating days.

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

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

(1) Install, calibrate, maintain, and operate CEMS for measuring NO_X and O_2(or CO_2) emissions discharged to the atmosphere, and shall record the output of the system;

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

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

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

(2) For affected facilities combusting coal, oil, or natural gas, the span value for NO_X is determined using one of the following procedures:

(i) Except as provided under paragraph (e)(2)(ii) of this section, NO_X span values shall be determined as follows:

Fuel	Span values for NO_X (ppm)
Natural gas	500.

(ii) As an alternative to meeting the requirements of paragraph (e)(2)(i) of this section, the owner or operator of an affected facility may elect to use the NO_X span values determined according to section 2.1.2 in appendix A to part 75 of this chapter.

(3) All span values computed under paragraph (e)(2)(i) of this section for combusting mixtures of regulated fuels are rounded to the nearest 500 ppm. Span values computed under paragraph (e)(2)(ii) of this section shall be rounded off according to section 2.1.2 in appendix A to part 75 of this chapter.

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

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

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

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

(j) The owner or operator of an affected facility that meets the conditions in either paragraph (j)(1), (2), (3), (4), or (5) of this section is not required to install or operate a COMS for measuring opacity if:

(2) The affected facility burns only liquid (excluding residual oil) or gaseous fuels with potential SO_2 emissions rates of 26 ng/J (0.060 lb/MMBtu) or less and does not use a post-combustion technology to reduce SO_2 or PM emissions. The owner or operator must maintain fuel records of the sulfur content of the fuels burned, as described under §60.49b(r);

§ 60.49b Reporting and recordkeeping requirements.

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

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

(2) If applicable, a copy of any federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under §§60.42b(d)(1), 60.43b(a)(2), (a)(3)(iii), (c)(2)(ii), (d)(2)(iii), 60.44b(c), (d), (e), (i), (j), (k), 60.45b(d), (g), 60.46b(h), or 60.48b(i);

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

(b) The owner or operator of each affected facility subject to the SO_2, PM, and/or NO_X emission limits under §§60.42b, 60.43b, and 60.44b shall submit to the Administrator the performance test data from the initial performance test and the performance evaluation of the CEMS using the applicable performance specifications in appendix B of this part. The owner or operator of each affected facility described in §60.44b(j) or §60.44b(k) shall submit to the Administrator the maximum heat input capacity data from the demonstration of the maximum heat input capacity of the affected facility.

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

(1) Identify the specific operating conditions to be monitored and the relationship between these operating conditions and NO_X emission rates (*i.e.* , ng/J or lbs/MMBtu heat input). Steam generating unit operating conditions include, but are not limited to, the degree of staged combustion (*i.e.* , the ratio of primary air to secondary and/or tertiary air) and the level of excess air (*i.e.* , flue gas O_2 level);

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

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

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

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

(1) Calendar date;

(2) The average hourly NO_X emission rates (expressed as NO_2) (ng/J or lb/MMBtu heat input) measured or predicted;

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

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

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

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

(7) Identification of “F” factor used for calculations, method of determination, and type of fuel combusted;

(8) Identification of the times when the pollutant concentration exceeded full span of the CEMS;

(9) Description of any modifications to the CEMS that could affect the ability of the CEMS to comply with Performance Specification 2 or 3; and

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

(h) The owner or operator of any affected facility in any category listed in paragraphs (h)(1) or (2) of this section is required to submit excess emission reports for any excess emissions that occurred during the reporting period.

(2) Any affected facility that is subject to the NO_X standard of §60.44b, and that:

(i) Combusts natural gas, distillate oil, or residual oil with a nitrogen content of 0.3 weight percent or less; or

(ii) Has a heat input capacity of 73 MW (250 MMBtu/hr) or less and is required to monitor NO_X emissions on a continuous basis under §60.48b(g)(1) or steam generating unit operating conditions under §60.48b(g)(2).

(4) For purposes of §60.48b(g)(1), excess emissions are defined as any calculated 30-day rolling average NO_X emission rate, as determined under §60.46b(e), that exceeds the applicable emission limits in §60.44b.

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

(o) All records required under this section shall be maintained by the owner or operator of the affected facility for a period of 2 years following the date of such record.

(v) The owner or operator of an affected facility may submit electronic quarterly reports for SO_2 and/or NO_X and/or opacity in lieu of submitting the written reports required under paragraphs (h), (i), (j), (k) or (l) of this section. The format of each quarterly electronic report shall be coordinated with the permitting authority. The electronic report(s) shall be submitted no later than 30 days after the end of the calendar quarter and shall be accompanied by a certification statement from the owner or operator, indicating whether compliance with the applicable emission standards and minimum data requirements of this subpart was achieved during the reporting period. Before submitting reports in the electronic format, the owner or operator shall coordinate with the permitting authority to obtain their agreement to submit reports in this alternative format.

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

Attachment C, NSPS Subpart DD
Ultra Soy of America, LLC
Permit No. T087-24953-00069

Subpart DD—Standards of Performance for Grain Elevators

§ 60.300 Applicability and designation of affected facility.

(a) The provisions of this subpart apply to each affected facility at any grain terminal elevator or any grain storage elevator, except as provided under §60.304(b). The affected facilities are each truck unloading station, truck loading station, barge and ship unloading station, barge and ship loading station, railcar loading station, railcar unloading station, grain dryer, and all grain handling operations.

(b) Any facility under paragraph (a) of this section which commences construction, modification, or reconstruction after August 3, 1978, is subject to the requirements of this part.

[43 FR 34347, Aug. 3, 1978, as amended at 52 FR 42434, Nov. 5, 1988]

§ 60.301 Definitions.

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

(a) *Grain* means corn, wheat, sorghum, rice, rye, oats, barley, and soybeans.

(b) *Grain elevator* means any plant or installation at which grain is unloaded, handled, cleaned, dried, stored, or loaded.

(c) *Grain terminal elevator* means any grain elevator which has a permanent storage capacity of more than 88,100 m^3 (ca. 2.5 million U.S. bushels), except those located at animal food manufacturers, pet food manufacturers, cereal manufacturers, breweries, and livestock feedlots.

(d) *Permanent storage capacity* means grain storage capacity which is inside a building, bin, or silo.

(e) *Railcar* means railroad hopper car or boxcar.

(f) *Grain storage elevator* means any grain elevator located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant which has a permanent grain storage capacity of 35,200 m^3 (ca. 1 million bushels).

(g) *Process emission* means the particulate matter which is collected by a capture system.

(h) *Fugitive emission* means the particulate matter which is not collected by a capture system and is released directly into the atmosphere from an affected facility at a grain elevator.

(i) *Capture system* means the equipment such as sheds, hoods, ducts, fans, dampers, etc. used to collect particulate matter generated by an affected facility at a grain elevator.

(j) *Grain unloading station* means that portion of a grain elevator where the grain is transferred from a truck, railcar, barge, or ship to a receiving hopper.

(k) *Grain loading station* means that portion of a grain elevator where the grain is transferred from the elevator to a truck, railcar, barge, or ship.

(l) *Grain handling operations* include bucket elevators or legs (excluding legs used to unload barges or ships), scale hoppers and surge bins (garners), turn heads, scalpers, cleaners, trippers, and the headhouse and other such structures.

(m) *Column dryer* means any equipment used to reduce the moisture content of grain in which the grain flows from the top to the bottom in one or more continuous packed columns between two perforated metal sheets.

(n) *Rack dryer* means any equipment used to reduce the moisture content of grain in which the grain flows from the top to the bottom in a cascading flow around rows of baffles (racks).

(o) *Unloading leg* means a device which includes a bucket-type elevator which is used to remove grain from a barge or ship.

[43 FR 34347, Aug. 3, 1978, as amended at 65 FR 61759, Oct. 17, 2000]

§ 60.302 Standard for particulate matter.

(b) On and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility except a grain dryer any process emission which:

(1) Contains particulate matter in excess of 0.023 g/dscm (ca. 0.01 gr/dscf).

(2) Exhibits greater than 0 percent opacity.

(c) On and after the 60th day of achieving the maximum production rate at which the affected facility will be operated, but no later than 180 days after initial startup, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere any fugitive emission from:

(1) Any individual truck unloading station, railcar unloading station, or railcar loading station, which exhibits greater than 5 percent opacity.

(2) Any grain handling operation which exhibits greater than 0 percent opacity.

(3) Any truck loading station which exhibits greater than 10 percent opacity.

§ 60.303 Test methods and procedures.

(a) In conducting the performance tests required in §60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in §60.8(b). Acceptable alternative methods and procedures are given in paragraph (c) of this section.

(b) The owner or operator shall determine compliance with the particulate matter standards in §60.302 as follows:

(1) Method 5 shall be used to determine the particulate matter concentration and the volumetric flow rate of the effluent gas. The sampling time and sample volume for each run shall be at least

60 minutes and 1.70 dscm (60 dscf). The probe and filter holder shall be operated without heaters.

(2) Method 2 shall be used to determine the ventilation volumetric flow rate.

(3) Method 9 and the procedures in §60.11 shall be used to determine opacity.

(c) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:

(1) For Method 5, Method 17 may be used.

[54 FR 6674, Feb. 14, 1989]

§ 60.304 Modifications.

(a) The factor 6.5 shall be used in place of "annual asset guidelines repair allowance percentage," to determine whether a capital expenditure as defined by §60.2 has been made to an existing facility.

(b) The following physical changes or changes in the method of operation shall not by themselves be considered a modification of any existing facility:

(1) The addition of gravity loadout spouts to existing grain storage or grain transfer bins.

(2) The installation of automatic grain weighing scales.

(3) Replacement of motor and drive units driving existing grain handling equipment.

(4) The installation of permanent storage capacity with no increase in hourly grain handling capacity.

Attachment D, NSPS Subpart VV
Ultra Soy of America, LLC
Permit No. T087-24953-00069

Subpart VV—Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for which Construction, Reconstruction, or Modification Commenced After January 5, 1981, and on or Before November 7, 2006

§ 60.480 Applicability and designation of affected facility.

(a)(1) The provisions of this subpart apply to affected facilities in the synthetic organic chemicals manufacturing industry.

(2) The group of all equipment (defined in §60.481) within a process unit is an affected facility.

(b) Any affected facility under paragraph (a) of this section that commences construction, reconstruction, or modification after January 5, 1981, and on or before November 7, 2006, shall be subject to the requirements of this subpart.

(c) Addition or replacement of equipment for the purpose of process improvement which is accomplished without a capital expenditure shall not by itself be considered a modification under this subpart.

§ 60.481 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act or in subpart A of part 60, and the following terms shall have the specific meanings given them.

Capital expenditure means, in addition to the definition in 40 CFR 60.2, an expenditure for a physical or operational change to an existing facility that:

(a) Exceeds P, the product of the facility's replacement cost, R, and an adjusted annual asset guideline repair allowance, A, as reflected by the following equation: $P = R \times A$, where

(1) The adjusted annual asset guideline repair allowance, A, is the product of the percent of the replacement cost, Y, and the applicable basic annual asset guideline repair allowance, B, divided by 100 as reflected by the following equation:

$A = Y \times (B \div 100)$;

(2) The percent Y is determined from the following equation: $Y = 1.0 - 0.575 \log X$, where X is 1982 minus the year of construction; and

(3) The applicable basic annual asset guideline repair allowance, B, is selected from the following table consistent with the applicable subpart:

Table for Determining Applicable Value for B

Subpart applicable to facility	Value of B to be used in equation
VV	12.5
DDD	12.5
GGG	7.0

Subpart applicable to facility	Value of B to be used in equation
KKK	4.5

Closed-loop system means an enclosed system that returns process fluid to the process.

Closed-purge system means a system or combination of systems and portable containers to capture purged liquids. Containers for purged liquids must be covered or closed when not being filled or emptied.

Closed vent system means a system that is not open to the atmosphere and that is composed of hard-piping, ductwork, connections, and, if necessary, flow-inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device or back to a process.

Connector means flanged, screwed, or other joined fittings used to connect two pipe lines or a pipe line and a piece of process equipment or that close an opening in a pipe that could be connected to another pipe. Joined fittings welded completely around the circumference of the interface are not considered connectors for the purpose of this subpart.

Control device means an enclosed combustion device, vapor recovery system, or flare.

Distance piece means an open or enclosed casing through which the piston rod travels, separating the compressor cylinder from the crankcase.

Double block and bleed system means two block valves connected in series with a bleed valve or line that can vent the line between the two block valves.

Duct work means a conveyance system such as those commonly used for heating and ventilation systems. It is often made of sheet metal and often has sections connected by screws or crimping. Hard-piping is not ductwork.

Equipment means each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or other connector in VOC service and any devices or systems required by this subpart.

First attempt at repair means to take action for the purpose of stopping or reducing leakage of organic material to the atmosphere using best practices.

Fuel gas means gases that are combusted to derive useful work or heat.

Fuel gas system means the offsite and onsite piping and flow and pressure control system that gathers gaseous stream(s) generated by onsite operations, may blend them with other sources of gas, and transports the gaseous stream for use as fuel gas in combustion devices or in-process combustion equipment, such as furnaces and gas turbines, either singly or in combination.

Hard-piping means pipe or tubing that is manufactured and properly installed using good engineering judgment and standards such as ASME B31.3, Process Piping (available from the American Society of Mechanical Engineers, PO Box 2300, Fairfield, NJ 07007–2300).

In gas/vapor service means that the piece of equipment contains process fluid that is in the gaseous state at operating conditions.

In heavy liquid service means that the piece of equipment is not in gas/vapor service or in light liquid service.

In light liquid service means that the piece of equipment contains a liquid that meets the conditions specified in §60.485(e).

In-situ sampling systems means nonextractive samplers or in-line samplers.

In vacuum service means that equipment is operating at an internal pressure which is at least 5 kilopascals (kPa)(0.7 psia) below ambient pressure.

In VOC service means that the piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight. (The provisions of §60.485(d) specify how to determine that a piece of equipment is not in VOC service.)

Liquids dripping means any visible leakage from the seal including spraying, misting, clouding, and ice formation.

Open-ended valve or line means any valve, except safety relief valves, having one side of the valve seat in contact with process fluid and one side open to the atmosphere, either directly or through open piping.

Pressure release means the emission of materials resulting from system pressure being greater than set pressure of the pressure relief device.

Process improvement means routine changes made for safety and occupational health requirements, for energy savings, for better utility, for ease of maintenance and operation, for correction of design deficiencies, for bottleneck removal, for changing product requirements, or for environmental control.

Process unit means the components assembled and connected by pipes or ducts to process raw materials and to produce, as intermediate or final products, one or more of the chemicals listed in §60.489. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product. For the purpose of this subpart, process unit includes any feed, intermediate and final product storage vessels (except as specified in §60.482–1(g)), product transfer racks, and connected ducts and piping. A process unit includes all equipment as defined in this subpart.

Process unit shutdown means a work practice or operational procedure that stops production from a process unit or part of a process unit during which it is technically feasible to clear process material from a process unit or part of a process unit consistent with safety constraints and during which repairs can be accomplished. The following are not considered process unit shutdowns:

(1) An unscheduled work practice or operational procedure that stops production from a process unit or part of a process unit for less than 24 hours.

(2) An unscheduled work practice or operational procedure that would stop production from a process unit or part of a process unit for a shorter period of time than would be required to clear the process unit or part of the process unit of materials and start up the unit, and would result in greater emissions than delay of repair of leaking components until the next scheduled process unit shutdown.

(3) The use of spare equipment and technically feasible bypassing of equipment without stopping production.

Quarter means a 3-month period; the first quarter concludes on the last day of the last full month during the 180 days following initial startup.

Repaired means that equipment is adjusted, or otherwise altered, in order to eliminate a leak as defined in the applicable sections of this subpart and, except for leaks identified in accordance with §§60.482–2(b)(2)(ii) and (d)(6)(ii) and (iii), 60.482–3(f), and 60.482–10(f)(1)(ii), is re-monitored as specified in §60.485(b) to verify that emissions from the equipment are below the applicable leak definition.

Replacement cost means the capital needed to purchase all the depreciable components in a facility.

Sampling connection system means an assembly of equipment within a process unit used during periods of representative operation to take samples of the process fluid. Equipment used to take nonroutine grab samples is not considered a sampling connection system.

Sensor means a device that measures a physical quantity or the change in a physical quantity such as temperature, pressure, flow rate, pH, or liquid level.

Storage vessel means a tank or other vessel that is used to store organic liquids that are used in the process as raw material feedstocks, produced as intermediates or final products, or generated as wastes. Storage vessel does not include vessels permanently attached to motor vehicles, such as trucks, railcars, barges, or ships.

Synthetic organic chemicals manufacturing industry means the industry that produces, as intermediates or final products, one or more of the chemicals listed in §60.489.

Transfer rack means the collection of loading arms and loading hoses, at a single loading rack, that are used to fill tank trucks and/or railcars with organic liquids.

Volatile organic compounds or VOC means, for the purposes of this subpart, any reactive organic compounds as defined in §60.2 Definitions.

[48 FR 48335, Oct. 18, 1983, as amended at 49 FR 22607, May 30, 1984; 49 FR 26738, June 29, 1984; 60 FR 43258, Aug. 18, 1995; 65 FR 61762, Oct. 17, 2000; 65 FR 78276, Dec. 14, 2000; 72 FR 64879, Nov. 16, 2007]

§ 60.482-1 Standards: General.

(a) Each owner or operator subject to the provisions of this subpart shall demonstrate compliance with the requirements of §§60.482–1 through 60.482–10 or §60.480(e) for all equipment within 180 days of initial startup.

(b) Compliance with §§60.482–1 to 60.482–10 will be determined by review of records and reports, review of performance test results, and inspection using the methods and procedures specified in §60.485.

(c)(1) An owner or operator may request a determination of equivalence of a means of emission limitation to the requirements of §§60.482–2, 60.482–3, 60.482–5, 60.482–6, 60.482–7, 60.482–8, and 60.482–10 as provided in §60.484.

(2) If the Administrator makes a determination that a means of emission limitation is at least equivalent to the requirements of §§60.482–2, 60.482–3, 60.482–5, 60.482–6, 60.482–7, 60.482–8, or 60.482–10, an owner or operator shall comply with the requirements of that determination.

(d) Equipment that is in vacuum service is excluded from the requirements of §§60.482–2 to 60.482–10 if it is identified as required in §60.486(e)(5).

(e) Equipment that an owner or operator designates as being in VOC service less than 300 hours (hr)/yr is excluded from the requirements of §§60.482–2 through 60.482–10 if it is identified as required in §60.486(e)(6) and it meets any of the conditions specified in paragraphs (e)(1) through (3) of this section.

(1) The equipment is in VOC service only during startup and shutdown, excluding startup and shutdown between batches of the same campaign for a batch process.

(2) The equipment is in VOC service only during process malfunctions or other emergencies.

(3) The equipment is backup equipment that is in VOC service only when the primary equipment is out of service.

(f)(1) If a dedicated batch process unit operates less than 365 days during a year, an owner or operator may monitor to detect leaks from pumps and valves at the frequency specified in the following table instead of monitoring as specified in §§60.482–2, 60.482–7, and 60.483–2:

Operating time (percent of hours during year)	**Equivalent monitoring frequency time in use**		
	Monthly	**Quarterly**	**Semiannually**
0 to <25	Quarterly	Annually	Annually.
25 to <50	Quarterly	Semiannually	Annually.
50 to <75	Bimonthly	Three quarters	Semiannually.
75 to 100	Monthly	Quarterly	Semiannually.

(2) Pumps and valves that are shared among two or more batch process units that are subject to this subpart may be monitored at the frequencies specified in paragraph (f)(1) of this section, provided the operating time of all such process units is considered.

(3) The monitoring frequencies specified in paragraph (f)(1) of this section are not requirements for monitoring at specific intervals and can be adjusted to accommodate process operations. An owner or operator may monitor at any time during the specified monitoring period (e.g., month, quarter, year), provided the monitoring is conducted at a reasonable interval after completion of the last monitoring campaign. Reasonable intervals are defined in paragraphs (f)(3)(i) through (iv) of this section.

(i) When monitoring is conducted quarterly, monitoring events must be separated by at least 30 calendar days.

(ii) When monitoring is conducted semiannually (*i.e.* , once every 2 quarters), monitoring events must be separated by at least 60 calendar days.

(iii) When monitoring is conducted in 3 quarters per year, monitoring events must be separated by at least 90 calendar days.

(iv) When monitoring is conducted annually, monitoring events must be separated by at least 120 calendar days.

(g) If the storage vessel is shared with multiple process units, the process unit with the greatest annual amount of stored materials (predominant use) is the process unit the storage vessel is assigned to. If the storage vessel is shared equally among process units, and one of the process units has equipment subject to subpart VVa of this part, the storage vessel is assigned to that process unit. If the storage vessel is shared equally among process units, none of which have equipment subject to subpart VVa of this part, the storage vessel is assigned to any process unit subject to this subpart. If the predominant use of the storage vessel varies from year to year, then the owner or operator must estimate the predominant use initially and reassess every 3 years. The owner or operator must keep records of the information and supporting calculations that show how predominant use is determined. All equipment on the storage vessel must be monitored when in VOC service.

[48 FR 48335, Oct. 18, 1983, as amended at 49 FR 22608, May 30, 1984; 65 FR 78276, Dec. 14, 2000; 72 FR 64880, Nov. 16, 2007]

§ 60.482-2   Standards: Pumps in light liquid service.

(a)(1) Each pump in light liquid service shall be monitored monthly to detect leaks by the methods specified in §60.485(b), except as provided in §60.482–1(c) and (f) and paragraphs (d), (e), and (f) of this section. A pump that begins operation in light liquid service after the initial startup date for the process unit must be monitored for the first time within 30 days after the end of its startup period, except for a pump that replaces a leaking pump and except as provided in §60.482–1(c) and (f) and paragraphs (d), (e), and (f) of this section.

(2) Each pump in light liquid service shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal, except as provided in §60.482–1(f).

(b)(1) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(2) If there are indications of liquids dripping from the pump seal, the owner or operator shall follow the procedure specified in either paragraph (b)(2)(i) or (ii) of this section. This requirement does not apply to a pump that was monitored after a previous weekly inspection if the instrument reading for that monitoring event was less than 10,000 ppm and the pump was not repaired since that monitoring event.

(i) Monitor the pump within 5 days as specified in §60.485(b). If an instrument reading of 10,000 ppm or greater is measured, a leak is detected. The leak shall be repaired using the procedures in paragraph (c) of this section.

(ii) Designate the visual indications of liquids dripping as a leak, and repair the leak within 15 days of detection by eliminating the visual indications of liquids dripping.

(c)(1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482–9.

(2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected. First attempts at repair include, but are not limited to, the practices described in paragraphs (c)(2)(i) and (ii) of this section, where practicable.

(i) Tightening the packing gland nuts;

(ii) Ensuring that the seal flush is operating at design pressure and temperature.

(d) Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of paragraph (a) of this section, provided the requirements specified in paragraphs (d)(1) through (6) of this section are met.

(1) Each dual mechanical seal system is—

(i) Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or

(ii) Equipped with a barrier fluid degassing reservoir that is routed to a process or fuel gas system or connected by a closed vent system to a control device that complies with the requirements of §60.482–10; or

(iii) Equipped with a system that purges the barrier fluid into a process stream with zero VOC emissions to the atmosphere.

(2) The barrier fluid system is in heavy liquid service or is not in VOC service.

(3) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.

(4)(i) Each pump is checked by visual inspection, each calendar week, for indications of liquids dripping from the pump seals.

(ii) If there are indications of liquids dripping from the pump seal at the time of the weekly inspection, the owner or operator shall follow the procedure specified in either paragraph (d)(4)(ii)(A) or (B) of this section.

(A) Monitor the pump within 5 days as specified in §60.485(b) to determine if there is a leak of VOC in the barrier fluid. If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(B) Designate the visual indications of liquids dripping as a leak.

(5)(i) Each sensor as described in paragraph (d)(3) of this section is checked daily or is equipped with an audible alarm.

(ii) The owner or operator determines, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

(iii) If the sensor indicates failure of the seal system, the barrier fluid system, or both, based on the criterion established in paragraph (d)(5)(ii) of this section, a leak is detected.

(6)(i) When a leak is detected pursuant to paragraph (d)(4)(ii)(A) of this section, it shall be repaired as specified in paragraph (c) of this section.

(ii) A leak detected pursuant to paragraph (d)(5)(iii) of this section shall be repaired within 15 days of detection by eliminating the conditions that activated the sensor.

(iii) A designated leak pursuant to paragraph (d)(4)(ii)(B) of this section shall be repaired within 15 days of detection by eliminating visual indications of liquids dripping.

(e) Any pump that is designated, as described in §60.486(e)(1) and (2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraphs (a), (c), and (d) of this section if the pump:

(1) Has no externally actuated shaft penetrating the pump housing,

(2) Is demonstrated to be operating with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background as measured by the methods specified in §60.485(c), and

(3) Is tested for compliance with paragraph (e)(2) of this section initially upon designation, annually, and at other times requested by the Administrator.

(f) If any pump is equipped with a closed vent system capable of capturing and transporting any leakage from the seal or seals to a process or to a fuel gas system or to a control device that complies with the requirements of §60.482–10, it is exempt from paragraphs (a) through (e) of this section.

(g) Any pump that is designated, as described in §60.486(f)(1), as an unsafe-to-monitor pump is exempt from the monitoring and inspection requirements of paragraphs (a) and (d)(4) through (6) of this section if:

(1) The owner or operator of the pump demonstrates that the pump is unsafe-to-monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (a) of this section; and

(2) The owner or operator of the pump has a written plan that requires monitoring of the pump as frequently as practicable during safe-to-monitor times but not more frequently than the periodic monitoring schedule otherwise applicable, and repair of the equipment according to the procedures in paragraph (c) of this section if a leak is detected.

(h) Any pump that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirement of paragraphs (a)(2) and (d)(4) of this section, and the daily requirements of paragraph (d)(5) of this section, provided that each pump is visually inspected as often as practicable and at least monthly.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78276, Dec. 14, 2000; 72 FR 64880, Nov. 16, 2007]

§ 60.482-4 Standards: Pressure relief devices in gas/vapor service.

(a) Except during pressure releases, each pressure relief device in gas/vapor service shall be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as determined by the methods specified in §60.485(c).

(b)(1) After each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable, but no later than 5 calendar days after the pressure release, except as provided in §60.482–9.

(2) No later than 5 calendar days after the pressure release, the pressure relief device shall be monitored to confirm the conditions of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, by the methods specified in §60.485(c).

(c) Any pressure relief device that is routed to a process or fuel gas system or equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device as described in §60.482–10 is exempted from the requirements of paragraphs (a) and (b) of this section.

(d)(1) Any pressure relief device that is equipped with a rupture disk upstream of the pressure relief device is exempt from the requirements of paragraphs (a) and (b) of this section, provided the owner or operator complies with the requirements in paragraph (d)(2) of this section.

(2) After each pressure release, a new rupture disk shall be installed upstream of the pressure relief device as soon as practicable, but no later than 5 calendar days after each pressure release, except as provided in §60.482–9.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78277, Dec. 14, 2000]

§ 60.482-5 Standards: Sampling connection systems.

(a) Each sampling connection system shall be equipped with a closed-purge, closed-loop, or closed-vent system, except as provided in §60.482–1(c) and paragraph (c) of this section.

(b) Each closed-purge, closed-loop, or closed-vent system as required in paragraph (a) of this section shall comply with the requirements specified in paragraphs (b)(1) through (4) of this section.

(1) Gases displaced during filling of the sample container are not required to be collected or captured.

(2) Containers that are part of a closed-purge system must be covered or closed when not being filled or emptied.

(3) Gases remaining in the tubing or piping between the closed-purge system valve(s) and sample container valve(s) after the valves are closed and the sample container is disconnected are not required to be collected or captured.

(4) Each closed-purge, closed-loop, or closed-vent system shall be designed and operated to meet requirements in either paragraph (b)(4)(i), (ii), (iii), or (iv) of this section.

(i) Return the purged process fluid directly to the process line.

(ii) Collect and recycle the purged process fluid to a process.

(iii) Capture and transport all the purged process fluid to a control device that complies with the requirements of §60.482–10.

(iv) Collect, store, and transport the purged process fluid to any of the following systems or facilities:

(A) A waste management unit as defined in §63.111, if the waste management unit is subject to and operated in compliance with the provisions of 40 CFR part 63, subpart G, applicable to Group 1 wastewater streams;

(B) A treatment, storage, or disposal facility subject to regulation under 40 CFR part 262, 264, 265, or 266;

(C) A facility permitted, licensed, or registered by a state to manage municipal or industrial solid waste, if the process fluids are not hazardous waste as defined in 40 CFR part 261;

(D) A waste management unit subject to and operated in compliance with the treatment requirements of §61.348(a), provided all waste management units that collect, store, or transport the purged process fluid to the treatment unit are subject to and operated in compliance with the management requirements of §§61.343 through 61.347; or

(E) A device used to burn off-specification used oil for energy recovery in accordance with 40 CFR part 279, subpart G, provided the purged process fluid is not hazardous waste as defined in 40 CFR part 261.

(c) In situ sampling systems and sampling systems without purges are exempt from the requirements of paragraphs (a) and (b) of this section.

[60 FR 43258, Aug. 18, 1995, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78277, Dec. 14, 2000; 72 FR 64881, Nov. 16, 2007]

§ 60.482-6 Standards: Open-ended valves or lines.

(a)(1) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in §60.482–1(c) and paragraphs (d) and (e) of this section.

(2) The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line.

(b) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.

(c) When a double block-and-bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph (a) at all other times.

(d) Open-ended valves or lines in an emergency shutdown system which are designed to open automatically in the event of a process upset are exempt from the requirements of paragraphs (a), (b) and (c) of this section.

(e) Open-ended valves or lines containing materials which would autocatalytically polymerize or would present an explosion, serious overpressure, or other safety hazard if capped or equipped with a double block and bleed system as specified in paragraphs (a) through (c) of this section are exempt from the requirements of paragraphs (a) through (c) of this section.

[48 FR 48335, Oct. 18, 1983, as amended at 49 FR 22607, May 30, 1984; 65 FR 78277, Dec. 14, 2000; 72 FR 64881, Nov. 16, 2007]

§ 60.482-7 Standards: Valves in gas/vapor service and in light liquid service.

(a)(1) Each valve shall be monitored monthly to detect leaks by the methods specified in §60.485(b) and shall comply with paragraphs (b) through (e) of this section, except as provided in paragraphs (f), (g), and (h) of this section, §60.482–1(c) and (f), and §§60.483–1 and 60.483–2.

(2) A valve that begins operation in gas/vapor service or light liquid service after the initial startup date for the process unit must be monitored according to paragraphs (a)(2)(i) or (ii), except for a valve that replaces a leaking valve and except as provided in paragraphs (f), (g), and (h) of this section, §60.482–1(c), and §§60.483–1 and 60.483–2.

(i) Monitor the valve as in paragraph (a)(1) of this section. The valve must be monitored for the first time within 30 days after the end of its startup period to ensure proper installation.

(ii) If the valves on the process unit are monitored in accordance with §60.483–1 or §60.483–2, count the new valve as leaking when calculating the percentage of valves leaking as described in §60.483–2(b)(5). If less than 2.0 percent of the valves are leaking for that process unit, the valve must be monitored for the first time during the next scheduled monitoring event for existing valves in the process unit or within 90 days, whichever comes first.

(b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(c)(1)(i) Any valve for which a leak is not detected for 2 successive months may be monitored the first month of every quarter, beginning with the next quarter, until a leak is detected.

(ii) As an alternative to monitoring all of the valves in the first month of a quarter, an owner or operator may elect to subdivide the process unit into 2 or 3 subgroups of valves and monitor each subgroup in a different month during the quarter, provided each subgroup is monitored every 3 months. The owner or operator must keep records of the valves assigned to each subgroup.

(2) If a leak is detected, the valve shall be monitored monthly until a leak is not detected for 2 successive months.

(d)(1) When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in §60.482–9.

(2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(e) First attempts at repair include, but are not limited to, the following best practices where practicable:

(1) Tightening of bonnet bolts;

(2) Replacement of bonnet bolts;

(3) Tightening of packing gland nuts;

(4) Injection of lubricant into lubricated packing.

(f) Any valve that is designated, as described in §60.486(e)(2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraph (a) if the valve:

(1) Has no external actuating mechanism in contact with the process fluid,

(2) Is operated with emissions less than 500 ppm above background as determined by the method specified in §60.485(c), and

(3) Is tested for compliance with paragraph (f)(2) of this section initially upon designation, annually, and at other times requested by the Administrator.

(g) Any valve that is designated, as described in §60.486(f)(1), as an unsafe-to-monitor valve is exempt from the requirements of paragraph (a) if:

(1) The owner or operator of the valve demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (a), and

(2) The owner or operator of the valve adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times.

(h) Any valve that is designated, as described in §60.486(f)(2), as a difficult-to-monitor valve is exempt from the requirements of paragraph (a) if:

(1) The owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface.

(2) The process unit within which the valve is located either becomes an affected facility through §60.14 or §60.15 or the owner or operator designates less than 3.0 percent of the total number of valves as difficult-to-monitor, and

(3) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

[48 FR 48335, Oct. 18, 1983, as amended at 49 FR 22608, May 30, 1984; 65 FR 61762, Oct. 17, 2000; 72 FR 64881, Nov. 16, 2007]

§ 60.482-8 Standards: Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and connectors.

(a) If evidence of a potential leak is found by visual, audible, olfactory, or any other detection method at pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and connectors, the owner or operator shall follow either one of the following procedures:

(1) The owner or operator shall monitor the equipment within 5 days by the method specified in §60.485(b) and shall comply with the requirements of paragraphs (b) through (d) of this section.

(2) The owner or operator shall eliminate the visual, audible, olfactory, or other indication of a potential leak within 5 calendar days of detection.

(b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(c)(1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482–9.

(2) The first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(d) First attempts at repair include, but are not limited to, the best practices described under §§60.482–2(c)(2) and 60.482–7(e).

[48 CFR 48335, Oct. 18, 1983, as amended at 65 FR 78277, Dec. 14, 2000; 72 FR 64882, Nov. 16, 2007]

§ 60.482-9 Standards: Delay of repair.

(a) Delay of repair of equipment for which leaks have been detected will be allowed if repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown. Monitoring to verify repair must occur within 15 days after startup of the process unit.

(b) Delay of repair of equipment will be allowed for equipment which is isolated from the process and which does not remain in VOC service.

(c) Delay of repair for valves will be allowed if:

(1) The owner or operator demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair, and

(2) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with §60.482–10.

(d) Delay of repair for pumps will be allowed if:

(1) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system, and

(2) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.

(e) Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.

(f) When delay of repair is allowed for a leaking pump or valve that remains in service, the pump or valve may be considered to be repaired and no longer subject to delay of repair requirements if two consecutive monthly monitoring instrument readings are below the leak definition.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 78277, Dec. 14, 2000; 72 FR 64882, Nov. 16, 2007]

§ 60.482-10 Standards: Closed vent systems and control devices.

(a) Owners or operators of closed vent systems and control devices used to comply with provisions of this subpart shall comply with the provisions of this section.

(e) Owners or operators of control devices used to comply with the provisions of this subpart shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs.

(f) Except as provided in paragraphs (i) through (k) of this section, each closed vent system shall be inspected according to the procedures and schedule specified in paragraphs (f)(1) and (f)(2) of this section.

(1) If the vapor collection system or closed vent system is constructed of hard-piping, the owner or operator shall comply with the requirements specified in paragraphs (f)(1)(i) and (f)(1)(ii) of this section:

(i) Conduct an initial inspection according to the procedures in §60.485(b); and

(ii) Conduct annual visual inspections for visible, audible, or olfactory indications of leaks.

(2) If the vapor collection system or closed vent system is constructed of ductwork, the owner or operator shall:

(i) Conduct an initial inspection according to the procedures in §60.485(b); and

(ii) Conduct annual inspections according to the procedures in §60.485(b).

(g) Leaks, as indicated by an instrument reading greater than 500 parts per million by volume above background or by visual inspections, shall be repaired as soon as practicable except as provided in paragraph (h) of this section.

(1) A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.

(2) Repair shall be completed no later than 15 calendar days after the leak is detected.

(h) Delay of repair of a closed vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process unit shutdown or if the owner or operator determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be complete by the end of the next process unit shutdown.

(i) If a vapor collection system or closed vent system is operated under a vacuum, it is exempt from the inspection requirements of paragraphs (f)(1)(i) and (f)(2) of this section.

(j) Any parts of the closed vent system that are designated, as described in paragraph (l)(1) of this section, as unsafe to inspect are exempt from the inspection requirements of paragraphs (f)(1)(i) and (f)(2) of this section if they comply with the requirements specified in paragraphs (j)(1) and (j)(2) of this section:

(1) The owner or operator determines that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with paragraphs (f)(1)(i) or (f)(2) of this section; and

(2) The owner or operator has a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times.

(k) Any parts of the closed vent system that are designated, as described in paragraph (l)(2) of this section, as difficult to inspect are exempt from the inspection requirements of paragraphs (f)(1)(i) and (f)(2) of this section if they comply with the requirements specified in paragraphs (k)(1) through (k)(3) of this section:

(1) The owner or operator determines that the equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface; and

(2) The process unit within which the closed vent system is located becomes an affected facility through §§60.14 or 60.15, or the owner or operator designates less than 3.0 percent of the total number of closed vent system equipment as difficult to inspect; and

(3) The owner or operator has a written plan that requires inspection of the equipment at least once every 5 years. A closed vent system is exempt from inspection if it is operated under a vacuum.

(l) The owner or operator shall record the information specified in paragraphs (l)(1) through (l)(5) of this section.

(1) Identification of all parts of the closed vent system that are designated as unsafe to inspect, an explanation of why the equipment is unsafe to inspect, and the plan for inspecting the equipment.

(2) Identification of all parts of the closed vent system that are designated as difficult to inspect, an explanation of why the equipment is difficult to inspect, and the plan for inspecting the equipment.

(3) For each inspection during which a leak is detected, a record of the information specified in §60.486(c).

(4) For each inspection conducted in accordance with §60.485(b) during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.

(5) For each visual inspection conducted in accordance with paragraph (f)(1)(ii) of this section during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.

(m) Closed vent systems and control devices used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them.

[48 FR 48335, Oct. 18, 1983, as amended at 51 FR 2702, Jan. 21, 1986; 60 FR 43258, Aug. 18, 1995; 61 FR 29878, June 12, 1996; 65 FR 78277, Dec. 14, 2000]

§ 60.483-1 Alternative standards for valves—allowable percentage of valves leaking.

(a) An owner or operator may elect to comply with an allowable percentage of valves leaking of equal to or less than 2.0 percent.

(b) The following requirements shall be met if an owner or operator wishes to comply with an allowable percentage of valves leaking:

(1) An owner or operator must notify the Administrator that the owner or operator has elected to comply with the allowable percentage of valves leaking before implementing this alternative standard, as specified in §60.487(d).

(2) A performance test as specified in paragraph (c) of this section shall be conducted initially upon designation, annually, and at other times requested by the Administrator.

(3) If a valve leak is detected, it shall be repaired in accordance with §60.482–7(d) and (e).

(c) Performance tests shall be conducted in the following manner:

(1) All valves in gas/vapor and light liquid service within the affected facility shall be monitored within 1 week by the methods specified in §60.485(b).

(2) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(3) The leak percentage shall be determined by dividing the number of valves for which leaks are detected by the number of valves in gas/vapor and light liquid service within the affected facility.

(d) Owners and operators who elect to comply with this alternative standard shall not have an affected facility with a leak percentage greater than 2.0 percent, determined as described in §60.485(h).

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78278, Dec. 14, 2000; 72 FR 64882, Nov. 16, 2007]

§ 60.483-2 Alternative standards for valves—skip period leak detection and repair.

(a)(1) An owner or operator may elect to comply with one of the alternative work practices specified in paragraphs (b)(2) and (3) of this section.

(2) An owner or operator must notify the Administrator before implementing one of the alternative work practices, as specified in §60.487(d).

(b)(1) An owner or operator shall comply initially with the requirements for valves in gas/vapor service and valves in light liquid service, as described in §60.482–7.

(2) After 2 consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0, an owner or operator may begin to skip 1 of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.

(3) After 5 consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0, an owner or operator may begin to skip 3 of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.

(4) If the percent of valves leaking is greater than 2.0, the owner or operator shall comply with the requirements as described in §60.482–7 but can again elect to use this section.

(5) The percent of valves leaking shall be determined as described in §60.485(h).

(6) An owner or operator must keep a record of the percent of valves found leaking during each leak detection period.

(7) A valve that begins operation in gas/vapor service or light liquid service after the initial startup date for a process unit following one of the alternative standards in this section must be monitored in accordance with §60.482–7(a)(2)(i) or (ii) before the provisions of this section can be applied to that valve.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78278, Dec. 14, 2000; 72 FR 64882, Nov. 16, 2007]

§ 60.484 Equivalence of means of emission limitation.

(a) Each owner or operator subject to the provisions of this subpart may apply to the Administrator for determination of equivalence for any means of emission limitation that achieves a reduction in emissions of VOC at least equivalent to the reduction in emissions of VOC achieved by the controls required in this subpart.

(b) Determination of equivalence to the equipment, design, and operational requirements of this subpart will be evaluated by the following guidelines:

(1) Each owner or operator applying for an equivalence determination shall be responsible for collecting and verifying test data to demonstrate equivalence of means of emission limitation.

(2) The Administrator will compare test data for demonstrating equivalence of the means of emission limitation to test data for the equipment, design, and operational requirements.

(3) The Administrator may condition the approval of equivalence on requirements that may be necessary to assure operation and maintenance to achieve the same emission reduction as the equipment, design, and operational requirements.

(c) Determination of equivalence to the required work practices in this subpart will be evaluated by the following guidelines:

(1) Each owner or operator applying for a determination of equivalence shall be responsible for collecting and verifying test data to demonstrate equivalence of an equivalent means of emission limitation.

(2) For each affected facility for which a determination of equivalence is requested, the emission reduction achieved by the required work practice shall be demonstrated.

(3) For each affected facility, for which a determination of equivalence is requested, the emission reduction achieved by the equivalent means of emission limitation shall be demonstrated.

(4) Each owner or operator applying for a determination of equivalence shall commit in writing to work practice(s) that provide for emission reductions equal to or greater than the emission reductions achieved by the required work practice.

(5) The Administrator will compare the demonstrated emission reduction for the equivalent means of emission limitation to the demonstrated emission reduction for the required work practices and will consider the commitment in paragraph (c)(4).

(6) The Administrator may condition the approval of equivalence on requirements that may be necessary to assure operation and maintenance to achieve the same emission reduction as the required work practice.

(d) An owner or operator may offer a unique approach to demonstrate the equivalence of any equivalent means of emission limitation.

(e)(1) After a request for determination of equivalence is received, the Administrator will publish a notice in the Federal Register and provide the opportunity for public hearing if the Administrator judges that the request may be approved.

(2) After notice and opportunity for public hearing, the Administrator will determine the equivalence of a means of emission limitation and will publish the determination in the Federal Register.

(3) Any equivalent means of emission limitations approved under this section shall constitute a required work practice, equipment, design, or operational standard within the meaning of section 111(h)(1) of the Clean Air Act.

(f)(1) Manufacturers of equipment used to control equipment leaks of VOC may apply to the Administrator for determination of equivalence for any equivalent means of emission limitation that achieves a reduction in emissions of VOC achieved by the equipment, design, and operational requirements of this subpart.

(2) The Administrator will make an equivalence determination according to the provisions of paragraphs (b), (c), (d), and (e) of this section.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61762, Oct. 17, 2000; 72 FR 64882, Nov. 16, 2007]

§ 60.485 Test methods and procedures.

(a) In conducting the performance tests required in §60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in §60.8(b).

(b) The owner or operator shall determine compliance with the standards in §§60.482–1 through 60.482–10, 60.483, and 60.484 as follows:

(1) Method 21 shall be used to determine the presence of leaking sources. The instrument shall be calibrated before use each day of its use by the procedures specified in Method 21. The following calibration gases shall be used:

(i) Zero air (less than 10 ppm of hydrocarbon in air); and

(ii) A mixture of methane or n-hexane and air at a concentration of about, but less than, 10,000 ppm methane or n-hexane.

(c) The owner or operator shall determine compliance with the no detectable emission standards in §§60.482–2(e), 60.482–3(i), 60.482–4, 60.482–7(f), and 60.482–10(e) as follows:

(1) The requirements of paragraph (b) shall apply.

(2) Method 21 shall be used to determine the background level. All potential leak interfaces shall be traversed as close to the interface as possible. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm for determining compliance.

(d) The owner or operator shall test each piece of equipment unless he demonstrates that a process unit is not in VOC service, i.e., that the VOC content would never be reasonably expected to exceed 10 percent by weight. For purposes of this demonstration, the following methods and procedures shall be used:

(1) Procedures that conform to the general methods in ASTM E260–73, 91, or 96, E168–67, 77, or 92, E169–63, 77, or 93 (incorporated by reference—see §60.17) shall be used to determine the percent VOC content in the process fluid that is contained in or contacts a piece of equipment.

(2) Organic compounds that are considered by the Administrator to have negligible photochemical reactivity may be excluded from the total quantity of organic compounds in determining the VOC content of the process fluid.

(3) Engineering judgment may be used to estimate the VOC content, if a piece of equipment had not been shown previously to be in service. If the Administrator disagrees with the judgment, paragraphs (d) (1) and (2) of this section shall be used to resolve the disagreement.

(e) The owner or operator shall demonstrate that a piece of equipment is in light liquid service by showing that all the following conditions apply:

(1) The vapor pressure of one or more of the organic components is greater than 0.3 kPa at 20 °C (1.2 in. H_2O at 68 °F). Standard reference texts or ASTM D2879–83, 96, or 97 (incorporated by reference—see §60.17) shall be used to determine the vapor pressures.

(2) The total concentration of the pure organic components having a vapor pressure greater than 0.3 kPa at 20 °C (1.2 in. H_2O at 68 °F) is equal to or greater than 20 percent by weight.

(3) The fluid is a liquid at operating conditions.

(f) Samples used in conjunction with paragraphs (d), (e), and (g) of this section shall be representative of the process fluid that is contained in or contacts the equipment or the gas being combusted in the flare.

(g) The owner or operator shall determine compliance with the standards of flares as follows:

(1) Method 22 shall be used to determine visible emissions.

(2) A thermocouple or any other equivalent device shall be used to monitor the presence of a pilot flame in the flare.

(3) The maximum permitted velocity for air assisted flares shall be computed using the following equation:

$$V_{max} = K_1 + K_2 H_T$$

Where:

V_{max}= Maximum permitted velocity, m/sec (ft/sec)

H_T= Net heating value of the gas being combusted, MJ/scm (Btu/scf).

K_1= 8.706 m/sec (metric units)

= 28.56 ft/sec (English units)

K_2= 0.7084 m^4 /(MJ-sec) (metric units)

= 0.087 ft^4 /(Btu-sec) (English units)

(4) The net heating value (H_T) of the gas being combusted in a flare shall be computed using the following equation:

$$H_T = K \sum_{i=1}^{n} C_i H_i$$

Where:

K = Conversion constant, 1.740×10^{-7} (g-mole)(MJ)/(ppm-scm-kcal) (metric units) = 4.674×10^{-6} [(g-mole)(Btu)/(ppm-scf-kcal)] (English units)

C_i= Concentration of sample component “i,” ppm

H_i= Net heat of combustion of sample component “i” at 25 °C and 760 mm Hg (77 °F and 14.7 psi), kcal/g-mole

(5) Method 18 or ASTM D6420–99 (2004) (where the target compound(s) are those listed in Section 1.1 of ASTM D6420–99, and the target concentration is between 150 parts per billion by volume and 100 parts per million by volume) and ASTM D2504–67, 77 or 88 (Reapproved 1993) (incorporated by reference—see §60.17) shall be used to determine the concentration of sample component “i.”

(6) ASTM D2382–76 or 88 or D4809–95 (incorporated by reference—see §60.17) shall be used to determine the net heat of combustion of component “i” if published values are not available or cannot be calculated.

(7) Method 2, 2A, 2C, or 2D, as appropriate, shall be used to determine the actual exit velocity of a flare. If needed, the unobstructed (free) cross-sectional area of the flare tip shall be used.

(h) The owner or operator shall determine compliance with §60.483–1 or §60.483–2 as follows:

(1) The percent of valves leaking shall be determined using the following equation:

$\%V_L = (V_L/V_T) * 100$

Where:

$\%V_L$= Percent leaking valves

V_L= Number of valves found leaking

V_T= The sum of the total number of valves monitored

(2) The total number of valves monitored shall include difficult-to-monitor and unsafe-to-monitor valves only during the monitoring period in which those valves are monitored.

(3) The number of valves leaking shall include valves for which repair has been delayed.

(4) Any new valve that is not monitored within 30 days of being placed in service shall be included in the number of valves leaking and the total number of valves monitored for the monitoring period in which the valve is placed in service.

(5) If the process unit has been subdivided in accordance with §60.482–7(c)(1)(ii), the sum of valves found leaking during a monitoring period includes all subgroups.

(6) The total number of valves monitored does not include a valve monitored to verify repair.

[54 FR 6678, Feb. 14, 1989, as amended at 54 FR 27016, June 27, 1989; 65 FR 61763, Oct. 17, 2000; 72 FR 64882, Nov. 16, 2007]

§ 60.486 Recordkeeping requirements.

(a)(1) Each owner or operator subject to the provisions of this subpart shall comply with the recordkeeping requirements of this section.

(2) An owner or operator of more than one affected facility subject to the provisions of this subpart may comply with the recordkeeping requirements for these facilities in one recordkeeping system if the system identifies each record by each facility.

(b) When each leak is detected as specified in §§60.482–2, 60.482–3, 60.482–7, 60.482–8, and 60.483–2, the following requirements apply:

(1) A weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.

(2) The identification on a valve may be removed after it has been monitored for 2 successive months as specified in §60.482–7(c) and no leak has been detected during those 2 months.

(3) The identification on equipment except on a valve, may be removed after it has been repaired.

(c) When each leak is detected as specified in §§60.482–2, 60.482–3, 60.482–7, 60.482–8, and 60.483–2, the following information shall be recorded in a log and shall be kept for 2 years in a readily accessible location:

(1) The instrument and operator identification numbers and the equipment identification number.

(2) The date the leak was detected and the dates of each attempt to repair the leak.

(3) Repair methods applied in each attempt to repair the leak.

(4) “Above 10,000” if the maximum instrument reading measured by the methods specified in §60.485(a) after each repair attempt is equal to or greater than 10,000 ppm.

(5) “Repair delayed” and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.

(6) The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.

(7) The expected date of successful repair of the leak if a leak is not repaired within 15 days.

(8) Dates of process unit shutdowns that occur while the equipment is unrepaired.

(9) The date of successful repair of the leak.

(d) The following information pertaining to the design requirements for closed vent systems and control devices described in §60.482–10 shall be recorded and kept in a readily accessible location:

(1) Detailed schematics, design specifications, and piping and instrumentation diagrams.

(2) The dates and descriptions of any changes in the design specifications.

(3) A description of the parameter or parameters monitored, as required in §60.482–10(e), to ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring.

(4) Periods when the closed vent systems and control devices required in §§60.482–2, 60.482–3, 60.482–4, and 60.482–5 are not operated as designed, including periods when a flare pilot light does not have a flame.

(5) Dates of startups and shutdowns of the closed vent systems and control devices required in §§60.482–2, 60.482–3, 60.482–4, and 60.482–5.

(e) The following information pertaining to all equipment subject to the requirements in §§60.482–1 to 60.482–10 shall be recorded in a log that is kept in a readily accessible location:

(1) A list of identification numbers for equipment subject to the requirements of this subpart.

(2)(i) A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of §§60.482–2(e), 60.482–3(i) and 60.482–7(f).

(ii) The designation of equipment as subject to the requirements of §60.482–2(e), §60.482–3(i), or §60.482–7(f) shall be signed by the owner or operator. Alternatively, the owner or operator may establish a mechanism with their permitting authority that satisfies this requirement.

(3) A list of equipment identification numbers for pressure relief devices required to comply with §60.482–4.

(4)(i) The dates of each compliance test as required in §§60.482–2(e), 60.482–3(i), 60.482–4, and 60.482–7(f).

(ii) The background level measured during each compliance test.

(iii) The maximum instrument reading measured at the equipment during each compliance test.

(5) A list of identification numbers for equipment in vacuum service.

(6) A list of identification numbers for equipment that the owner or operator designates as operating in VOC service less than 300 hr/yr in accordance with §60.482–1(e), a description of the conditions under which the equipment is in VOC service, and rationale supporting the designation that it is in VOC service less than 300 hr/yr.

(f) The following information pertaining to all valves subject to the requirements of §60.482–7(g) and (h) and to all pumps subject to the requirements of §60.482–2(g) shall be recorded in a log that is kept in a readily accessible location:

(1) A list of identification numbers for valves and pumps that are designated as unsafe-to-monitor, an explanation for each valve or pump stating why the valve or pump is unsafe-to-monitor, and the plan for monitoring each valve or pump.

(2) A list of identification numbers for valves that are designated as difficult-to-monitor, an explanation for each valve stating why the valve is difficult-to-monitor, and the schedule for monitoring each valve.

(g) The following information shall be recorded for valves complying with §60.483–2:

(1) A schedule of monitoring.

(2) The percent of valves found leaking during each monitoring period.

(h) The following information shall be recorded in a log that is kept in a readily accessible location:

(1) Design criterion required in §§60.482–2(d)(5) and 60.482–3(e)(2) and explanation of the design criterion; and

(2) Any changes to this criterion and the reasons for the changes.

(i) The following information shall be recorded in a log that is kept in a readily accessible location for use in determining exemptions as provided in §60.480(d):

(1) An analysis demonstrating the design capacity of the affected facility,

(2) A statement listing the feed or raw materials and products from the affected facilities and an analysis demonstrating whether these chemicals are heavy liquids or beverage alcohol, and

(3) An analysis demonstrating that equipment is not in VOC service.

(j) Information and data used to demonstrate that a piece of equipment is not in VOC service shall be recorded in a log that is kept in a readily accessible location.

(k) The provisions of §60.7 (b) and (d) do not apply to affected facilities subject to this subpart.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61763, Oct. 17, 2000; 65 FR 78278, Dec. 14, 2000; 72 FR 64883, Nov. 16, 2007]

§ 60.487 Reporting requirements.

(a) Each owner or operator subject to the provisions of this subpart shall submit semiannual reports to the Administrator beginning six months after the initial startup date.

(b) The initial semiannual report to the Administrator shall include the following information:

(1) Process unit identification.

(2) Number of valves subject to the requirements of §60.482–7, excluding those valves designated for no detectable emissions under the provisions of §60.482–7(f).

(3) Number of pumps subject to the requirements of §60.482–2, excluding those pumps designated for no detectable emissions under the provisions of §60.482–2(e) and those pumps complying with §60.482–2(f).

(4) Number of compressors subject to the requirements of §60.482–3, excluding those compressors designated for no detectable emissions under the provisions of §60.482–3(i) and those compressors complying with §60.482–3(h).

(c) All semiannual reports to the Administrator shall include the following information, summarized from the information in §60.486:

(1) Process unit identification.

(2) For each month during the semiannual reporting period,

(i) Number of valves for which leaks were detected as described in §60.482–7(b) or §60.483–2,

(ii) Number of valves for which leaks were not repaired as required in §60.482–7(d)(1),

(iii) Number of pumps for which leaks were detected as described in §60.482–2(b), (d)(4)(ii)(A) or (B), or (d)(5)(iii),

(iv) Number of pumps for which leaks were not repaired as required in §60.482–2(c)(1) and (d)(6),

(v) Number of compressors for which leaks were detected as described in §60.482–3(f),

(vi) Number of compressors for which leaks were not repaired as required in §60.482–3(g)(1), and

(vii) The facts that explain each delay of repair and, where appropriate, why a process unit shutdown was technically infeasible.

(3) Dates of process unit shutdowns which occurred within the semiannual reporting period.

(4) Revisions to items reported according to paragraph (b) if changes have occurred since the initial report or subsequent revisions to the initial report.

(d) An owner or operator electing to comply with the provisions of §§60.483–1 or 60.483–2 shall notify the Administrator of the alternative standard selected 90 days before implementing either of the provisions.

(e) An owner or operator shall report the results of all performance tests in accordance with §60.8 of the General Provisions. The provisions of §60.8(d) do not apply to affected facilities subject to the provisions of this subpart except that an owner or operator must notify the Administrator of the schedule for the initial performance tests at least 30 days before the initial performance tests.

(f) The requirements of paragraphs (a) through (c) of this section remain in force until and unless EPA, in delegating enforcement authority to a State under section 111(c) of the Act, approves reporting requirements or an alternative means of compliance surveillance adopted by such State. In that event, affected sources within the State will be relieved of the obligation to comply with the requirements of paragraphs (a) through (c) of this section, provided that they comply with the requirements established by the State.

[48 FR 48335, Oct. 18, 1983, as amended at 49 FR 22608, May 30, 1984; 65 FR 61763, Oct. 17, 2000; 72 FR 64883, Nov. 16, 2007]

§ 60.489 List of chemicals produced by affected facilities.

The following chemicals are produced, as intermediates or final products, by process units covered under this subpart. The applicability date for process units producing one or more of these chemicals is January 5, 1981.

CAS No.[a]	Chemical
56–81–5	Glycerol.

[a]CAS numbers refer to the Chemical Abstracts Registry numbers assigned to specific chemicals, isomers, or mixtures of chemicals. Some isomers or mixtures that are covered by the standards do not have CAS numbers assigned to them. The standards apply to all of the chemicals listed, whether CAS numbers have been assigned or not.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61763, Oct. 17, 2000]

Attachment E, NSPS Subpart NNN
Ultra Soy of America, LLC
Permit No. T087-24953-00069

Subpart NNN—Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations

§ 60.660 Applicability and designation of affected facility.

(a) The provisions of this subpart apply to each affected facility designated in paragraph (b) of this section that is part of a process unit that produces any of the chemicals listed in §60.667 as a product, co-product, by-product, or intermediate, except as provided in paragraph (c).

(b) The affected facility is any of the following for which construction, modification, or reconstruction commenced after December 30, 1983:

(1) Each distillation unit not discharging its vent stream into a recovery system.

(2) Each combination of a distillation unit and the recovery system into which its vent stream is discharged.

(3) Each combination of two or more distillation units and the common recovery system into which their vent streams are discharged.

(c) Exemptions from the provisions of paragraph (a) of this section are as follows:

(4) Each affected facility that has a total resource effectiveness (TRE) index value greater than 8.0 is exempt from all provisions of this subpart except for §§60.662; 60.664 (d), (e), and (f); and 60.665 (h) and (l).

§ 60.661 Definitions.

As used in this subpart, all terms not defined here shall have the meaning given them in the Act and in subpart A of part 60, and the following terms shall have the specific meanings given them.

Batch distillation operation means a noncontinuous distillation operation in which a discrete quantity or batch of liquid feed is charged into a distillation unit and distilled at one time. After the initial charging of the liquid feed, no additional liquid is added during the distillation operation.

Boiler means any enclosed combustion device that extracts useful energy in the form of steam.

By compound means by individual stream components, not carbon equivalents.

Continuous recorder means a data recording device recording an instantaneous data value at least once every 15 minutes.

Distillation operation means an operation separating one or more feed stream(s) into two or more exit stream(s), each exit stream having component concentrations different from those in the feed stream(s). The separation is achieved by the redistribution of the components between the liquid and vapor-phase as they approach equilibrium within the distillation unit.

Distillation unit means a device or vessel in which distillation operations occur, including all associated internals (such as trays or packing) and accessories (such as reboiler, condenser, vacuum pump, steam jet, etc.), plus any associated recovery system.

Flame zone means the portion of the combustion chamber in a boiler occupied by the flame envelope.

Flow indicator means a device which indicates whether gas flow is present in a vent stream.

Halogenated vent stream means any vent stream determined to have a total concentration (by volume) of compounds containing halogens of 20 ppmv (by compound) or greater.

Incinerator means any enclosed combustion device that is used for destroying organic compounds and does not extract energy in the form of steam or process heat.

Process heater means a device that transfers heat liberated by burning fuel to fluids contained in tubes, including all fluids except water that is heated to produce steam.

Process unit means equipment assembled and connected by pipes or ducts to produce, as intermediates or final products, one or more of the chemicals in §60.667. A process unit can operate independently if supplied with sufficient fuel or raw materials and sufficient product storage facilities.

Product means any compound or chemical listed in §60.667 that is produced for sale as a final product as that chemical, or for use in the production of other chemicals or compounds. By-products, co-products, and intermediates are considered to be products.

Recovery device means an individual unit of equipment, such as an absorber, carbon adsorber, or condenser, capable of and used for the purpose of recovering chemicals for use, reuse, or sale.

Recovery system means an individual recovery device or series of such devices applied to the same vent stream.

Total organic compounds (TOC) means those compounds measured according to the procedures in §60.664(b)(4). For the purposes of measuring molar composition as required in §60.664(d)(2)(i); hourly emissions rate as required in §60.664(d)(5) and §60.664(e); and TOC concentration as required in §60.665(b)(4) and §60.665(g)(4), those compounds which the Administrator has determined do not contribute appreciably to the formation of ozone are to be excluded. The compounds to be excluded are identified in Environmental Protection Agency's statements on ozone abatement policy for State Implementation Plans (SIP) revisions (42 FR 35314; 44 FR 32042; 45 FR 32424; 45 FR 48942).

TRE index value means a measure of the supplemental total resource requirement per unit reduction of TOC associated with an individual distillation vent stream, based on vent stream flow rate, emission rate of TOC net heating value, and corrosion properties (whether or not the vent stream is halogenated), as quantified by the equation given under §60.664(e).

Vent stream means any gas stream discharged directly from a distillation facility to the atmosphere or indirectly to the atmosphere after diversion through other process equipment. The vent stream excludes relief valve discharges and equipment leaks including, but not limited to, pumps, compressors, and valves.

§ 60.662 Standards.

Each owner or operator of any affected facility shall comply with paragraph (a), (b), or (c) of this section for each vent stream on and after the date on which the initial performance test required by §60.8 and §60.664 is completed, but not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or 180 days after the initial start-up, whichever date comes first. Each owner or operator shall either:

(a) Reduce emissions of TOC (less methane and ethane) by 98 weight-percent, or to a TOC (less methane and ethane) concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. If a boiler or process heater is used to comply with this paragraph, then the vent stream shall be introduced into the flame zone of the boiler or process heater;

§ 60.664 Test methods and procedures.

(a) For the purpose of demonstrating compliance with §60.662, all affected facilities shall be run at full operating conditions and flow rates during any performance test.

(b) The following methods in appendix A to this part, except as provided under §60.8(b), shall be used as reference methods to determine compliance with the emission limit or percent reduction efficiency specified under §60.662(a).

(1) Method 1 or 1A, as appropriate, for selection of the sampling sites. The control device inlet sampling site for determination of vent stream molar composition or TOC (less methane and ethane) reduction efficiency shall be prior to the inlet of the control device and after the recovery system.

(2) Method 2, 2A, 2C, or 2D, as appropriate, for determination of the gas volumetric flow rates.

(3) The emission rate correction factor, integrated sampling and analysis procedure of Method 3 shall be used to determine the oxygen concentration ($\%O_{2d}$) for the purposes of determining compliance with the 20 ppmv limit. The sampling site shall be the same as that of the TOC samples, and the samples shall be taken during the same time that the TOC samples are taken.

The TOC concentration corrected to 3 percent $0_2(C_c)$ shall be computed using the following equation:

$$C_c = C_{TOC}\frac{17.9}{20.9 - \%O_{2d}}$$

where:

C_c=Concentration of TOC corrected to 3 percent O_2, dry basis, ppm by volume.

C_{TOC}=Concentration of TOC (minus methane and ethane), dry basis, ppm by volume.

$\%O_{2d}$=Concentration of O_2, dry basis, percent by volume.

(4) Method 18 to determine the concentration of TOC in the control device outlet and the concentration of TOC in the inlet when the reduction efficiency of the control device is to be determined.

(i) The sampling time for each run shall be 1 hour in which either an integrated sample or four grab samples shall be taken. If grab sampling is used then the samples shall be taken at 15-minute intervals.

(ii) The emission reduction (R) of TOC (minus methane and ethane) shall be determined using the following equation:

$$R = \frac{E_i - E_o}{E_i} \times 100$$

where:

R=Emission reduction, percent by weight.

E_i=Mass rate of TOC entering the control device, kg/hr (lb/hr).

E_o=Mass rate of TOC discharged to the atmosphere, kg/hr (lb/hr).

(iii) The mass rates of TOC (E_i, E_o) shall be computed using the following equations:

$$E_i = K_2 \left(\sum_{j=1}^{n} C_{ij} M_{ij} \right) Q_i$$

$$E_O = K_2 \left(\sum_{j=1}^{n} C_{oj} M_{oj} \right) Q_O$$

where:

C_{ij}, C_{oj}=Concentration of sample component “j” of the gas stream at the inlet and outlet of the control device, respectively, dry basis, ppm by volume.

M_{ij}, M_{oj}=Molecular weight of sample component “j” of the gas stream at the inlet and outlet of the control device, respectively, g/g-mole (lb/lb-mole).

Q_i, Q_o=Flow rate of gas stream at the inlet and outlet of the control device, respectively, dscm/min (dscf/min).

K_2= 2.494 × 10^{-6}(1/ppm)(g-mole/scm) (kg/g) (min/hr) (metric units), where standard temperature for (g-mole/scm) is 20 °C.

= 1.557 × 10^{-7}(1/ppm) (lb-mole/scf) (min/hr) (English units), where standard temperature for (lb-mole/scf) is 68 °F.

(iv) The TOC concentration (C_{TOC}) is the sum of the individual components and shall be computed for each run using the following equation:

$$C_{TOC} = \sum_{j=1}^{n} C_j$$

where:

C_{TOC}=Concentration of TOC (minus methane and ethane), dry basis, ppm by volume.

C_j=Concentration of sample components “j”, dry basis, ppm by volume.

n=Number of components in the sample.

(g) Each owner or operator of an affected facility seeking to comply with §60.660(c)(4) or §60.662(c) shall recalculate the TRE index value for that affected facility whenever process changes are made. Examples of process changes include changes in production capacity, feedstock type, or catalyst type, or whenever there is replacement, removal, or addition of recovery equipment. The TRE index value shall be recalculated based on test data, or on best engineering estimates of the effects of the change to the recovery system.

(1) Where the recalculated TRE index value is less than or equal to 1.0, the owner or operator shall notify the Administrator within 1 week of the recalculation and shall conduct a performance test according to the methods and procedures required by §60.664 in order to determine compliance with §60.662(a). Performance tests must be conducted as soon as possible after the process change but no later than 180 days from the time of the process change.

(2) Where the initial TRE index value is greater than 8.0 and the recalculated TRE index value is less than or equal to 8.0 but greater than 1.0, the owner or operator shall conduct a performance test in accordance with §§60.8 and 60.664 and shall comply with §§60.663, 60.664 and 60.665. Performance tests must be conducted as soon as possible after the process change but no later than 180 days from the time of the process change.

[55 FR 26942, June 29, 1990, as amended at 65 FR 61774, Oct. 17, 2000]

§ 60.667 Chemicals affected by subpart NNN.

Chemical name	CAS No.*
Acetaldehyde	75–07–0
Acetaldol	107–89–1
Acetic acid	64–19–7
Acetic anhydride	108–24–7
Acetone	67–64–1
Acetone cyanohydrin	75–86–5
Acetylene	74–86–2
Acrylic acid	79–10–7
Acrylonitrile	107–13–1
Adipic acid	124–04–9
Adiponitrile	111–69–3
Alcohols, C–11 or lower, mixtures	
Alcohols, C–12 or higher, mixtures	
Allyl chloride	107–05–1
Amylene	513–35–9

Chemical name	CAS No.*
Amylenes, mixed	
Aniline	62–53–3
Benzene	71–43–2
Benzenesulfonic acid	98–11–3
Benzenesulfonic acid C_{10-16}-alkyl derivatives, sodium salts	68081–81–2
Benzoic acid, tech	65–85–0
Benzyl chloride	100–44–7
Biphenyl	92–52–4
Bisphenol A	80–05–7
Brometone	76–08–4
1,3-Butadiene	106–99–0
Butadiene and butene fractions	
n-Butane	106–97–8
1,4-Butanediol	110–63–4
Butanes, mixed	
1-Butene	106–98–9
2-Butene	25167–67–3
Butenes, mixed	
n-Butyl acetate	123–86–4
Butyl acrylate	141–32–2
n-Butyl alcohol	71–36–3
sec-Butyl alcohol	78–92–2
tert-Butyl alcohol	75–65–0
Butylbenzyl phthalate	85–68–7
Butylene glycol	107–88–0
tert-Butyl hydroperoxide	75–91–2
2-Butyne-1,4-diol	110–65–6
Butyraldehyde	123–72–8
Butyric anhydride	106–31–0
Caprolactam	105–60–2
Carbon disulfide	75–15–0
Carbon tetrabromide	558–13–4
Carbon tetrachloride	56–23–5

Chemical name	CAS No.*
Chlorobenzene	108–90–7
2-Chloro-4-(ethylamino)-6-(isopropylamino)-s-triazine	1912–24–9
Chloroform	67–66–3
p-Chloronitrobenzene	100–00–5
Chloroprene	126–99–8
Citric acid	77–92–9
Crotonaldehyde	4170–30–0
Crotonic acid	3724–65–0
Cumene	98–82–8
Cumene hydroperoxide	80–15–9
Cyanuric chloride	108–77–0
Cyclohexane	110–82–7
Cyclohexane, oxidized	68512–15–2
Cyclohexanol	108–93–0
Cyclohexanone	108–94–1
Cyclohexanone oxime	100–64–1
Cyclohexene	110–83–8
1,3-Cyclopentadiene	542–92–7
Cyclopropane	75–19–4
Diacetone alcohol	123–42–2
Dibutanized aromatic concentrate	
1,4-Dichlorobutene	110–57–6
3,4-Dichloro-1-butene	64037–54–3
Dichlorodifluoromethane	75–71–8
Dichlorodimethylsilane	75–78–5
Dichlorofluoromethane	75–43–4
-Dichlorohydrin	96–23–1
Diethanolamine	111–42–2
Diethylbenzene	25340–17–4
Diethylene glycol	111–46–6
Di-n-heptyl-n-nonyl undecyl phthalate	85–68–7
Di-isodecyl phthalate	26761–40–0
Diisononyl phthalate	28553–12–0

Chemical name	CAS No.*
Dimethylamine	124–40–3
Dimethyl terephthalate	120–61–6
2,4-Dinitrotoluene	121–14–2
2,4-(and 2,6)-dinitrotoluene	121–14–2
	606–20–2
Dioctyl phthalate	117–81–7
Dodecene	25378–22–7
Dodecylbenzene, non linear	
Dodecylbenzenesulfonic acid	27176–87–0
Dodecylbenzenesulfonic acid, sodium salt	25155–30–0
Epichlorohydrin	106–89–8
Ethanol	64–17–5
Ethanolamine	141–43–5
Ethyl acetate	141–78–6
Ethyl acrylate	140–88–5
Ethylbenzene	100–41–4
Ethyl chloride	75–00–3
Ethyl cyanide	107–12–0
Ethylene	74–85–1
Ethylene dibromide	106–93–4
Ethylene dichloride	107–06–2
Ethylene glycol	107–21–1
Ethylene glycol monobutyl	111–76–2
Ethylene glycol monoethyl ether	110–80–5
Ethylene glycol monoethyl ether acetate	111–15–9
Ethylene glycol monomethyl ether	109–86–4
Ethylene oxide	75–21–8
2-Ethylhexanal	26266–68–2
2-Ethylhexyl alcohol	104–76–7
(2-Ethylhexyl) amine	104–75–6
Ethylmethylbenzene	25550–14–5
6-Ethyl-1,2,3,4-tetrahydro 9,10-anthracenedione	15547–17–8
Formaldehyde	50–00–0

Chemical name	CAS No.*
Glycerol	56–81–5
n-Heptane	142–82–5
Heptenes (mixed)	
Hexadecyl chloride	
Hexamethylene diamine	124–09–4
Hexamethylene diamine adipate	3323–53–3
Hexamethylenetetramine	100–97–0
Hexane	110–54–3
2-Hexenedinitrile	13042–02–9
3-Hexenedinitrile	1119–85–3
Hydrogen cyanide	74–90–8
Isobutane	75–28–5
Isobutanol	78–83–1
Isobutylene	115–11–7
Isobutyraldehyde	78–84–2
Isodecyl alcohol	25339–17–7
Isooctyl alcohol	26952–21–6
Isopentane	78–78–4
Isophthalic acid	121–91–5
Isoprene	78–79–5
Isopropanol	67–63–0
Ketene	463–51–4
Linear alcohols, ethoxylated, mixed	
Linear alcohols, ethoxylated, and sulfated, sodium salt, mixed	
Linear alcohols, sulfated, sodium salt, mixed	
Linear alkylbenzene	123–01–3
Magnesium acetate	142–72–3
Maleic anhydride	108–31–6
Melamine	108–78–1
Mesityl oxide	141–79–7
Methacrylonitrile	126–98–7
Methanol	67–56–1
Methylamine	74–89–5

Chemical name	CAS No.*
ar-Methylbenzenediamine	25376–45–8
Methyl chloride	74–87–3
Methylene chloride	75–09–2
Methyl ethyl ketone	78–93–3
Methyl iodide	74–88–4
Methyl isobutyl ketone	108–10–1
Methyl methacrylate	80–62–6
2-Methylpentane	107–83–5
1-Methyl-2-pyrrolidone	872–50–4
Methyl tert-butyl ether	
Naphthalene	91–20–3
Nitrobenzene	98–95–3
1-Nonene	27215–95–8
Nonyl alcohol	143–08–8
Nonylphenol	25154–52–3
Nonylphenol, ethoxylated	9016–45–9
Octene	25377–83–7
Oil-soluble petroleum sulfonate, calcium salt	
Oil-soluble petroleum sulfonate, sodium salt	
Pentaerythritol	115–77–5
n-Pentane	109–66–0
3-Pentenenitrile	4635–87–4
Pentenes, mixed	109–67–1
Perchloroethylene	127–18–4
Phenol	108–95–2
1-Phenylethyl hydroperoxide	3071–32–7
Phenylpropane	103–65–1
Phosgene	75–44–5
Phthalic anhydride	85–44–9
Propane	74–98–6
Propionaldehyde	123–38–6
Propionic acid	79–09–4
Propyl alcohol	71–23–8

Chemical name	CAS No.*
Propylene	115–07–1
Propylene chlorohydrin	78–89–7
Propylene glycol	57–55–6
Propylene oxide	75–56–9
Sodium cyanide	143–33–9
Sorbitol	50–70–4
Styrene	100–42–5
Terephthalic acid	100–21–0
1,1,2,2-Tetrachloroethane	79–34–5
Tetraethyl lead	78–00–2
Tetrahydrofuran	109–99–9
Tetra (methyl-ethyl) lead	
Tetramethyl lead	75–74–1
Toluene	108–88–3
Toluene-2,4-diamine	95–80–7
Toluene-2,4-(and, 2,6)-diisocyanate (80/20 mixture)	26471–62–5
Tribromomethane	75–25–2
1,1,1-Trichloroethane	71–55–6
1,1,2-Trichloroethane	79–00–5
Trichloroethylene	79–01–6
Trichlorofluoromethane	75–69–4
1,1,2-Trichloro-1,2,2-trifluoroethane	76–13–1
Triethanolamine	102–71–6
Triethylene glycol	112–27–6
Vinyl acetate	108–05–4
Vinyl chloride	75–01–4
Vinylidene chloride	75–35–4
m-Xylene	108–38–3
o-Xylene	95–47–6
p-Xylene	106–42–3
Xylenes (mixed)	1330–20–7
m-Xylenol	576–26–1

*CAS numbers refer to the Chemical Abstracts Registry numbers assigned to specific chemicals, isomers, or mixtures of chemicals. Some isomers or mixtures that are covered by the standards do not have CAS numbers assigned to them. The standards apply to all of the chemicals listed, whether CAS numbers have been assigned or not.

[55 FR 26942, June 29, 1990, as amended at 60 FR 58237, 58238, Nov. 27, 1995]

§ 60.668 Delegation of authority.

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

(b) Authorities which will not be delegated to States: §60.663(e).

Attachment F, NSPS Subpart RRR
Ultra Soy of America, LLC
Permit No. T087-24953-00069

Subpart RRR—Standards of Performance for Volatile Organic Compound Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes

§ 60.700 Applicability and designation of affected facility.

(a) The provisions of this subpart apply to each affected facility designated in paragraph (b) of this section that is part of a process unit that produces any of the chemicals listed in §60.707 as a product, co-product, by-product, or intermediate, except as provided in paragraph (c) of this section.

(b) The affected facility is any of the following for which construction, modification, or reconstruction commenced after June 29, 1990:

(1) Each reactor process not discharging its vent stream into a recovery system.

(2) Each combination of a reactor process and the recovery system into which its vent stream is discharged.

(3) Each combination of two or more reactor processes and the common recovery system into which their vent streams are discharged.

(c) Exemptions from the provisions of paragraph (a) of this section are as follows:

(4) Each affected facility operated with a vent stream flow rate less than 0.011 scm/min is exempt from all provisions of this subpart except for the test method and procedure and the recordkeeping and reporting requirements in §60.704(g) and §70.705 (h), (l)(4), and (o).

§ 60.701 Definitions.

As used in this subpart, all terms not defined here shall have the meaning given them in the Act and in subpart A of part 60, and the following terms shall have the specific meanings given them.

Batch operation means any noncontinuous reactor process that is not characterized by steady-state conditions and in which reactants are not added and products are not removed simultaneously.

Boiler means any enclosed combustion device that extracts useful energy in the form of steam and is not an incinerator.

By compound means by individual stream components, not carbon equivalents.

Car-seal means a seal that is placed on a device that is used to change the position of a valve (e.g., from opened to closed) in such a way that the position of the valve cannot be changed without breaking the seal.

Combustion device means an individual unit of equipment, such as an incinerator, flare, boiler, or process heater, used for combustion of a vent stream discharged from the process vent.

Continuous recorder means a data recording device recording an instantaneous data value at least once every 15 minutes.

Flame zone means the portion of the combustion chamber in a boiler occupied by the flame envelope.

Flow indicator means a device which indicates whether gas flow is present in a line.

Halogenated vent stream means any vent stream determined to have a total concentration (by volume) of compounds containing halogens of 20 ppmv (by compound) or greater.

Incinerator means an enclosed combustion device that is used for destroying organic compounds. If there is energy recovery, the energy recovery section and the combustion chambers are not of integral design. That is, the energy recovery section and the combustion section are not physically formed into one manufactured or assembled unit but are joined by ducts or connections carrying flue gas.

Primary fuel means the fuel fired through a burner or a number of similar burners. The primary fuel provides the principal heat input to the device, and the amount of fuel is sufficient to sustain operation without the addition of other fuels.

Process heater means a device that transfers heat liberated by burning fuel directly to process streams or to heat transfer liquids other than water.

Process unit means equipment assembled and connected by pipes or ducts to produce, as intermediates or final products, one or more of the chemicals in §60.707. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient product storage facilities.

Product means any compound or chemical listed in §60.707 which is produced for sale as a final product as that chemical, or for use in the production of other chemicals or compounds. By-products, co-products, and intermediates are considered to be products.

Reactor processes are unit operations in which one or more chemicals, or reactants other than air, are combined or decomposed in such a way that their molecular structures are altered and one or more new organic compounds are formed.

Recovery device means an individual unit of equipment, such as an absorber, carbon adsorber, or condenser, capable of and used for the purpose of recovering chemicals for use, reuse, or sale.

Recovery system means an individual recovery device or series of such devices applied to the same vent stream.

Relief valve means a valve used only to release an unplanned, nonroutine discharge. A relief valve discharge results from an operator error, a malfunction such as a power failure or equipment failure, or other unexpected cause that requires immediate venting of gas from process equipment in order to avoid safety hazards or equipment damage.

Secondary fuel means a fuel fired through a burner other than a primary fuel burner. The secondary fuel may provide supplementary heat in addition to the heat provided by the primary fuel.

Total organic compounds or TOC means those compounds measured according to the procedures in §60.704(b)(4). For the purposes of measuring molar composition as required in §60.704(d)(2)(i) and §60.704(d)(2)(ii), hourly emission rate as required in §60.704(d)(5) and

§60.704(e), and TOC concentration as required in §60.705(b)(4) and §60.705(f)(4), those compounds which the Administrator has determined do not contribute appreciably to the formation of ozone are to be excluded.

Total resource effectiveness or TRE index value means a measure of the supplemental total resource requirement per unit reduction of TOC associated with a vent stream from an affected reactor process facility, based on vent stream flow rate, emission rate of TOC, net heating value, and corrosion properties (whether or not the vent stream contains halogenated compounds), as quantified by the equation given under §60.704(e).

Vent stream means any gas stream discharged directly from a reactor process to the atmosphere or indirectly to the atmosphere after diversion through other process equipment. The vent stream excludes relief valve discharges and equipment leaks.

§ 60.704 Test methods and procedures.

(g) Any owner or operator subject to the provisions of this subpart seeking to demonstrate compliance with §60.700(c)(4) shall use Method 2, 2A, 2C, or 2D of appendix A to 40 CFR part 60, as appropriate, for determination of volumetric flow rate.

§ 60.705 Reporting and recordkeeping requirements.

(h) Each owner or operator of an affected facility that seeks to comply with the requirements of this subpart by complying with the flow rate cutoff in §60.700(c)(4) shall keep up-to-date, readily accessible records to indicate that the vent stream flow rate is less than 0.011 scm/min and of any change in equipment or process operation that increases the operating vent stream flow rate, including a measurement of the new vent stream flow rate.

(l) Each owner or operator that seeks to comply with the requirements of this subpart by complying with the requirements of §60.700 (c)(2), (c)(3), or (c)(4) or §60.702 shall submit to the Administrator semiannual reports of the following recorded information. The initial report shall be submitted within 6 months after the initial start-up date.

(4) Any change in equipment or process operation that increases the operating vent stream flow rate above the low flow exemption level in §60.700(c)(4), including a measurement of the new vent stream flow rate, as recorded under §60.705(i). These must be reported as soon as possible after the change and no later than 180 days after the change. These reports may be submitted either in conjunction with semiannual reports or as a single separate report. A performance test must be completed within the same time period to verify the recalculated flow value and to obtain the vent stream characteristics of heating value and E_{TOC}. The performance test is subject to the requirements of §60.8 of the General Provisions. Unless the facility qualifies for an exemption under any of the exemption provisions listed in §60.700(c), except for the total resource effectiveness index greater than 8.0 exemption in §60.700(c)(2), the facility must begin compliance with the requirements set forth in §60.702.

(o) Each owner or operator that seeks to demonstrate compliance with §60.700(c)(4) must submit to the Administrator an initial report including a flow rate measurement using the test methods specified in §60.704.

Attachment G, NESHAP Subpart GGGG
Ultra Soy of America, LLC
Permit No. T087-24953-00069

Subpart GGGG—National Emission Standards for Hazardous Air Pollutants: Solvent Extraction for Vegetable Oil Production

What This Subpart Covers

§ 63.2830 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for emissions during vegetable oil production. This subpart limits hazardous air pollutant (HAP) emissions from specified vegetable oil production processes. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission standards.

§ 63.2831 Where can I find definitions of key words used in this subpart?

You can find definitions of key words used in this subpart in §63.2872.

§ 63.2832 Am I subject to this subpart?

(a) You are an affected source subject to this subpart if you meet all of the criteria listed in paragraphs (a)(1) and (2) of this section:

(1) You own or operate a vegetable oil production process that is a major source of HAP emissions or is collocated within a plant site with other sources that are individually or collectively a major source of HAP emissions.

(i) A *vegetable oil production process* is defined in §63.2872. In general, it is the collection of continuous process equipment and activities that produce crude vegetable oil and meal products by removing oil from oilseeds listed in Table 1 to §63.2840 through direct contact with an organic solvent, such as a hexane isomer blend.

(ii) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year.

(2) Your vegetable oil production process processes any combination of eight types of oilseeds listed in paragraphs (a)(2)(i) through (viii) of this section:

(i) Corn germ;

(ii) Cottonseed;

(iii) Flax;

(iv) Peanut;

(v) Rapeseed (for example, canola);

(vi) Safflower;

(vii) Soybean; and

(viii) Sunflower.

§ 63.2833 Is my source categorized as existing or new?

(a) This subpart applies to each existing and new affected source. You must categorize your vegetable oil production process as either an existing or a new source in accordance with the criteria in Table 1 of this section, as follows:

Table 1 to §63.2833—Categorizing Your Source as Existing or New

If your affected source...	And if...	Then your affected source...
(1) was constructed or began construction before May 26, 2000	reconstruction has not occurred	is an existing source.
(2) began reconstruction, as defined in §63.2, on or after May 26, 2000	(i) reconstruction was part of a scheduled plan to comply with the existing source requirements of this subpart; and (ii) reconstruction was completed no later than 3 years after the effective date of this subpart	remains an existing source.
(3) began a significant modification, as defined in §63.2872, at any time on an existing source	the modification does not constitute reconstruction	remains an existing source.
(4) began a significant modification, as defined in §63.2872, at any time on a new source	the modification does not constitute reconstruction	remains a new source.
(5) began reconstruction on or after May 26, 2000	reconstruction was completed later than 3 years after the effective date of this subpart	is a new source
(6) began construction on or after May 26, 2000		is a new source.

§ 63.2834 When do I have to comply with the standards in this subpart?

You must comply with this subpart in accordance with one of the schedules in Table 1 of this section, as follows:

Table 1 of §63.2834—Compliance Dates for Existing and New Sources

If your affected source is categorized as...	And if...	Then your compliance date is...
(a) an existing source		3 years after the effective date of this subpart.
(b) a new source	you startup your affected source before the effective date of this subpart	the effective date of this subpart.
(c) a new source	you startup your affected source on or after the effective date of this subpart	your startup date.

Standards

§ 63.2840 What emission requirements must I meet?

For each facility meeting the applicability criteria in §63.2832, you must comply with either the requirements specified in paragraphs (a) through (d), or the requirements in paragraph (e) of this section.

(a)(1) The emission requirements limit the number of gallons of HAP lost per ton of listed oilseeds processed. For each operating month, you must calculate a compliance ratio which compares your actual HAP loss to your allowable HAP loss for the previous 12 operating months as shown in Equation 1 of this section. An operating month, as defined in §63.2872, is any calendar month in which a source processes a listed oilseed, excluding any entire calendar month in which the source operated under an initial startup period subject to §63.2850(c)(2) or (d)(2) or a malfunction period subject to §63.2850(e)(2). Equation 1 of this section follows:

$$\text{Compliance Ratio} = \frac{\text{Actual Hap Loss}}{\text{Allowable Hap Loss}} \qquad (Eq.\ 1)$$

(2) Equation 1 of this section can also be expressed as a function of total solvent loss as shown in Equation 2 of this section. Equation 2 of this section follows:

$$\text{Compliance Ratio} = \frac{f * \text{Actual Solvent Loss}}{0.64 * \sum_{i=1}^{n}\left((\text{Oilseed})_i * (\text{SLF})_i\right)} \qquad (Eq.\ 2)$$

Where:

f = The weighted average volume fraction of HAP in solvent received during the previous 12 operating months, as determined in §63.2854, dimensionless.

0.64 = The average volume fraction of HAP in solvent in the baseline performance data, dimensionless.

Actual Solvent Loss = Gallons of actual solvent loss during previous 12 operating months, as determined in §63.2853.

Oilseed = Tons of each oilseed type “i” processed during the previous 12 operating months, as shown in §63.2855.

SLF = The corresponding solvent loss factor (gal/ton) for oilseed “i” listed in Table 1 of this section, as follows:

Table 1 of §63.2840—Oilseed Solvent Loss Factors for Determining Allowable HAP Loss

Type of oilseed process	A source that...	Oilseed solvent loss factor (gal/ton)	
		Existing sources	New sources
(i) Corn Germ, Wet Milling	processes corn germ that has been separated from other corn components using a “wet” process of centrifuging a slurry steeped in a dilute sulfurous acid solution	0.4	0.3
(ii) Corn Germ, Dry Milling	processes corn germ that has been separated from the other corn components using a “dry” process of mechanical chafing and air sifting	0.7	0.7
(iii) Cottonseed, Large	processes 120,000 tons or more of a combination of cottonseed and other listed oilseeds during all normal operating periods in a 12 operating month period	0.5	0.4
(iv) Cottonseed, Small	processes less than 120,000 tons of a combination of cottonseed and other listed oilseeds during all normal operating periods in a 12 operating month period	0.7	0.4
(v) Flax	processes flax	0.6	0.6
(vi) Peanuts	processes peanuts	1.2	0.7
(vii) Rapeseed	processes rapeseed	0.7	0.3
(viii) Safflower	processes safflower	0.7	0.7
(ix) Soybean, Conventional	uses a conventional style desolventizer to produce crude soybean oil products and soybean animal feed products	0.2	0.2
(x) Soybean, Specialty	uses a special style desolventizer to produce soybean meal products for human and animal consumption	1.7	1.5
(xi) Soybean, Combination Plant with Low Specialty Production	processes soybeans in both specialty and conventional desolventizers and the quantity of soybeans processed in specialty desolventizers during normal operating periods is less than 3.3 percent of total soybeans processed during all normal operating periods in a 12 operating month period. The corresponding solvent loss factor is an overall value and applies to the total quantity of soybeans processed.	0.25	0.25
(xii) Sunflower	processes sunflower	0.4	0.3

(b) When your source has processed listed oilseed for 12 operating months, calculate the compliance ratio by the end of each calendar month following an operating month using Equation 2 of this section. When calculating your compliance ratio, consider the conditions and exclusions in paragraphs (b)(1) through (6) of this section:

(1) If your source processes any quantity of listed oilseeds in a calendar month and the source is not operating under an initial startup period or malfunction period subject to §63.2850, then you must categorize the month as an operating month, as defined in §63.2872.

(2) The 12-month compliance ratio may include operating months occurring prior to a source shutdown and operating months that follow after the source resumes operation.

(3) If your source shuts down and processes no listed oilseed for an entire calendar month, then you must categorize the month as a nonoperating month, as defined in §63.2872. Exclude any nonoperating months from the compliance ratio determination.

(4) If your source is subject to an initial startup period as defined in §63.2872, exclude from the compliance ratio determination any solvent and oilseed information recorded for the initial startup period.

(5) If your source is subject to a malfunction period as defined in §63.2872, exclude from the compliance ratio determination any solvent and oilseed information recorded for the malfunction period.

(6) For sources processing cottonseed or specialty soybean, the solvent loss factor you use to determine the compliance ratio may change each operating month depending on the tons of oilseed processed during all normal operating periods in a 12 operating month period.

(c) If the compliance ratio is less than or equal to 1.00, your source was in compliance with the HAP emission requirements for the previous operating month.

(d) To determine the compliance ratio in Equation 2 of this section, you must select the appropriate oilseed solvent loss factor from Table 1 of this section. First, determine whether your source is new or existing using Table 1 of §63.2833. Then, under the appropriate existing or new source column, select the oilseed solvent loss factor that corresponds to each type oilseed or process operation for each operating month.

Compliance Requirements

§ 63.2850 How do I comply with the hazardous air pollutant emission standards?

(a) *General requirements.* The requirements in paragraphs (a)(1)(i) through (iv) of this section apply to all affected sources:

(1) Submit the necessary notifications in accordance with §63.2860, which include:

(i) Initial notifications for existing sources.

(ii) Initial notifications for new and reconstructed sources.

(iii) Initial notifications for significant modifications to existing or new sources.

(iv) Notification of compliance status.

(2) Develop and implement a plan for demonstrating compliance in accordance with §63.2851.

(3) Develop a written startup, shutdown and malfunction (SSM) plan in accordance with the provisions in §63.2852.

(4) Maintain all the necessary records you have used to demonstrate compliance with this subpart in accordance with §63.2862.

(5) Submit the reports in paragraphs (a)(5)(i) through (iii) of this section:

(i) Annual compliance certifications in accordance with §63.2861(a).

(ii) Periodic SSM reports in accordance with §63.2861(c).

(iii) Immediate SSM reports in accordance with §63.2861(d).

(6) Submit all notifications and reports and maintain all records required by the General Provisions for performance testing if you add a control device that destroys solvent.

(c) *New sources.* Your new source, including a source that is categorized as new due to reconstruction, must meet the requirements associated with one of two compliance options. Within 15 days of the startup date, you must choose to comply with one of the options listed in paragraph (c)(1) or (2) of this section:

(1) *Normal operation.* Upon startup of your new source, you must meet all of the requirements listed in §63.2850(a) and Table 1 of this section for sources under normal operation, and the schedules for demonstrating compliance for new sources under normal operation in Table 2 of this section.

(2) *Initial startup period.* For up to 6 calendar months after the startup date of your new source, you must meet all of the requirements listed in paragraph (a) of this section and Table 1 of this section for sources operating under an initial startup period, and the schedules for demonstrating compliance for new sources operating under an initial startup period in Table 2 of this section. After a maximum of 6 calendar months, your new source must then meet all of the requirements listed in Table 1 of this section for sources under normal operation.

(e) *Existing or new sources experiencing a malfunction.* A *malfunction* is defined in §63.2. In general, it means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment or process equipment to function in a usual manner. If your existing or new source experiences an unscheduled shutdown as a result of a malfunction, continues to operate during a malfunction (including the period reasonably necessary to correct the malfunction), or starts up after a shutdown resulting from a malfunction, then you must meet the requirements associated with one of two compliance options. Routine or scheduled process startups and shutdowns resulting from, but not limited to, market demands, maintenance activities, and switching types of oilseed processed, are not startups or shutdowns resulting from a malfunction and, therefore, do not qualify for this provision. Within 15 days of the beginning date of the malfunction, you must choose to comply with one of the options listed in paragraphs (e)(1) through (2) of this section:

(1) *Normal operation.* Your source must meet all of the requirements listed in paragraph (a) of this section and one of the options listed in paragraphs (e)(1)(i) through (iii) of this section:

(i) Existing source normal operation requirements in paragraph (b) of this section.

(ii) New source normal operation requirements in paragraph (c)(1) of this section.

(iii) Normal operation requirements for sources that have been significantly modified in paragraph (d)(1) of this section.

(2) *Malfunction period.* Throughout the malfunction period, you must meet all of the requirements listed in paragraph (a) of this section and Table 1 of this section for sources operating during a

malfunction period. At the end of the malfunction period, your source must then meet all of the requirements listed in Table 1 of this section for sources under normal operation. Table 1 of this section follows:

Table 1 of §63.2850—Requirements for Compliance with HAP Emission Standards

Are you required to . . .	For periods of normal operation?	For initial startup periods subject to §63.2850(c)(2) or (d)(2)?	For malfunction periods subject to §63.2850(e)(2)?
(a) Operate and maintain your source in accordance with general duty provisions of §63.6(e)?	Yes. Additionally, the HAP emission limits will apply.	Yes, you are required to minimize emissions to the extent practicable throughout the initial startup period. Such measures should be described in the SSM plan.	Yes, you are required to minimize emissions to the extent practicable throughout the initial startup period. Such measures should be described in the SSM plan.
(b) Determine and record the extraction solvent loss in gallons from your source?	Yes, as described in §63.2853	Yes, as described in §63.2862(e)	Yes, as described in §63.2862(e).
(c) Record the volume fraction of HAP present at greater than 1 percent by volume and gallons of extraction solvent in shipment received?	Yes	Yes	Yes.
(d) Determine and record the tons of each oilseed type processed by your source?	Yes, as described in §63.2855	No	No.
(e) Determine the weighted average volume fraction of HAP in extraction solvent received as described in §63.2854 by the end of the following calendar month?	Yes	No. Except for solvent received by a new or reconstructed source commencing operation under an initial startup period, the HAP volume fraction in any solvent received during an initial startup period is included in the weighted average HAP determination for the next operating month	No, the HAP volume fraction in any solvent received during a malfunction period is included in the weighted average HAP determination for the next operating month.

Are you required to . . .	For periods of normal operation?	For initial startup periods subject to §63.2850(c)(2) or (d)(2)?	For malfunction periods subject to §63.2850(e)(2)?
(f) Determine and record the actual solvent loss, weighted average volume fraction HAP, oilseed processed and compliance ratio for each 12 operating month period as described in §63.2840 by the end of the following calendar month?	Yes,	No, these requirements are not applicable because your source is not required to determine the compliance ratio with data recorded for an initial startup period	No, these requirements are not applicable because your source is not required to determine the compliance ratio with data recorded for a malfunction period.
(g) Submit a Notification of Compliance Status or Annual Compliance Certification as appropriate?	Yes, as described in §§63.2860(d) and 63.2861(a)	No. However, you may be required to submit an annual compliance certification for previous operating months, if the deadline for the annual compliance certification happens to occur during the initial startup period	No. However, you may be required to submit an annual compliance certification for previous operating months, if the deadline for the annual compliance certification happens to occur during the malfunction period.
(h) Submit a Deviation Notification Report by the end of the calendar month following the month in which you determined that the compliance ratio exceeds 1.00 as described in §63.2861(b)?	Yes	No, these requirements are not applicable because your source is not required to determine the compliance ratio with data recorded for an initial startup period	No, these requirements are not applicable because your source is not required to determine the compliance ratio with data recorded for a malfunction period.
(i) Submit a Periodic SSM Report as described in §63.2861(c)?	No, a SSM activity is not categorized as normal operation	Yes	Yes.
(j) Submit an Immediate SSM Report as described in §63.2861(d)?	No, a SSM activity is not categorized as normal operation	Yes, only if your source does not follow the SSM plan	Yes, only if your source does not follow the SSM plan.

Table 2 of §63.2850—Schedules for Demonstrating Compliance Under Various Source Operating Modes

If your source is . . .	and is operating under. . .	then your recordkeeping schedule. . .	You must determine your first compliance ratio by the end of the calendar month following. . .	Base your first compliance ratio on information recorded. . .
(a) Existing	Normal operation	Begins on the compliance date	The first 12 operating months after the compliance date	During the first 12 operating months after the compliance date.
(b) New	(1) Normal operation	Begins on the startup date of your new source	The first 12 operating months after the startup date of the new source	During the first 12 operating months after the startup date of the new source.
	(2) An initial startup period	Begins on the startup date of your new source	The first 12 operating months after termination of the initial startup period, which can last for up to 6 months	During the first 12 operating months after the initial startup period, which can last for up to 6 months.
(c) Existing or new that has been significantly modified	(1) Normal operation	Resumes on the startup date of the modified source	The first operating month after the startup date of the modified source	During the previous 11 operating months prior to the significant modification and the first operating month following the initial startup date of the source.
	(2) An initial startup period	Resumes on the startup date of the modified source	The first operating month after termination of the initial startup period, which can last up to 3 months	During the 11 operating months before the significant modification and the first operating month after the initial startup period.

[66 FR 19011, Apr. 12, 2001, as amended at 71 FR 20463, Apr. 20, 2006]

§ 63.2851 What is a plan for demonstrating compliance?

(a) You must develop and implement a written plan for demonstrating compliance that provides the detailed procedures you will follow to monitor and record data necessary for demonstrating compliance with this subpart. Procedures followed for quantifying solvent loss from the source and amount of oilseed processed vary from source to source because of site-specific factors such as equipment design characteristics and operating conditions. Typical procedures include one or more accurate measurement methods such as weigh scales, volumetric displacement, and material mass balances. Because the industry does not have a uniform set of procedures, you must develop and implement your own site-specific plan for demonstrating compliance before the compliance date for your source. You must also incorporate the plan for demonstrating compliance by reference in the source's title V permit and keep the plan on-site and readily available as long as the source is operational. If you make any changes to the plan for demonstrating compliance, then you must keep all previous versions of the plan and make them readily available for inspection for at least 5 years after each revision. The plan for demonstrating compliance must include the items in paragraphs (a)(1) through (7) of this section:

(1) The name and address of the owner or operator.

(2) The physical address of the vegetable oil production process.

(3) A detailed description of all methods of measurement your source will use to determine your solvent losses, HAP content of solvent, and the tons of each type of oilseed processed.

(4) When each measurement will be made.

(5) Examples of each calculation you will use to determine your compliance status. Include examples of how you will convert data measured with one parameter to other terms for use in compliance determination.

(6) Example logs of how data will be recorded.

(7) A plan to ensure that the data continue to meet compliance demonstration needs.

(b) The responsible agency of these NESHAP may require you to revise your plan for demonstrating compliance. The responsible agency may require reasonable revisions if the procedures lack detail, are inconsistent or do not accurately determine solvent loss, HAP content of the solvent, or the tons of oilseed processed.

§ 63.2852 What is a startup, shutdown, and malfunction plan?

You must develop a written SSM plan in accordance with §63.6(e)(3). You must complete the SSM plan before the compliance date for your source. You must also keep the SSM plan on-site and readily available as long as the source is operational. The SSM plan provides detailed procedures for operating and maintaining your source to minimize emissions during a qualifying SSM event for which the source chooses the §63.2850(e)(2) malfunction period, or the §63.2850(c)(2) or (d)(2) initial startup period. The SSM plan must specify a program of corrective action for malfunctioning process and air pollution control equipment and reflect the best practices now in use by the industry to minimize emissions. Some or all of the procedures may come from plans you developed for other purposes such as a Standard Operating Procedure manual or an Occupational Safety and Health Administration Process Safety Management plan. To qualify as a SSM plan, other such plans must meet all the applicable requirements of these NESHAP.

[66 FR 19011, Apr. 12, 2001, as amended at 67 FR 16321, Apr. 5, 2002; 71 FR 20463, Apr. 20, 2006]

§ 63.2853 How do I determine the actual solvent loss?

By the end of each calendar month following an operating month, you must determine the total solvent loss in gallons for the previous operating month. The total solvent loss for an operating month includes all solvent losses that occur during normal operating periods within the operating month. If you have determined solvent losses for 12 or more operating months, then you must also determine the 12 operating months rolling sum of actual solvent loss in gallons by summing the monthly actual solvent loss for the previous 12 operating months. The 12 operating months rolling sum of solvent loss is the "actual solvent loss," which is used to calculate your compliance ratio as described in §63.2840.

(a) To determine the actual solvent loss from your source, follow the procedures in your plan for demonstrating compliance to determine the items in paragraphs (a)(1) through (7) of this section:

(1) *The dates that define each operating status period during a calendar month.* The dates that define each operating status period include the beginning date of each calendar month and the date of any change in the source operating status. If the source maintains the same operating status during an entire calendar month, these dates are the beginning and ending dates of the calendar month. If, prior to the effective date of this rule, your source determines the solvent loss on an *accounting month,* as defined in §63.2872, rather than a calendar month basis, and you have 12 complete accounting months of approximately equal duration in a calendar year, you may substitute the accounting month time interval for the calendar month time interval. If you choose to use an accounting month rather than a calendar month, you must document this measurement frequency selection in your plan for demonstrating compliance, and you must remain on this schedule unless you request and receive written approval from the agency responsible for these NESHAP.

(2) *Source operating status.* You must categorize the operating status of your source for each recorded time interval in accordance with criteria in Table 1 of this section, as follows:

Table 1 of §63.2853—Categorizing Your Source Operating Status

If during a recorded time interval . . .	then your source operating status is . . .
(i) Your source processes any amount of listed oilseed and source is not operating under an initial startup operating period or a malfunction period subject to §63.2850(c)(2), (d)(2), or (e)(2)	A normal operating period.
(ii) Your source processes no agricultural product and your source is not operating under an initial startup period or malfunction period subject to §63.2850(c)(2), (d)(2), or (e)(2)	A nonoperating period.
(iii) You choose to operate your source under an initial startup period subject to §63.2850(c)(2) or (d)(2)	An initial startup period.
(iv) You choose to operate your source under a malfunction period subject to §63.2850(e)(2)	A malfunction period.
(v) Your source processes agricultural products not defined as listed oilseed	An exempt period.

(3) *Measuring the beginning and ending solvent inventory.* You are required to measure and record the solvent inventory on the beginning and ending dates of each normal operating period that occurs during an operating month. An operating month is any calendar month with at least one normal operating period. You must consistently follow the procedures described in your plan for demonstrating compliance, as specified in §63.2851, to determine the extraction solvent inventory, and maintain readily available records of the actual solvent loss inventory, as described in §63.2862(c)(1). In general, you must measure and record the solvent inventory only when the source is actively processing any type of agricultural product. When the source is not active, some or all of the solvent working capacity is transferred to solvent storage tanks which can artificially inflate the solvent inventory.

(4) *Gallons of extraction solvent received.* Record the total gallons of extraction solvent received in each shipment. For most processes, the gallons of solvent received represents purchases of delivered solvent added to the solvent storage inventory. However, if your process refines additional vegetable oil from off-site sources, recovers solvent from the off-site oil, and adds it to the on-site solvent inventory, then you must determine the quantity of recovered solvent and include it in the gallons of extraction solvent received.

(5) *Solvent inventory adjustments.* In some situations, solvent losses determined directly from the measured solvent inventory and quantity of solvent received is not an accurate estimate of the "actual solvent loss" for use in determining compliance ratios. In such cases, you may adjust the total solvent loss for each normal operating period as long as you provide a reasonable justification for the adjustment. Situations that may require adjustments of the total solvent loss include, but are not limited to, situations in paragraphs (a)(5)(i) and (ii) of this section:

(i) *Solvent destroyed in a control device.* You may use a control device to reduce solvent emissions to meet the emission standard. The use of a control device does not alter the emission limit for the source. If you use a control device that reduces solvent emissions through destruction of the solvent instead of recovery, then determine the gallons of solvent that enter the control device and are destroyed there during each normal operating period. All solvent destroyed in a control device during a normal operating period can be subtracted from the total solvent loss. Examples of destructive emission control devices include catalytic incinerators, boilers, or flares. Identify and describe, in your plan for demonstrating compliance, each type of reasonable and sound measurement method that you use to quantify the gallons of solvent entering and exiting the control device and to determine the destruction efficiency of the control device. You may use design evaluations to document the gallons of solvent destroyed or removed by the control device instead of performance testing under §63.7. The design evaluations must be based on the procedures and options described in §63.985(b)(1)(i)(A) through (C) or §63.11, as appropriate. All data, assumptions, and procedures used in such evaluations must be documented and available for inspection. If you use performance testing to determine solvent flow rate to the control device or destruction efficiency of the device, follow the procedures as outlined in §63.997(e)(1) and (2). Instead of periodic performance testing to demonstrate continued good operation of the control device, you may develop a monitoring plan, following the procedures outlined in §63.988(c) and using operational parametric measurement devices such as fan parameters, percent measurements of lower explosive limits, and combustion temperature.

(ii) Changes in solvent working capacity. In records you keep on-site, document any process modifications resulting in changes to the solvent working capacity in your vegetable oil production process. *Solvent working capacity* is defined in §63.2872. In general, solvent working capacity is the volume of solvent normally retained in solvent recovery equipment such as the extractor, desolventizer-toaster, solvent storage, working tanks, mineral oil absorber, condensers, and oil/solvent distillation system. If the change occurs during a normal operating period, you must determine the difference in working solvent volume and make a one-time documented adjustment to the solvent inventory.

(b) Use Equation 1 of this section to determine the actual solvent loss occurring from your affected source for all normal operating periods recorded within a calendar month. Equation 1 of this section follows:

$$\begin{array}{l}\text{Monthly Actual} \\ \quad Solvent \\ \quad (gal)\end{array} = \sum_{i=1}^{n} \left(SOLV_B - SOLV_E + SOLV_R \pm SOLV_A \right)_i \qquad (Eq.\ 1)$$

Where:

$SOLV_B$= Gallons of solvent in the inventory at the beginning of normal operating period "i" as determined in paragraph (a)(3) of this section.

$SOLV_E$= Gallons of solvent in the inventory at the end of normal operating period "i" as determined in paragraph (a)(3) of this section.

$SOLV_R$= Gallons of solvent received between the beginning and ending inventory dates of normal operating period "i" as determined in paragraph (a)(4) of this section.

$SOLV_A$= Gallons of solvent added or removed from the extraction solvent inventory during normal operating period "i" as determined in paragraph (a)(5) of this section.

n = Number of normal operating periods in a calendar month.

(c) The actual solvent loss is the total solvent losses during normal operating periods for the previous 12 operating months. You determine your actual solvent loss by summing the monthly actual solvent losses for the previous 12 operating months. You must record the actual solvent loss by the end of each calendar month following an operating month. Use the actual solvent loss in Equation 2 of §63.2840 to determine the compliance ratio. Actual solvent loss does not include losses that occur during operating status periods listed in paragraphs (c)(1) through (4) of this section. If any one of these four operating status periods span an entire month, then the month is treated as nonoperating and there is no compliance ratio determination.

(1) Nonoperating periods as described in paragraph (a)(2)(ii) of this section.

(2) Initial startup periods as described in §63.2850(c)(2) or (d)(2).

(3) Malfunction periods as described in §63.2850(e)(2).

(4) Exempt operation periods as described in paragraph (a)(2)(v) of this section.

§ 63.2854 How do I determine the weighted average volume fraction of HAP in the actual solvent loss?

(a) This section describes the information and procedures you must use to determine the weighted average volume fraction of HAP in extraction solvent received for use in your vegetable oil production process. By the end of each calendar month following an operating month, determine the weighted average volume fraction of HAP in extraction solvent received since the end of the previous operating month. If you have determined the monthly weighted average volume fraction of HAP in solvent received for 12 or more operating months, then also determine an overall weighted average volume fraction of HAP in solvent received for the previous 12 operating months. Use the volume fraction of HAP determined as a 12 operating months weighted average in Equation 2 of §63.2840 to determine the compliance ratio.

(b) To determine the volume fraction of HAP in the extraction solvent determined as a 12 operating months weighted average, you must comply with paragraphs (b)(1) through (3) of this section:

(1) Record the volume fraction of each HAP comprising more than 1 percent by volume of the solvent in each delivery of solvent, including solvent recovered from off-site oil. To determine the HAP content of the material in each delivery of solvent, the reference method is EPA Method 311 of appendix A of this part. You may use EPA Method 311, an approved alternative method, or any other reasonable means for determining the HAP content. Other reasonable means of

determining HAP content include, but are not limited to, a material safety data sheet or a manufacturer's certificate of analysis. A certificate of analysis is a legal and binding document provided by a solvent manufacturer. The purpose of a certificate of analysis is to list the test methods and analytical results that determine chemical properties of the solvent and the volume percentage of all HAP components present in the solvent at quantities greater than 1 percent by volume. You are not required to test the materials that you use, but the Administrator may require a test using EPA Method 311 (or an approved alternative method) to confirm the reported HAP content. However, if the results of an analysis by EPA Method 311 are different from the HAP content determined by another means, the EPA Method 311 results will govern compliance determinations.

(2) Determine the weighted average volume fraction of HAP in the extraction solvent each operating month. The weighted average volume fraction of HAP for an operating month includes all solvent received since the end of the last operating month, regardless of the operating status at the time of the delivery. Determine the monthly weighted average volume fraction of HAP by summing the products of the HAP volume fraction of each delivery and the volume of each delivery and dividing the sum by the total volume of all deliveries as expressed in Equation 1 of this section. Record the result by the end of each calendar month following an operating month. Equation 1 of this section follows:

$$\begin{array}{c}\text{Monthly Weighted}\\ \textit{Average}\text{ HAP Content}\\ \text{of Extraction Solvent}\\ \text{(volume fraction)}\end{array} = \frac{\sum_{i=1}^{n}\left(\text{Received}_i * \textit{Content}_i\right)}{\textit{Total}\text{ Received}} \qquad (\textit{Eq}.\ 1)$$

Where:

Received_i= Gallons of extraction solvent received in delivery “i.”

Content_i= The volume fraction of HAP in extraction solvent delivery “i.”

Total Received = Total gallons of extraction solvent received since the end of the previous operating month.

n = Number of extraction solvent deliveries since the end of the previous operating month.

(3) Determine the volume fraction of HAP in your extraction solvent as a 12 operating months weighted average. When your source has processed oilseed for 12 operating months, sum the products of the monthly weighted average HAP volume fraction and corresponding volume of solvent received, and divide the sum by the total volume of solvent received for the 12 operating months, as expressed by Equation 2 of this section. Record the result by the end of each calendar month following an operating month and use it in Equation 2 of §63.2840 to determine the compliance ratio. Equation 2 of this section follows:

$$\begin{array}{c}\text{12-Month Weighted}\\ \textit{Average}\text{ of HAP Content}\\ \text{in Solvent Received}\\ \text{(volume fraction)}\end{array} = \frac{\sum_{i=1}^{12}\left(\text{Received}_i * \textit{Content}_i\right)}{\textit{Total}\text{ Received}} \qquad (\textit{Eq}.\ 2)$$

Where:

$Received_i$= Gallons of extraction solvent received in operating month “i” as determined in accordance with §63.2853(a)(4).

$Content_i$= Average volume fraction of HAP in extraction solvent received in operating month “i” as determined in accordance with paragraph (b)(1) of this section.

Total Received = Total gallons of extraction solvent received during the previous 12 operating months.

§ 63.2855 How do I determine the quantity of oilseed processed?

All oilseed measurements must be determined on an *as received* basis, as defined in §63.2872. The as received basis refers to the oilseed chemical and physical characteristics as initially received by the source and prior to any oilseed handling and processing. By the end of each calendar month following an operating month, you must determine the tons as received of each listed oilseed processed for the operating month. The total oilseed processed for an operating month includes the total of each oilseed processed during all normal operating periods that occur within the operating month. If you have determined the tons of oilseed processed for 12 or more operating months, then you must also determine the 12 operating months rolling sum of each type oilseed processed by summing the tons of each type of oilseed processed for the previous 12 operating months. The 12 operating months rolling sum of each type of oilseed processed is used to calculate the compliance ratio as described in §63.2840.

(a) To determine the tons as received of each type of oilseed processed at your source, follow the procedures in your plan for demonstrating compliance to determine the items in paragraphs (a)(1) through (5) of this section:

(1) *The dates that define each operating status period.* The dates that define each operating status period include the beginning date of each calendar month and the date of any change in the source operating status. If, prior to the effective date of this rule, your source determines the oilseed inventory on an accounting month rather than a calendar month basis, and you have 12 complete accounting months of approximately equal duration in a calendar year, you may substitute the accounting month time interval for the calendar month time interval. If you choose to use an accounting month rather than a calendar month, you must document this measurement frequency selection in your plan for demonstrating compliance, and you must remain on this schedule unless you request and receive written approval from the agency responsible for these NESHAP. The dates on each oilseed inventory log must be consistent with the dates recorded for the solvent inventory.

(2) *Source operating status.* You must categorize the source operation for each recorded time interval. The source operating status for each time interval recorded on the oilseed inventory for each type of oilseed must be consistent with the operating status recorded on the solvent inventory logs as described in §63.2853(a)(2).

(3) *Measuring the beginning and ending inventory for each oilseed.* You are required to measure and record the oilseed inventory on the beginning and ending dates of each normal operating period that occurs during an operating month. An operating month is any calendar month with at least one normal operating period. You must consistently follow the procedures described in your plan for demonstrating compliance, as specified in §63.2851, to determine the oilseed inventory on an as received basis and maintain readily available records of the oilseed inventory as described by §63.2862(c)(3).

(4) *Tons of each oilseed received.* Record the type of oilseed and tons of each shipment of oilseed received and added to your on-site storage.

(5) *Oilseed inventory adjustments.* In some situations, determining the quantity of oilseed processed directly from the measured oilseed inventory and quantity of oilseed received is not an accurate estimate of the tons of oilseed processed for use in determining compliance ratios. For example, spoiled and molded oilseed removed from storage but not processed by your source will result in an overestimate of the quantity of oilseed processed. In such cases, you must adjust the oilseed inventory and provide a justification for the adjustment. Situations that may require oilseed inventory adjustments include, but are not limited to, the situations listed in paragraphs (a)(5)(i) through (v) of this section:

(i) Oilseed that mold or otherwise become unsuitable for processing.

(ii) Oilseed you sell before it enters the processing operation.

(iii) Oilseed destroyed by an event such as a process malfunction, fire, or natural disaster.

(iv) Oilseed processed through operations prior to solvent extraction such as screening, dehulling, cracking, drying, and conditioning; but that are not routed to the solvent extractor for further processing.

(v) Periodic physical measurements of inventory. For example, some sources periodically empty oilseed storage silos to physically measure the current oilseed inventory. This periodic measurement procedure typically results in a small inventory correction. The correction factor, usually less than 1 percent, may be used to make an adjustment to the source's oilseed inventory that was estimated previously with indirect measurement techniques. To make this adjustment, your plan for demonstrating compliance must provide for such an adjustment.

(b) Use Equation 1 of this section to determine the quantity of each oilseed type processed at your affected source during normal operating periods recorded within a calendar month. Equation 1 of this section follows:

$$\begin{array}{c}\text{Monthly Quantity}\\ \text{of Each Oilseed}\\ \text{Processed (tons)}\end{array} = \sum_{n=1}^{n}\left(SEED_B - SEED_E + SEED_R \pm SEED_A\right) \qquad (Eq.\ 1)$$

Where:

$SEED_B$= Tons of oilseed in the inventory at the beginning of normal operating period “i” as determined in accordance with paragraph (a)(3) of this section.

$SEED_E$= Tons of oilseed in the inventory at the end of normal operating period “i” as determined in accordance with paragraph (a)(3) of this section.

$SEED_R$= Tons of oilseed received during normal operating period “i” as determined in accordance with paragraph (a)(4) of this section.

$SEED_A$= Tons of oilseed added or removed from the oilseed inventory during normal operating period “i” as determined in accordance with paragraph (a)(5) of this section.

n = Number of normal operating periods in the calendar month during which this type oilseed was processed.

(c) The quantity of each oilseed processed is the total tons of each type of listed oilseed processed during normal operating periods in the previous 12 operating months. You determine the tons of each oilseed processed by summing the monthly quantity of each oilseed processed for the previous 12 operating months. You must record the 12 operating months quantity of each type of oilseed processed by the end of each calendar month following an operating month. Use the 12 operating months quantity of each type of oilseed processed to determine the compliance ratio as described in §63.2840. The quantity of oilseed processed does not include oilseed processed during the operating status periods in paragraphs (c)(1) through (4) of this section:

(1) Nonoperating periods as described in §63.2853 (a)(2)(ii).

(2) Initial startup periods as described in §63.2850(c)(2) or (d)(2).

(3) Malfunction periods as described in §63.2850(e)(2).

(4) Exempt operation periods as described in §63.2853 (a)(2)(v).

(5) If any one of these four operating status periods span an entire calendar month, then the calendar month is treated as a nonoperating month and there is no compliance ratio determination.

Notifications, Reports, and Records

§ 63.2860 What notifications must I submit and when?

You must submit the one-time notifications listed in paragraphs (a) through (d) of this section to the responsible agency:

(b) *Initial notifications for new and reconstructed sources.* New or reconstructed sources must submit a series of notifications before, during, and after source construction per the schedule listed in §63.9. The information requirements for the notifications are the same as those listed in the General Provisions with the exceptions listed in paragraphs (b)(1) and (2) of this section:

(1) The application for approval of construction does not require the specific HAP emission data required in §63.5(d)(1)(ii)(H) and (iii), (d)(2) and (d)(3)(ii). The application for approval of construction would include, instead, a brief description of the source including the types of listed oilseeds processed, nominal operating capacity, and type of desolventizer(s) used.

(2) The notification of actual startup date must also include whether you have elected to operate under an initial startup period subject to §63.2850(c)(2) and provide an estimate and justification for the anticipated duration of the initial startup period.

(c) *Significant modification notifications.* Any existing or new source that plans to undergo a significant modification as defined in §63.2872 must submit two reports as described in paragraphs (c)(1) and (2) of this section:

(1) Initial notification. You must submit an initial notification to the agency responsible for these NESHAP 30 days prior to initial startup of the significantly modified source. The initial notification must demonstrate that the proposed changes qualify as a significant modification. The initial notification must include the items in paragraphs (c)(1)(i) and (ii) of this section:

(i) The expected startup date of the modified source.

(ii) A description of the significant modification including a list of the equipment that will be replaced or modified. If the significant modification involves changes other than adding or replacing extractors, desolventizer-toasters (conventional and specialty), and meal dryer-coolers, then you must also include the fixed capital cost of the new components, expressed as a percentage of the fixed capital cost to build a comparable new vegetable oil production process; supporting documentation for the cost estimate; and documentation that the proposed changes will significantly affect solvent losses.

(2) Notification of actual startup. You must submit a notification of actual startup date within 15 days after initial startup of the modified source. The notification must include the items in paragraphs (c)(2)(i) through (iv) of this section:

(i) The initial startup date of the modified source.

(ii) An indication whether you have elected to operate under an initial startup period subject to §63.2850(d)(2).

(iii) The anticipated duration of any initial startup period.

(iv) A justification for the anticipated duration of any initial startup period.

(d) *Notification of compliance status.* As an existing, new, or reconstructed source, you must submit a notification of compliance status report to the responsible agency no later than 60 days after determining your initial 12 operating months compliance ratio. If you are an existing source, you generally must submit this notification no later than 50 calendar months after the effective date of these NESHAP (36 calendar months for compliance, 12 operating months to record data, and 2 calendar months to complete the report). If you are a new or reconstructed source, the notification of compliance status is generally due no later than 20 calendar months after initial startup (6 calendar months for the initial startup period, 12 operating months to record data, and 2 calendar months to complete the report). The notification of compliance status must contain the items in paragraphs (d)(1) through (6) of this section:

(1) The name and address of the owner or operator.

(2) The physical address of the vegetable oil production process.

(3) Each listed oilseed type processed during the previous 12 operating months.

(4) Each HAP identified under §63.2854(a) as being present in concentrations greater than 1 percent by volume in each delivery of solvent received during the 12 operating months period used for the initial compliance determination.

(5) A statement designating the source as a major source of HAP or a demonstration that the source qualifies as an area source. An area source is a source that is not a major source and is not collocated within a plant site with other sources that are individually or collectively a major source.

(6) A compliance certification indicating whether the source complied with all of the requirements of this subpart throughout the 12 operating months used for the initial source compliance determination. This certification must include a certification of the items in paragraphs (d)(6)(i) through (iii) of this section:

(i) The plan for demonstrating compliance (as described in §63.2851) and SSM plan (as described in §63.2852) are complete and available on-site for inspection.

(ii) You are following the procedures described in the plan for demonstrating compliance.

(iii) The compliance ratio is less than or equal to 1.00.

§ 63.2861 What reports must I submit and when?

After the initial notifications, you must submit the reports in paragraphs (a) through (d) of this section to the agency responsible for these NESHAP at the appropriate time intervals:

(a) *Annual compliance certifications.* The first annual compliance certification is due 12 calendar months after you submit the notification of compliance status. Each subsequent annual compliance certification is due 12 calendar months after the previous annual compliance certification. The annual compliance certification provides the compliance status for each operating month during the 12 calendar months period ending 60 days prior to the date on which the report is due. Include the information in paragraphs (a)(1) through (6) of this section in the annual certification:

(1) The name and address of the owner or operator.

(2) The physical address of the vegetable oil production process.

(3) Each listed oilseed type processed during the 12 calendar months period covered by the report.

(4) Each HAP identified under §63.2854(a) as being present in concentrations greater than 1 percent by volume in each delivery of solvent received during the 12 calendar months period covered by the report.

(5) A statement designating the source as a major source of HAP or a demonstration that the source qualifies as an area source. An area source is a source that is not a major source and is not collocated within a plant site with other sources that are individually or collectively a major source.

(6) A compliance certification to indicate whether the source was in compliance for each compliance determination made during the 12 calendar months period covered by the report. For each such compliance determination, you must include a certification of the items in paragraphs (a)(6)(i) through (ii) of this section:

(i) You are following the procedures described in the plan for demonstrating compliance.

(ii) The compliance ratio is less than or equal to 1.00.

(b) *Deviation notification report.* Submit a deviation report for each compliance determination you make in which the compliance ratio exceeds 1.00 as determined under §63.2840(c). Submit the deviation report by the end of the month following the calendar month in which you determined the deviation. The deviation notification report must include the items in paragraphs (b)(1) through (4) of this section:

(1) The name and address of the owner or operator.

(2) The physical address of the vegetable oil production process.

(3) Each listed oilseed type processed during the 12 operating months period for which you determined the deviation.

(4) The compliance ratio comprising the deviation. You may reduce the frequency of submittal of the deviation notification report if the agency responsible for these NESHAP does not object as provided in §63.10(e)(3)(iii).

(c) *Periodic startup, shutdown, and malfunction report.* If you choose to operate your source under an initial startup period subject to §63.2850(c)(2) or (d)(2) or a malfunction period subject to §63.2850(e)(2), you must submit a periodic SSM report by the end of the calendar month following each month in which the initial startup period or malfunction period occurred. The periodic SSM report must include the items in paragraphs (c)(1) through (3) of this section:

(1) The name, title, and signature of a source's responsible official who is certifying that the report accurately states that all actions taken during the initial startup or malfunction period were consistent with the SSM plan.

(2) A description of events occurring during the time period, the date and duration of the events, and reason the time interval qualifies as an initial startup period or malfunction period.

(3) An estimate of the solvent loss during the initial startup or malfunction period with supporting documentation.

(d) *Immediate SSM reports.* If you handle a SSM during an initial startup period subject to §63.2850(c)(2) or (d)(2) or a malfunction period subject to §63.2850(e)(2) differently from procedures in the SSM plan and the relevant emission requirements in §63.2840 are exceeded, then you must submit an immediate SSM report. Immediate SSM reports consist of a telephone call or facsimile transmission to the responsible agency within 2 working days after starting actions inconsistent with the SSM plan, followed by a letter within 7 working days after the end of the event. The letter must include the items in paragraphs (d)(1) through (3) of this section:

(1) The name, title, and signature of a source's responsible official who is certifying the accuracy of the report, an explanation of the event, and the reasons for not following the SSM plan.

(2) A description and date of the SSM event, its duration, and reason it qualifies as a SSM.

(3) An estimate of the solvent loss for the duration of the SSM event with supporting documentation.

[66 FR 19011, Apr. 12, 2001, as amended at 67 FR 16321, Apr. 5, 2002]

§ 63.2862 What records must I keep?

(a) You must satisfy the recordkeeping requirements of this section by the compliance date for your source specified in Table 1 of §63.2834.

(b) Prepare a plan for demonstrating compliance (as described in §63.2851) and a SSM plan (as described in §63.2852). In these two plans, describe the procedures you will follow in obtaining and recording data, and determining compliance under normal operations or a SSM subject to the §63.2850(c)(2) or (d)(2) initial startup period or the §63.2850(e)(2) malfunction period. Complete both plans before the compliance date for your source and keep them on-site and readily available as long as the source is operational.

(c) If your source processes any listed oilseed, record the items in paragraphs (c)(1) through (5) of this section:

(1) For the solvent inventory, record the information in paragraphs (c)(1)(i) through (vii) of this section in accordance with your plan for demonstrating compliance:

(i) Dates that define each operating status period during a calendar month.

(ii) The operating status of your source such as normal operation, nonoperating, initial startup period, malfunction period, or exempt operation for each recorded time interval.

(iii) Record the gallons of extraction solvent in the inventory on the beginning and ending dates of each normal operating period.

(iv) The gallons of all extraction solvent received, purchased, and recovered during each calendar month.

(v) All extraction solvent inventory adjustments, additions or subtractions. You must document the reason for the adjustment and justify the quantity of the adjustment.

(vi) The total solvent loss for each calendar month, regardless of the source operating status.

(vii) The actual solvent loss in gallons for each operating month.

(2) For the weighted average volume fraction of HAP in the extraction solvent, you must record the items in paragraphs (c)(2)(i) through (iii) of this section:

(i) The gallons of extraction solvent received in each delivery.

(ii) The volume fraction of each HAP exceeding 1 percent by volume in each delivery of extraction solvent.

(iii) The weighted average volume fraction of HAP in extraction solvent received since the end of the last operating month as determined in accordance with §63.2854(b)(2).

(3) For each type of listed oilseed processed, record the items in paragraphs (c)(3)(i) through (vi) of this section, in accordance with your plan for demonstrating compliance:

(i) The dates that define each operating status period. These dates must be the same as the dates entered for the extraction solvent inventory.

(ii) The operating status of your source such as normal operation, nonoperating, initial startup period, malfunction period, or exempt operation for each recorded time interval. On the log for each type of listed oilseed that is not being processed during a normal operating period, you must record which type of listed oilseed is being processed in addition to the source operating status.

(iii) The oilseed inventory for the type of listed oilseed being processed on the beginning and ending dates of each normal operating period.

(iv) The tons of each type of listed oilseed received at the affected source each normal operating period.

(v) All listed oilseed inventory adjustments, additions or subtractions for normal operating periods. You must document the reason for the adjustment and justify the quantity of the adjustment.

(vi) The tons of each type of listed oilseed processed during each operating month.

(d) After your source has processed listed oilseed for 12 operating months, and you are not operating during an initial startup period as described in §63.2850(c)(2) or (d)(2), or a malfunction period as described in §63.2850(e)(2), record the items in paragraphs (d)(1) through (5) of this section by the end of the calendar month following each operating month:

(1) The 12 operating months rolling sum of the actual solvent loss in gallons as described in §63.2853(c).

(2) The weighted average volume fraction of HAP in extraction solvent received for the previous 12 operating months as described in §63.2854(b)(3).

(3) The 12 operating months rolling sum of each type of listed oilseed processed at the affected source in tons as described in §63.2855(c).

(4) A determination of the compliance ratio. Using the values from §§63.2853, 63.2854, 63.2855, and Table 1 of §63.2840, calculate the compliance ratio using Equation 2 of §63.2840.

(5) A statement of whether the source is in compliance with all of the requirements of this subpart. This includes a determination of whether you have met all of the applicable requirements in §63.2850.

(e) For each SSM event subject to an initial startup period as described in §63.2850(c)(2) or (d)(2), or a malfunction period as described in §63.2850(e)(2), record the items in paragraphs (e)(1) through (3) of this section by the end of the calendar month following each month in which the initial startup period or malfunction period occurred:

(1) A description and date of the SSM event, its duration, and reason it qualifies as an initial startup or malfunction.

(2) An estimate of the solvent loss in gallons for the duration of the initial startup or malfunction period with supporting documentation.

(3) A checklist or other mechanism to indicate whether the SSM plan was followed during the initial startup or malfunction period.

§ 63.2863 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for review in accordance with §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on-site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, in accordance with §3.10(b)(1). You can keep the records off-site for the remaining 3 years.

Other Requirements and Information

§ 63.2870 What parts of the General Provisions apply to me?

Table 1 of this section shows which parts of the General Provisions in §§63.1 through 63.15 apply to you. Table 1 of §63.2870 follows:

Table 1 of §63.2870—Applicability of 40 CFR Part 63, Subpart A, to 40 CFR, Part 63, Subpart GGGG

General provisions citation	Subject of citation	Brief description of requirement	Applies to subpart	Explanation
§63.1	Applicability	Initial applicability determination; applicability after standard established; permit requirements; extensions; notifications	Yes	
§63.2	Definitions	Definitions for part 63 standards	Yes	Except as specifically provided in this subpart.
§63.3	Units and abbreviations	Units and abbreviations for part 63 standards	Yes	
§63.4	Prohibited activities and circumvention	Prohibited activities; compliance date; circumvention; severability	Yes	
§63.5	Construction/reconstruction	Applicability; applications; approvals	Yes	Except for subsections of §63.5 as listed below.
§63.5(c)	[Reserved]			
§63.5(d)(1)(ii)(H)	Application for approval	Type and quantity of HAP, operating parameters	No	All sources emit HAP. Subpart GGGG does not require control from specific emission points.
§63.5(d)(1)(ii)(I)	[Reserved]			

General provisions citation	Subject of citation	Brief description of requirement	Applies to subpart	Explanation
§63.5(d)(1)(iii), (d)(2), (d)(3)(ii)		Application for approval	No	The requirements of the application for approval for new, reconstructed and significantly modified sources are described in §63.2860(b) and (c) of subpart GGGG. General provision requirements for identification of HAP emission points or estimates of actual emissions are not required. Descriptions of control and methods, and the estimated and actual control efficiency of such do not apply. Requirements for describing control equipment and the estimated and actual control efficiency of such equipment apply only to control equipment to which the subpart GGGG requirements for quantifying.
§63.6	Applicability of General Provisions	Applicability	Yes	Except for subsections of §63.6 as listed below.
§63.6(b)(1)–(3)	Compliance dates, new and reconstructed sources		No	Section 63.2834 of subpart GGGG specifies the compliance dates for new and reconstructed sources.
§63.6(b)(6)	[Reserved]			
§63.6(c)(3)–(4)	[Reserved]			

General provisions citation	Subject of citation	Brief description of requirement	Applies to subpart	Explanation
§63.6(d)	[Reserved]			
§63.6(e)(1) through (e)(3)(ii) and §63.6(e)(3)(v) through (vii)	Operation and maintenance requirements		Yes	Minimize emissions to the extent practical.
§63.6(e)(3)(iii)	Operation and maintenance requirements		No	Minimize emissions to the extent practical
§63.6(e)(3)(iv)	Operation and maintenance requirements		No	Report SSM and in accordance with §63.2861(c) and (d).
§63.6(e)(3)(viii)	Operation and maintenance requirements		Yes	Except, report each revision to your SSM plan in accordance with §63.2861(c) rather than §63.10(d)(5) as required under §63.6(e)(3) (viii).
§63.6(e)(3)(ix)	Title V permit		Yes	
§63.6(f)–(g)	Compliance with nonopacity emission standards except during SSM	Comply with emission standards at all times except during SSM	No	Subpart GGGG does not have nonopacity requirements.
§63.6(h)	Opacity/Visible emission (VE) standards		No	Subpart GGGG has no opacity or VE standards.
§63.6(i)	Compliance extension	Procedures and criteria for responsible agency to grant compliance extension	Yes	
§63.6(j)	Presidential compliance exemption	President may exempt source category from requirement to comply with subpart	Yes	

General provisions citation	Subject of citation	Brief description of requirement	Applies to subpart	Explanation
§63.7	Performance testing requirements	Schedule, conditions, notifications and procedures	Yes	Subpart GGGG requires performance testing only if the source applies additional control that destroys solvent. Section 63.2850(a)(6) requires sources to follow the performance testing guidelines of the General Provisions if a control is added.
§63.8	Monitoring requirements		No	Subpart GGGG does not require monitoring other than as specified therein.
§63.9	Notification requirements	Applicability and state delegation	Yes	Except for subsections of §63.9 as listed below.
§63.9(b)(2)	Notification requirements	Initial notification requirements for existing sources	No	Section 63.2860(a) of subpart GGGG specifies the requirements of the initial notification for existing sources.
§63.9(b)(3)–(5)	Notification requirements	Notification requirement for certain new/reconstructed sources	Yes	Except the information requirements differ as described in §63.2860(b) of subpart GGGG.
§63.9(e)	Notification of performance test	Notify responsible agency 60 days ahead	Yes	Applies only if performance testing is performed.
§63.9(f)	Notification of VE/opacity observations	Notify responsible agency 30 days ahead	No	Subpart GGGG has no opacity or VE standards.

General provisions citation	Subject of citation	Brief description of requirement	Applies to subpart	Explanation
§63.9(g)	Additional notifications when using a continuous monitoring system (CMS)	Notification of performance evaluation; Notification using COMS data; notification that exceeded criterion for relative accuracy	No	Subpart GGGG has no CMS requirements.
§63.9(h)	Notification of compliance status	Contents	No	Section 63.2860(d) of subpart GGGG specifies requirements for the notification of compliance status.
§63.10	Recordkeeping/reporting	Schedule for reporting, record storage	Yes	Except for subsections of §63.10 as listed below.
§63.10(b)(2)(i)	Recordkeeping	Record SSM event	Yes	Applicable to periods when sources must implement their SSM plan as specified in subpart GGGG.
§63.10(b)(2)(ii)–(iii)	Recordkeeping	Malfunction of air pollution equipment	No	Applies only if air pollution control equipment has been added to the process and is necessary for the source to meet the emission limit.
§63.10(b)(2)(vi)	Recordkeeping	CMS recordkeeping	No	Subpart GGGG has no CMS requirements.
§63.10(b)(2)(viii)–(ix)	Recordkeeping	Conditions of performance test	Yes	Applies only if performance tests are performed. Subpart GGGG does not have any CMS opacity or VE observation requirements.

General provisions citation	Subject of citation	Brief description of requirement	Applies to subpart	Explanation
§63.10(b)(2)(x)–(xii)	Recordkeeping	CMS, performance testing, and opacity and VE observations recordkeeping	No	Subpart GGGG does not require CMS.
§63.10(c)	Recordkeeping	Additional CMS recordkeeping	No	Subpart GGGG does not require CMS.
§63.10(d)(2)	Reporting	Reporting performance test results	Yes	Applies only if performance testing is performed.
§63.10(d)(3)	Reporting	Reporting opacity or VE observations	No	Subpart GGGG has no opacity or VE standards.
§63.10(d)(4)	Reporting	Progress reports	Yes	Applies only if a condition of compliance extension exists.
§63.10(d)(5)	Reporting	SSM reporting	No	Section 63.2861(c) and (d) specify SSM reporting requirements.
§63.10(e)	Reporting	Additional CMS reports	No	Subpart GGGG does not require CMS.
§63.11	Control device requirements	Requirements for flares	Yes	Applies only if your source uses a flare to control solvent emissions. Subpart GGGG does not require flares.
§63.12	State authority and delegations	State authority to enforce standards	Yes	
§63.13	State/regional addresses	Addresses where reports, notifications, and requests are sent	Yes	
§63.14	Incorporation by reference	Test methods incorporated by reference	Yes	
§63.15	Availability of information and confidentiality	Public and confidential information	Yes	

[66 FR 19011, Apr. 12, 2001, as amended at 67 FR 16321, Apr. 5, 2002; 71 FR 20463, Apr. 20, 2006]

§ 63.2871 Who implements and enforces this subpart?

(a) This subpart can be implemented by us, the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency, as well as the U.S. EPA, has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under section 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are as follows:

(1) Approval of alternative nonopacity emissions standards under §63.6(g).

(2) Approval of alternative opacity standards under §63.6(h)(9).

(3) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90.

(4) Approval of major alternatives to monitoring under §63.8(f) and as defined in §63.90.

(5) Approval of major alternatives to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

§ 63.2872 What definitions apply to this subpart?

Terms used in this subpart are defined in the sources listed:

(a) The Clean Air Act, section 112(a).

(b) In 40 CFR 63.2, the NESHAP General Provisions.

(c) In this section as follows:

Accounting month means a time interval defined by a business firm during which corporate economic and financial factors are determined on a consistent and regular basis. An accounting month will consist of approximately 4 to 5 calendar weeks and each accounting month will be of approximate equal duration. An accounting month may not correspond exactly to a calendar month, but 12 accounting months will correspond exactly to a calendar year.

Actual solvent loss means the gallons of solvent lost from a source during 12 operating months as determined in accordance with §63.2853.

Agricultural product means any commercially grown plant or plant product.

Allowable HAP loss means the gallons of HAP that would have been lost from a source if the source was operating at the solvent loss factor for each listed oilseed type. The allowable HAP loss in gallons is determined by multiplying the tons of each oilseed type processed during the previous 12 operating months, as determined in accordance with §63.2855, by the corresponding oilseed solvent loss factor (gal/ton) listed in Table 1 of §63.2840, and by the dimensionless constant 0.64, and summing the result for all oilseed types processed.

Area source means any source that does not meet the major source definition.

As received is the basis upon which all oilseed measurements must be determined and refers to the oilseed chemical and physical characteristics as initially received by the source and prior to any oilseed handling and processing.

Batch operation means any process that operates in a manner where the addition of raw material and withdrawal of product do not occur simultaneously. Typically, raw material is added to a process, operational steps occur, and a product is removed from the process. More raw material is then added to the process and the cycle repeats.

Calendar month means 1 month as specified in a calendar.

Compliance date means the date on which monthly compliance recordkeeping begins. For existing sources, recordkeeping typically begins 3 years after the effective date of the subpart. For new and reconstructed sources, recordkeeping typically begins upon initial startup, except as noted in §63.2834.

Compliance ratio means a ratio of the actual HAP loss in gallons from the previous 12 operating months to an allowable HAP loss in gallons, which is determined by using oilseed solvent loss factors in Table 1 of §63.2840, the weighted average volume fraction of HAP in solvent received for the previous 12 operating months, and the tons of each type of listed oilseed processed in the previous 12 operating months. Months during which no listed oilseed is processed, or months during which the §63.2850(c)(2) or (d)(2) initial startup period or the §63.2850(e)(2) malfunction period applies, are excluded from this calculation. Equation 2 of §63.2840 is used to calculate this value. If the value is less than or equal to 1.00, the source is in compliance. If the value is greater than 1.00, the source is deviating from compliance.

Continuous operation means any process that adds raw material and withdraws product simultaneously. Mass, temperature, concentration and other properties typically approach steady-state conditions.

Conventional desolventizer means a desolventizer toaster that operates with indirect and direct-contact steam to remove solvent from the extracted meal. Oilseeds processed in a conventional desolventizer produce crude vegetable oil and crude meal products, such as animal feed.

Corn germ dry milling means a source that processes corn germ that has been separated from the other corn components using a “dry” process of mechanical chafing and air sifting.

Corn germ wet milling means a source that processes corn germ that has been separated from other corn components using a “wet” process of centrifuging a slurry steeped in a dilute sulfurous acid solution.

Exempt period means a period of time during which a source processes agricultural products not defined as listed oilseed.

Extraction solvent means an organic chemical medium used to remove oil from an oilseed. Typically, the extraction solvent is a commercial grade of hexane isomers which have an approximate HAP content of 64 percent by volume.

Hazardous air pollutant (HAP) means any substance or mixture of substances listed as a hazardous air pollutant under section 112(b) of the Clean Air Act, as of April 12, 2001.

Initial startup date means the first calendar day that a new, reconstructed or significantly modified source processes any listed oilseed.

Initial startup period means a period of time from the initial startup date of a new, reconstructed or significantly modified source, for which you choose to operate the source under an initial startup period subject to §63.2850(c)(2) or (d)(2). During an initial startup period, a source complies with the standards by minimizing HAP emissions to the extent practical. The initial startup period following initial startup of a new or reconstructed source may not exceed 6 calendar months. The initial startup period following a significant modification may not exceed 3 calendar months. Solvent and oilseed inventory information recorded during the initial startup period is excluded from use in any compliance ratio determinations.

Large cottonseed plant means a vegetable oil production process that processes 120,000 tons or more of cottonseed and other listed oilseed during all normal operating periods in a 12 operating months period used to determine compliance.

Malfunction period means a period of time between the beginning and end of a process malfunction and the time reasonably necessary for a source to correct the malfunction for which you choose to operate the source under a malfunction period subject to §63.2850(e)(2). This period may include the duration of an unscheduled process shutdown, continued operation during a malfunction, or the subsequent process startup after a shutdown resulting from a malfunction. During a malfunction period, a source complies with the standards by minimizing HAP emissions to the extent practical. Therefore, solvent and oilseed inventory information recorded during a malfunction period is excluded from use in any compliance ratio determinations.

Mechanical extraction means removing vegetable oil from oilseeds using only mechanical devices such as presses or screws that physically force the oil from the oilseed. Mechanical extraction techniques use no organic solvents to remove oil from an oilseed.

Nonoperating period means any period of time in which a source processes no agricultural product. This operating status does not apply during any period in which the source operates under an initial startup period as described in §63.2850(c)(2) or (d)(2), or a malfunction period, as described in §63.2850(e)(2).

Normal operating period means any period of time in which a source processes a listed oilseed that is not categorized as an initial startup period as described in §63.2850(c)(2) or (d)(2), or a malfunction period, as described in §63.2850(e)(2). At the beginning and ending dates of a normal operating period, solvent and oilseed inventory information is recorded and included in the compliance ratio determination.

Oilseed or listed oilseed means the following agricultural products: corn germ, cottonseed, flax, peanut, rapeseed (for example, canola), safflower, soybean, and sunflower.

Oilseed solvent loss factor means a ratio expressed as gallons of solvent loss per ton of oilseed processed. The solvent loss factors are presented in Table 1 of §63.2840 and are used to determine the allowable HAP loss.

Operating month means any calendar or accounting month in which a source processes any quantity of listed oilseed, excluding any entire calendar or accounting month in which the source operated under an initial startup period as described in §63.2850(c)(2) or (d)(2), or a malfunction period as described in §63.2850(e)(2). An operating month may include time intervals characterized by several types of operating status. However, an operating month must have at least one normal operating period.

Significant modification means the addition of new equipment or the modification of existing equipment that:

(1) Significantly affects solvent losses from your vegetable oil production process;

(2) The fixed capital cost of the new components represents a significant percentage of the fixed capital cost of building a comparable new vegetable oil production process;

(3) The fixed capital cost of the new equipment does not constitute reconstruction as defined in §63.2; and

(4) Examples of significant modifications include replacement of or major changes to solvent recovery equipment such as extractors, desolventizer-toasters/dryer-coolers, flash desolventizers, and distillation equipment associated with the mineral oil system, and equipment affecting desolventizing efficiency and steady-state operation of your vegetable oil production process such as flaking mills, oilseed heating and conditioning equipment, and cracking mills.

Small cottonseed plant means a vegetable oil production process that processes less than 120,000 tons of cottonseed and other listed oilseed during all normal operating periods in a 12 operating months period used to determine compliance.

Solvent extraction means removing vegetable oil from listed oilseed using an organic solvent in a direct-contact system.

Solvent working capacity means the volume of extraction solvent normally retained in solvent recovery equipment. Examples include components such as the solvent extractor, desolventizer-toaster, solvent storage and working tanks, mineral oil absorption system, condensers, and oil/solvent distillation system.

Specialty desolventizer means a desolventizer that removes excess solvent from soybean meal using vacuum conditions, energy from superheated solvent vapors, or reduced operating conditions (e.g., temperature) as compared to the typical operation of a conventional desolventizer. Soybeans processed in a specialty desolventizer result in high-protein vegetable meal products for human and animal consumption, such as calf milk replacement products and meat extender products.

Vegetable oil production process means the equipment comprising a continuous process for producing crude vegetable oil and meal products, including specialty soybean products, in which oil is removed from listed oilseeds through direct contact with an organic solvent. Process equipment typically includes the following components: oilseed preparation operations (including conditioning, drying, dehulling, and cracking), solvent extractors, desolventizer-toasters, meal dryers, meal coolers, meal conveyor systems, oil distillation units, solvent evaporators and condensers, solvent recovery system (also referred to as a mineral oil absorption system), vessels storing solvent-laden materials, and crude meal packaging and storage vessels. A vegetable oil production process does not include vegetable oil refining operations (including operations such as bleaching, hydrogenation, and deodorizing) and operations that engage in additional chemical treatment of crude soybean meals produced in specialty desolventizer units (including operations such as soybean isolate production).

[66 FR 19011, Apr. 12, 2001, as amended at 71 FR 20464, Apr. 20, 2006]

Indiana Department of Environmental Management
Office of Air Quality

Addendum to the
Technical Support Document for a Part 70 Operating Permit

Source Name:	Ultra Soy of America, LLC
Source Location:	7500 C.R. 700 South, South Milford, IN 46786
County:	LaGrange
SIC Code:	2075, 2869, 2079
Operation Permit No.:	T 087-24953-00069
Permit Reviewer:	ERG/TE

On February 1, 2008, the Office of Air Quality (OAQ) had a notice published in the LaGrange Standard, LaGrange, Indiana, stating that Ultra Soy of America, LLC had applied for a Part 70 Operating Permit to construct and operate a soybean based biodiesel production plant and soybean processing plant. The notice also stated that OAQ proposed to issue a permit for this operation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On March 3, 2008, J. Everett Newman, III submitted comments on behalf of local residents Andrew Yensco and Paris A. Yensco on the proposed permit. The summary of the comments and corresponding responses is as follows (additions in bold, deletions in ~~strikeout~~):

Comment

Mr. and Mrs. Yensco own a five acre property which is enclosed on three sides by the proposed plant site. The property is their residence. The Yensco's have requested a public hearing on the proposed permit to address the following issues:

1. The inadequacy of Ultra Soy's permit to evaluate and control Hazardous Air Pollution with respect to the Yensco's residence, which is completely surrounded by Ultra Soy's proposed site, and neighboring residences.

2. The failure of Ultra Soy's permit to adequately address the proposed project's air quality impact on the residences contained within and immediately adjacent to the proposed site.

3. The failure of Ultra Soy's permit request to adequately address the impact of activities in Section C Part G (HAPs Analysis) by stating that no residences are nearby, when the Yensco's residence is entirely enclosed by the proposed project's fence line.

The Yensco's have also made the following comments:

The permit fails to address the unique impact this proposed plant will have on the air quality of the Yensco residence, which, due to its central location will experience most of the emission hazards which are supposed to be contained within the industrial site. In addition the hazardous particle analysis (Appendix C, Air Quality Analysis) indicates that hazardous levels of particulates, especially n-hexane, exist within the site which contains the Yensco's home. The statement in the permit that "No residents [sic] will be located at the fence line" is completely incorrect.

In addition, the neighborhood also is not empty rural land as implied by the permit, as there are approximately eight residences within one-half mile of the proposed project.
Regarding the disparate impact on the Yensco's property the following items should be noted. It is

impossible to keep Fugitive Dust Emissions from escaping beyond Ultra Soy's property line as required by 326 IAC 6-4 when the property being affected is enclosed by the property which emits the dust. The same would apply for the Fugitive Particulate Emission Limitations in 326 IAC 6-5. In the event of an emergency or non-compliance with standards the property would be exposed to a much higher contaminant level than a property outside the actual industrial site. There are no provisions for buffering the effects of leaks nor any adjustments for the large number of vehicles contemplated which will pass in close proximity to the Yensco's property.

Most concerning is the elevated cancer risk indicated by the HAPs Analysis in Part G of Appendix C. The permit describes an elevated cancer risk at the outer fence line due to the proposed project. It would appear that the elevation of the Hazard Index would be even greater for a property contained entirely within the industrial site which would be higher the overall Hazard Index of 1.5954 for the entire property. To subject a property to such an increased risk is an unacceptable local impact caused by the plant's emissions. Similar risks would affect other residences just outside the plant boundaries.

The permit should not be issued unless and until an adequate control plan is devised to eliminate the pollution hazard to the Yensco property and to other residences in the area.

Response

IDEM is aware of pending sale negotiations between Ultra Soy and Mr. and Mrs. Yensco for the purchase of their 5 acre property. Ultra Soy has provided documentation of these negotiations to IDEM. The modeling performed for the Air Quality Analysis was based on the 5 acre property being part of the Ultra Soy plant property. Upon the sale of the property to Ultra Soy, there will be no residences on the fence line as stated in the analysis. All other nearby residences were accounted for in the analysis. The proposed Part 70 permit offers no right to the Yensco's property and no construction of emission units can begin until the property is purchased by Ultra Soy. Therefore, no changes have been made to the air quality analysis since it correctly represents the proposed plant site which will include the 5 acre property. The following requirement has been added to the permit as follows:

C.11 Source Construction Requirements [326 IAC 2-2]

The source shall not commence construction until such time as the Permittee owns, and has control of, all property identified within the property line in the Air Quality Analysis summarized in Appendix C of the Technical Support Document for this New Source Construction, PSD and Part 70 Operating Permit (T087-24953-00069).

All the remaining section C conditions have been re-numbered accordingly.

Upon further review IDEM, OAQ has made the following changes to the Part 70 permit (additions in bold, deletions in ~~strikeout~~):

1. On January 22, 2008 U.S. EPA promulgated a rule to address the remand, by the U.S. Court of Appeals for the District of Columbia on June 25, 2005, of the reasonable possibility provisions of the December 31, 2002 major NSR reform rule. IDEM has agreed, with U.S. EPA, to interpret "reasonable possibility" in 326 IAC 2-2 and 326 IAC 2-3 consistent with the January 22, 2008 U.S. EPA rule. To implement this interpretation, IDEM is revising Section C – General Record Keeping Requirements and Section C – General Reporting Requirements. Therefore, conditions C.21, General Record Keeping Requirements and C.22, General Reporting Requirements, now re-numbered as C.22 and C.23, have been revised as follows:

C.~~21~~**22** General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6] [326 IAC 2-2][326 IAC 2-3]

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(c) If there is **a reasonable possibility (as defined in 40 CFR 51.165 (a)(6)(vi)(A), 40 CFR 51.165 (a)(6)(vi)(B), 40 CFR 51.166 (r)(6)(vi)(a), and/or 40 CFR 51.166 (r)(6)(vi)(b))**

that a “project” (as defined in 326 IAC 2-2-1(qq) and/or 326 IAC 2-3-1(ll)) at an existing emissions unit, other than projects at a source with a Plantwide Applicability Limitation (PAL), which is not part of a “major modification” (as defined in 326 IAC 2-2-1(ee) and/or 326 IAC 2-3-1(z)) **may result in significant emissions increase** and the Permittee elects to utilize the “projected actual emissions” (as defined in 326 IAC 2-2-1(rr) and/or 326 IAC 2-3-1(mm)), the Permittee shall comply with following:

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

(A) A description of the project.

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

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

(i) Baseline actual emissions;

(ii) Projected actual emissions;

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

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

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

~~(2)~~ **(1)** Monitor the emissions of any regulated NSR pollutant that could increase as a result of the project and that is emitted by any existing emissions unit identified in (1)(B) above; and

~~(3)~~ **(2)** Calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of five (5) years following resumption of regular operations after the change, or for a period of ten (10) years following resumption of regular operations after the change if the project increases the design capacity of or the potential to emit that regulated NSR pollutant at the emissions unit.

C.~~22~~**23** General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11] [326 IAC 2-2]

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

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

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

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

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

(2) The annual emissions calculated in accordance with ~~(c)(2) and (3)~~ **(d)(1) and (2)** in Section C - General Record Keeping Requirements.

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

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

Reports required in this part shall be submitted to:

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

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a New Source Construction and Part 70 Permit and Prevention of Significant Deterioration (PSD) Permit

Source Description and Location

Source Name:	Ultra Soy of America, LLC
Source Location:	7500 C.R. 700 South, South Milford, IN 46786
County:	LaGrange
SIC Code:	2075, 2869, 2079
Operation Permit No.:	T 087-24953-00069
Permit Reviewer:	ERG/TE

Existing Approvals

The source submitted an application for a Part 70 Operating Permit on June 21, 2007.

There have been no previous approvals issued to this source.

County Attainment Status

The source is located in LaGrange County.

Pollutant	Status
PM10	Attainment
PM2.5	Attainment
SO_2	Attainment
NO_2	Attainment
8-hour Ozone	Attainment
CO	Attainment
Lead	Attainment

Note: On October 25, 2006, the Indiana Air Pollution Control Board finalized a rule revision to 326 IAC 1-4-1 revoking the one-hour ozone standard in Indiana.

(a) Volatile organic compounds (VOC) and nitrogen oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to ozone. LaGrange County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) LaGrange County has been classified as attainment for PM2.5. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM2.5 emissions. Therefore, until the U.S.EPA adopts specific provisions for PSD review for PM2.5 emissions, it has directed states to regulate PM10 emissions as a surrogate for PM2.5 emissions.

(c) LaGrange 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.

(d) Fugitive Emissions
The soybean extraction process is not in one of the twenty-eight (28) listed source categories under 326 IAC 2-2, however, there is an applicable New Source Performance Standard, Subpart DD, that was in effect on August 7, 1980, therefore fugitive emissions are counted toward the determination of PSD applicability.

The biodiesel plant is in one of the 28 listed source categories under 326 IAC 2-2, but it is nested inside a soybean extraction plant. Therefore, the fugitive VOC emissions from the biodiesel manufacturing process are also counted toward the determination of PSD applicability.

Actual Emissions

No previous emission data has been received from the source.

Description of Proposed New Source Construction

The Office of Air Quality (OAQ) has reviewed a new source construction application, submitted by Ultra Soy of America, LLC on June 21, 2007, relating to the construction of a new soybean based biodiesel production plant and a new soybean processing plant. The following is a list of the proposed emission units and pollution control devices approved for construction in 2008:

(a) Material handling and processing equipment approved for construction in 2008 as follows:

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
R1	Hopper Truck Receiving Dump #1	270	Fabric Filter Dust Collector DC-1	EP-1
R2	Hopper Truck Receiving Dump #2	270	Fabric Filter Dust Collector DC-1	EP-1
R3	Rail Receiving Dump	270	Fabric Filter Dust Collector DC-1	EP-1
R4	Receiving Dump Drag #1	270	Fabric Filter Dust Collector DC-1	EP-1
R5	Receiving Dump Drag #2	270	Fabric Filter Dust Collector DC-1	EP-1
R6	Receiving Dump Leg	270	Fabric Filter Dust Collector DC-1	EP-1
R7	Receiving Crossyard Conveyor	270	Fabric Filter Dust Collector DC-1	EP-1
R8	Distribution Conveyor A	270	Fabric Filter Dust Collector DC-1	EP-1
R9	Distribution Conveyor B	270	Fabric Filter Dust Collector DC-1	EP-1
R10	Distribution Conveyor C	270	Fabric Filter Dust Collector DC-2	EP-2
P1	Discharge Conveyor A	270	Fabric Filter Dust Collector DC-2	EP-2
P2	Discharge Conveyor B	270	Fabric Filter Dust Collector DC-2	EP-2
P3	Leg Feed Conveyor	270	Fabric Filter Dust Collector DC-2	EP-2
P4	Discharge Leg	270	Fabric Filter Dust Collector DC-2	EP-2

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
P5	Prep Crossyard Conveyor A	270	Fabric Filter Dust Collector DC-2	EP-2
P6	Prep Crossyard Conveyor B	270	Fabric Filter Dust Collector DC-2	EP-2
P7	Prep Crossyard Conveyor C	270	Fabric Filter Dust Collector DC-3	EP-3
P8	Whole Bean Scale Belt	270	Fabric Filter Dust Collector DC-3	EP-3
P9 – P10	Scalper/Destoner	270	Fabric Filter Dust Collector DC-3	EP-3
P11 – P12	Whole Bean Aspirator	270	Fabric Filter Dust Collector DC-3 and Cyclone CY-1	EP-3
P11A	Cleaner A	270	Fabric Filter Dust Collector DC-3	EP-3
P12A	Cleaner B	27	Fabric Filter Dust Collector DC-3	EP-3
P13	Vertical Seed Conditioner (VSC) Feed Conveyor	270	Fabric Filter Dust Collector DC-3	EP-3
P14	Vertical Seed Conditioner 1	90	VSC & Jet Dryer Cyclone System CY2-CY3	EP-13
P15	Vertical Seed Conditioner 2	90	VSC & Jet Dryer Cyclone System CY2-CY3	EP-13
P16	Vertical Seed Conditioner 3	90	VSC & Jet Dryer Cyclone System CY2-CY3	EP-13
P17	Jet Dryer 1	90	VSC & Jet Dryer Cyclone System CY4-CY5	EP-13
P18	Jet Dryer 2	90	VSC & Jet Dryer Cyclone System CY6-CY7	EP-13
P19	Jet Dryer 3	90	VSC & Jet Dryer Cyclone System CY8-CY9	EP-13
P20	Conditioned Bean L-Path	270	Fabric Filter Dust Collector DC-3	EP-3
P21	Jet Dryer Feed Conveyor	270	Fabric Filter Dust Collector DC-3	EP-3
P22 – P27	Hulloosenator 1 through 6	270 (total)	Fabric Filter Dust Collector DC-3	EP-3
P28 – P33	Cascade Dryers 1 through 6	270 (total)	Fabric Filter Dust Collector DC-3 and CCD Cyclone	EP-3
P34 – P39	Crackers 1 through 6	270 (total)	Fabric Filter Dust Collector DC-3	EP-3
P40 – P45	Cascade Coolers 1 through 6	270 (total)	Fabric Filter Dust Collector DC-3 and CCC Cyclone	EP-3
P46	Flaker Feed Conveyor	256.6	Fabric Filter Dust Collector DC-3 and Cyclone CY-12	EP-3

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
P47 – P66	Flakers	256.6	Fabric Filter Dust Collector DC-3 and Cyclone CY-12	EP-3
P67	Flaker Discharge Conveyor	256.6	Fabric Filter Dust Collector DC-4	EP-4
P68	DC-3 Bottoms Leg	19	Fabric Filter Dust Collector DC-3	EP-3
D1	Cleaning Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D2	Cleaning Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D3	Cleaner Distribution Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D4	Cleaner A	27	Fabric Filter Dust Collector DC-2	EP-2
D5	Cleaner B	27	Fabric Filter Dust Collector DC-2	EP-2
D6	Screenings Collection Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D7	Screenings Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D8	Cleaned Bean Collection Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D9	Dryer Wet Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D10	Dryer Distribution Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D11	Dryer Collection Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D12	Dry Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D13	Transfer Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
F1	Primary Whole Hull Conveyor	19	Fabric Filter Dust Collector DC-3	EP-3
F2	Secondary Whole Hull Conveyor	19	Fabric Filter Dust Collector DC-3	EP-3
F3 – F6	Hull Screeners	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-13	EP-3
F7 – F10	Secondary Mid Aspirators	14.2	Fabric Filter Dust Collector DC-3 and Cyclone CY-14	EP-3
F11 – F14	Secondary “Overs” Aspirators	4.6	Fabric Filter Dust Collector DC-3 and Cyclone CY-15	EP-3
F15	Secondary Whole Hull Recycle	19	Fabric Filter Dust Collector DC-3	EP-3
F16	Whole Hull Conveyor	19	Fabric Filter Dust Collector DC-3	EP-3
F17	Whole Hull Grinding Feed Conveyor	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-16	EP-3

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
F18 – F22	Whole Hull Grinding	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-16	EP-3
F23	Ground Hull Conveyor	19	Fabric Filter Dust Collector DC-3	EP-3
F24	Ground Hull Leg	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-16	EP-3
F26	Ground Hull Storage Outfeed Conveyor	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F27	Pellet Feed Leg	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F28	Pellet Feed Conveyor A	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F29 – F32	Pelleter	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F33	Pelleter Discharge Conveyor	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F34	Pellet Leg	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F35	Pellet Cooler	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F36	Pellet Cooler Discharge Conveyor	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F37	Pellet Leg	19	Fabric Filter Dust Collector DC-3 and Cyclone CY-17	EP-3
F39	Pellet Leg Feed Conveyor	19	Fabric Filter Dust Collector DC-7	EP-7
F40	Fiber/Pellet Loadout Leg	19	Fabric Filter Dust Collector DC-7	EP-7
F41	Fiber/Pellet Conveyor A	19	Fabric Filter Dust Collector DC-7	EP-7
F42	Fiber/Pellet Conveyor B	19	Fabric Filter Dust Collector DC-7	EP-7
F43	Fiber/Pellet Conveyor C	19	Fabric Filter Dust Collector DC-7	EP-7
F44	Fiber/Pellet Loading Spout	19	Fabric Filter Dust Collector DC-7	EP-7
F45	Fiber/Pellet Rail Loading Spout	19	Fabric Filter Dust Collector DC-7	EP-7
M1	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-5	EP-5
M2	Meal Leg	207.4	Fabric Filter Dust Collector DC-5	EP-5

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
M3	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-5	EP-5
M4 – M7	Meal Screens	207.4	Fabric Filter Dust Collector DC-5	EP-5
M8	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-5	EP-5
M9 – M13	Meal Grinders	207.4	Fabric Filter Dust Collector DC-5	EP-5
M14	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-5	EP-5
M15	Meal Leg	207.4	Fabric Filter Dust Collector DC-5	EP-5
M16	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-5	EP-5
M17	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M18	Meal Leg	207.4	Fabric Filter Dust Collector DC-6	EP-6
M19	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M20	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M21	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M22 – M24	Meal Storage Silos	207.4	Fabric Filter Dust Collector DC-6	EP-6
M25	Meal Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M26	M-11 Meal Loadout Conveyor	207.4	Fabric Filter Dust Collector DC-6	EP-6
M27	Meal Rail Loading Spout	207.4	Fabric Filter Dust Collector DC-6	EP-6
S121	Ground Hull Storage	19	Bin Vent Fabric Filter DC-8	EP-8
S122	Pellet Storage	19	Bin Vent Fabric Filter DC-9	EP-9
S211	Silica Storage	0.114	Bin Vent Fabric Filter DC-10	EP-10
S209	Bleach Clay Storage	0.114	Bin Vent Fabric Filter DC-11	EP-11
S210	Filter Aid Storage	0.114	Bin Vent Fabric Filter DC-12	EP-12
S212	Kaolin Storage	1.14	Bin Vent Fabric Filter DC-13	EP-19
	Crown Shallow Bed Oil Extractor	6,500 Tons Per Day	DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
DT	Desolventizer/Toaster	330	Cyclone Scrubber and DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
DTDC	Meal Dryer	218.8	DTDC Cyclone System CY20 – CY23	EP-15
DTDC	Meal Cooler	207.4	DTDC Cyclone System CY18 – CY19	EP-15
	Solvent Contactor	409 gpm Hexane		
	First and Second Stage Evaporators		DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
	Soybean Oil Stripper		Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
	Soybean Oil Dryer		Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
	Mineral Oil Economizer			
	Main Vent Mineral Oil Condenser		Mineral Oil Absorber AB-1	EP-14
AB-1	Mineral Oil Absorber			EP-14
	Mineral Oil Stripper			EP-14
	Mineral Oil Cooler			
	Solvent Water Separator		DT/Extractor Condenser	
	DT/Extractor Condenser		Mineral Oil Absorber AB-1	EP-14
	Distillation Condenser		Mineral Oil Absorber AB-1	EP-14
	Cooling Tower			
CY-1	Whole Bean Aspirator Cyclone	10,000 acfm		EP-3
CY10 – CY11	Cyclones for CCC and CCD operations	37,500 acfm		EP-3
CY-12	Flaker Cyclone	20,500 acfm		EP-3
CY13 and CY14	Secondary Mids Cyclones	21,000 acfm		EP-3
CY-15	Secondary Coarse Aspirator Cyclone	10,500 acfm		EP-3
CY-16	Hull Grinding Conveyor Cyclone	12,500 acfm		EP-3
CY-17	Fiber Pellet System Cyclone	12,500 acfm		EP-3
S100 – S107	Eight (8) soybean storage silos	500,000 bushels each	No control	Fugitive

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
S120	Soybean feed bin silo	20,000 bushels	Fabric Filter Dust Collector DC-2	EP-2
S130	Meal Storage	170,000 tons	Fabric Filter Dust Collector DC-6	EP-6
S131	Loadout Meal Storage Silo A	750 tons	Fabric Filter Dust Collector DC-6	EP-6
S132-S135	Loadout Meal Storage Silos B, C, D, and E	750 tons each	Fabric Filter Dust Collector DC-6	EP-6

(b) One (1) Biodiesel production operation approved for construction in 2008 including the following units:

(1) Feed Economizer
(2) High Shear Mixer
(3) Retention Mixer
(4) Centrifuge
(5) Primary Methylester Reactor
(6) Primary Decanter
(7) Secondary Methylester Reactor
(8) Inline Mixer
(9) Secondary Decanter
(10) Water Wash Mixer
(11) Wet Glycerin Surge Tank
(12) Glycerin Demethylizer Dryer
(13) Water Wash Decanter
(14) Wet Methylester Surge Tank
(15) Water Wash Surge Tank
(16) Methylester Vacuum Dryer
(17) Wet Methanol Tank
(18) Filter Slurry Tank
(19) Methylester Finishing Filter
(20) Final Polishing Filter
(21) Soy Oil Absorber, identified as AB-2, exhausting through stack EP-16
(22) Methanol Water Scrubber, identified as AB-3, exhausting through stack EP-16

(c) Two (2) natural gas-fired boilers, identified as B1 and B2, approved for construction in 2008, each with a maximum heat input capacity of 197.7 million British thermal units (MMBtu) per hour, equipped with low-NOx burners and flue gas recirculation for NOx control, exhausting to stack EP-17;

(d) Three (3) No. 2 distillate fuel oil fired emergency generators, identified as EMG-1, EMG-2, and EMG-3, approved for construction in 2008, each rated at 575 horsepower, exhausting to stack EP-18;

(e) Three (3) natural gas-fired column grain dryers, identified as D100, D102, and D103, approved for construction in 2008, each with a maximum heat input capacity of 45.0 MMBtu per hour and a maximum drying capacity of 5,000 bushels per hour, equipped with low-NOx burners for NOx control, exhausting fugitively;

(f) The following storage tanks:

Unit ID	Description	Capacity (gallons)
S200	Solvent Water Separator OversTank	28,000

Unit ID	Description	Capacity (gallons)
S200A	Hexane Storage A	25,380
S200B	Hexane Storage B	25,380
S201	Dry Methanol Storage Tank A	19,450
S202	Dry Methanol Storage Tank B	19,450
S203	Dry Methanol Storage Tank C	19,450
S204	Dry Methanol Storage Tank D	19,450
S205	Sodium Methoxide Tank A	19,450
S206	Sodium Methoxide Tank B	19,450
S207	Phosphoric Acid Tank	19,450
S208	Hydrochloric Acid Tank	19,450
S213	Inorganic Chemical Storage	15,000
S214	Inorganic Chemical Storage	15,000
S215	Potassium Hydroxide A	19,450
S216	Potassium Hydroxide B	19,450
S217	Once Refined Oil Storage	1,500,000
S218	Bleached Oil Storage	250,000
S220	Crude Glycerin Storage Tank A	33,843
S221	Crude Glycerin Storage Tank B	33,843
S222	Miscella Surge Tank	5,000
S224	Intermediate B100	250,000
S225	Intermediate B100	250,000
S226	Finished B100	1,500,000
S227	Finished B100	1,500,000
S230	Crude Oil Storage Tank 1	1,500,000
S231	Crude Oil Storage Tank 2	1,500,000
S250	No. 2 diesel fuel storage tank	10,000
S251	No. 2 diesel fuel storage tank	640
S252	No. 2 diesel fuel storage tank	640
S253	No. 2 diesel fuel storage tank	640

Insignificant Activities

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

(a) Space heaters, process heaters, or boilers using the following fuels:

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

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

(3) Fuel oil-fired combustion sources with heat input equal to or less than two million (2,000,000) Btu per hour and firing fuel containing less than five-tenths percent (0.5%) sulfur by weight.

(b) Equipment powered by diesel fuel fired or natural gas fired internal combustion engines of capacity equal to or less than five hundred thousand (500,000) Btu/hour, except where total capacity of equipment operated by one stationary source exceeds two million (2,000,000) Btu/hour.

(c) Combustion source flame safety purging on startup.

(d) A gasoline fuel transfer dispensing operation handling less than or equal to one thousand three hundred (1,300) gallons per day and filling storage tanks having a capacity equal to or less than ten thousand five hundred (10,500) gallons. Such storage tanks may be in a fixed location or on mobile equipment.

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

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

(g) Vessels storing the following: Hydraulic oils, lubricating oils, machining oils, and machining fluids.

(h) Degreasing operations that do not exceed one hundred forty-five (145) gallons per twelve (12) months, except if subject to 326 IAC 20-6. [326 IAC 8-3-2][326 IAC 8-3-5]

(i) Cleaners and solvents characterized as follows where the use of which, for all cleaners and solvents combined, does not exceed one hundred forty-five (145) gallons per twelve (12) months:

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

  (2) Having a vapor pressure equal to or less than seven-tenths kilo Pascals (0.7 kPa) (five millimeters of mercury (5 mm Hg) or one-tenth pound per square inch (0.1 psi)) measured at twenty degrees Centigrade (20°C) (sixty-eight degrees Fahrenheit (68°F)).

(j) Closed loop heating and cooling systems.

(k) Any of the following structural steel and bridge fabrication activities:

  (1) Cutting two hundred thousand (200,000) linear feet or less of one (1) inch plate or equivalent;

  (2) Using eighty (80) tons or less of welding consumables.

(l) Water-based activities, including the following:

  (1) Activities associated with the treatment of wastewater streams with an oil and grease content less than or equal to one percent (1%) by volume;

  (2) Activities associated with the transportation and treatment of sanitary sewage, provided discharge to the treatment plant is under the control of the owner/operator, that is, an onsite sewage treatment facility.

(m) Noncontact cooling tower systems with forced and induced draft cooling tower systems not regulated under a NESHAP.

(n) Repair activities, including the following:

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

(2) Heat exchanger cleaning and repair; and

(3) Process vessel degassing and cleaning to prepare for internal repairs.

(o) Paved and unpaved roads and parking lots with public access [326 IAC 6-4][326 IAC 6-5].

(p) Equipment used to collect any material that might be released during a malfunction, process upset, or spill cleanup, including the following: Catch tanks, temporary liquid separators, tanks, fluid handling equipment.

(q) Blowdown for the following: Sight glass, boiler, compressors, cooling tower.

(r) Activities associated with emergencies, including the following:

(1) On-site fire training approved by the IDEM;

(2) Emergency generators as follows:

(A) Gasoline generators not exceeding one hundred ten (110) horsepower
(B) Diesel generators not exceeding one thousand six hundred (1,600) horsepower.

(s) Stationary fire pump engines.

(t) Purge double block and bleed valves.

(u) Filter or coalescer media changeout.

(v) Emissions from a laboratory as defined in 2-7-1(21)(D).

(w) Emissions from research and development activities as defined in 2-7-1(21)(E).

(x) Temporary soybean storage pile, with a maximum storage capacity of 1 million bushels.

Enforcement Issues

There are no pending enforcement actions.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
EP-1	Receiving	75	2.5	30,400	75
EP-2	Bean Cleaning & CY Conveying	127	2.3	23,850	75
EP-3	Bean Prep.	127	3.7	215,982.5	125
EP-4	Flaker Aspiration	120	1.0	3,500	120
EP-5	Meal Grinding	75	1.9	59,982.4	75
EP-6	Meal Handling	75	1.3	24,790.1	75
EP-7	Fiber Handling	125	1.0	3,500	80
EP-8	Ground Hull Storage	50	0.4	700	70
EP-9	Pellet Storage	50	0.4	700	70
EP-10	Silica Storage	50	0.4	700	70
EP-11	Bleach Clay Storage	50	0.4	700	70
EP-12	Filter Aid Storage	50	0.4	700	70
EP-13	Jet Dryer & VSC	127	3.5	75,000	125
EP-14	Mineral Oil Vent	125	0.5	327.9	130
EP-15	DTDC	75	2.8	123,656.2	130
EP-16	Biodiesel Water Scrubber	50	0.3	38.5	70
EP-17	Boiler Stack	150	3.0	62,200	300
EP-18	Emergency Generators	23	0.8	9,000	230
EP-19	Kaolin Storage	50	0.4	700	70

Emission Calculations

See Appendix A of this document for detailed emission calculations.

Permit Level Determination – Part 70

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

Pollutant	Potential To Emit (tons/year)
PM	Greater than 250
PM10	Greater than 250
SO_2	Less than 100
VOC	Greater than 250
CO	Greater than 250
NO_x	Greater than 100, Less than 250

HAPs	Potential To Emit (tons/year)
Hexane	Greater than 10
Methanol	Greater than 10
TOTAL	Greater than 25

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of PM10, VOC, CO and NOx are equal to or greater than 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 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.

(c) Fugitive Emissions
The soybean extraction process is not in one of the twenty-eight (28) listed source categories under 326 IAC 2-2, however, there is an applicable New Source Performance Standard, Subpart DD, that was in effect on August 7, 1980, therefore fugitive emissions are counted toward the determination of Part 70 applicability.

The biodiesel plant is in one of the 28 listed source categories under 326 IAC 2-7, but it is nested inside a soybean extraction plant. Therefore, the fugitive VOC emissions from the biodiesel manufacturing process are also counted toward the determination of Part 70 applicability.

Permit Level Determination – PSD

The table below summarizes the potential to emit, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of this Part 70 permit, and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

	Potential to Emit (tons/year)					
Process/Emission Unit	**PM**	**PM10**	**SO_2**	**VOC**	**CO**	**NO_X**
Receiving, Storage, & Handling Sources (R1 – R9), Stack EP-1	3.31	1.75	0.00	0.00	0.00	0.00
Cleaning, Drying & Crossyard Conveyors (R10, P1-P6, D1-D13), Stack EP-2	2.99	1.67	0.00	0.00	0.00	0.00
Bean Prep (P7-P13, P20, P21, P22-P66, P68, F1-F37), Stack EP-3	25.95	13.85	0.00	0.00	0.00	0.00
Jet Dryer & Vertical Seed Conditioners (P14 – P19), Stack EP-13	7.95	2.88	0.00	0.00	0.00	0.00
Flaker Aspiration (P67), Stack EP-4	0.69	0.38	0.00	0.00	0.00	0.00
Meal Grinding (M1 – M16), Stack EP-5	11.26	6.92	0.00	0.00	0.00	0.00
Meal Loading (M17 – M27), Stack EP-6	4.11	2.38	0.00	0.00	0.00	0.00

	Potential to Emit (tons/year)					
Process/Emission Unit	**PM**	**PM10**	**SO_2**	**VOC**	**CO**	**NO_X**
Fiber Loading (F39 – F45), Stack EP-7	0.66	0.36	0.00	0.00	0.00	0.00
Ground Hull Storage (S121), Stack EP-8	0.13	0.03	0.00	0.00	0.00	0.00
Pellet Storage (S122), Stack EP-9	0.13	0.03	0.00	0.00	0.00	0.00
Silica Storage (S211), Stack EP-10	0.13	0.02	0.00	0.00	0.00	0.00
Bleach Clay Storage (S209), Stack EP-11	0.13	0.02	0.00	0.00	0.00	0.00
Filter Aid Storage (S210), Stack EP-12	0.13	0.02	0.00	0.00	0.00	0.00
Main Vent Condenser and Mineral Oil Absorber (AB1), Stack EP-14	0.00	0.00	0.00	86.52	0.00	0.00
Meal Drying and Cooling (DTDC), Stack EP-15	31.40	19.51	0.00	224.70	0.00	0.00
Methanol Oil Scrubber and Methanol Water Scrubber (AB2, AB3), Stack EP-16	0.00	0.00	0.00	1.88	0.00	0.00
Boilers (B1, B2), Stack EP-17	3.29	13.16	1.04	9.53	145.48	64.42
Emergency Generators (EMG1 – EMG3), Stack EP-18	0.15	0.15	0.15	0.14	2.48	10.34
Kaolin Storage (S212), Stack EP-19	0.13	0.02	0.00	0.00	0.00	0.00
Dryers (D100, D102, D103)	0.11	0.44	0.03	0.32	17.39	6.96
Storage Tank S200	0.00	0.00	0.00	1.74	0.00	0.00
Storage Tanks S200A and S200B	0.00	0.00	0.00	1.09	0.00	0.00
Storage Tanks S205 and S206	0.00	0.00	0.00	0.38	0.00	0.00
Storage Tanks S201 – S204	0.00	0.00	0.00	0.43	0.00	0.00
Storage Tanks S217, S218, S220 – S222, S224 – S227, S230, S231, S250 – S253	0.00	0.00	0.00	1.09	0.00	0.00
Fugitive and Bound VOC Sources	0.00	0.00	0.00	670.26	0.00	0.00
Fugitive Particulate Matter Sources	55.31	18.30	0.00	0.00	0.00	0.00
Total for Source	147.96	81.89	1.22	998.08	165.35	81.72
Major Source Threshold	250	250	250	250	250	250

This new soybean extraction process is major for PSD because the emissions of at least one criteria pollutant are greater than two hundred fifty (>250) tons per year, and it is not in one of the twenty-eight (28) listed source categories as specified in 326 IAC 2-2-1(gg)(1). Therefore, pursuant to 326 IAC 2-2, the source is subject to the PSD requirements. See Appendix B for a detailed BACT analysis.

The biodiesel plant is in one of the 28 listed source categories, but it is nested inside a soybean extraction plant. None of the regulated NSR pollutants emitted from the biodiesel manufacturing process is equal to or greater than 100 tons per year. Therefore, the biodiesel plant is not subject to PSD requirements.

Federal Rule Applicability Determination

The following federal rules are applicable to the source:

(a) The two (2) natural gas-fired boilers, identified as B1 and B2, each with a maximum heat input capacity of 197.7 MMBtu per hour are subject to the New Source Performance Standards for Industrial-Commercial-Institutional Steam Generating Units (40 CFR 60.40b – 60.49b, Subpart Db), which is incorporated by reference as 326 IAC 12, because they will be constructed after June 19, 1984, and each has a heat input capacity of greater than 100 MMBtu per hour. The units subject to this rule include the following:

Two (2) natural gas-fired boilers, identified as B1 and B2, approved for construction in 2007, each with a maximum heat input capacity of 197.7 million British thermal units (MMBtu) per hour, exhausting to stack EP-17.

Non applicable portions of the NSPS will not be included in the permit. The boilers are subject to the following portions of Subpart Db:

(1) 40 CFR 60.40b(a), (f), (g) and (j)
(2) 40 CFR 60.41b
(3) 40 CFR 60.44b(a), (h), (i), (l)(1)
(4) 40 CFR 60.46b(a), (c), (e)(1) and (4)
(5) 40 CFR 60.48b(b)(1), (c), (d), (e)(2) and (3), (f), (g), (j)(2)
(6) 40 CFR 60.49b(a)(1), (2) and (3), (b), (c), (d), (g), (h)(2) and (4), (i), (o), (v), (w)

(b) The two (2) natural gas-fired boilers, identified as B1 and B2 would have been subject to the requirements of the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63, Subpart DDDDD. However, on June 8, 2007, the United States Court of appeals for the District of Columbia Circuit (in NRDC v. EPA, no. 04-1386) vacated in its entirety the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63, Subpart DDDDD. Additionally, since the state rule at 326 IAC 20-95 incorporated the requirements of the NESHAP 40 CFR 63, Subpart DDDDD by reference, the requirements of 326 IAC 20-95 are no longer effective. Therefore, the requirements of 40 CFR 63, Subpart DDDDD and 326 IAC 20-95 are not included in the permit.

(c) Each truck unloading station, truck loading station, railcar loading station, railcar unloading station, grain dryer, and all grain handling operations at this source are subject to the New Source Performance Standards for Grain Elevators (40 CFR 60.300 – 60.304, Subpart DD), which is incorporated by reference as 326 IAC 12, because they meet the definition of a grain storage elevator and were constructed after August 3, 1978. The units subject to this rule include the following:

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
R1	Hopper Truck Receiving Dump #1	270	Fabric Filter Dust Collector DC-1	EP-1
R2	Hopper Truck Receiving Dump #2	270	Fabric Filter Dust Collector DC-1	EP-1
R3	Rail Receiving Dump	270	Fabric Filter Dust Collector DC-1	EP-1
R4	Receiving Dump Drag #1	270	Fabric Filter Dust Collector DC-1	EP-1
R5	Receiving Dump Drag #2	270	Fabric Filter Dust Collector DC-1	EP-1
R6	Receiving Dump Leg	270	Fabric Filter Dust Collector DC-1	EP-1
R7	Receiving Crossyard Conveyor	270	Fabric Filter Dust Collector DC-1	EP-1
R8	Distribution Conveyor A	270	Fabric Filter Dust Collector DC-1	EP-1
R9	Distribution Conveyor B	270	Fabric Filter Dust Collector DC-1	EP-1
R10	Distribution Conveyor C	270	Fabric Filter Dust Collector DC-2	EP-2
P1	Discharge Conveyor A	270	Fabric Filter Dust Collector DC-2	EP-2
P2	Discharge Conveyor B	270	Fabric Filter Dust Collector DC-2	EP-2
P3	Leg Feed Conveyor	270	Fabric Filter Dust Collector DC-2	EP-2
P4	Discharge Leg	270	Fabric Filter Dust Collector DC-2	EP-2
P5	Prep Crossyard Conveyor A	270	Fabric Filter Dust Collector DC-2	EP-2
P6	Prep Crossyard Conveyor B	270	Fabric Filter Dust Collector DC-2	EP-2
D1	Cleaning Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D2	Cleaning Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D3	Cleaner Distribution Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D4	Cleaner A	27	Fabric Filter Dust Collector DC-2	EP-2
D5	Cleaner B	27	Fabric Filter Dust Collector DC-2	EP-2
D6	Screenings Collection Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D7	Screenings Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D8	Cleaned Bean Collection Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D9	Dryer Wet Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D10	Dryer Distribution Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2

Unit ID	Description	Capacity (tons/hr)	Control Device	Exhausting to Stack
D11	Dryer Collection Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
D12	Dry Leg	27	Fabric Filter Dust Collector DC-2	EP-2
D13	Transfer Conveyor	27	Fabric Filter Dust Collector DC-2	EP-2
S100 – S107	Eight (8) soybean storage silos	500,000 bushels each	No control	Fugitive
D100, D102, and D103	Three (3) natural gas-fired column grain dryers	45.0 MMBtu per hour each	None	Fugitive

Non applicable portions of the NSPS will not be included in the permit. The grain dryers are not subject to the particulate matter emission limits under 40 CFR 60.302(a) because each dryer has a plate perforation of less than 0.094 inches. The above units, except the grain dryers as indicated, are subject to the following portions of Subpart DD:

(1) 40 CFR 60.300
(2) 40 CFR 60.301
(3) 40 CFR 60.302(b), (c)(1), (c)(2), and (c)(3)
(4) 40 CFR 60.303
(5) 40 CFR 60.304

(d) The requirements of the New Source Performance Standards for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984 (40 CFR 60.110b – 60.117b, Subpart Kb), which is incorporated by reference as 326 IAC 12, are not included in this permit for the storage tanks at this source.

The storage tanks identified as S200, S200A and S200B are not subject to this rule because these tanks are subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Solvent Extraction for Vegetable Oil Production, 40 CFR 63, Subpart GGGG. Pursuant to 40 CFR 60.110b(d)(8), these tanks are exempt from the requirements of this rule.

The glycerin storage tanks identified as S220 and S221 are not subject to the requirements of this rule because each of these tanks has a storage capacity greater than 75 cubic meters but less than 151 cubic meters and store a liquid with a maximum true vapor pressure less than 15.0 kPa. Pursuant to 40 CFR 60.110b(b), these tanks are not subject to this rule.

The storage tanks identified as S217, S218, S224, S225, S226, S227, S230 and S231 are not subject to the requirements of this rule because each of these tanks has a storage capacity greater than 151 cubic meters and store a liquid with a maximum true vapor pressure of less than 3.5 kPa. Pursuant to 40 CFR 60.110b(b), these tanks are not subject to this rule.

The following storage tanks are not subject to the requirements of this rule because they each have storage capacities less than 75 cubic meters (19,813 gallons):

Unit ID	Description	Capacity (gallons)
S201	Dry Methanol Storage Tank A	19,450
S202	Dry Methanol Storage Tank B	19,450
S203	Dry Methanol Storage Tank C	19,450
S204	Dry Methanol Storage Tank D	19,450
S205	Sodium Methoxide Tank A	19,450
S206	Sodium Methoxide Tank B	19,450
S207	Phosphoric Acid Tank	19,450
S208	Hydrochloric Acid Tank	19,450
S213	Inorganic Chemical Storage	15,000
S214	Inorganic Chemical Storage	15,000
S215	Potassium Hydroxide A	19,450
S216	Potassium Hydroxide B	19,450
S222	Miscella Surge Tank	5,000
S250	No. 2 diesel fuel storage tank	10,000
S251	No. 2 diesel fuel storage tank	640
S252	No. 2 diesel fuel storage tank	640
S253	No. 2 diesel fuel storage tank	640

(e) The biodiesel facility is subject to the New Source Performance Standards for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry (40 CFR 60.480 – 60.489, Subpart VV), which is incorporated by reference as 326 IAC 12. The biodiesel facility is a synthetic organic chemical manufacturing industry, because it produces glycerol, which is listed in 40 CFR 60.789 and the construction of the facility will commence after January 5, 1981. Therefore each pump, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or any other connector in VOC service are subject to the subpart.

Non applicable portions of the NSPS will not be included in the permit. The biodiesel manufacturing process is subject to the following portions of Subpart VV.

(1) 40 CFR 60.480(a), (b) and (c)
(2) 40 CFR 60.481
(3) 40 CFR 60.482-1
(4) 40 CFR 60.482-2
(5) 40 CFR 60.482-4
(6) 40 CFR 60.482-5
(7) 40 CFR 60.482-6
(8) 40 CFR 60.482-7
(9) 40 CFR 60.482-8
(10) 40 CFR 60.482-9
(11) 40 CFR 60.482-10(a), (e), (f), (g), (h), (i), (j), (k), (l), and (m)
(12) 40 CFR 60.483-1
(13) 40 CFR 60.483-2
(14) 40 CFR 60.484

(15) 40 CFR 60.485
(16) 40 CFR 60.486
(17) 40 CFR 60.487
(18) 40 CFR 60.489

(f) The distillation unit in the extraction process is subject to the New Source Performance Standards for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations (40 CFR 60.660 – 60.668, Subpart NNN), which is incorporated by reference as 326 IAC 12. The distillation unit is part of a process unit that produces glycerol, which is listed in 40 CFR 60.667 and the construction of the distillation unit will commence after December 30, 1983. The distillation unit does not discharge its vent stream into a recovery system, therefore, the distillation unit is subject to this rule.

The Total Resource Effectiveness (TRE) was calculated using the two equations in 40 CFR 60.664(f) with results of 474 and 156. Facilities with TRE greater than 8.0 are subject only to 40 CFR 60.662, 40 CFR 60.664(e), (f), and (g); and 40 CFR 665(h) and (l). Marcia Mia of U.S. EPA in an email to Erik Hardin, U.S. EPA, Region 5 stated that an amendment dated October 17, 2000 changed 40 CFR 60.664(d), (e), and (f) to 40 CFR 60.664(e), (f), and (g). Therefore, the corrected citation for 40 CFR 60.664(d), (e), and (f) should be 40 CFR 60.664(e), (f), and (g).

The Permittee has opted to comply with 40 CFR 60.662(a) by reducing the TOC (less methane and ethane) by 98 weight percent from the distillation unit. The Permittee has opted to comply with 40 CFR 60.662(a), therefore 40 CFR 60.664(e) and (f) and 40 CFR 60.665(h) and (l) do not apply to the distillation unit.

Non applicable portions of the NSPS will not be included in the permit. The distillation operation is subject to the following portions of Subpart NNN:

(1) 40 CFR 60.660(a), (b), (c)(4)
(2) 40 CFR 60.661
(3) 40 CFR 60.662(a)
(4) 40 CFR 60.664(a), (b), (g)
(5) 40 CFR 60.667
(6) 40 CFR 60.668

(g) The biodiesel reactor process is subject to the New Source Performance Standards for Volatile Organic Compound Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes (40 CFR 60.700 – 60.708, Subpart RRR), which is incorporated by reference as 326 IAC 12. The biodiesel reactor process is part of a process unit that produces glycerol, which is listed in 40 CFR 60.707, and the construction of the reactor will commence after June 29, 1990. The reactor's vent flow rate is less than 0.011 scm/min (0.39 scfm), therefore, this unit is exempt from all provisions of this subpart except for the test method and procedure and the record-keeping and reporting requirements in 40 CFR 60.704(g) and 40 CFR 60.705(h), (l)(4), and (o).

Non applicable portions of the NSPS will not be included in the permit. The biodiesel reactor process is subject to the following portions of Subpart RRR:

(1) 40 CFR 60.700(a), (b), (c)(4)
(2) 40 CFR 60.701
(3) 40 CFR 60.704(g)
(4) 40 CFR 60.705(h), (l)(4), (o)

(h) The soybean oil extraction process is subject to the National Emission Standards for Hazardous Air Pollutants for Solvent Extraction for Vegetable Oil Production (40 CFR 63.2830 – 63.2872, Subpart GGGG), which is incorporated by reference as 326 IAC 20-60. This is a new source, for the purposes of this NESHAP, because it is a vegetable oil production process as defined in Sec. 63.2872 and is being constructed after May 26, 2000. The units subject to this rule include the following:

Unit ID	**Capacity (tons/hr)**	**Control Device**	**Exhausting to Stack**
Crown Shallow Bed Oil Extractor	6,500 Tons Per Day	DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
Desolventizer/Toaster		Cyclone Scrubber and DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
Meal Dryer		DTDC Cyclone System CY20 – CY23	EP-15
Meal Cooler		DTDC Cyclone System CY18 – CY19	EP-15
Solvent Contactor			
First and Second Stage Evaporators		DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
Soybean Oil Stripper		Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
Soybean Oil Dryer		Main Vent Condenser and Mineral Oil Absorber AB-1	EP-14
Mineral Oil Economizer			
Main Vent Mineral Oil Condenser		Mineral Oil Absorber AB-1	EP-14
Mineral Oil Absorber			EP-14
Mineral Oil Stripper			EP-14
Mineral Oil Cooler			
Solvent Water Separator		DT/Extractor Condenser	
DT/Extractor Condenser		Mineral Oil Absorber AB-1	EP-14
Distillation Condenser		Mineral Oil Absorber AB-1	EP-14
Cooling Tower			

Non applicable portions of the NESHAP will not be included in the permit. The soybean oil extraction process is subject to the following portions of Subpart GGGG:

(1) 40 CFR 63.2830

(2) 40 CFR 63.2831
(3) 40 CFR 63.2832(a)
(4) 40 CFR 63.2833(a)
(5) 40 CFR 63.2834
(6) 40 CFR 63.2840(a), (b), (c), and (d)
(7) 40 CFR 63.2850(a), (c), (e)
(8) 40 CFR 63.2851
(9) 40 CFR 63.2852
(10) 40 CFR 63.2853
(11) 40 CFR 63.2854
(12) 40 CFR 63.2855
(13) 40 CFR 63.2860(b), (c), and (d)
(14) 40 CFR 63.2861
(15) 40 CFR 63.2862
(16) 40 CFR 63.2863
(17) 40 CFR 63.2870
(18) 40 CFR 63.2871
(19) 40 CFR 63.2872

The provisions of 40 CFR 63 Subpart A – General Provisions, which are incorporated as 326 IAC 20-1-1, apply to the facility described in this section except when otherwise specified in 40 CFR 63 Subpart GGGG.

(i) The degreasing operation, an insignificant activity, is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs), 40 CFR 63, Subpart T, because it does not use a halogenated solvent for cleaning.

(j) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is applicable to new or modified emission units that involve a pollutant-specific emission unit and meet the following criteria:

(1) has a potential to emit before controls equal to or greater than the major source threshold for the pollutant involved;

(2) is subject to an emission limitation or standard for that pollutant; and

(3) uses a control device, as defined in 40 CFR 64.1, to comply with that emission limitation or standard.

The following table is used to identify the applicability of each of the criteria, under 40 CFR 64.1, to each new or modified emission unit involved:

Emission Unit	Control Device Used	Emission Limitation (Y/N)	Uncontrolled PTE (tons/year)	Controlled PTE (tons/year)	Major Source Threshold (tons/year)	CAM Applicable (Y/N)	Large Unit (Y/N)
Hopper Truck Receiving Dump #1, R1 – PM/PM10	Dust Collector DC-1	Y	10.35/2.31	0.07/0.02	100	N	N
Hopper Truck Receiving Dump #2, R2 – PM/PM10	Dust Collector DC-1	Y	10.35/2.31	0.07/0.02	100	N	N
Rail Receiving Dump, R3 – PM/PM10	Dust Collector DC-1	Y	18.93/4.61	0.13/0.03	100	N	N

Emission Unit	Control Device Used	Emission Limitation (Y/N)	Uncontrolled PTE (tons/year)	Controlled PTE (tons/year)	Major Source Threshold (tons/year)	CAM Applicable (Y/N)	Large Unit (Y/N)
Receiving Dump Drag #1, R4 – PM/PM10	Dust Collector DC-1	Y	72.16/40.22	0.51/0.28	100	N	N
Receiving Dump Drag #2, R5 – PM/PM10	Dust Collector DC-1	Y	72.16/40.22	0.51/0.28	100	N	N
Receiving Dump Leg, R6 – PM/PM10	Dust Collector DC-1	Y	72.16/40.22	0.51/0.28	100	N	N
Receiving Crossyard Conveyor, R7 – PM/PM10	Dust Collector DC-1	Y	72.16/40.22	0.51/0.28	100	N	N
Distribution Conveyor A, R8 – PM/PM10	Dust Collector DC-1	Y	72.16/40.22	0.51/0.28	100	N	N
Distribution Conveyor B, R9 – PM/PM10	Dust Collector DC-1	Y	72.16/40.22	0.51/0.28	100	N	N
Distribution Conveyor C, R10 – PM/PM10	Dust Collector DC-2	Y	72.16/40.22	0.36/0.20	100	N	N
Discharge Conveyor A, P1 – PM/PM10	Dust Collector DC-2	Y	72.16/40.22	0.36/0.20	100	N	N
Discharge Conveyor B, P2 – PM/PM10	Dust Collector DC-2	Y	72.16/40.22	0.36/0.20	100	N	N
Leg Feed Conveyor, P3 – PM/PM10	Dust Collector DC-2	Y	72.16/40.22	0.36/0.20	100	N	N
Discharge Leg, P4 – PM/PM10	Dust Collector DC-2	Y	72.16/40.22	0.36/0.20	100	N	N
Prep Crossyard Conveyor A, P5 – PM/PM10	Dust Collector DC-2	Y	72.16/40.22	0.36/0.20	100	N	N
Prep Crossyard Conveyor B, P6 – PM/PM10	Dust Collector DC-2	Y	72.16/40.22	0.36/0.20	100	N	N
Cleaning Conveyor, D1 – PM/PM10	Dust Collector DC-2	Y	7.22/4.02	0.04/0.02	100	N	N
Cleaning Leg, D2 – PM/PM10	Dust Collector DC-2	Y	7.22/4.02	0.04/0.02	100	N	N
Cleaner Distribution Conveyor, D3 – PM/PM10	Dust Collector DC-2	Y	7.22/4.02	0.04/0.02	100	N	N
Cleaner A, D4 – PM/PM10	Dust Collector DC-2	Y	7.22/4.02	0.04/0.02	100	N	N

Emission Unit	Control Device Used	Emission Limitation (Y/N)	Uncontrolled PTE (tons/year)	Controlled PTE (tons/year)	Major Source Threshold (tons/year)	CAM Applicable (Y/N)	Large Unit (Y/N)
Cleaner B, D5 – PM/PM10	Dust Collector DC-2	Y	7.22/4.02	0.04/0.02	100	N	N
Screenings Collection Conveyor, D6 – PM/PM10	Dust Collector DC-2	Y	7.22/4.02	0.04/0.02	100	N	N
Screenings Leg, D7 – PM/PM10	Dust Collector DC-2	Y	7.22/4.02	0.04/0.02	100	N	N
Cleaned Bean Collection Conveyor, D8 – PM/PM10	Dust Collector DC-2	Y	7.22/4.02	0.04/0.02	100	N	N
Dryer Wet Leg, D9 – PM/PM10	Dust Collector DC-2	Y	7.22/4.02	0.04/0.02	100	N	N
Dryer Distribution Conveyor, D10 – PM/PM10	Dust Collector DC-2	Y	7.22/4.02	0.04/0.02	100	N	N
Dryer Collection Conveyor, D11 – PM/PM10	Dust Collector DC-2	Y	7.22/4.02	0.04/0.02	100	N	N
Dry Leg, D12 – PM/PM10	Dust Collector DC-2	Y	7.22/4.02	0.04/0.02	100	N	N
Transfer Conveyor, D13 – PM/PM10	Dust Collector DC-2	Y	7.22/4.02	0.04/0.02	100	N	N
Prep Crossyard Conveyor C, P7 – PM/PM10	Dust Collector DC-3	Y	72.16/40.22	0.72/0.40	100	N	N
Whole Bean Scale Belt, P8 – PM/PM10	Dust Collector DC-3	Y	72.16/40.22	0.72/0.40	100	N	N
Scalper/Destoner, P9-P10 – PM/PM10	Dust Collector DC-3	Y	72.16/40.22	0.72/0.40	100	N	N
Whole Bean Aspirator, P11-P12 – PM/PM10	Dust Collector DC-3 and Cyclone CY-1	Y	72.16/40.22	0.72/0.40	100	N	N
Cleaner A, P11A – PM/PM10	Dust Collector DC-3	Y	72.16/40.22	0.72/0.40	100	N	N
Cleaner B, P12A – PM/PM10	Dust Collector DC-3	Y	7.22/4.02	0.07/0.04	100	N	N
Vertical Seed Conditioner (VSC) Feed Conveyor, P13 – PM/PM10	Dust Collector DC-3	Y	72.16/40.22	0.72/0.40	100	N	N

Emission Unit	Control Device Used	Emission Limitation (Y/N)	Uncontrolled PTE (tons/year)	Controlled PTE (tons/year)	Major Source Threshold (tons/year)	CAM Applicable (Y/N)	Large Unit (Y/N)
Conditioned Bean L-Path, P20 – PM/PM10	Dust Collector DC-3	Y	72.16/40.22	0.72/0.40	100	N	N
Jet Dryer Feed Conveyor, P21 – PM/PM10	Dust Collector DC-3	Y	72.16/40.22	0.72/0.40	100	N	N
Hulloosenator 1 through 6, P22-P27 – PM/PM10	Dust Collector DC-3	Y	425.88/260.26	4.26/2.60	100	Y	N
Cascade Dryer 1 through 6, P28-P33 – PM/PM10	Dust Collector DC-3 and CCD Cyclone	Y	260.26/65.07	2.60/0.65	100	Yes for PM only	N
Crackers 1 through 6, P34-P39 – PM/PM10	Dust Collector DC-3	Y	425.88/260.26	4.26/2.60	100	Y	N
Cascade Coolers 1 through 6, P40-P45 – PM/PM10	Dust Collector DC-3 and CCC Cyclone	Y	11.83/7.22	0.12/0.07	100	N	N
Flaker Feed Conveyor, P46 – PM/PM10	Dust Collector DC-3 and Cyclone CY-12	Y	68.55/38.21	0.69/0.38	100	N	N
Flakers, P47-P66 – PM/PM10	Dust Collector DC-3 and Cyclone CY-12	Y	415.82/253.65	4.16/2.54	100	Y	N
DC-3 Bottoms Leg, P68 – PM/PM10	Dust Collector DC-3	Y	5.05/2.82	0.05/0.03	100	N	N
Primary Whole Hull Conveyor, F1 – PM/PM10	Dust Collector DC-3	Y	5.05/2.82	0.05/0.03	100	N	N
Secondary Whole Hull Conveyor, F2 – PM/PM10	Dust Collector DC-3	Y	5.05/2.82	0.05/0.03	100	N	N
Hull Screeners, F3-F6 – PM/PM10	Dust Collector DC-3 and Cyclone CY-13	Y	5.05/2.82	0.05/0.03	100	N	N
Secondary Mid Aspirators, F7-F10 – PM/PM10	Dust Collector DC-3 and Cyclone CY-14	Y	19.87/2.11	0.20/0.02	100	N	N

Emission Unit	Control Device Used	Emission Limitation (Y/N)	Uncontrolled PTE (tons/year)	Controlled PTE (tons/year)	Major Source Threshold (tons/year)	CAM Applicable (Y/N)	Large Unit (Y/N)
Secondary "Overs" Aspirators, F11-F14 – PM/PM10	Dust Collector DC-3 and Cyclone CY-15	Y	6.44/0.68	0.06/0.01	100	N	N
Secondary Whole Hull Recycle, F15 – PM/PM10	Dust Collector DC-3	Y	5.05/2.82	0.05/0.03	100	N	N
Whole Hull Conveyor, F16 – PM/PM10	Dust Collector DC-3	Y	5.05/2.82	0.05/0.03	100	N	N
Whole Hull Grinding Feed Conveyor, F17 – PM/PM10	Dust Collector DC-3 and Cyclone CY-16	Y	5.05/2.82	0.05/0.03	100	N	N
Whole Hull Grinding, F18-F22 – PM/PM10	Dust Collector DC-3 and Cyclone CY-16	Y	165.62/62.11	1.66/0.62	100	Yes for PM only	N
Ground Hull Conveyor, F23 – PM/PM10	Dust Collector DC-3	Y	5.05/2.82	0.05/0.03	100	N	N
Ground Hull Leg, F24 – PM/PM10	Dust Collector DC-3 and Cyclone CY-16	Y	5.05/2.82	0.05/0.03	100	N	N
Ground Hull Storage Outfeed Conveyor, F26 – PM/PM10	Dust Collector DC-3 and Cyclone CY-17	Y	5.05/2.82	0.05/0.03	100	N	N
Pellet Feed Leg, F27 – PM/PM10	Dust Collector DC-3 and Cyclone CY-17	Y	5.05/2.82	0.05/0.03	100	N	N
Pellet Feed Conveyor A, F28 – PM/PM10	Dust Collector DC-3 and Cyclone CY-17	Y	5.05/2.82	0.05/0.03	100	N	N
Pelleter, F29-F32 – PM/PM10	Dust Collector DC-3 and Cyclone CY-17	Y	124.22/62.11	1.24/0.62	100	Yes for PM only	N

Emission Unit	Control Device Used	Emission Limitation (Y/N)	Uncontrolled PTE (tons/year)	Controlled PTE (tons/year)	Major Source Threshold (tons/year)	CAM Applicable (Y/N)	Large Unit (Y/N)
Pelleter Discharge Conveyor, F33 – PM/PM10	Dust Collector DC-3 and Cyclone CY-17	Y	5.05/2.82	0.05/0.03	100	N	N
Pellet Leg, F34 – PM/PM10	Dust Collector DC-3 and Cyclone CY-17	Y	5.05/2.82	0.05/0.03	100	N	N
Pellet Cooler, F35 – PM/PM10	Dust Collector DC-3 and Cyclone CY-17	Y	5.05/2.82	0.05/0.03	100	N	N
Pellet Cooler Discharge Conveyor, F36 – PM/PM10	Dust Collector DC-3 and Cyclone CY-17	Y	5.05/2.82	0.05/0.03	100	N	N
Pellet Leg, F37 – PM/PM10	Dust Collector DC-3 and Cyclone CY-17	Y	5.05/2.82	0.05/0.03	100	N	N
Vertical Seed Conditioner 1, P14 – PM/PM10	VSC & Jet Dryer Cyclone System CY2-CY3	Y	39.43/24.05	0.83/0.51	100	N	N
Vertical Seed Conditioner 2, P15 – PM/PM10	VSC & Jet Dryer Cyclone System CY2-CY3	Y	39.43/24.05	0.83/0.51	100	N	N
Vertical Seed Conditioner 3, P16 – PM/PM10	VSC & Jet Dryer Cyclone System CY2-CY3	Y	39.43/24.05	0.83/0.51	100	N	N
Jet Dryer 1, P17 – PM/PM10	VSC & Jet Dryer Cyclone System CY4-CY5	Y	86.74/21.69	1.82/0.46	100	N	N
Jet Dryer 2, P18 – PM/PM10	VSC & Jet Dryer Cyclone System CY6-CY7	Y	86.74/21.69	1.82/0.46	100	N	N

Emission Unit	Control Device Used	Emission Limitation (Y/N)	Uncontrolled PTE (tons/year)	Controlled PTE (tons/year)	Major Source Threshold (tons/year)	CAM Applicable (Y/N)	Large Unit (Y/N)
Jet Dryer 3, P19 – PM/PM10	VSC & Jet Dryer Cyclone System CY8-CY9	Y	86.74/21.69	1.82/0.46	100	N	N
Flaker Discharge Conveyor, P67 – PM/PM10	Dust Collector DC-4	Y	68.55/38.21	0.69/0.38	100	N	N
Meal Conveyor, M1 – PM/PM10	Dust Collector DC-5	Y	55.42/30.89	0.10/0.05	100	N	N
Meal Leg, M2 – PM/PM10	Dust Collector DC-5	Y	55.42/30.89	0.10/0.05	100	N	N
Meal Conveyor, M3 – PM/PM10	Dust Collector DC-5	Y	55.42/30.89	0.10/0.05	100	N	N
Meal Screens, M4-M7 – PM/PM10	Dust Collector DC-5	Y	3089.05/ 1907.94	5.30/3.27	100	Y	N
Meal Conveyor, M8 – PM/PM10	Dust Collector DC-5	Y	55.42/30.89	0.10/0.05	100	N	N
Meal Grinders, M9-M13 – PM/PM10	Dust Collector DC-5	Y	3089.05/ 1907.94	5.30/3.27	100	Y	N
Meal Conveyor, M14 – PM/PM10	Dust Collector DC-5	Y	55.42/30.89	0.10/0.05	100	N	N
Meal Leg, M15 – PM/PM10	Dust Collector DC-5	Y	55.42/30.89	0.10/0.05	100	N	N
Meal Conveyor, M16 – PM/PM10	Dust Collector DC-5	Y	55.42/30.89	0.10/0.05	100	N	N
Meal Conveyor, M17 – PM/PM10	Dust Collector DC-6	Y	55.42/30.89	0.28/0.15	100	N	N
Meal Leg, M18 – PM/PM10	Dust Collector DC-6	Y	55.42/30.89	0.28/0.15	100	N	N
Meal Conveyor, M19 – PM/PM10	Dust Collector DC-6	Y	55.42/30.89	0.28/0.15	100	N	N
Meal Conveyor, M20 – PM/PM10	Dust Collector DC-6	Y	55.42/30.89	0.28/0.15	100	N	N
Meal Conveyor, M21 – PM/PM10	Dust Collector DC-6	Y	55.42/30.89	0.28/0.15	100	N	N
Meal Storage Silos, M22-M24 – PM/PM10	Dust Collector DC-6	Y	22.71/5.72	0.11/0.03	100	N	N

Emission Unit	Control Device Used	Emission Limitation (Y/N)	Uncontrolled PTE (tons/year)	Controlled PTE (tons/year)	Major Source Threshold (tons/year)	CAM Applicable (Y/N)	Large Unit (Y/N)
Meal Conveyor, M25 – PM/PM10	Dust Collector DC-6	Y	55.42/30.89	0.28/0.15	100	N	N
M-11 Meal Loadout Conveyor, M26 – PM/PM10	Dust Collector DC-6	Y	233.50/142.43	1.17/0.71	100	Y	N
Meal Rail Loading Spout, M27 – PM/PM10	Dust Collector DC-6	Y	233.50/142.43	1.17/0.71	100	Y	N
Pellet Leg Feed Conveyor, F39 – PM/PM10	Dust Collector DC-7	Y	5.05/2.82	0.13/0.07	100	N	N
Fiber/Pellet Loadout Leg, F40 – PM/PM10	Dust Collector DC-7	Y	5.05/2.82	0.13/0.07	100	N	N
Fiber/Pellet Conveyor A, F41 – PM/PM10	Dust Collector DC-7	Y	5.05/2.82	0.13/0.07	100	N	N
Fiber/Pellet Conveyor B, F42 – PM/PM10	Dust Collector DC-7	Y	5.05/2.82	0.13/0.07	100	N	N
Fiber/Pellet Conveyor C, F43 – PM/PM10	Dust Collector DC-7	Y	5.05/2.82	0.13/0.07	100	N	N
Fiber/Pellet Loading Spout, F44 – PM/PM10	Dust Collector DC-7	Y	0.14/0.03	0.004/ 0.001	100	N	N
Fiber/Pellet Rail Loading Spout, F45 – PM/PM10	Dust Collector DC-7	Y	0.14/0.03	0.004/ 0.001	100	N	N
Ground Hull Storage, S121 – PM/PM10	Dust Collector DC-8	Y	2.07/0.52	0.13/0.03	100	N	N
Pellet Storage, S122 – PM/PM10	Dust Collector DC-9	Y	2.07/0.52	0.13/0.03	100	N	N
Silica Storage, S211 – PM/PM10	Dust Collector DC-10	Y	0.99/0.16	0.13/0.02	100	N	N
Bleach Clay Storage, S209 – PM/PM10	Dust Collector DC-11	Y	0.99/0.16	0.13/0.02	100	N	N
Filter Aid Storage, S210 – PM/PM10	Dust Collector DC-12	Y	0.99/0.16	0.13/0.02	100	N	N
Meal Dryer, DTDC – PM/PM10	DTDC Cyclone System CY20 – CY23	Y	1724.81/ 1054.05	15.70/9.59	100	Y	N

Emission Unit	Control Device Used	Emission Limitation (Y/N)	Uncontrolled PTE (tons/year)	Controlled PTE (tons/year)	Major Source Threshold (tons/year)	CAM Applicable (Y/N)	Large Unit (Y/N)
Meal Cooler, DTDC – PM/PM10	DTDC Cyclone System CY18 – CY19	Y	1726.23/ 1090.25	15.71/9.92	100	Y	N
Meal Dryer and Meal Cooler, DTDC - VOC	None	Y	224.7	224.7	N	N	N
Kaolin Storage, S212 – PM/PM10	Dust Collector DC-13	Y	9.90/1.60	0.13/0.02	100	N	N
Emergency Generators, EMG1, EMG2, EMG3 – all pollutants	None	N	<100	<100	100	N	N
Boilers, B1 and B2 - PM	None	Y	3.29	3.29	100	N	N
Boilers, B1 and B2 – PM10	None	Y	13.16	13.16	100	N	N
Boilers, B1 and B2 – SO2	None	N	1.04	1.04	100	N	N
Boiler, B1 - NOx	Low NOx burners and FGR	Y	<100	<100	100	N	N
Boiler, B2 - NOx	Low NOx burners and FGR	Y	<100	<100	100	N	N
Boiler, B1 – CO	Combustion Control	Y	<100	<100	100	N	N
Boiler, B2 – CO	Combustion Control	Y	<100	<100	100	N	N
Boilers, B1 and B2 – VOC	None	N	9.53	9.53	100	N	N
Grain Dryers, D100, D102, D103 – PM	None	Y	1.10	0.11	100	N	N
Grain Dryers, D100, D102, D103 – PM10	None	Y	4.41	0.44	100	N	N
Grain Dryers, D100, D102, D103 – SO2	None	N	0.35	0.03	100	N	N
Grain Dryers, D100, D102, D103 – NOx	Low NOx burners	Y	<100 each	<100 each	100	N	N
Grain Dryers, D100, D102, D103 – CO	Combustion Control	Y	<100 each	<100 each	100	N	N
Oil Extraction Process - VOC	DT/Extractor Condenser, Main Vent Condenser and Mineral Oil Absorber AB-1	Y	>100	86.52	100	N(1)	N

Emission Unit	Control Device Used	Emission Limitation (Y/N)	Uncontrolled PTE (tons/year)	Controlled PTE (tons/year)	Major Source Threshold (tons/year)	CAM Applicable (Y/N)	Large Unit (Y/N)
Biodiesel Process - VOC	Methanol Oil Scrubber and Methanol Water Scrubber	Y	106.1	1.88	100	Y	N
Storage Tanks S200 – S206 - VOC	None	N	<100	<100	100	N	N
Storage Tanks S217, S218, S220 – S222, S224 – S227, S230, S231, S250 – S253 - VOC	None	N	<100	<100	100	N	N

(1) The soybean oil extraction process is subject to NESHAP, 40 CFR 63, Subpart GGGG, which was proposed after November 15, 1990. Therefore, pursuant to 40 CFR 64.2(b)(1)(i), it is exempt from the requirements of 40 CFR Part 64, Compliance Assurance Monitoring.

Based on this evaluation, the requirements of 40 CFR Part 64, CAM are applicable to Hulloosenator 1 through 6 (P22-P27), Cascade Dryer 1 through 6 (P28-P33), Crackers 1 through 6 (P34-P39), Flakers (P47-P66), Whole Hull Grinding (F18-F22), Pelleter (F29-F32), Meal Screens (M4-M7), Meal Grinders (M9-M13), Meal Loadout Conveyor (M26), Meal Rail Loading Spout (M27), and the Meal Dryer and Meal Cooler (DTDC) for PM emissions upon issuance of the Title V Renewal. A CAM plan must be submitted as part of the Renewal application.

Based on this evaluation, the requirements of 40 CFR Part 64, CAM are applicable to Hulloosenator 1 through 6 (P22-P27), Crackers 1 through 6 (P34-P39), Flakers (P47-P66), Meal Screens (M4-M7), Meal Grinders (M9-M13), Meal Loadout Conveyor (M26), Meal Rail Loading Spout (M27), and the Meal Dryer and Meal Cooler (DTDC) for PM10 emissions upon issuance of the Title V Renewal. A CAM plan must be submitted as part of the Renewal application.

Based on this evaluation, the requirements of 40 CFR Part 64, CAM are applicable to the biodiesel process for VOC emissions upon issuance of the Title V Renewal. A CAM plan must be submitted as part of the Renewal application.

State Rule Applicability Determination

The following state rules are applicable to the source:

326 IAC 2-2 (PSD)
This is a new source and is a major stationary source because the emissions of at least one criteria pollutant are greater than two hundred fifty (>250) tons per year, and it is not in one of the twenty-eight (28) listed source categories as specified in 326 IAC 2-2-1(gg)(1). Therefore, pursuant to 326 IAC 2-2, the source is subject to the PSD requirements. Since the potential to emit of PM, PM10, VOC, CO and NOx are greater than the significant levels defined in 326 IAC 2-2-1, the source must apply best available control technology (BACT) for these pollutants.

See Appendix B for the detailed BACT analyses. An air quality analysis and additional impact analysis is included in Appendix C of this document.

Pursuant to 326 IAC 2-2-3 (BACT), the following limits shall apply:

(a) For the soybean oil extraction process utilizing DT technology exhausting through stack EP-14, BACT has been determined to be the following:

(1) A combined condenser and mineral oil absorber system for control of the extractor vent system with a VOC emission rate of 0.048 pound per ton of soybean received and a maximum VOC emissions rate of 13.02 pounds per hour.

(2) For the first twelve (12) months of operation, the overall solvent loss ratio shall not exceed 0.20 gallons per ton of soybean crushed from the entire source. After the first twelve (12) months of operation, the overall solvent loss ratio shall not exceed 0.134 gallons per ton of soybean crushed from the entire plant.

The first year solvent loss ratio is established as 0.2 gals/ton of soybean crushed to allow for start-up of these new emission units.

(3) The maximum annual soybean received shall not exceed 2,366,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(4) BACT for the fugitive hexane loss shall include an enhanced inspection, maintenance, and repair program Within 60 days of achieving full production, but no later than 180 days after initial startup, the Permittee shall institute the following enhanced inspection, maintenance, and repair program for the solvent extraction portion of the installation:

Table1

	Leak Standard
Pumps	500 ppm
Valves	500 ppm
Pressure relief Devices	500 ppm
Flanges, Connectors, and Seals	10,000 ppm

(A) The Permittee shall determine compliance with the standards in Table 1 by using the procedures of 40 CFR Part 60, Appendix A, Method 21. The instrument shall be calibrated before each day of its use by the procedures as specified in Method 21. A leak is defined as an instrument reading of 500 ppm above background or greater, except for flanges, connectors and seals where a leak is defined as 10,000 ppm above background.

(B) The Permittee shall immediately tag all detected leaks with a weatherproof and readily visible identification tag with a distinct number. Once a leaking component is detected, a first-attempt at repair must be made within five days and be completed within 15 days of detecting the leaking components. If the repair can not be accomplished within 15 days then the Permittee shall send a notice of inability to repair to the IDEM, OAQ. The notice must be received by the Compliance Branch, Office of Air Quality, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204 within 20 days after the leak was detected. At a minimum the notice shall include the following:

(i) equipment, operator, and instrument identification number;
(ii) date of leak detector;
(iii) measured concentration (ppm) and background (ppm);
(iv) leak identification number associated with the corresponding tag; and

(v) reason of inability to repair within 15 days of detection.

(C) The Permittee shall maintain records of the following to verify compliance with the enhanced inspection, maintenance, and repair program:

(i) equipment inspected;
(ii) date of inspection; and
(iii) determination of whether a leak was detected.

(D) If a leak is detected, the Permittee shall record the following information to verify compliance with the enhanced inspection, maintenance, and repair program:

(i) the equipment, operator, and instrument identification number;
(ii) measured concentration;
(iii) leak identification number associated with the corresponding tag;
(iv) date of repair;
(v) reason for non-repair if unable to repair within 15 days of detection;
(vi) maintenance re-check, if repaired, with date of re-check, measured concentration during re-check and background concentration.

(b) For the meal dryer and cooler (DTDC) exhausting through stack EP-15, BACT for VOC emissions has been determined to be the following:

(1) Total VOC emissions from the meal dryer and meal cooler, exhausting through stack EP-15, shall not exceed 0.17 pound per ton of soybean received, 0.03 gallons per ton of soybean, and 45.92 pounds of hexane per hour.

(2) The maximum annual soybean received shall not exceed 2,366,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(c) For the biodiesel production operation exhausting through stack EP-16, BACT has been determined to be the following:

(1) VOC emissions shall be controlled by a soy oil absorber followed by a water scrubber with a combined VOC control efficiency of 99%;

(2) VOC emissions shall not exceed 0.22 pound per hour without methanol unloading and 0.43 pounds per hour with methanol unloading.

(d) For the grain receiving (R1 through R9) exhausting through stack EP-1, BACT has been determined to be the following:

(1) PM emissions from stack EP-1 shall not exceed 0.76 pound per hour and 0.004 gr/dscf;

(2) PM10 emissions from stack EP-1 shall not exceed 0.40 pound per hour and 0.0025 gr/dscf;

(3) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-1.

(4) Hopper trucks shall be used for the truck receiving operations.

(5) Enclosures and intake hoods designed to minimize fugitive losses for the specific receiving application will have the air drawn to the fabric filter for the receiving areas. The conveying equipment shall be totally enclosed and the air drawn from the enclosed conveying equipment through the fabric filter will result in negative pressure within the conveying enclosure. This will ensure zero emissions from the conveying units.

(6) Fugitive emissions shall meet an opacity limit of 0% for the grain receiving.

(e) For the Grain Storage and Handling Operations (R10, P1 through P6, D1 through D13) exhausting through stack EP-2, BACT has been determined to be the following:

(1) PM emissions from stack EP-2 shall not exceed 0.68 pound per hour and 0.006 gr/dscf;

(2) PM10 emissions from stack EP-2 shall not exceed 0.38 pound per hour and 0.003 gr/dscf;

(3) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-2.

(4) The conveying equipment shall be totally enclosed by design and the air drawn from the enclosed conveying equipment through the fabric filter will result in negative pressure with the conveying enclosure. This will ensure zero emissions from the conveying units.

(5) Fugitive emissions shall meet an opacity limit of 0% for the grain handling and storage operations.

(f) For the Soybean Preparation and Handling Operations (P7 through P13, P11A, P12A, P17, P18, P22 through P66, P68, F1 through F24, F26 through F37) exhausting through stack EP-3, BACT has been determined to be the following:

(1) PM emissions from stack EP-3 shall not exceed 5.92 pounds per hour and 0.006 gr/dscf;

(2) PM10 emissions from stack EP-3 shall not exceed 3.16 pounds per hour and 0.003 gr/dscf;

(3) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-3.

(4) PM and PM10 emissions from the following operations shall be additionally controlled by the cyclone identified:

(A) Cyclone (CY-1) for the whole bean aspirator (P11-P12);
(B) Cyclones (CCD and CCC) for the cascade dryers 1 through 6 (P28-P33) and the cascade coolers 1 through 6 (P40-P45), respectively;
(C) Cyclone (CY-12) for the flaker feed conveyor (P46) and the flakers (P47-P66);
(D) Cyclone (CY-13) for the hull screeners (F3-F6);
(E) Cyclone (CY-14) for the secondary mid aspirators (F7-F10);
(F) Cyclone (CY-15) for the secondary “overs” aspirators (F11-F14);
(G) Cyclone (CY-16) for the whole hull grinding feed conveyor (F17), whole hull grinding (F18-F22), and the ground hull leg (F24);
(H) Cyclone (CY-17) for the ground hull storage outfeed conveyor (F26), the pellet feed leg (F27), pellet feed conveyor A (F28), the pelleter (F29-F32), the pelleter discharge conveyor (F33), the pellet leg (F34), the pellet cooler (F35), the pellet cooler discharge conveyor (F36), and the pellet

leg (F37).

(5) Fugitive emissions shall meet an opacity limit of 0% for the soybean preparation and handling operations.

(g) For the Jet Dryers and Vertical Seed Conditioners (VSCs) (P14 through P19) exhausting through stack EP-13, BACT has been determined to be the following:

(1) PM emissions from stack EP-13 shall not exceed 1.81 pounds per hour and 0.006 gr/dscf.

(2) PM10 emissions from stack EP-13 shall not exceed 0.66 pound per hour and 0.001 gr/dscf.

(3) PM and PM10 emissions from the three (3) vertical seed conditioners (VSC) shall be controlled by the high efficiency cyclones in series identified as the VSC & Jet Dryer Cyclone System CY2-CY3.

(4) PM and PM10 emissions from Jet Dryer 1 shall be controlled by the high efficiency cyclones in series identified as cyclones CY4 and CY5.

(5) PM and PM10 emissions from Jet Dryer 2 shall be controlled by the high efficiency cyclones in series identified as cyclones CY6 and CY7.

(6) PM and PM10 emissions from Jet Dryer 3 shall be controlled by the high efficiency cyclones in series identified as cyclones CY8 and CY9.

(h) For the Flaker Discharge Conveyor (P67) exhausting through stack EP-4, BACT has been determined to be the following:

(1) PM emissions from stack EP-4 shall not exceed 0.16 pound per hour and 0.006 gr/dscf.

(2) PM10 emissions from stack EP-4 shall not exceed 0.09 pound per hour and 0.003 gr/dscf.

(3) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-4.

(4) The conveying equipment shall be totally enclosed by design and the air drawn from the enclosed conveying equipment through the fabric filter will result in negative pressure with the conveying enclosure. This will ensure zero emissions from the conveying units.

(5) Fugitive emissions shall meet an opacity limit of 0% for the flaker discharge conveyor.

(i) For the Meal Grinding and Handling Operations (M1 – M16) exhausting through stack EP-5, BACT has been determined to be the following:

(1) PM emissions from stack EP-5 shall not exceed 2.57 pounds per hour and 0.006 gr/dscf.

(2) PM10 emissions from stack EP-5 shall not exceed 1.58 pounds per hour and 0.003 gr/dscf.

(3) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-5.

(4) Fugitive emissions shall meet an opacity limit of 0% for the meal grinding and handling operations (M1 – M16).

(j) For the Meal Loading Operations (M17-M27) exhausting through stack EP-6, BACT has been determined to be the following:

(1) PM emissions from stack EP-6 shall not exceed 0.94 pound per hour and 0.006 gr/dscf.

(2) PM10 emissions from stack EP-6 shall not exceed 0.54 pound per hour and 0.003 gr/dscf.

(3) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-6.

(4) The conveying equipment shall be totally enclosed by design and the air drawn from the enclosed conveying equipment through the fabric filter will result in negative pressure with the conveying enclosure. This will ensure zero emissions from the conveying units.

(5) Fugitive emissions shall meet an opacity limit of 0% for the meal loading operations.

(k) For the Meal Drying and Cooling Operations (DTDC) exhausting through stack EP-15, BACT for PM and PM10 emissions has been determined to be the following:

(1) Total PM emissions from stack EP-15 shall not exceed 7.17 pounds per hour and 0.0075 gr/dscf.

(2) Total PM10 emissions from stack EP-15 shall not exceed 4.46 pounds per hour and 0.005 gr/dscf.

(3) PM and PM10 emissions from the meal dryer shall be controlled by the high efficiency cyclones in series identified as Cyclones CY20 – CY23.

(4) PM and PM10 emissions from the meal cooler shall be controlled by the high efficiency cyclones in series identified as Cyclones CY18 and CY19.

(l) For the Fiber Loading and Handling Operations (F39-F45) exhausting through stack EP-7, BACT has been determined to be the following:

(1) PM emissions from stack EP-7 shall not exceed 0.15 pound per hour and 0.006 gr/dscf.

(2) PM10 emissions from stack EP-7 shall not exceed 0.08 pound per hour and 0.0024 gr/dscf.

(3) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-7.

(4) The conveying equipment shall be totally enclosed by design and the air drawn from the enclosed conveying equipment through the fabric filter will result in negative pressure with the conveying enclosure. This will ensure zero emissions from the conveying units.

(5) Fugitive emissions shall meet an opacity limit of 0% for the fiber loading and handling operations.

(m) For the Dry Material Handling and Storage Operations (S209 – S211) exhausting through stacks EP-10 – EP-12, BACT has been determined to be the following:

(1) PM emissions from each of stacks EP-10, EP-11, and EP-12 shall not exceed 0.03 pound per hour and 0.006 gr/dscf.

(2) PM10 emissions from each of stacks EP-10, EP-11, and EP-12 shall not exceed 0.005 pound per hour and 0.003 gr/dscf.

(3) PM and PM10 emissions shall be controlled by bin vent fabric filters identified as DC-10, DC-11, and DC-12.

(4) Fugitive emissions shall meet an opacity limit of 0% for each of the stacks EP-10, EP-11 and EP-12.

(n) For the Ground Hull, Pellet, and Kaolin Storage Units (S121, S122, and S212) exhausting through stacks EP-8, EP-9, and EP-19, BACT has been determined to be the following:

(1) PM emissions from each of stacks EP-8, EP-9, and EP-19 shall not exceed 0.03 pound per hour and 0.006 gr/dscf.

(2) PM10 emissions from each of stacks EP-8 and EP-9 shall not exceed 0.01 pound per hour and 0.002 gr/dscf.

(3) PM10 emissions from stack EP-19 shall not exceed 0.005 pound per hour and 0.002 gr/dscf.

(4) PM and PM10 emissions shall be controlled by bin vent fabric filters identified as DC-8, DC-9, and DC-19.

(5) Fugitive emissions shall meet an opacity limit of 0% for each of the stacks EP-8, EP-9 and EP-19.

(o) For the Boilers B1 and B2 exhausting through stack EP-17, BACT for NOx emissions has been determined to be the following:

(1) NOx emissions from each of the two natural gas fired boilers (197.7 MMBtu/hr each) shall not exceed the allowable NOx emission rate of 0.037 pounds/MMBtu heat input; and

(2) Each of the boilers shall be equipped with low NOx burners and flue gas recirculation systems. Installation and operation of the low NOx burners and the flue gas recirculation systems for the boilers are necessary to comply with the BACT emissions limits.

(p) For the three (3) grain dryers, BACT for NOx emissions has been determined to be the following:

(1) NOx emissions from each of the 45 MMBtu/hr natural gas fired grain dryers shall not exceed 0.12 pound per MMBtu heat input;

(2) Each of the grain dryers shall be equipped with a low NOx burner.

Installation and operation of the low NOx burner for each of the grain dryers is necessary to comply with the BACT emissions limit.

(q) For the Boilers B1 and B2 exhausting through stack EP-17 and the three (3) grain dryers exhausting fugitively, BACT for CO emissions has been determined to be the following:

(1) CO emissions from each of the 197.7 MMBtu per hour boilers shall not exceed 0.04 pounds per million Btu, corrected to 3% dry excess air in the exhaust gas of the boilers.

(2) CO emissions from each of the 45 MMBtu per hour grain dryers shall not exceed 0.29 pounds per million Btu, corrected to 3% dry excess air in the exhaust gas of the dryers.

(3) Emissions of CO from the boilers and grain dryers shall be controlled through the use of tight control on the combustion variables; especially the supply of fuel and air and the air/fuel mixing.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The operation of the soybean oil extraction process will emit greater than ten (10) tons per year for a single HAP and greater than twenty-five (25) tons per year for a combination of HAPs. Therefore, 326 IAC 2-4.1 would apply to the soybean oil extraction process, however, pursuant to 326 IAC 2-4.1-1(b)(2), because this process is specifically regulated by NESHAP 40 CFR 63, Subpart GGGG, which was issued pursuant to Section 112(d) of the CAA, the soybean oil extraction process is exempt from the requirements of 326 2-4.1.

The operation of the biodiesel manufacturing process will emit less than ten (10) tons per year for a single HAP and less than twenty-five (25) tons per year for a combination of HAPs from the methanol oil scrubber and methanol water scrubber. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 2-6 (Emission Reporting)
Since this source is required to obtain a Part 70 permit and has a potential to emit VOC greater than or equal to two hundred fifty (250) tons per year, an emission statement covering the previous calendar year must be submitted by July 1 of each year. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4.

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

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

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

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)
The units emitting particulate matter at this source are not subject to this rule because pursuant to 326 IAC 6-3-1(c)(1) and (5), if the particulate matter emission limit established in 326 IAC 2-2-3, concerning prevention of significant deterioration (PSD) best available control technology (BACT) determinations contained in a permit, or 326 IAC 12, concerning new source performance standards, are more stringent than the particulate emission limitation established in this rule, this rule does not apply. Therefore, since the PM emission limits pursuant to 326 IAC 2-2-3 (PSD BACT) for the following units are more stringent than the allowable PM emission limits pursuant to 326 IAC 6-3-2 for those units, they are not subject to this rule:

(a) Grain receiving (R1 through R9) exhausting through stack EP-1;

(b) Grain Storage and Handling Operations (R10, P1 through P6, D1 through D13) exhausting through stack EP-2;
(c) Soybean Preparation and Handling Operations (P7 through P13, P11A, P12A, P17, P18, P22 through P66, P68, F1 through F24, F26 through F37) exhausting through stack EP-3;
(d) Jet Dryers and Vertical Seed Conditioners (VSCs) (P14 through P19) exhausting through stack EP-13;
(e) Flaker Discharge Conveyor (P67) exhausting through stack EP-4;
(f) Meal Grinding and Handling Operations (M1 – M16) exhausting through stack EP-5;
(g) Meal Loading Operations (M17-M27) exhausting through stack EP-6;
(h) Meal Drying and Cooling Operations (DTDC) exhausting through stack EP-15;
(i) Fiber Loading and Handling Operations (F39-F45) exhausting through stack EP-7;
(j) Dry Material Handling and Storage Operations (S209 – S211) exhausting through stacks EP-10 – EP-12; and
(k) Ground Hull, Pellet, and Kaolin Storage Units (S121, S122, and S212) exhausting through stacks EP-8, EP-9, and EP-19.

Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the three (3) grain dryers shall not exceed 37.31 pounds per hour combined when operating at a process weight rate of 27 tons per hour.

The pound per hour limitation was calculated with the following equation:

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

$$E = 4.10\, P^{0.67}$$

where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

The uncontrolled PM emissions from the grain dryers are less than the allowable PM emissions pursuant to this rule, therefore, these units are in compliance with this rule.

The truck unloading station, truck loading station, railcar loading station, railcar unloading station, and all grain handling operations identified as R1 - R9, R10, P1 - P6, D1 - D13, and S100 – S107, are not subject to the requirements of this rule pursuant to 326 IAC 6-3-1(c)(5), because they are subject to more stringent particulate matter limitations pursuant to the NSPS, 40 CFR 60, Subpart DD, which is incorporated by reference as 326 IAC 12.

326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating)
Pursuant to 326 IAC 6-2-4, particulate emissions from each of the boilers B1 and B2 shall be limited by the following equation:

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

Where:
Pt = Pounds of particulate matter emitted per million Btu (lb/mmBtu) heat input.
Q = Total source maximum operating capacity rating in million Btu per hour (mmBtu/hr) heat input = 395.4 MMBtu/hr

Therefore, using the equation above, allowable PM emissions from each of the boilers B1 and B2 shall not exceed 0.23 pound per MMBtu of heat input. Based on the potential to emit of PM from each boiler of 0.38 pound per hour, each of the boilers has the potential to emit of 0.002 pound per MMBtu of heat input and both are in compliance with this rule.

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

326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
This source is subject to 326 IAC 6-5 for fugitive particulate matter emissions. Pursuant to 326 IAC 6-5, for any new source which has not received all the necessary preconstruction approvals before December 13, 1985, a fugitive dust control plan must be submitted, reviewed and approved. The fugitive dust control plan for this source includes the following:

Truck Receiving Dump #1 and #2
(1) Dumps will be located inside with fast moving bi-fold doors and all trucks will be hopper bottom.
(2) Pits will have a dust collection system.

Rail Receiving Dump
(1) Dumps will be located inside and all cars will be hopper bottom.
(2) Pits will have a dust collection system.

Truck Loading Fiber
(1) Loading station will be located indoors with fast moving bi-fold doors.

Rail Loading Fiber
(1) Loading station will be located indoors and hopper car tops will be dusted prior to shipment.

Truck Loading Protein
(1) Loading station will be located indoors with fast moving bi-fold doors
(2) Truck loading station will have a dust collection hood to collect fugitive dust the length of the truck.

Rail Loading Protein
(1) Loading station will be located indoors and hopper car tops will be dusted prior to shipment
(2) Rail loading will be equipped with a dust collection hood the length of the car to collect fugitive dust.

Soybean Storage Silos
(1) The silos will have bin vents to collect fugitive dust emissions.

1 million bushel Soybean Temporary Storage Pile
(1) Temporary Storage pile will be covered with a tarp.

Soybean Grain Dryers
(1) The dryers will operate no more than 876 hours per year.

Vehicle Traffic
(1) Roads will be paved and a street sweeper will be used to clean the roads on a weekly basis.

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)
This rule applies to all emissions units with a potential to emit twenty-five (25) tons per year or ten (10) pounds per hour of sulfur dioxide. None of the emission units at this source have the potential to emit of greater than 25 tons per year or 10 pounds per hour of sulfur dioxide. Therefore, this requirements of this rule do not apply to this source.

326 IAC 8-1-6 (New Facilities, General Reduction Requirements)
This rule applies to new facilities constructed after January 1, 1980 located anywhere in the state with potential VOC emissions of equal to or greater than 25 tons per year. Since the potential to emit of VOC from the hexane solvent extraction operation exhausting through stack EP-14, the meal dryer and cooler operations exhausting through stack EP-15, and the biodiesel reactor, vacuum pump and distillation system exhausting through stack EP-16, are each greater than 25 tons per year, these units are also subject to BACT under 326 IAC 8-1-6 (New Facilities, General Reduction Requirements). Pursuant to this rule, BACT for these units has been determined to be the following:

(a) For the soybean oil extraction process utilizing DT technology exhausting through stack EP-14, BACT has been determined to be the following:

(1) A combined condenser and mineral oil absorber system for control of the extractor vent system with a VOC emission rate of 0.048 pound per ton of soybean received and a maximum VOC emissions rate of 13.02 pounds per hour.

(2) For the first twelve (12) months of operation, the overall solvent loss ratio shall not exceed 0.20 gallons per ton of soybean crushed from the entire source. After the first twelve (12) months of operation, the overall solvent loss ratio shall not exceed 0.134 gallons per ton of soybean crushed from the entire plant.

The first year solvent loss ratio is established as 0.2 gals/ton of soybean crushed to allow for start-up of these new emission units.

(3) The maximum annual soybean received shall not exceed 2,366,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(4) BACT for the fugitive hexane loss shall include an enhanced inspection, maintenance, and repair program Within 60 days of achieving full production, but no later than 180 days after initial startup, the Permittee shall institute the following enhanced inspection, maintenance, and repair program for the solvent extraction portion of the installation:

Table1

	Leak Standard
Pumps	500 ppm
Valves	500 ppm
Pressure relief Devices	500 ppm
Flanges, Connectors, and Seals	10,000 ppm

(A) The Permittee shall determine compliance with the standards in Table 1 by using the procedures of 40 CFR Part 60, Appendix A, Method 21. The instrument shall be calibrated before each day of its use by the procedures as specified in Method 21. A leak is defined as an instrument reading of 500 ppm above background or greater, except for flanges, connectors and seals where a leak is defined as 10,000 ppm above background.

(B) The Permittee shall immediately tag all detected leaks with a weatherproof and readily visible identification tag with a distinct number. Once a leaking component is detected, a first-attempt at repair must be made within five days and be completed within 15 days of detecting the leaking components. If the repair can not be accomplished within 15 days then the Permittee shall send a notice of inability to repair to the IDEM, OAQ. The notice must be received by the Compliance Branch, Office of Air Quality, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204 within 20 days after the leak was detected. At a minimum the notice shall include the following:

(i) equipment, operator, and instrument identification number;
(ii) date of leak detector;
(iii) measured concentration (ppm) and background (ppm);
(iv) leak identification number associated with the corresponding tag; and
(v) reason of inability to repair within 15 days of detection.

(C) The Permittee shall maintain records of the following to verify compliance with the enhanced inspection, maintenance, and repair program:

(i) equipment inspected;
(ii) date of inspection; and
(iii) determination of whether a leak was detected.

(D) If a leak is detected, the Permittee shall record the following information to verify compliance with the enhanced inspection, maintenance, and repair program:

(i) the equipment, operator, and instrument identification number;
(ii) measured concentration;
(iii) leak identification number associated with the corresponding tag;
(iv) date of repair;
(v) reason for non-repair if unable to repair within 15 days of detection;
(vi) maintenance re-check, if repaired, with date of re-check, measured concentration during re-check and background concentration.

(b) For the meal dryer and cooler (DTDC) exhausting through stack EP-15, BACT for VOC emissions has been determined to be the following:

(1) Total VOC emissions from the meal dryer and meal cooler, exhausting through stack EP-15, shall not exceed 0.17 pound per ton of soybean received, 0.03 gallons per ton of soybean, and 45.92 pounds of hexane per hour.

(2) The maximum annual soybean received shall not exceed 2,366,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(c) For the biodiesel production operation exhausting through stack EP-16, BACT has been determined to be the following:

(1) VOC emissions shall be controlled by a soy oil absorber followed by a water scrubber with a combined VOC control efficiency of 99%;

(2) VOC emissions shall not exceed 0.22 pound per hour without methanol unloading and 0.43 pounds per hour with methanol unloading.

(d) VOC emissions from each of the storage tanks are less than 25 tons per year each. Therefore, the requirements of 326 IAC 8-1-6 do not apply to these emission units.

326 IAC 8-3-2 (Cold Cleaner Operations)
The cold cleaner degreasing operation is subject to this rule because it is a cold cleaning operation that was constructed after January 1, 1980. Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operations), for cold cleaning operations constructed after January 1, 1980, the Permittee shall:

(a) Equip the cleaner with a cover;

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

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

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

(e) Provide a permanent, conspicuous label summarizing the operation requirements;

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

326 IAC 8-3-5(a) (Cold Cleaner Degreaser Operation and Control)
The cold cleaner degreasing operation is subject to this rule because it is a cold cleaner degreasing operation without a remote solvent reservoir that was constructed after July 1, 1990. Pursuant to this rule, for cold cleaner degreaser operations without remote solvent reservoirs constructed after July 1, 1990, the Permittee shall ensure that the following control equipment requirements are met:

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

(A) The solvent volatility is greater than two (2) kiloPascals (fifteen (15) millimeters of mercury or three-tenths (0.3) pounds per square inch) measured at thirty-eight degrees Celsius (38ºC) (one hundred degrees Fahrenheit (100ºF));

(B) The solvent is agitated; or

(C) The solvent is heated.

(2) Equip the degreaser with a facility for draining cleaned articles. If the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38ºC) (one hundred degrees Fahrenheit (100ºF)), then the drainage facility must be internal such that articles are enclosed under the cover while draining. The drainage facility may be external for applications where an internal type cannot fit into the cleaning system.

(3) Provide a permanent, conspicuous label which lists the operating requirements outlined in subsection (b).

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

(5) Equip the degreaser with one (1) of the following control devices if the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38ºC) (one hundred degrees Fahrenheit (100ºF)), or if the solvent is heated to a temperature greater than forty-eight and nine-tenths degrees Celsius (48.9ºC) (one hundred twenty degrees Fahrenheit (120ºF)):

(A) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.

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

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

Pursuant to 326 IAC 8-3-5(b) (Cold Cleaner Degreaser Operation and Control), the owner or operator of a cold cleaning facility construction of which commenced after July 1, 1990, shall ensure that the following operating requirements are met:

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

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

(3) Store waste solvent only in covered containers and prohibit the disposal or transfer of waste solvent in any manner in which greater than twenty percent (20%) of the waste solvent by weight could evaporate.

Compliance Determination and Monitoring Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with all applicable state and federal rules on a continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a continuous demonstration. When this occurs, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, Compliance Determination Requirements are included in the permit. The Compliance Determination Requirements in Section D of the permit are those conditions that are found directly within state and federal rules and the violation of which serves as grounds for enforcement action.

If the Compliance Determination Requirements are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also in Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source=s failure to take the appropriate corrective actions within a specific time period.

The Compliance Determination Requirements applicable to this modification are as follows:

(a) The facilities at this source listed below have applicable compliance determination conditions as specified below:

Emission Unit	Control Device	Timeframe for Testing	Pollutant	Frequency of Testing	Limit or Requirement
Grain receiving (R1 through R9) exhausting through stack EP-1	Dust Collector DC-1	Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup	PM and PM10	Once every five years	PM emissions shall not exceed 0.76 lb/hr and 0.004 gr/dscf; PM10 emissions shall not exceed 0.40 lb/hr and 0.0025 gr/dscf.
Grain Storage and Handling Operations (R10, P1 through P6, D1 through D13) exhausting through stack EP-2	Dust Collector DC-2	Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup	PM and PM10	Once every five years	PM emissions shall not exceed 0.68 lb/hr and 0.006 gr/dscf; PM10 emissions shall not exceed 0.38 lb/hr and 0.003 gr/dscf.
Soybean Preparation and Handling Operations (P7 through P13, P11A, P12A, P17, P18, P22 through P66, P68, F1 through F24, F26 through F37) exhausting through stack EP-3	Dust Collector DC-3, cyclone CY-1, CCC cyclone, CCD cyclone, cyclone CY-12 through CY-17	Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup	PM and PM10	Once every five years	PM emissions shall not exceed 5.92 lb/hr and 0.006 gr/dscf; PM10 emissions shall not exceed 3.16 lb/hr and 0.003 gr/dscf.
Flaker Discharge Conveyor (P67) exhausting through stack EP-4	Dust Collector DC-4	Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup	PM and PM10	Once every five years	PM emissions shall not exceed 0.16 lb/hr and 0.006 gr/dscf; PM10 emissions shall not exceed 0.09 lb/hr and 0.003 gr/dscf.
Meal Grinding and Handling Operations (M1 – M16) exhausting through stack EP-5	Dust Collector DC-5	Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup	PM and PM10	Once every five years	PM emissions shall not exceed 2.57 lbs/hr and 0.006 gr/dscf; PM10 emissions shall not exceed 1.58 lb/hr and 0.003 gr/dscf.
Meal Loading Operations (M17-M27) exhausting through stack EP-6	Dust Collector DC-6	Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup	PM and PM10	Once every five years	PM emissions shall not exceed 0.94 lbs/hr and 0.006 gr/dscf; PM10 emissions shall not exceed 0.54 lb/hr and 0.003 gr/dscf.

Emission Unit	Control Device	Timeframe for Testing	Pollutant	Frequency of Testing	Limit or Requirement
Fiber Loading and Handling Operations (F39-F45) exhausting through stack EP-7	Dust Collector DC-7	Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup	PM and PM10	Once every five years	PM emissions shall not exceed 0.15 lbs/hr and 0.006 gr/dscf; PM10 emissions shall not exceed 0.08 lb/hr and 0.0024 gr/dscf.
Jet Dryers and Vertical Seed Conditioners (VSCs) (P14 through P19) exhausting through stack EP-13	High efficiency cyclones in series identified as CY-2 through CY-9	Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup	PM and PM10	Once every five years	PM emissions shall not exceed 1.81 lb/hr and 0.006 gr/dscf; PM10 emissions shall not exceed 0.66 lb/hr and 0.001 gr/dscf.
Soybean oil extraction process exhausting through stack EP-14	A combined condenser and mineral oil absorber system	Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup	VOC	Once every five years	VOC emissions shall not exceed 0.048 lb/ton of soybean received and 13.02 lbs/hr. The overall solvent loss ratio shall not exceed 0.20 gallon/ton of soybean crushed for first year, then the overall solvent loss ratio shall not exceed 0.134 gallon/ton of soybean crushed.
Meal Drying and Cooling Operations (DTDC) exhausting through stack EP-15	High efficiency cyclones in series identified as CY18 through CY23	Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup	PM and PM10	Once every five years	PM emissions shall not exceed 7.17 lbs/hr and 0.0075 gr/dscf; PM10 emissions shall not exceed 4.46 lb/hr and 0.005 gr/dscf.
Meal Drying and Cooling Operations (DTDC) exhausting through stack EP-15	None	Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup	VOC	Once every five years	VOC emissions shall not exceed 0.17 lb/ton soybean received, 0.03 gal/ton soybean and 45.92 lbs/hr of hexane.

Emission Unit	Control Device	Timeframe for Testing	Pollutant	Frequency of Testing	Limit or Requirement
Biodiesel production operation exhausting through stack EP-16	Soy oil absorber followed by a water scrubber	Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup	VOC	Once every five years	VOC emissions shall not exceed 0.22 lb/hr w/out methanol unloading and 0.43 lb/hr with methanol unloading
One (1) of the two (2) identical boilers B1 or B2 exhausting through stack EP-17	Combustion controls	Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup	CO	Once every five years	CO emissions shall not exceed 0.04 lb/MMBtu, corrected to 3% dry excess air.
One (1) of the three (3) identical grain dryers D100, D102, and D103	Low NOx burner	Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup	NOx	Once every five years	NOx emissions shall not exceed 0.12 lb/MMBtu heat input
One (1) of the three (3) identical grain dryers D100, D102, and D103	Combustion controls	Within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup	CO	Once every five years	CO emissions shall not exceed 0.29 pounds per million Btu, corrected to 3% dry excess air.

Note: PM10 includes filterable and condensable PM10.

(b) There are no PM and PM10 testing requirements for the Dry Material Handling and Storage Operations (S209 – S211) exhausting through stacks EP-10 – EP-12 and the Ground Hull, Pellet, and Kaolin Storage Units (S121, S122, and S212) exhausting through stacks EP-8, EP-9, and EP-19 because combined potential emissions of PM and PM10 are less than 40 tons per year and less than 40% of the PTE before controls for each of PM and PM10.

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

(a) The facilities at this source listed below have applicable compliance monitoring conditions as specified below:

Control	Parameter	Frequency	Range	Excursions and Exceedances
Dust Collectors DC-1, DC-2, DC-3, DC-4, DC-5, DC-6, DC-7, and bin vent fabric filters DC-8, DC-9, DC-10, DC-11, DC-12, and DC-19	Visible emission notations	Daily	Normal-Abnormal	Response Steps
	Pressure Drop	Daily	3” – 6” of water or a range established during the latest stack test	

Control	Parameter	Frequency	Range	Excursions and Exceedances
Cyclones CCC, CCD, CY-1 through CY-9, CY-12 through CY-23	Visible emission notations	Daily	Normal-Abnormal	Response Steps
	High level indicator alarm		Above a set level as recommended by the manufacturer	
Mineral Oil Absorber AB-1	Mineral oil flow rate	Daily	Minimum flow rate as recommended by the manufacturer or the flow rate established during the latest stack test	Response steps
Mineral Oil Absorber AB-1	3-hour average of mineral oil temperature	Continuous	Minimum temperature as recommended by the manufacturer or the minimum temperature established during the latest stack test	Response steps
Soy Oil Absorber AB-2	Soy oil flow rate	Daily	Minimum flow rate as recommended by the manufacturer or the flow rate established during the latest stack test	Response steps
	3-hour average of soy oil temperature	Continuous	Minimum temperature as recommended by the manufacturer or the minimum temperature established during the latest stack test	Response steps
Water Scrubber AB-3	Water flow rate	Daily	Minimum flow rate as recommended by the manufacturer or the flow rate established during the latest stack test	Response steps

Control	Parameter	Frequency	Range	Excursions and Exceedances
Water Scrubber AB-3	3-hour average of water temperature	Continuous	Minimum temperature as recommended by the manufacturer or the minimum temperature established during the latest stack test	Response steps

The monitoring conditions for the dust collectors and cyclones are necessary because the dust collectors and cyclones must operate properly to ensure compliance with 326 IAC 2-2-3 (PSD BACT), 40 CFR 60, Subpart DD, and 326 IAC 2-7 (Part 70)).

The monitoring conditions for the mineral oil absorber, the soy oil absorber, and the water scrubber are necessary because these control devices must operate properly to ensure compliance with 326 IAC 2-2-3 (PSD BACT), 326 IAC 8-1-6 (BACT), 40 CFR 60, Subpart NNN, 40 CFR 63, Subpart GGGG, and 326 IAC 2-7 (Part 70)).

(b) The boilers B1 and B2 have applicable compliance monitoring conditions as specified below:

(1) Pursuant to 326 IAC 3-5, continuous emission monitoring systems (CEMS) for boiler B1 and boiler B2 shall be installed, calibrated, maintained, and operated for measuring NOx and O_2 which meet all applicable performance specifications of 326 IAC 3-5-2.

(2) All continuous emission monitoring systems are subject to monitor system certification requirements pursuant to 326 IAC 3-5-3.

(3) Pursuant to 326 IAC 3-5-4, if revisions are made to the continuous monitoring standard operating procedures (SOP), the Permittee shall submit updates to the department biennially.

(4) Relative accuracy tests and routine quarterly audits shall be performed in accordance with the contents of the standard operating procedures (SOP) pursuant to 326 IAC 3-5-5.

(5) Nothing in this permit shall excuse the Permittee from complying with the requirements to operate a continuous emission monitoring system pursuant to 326 IAC 3-5 and 40 CFR Part 60.

These monitoring conditions are necessary because the boilers must operate properly to ensure compliance with 326 IAC 2-2-3 (PSD BACT), 40 CFR 60, Subpart Db, and 326 IAC 2-7 (Part 70)).

Conclusion and Recommendation

The construction of this proposed new source shall be subject to the conditions of the attached proposed Part 70 Operating Permit No. T087-24953-00069. The staff recommends to the Commissioner that this Part 70 Operating Permit be approved.

Appendix A: Emission Calculations
Receiving, Storage, & Handling Sources (DC1) (EP-1)

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 13, 2007

			Percent of		Emission Factors		Uncontrolled PTE				Overall Control	PTE After Control				
			Total Plant	Annual Throughput		PM10	PM		PM10		Efficiency	PM		PM10		Emission Factor Source AP-42
Unit ID	Stack ID	Unit Description	Throughput	Rate (tons/yr)	PM (lb/ton)	(lb/ton)	lb/hr	tons/yr	lb/hr	tons/yr	%	lb/hr	tons/yr	lb/hr	tons/yr	Chapter 9.9.1, Table 9.9.1-1
R1	EP-1	Nonfugitive Truck Receiving Dump #1	25.0%	591500	0.035	0.0078	2.36	10.35	0.53	2.31	99.3%	0.02	0.07	0.00	0.02	AP-42 (SCC 3-02-005-52)
R2	EP-1	Nonfugitive Truck Receiving Dump #2	25.0%	591500	0.035	0.0078	2.36	10.35	0.53	2.31	99.3%	0.02	0.07	0.00	0.02	AP-42 (SCC 3-02-005-52)
R3	EP-1	Nonfugitive Rail Receiving Dump	50.0%	1183000	0.032	0.0078	4.32	18.93	1.05	4.61	99.3%	0.03	0.13	0.01	0.03	AP-42 (SCC 3-02-005-53)
R4	EP-1	Receiving Dump Drag #1	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.3%	0.12	0.51	0.06	0.28	AP-42 (SCC 3-02-005-30)
R5	EP-1	Receiving Dump Drag #2	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.3%	0.12	0.51	0.06	0.28	AP-42 (SCC 3-02-005-30)
R6	EP-1	Receiving Dump Leg	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.3%	0.12	0.51	0.06	0.28	AP-42 (SCC 3-02-005-30)
R7	EP-1	Receiving Crossyard Conveyor	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.3%	0.12	0.51	0.06	0.28	AP-42 (SCC 3-02-005-30)
R8	EP-1	Distribution Conveyor A	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.3%	0.12	0.51	0.06	0.28	AP-42 (SCC 3-02-005-30)
R9	EP-1	Distribution Conveyor B	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.3%	0.12	0.51	0.06	0.28	AP-42 (SCC 3-02-005-30)
							107.90	**472.61**	**57.21**	**250.56**		**0.76**	**3.31**	**0.40**	**1.75**	

Methodology:
Uncontrolled PTE (tons/year) = Annual Throughput Rate (tons/year) x Emission Factors (lb/ton) x 1 ton/2000 lbs
PTE After Control (tons/year) = Uncontrolled PTE (tons/year) x (1 - Overall Control Efficiency %)

Appendix A: Emission Calculations
Cleaning, Drying & Crossyard Conveyors (DC2) (EP-2)

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 13, 2007

Unit ID	Stack ID	Unit Description	Percent of Total Plant Throughput	Annual Throughput Rate (tons)	Emission Factors PM (lb/ton)	Emission Factors PM10 (lb/ton)	Uncontrolled PTE PM lb/hr	Uncontrolled PTE PM tons/yr	Uncontrolled PTE PM10 lb/hr	Uncontrolled PTE PM10 tons/yr	Overall Control Efficiency %	PTE After Control PM lb/hr	PTE After Control PM tons/yr	PTE After Control PM10 lb/hr	PTE After Control PM10 tons/yr	Emission Factor Source AP-42 Chapter 9.9.1, Table 9.9.1-1
R10	EP-2	Distribution Conveyor C	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.5%	0.08	0.36	0.05	0.20	AP-42 (SCC 3-02-005-30)
P1	EP-2	Discharge Conveyor A	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.5%	0.08	0.36	0.05	0.20	AP-42 (SCC 3-02-005-30)
P2	EP-2	Discharge Conveyor B	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.5%	0.08	0.36	0.05	0.20	AP-42 (SCC 3-02-005-30)
P3	EP-2	Leg Feed Conveyor	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.5%	0.08	0.36	0.05	0.20	AP-42 (SCC 3-02-005-30)
D1	EP-2	Cleaning Conveyor	10.0%	236600	0.061	0.034	1.65	7.22	0.92	4.02	99.5%	0.01	0.04	0.00	0.02	AP-42 (SCC 3-02-005-30)
D2	EP-2	Cleaning Leg	10.0%	236600	0.061	0.034	1.65	7.22	0.92	4.02	99.5%	0.01	0.04	0.00	0.02	AP-42 (SCC 3-02-005-30)
D3	EP-2	Cleaner Distribution Conveyor	10.0%	236600	0.061	0.034	1.65	7.22	0.92	4.02	99.5%	0.01	0.04	0.00	0.02	AP-42 (SCC 3-02-005-30)
D4	EP-2	Cleaner A	10.0%	236600	0.061	0.034	1.65	7.22	0.92	4.02	99.5%	0.01	0.04	0.00	0.02	AP-42 (SCC 3-02-005-30)
D5	EP-2	Cleaner B	10.0%	236600	0.061	0.034	1.65	7.22	0.92	4.02	99.5%	0.01	0.04	0.00	0.02	AP-42 (SCC 3-02-005-30)
D6	EP-2	Screenings Collection Conveyor	10.0%	236600	0.061	0.034	1.65	7.22	0.92	4.02	99.5%	0.01	0.04	0.00	0.02	AP-42 (SCC 3-02-005-30)
D7	EP-2	Screenings Leg	10.0%	236600	0.061	0.034	1.65	7.22	0.92	4.02	99.5%	0.01	0.04	0.00	0.02	AP-42 (SCC 3-02-005-30)
D8	EP-2	Cleaned Bean Collection Conveyor	10.0%	236600	0.061	0.034	1.65	7.22	0.92	4.02	99.5%	0.01	0.04	0.00	0.02	AP-42 (SCC 3-02-005-30)
D9	EP-2	Dryer Wet Leg	10.0%	236600	0.061	0.034	1.65	7.22	0.92	4.02	99.5%	0.01	0.04	0.00	0.02	AP-42 (SCC 3-02-005-30)
D10	EP-2	Dryer Distribution Conveyor	10.0%	236600	0.061	0.034	1.65	7.22	0.92	4.02	99.5%	0.01	0.04	0.00	0.02	AP-42 (SCC 3-02-005-30)
D11	EP-2	Dryer Collection Conveyor	10.0%	236600	0.061	0.034	1.65	7.22	0.92	4.02	99.5%	0.01	0.04	0.00	0.02	AP-42 (SCC 3-02-005-30)
D12	EP-2	Dry Leg	10.0%	236600	0.061	0.034	1.65	7.22	0.92	4.02	99.5%	0.01	0.04	0.00	0.02	AP-42 (SCC 3-02-005-30)
D13	EP-2	Transfer Conveyor	10.0%	236600	0.061	0.034	1.65	7.22	0.92	4.02	99.5%	0.01	0.04	0.00	0.02	AP-42 (SCC 3-02-005-30)
P4	EP-2	Discharge Leg	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.5%	0.08	0.36	0.05	0.20	AP-42 (SCC 3-02-005-30)
P5	EP-2	Prep Crossyard Conveyor A	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.5%	0.08	0.36	0.05	0.20	AP-42 (SCC 3-02-005-30)
P6	EP-2	Prep Crossyard Conveyor B	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.5%	0.08	0.36	0.05	0.20	AP-42 (SCC 3-02-005-30)
							136.75	**598.95**	**76.22**	**333.84**		**0.68**	**2.99**	**0.38**	**1.67**	

Methodology:
Uncontrolled PTE (tons/year) = Annual Throughput Rate (tons/year) x Emission Factors (lb/ton) x 1 ton/2000 lbs
PTE After Control (tons/year) = Uncontrolled PTE (tons/year) x (1 - Overall Control Efficiency %)

Appendix A: Emission Calculations
Bean Preparation (DC3) (EP-3)

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 13, 2007

			Percent of		Emission Factors		Uncontrolled PTE				Overall Control		PTE After Control				Emission Factor Source AP-42
			Total Plant	Annual Throughput		PM10	PM		PM10		Efficiency %		PM		PM10		Chapter 9.9.1, Tables 9.9.1-1
Unit ID	Stack ID	Unit Description	Throughput	Rate (tons)	PM (lb/ton)	(lb/ton)	lb/hr	tons/yr	lb/hr	tons/yr	Primary	Secondary	lb/hr	tons/yr	lb/hr	tons/yr	and 9.9.1-2
P7	EP-3	Prep Crossyard Conveyor C	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.0%	--	0.16	0.72	0.09	0.40	AP-42 (SCC 3-02-005-30)
P8	EP-3	Whole Bean Scale Belt	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.0%	--	0.16	0.72	0.09	0.40	AP-42 (SCC 3-02-005-30)
P9-P10	EP-3	Scalper/Destoner	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.0%	--	0.16	0.72	0.09	0.40	AP-42 (SCC 3-02-005-30)
P11-P12	EP-3	Whole Bean Aspirator	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.0%	--	0.16	0.72	0.09	0.40	AP-42 (SCC 3-02-005-30)
P11A	EP-3	Cleaner A	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.0%	--	0.16	0.72	0.09	0.40	AP-42 (SCC 3-02-005-30)
P12A	EP-3	Cleaner B	10.0%	236600	0.061	0.034	1.65	7.22	0.92	4.02	99.0%	--	0.02	0.07	0.01	0.04	AP-42 (SCC 3-02-005-30)
P13	EP-3	VSC Feed Conveyor	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.0%	--	0.16	0.72	0.09	0.40	AP-42 (SCC 3-02-005-30)
P20	EP-3	Conditioned Bean L-Path	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.0%	--	0.16	0.72	0.09	0.40	AP-42 (SCC 3-02-005-30)
P21	EP-3	Jet Dryer Feed Conveyor	100.0%	2366000	0.061	0.034	16.48	72.16	9.18	40.22	99.0%	--	0.16	0.72	0.09	0.40	AP-42 (SCC 3-02-005-30)
P22-P27	EP-3	Hulloosenator 1-6	100.0%	2366000	0.36	0.22	97.23	425.88	59.42	260.26	99.0%	--	0.97	4.26	0.59	2.60	AP-42 (SCC 3-02-007-85)[1]
P28-P33	EP-3	Cascade Dryer (CCD) 1-6	100.0%	2366000	0.22	0.055	59.42	260.26	14.86	65.07	99.0%	--	0.59	2.60	0.15	0.65	AP-42 (SCC 3-02-005-27)
P34-P39	EP-3	Crackers 1-6	100.0%	2366000	0.36	0.22	97.23	425.88	59.42	260.26	99.0%	--	0.97	4.26	0.59	2.60	AP-42 (SCC 3-02-007-85)[1]
P40-P45	EP-3	Cascade Coolers (CCC) 1-6	100.0%	2366000	0.01	0.0061	2.70	11.83	1.65	7.22	99.0%	--	0.03	0.12	0.02	0.07	AP-42 (SCC 3-02-007-87)[1]
P46	EP-3	Flaker Feed Conveyor	95.0%	2247700	0.061	0.034	15.65	68.55	8.72	38.21	99.0%	--	0.16	0.69	0.09	0.38	AP-42 (SCC 3-02-005-30)
P47-P66	EP-3	Flakers	95.0%	2247700	0.37	0.23	94.94	415.82	57.91	253.65	99.0%	--	0.95	4.16	0.58	2.54	AP-42 (SCC 3-02-007-88)[1]
P68	EP-3	DC 3 Bottoms Leg	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F1	EP-3	Primary Whole Hull Conveyor	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F2	EP-3	Secondary Whole Hull Conveyor	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F3-F6	EP-3	Hull Screeners	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F7-F10	EP-3	Secondary Mid Aspirators	5.3%	124215	0.32	0.034	4.54	19.87	0.48	2.11	99.0%	--	0.05	0.20	0.00	0.02	AP-42 (SCC 3-02-005-30)
F11-F14	EP-3	Secondary "Overs" Aspirators	1.7%	40222	0.32	0.034	1.47	6.44	0.16	0.68	99.0%	--	0.01	0.06	0.00	0.01	AP-42 (SCC 3-02-005-30)
F15	EP-3	Secondary Whole Hull Recycle	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F16	EP-3	Whole Hull Conveyor	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F17	EP-3	Whole Hull Grinding Feed Conveyor	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F18-F22	EP-3	Whole Hull Grinding	7.0%	165620	2	0.75	37.81	165.62	14.18	62.11	99.0%	--	0.38	1.66	0.14	0.62	AP-42 (SCC 3-02-007-86)[2]
F23	EP-3	Ground Hull Conveyor	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F24	EP-3	Ground Hull Leg	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F26	EP-3	Ground Hull Storage Outfeed Conveyor	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F27	EP-3	Pellet Feed Leg	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F28	EP-3	Pellet Feed Conveyor A	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F29-F32	EP-3	Pelleter	7.0%	165620	1.5	0.75	28.36	124.22	14.18	62.11	99.0%	--	0.28	1.24	0.14	0.62	AP-42 (SCC 3-02-008-16)[3]
F33	EP-3	Pelleter Discharge Conveyor	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F34	EP-3	Pellet Leg	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F35	EP-3	Pellet Cooler	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F36	EP-3	Pellet Cooler Discharge Conveyor	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
F37	EP-3	Pellet Leg	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	99.0%	--	0.01	0.05	0.01	0.03	AP-42 (SCC 3-02-005-30)
							592.41	**2594.77**	**316.29**	**1385.34**			**5.92**	**25.95**	**3.16**	**13.85**	

Notes:

(1) Emission factors were obtained from a Title V permit for a similar facility (Title V Permit No. T085-21297-00102, issued on Jan. 24, 2006 to Louis Dreyfus Agricultural Industries, LLC). The ratio of PM to PM10 is assumed to be 0.61.

(2) PM emission factor obtained from U.S. EPA's WebFIRE emission factor database. PM to PM10 ratio is assumed to be 0.375.

(3) Emission factors are based on AP-42 emission factors after control by a cyclone. To determine the uncontrolled emission factors, a cyclone control efficiency of 90% was assumed.

Methodology:

Uncontrolled PTE (tons/year) = Annual Throughput Rate (tons/year) x Emission Factors (lb/ton) x 1 ton/2000 lbs

PTE After Control (tons/year) = Uncontrolled PTE (tons/year) x (1 - Overall Control Efficiency %)

Appendix A: Emission Calculations

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 13, 2007

Jet Dryer & Vertical Seed Conditioners (EP-13)

			Percent of		Emission Factors		Uncontrolled PTE				Overall Control		PTE After Control				
			Total Plant	Annual Throughput	PM	PM10	PM		PM10		Efficiency %		PM		PM10		Emission Factor Source AP-42
Unit ID	Stack ID	Unit Description	Throughput	Rate (tons)	(lb/ton)	(lb/ton)	lb/hr	tons/yr	lb/hr	tons/yr	Primary	Secondary	lb/hr	tons/yr	lb/hr	tons/yr	Chapter 9.9.1, Table 9.9.1-1
P14	EP-13	Vertical Seed Conditioner 1	33.3%	788588	0.1	0.061	9.00	39.43	5.49	24.05	93.0%	70.0%	0.19	0.83	0.12	0.51	AP-42 (SCC 3-02-007-87)[2]
P15	EP-13	Vertical Seed Conditioner 2	33.3%	788588	0.1	0.061	9.00	39.43	5.49	24.05	93.0%	70.0%	0.19	0.83	0.12	0.51	AP-42 (SCC 3-02-007-87)[2]
P16	EP-13	Vertical Seed Conditioner 3	33.3%	788588	0.1	0.061	9.00	39.43	5.49	24.05	93.0%	70.0%	0.19	0.83	0.12	0.51	AP-42 (SCC 3-02-007-87)[2]
P17	EP-13	Jet Dryer 1	33.3%	788588	0.22	0.055	19.80	86.74	4.95	21.69	93.0%	70.0%	0.42	1.82	0.10	0.46	AP-42 (SCC 3-02-005-27)
P18	EP-13	Jet Dryer 2	33.3%	788588	0.22	0.055	19.80	86.74	4.95	21.69	93.0%	70.0%	0.42	1.82	0.10	0.46	AP-42 (SCC 3-02-005-27)
P19	EP-13	Jet Dryer 3	33.3%	788588	0.22	0.055	19.80	86.74	4.95	21.69	93.0%	70.0%	0.42	1.82	0.10	0.46	AP-42 (SCC 3-02-005-27)
							86.42	**378.52**	**31.33**	**137.21**			**1.81**	**7.95**	**0.66**	**2.88**	

Flaker Aspiration (EP-4)

			Percent of		Emission Factors		Uncontrolled PTE				Overall Control		PTE After Control				
			Total Plant	Annual Throughput	PM	PM10	PM		PM10		Efficiency %		PM		PM10		Emission Factor Source AP-42
Unit ID	Stack ID	Unit Description	Throughput	Rate (tons)	(lb/ton)	(lb/ton)	lb/hr	tons/yr	lb/hr	tons/yr	Primary	Secondary	lb/hr	tons/yr	lb/hr	tons/yr	Chapter 9.9.1, Table 9.9.1-1
P67	EP-4	Flaker Discharge Conveyor	95.0%	2247700	0.061	0.034	15.65	68.55	8.72	38.21	99.0%	--	0.16	0.69	0.09	0.38	AP-42 (SCC 3-02-005-30)
							15.65	**68.55**	**8.72**	**38.21**			**0.16**	**0.69**	**0.09**	**0.38**	

Meal Grinding (EP-5)

			Percent of		Emission Factors		Uncontrolled PTE				Overall Control		PTE After Control				
			Total Plant	Annual Throughput	PM	PM10	PM		PM10		Efficiency %		PM		PM10		Emission Factor Source AP-42
Unit ID	Stack ID	Unit Description	Throughput	Rate (tons)	(lb/ton)	(lb/ton)	lb/hr	tons/yr	lb/hr	tons/yr	Primary	Secondary	lb/hr	tons/yr	lb/hr	tons/yr	Chapter 9.9.1, Table 9.9.1-1
M1	EP-5	Meal Conveyor	76.8%	1817088	0.061	0.034	12.65	55.42	7.05	30.89	99.8%	--	0.02	0.10	0.01	0.05	AP-42 (SCC 3-02-005-30)
M2	EP-5	Meal Leg	76.8%	1817088	0.061	0.034	12.65	55.42	7.05	30.89	99.8%	--	0.02	0.10	0.01	0.05	AP-42 (SCC 3-02-005-30)
M3	EP-5	Meal Conveyor	76.8%	1817088	0.061	0.034	12.65	55.42	7.05	30.89	99.8%	--	0.02	0.10	0.01	0.05	AP-42 (SCC 3-02-005-30)
M4-M7	EP-5	Meal Screens	76.8%	1817088	3.4	2.1	705.26	3089.05	435.60	1907.94	99.8%	--	1.21	5.30	0.75	3.27	AP-42 (SCC 3-02-007-93)[1]
M8	EP-5	Meal Conveyor	76.8%	1817088	0.061	0.034	12.65	55.42	7.05	30.89	99.8%	--	0.02	0.10	0.01	0.05	AP-42 (SCC 3-02-005-30)
M9-M13	EP-5	Meal Grinders	76.8%	1817088	3.4	2.1	705.26	3089.05	435.60	1907.94	99.8%	--	1.21	5.30	0.75	3.27	AP-42 (SCC 3-02-007-93)[1]
M14	EP-5	Meal Conveyor	76.8%	1817088	0.061	0.034	12.65	55.42	7.05	30.89	99.8%	--	0.02	0.10	0.01	0.05	AP-42 (SCC 3-02-005-30)
M15	EP-5	Meal Leg	76.8%	1817088	0.061	0.034	12.65	55.42	7.05	30.89	99.8%	--	0.02	0.10	0.01	0.05	AP-42 (SCC 3-02-005-30)
M16	EP-5	Meal Conveyor	76.8%	1817088	0.061	0.034	12.65	55.42	7.05	30.89	99.8%	--	0.02	0.10	0.01	0.05	AP-42 (SCC 3-02-005-30)
							1499.10	**6566.05**	**920.57**	**4032.12**			**2.57**	**11.26**	**1.58**	**6.92**	

Meal Loading (EP-6)

			Percent of		Emission Factors		Uncontrolled PTE				Overall Control		PTE After Control				
			Total Plant	Annual Throughput	PM	PM10	PM		PM10		Efficiency %		PM		PM10		Emission Factor Source AP-42
Unit ID	Stack ID	Unit Description	Throughput	Rate (tons)	(lb/ton)	(lb/ton)	lb/hr	tons/yr	lb/hr	tons/yr	Primary	Secondary	lb/hr	tons/yr	lb/hr	tons/yr	Chapter 9.9.1, Table 9.9.1-1
M17	EP-6	Meal Conveyor	76.8%	1817088	0.061	0.0340	12.65	55.42	7.05	30.89	99.5%	--	0.06	0.28	0.04	0.15	AP-42 (SCC 3-02-005-30)
M18	EP-6	Meal Leg	76.8%	1817088	0.061	0.0340	12.65	55.42	7.05	30.89	99.5%	--	0.06	0.28	0.04	0.15	AP-42 (SCC 3-02-005-30)
M19	EP-6	Meal Conveyor	76.8%	1817088	0.061	0.0340	12.65	55.42	7.05	30.89	99.5%	--	0.06	0.28	0.04	0.15	AP-42 (SCC 3-02-005-30)
M20	EP-6	Meal Conveyor	76.8%	1817088	0.061	0.0340	12.65	55.42	7.05	30.89	99.5%	--	0.06	0.28	0.04	0.15	AP-42 (SCC 3-02-005-30)
M21	EP-6	Meal Conveyor	76.8%	1817088	0.061	0.0340	12.65	55.42	7.05	30.89	99.5%	--	0.06	0.28	0.04	0.15	AP-42 (SCC 3-02-005-30)
M22-M24	EP-6	Meal Storage Silos	76.8%	1817088	0.025	0.0063	5.19	22.71	1.31	5.72	99.5%	--	0.03	0.11	0.01	0.03	AP-42 (SCC 3-02-005-40)
M25	EP-6	Meal Conveyor	76.8%	1817088	0.061	0.0340	12.65	55.42	7.05	30.89	99.5%	--	0.06	0.28	0.04	0.15	AP-42 (SCC 3-02-005-30)
M26	EP-6	M-11 Meal Loadout Conveyor	76.8%	1817088	0.257	0.1568	53.31	233.50	32.52	142.43	99.5%	--	0.27	1.17	0.16	0.71	AP42 (SCC 3-02-007-91)[2]
M27	EP-6	Nonfugitive Meal Rail Loading Spout	76.8%	1817088	0.257	0.1568	53.31	233.50	32.52	142.43	99.5%	--	0.27	1.17	0.16	0.71	AP42 (SCC 3-02-007-91)[2]
							187.72	**822.23**	**108.66**	**475.93**			**0.94**	**4.11**	**0.54**	**2.38**	

Notes:
(1) Emission factors are based on U.S. EPA's WebFIRE emission factors after control by a cyclone. To determine the uncontrolled emission factors, a cyclone control efficiency of 90% was assumed. The ratio of PM to PM10 is assumed to be 0.61.
(2) Emission factors were obtained from a Title V permit for a similar facility (Title V Permit No. T085-21297-00102, issued on Jan. 24, 2006 to Louis Dreyfus Agricultural Industries, LLC). The ratio of PM to PM10 is assumed to be 0.61.

Methodology:
Uncontrolled PTE (tons/year) = Annual Throughput Rate (tons/year) x Emission Factors (lb/ton) x 1 ton/2000 lbs
PTE After Control (tons/year) = Uncontrolled PTE (tons/year) x (1 - Overall Control Efficiency %)

Appendix A: Emission Calculations

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 13, 2007

Fiber Loading (EP-7)

			Percent of		Emission Factors		Uncontrolled PTE				Overall Control		PTE After Control				Emission Factor Source AP-42
			Total Plant	Annual Throughput	PM	PM10	PM		PM10		Efficiency %		PM		PM10		Chapter 9.9.1, Tables 9.9.1-1
Unit ID	Stack ID	Unit Description	Throughput	Rate (tons)	(lb/ton)	(lb/ton)	lb/hr	tons/yr	lb/hr	tons/yr	Primary	Secondary	lb/hr	tons/yr	lb/hr	tons/yr	and 9.9.1-2
F39	EP-7	Pellet Leg Feed Conveyor	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	97.4%	--	0.03	0.13	0.02	0.07	AP-42 (SCC 3-02-005-30)
F40	EP-7	Fiber/Pellete Loadout Leg	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	97.4%	--	0.03	0.13	0.02	0.07	AP-42 (SCC 3-02-005-30)
F41	EP-7	Fiber/Pellete Conveyor A	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	97.4%	--	0.03	0.13	0.02	0.07	AP-42 (SCC 3-02-005-30)
F42	EP-7	Fiber/Pellete Conveyor B	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	97.4%	--	0.03	0.13	0.02	0.07	AP-42 (SCC 3-02-005-30)
F43	EP-7	Fiber/Pellete Conveyor C	7.0%	165620	0.061	0.034	1.15	5.05	0.64	2.82	97.4%	--	0.03	0.13	0.02	0.07	AP-42 (SCC 3-02-005-30)
F44	EP-7	Nonfugitive Fiber/Pellet Loading Spout	3.5%	82810	0.0033	0.0008	0.03	0.14	0.01	0.03	97.4%	--	0.00	0.004	0.00	0.001	AP-42 (SCC 3-02-008-03)[1]
F45	EP-7	Nonfugitive Fiber/Pellet Rail Loading Spout	3.5%	82810	0.0033	0.0008	0.03	0.14	0.01	0.03	97.4%	--	0.00	0.00	1.94E-04	8.51E-04	AP-42 (SCC 3-02-008-03)[1]
							5.83	**25.53**	**3.23**	**14.14**			**0.15**	**0.66**	**0.08**	**0.36**	

Meal Drying and Cooling (EP-15)

			Percent of		Emission Factors		Uncontrolled PTE				Overall Control		PTE After Control				
			Total Plant	Annual Throughput	PM	PM10	PM		PM10		Efficiency %		PM		PM10		Emission Factor Source AP-42
Unit ID	Stack ID	Unit Description	Throughput	Rate (tons)	(lb/ton)	(lb/ton)	lb/hr	tons/yr	lb/hr	tons/yr	Primary	Secondary	lb/hr	tons/yr	lb/hr	tons/yr	Chapter 9.9.1, Table 9.9.1-1
DTDC	EP-15	Meal Dryer	81.0%	1916460	1.8	1.1	393.79	1724.81	240.65	1054.05	93.0%	87.0%	3.58	15.70	2.19	9.59	AP-42 (SCC 3-02-007-89)[2]
DTDC	EP-15	Meal Cooler	76.8%	1817088	1.9	1.2	394.12	1726.23	248.92	1090.25	93.0%	87.0%	3.59	15.71	2.27	9.92	AP-42 (SCC 3-02-007-90)[2]
							787.91	**3451.05**	**489.57**	**2144.31**			**7.17**	**31.40**	**4.46**	**19.51**	

Bin Vent Filters (EP-8, EP-9, EP-10, EP-11, EP-12, EP-19)

			Percent of		Emission Factors		Uncontrolled PTE				Overall Control		PTE After Control				
			Total Plant	Annual Throughput	PM	PM10	PM		PM10		Efficiency %		PM		PM10		Emission Factor Source AP-42
Unit ID	Stack ID	Unit Description	Throughput	Rate (tons)	(lb/ton)	(lb/ton)	lb/hr	tons/yr	lb/hr	tons/yr	Primary	Secondary	lb/hr	tons/yr	lb/hr	tons/yr	Chapter 9.9.1, Table 9.9.1-1
S121	EP-8	Ground Hull Storage	7.0%	165620	0.025	0.0063	0.47	2.07	0.12	0.52	93.7%	--	0.03	0.13	0.01	0.03	AP-42 (SCC 3-02-005-40)
S122	EP-9	Pellet Storage	7.0%	165620	0.025	0.0063	0.47	2.07	0.12	0.52	93.7%	--	0.03	0.13	0.01	0.03	AP-42 (SCC 3-02-005-40)
S211	EP-10	Silica Storage	100.0%	1000	1.98	0.32	0.23	0.99	0.04	0.16	86.7%	--	0.03	0.13	0.005	0.02	AP-42 (SCC 3-05-038-13)[3]
S209	EP-11	Bleach Clay Storage	100.0%	1000	1.98	0.32	0.23	0.99	0.04	0.16	86.7%	--	0.03	0.13	0.005	0.02	AP-42 (SCC 3-05-038-13)[3]
S210	EP-12	Filter Aid Storage	100.0%	1000	1.98	0.32	0.23	0.99	0.04	0.16	86.7%	--	0.03	0.13	0.005	0.02	AP-42 (SCC 3-05-038-13)[3]
S212	EP-19	Kaolin Storage	100.0%	10000	1.98	0.32	2.26	9.90	0.37	1.60	98.7%	--	0.03	0.13	0.005	0.02	AP-42 (SCC 3-05-038-13)[3]
							3.88	**17.01**	**0.71**	**3.12**			**0.18**	**0.78**	**0.03**	**0.15**	

Notes:
(1) PM and PM10 emission factors obtained from U.S. EPA's WebFIRE emission factor database.
(2) Emission factors are based on U.S. EPA's WebFIRE emission factors after control by a cyclone. To determine the uncontrolled emission factors, a cyclone control efficiency of 90% was assumed. The ratio of PM to PM10 is assumed to be 0.61.
(3) Emission factors are based on U.S. EPA's WebFIRE emission factors after control by a fabric filter. To determine the uncontrolled emission factors, a filter control efficiency of 99.5% was assumed.

Methodology:
Uncontrolled PTE (tons/year) = Annual Throughput Rate (tons/year) x Emission Factors (lb/ton) x 1 ton/2000 lbs
PTE After Control (tons/year) = Uncontrolled PTE (tons/year) x (1 - Overall Control Efficiency %)

Appendix A: Emission Calculations
Particulate Fugitive Sources

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 13, 2007

Unit ID	Stack ID	Unit Description	Percent of Total Plant Throughput	Annual Throughput Rate (tons)	Emission Factors PM (lb/ton)	Emission Factors PM10 (lb/ton)	Uncontrolled PTE PM lb/hr	Uncontrolled PTE PM tons/yr	Uncontrolled PTE PM10 lb/hr	Uncontrolled PTE PM10 tons/yr	Overall Control Efficiency % Primary	Overall Control Efficiency % Secondary	PTE After Control PM lb/hr	PTE After Control PM tons/yr	PTE After Control PM10 lb/hr	PTE After Control PM10 tons/yr	Emission Factor Source AP-42 Chapter 9.9.1, Tables 9.9.1-1 and 9.9.1-2
TRD	NA	Truck Receiving Dump #1(fugitive)	33.3%	787878	0.00175	0.00780	0.16	0.69	0.70	3.07	95.0%	--	0.01	0.03	0.04	0.15	AP-42 (SCC 3-02-005-52)[1]
TRD	NA	Truck Receiving Dump #2 (fugitive)	33.3%	787878	0.00175	0.00780	0.16	0.69	0.70	3.07	95.0%	--	0.01	0.03	0.04	0.15	AP-42 (SCC 3-02-005-52)[1]
TRD	NA	Rail Receiving Dump fugitive)	33.3%	787878	0.0016	0.0078	0.14	0.63	0.70	3.07	95.0%	--	0.01	0.03	0.04	0.15	AP-42 (SCC 3-02-005-53)[1]
TRF	NA	Truck Loading Fiber (fugitive)	3.5%	82810	0.000165	0.0008	0.00	0.01	0.01	0.03	95.0%	--	0.00	0.00	0.00	0.002	AP-42 (SCC 3-02-008-03)[1]
TRP	NA	Truck Loading Proteins (fugitive)	38.4%	908544	0.0135	0.1568	1.40	6.13	16.26	71.22	99.7%	--	0.00	0.02	0.05	0.21	AP-42 (SCC 3-02-007-91)[1]
TRP	NA	Railloading Proteins (fugitive)	38.4%	908544	0.0135	0.1568	1.40	6.13	16.26	71.22	99.7%	--	0.00	0.02	0.05	0.21	AP-42 (SCC 3-02-007-91)[1]
TRF	NA	Railloading Fiber (fugitive)	3.5%	82810	0.000165	0.0008	0.00	0.01	0.01	0.03	95.0%	--	0.00	0.00	0.00	0.002	AP-42 (SCC 3-02-008-03)[1]
EP20	NA	Cooling Tower	NA	NA			0.31	1.38	1.34	5.88	0.0%	--	0.31	1.38	1.34	5.88	Engineering Estimate
ALLROADS	NA	Road Traffic (Truck & Car)	NA	NA			27.52	120.55	5.36	23.47	70.0%	--	8.26	36.16	1.61	7.04	AP-42 Section 13.2.1[2]
SOYPILE	NA	Soybean Temporary Storage Pile	10.0%	236600	0.0021	0.0010	0.06	0.24	0.03	0.11	0.0%	--	0.06	0.24	0.03	0.11	AP-42 Section 13.2.4
S100-S107	NA	Bean Storage Silos	100.0%	2366000	0.025	0.0063	6.75	29.58	1.70	7.45	50.0%	--	3.38	14.79	0.85	3.73	AP-42 (SCC 3-02-005-40)
D101-D103	NA	Three (3) Dryers	10.0%	236600	0.22	0.055	5.94	26.03	1.49	6.51	90.0%	--	0.59	2.60	0.15	0.65	AP-42 (SCC 3-02-005-27)[3]
							43.85	**192.06**	**44.55**	**195.14**			**12.63**	**55.31**	**4.18**	**18.30**	

Notes:
(1) Capture efficiency at receiving/loading is 95%. PM emission factors are uncontrolled emission factors multiplied by 0.05 to represent 5% of emissions that are not captured. It was conservatively assumed all PM10 emissions can be fugitive.
(2) See pages 7 and 8 for road traffic emission calculations.
(3) Dryer efficiency is controled by limited run time of 10% of the production year or 876 hours per year.

Methodology:
Uncontrolled PTE (tons/year) = Annual Throughput Rate (tons/year) x Emission Factors (lb/ton) x 1 ton/2000 lbs
PTE After Control (tons/year) = Uncontrolled PTE (tons/year) x (1 - Overall Control Efficiency %)

Appendix A: Emission Calculations
Particulate Fugitive Sources
Car Traffic

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 13, 2007

Annual Fugitive Particulate Emmissions on Paved Roads = (VMT) * (E)
Average Vehicle Weight 2 Tons

Calculate VMT:

VMT = (Total number cars) * (Maximum car mileage onsite) * (365 day/yr)
Assume Total Number Cars = Number of Employees
Total Number Cars = 100

Maximum car mileage onsite = 0.75 miles

VMT = 27375 miles per year

Caculate E:

Factors were taken from AP 42 Tables 13.2-1.1 and 13.2-1.2.
$E=k[sL/2]^{.65} * [W/3]^{1.5} - C$

Where
E = particulate emmission factor (lb/VMT)
k = particle size multiplier (lb/VMT)
sL = road surface silt loading (g/m^2)
W = average weight (tons) of vehicles traveling the road
C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear

k =	0.016	lb/VMT	for PM-10
k =	0.082	lb/VMT	for PM
sL =	0.6	$gram/m^2$	
W =	2	TON	
C =	0.00047	lb/VMT	for PM-10
C =	0.00047	lb/VMT	for PM
E_{PM} =	0.020	lb PM / VMT	
E_{PM-10} =	0.004	lb PM-10 / VMT	

Calculate Emissions:

Total fugitve PM	=	VMT x E_{PM}	
	=	546	lb/yr
	=	**0.062**	**lb/hr**
	=	**0.273**	**ton/yr**
Total fugitive PM-10	=	VMT x E_{PM-10}	
	=	96	lb/yr
	=	**0.011**	**lb/hr**
	=	**0.048**	**ton/yr**

Note: The above calculations were not adjusted using the precipitation correction term discussed in Section 13.2.1 of AP-42 to be conservative.

Appendix A: Emission Calculations
Particulate Fugitive Sources
Truck Traffic

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 13, 2007

Annual Fugitive Particulate Emmissions on Paved Roads = (VMT) * (E)
Average Truck Capacity **26 Tons**

Calculate VMT:

		Annual Tonnage	Trips per Year	Trips per Day	Vehical Weight (Tons)	Miles per Trip	Miles per Year
Beans	Full	2,366,000	91,000	259	40	0.906	82,446
	Empty		91,000	259	14	0.604	54,964
Bean Meal	Full	1,817,088	69,888	199	40	0.432	30,192
	Empty		69,888	199	14	0.865	60,453
Fiber	Full	165,620	6,370	18	40	0.432	2,752
	Empty		6,370	18	14	0.865	5,510
Biodiesel	Full	473,200	18,200	52	40	0.501	9,118
	Empty		18,200	52	14	0.333	6,061
Filter Aid	Full	1000	38	0.11	40	0.409	16
	Empty		38	0.11	15	0.424	16
Bleach clay	Full	1000	38	0.11	40	0.409	16
	Empty		38	0.11	15	0.424	16
Silica	Full	1000	38	0.11	40	0.409	16
	Empty		38	0.11	15	0.424	16
Totals		**4,824,908**					**251,592**

Caculate E:

Factors were taken from AP 42 Table 13.2.1-1

$$E=k[sL/2]^{.65} * [W/3]^{1.5} - C$$

Where

E = particulate emmission factor (lb/VMT)
k = particle size multiplier (lb/VMT)
sL = road surface silt loading (g/m^2)
W = average weight (tons) of vehicles traveling the road
C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear

k =	0.016	lb/VMT	for PM-10
k =	0.082	lb/VMT	for PM
sL =	0.6	gram/m^2	
W =	26	TON	
C =	0.00047	lb/VMT	for PM-10
C =	0.00047	lb/VMT	for PM
E_{PM} =	0.96	lb PM / VMT	
E_{PM-10} =	0.19	lb PM-10 / VMT	

Calculate Emissions:

Total fugitve PM	=	VMT x E_{PM}	
	=	240,549	lb/yr
	=	**27**	**lb/hr**
	=	**120**	**ton/yr**
Total fugitive PM-10	=	VMT x E_{PM-10}	
	=	46,841	lb/yr
	=	**5.3**	**lb/hr**
	=	**23**	**ton/yr**

Note: The above calculations were not adjusted using the precipitation correction term discussed in Section 13.2.1 of AP-42 to be conservative.

Appendix A: Emission Calculations
Internal Combustion Engines - Diesel Fuel
(>250 and <600 HP)
Emergency Generators (EP-18)

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 13, 2007

Emissions calculated based on output rating (hp)

Heat Input Capacity Horsepower (hp)		Potential Throughput hp-hr/yr
575.0	EMG 1	287500.0
575.0	EMG 2	287500.0
575.0	EMG 3	287500.0

	Pollutant					
	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0004	0.0004	0.0004	0.02398	0.0003	0.0057
EMG 1 Potential Emission in tons/yr	0.05	0.05	0.05	3.45	0.05	0.83
EMG 2 Potential Emission in tons/yr	0.05	0.05	0.05	3.45	0.05	0.83
EMG 3 Potential Emission in tons/yr	0.05	0.05	0.05	3.45	0.05	0.83
Total	**0.15**	**0.15**	**0.15**	**10.34**	**0.14**	**2.48**

Methodology

Potential Througput (hp-hr/yr) = hp * 500 hr/yr
Emission Factors are from the emergency generator manufacturer, Clarke Fire Protection Products.
Potential Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)

Appendix A: Emission Calculations
Natural Gas Combustion Only
MMBTU/HR >100
Boilers B1 and B2 (EP-17)

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 13, 2007

Heat Input Capacity MMBtu/hr		Potential Throughput MMCF/yr
197.7	B1	1731.9
197.7	B2	1731.9

	Pollutant					
	PM*	PM10*	SO2	NOx**	VOC	CO***
Emission Factor in lb/MMCF	1.9	7.6	0.6	37.2	5.5	84.0
B1 Potential Emission in tons/yr	1.65	6.58	0.52	32.21	4.76	72.74
B2 Potential Emission in tons/yr	1.65	6.58	0.52	32.21	4.76	72.74
Total	**3.29**	**13.16**	**1.04**	**64.42**	**9.53**	**145.48**

*PM emission factor is filterable PM only. PM10 emission factor is condensable and filterable PM10 combined.

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 from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-01-006-01, 1-01-006-04
(AP-42 Supplement D 3/98)
**NOx emission factor from boiler manufacturer and represents emissions using a low NOx burner.
***CO emission factor is from AP 42, however, using good combustion practices as control, the source will comply with a CO BACT limit of 0.04 lb/MMBtu.
Potential Emissions (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
See next page for HAPs emissions calculations.

Appendix A: Emission Calculations
Natural Gas Combustion Only
MMBTU/HR >100
Boilers B1 and B2 (EP-17)
HAPs Emissions

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 13, 2007

	HAPs - Organics				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.80	3.4E-03
Potential Emission in tons/yr	3.64E-03	2.08E-03	1.30E-01	3.12	5.89E-03

	HAPs - Metals					
	Lead	Cadmium	Chromium	Manganese	Nickel	**Total HAPs**
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	8.66E-04	1.91E-03	2.42E-03	6.58E-04	3.64E-03	**3.27**

Methodology is the same as previous page.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Dryers (EP-22)

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 13, 2007

Heat Input Capacity
MMBtu/hr

45.000
45.000
45.000

	Pollutant					
	PM*	PM10*	SO2	NOx**	VOC	CO**
Emission Factor in lb/MMBtu	0.0019	0.0075	0.0006	0.1176	0.0054	0.2941
D100 Dryer Potential Emission in tons/yr	0.37	1.47	0.12	23.2	1.06	58.0
D102 Dryer Potential Emission in tons/yr	0.37	1.47	0.12	23.2	1.06	58.0
D103 Dryer Potential Emission in tons/yr	0.37	1.47	0.12	23.2	1.06	58.0
Total	**1.10**	**4.41**	**0.35**	**69.6**	**3.19**	**173.9**
D100 Dryer Limited Emissions in tons/yr	0.04	0.15	0.01	2.32	0.11	5.80
D102 Dryer Limited Emissions in tons/yr	0.04	0.15	0.01	2.32	0.11	5.80
D103 Dryer Limited Emissions in tons/yr	0.04	0.15	0.01	2.32	0.11	5.80
Total	**0.11**	**0.44**	**0.03**	**7.0**	**0.32**	**17.4**

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**NOx and CO emission factors obtained from Dryer burner manufacturer, Maxon Corp.

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu

PM, PM10, SO2 and VOC 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)
Potential Emissions (tons/yr) = Heat Input Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) x 8760 hours/year / 2,000 lb/ton
Limited Emissions (tons/yr) = Heat Input Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) x 876 hours/year / 2,000 lb/ton
See next page for HAPs emissions calculations.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Dryers
HAPs Emissions

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 13, 2007

	HAPs - Organics				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMBtu	2.1E-06	1.2E-06	7.4E-05	1.8E-03	3.3E-06
Potential Emissions in tons/yr	1.22E-03	6.96E-04	4.35E-02	1.04	1.971E-03
Limited Emissions in tons/yr	1.22E-04	6.96E-05	4.35E-03	0.10	1.97E-04

	HAPs - Metals					
	Lead	Cadmium	Chromium	Manganese	Nickel	**Total HAPs**
Emission Factor in lb/MMBtu	4.9E-07	1.1E-06	1.4E-06	3.7E-07	2.1E-06	
Potential Emissions in tons/yr	2.90E-04	6.38E-04	8.12E-04	2.20E-04	1.22E-03	**1.09**
Limited Emissions in tons/yr	2.90E-05	6.38E-05	8.12E-05	2.20E-05	1.22E-04	**0.11**

Methodology is the same as previous page.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emission Calculations
VOC Emissions Summary

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 30, 2007

Annual VOC Emissions Summary

Point Sources of Solvent

		lb/hr	ton/yr	lb/ton of beans	Uncontrolled tons/yr
	lb/hr is Normal Operation Emissions; ton/yr is normal plus upset conditions				
	Mineral Oil Absorber Vent Gas				
	Normal Operation Based on 8736 hrs	13.02	56.87	0.048	4,219.6
	Upset Conditions 24 hrs	2471	29.65	0.025	254.8
EP-14	**Total 8760 hrs**		**86.52**		4,474.4

	Desolventized Dryer & Cooler				
	Normal Operation Based on 8736 hrs	45.92	200.58	0.17	447.7
	Upset Conditions 24 hrs	833	10.00	0.008	14.7
	From Refinery Filter aid & Soapstock	3.2	14.1	0.013	14.1
EP-15	**Total 8760 hrs**		**224.7**	0.2	462.3

Subtotal	**Of Point Sources**	**71.1**	**311.2**	**0.265**	**4,950.8**

		lb/hr	ton/yr	lb/ton of beans	Uncontrolled tons/yr
Fugitive Emissions of Solvent					
A)	Plant Startup/Shutdown 16 hrs/yr	4200.0	33.6	0.02	17
B)	Sampling	0.76	3.31	0.004	3.3
C)	General Leaks and Equipment Failure	75.5	330.51	0.28	236
D)	Plant Upsets 30 hrs/yr	1416.0	21.24	0.025	21
E)	Meal Storage	0.5	2.05	0.002	1.5
F)	From Refinery Filter aid & Soapstock	3.2	14.1	0.013	14.1
	Subtotal Fugitive Solvent Emission	**79.9**	**404.8**	**0.344**	**292.93**

		lb/hr	ton/yr	lb/ton of beans	Uncontrolled tons/yr
Bound in Meal					
	Desolventized Meal				
	Normal Operation	29.6	247.08	0.153	
	Upset Operation	185	4.662	0.003	
	Subtotal Fugitive Solvent Emission	29.6	**251.74**	0.157	

		lb/hr	ton/yr	lb/ton of beans	Uncontrolled tons/yr
Total VOC Emissions of Solvent		180.6	967.8	0.765	5,243.8
	Minus Refinery point/fugitive Emissions		14.1	0.013	
			953.7	0.752	
	Overal Solvent Loss*	**gal/ton** **0.148**			

Total HAP Emissions (n-Hexane)

	lb/hr	ton/yr
Weight Fraction of n-Hexane in Solvent	0.64	
Total n-Hexane from solvent emissions	139.4	610.4
n-Hexane from Boiler	0.7	3.12
Total HAP Emissions of n-Hexane	**140.1**	**613.5**

Total Point VOC Emissions

		lb/hr	**ton/yr**
	Subtotal Solvent	65.9	311.2
EP-16**	Biodiesel	0.43	1.88
EP-17	Boiler	1.26	9.53
EP-18	Diesel Fire Pumps	0.57	0.14
EP-22	Grain Dryers	0.73	3.19
Subtotal Point Source Emissions		**68.89**	**325.96**

Fugitive VOC Sources	**lb/hr**	**ton/yr**	
Subtotal Soybean Solvent	79.918272	404.8	
Biodiesel - Waste Water Fugitive	0.42	1.84	
Biodiesel - General Fugitive	2.69	11.84	**FROM BIODIESEL PLANT VOC FUGITIVE EMISSIONS**
Subtotal Fugitive Emission	**83.028272**	**418.52**	
Total VOC Emissions			
Point + Fugitive + Bound	**151.9**	**982.1**	

***Overall Solvent Loss (gal/ton) = Total VOC emissions of solvent (953.7 tons/yr) x 2000 lbs/ton x (1/Density of oilseed (5.46 lbs/gal)) x (1/Annual soybean throughput (2366000 tons/yr))**
****VOC emissions from EP-16 shown above represent emissions after control by the soy oil absorber and water scrubber. Uncontrolled emissions are 106.1 tons/year.**
Hexane Storage Tanks are Vented to the extraction condenser system.
Methanol Storage Tanks and Methanol Bearing Product are vented to the Biodiesel Condenser System.
Note: VOC emission calculations above were provided by Ultra Soy.

Appendix A: Emission Calculations
VOC Emissions Summary - Storage Tanks

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 30, 2007

Tank ID	VOC Emissions tons/yr	HAP Emissions tons/yr	
S200	1.74	1.74	Hexane
S200A and S200B	1.09	1.09	Hexane
S205 and S206	0.38	0.38	Methanol
S201 through S204	0.43	0.43	Methanol
S220 and S221	0.0026	0	
S250 through S253	3.50E-05	0	
S230 and S231	3.50E-05	0	
S226 and S227	3.50E-05	0	
S224 and S225	3.50E-05	0	
S222	1.09	0	
S217	3.50E-05	0	
S218	3.50E-05	0	
Total	4.73	3.64	

Storage tank emissions were calculated using U.S. EPA's TANKS 4.0.9d.
Note: VOC emission calculations above were provided by Ultra Soy.

Appendix A: Emission Calculations Summary

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: September 7, 2007

Uncontrolled Potential Emissions - Point Sources
TONS PER YEAR

	PM	PM-10	VOC	CO	NOx	SO2	Total HAPs	Worst Case Single HAP	
EP-1	473	251	0.00	0.00	0.00	0.00	0.00	0.00	
EP-2	599	334	0.00	0.00	0.00	0.00	0.00	0.00	
EP-3	2595	1385	0.00	0.00	0.00	0.00	0.00	0.00	
EP-4	68.6	38.2	0.00	0.00	0.00	0.00	0.00	0.00	
EP-5	6566	4032	0.00	0.00	0.00	0.00	0.00	0.00	
EP-6	822	476	0.00	0.00	0.00	0.00	0.00	0.00	
EP-7	25.5	14.1	0.00	0.00	0.00	0.00	0.00	0.00	
EP-8	2.07	0.52	0.00	0.00	0.00	0.00	0.00	0.00	
EP-9	2.07	0.52	0.00	0.00	0.00	0.00	0.00	0.00	
EP-10	0.99	0.16	0.00	0.00	0.00	0.00	0.00	0.00	
EP-11	0.99	0.16	0.00	0.00	0.00	0.00	0.00	0.00	
EP-12	0.99	0.16	0.00	0.00	0.00	0.00	0.00	0.00	
EP-13	379	137	0.00	0.00	0.00	0.00	0.00	0.00	
EP-14*	0.00	0.00	86.5	0.00	0.00	0.00	57.3	57.3	Hexane
EP-15	3451	2144	225	0.00	0.00	0.00	144	144	Hexane
EP-16	0.00	0.00	106	0.00	0.00	0.00	106	106	Methanol
EP-17	3.29	13.16	9.53	145	64.4	1.04	3.27	3.12	Hexane
EP-18	0.15	0.15	0.14	2.48	10.3	0.15	0.00	0.00	
EP-19	9.90	1.60	0.00	0.00	0.00	0.00	0.00	0.00	
EP-22**	1.10	4.41	3.19	174	69.6	0.35	1.09	1.04	Hexane
Total	15000	8833	430	322	144	1.54	312	205	Hexane

*VOC emissions from EP-14 represent emissions at outlet of mineral oil absorber AB-1.
** Although the grain dryers exhaust fugitively and not through a dedicated stack, the emission point is labeled EP-22 for the air quality modeling analysis.

Uncontrolled Potential Emissions - Fugitive Sources
TONS PER YEAR

	PM	PM-10	VOC	CO	NOx	SO2	Total HAPs	Worst Case Single HAP	
Truck Receiving Dump #1(fugitive)	0.69	3.07	0.00	0.00	0.00	0.00	0.00	0.00	
Truck Receiving Dump #2 (fugitive)	0.69	3.07	0.00	0.00	0.00	0.00	0.00	0.00	
Rail Receiving Dump fugitive)	0.63	3.07	0.00	0.00	0.00	0.00	0.00	0.00	
Truck Loading Fiber (fugitive)	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	
Truck Loading Proteins (fugitive)	6.13	71.2	0.00	0.00	0.00	0.00	0.00	0.00	
Rail Loading Proteins (fugitive)	6.13	71.2	0.00	0.00	0.00	0.00	0.00	0.00	
Rail Loading Fiber (fugitive)	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	
Cooling Towers	1.38	5.88	0.00	0.00	0.00	0.00	0.00	0.00	
Road Traffic (Truck & Car)	121	23.5	0.00	0.00	0.00	0.00	0.00	0.00	
Soybean Temporary Storage Pile	0.24	0.11	0.00	0.00	0.00	0.00	0.00	0.00	
Bean Storage Silos	29.6	7.45	0.00	0.00	0.00	0.00	0.00	0.00	
Three (3) Dryers	26.0	6.51	0.00	0.00	0.00	0.00	0.00	0.00	
Fugitive and Bound VOC Sources	0.00	0.00	670	0.00	0.00	0.00	429	429	Hexane
Storage Tanks	0.00	0.00	4.73	0.00	0.00	0.00	3.64	2.83	Hexane
Total	192	195	675	0.00	0.00	0.00	433	432	Hexane
Total Point + Fugitive	15192	9028	1105	322	144	1.54	744	637	Hexane

Appendix A: Emission Calculations Summary

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: September 7, 2007

Controlled Potential Emissions - Point Sources
TONS PER YEAR

	PM	PM-10	VOC	CO	NOx	SO2	Total HAPs	Worst Case Single HAP	
EP-1	3.31	1.75	0.00	0.00	0.00	0.00	0.00	0.00	
EP-2	2.99	1.67	0.00	0.00	0.00	0.00	0.00	0.00	
EP-3	25.9	13.9	0.00	0.00	0.00	0.00	0.00	0.00	
EP-4	0.69	0.38	0.00	0.00	0.00	0.00	0.00	0.00	
EP-5	11.3	6.92	0.00	0.00	0.00	0.00	0.00	0.00	
EP-6	4.11	2.38	0.00	0.00	0.00	0.00	0.00	0.00	
EP-7	0.66	0.36	0.00	0.00	0.00	0.00	0.00	0.00	
EP-8	0.13	0.03	0.00	0.00	0.00	0.00	0.00	0.00	
EP-9	0.13	0.03	0.00	0.00	0.00	0.00	0.00	0.00	
EP-10	0.13	0.02	0.00	0.00	0.00	0.00	0.00	0.00	
EP-11	0.13	0.02	0.00	0.00	0.00	0.00	0.00	0.00	
EP-12	0.13	0.02	0.00	0.00	0.00	0.00	0.00	0.00	
EP-13	7.95	2.88	0.00	0.00	0.00	0.00	0.00	0.00	
EP-14*	0.00	0.00	86.5	0.00	0.00	0.00	57.3	57.3	Hexane
EP-15	31.4	19.5	225	0.00	0.00	0.00	144	144	Hexane
EP-16	0.00	0.00	1.88	0.00	0.00	0.00	1.88	1.88	Methanol
EP-17	3.29	13.2	9.53	145	64.4	1.04	3.27	3.12	Hexane
EP-18	0.15	0.15	0.14	2.48	10.3	0.15	0.00	0.00	
EP-19	0.13	0.02	0.00	0.00	0.00	0.00	0.00	0.00	
EP-22**	0.11	0.44	0.32	17.4	7.0	0.03	0.11	0.10	Hexane
Total	92.7	63.6	323	165	81.7	1.23	206	204	Hexane

*VOC emissions from EP-14 represent emissions at outlet of mineral oil absorber AB-1.
** Although the grain dryers exhaust fugitively and not through a dedicated stack, the emission point is labeled EP-22 for the air quality modeling analysis.

Controlled Potential Emissions - Fugitive Sources
TONS PER YEAR

	PM	PM-10	VOC	CO	NOx	SO2	Total HAPs	Worst Case Single HAP	
Truck Receiving Dump #1(fugitive)	0.03	0.15	0.00	0.00	0.00	0.00	0.00	0.00	
Truck Receiving Dump #2 (fugitive)	0.03	0.15	0.00	0.00	0.00	0.00	0.00	0.00	
Rail Receiving Dump fugitive)	0.03	0.15	0.00	0.00	0.00	0.00	0.00	0.00	
Truck Loading Fiber (fugitive)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Truck Loading Proteins (fugitive)	0.02	0.21	0.00	0.00	0.00	0.00	0.00	0.00	
Railloading Proteins (fugitive)	0.02	0.21	0.00	0.00	0.00	0.00	0.00	0.00	
Railloading Fiber (fugitive)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Cooling Towers	1.38	5.88	0.00	0.00	0.00	0.00	0.00	0.00	
Road Traffic (Truck & Car)	36.2	7.04	0.00	0.00	0.00	0.00	0.00	0.00	
Soybean Temporary Storage Pile	0.24	0.11	0.00	0.00	0.00	0.00	0.00	0.00	
Bean Storage Silos	14.8	3.73	0.00	0.00	0.00	0.00	0.00	0.00	
Three (3) Dryers	2.60	0.65	0.00	0.00	0.00	0.00	0.00	0.00	
Fugitive and Bound VOC Sources	0.00	0.00	670	0.00	0.00	0.00	429	429	Hexane
Storage Tanks	0.00	0.00	4.73	0.00	0.00	0.00	3.64	2.83	Hexane
Total	55.3	18.3	675	0.00	0.00	0.00	433	432	Hexane
Total Point + Fugitive	148	81.9	998	165	81.7	1.23	639	636	Hexane

Appendix A: Emission Calculations
Calculation of TRE Index

Company Name: Ultra Soy of America, LLC
Plant Location: 7500 C.R. 700 South, South Milford, IN 46786
Part 70 Operating Permit No.: T087-24953-00069
Plt. ID #: 087-00069
Reviewer: ERG/TE
Date: August 30, 2007

TRE INDEX

SUBPART NNN

Vacuum Pump

Esitmated Emissions attributable to distillation unit

Air/N_2	20	kg/hr
MeOH	25	kg/hr

% of Total Vent Emissions 14.2 %

Species	Mass Rate (kg/hr)	Controlled Pump
Air/N_2	20	9.82
MeOH	0.04	0.018
Water	0.47	0.37

Total Distillation Flow (Qs)	10.21	SCFM
Heat Value of Methanol	4927	btu/scf
Ht	0.323	btu/scf
Percent Removal	99.8	%

includes condenser

Calculate TRE INDEX
USING EQUATION FROM 40CFR 60.664 (f)(1) Subpart NNN

For Design Category B for Non-halogenated process vent streams, if 0 < net heating value < 13

ETOC	0.04	kg/hr	a =	18.83268
Qs	10.21	scfm	b =	0.00659
Ht	0.323	btu/scf	c =	0.008647
Ys	10.21		d =	-0.003976
			e =	0
			f =	0.003803

TRE (f1) = 474.2

USING EQUATION FROM 40CFR 60.664 (f)(2) Subpart NNN

ETOC	0.04	kg/hr	a =	0.14
Qs	10.2100	scfm	b =	0.0367
Ht	0.3230	btu/scf	c =	-0.000448
			d =	-0.0051
			e =	4.59

TRE (f2) = 156.3

Note: The above calculations were provided by Ultra Soy

Appendix B
BACT Analysis

Source Name:	Ultra Soy of America, LLC
Source Location:	7500 C.R. 700 South, South Milford, Indiana 46786
County:	LaGrange
SIC Code:	2075, 2869, 2079
Operation Permit No.:	T087-24953-00069
Permit Reviewer:	ERG/TE

Ultra Soy of America, LLC (Ultra Soy) is proposing a soybean meal, soybean oil, and a biodiesel manufacturing facility in South Milford, Indiana. The facility will include soybean receiving, storage, handling and processing for 6,500 tons/day. The processing will include cleaning and preparation of soybeans for flaking, management of soybean hull/fiber as a by-product and hexane extraction of soybean oil from the soybean flakes. The facility will also include a biodiesel production operation. The biodiesel facility will partially refine the vegetable oil in preparation for transesterification. The proposed facility will transesterify vegetable oil with methanol to convert the soybean oil to methyl esters (Biodiesel).

This new source is a major stationary source because at least one attainment regulated pollutant is emitted at a rate of greater than 250 tons per year and it is not in one of the 28 listed source categories. Therefore, the emissions from this new source are being reviewed under the requirements of 326 IAC 2-2 (PSD).

The PSD regulations require a source to apply the Best Available Control Technology (BACT) to each regulated NSR pollutant for which the source has the potential to emit in significant amounts as defined in 326 IAC 2-2-1. The significant amounts for each pollutant are as follows: 25 tons per year for PM, 15 tons per year for PM10, 40 tons per year for each of SO_2, VOC and NOx, and 100 tons per year of CO. In this case, the source has the potential to emit PM, PM10, VOC, NOx and CO in amounts that exceed the significant amount for each pollutant. Therefore, BACT analyses for PM, PM10, VOC, NOx and CO emissions were performed on those emission units that emit these pollutants.

For VOC emissions, BACT is reviewed for the hexane solvent extraction operation exhausting through stack EP-14, the meal dryer and cooler operations exhausting through stack EP-15, and the biodiesel reactor, vacuum pump and distillation system exhausting through stack EP-16. For PM and PM10 emissions, BACT is reviewed for the grain receiving operations exhausting through stack EP-1, the grain storage and handling operations exhausting through stack EP-2, the soybean preparation and handling operations exhausting through stack EP-3, the jet dryers and vertical seed conditioners exhausting through stack EP-13, the flaker discharge conveyor exhausting through stack EP-4, the meal grinding and handling operations exhausting through stack EP-5, the meal loading operations exhausting through stack EP-6, the meal dryer and cooler exhausting through stack EP-15, the fiber loading and handling operations exhausting through stack EP-7, the dry material handling and storage operations exhausting through stacks EP-10 – EP-12, and the ground hull, pellet, and kaolin storage units exhausting through stacks EP-8, EP-9, and EP-19. For NOx and CO emissions, BACT is reviewed for the two (2) boilers and the grain dryers.

Since the potential to emit of VOC from the hexane solvent extraction operation exhausting through stack EP-14, the meal dryer and cooler operations exhausting through stack EP-15, and the biodiesel reactor, vacuum pump and distillation system exhausting through stack EP-16, are each greater than 25 tons per year, these units are also subject to BACT under 326 IAC 8-1-6 (New Facilities, General Reduction Requirements). Therefore, the VOC BACT analysis for each unit will also establish BACT pursuant to 326 IAC 8-1-6 for these units.

BACT is essentially an emission limitation based on the maximum degree of emission reduction for each pollutant, taking into account environmental, economic and energy impacts. In no event can the application of BACT result in an emission of any pollutant in excess of an applicable NSPS, NESHAP or Indiana emission limitation.

Guidance from U.S. EPA 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 control 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:

Step1: 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 emission 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 standard applicable to the emission units included in the permit.

VOC BACT Analysis

Solvent extraction non-condensable gas vent EP-14 “Mineral Oil Absorber Vent”

The hexane solvent leach extraction process is the industry standard for removing soybean oil from the soybean flake yielding a high protein meal. Non-condensable gasses which contain VOC emissions result from the distillation process.

The majority of the hexane emissions from the Desolventizer Toaster (DT) will be recovered for reuse within the process by the first stage rising film evaporator, the DT condenser, and the vent condenser. The non-condensable gases from the discharge of the condenser contain approximately 47% hexane by weight. Ultra Soy proposes to vent the non-condensable gases to a Mineral Oil Absorber System which will recover the hexane for reuse and control the VOC emissions. However, there are a number of different technologies that can be used to control VOC emissions. These technologies are discussed below in Step 1.

Step 1: Identify Potential Control Technologies

Oxidation Controls

(1) Thermal Oxidation

The destruction of organic compounds usually requires temperatures ranging from 1200º F to 2200º F, depending on their chemical composition and the desired destruction efficiency. When complete combustion is achieved, carbon dioxide and water vapor result as products. Combustion chamber retention times of 0.5 to 1.0 second and good mixing with air are necessary to obtain high destruction efficiency. Normally, natural gas is used to fuel the combustion chamber and maintain the required temperatures, but fuel oil is substituted in some cases. Concentrated VOC streams having higher heat contents and require less supplementary fuel than dilute VOC streams. In some cases, the VOC streams have high enough heat content to be self-sustaining.

Thermal oxidizers can have design efficiencies up to 99.99% and above, depending on system requirements and characteristics of the contaminated stream The typical design conditions needed to meet 98% or greater control or a 20 parts per million by volume (ppmv) VOC exit concentration are: 870º C (1600ºF) combustion temperature, 0.75 second resident time, and proper mixing with air.

(2) Catalytic Oxidation:

Catalytic oxidizers operate very similar to thermal oxidizers, with the primary difference being that the gas, after passing through the flame area, passes over a catalyst bed. The catalyst promotes oxidation of the VOC, enabling conversion at lower reaction temperatures than in thermal oxidizers. Catalysts, therefore, also allow for smaller oxidizer size.

Waste gas is heated by auxiliary burners to approximately 320º C to 430º C (600º F to 800ºF) before entering the catalyst bed. The maximum design exhaust temperature of the catalyst is typically 540 - 675 C (1000º – 1250º F). Combustion chamber retention times of 0.5 to 1.0 second and good mixing with air are necessary to obtain high destruction efficiency.

VOC destruction efficiency is dependent upon VOC composition and concentration, operating temperature, oxygen concentration, catalyst characteristics, and space velocity. Space velocity is commonly defined as the volumetric flow of gas entering the catalyst bed chamber divided by the volume of the catalyst bed.

Higher destruction efficiencies of 98-99 percent are achievable using catalytic oxidizers.

(3) Recuperative Thermal oxidation:

The air streams entering the control device are preheated by a gas-to-gas heat exchanger. The resulting preheated stream is then further heated to the incineration temperature, causing combustion of the VOCs. The resulting “hot exhaust gas” is passed back through the gas-to-gas heat exchanger to preheat the incoming pollutant gas stream and then is vented to the stack.

Thermal oxidation is recommended for emission streams containing a minimum of 20 ppm of combustible VOCs but less than 25% of the lower explosive limit (LEL) of the pollutant. Additional air (dilution air) may be required to eliminate the explosive hazard if the concentration is higher.

Thermal oxidizers do not efficiently adjust to highly variable process exhaust flow rates due to poor mixing and varying residence times. Varying concentrations may also cause wide fluctuations of the combustion chamber temperature, adversely affecting the destruction efficiency.

For vent streams with VOC concentration below approximately 2000 ppmv, reaction rates decrease and the maximum VOC destruction efficiency also decreases.

Studies based on actual field test data, show that commercial incinerators should generally be run at 870º C (1600ºF) with a nominal residence time of 0.75 seconds to ensure 98% destruction of non-halogenated organics (EPA, 1992).

Recuperative thermal oxidizers usually are more economical than straight thermal oxidizers because they recover about 70% of the waste heat from the exhaust gases. This heat can be used to preheat incoming air, and in some cases, sufficient waste heat will be generated for process heating, generating steam or hot water.

(4) Regenerative Thermal Oxidizer (RTO)

RTOs use a high-density media such as a ceramic-packed bed still hot from a previous cycle to preheat the incoming VOC-laden waster gas stream. The preheated, partially oxidized gases then enter a combustion chamber where they are heated by auxiliary fuel combustion (typically natural gas) to a final oxidation temperature. The oxidation temperature is typically maintained between 760º C to 820º C (1400º F to 1500º F) to achieve maximum VOC destruction. However, temperatures of up to 1100ºC (2000º F) may be achieved, if required, for very high control efficiencies of certain toxic VOC. The purified, hot gases exit this chamber and are directed to one or more different ceramic-packed beds cooled by an earlier cycle. Heat from the purified gases is absorbed by these beds before the gases are exhausted to the atmosphere. The reheated packed bed then begins a new cycle by heating a new incoming waste gas stream.

Regenerative oxidation is applicable over the same range of concentrations as recuperative thermal oxidation and has the same LEL requirements.

VOC destruction efficiency depends upon design criteria (i.e. chamber temperature, residence time, inlet VOC concentration, compound type, and degree of mixing) (EPA, 1991; AWMA, 1992). The waste gas may be diluted with ambient air, if necessary, to lower the VOC concentration.

Reclamation Controls

(1) Condensation

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 in the waste stream. 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. The emission stream enters a heat exchanger (usually this unit is of shell-and-tube design) and encounters the cold surface of the tube carrying the refrigerant. The VOC liquefies and drops out of the emission stream. The 'cleaned' emission stream is then vented to the stack while the condensed solvent is collected for reuse or disposal.

Condensation systems are recommended for emission streams containing between 5,000 and 10,000 ppm.

Condensation has been used by at least one source Avoca, Inc. in North Carolina. The condensers at Avoca, Inc. have achieved a VOC control efficiency of 96% by using two condensers in series: the first condenser water cooled and the second one nitrogen cooled.

(2) Cryogenic Condensation

Cryogenic VOC control systems use liquid nitrogen as a cooling agent to reduce the temperature of the condenser to as low as –160º F. According to BOC Gases, the manufacturer of the patented Kryoclean system, the system is designed for low flow rates (<1,000 acfm), high inlet VOC concentrations, and low moisture content.

(3) Absorption

Absorption is a surface phenomenon where components of a gas phase mixture (pollutants) are selectively transferred to a relatively nonvolatile liquid. The absorption solvent is usually water; however organic liquids, such as mineral oil or non-volatile hydrocarbon may be suitable absorption solvents for certain types of waste streams. The choice of solvent depends on the solubility of the pollutant in the solvent. As a part of its analysis of BACT for the solvent extraction process, Ultra Soy has evaluated a mineral oil absorber to control VOC emissions (hexane) from the main vent stream from the solvent extraction process.

(4) Carbon Adsorption

Carbon adsorption is the predominant method for adsorption of VOC streams. Carbon adsorption systems were applied rather widely to the main vent stream from solvent extraction plants built in the 1940s and early 1950s. As a general rule, the vent gases were cooled as far as practical before entering the carbon adsorption systems were conservatively designed to have a very low pressure drop so that a vent blower was not required in the system. These systems, when operating as designed, efficiently removed hexane from the main vent stream. However, the carbon fouled rapidly with sulfur (which occurs naturally in soybeans), and the efficiency of the unit was often suspect. In the early 1950's mineral oil absorbers replaced carbon absorbers on the main vent stream. This was primarily for greater safety, but also because this system offered additional hexane recovery due to increased hours of operation at the design conditions.

(5) Carbon Adsorption/Oxidation

In some cases, a combination of control technologies results in the most efficient VOC control method. Presently, a combination of carbon adsorption and oxidation (incinerator) has had good results on low concentration emissions streams.

Carbon Adsorption/Oxidation combines a carbon adsorption system and a recuperative thermal oxidation system for capture and incineration of VOCs. This system concentrates the VOC stream by using carbon adsorption to remove low concentration VOCs from large gas flows to the carbon bed and then much lower gas flow is used to regenerate the carbon. The gas stream coming from the regeneration process contains much higher concentrations of VOCs, which are then sent to a thermal oxidizer for a more efficient destruction.

The carbon adsorption system is usually configured as a rotating wheel. During rotation, most of the wheel is utilized for adsorbing VOCs while approximately 10% of the wheel is being regenerated using higher temperature air. The low concentration emission stream passes through the carbon adsorption system where up to 95% of the VOCs which were present in the low concentration emission stream are captured for oxidation. High temperature air from the gas-to-gas heat exchanger flows counter current to the flow of the emission stream desorbing the carbon wheel. This desorbing air, now laden with a high concentration of VOCs is destroyed at up to 98% efficiency (i.e., 98% of the 95% of VOCs captured from the low concentration emission stream are destroyed). The system concentrates and reduces the airflow of the emission stream, thereby decreasing the size and fuel requirement of the thermal oxidizer. Substantial operation savings may be realized with this type of system. The capital cost is significantly higher than that of either a carbon adsorption system or a recuperative thermal oxidizer alone.

Innovative Technologies

Review of the literature indicates that other technologies may destroy VOC pollutants. These technologies include:

(1) Superheated CO (i.e., solvent-less extraction). This technology is still in the “pilot” stage.

(2) Microwave Technology (i.e., solvent-less). This technology is still in the “pilot” stage.

(3) Vacuum Assisted Desolventization System “VADS”.

(4) Fluidized bed adsorption.

Step 2: Eliminate Technically Infeasible and Economically Infeasible Options

For a BACT option to be technically feasible two important key concepts should be considered. The concepts are “availability” and “applicability”. A control technology is considered “available” if it can be obtained by the applicant through commercial channels or is otherwise available within the common sense meaning of the term. An available technology is “applicable” if it can reasonably be installed and operated on the source type under consideration. A control technology that is available and applicable is technically feasible.

(1) Oxidizers are not used to reduce emissions in the extraction plants in the oilseed industry. The vent gases that would be ducted to the control device cover a wide range of flow volumes and solvent concentrations. Variations in flows and solvent concentrations greatly hamper safe and efficient operation of an oxidizer. The possibility of a flash back in the duct system to the oxidizer presents a fire and explosion hazard. The National Fire Protection Association (NFPA) standards for extraction plants require

that any flame operation be located at least 100 feet away from the processing area due to the fire risk. Therefore, oxidizers are considered to be technically infeasible for this type of operation.

(2) Cryogenic condensation is a relatively new technology for VOC control and has not been used in the soybean processing industry. However, a cryogenic condenser equipment cost quote was obtained by Ultra Soy from a vendor, Linde Gases, therefore, it was assumed that this option is commercially available and is technically feasible.

A cost effectiveness analysis was performed by Ultra Soy for the use of a cryogenic condenser to control VOC emissions from solvent extraction process. The results are shown below in Table 1. The cryogenic condenser would be used as a polishing step after the mineral oil absorber, and would eliminate 99% of the 86.52 tons of hexane emitted from EP-14. Therefore, an input VOC emission rate of 86.52 tons per year was used to calculate the cost per ton of VOC removed by cryogenic condensation.

Table 1: Cost/Economic Analysis for Cryogenic Condensation

A. Direct Capital Cost		
Item	**Cost Estimate**	**Reference/Source of Cost Estimate**
Purchase Equipment Costs		
1. Equipment Cost Linde Cirrus Cryogenic Condenser	$ 545,000	Vendor Quote
2. Instrumentation/controls	$ 54,500	EPA Cost Manual
3. Sales Tax	$ 16,350	EPA Cost Manual
4. Freight	$ 27,250	EPA Cost Manual
5. Other	$	
6. Purchased Equipment Subtotal	**$ 643,100**	
Direct Installation Costs		
7. Foundations and Supports	$ 38,586	EPA Cost Manual
8. Erection/Handling	$ 257,240	EPA Cost Manual
9. Electrical	$ 6,431	EPA Cost Manual
10. Piping	$ 32,155	EPA Cost Manual
11. Insulation and Painting	$ 19,293	EPA Cost Manual
12. Site Preparation	$ 6,431	EPA Cost Manual
13. Other	$	
14. Direct Installation Costs Subtotal	**$ 360,136**	
15. Direct Capital Cost Subtotal	**$1,003,236**	
B. Indirect Installation Costs		
1. Engineering and Supervision	$ 64,310	EPA Cost Manual
2. Construction and Field Expenses	$ 64,310	EPA Cost Manual
3. Contractor Fees	$ 64,310	EPA Cost Manual
4. Start-up and Performance Tests	$ 12,862	EPA Cost Manual
5. Over-all Contingencies	$ 19,293	EPA Cost Manual
7. Other		
8. Indirect Installation Costs Subtotal	**$ 225,085**	
C. Total Capital Cost	**$1,228,321**	

D. Direct Annual Cost		
1. Operating Labor Operator (@ $25.00 per hour x 5,250 hrs/yr) Supervision (15% of labor)	$ 131,250 $ 19,687	EPA Cost Manual. Based on 5 hrs per shift.
2. Maintenance Labor Maintenance Labor (@ $25.00 per hour x 525 hrs/yr) Maintenance Materials (100% of labor)	$ 13,125 $ 13,125	EPA Cost Manual. Based on 1.5 hrs per shift.
3. Replacement parts (as required)	$	
4. Utilities 8500 scfh liquid nitrogen	$1,535,000	Vendor Quote
5. Other		
6. Direct Annual Cost Subtotal	**$1,712,187**	
E. Indirect Annual Costs		
1. Overhead	$ 106,312	EPA Cost Manual.
2. Property Taxes	$ 12,283	EPA Cost Manual.
3. Insurance	$ 12,283	EPA Cost Manual.
4. Administration	$ 24,566	EPA Cost Manual.
5. Capital Recovery a. Interest Rate b. Economic Lifetime	7% 10 years	0.14238 x Total Capital Cost
6. CAPITAL RECOVERY COST	$ 174,888	EPA Cost Manual.
7. Other		
8. Indirect Annual Cost Subtotal	**$ 330,332**	
F. Recovery Credits		
1. Materials Recovered Hexane @ $2.70/gallon	$ 83,430	99.9% recovery = 30,900 gallons hexane. Cost of hexane from Bunge, Council Bluffs, Iowa
2. Energy Recovered	$	
3. Other	$	
4. Recovery Credits Subtotal	$ 83,430	
G. Total Annualized Cost Summary		
1. Direct Annual Costs Subtotal	$1,712,187	
2. Indirect Annual Costs Subtotal	$ 330,332	
3. Recovery Credits Subtotal	$ 83,430	
4. Total Annualized Cost (TAC)	**$1,959,089**	
H. Cost Effectiveness		
1. Baseline Emissions Rate (tons/year)	86.523	
2. Post –BACT Emissions Rate (tons/year)	0.865	
3. Total Pollution Removed (tons/year)	85.658	
4. Average Cost Effectiveness of BACT Option ($/ton) (G4 ÷ H3)	**$ 22,871**	

"EPA Air Pollution Control Cost Manual, Sixth Edition", EPA-452-02-001, January 2002

The basis of cost effectiveness, used to evaluate the control options, is the ratio of the annualized cost to the amount of VOC (tons) removed per year. From table 1 above, it shows that the cryogenic condenser for the solvent extraction process would cost $22,871 per ton of VOC with 85.66 tons per year of VOC reduction from the baseline emission rate of 86.52 tons per year having an overall control efficiency of 99%. IDEM, OAQ has determined that based on the economic analysis above, the use of a cryogenic condenser to control VOC emissions from the solvent extraction process is not a cost effective control option and is not economically feasible.

(3) Carbon Adsorber – The normal flow and concentration variation during upset and startup/shutdown would overheat the carbon beds and may result in the carbon beds catching fire. Therefore, mineral oil systems have replaced all the carbon adsorbers in soybean extraction plants. Mineral oil adsorption currently represents state of the art in the industry and is universally recommended for all plants. The problems associated with carbon adsorbers fall in three groups:

(A) Sulfur plugging of the carbon and the resultant reduction in capacity;
(B) Overheating and fires in carbon beds; and
(C) Limited capacity.

Sulfur has been present in the main vent stream of similar facilities. Even at low levels, the sulfur compounds are adsorbed more readily onto the activated carbon, thereby reducing the VOC adsorption capacity. The sulfur plugging requires more frequent replacement of the carbon. Applying such a system to the vent stream exiting the mineral oil absorption system results in a higher proportion of sulfur to hexane and a shorter carbon life.

Carbon adsorbers can overheat for several reasons, including poor conditioning of the carbon (which can create dead spots where cooling by the carrier media can not occur rapidly enough), over-drying of the carbon bed during desorption, and overloading of the absorber during surges caused by process upsets. The adsorption of volatile organic compounds (such as hexane) on activated carbon generates heat equivalent to the latent heat of vaporization for the compound being adsorbed. Under the conditions listed above, the heat generated by adsorption can accumulate in the bed, causing the temperature to rise to the point where ignition will occur.

Good design and control can eliminate overheating of the carbon bed, but when the equipment or control fails (as they invariably will), overheating can occur. This makes the carbon adsorbers a potential source of ignition. While fires caused by overheating are usually contained by the vessel, the vessel is directly connected to the process by duct-work which allows a flame path back to the process, creating an unacceptable risk of explosion.

The most likely time for fire to occur in the adsorber is during process upsets when solvent vapor will fill the duct connecting the process to the adsorber. Under these conditions a flame front could flow back into the process from the adsorber. Design efforts for the last century have been directed toward removing ignition sources from the process in order to prevent catastrophic fires and explosions. Although process tanks, vessels, and equipment are normally maintained in the Upper Explosive Limit (UEL) of 70,000 ppm, conditions can exist where portions of the process are between the explosive range of 12,000 ppm to 70,000 ppm. Such conditions often exist during startups, shutdowns, and upsets. During shutdowns, equipment is purged as quickly as possible to minimize the time spent in the explosive range.

It is therefore technically infeasible to use carbon adsorption due to the fire hazards associated with a hot carbon bed during these times.

(4) Carbon Adsorption/Oxidation – Safety concerns raised for carbon adsorption and thermal incineration would exist for this technology as discussed previously.

(5) Vacuum Assisted Desolventization Systems "VADS" and Fluidized bed adsorption have not been applied in this industry or similar source categories. These technologies are not commercially available; therefore, they are technically infeasible.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness

There are only two technically feasible add-on control systems.

Technology	Control Efficiency
Mineral Oil System (MOS)	99.5%
Condensation	98%

Step 4: Evaluate the Most Effective Controls and Document the Results

The lowest emission level achieved in practice by a similar source for VOC was determined by reviewing the most recent compilation of the US EPA's RACT/BACT/LAER Clearinghouse (RBLC) on the U.S. EPA website. The RLBC is a compilation of emission limit determinations voluntarily submitted by air pollution control agencies throughout the United States. The following table lists other similar companies' BACT determinations from the RBLC and from permits issued by Indiana and other states which were evaluated to determine the BACT for this plant.

Company	Date	BACT determined	Comments
Louis Dreyfus Agricultural Industries, LLC, Claypool, Indiana	January 24, 2006	Oil Extractor Process – Mineral oil absorber, 0.048 lb/ton of soybean received and 9.3 lbs/hr, Overall solvent loss 0.136 gal/ton for first year then 0.134 gallons per ton after first year. Maximum annual soybeans received shall not exceed 1,686,300 tons/yr.	
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***Extractor – Mineral Oil Absorber and condenser for VOC control - 0.048 lbs/ton of soybean received and a VOC emissions rate of 13.02 lbs/hr.*** ***A solvent loss ratio of 0.20 gal/ton of soybean crushed for the first year, then 0.134 gallons per ton of soybean crushed. BACT also includes a leak detection and repair program.***	

Company	Date	BACT determined	Comments
		Maximum annual soybeans received shall not exceed 2,366,000 tons/yr ***BACT for the fugitive hexane loss shall include an enhanced inspection, maintenance, and repair program.***	
CSE Co., New Haven, Indiana	April, 1998	Extractor – Mineral Oil Absorber and condenser, 0.0692 lb of Hexane/ton Overall limit on hexane emissions – 0.24 gal/ton first year, then 0.1612 gal/ton. BACT includes a leak detection and repair plan.	
Boon Valley Corp., Eagle Grove, Iowa	November 1, 1983	Extractor – Mineral Oil Absorber 0.07 lb of Hexane/ton	
Cargill Inc., Cargill Oilseeds Division, Shelby County, Ohio	November, 2003	Overall solvent loss 0.146 gallon per ton	
Zeeland Farm Services	May, 2003	Overall solvent loss 0.15 gal/ton based on a 12 month rolling time period 0.25 gal/ton of soybeans based on three-month rolling time period. Extractor Main vent - 6.1 pounds/hour 25.3 tons based on a 12-month rolling time period.	
ConAgra Soybean Processing Company, Indiana	August, 1998	Extractor – Mineral Oil Absorber – 0.076 lb of Hexane/ton Overall limit on Hexane emissions – 0.20 gal/ton first year, then 0.16 gal/ton of soybean BACT includes a leak detection and repair plan.	The company shall Continue to minimize hexane emissions losses by training the operators, and supervisors of the plant. At the end of each calendar year, the company shall send a report of the progress made in minimizing the hexane emissions from the plant to IDEM.

Company	Date	BACT determined	Comments
Cargill Inc., Sioux City Iowa	May, 1999	Overall limit on Hexane emissions – 0.19 gal/ton 890 tons / year limit on Hexane uses	
Bunge North America (East), Inc. Morristown, Indiana	July, 1995	Extractor – Mineral Oil Absorber – 0.12 lb of Hexane/ton Maximum soybean extraction process throughput = 803,000 tons per twelve (12) consecutive month period	
Consolidated Grain & Barge Company, Mt. Vernon, Indiana	April, 1995	Extractor – Mineral Oil Absorber – 0.16 lb of Hexane/ton Overall limit on Hexane emissions – 0.25 gal/ton first year, then 0.24 gal/ton of soybean	The company shall continue to minimize hexane emissions losses by training the operators, and supervisors of the plant. At the end of each calendar year, the company shall send a report of the progress made in minimizing the hexane emissions from the plant to IDEM.
Archer Daniel Midland North Kansas City, Missouri	October, 1997	Overall limit on Hexane emissions – 0.25 gals/ton BACT includes a leak detection plan.	
Southern Soya Corp. Estill, South Carolina	October, 1995	Overall limit on Hexane emissions – 2.0 lbs/ton or 0.357 gal/ton	
Owensboro Grain, Owensboro, Kentucky	February, 1981	Extractor – Mineral Oil Absorber Overall limit on Hexane emissions from the plant 2.9 lb/ton	
Cargill Inc. Savage, Minnesota	December, 1986	Extractor – Mineral Oil Absorber Overall limit on Hexane emissions 2.9 lb/ton (24hr) 2.0 lb/ton (30 day) Fugitive emissions limit – 2.0 lb/ton	

Company	Date	BACT determined	Comments
Archer Daniel Midland Valdosta, Georgia	April, 1996	Condenser and Mineral Oil Scrubber Overall limit on Hexane emissions – 2.93 lbs/ton or 0.523 gal/ton	
Avoca Inc. Merry Hill, North Carolina	September, 2004	98% Combined control efficiency for chilled water cooled condenser and liquid nitrogen-cooled condenser, and a 5% by wt, maximum concentration for h-hexane in solvent	

Ultra Soy is proposing the BACT as follows:

(a) Extractor – Controlled by a condenser and a mineral oil absorber – 0.048 lbs/ton of soybean received and a VOC emissions rate of 13.02 lbs/hr.

(b) A solvent loss ratio of 0.134 gallons per ton of soybean crushed, which is lower than or equal to any solvent loss ratio obtained from the RBLC. The BACT also includes a leak detection and repair program (see paragraph (d) below).

(c) Maximum annual soybeans received shall not exceed 2,366,000 tons/yr.

(d) BACT for the fugitive hexane loss shall include an enhanced inspection, maintenance, and repair program. Within 60 days of achieving full production, but no later than 180 days after initial startup, Ultra Soy shall institute the following enhanced inspection, maintenance, and repair program for the solvent extraction portion of the installation:

Table 1

	Leak Standard
Pumps	500 ppm
Valves	500 ppm
Pressure relief Devices	500 ppm
Flanges, Connectors, and Seals	10,000 ppm

(1) Ultra Soy shall determine compliance with the standards in Table 1 by using the procedures of 40 CFR Part 60, Appendix A, Method 21. The instrument shall be calibrated before each day of its use by the procedures as specified in Method 21. A leak is defined as an instrument reading of 500 ppm above background or greater, except for flanges, connectors and seals where a leak is defined as 10,000 ppm above the background.

(2) Ultra Soy shall immediately tag all detected leaks with a weatherproof and readily visible identification tag with a distinct number. Once a leaking component is detected, a first-attempt at repair must be done within five days and be completed within 15 days of detecting the leaking components. If the repair can not be accomplished within 15 days, then the Permittee shall send a notice of inability to repair to the IDEM, OAQ. The notice must be received by the Compliance Branch, Office of Air Quality, 100 North Senate Avenue, MC 61-53

IGCN 1003, Indianapolis, Indiana 46204-2251 within 20 days after the leak was detected. At a minimum the notice shall include the following:

(A) Equipment, operator, and instrument identification number.
(B) Date of leak detection;
(C) Measured concentration (ppm) and background (ppm);
(D) Leak identification number associated with the corresponding tag; and
(E) Reason of inability to repair within 15 days of detection.

(3) Ultra Soy shall maintain records of the following to verify compliance with the enhanced inspection, maintenance, and repair program:

(A) equipment inspected;
(B) date of inspection; and
(C) determination of whether a leak was detected.

(4) If a leak is detected, Ultra Soy shall record the following information to verify compliance with the enhanced inspection, maintenance, and repair program:

(A) the equipment, operator, and instrument identification number;
(B) measured concentration;
(C) leak identification number associated with the corresponding tag;
(D) date of repair;
(E) reason for non-repair if unable to repair within 15 days of detection; and
(F) maintenance re-check if repaired with date of re-check, measured concentration during re-check and background concentration.

Step 5: Select BACT

For the soybean oil extraction process utilizing DT technology, BACT has been determined to be the following:

(a) A combined condenser and mineral oil absorber system shall be used for control of VOC emissions from the extractor vent system and VOC emissions shall not exceed 0.048 pound per ton of soybean received and 13.02 pounds per hour.

Note: Although the pounds per hour limit is higher in this case than the pound per hour limit for the oil extractor process at the Louis Dreyfus Agricultural Industries plant, the pound per ton VOC limit is the same as the most stringent limit in the table above.

(b) For the first twelve (12) months of operation, the overall solvent loss ratio shall not exceed 0.20 gallons per ton of soybean crushed from the entire source. After the first twelve (12) months of operation, the overall solvent loss ratio shall not exceed 0.134 gallons per ton of soybean crushed from the entire source.

The first year solvent loss ratio is established as 0.2 gals/ton of soybean crushed to allow for start-up of these new emission units.

(c) The maximum annual soybean received shall not exceed 2,366,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(d) BACT for the fugitive hexane loss shall include an enhanced inspection, maintenance, and repair program Within 60 days of achieving full production, but no later than 180 days after initial startup, the Permittee shall institute the following enhanced inspection, maintenance, and repair program for the solvent extraction portion of the installation:

Table1

	Leak Standard
Pumps	500 ppm
Valves	500 ppm
Pressure relief Devices	500 ppm
Flanges, Connectors, and Seals	10,000 ppm

(1) The Permittee shall determine compliance with the standards in Table 1 by using the procedures of 40 CFR Part 60, Appendix A, Method 21. The instrument shall be calibrated before each day of its use by the procedures as specified in Method 21. A leak is defined as an instrument reading of 500 ppm above background or greater, except for flanges, connectors and seals where a leak is defined as 10,000 ppm above background.

(2) The Permittee shall immediately tag all detected leaks with a weatherproof and readily visible identification tag with a distinct number. Once a leaking component is detected, a first-attempt at repair must be made within five days and be completed within 15 days of detecting the leaking components. If the repair can not be accomplished within 15 days then the Permittee shall send a notice of inability to repair to the IDEM, OAQ. The notice must be received by the Compliance Branch, Office of Air Quality, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 within 20 days after the leak was detected. At a minimum the notice shall include the following:

(A) equipment, operator, and instrument identification number;
(B) date of leak detector;
(C) measured concentration (ppm) and background (ppm);
(D) leak identification number associated with the corresponding tag; and
(E) reason of inability to repair within 15 days of detection.

(3) The Permittee shall maintain records of the following to verify compliance with the enhanced inspection, maintenance, and repair program:

(A) equipment inspected;
(B) date of inspection; and
(C) determination of whether a leak was detected.

(4) If a leak is detected, the Permittee shall record the following information to verify compliance with the enhanced inspection, maintenance, and repair program:

(A) the equipment, operator, and instrument identification number;
(B) measured concentration;
(C) leak identification number associated with the corresponding tag;
(D) date of repair;
(E) reason for non-repair if unable to repair within 15 days of detection;
(F) maintenance re-check, if repaired, with date of re-check, measured concentration during re-check and background concentration.

VOC BACT Analysis

Meal Dryer and Cooler EP-15, “Extraction DC”

The VOC emissions from the Meal Dryer and Cooler result from the drying and cooling of meal flakes which removes hexane from the meal.

Step 1: Identify Potential Control Technologies

Oxidation Controls

(1) Thermal Oxidation

The destruction of organic compounds usually requires temperatures ranging from 1200º F to 2200º F, depending on their chemical composition and the desired destruction efficiency. When complete combustion is achieved, carbon dioxide and water vapor result as products. Combustion chamber retention times of 0.5 to 1.0 second and good mixing with air are necessary to obtain high destruction efficiency. Normally, natural gas is used to fuel the combustion chamber and maintain the required temperatures, but fuel oil may be substituted in some cases. Concentrated VOC steams having high heat contents require less supplementary fuel than dilute VOC streams. In some cases, the VOC streams have high enough heat content to be self sustaining and no supplementary fuel is required.

Typical thermal oxidizer design efficiencies range up to 99.99% and above, depending on system requirements and characteristics of the contaminated stream. The typical design conditions needed to meet 98% or greater control or a 20 parts per million by volume (ppmv) compound exit concentration are: 870º C (1600º F) combustion temperature, 0.75 second residence time, and proper mixing with air.

(2) Catalytic Oxidation:

Catalytic oxidizers operate very similar to thermal oxidizers, with the primary difference being that the gas, after passing through the flame area, passes through a catalyst bed. The catalyst promotes oxidation, enabling conversion at lower reaction temperatures than in thermal oxidizers. Catalysts, therefore, also allow for smaller oxidizer size.

Waste gas is heated by auxiliary burners to approximately 320º C to 430º C (600º F to 800º F) before entering the catalyst bed. The maximum design exhaust temperature of the catalyst is typically 540º C – 657º C (1000º F – 1250º F). Good mixing and combustion chamber retention times of 0.5 to 1.0 second are necessary to obtain high destruction efficiency.

VOC destruction efficiency is dependent upon VOC composition and concentration, operating temperature, oxygen concentration, catalyst characteristics, and space velocity. Space velocity is commonly defined as the volumetric flow of gas entering the catalyst bed chamber divided by the volume of the catalyst bed. Destruction efficiencies of 98 – 99 percent are achievable using catalytic oxidizers.

(3) Recuperative Thermal Oxidation:

The air streams entering the control device are preheated by a gas-to-gas heat exchanger. The resulting preheated stream is then further heated to the incineration temperature, causing combustion of the VOCs. The resulting “hot exhaust gas” is passed back through the gas-to-gas heat exchanger to preheat the incoming pollutant gas stream and then is vented to the stack.

Thermal oxidation is recommended for emission streams containing a minimum of 20 ppm of combustible VOCs but less than 25% of the lower explosive limit (LEL) of the pollutant. When higher VOC concentrations are present due to process upset conditions, additional air (dilution air) may be required to eliminate the explosive hazard.

Thermal oxidizers do not efficiently adjust to highly variable process exhaust flow rates due to poor mixing and varying residence times. Variable VOC concentrations may also cause wide fluctuations in the combustion chamber temperature, adversely affecting the destruction efficiency.

For streams with a VOC concentration below approximately 2000 ppmv, the reaction rates decrease and the maximum VOC destruction efficiency also decreases.

Studies based on actual field test data, show that commercial oxidizers should generally be run at 870º C (1600º F) with a nominal residence time of 0.75 seconds to ensure 98% destruction of non-halogenated organics.

Recuperative oxidizers usually are more economical than straight thermal oxidizers because they recover about 70% of the waste heat from the exhaust gases. This waste heat can be used to preheat incoming air, provide process heating, or generate steam or hot water.

(4) Regenerative Thermal Oxidizer (RTO)

RTO use a high-density media, such as a ceramic-packed bed, still hot from a previous cycle to preheat the incoming VOC-laden waste gas stream. The preheated, partially oxidized gases then enter a combustion chamber where they are heated by auxiliary fuel combustion (typically natural gas) to a final oxidation temperature. The oxidation temperature is typically maintained between 760º C to 820º C (1400º F to 1500º F) to achieve maximum VOC destruction. However, temperatures of up to 1100º C (2000º F) may be achieved, if required, for very high control efficiencies of certain toxic VOC. The purified, hot gases exit this chamber and are directed to one or more different ceramic-packed beds cooled by an earlier cycle. Heat from the purified gases is absorbed by these beds before the gases are exhausted to the atmosphere. The reheated packed bed then begins a new cycle by heating a new incoming waste gas stream.

Regenerative oxidation is applicable over the same range of concentrations as recuperative thermal oxidation and has the same LEL requirements.

VOC destruction efficiency depends upon design criteria (i.e. chamber, temperature, residence time, inlet VOC concentration, compound type, and degree of mixing). Typical regenerative oxidizer design efficiencies range from 95 to 99% for RTO systems.

Regenerative oxidizers have been used effectively at inlet loading as low as 100 ppmv or less. For safety considerations, as with thermal and recuperative incinerators, the maximum concentration of the organics in the waste gas must be substantially below the lower flammable level (lower explosive limit, or LEL). As a rule, a safety factor of four (i.e. 25% of the LEL) is used. The waste gas may be diluted with ambient air, if necessary, to lower the concentration.

<u>Reclamation Controls</u>

(1) Condensation

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. 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. The emission stream enters a heat exchanger, usually of shell-and-tube design, and encounters the cold surface of the tube carrying the refrigerant. The emission stream temperature drops to the dew point of its VOC constituents. The VOC liquefies and drops out of the emission stream. The “cleaned” emission stream is then vented to the stack while the condensed solvent is collected for reuse or disposal.

Condensation systems are recommended for emission streams containing between 5,000 and 10,000 ppm.

(2) Cryogenic Condensation

A cryogenic VOC control system uses liquid nitrogen as a cooling agent to reduce the temperature of the condenser to as low as –160º F. According to BOC Gases, the manufacturer of the patented Kryoclean system, the system is designed for low flow rates (<1,000 acfm), high inlet VOC concentration and low moisture content.

(3) Absorption

Absorption is a surface phenomenon where components of the gas phase moisture (pollutants) are selectively transferred to a relatively nonvolatile liquid. The absorption solvent is usually water; however, organic liquids, such as mineral oil or non-volatile hydrocarbons may be suitable absorption solvents for certain types of waste streams. The choice of solvent depends on the solubility of the pollutant in the solvent. As a part of its analysis of BACT for the solvent extraction process, Ultra Soy has evaluated a mineral oil absorber to control VOC emissions from the main vent stream from the solvent extraction process to absorb the pollutant (hexane) following its absorption in mineral oil.

Absorption is only economical for emission streams with higher concentration. Absorption is used successfully and economically at the main vent stream from the solvent extraction process.

(4) Carbon Adsorption

Carbon adsorption is the predominant method for adsorption of VOC streams. Carbon adsorption systems were applied rather widely to the main vent stream from solvent extraction plants built in the 1940s and early 1950s. As a general rule, the vent gases were cooled as far as practical before entering the carbon adsorption system to minimize the thermal loading on the carbon. The carbon adsorption systems were conservatively designed to have a very low pressure drop so that a vent blower was not required in the system. These systems, when operating as designed, efficiently removed hexane from the main vent stream. However, the carbon fouled rapidly with sulfur (which occurs naturally in soybeans), and the efficiency of the unit was often suspect. In the early 1950s, mineral oil adsorbers replaced carbon units on the main vent stream. This was primarily for greater safety, but also because this system offered additional hexane recovery due to increased hours of operation at the design conditions.

(5) Carbon Adsorption/Oxidation

In some cases, a combination of control technologies results in the most efficient and cost effective VOC control method. A combination of carbon adsorption and oxidation has had good results on low concentration emission streams.

Carbon Adsorption/Oxidation combines a carbon adsorption system and a recuperative thermal oxidizer for capture and incineration of VOCs. This system concentrates the VOC stream by using carbon adsorption to remove low concentration VOCs from large gas flows to the carbon bed and then much lower gas flow is used to regenerate the carbon. The concentrated VOC gas stream is then sent to a thermal oxidizer for a more efficient destruction.

The carbon adsorption system is usually configured as a rotating wheel. During rotation, most of the wheel is utilized for adsorbing VOCs while approximately 10% of the wheel is being regenerated using high temperature air. The low concentration emissions stream passes through the carbon adsorption system where up to 95% of the VOCs which were present in the low concentration emission stream are captured for oxidation. High temperature air from the gas-to-gas heat exchanger flows counter current to the flow of emission stream desorbing the carbon wheel. This desorbing air, now laden with a high concentration of VOCs is destroyed at up to 98% efficiency (i.e., 98% of the 95% of VOC captured from the low concentration emission stream are destroyed). The system concentrates and reduces the airflow of the emission stream, thereby decreasing the size and fuel requirement of the thermal oxidizer. Substantial operational savings may be realized with this type of system. The capital cost is significantly higher than that of either a carbon adsorption system or a recuperative thermal oxidizer alone.

<u>Innovative Technologies</u>

Review of the literature indicates that other technologies may destroy VOC pollutants. These technologies include:

(1) Superheated CO (i.e., solvent-less extraction). This technology is still in the “pilot” stage.

(2) Microwave Technology (i.e., solvent-less). This technology is still in the “pilot” stage.

(3) Vacuum Assisted Desolventization System “VADS”.

(4) Fluidized bed adsorption.

Step 2: Eliminate Technically Infeasible Options

(1) Thermal oxidation is not used to control emissions in the extraction plants in the oilseed industry. The vent gases that would be ducted to the control device cover a wide range of flow volumes and solvent concentrations. Variations in flows and solvent concentrations greatly hamper safe and efficient operation of an oxidizer. The possibility of a flash back in the duct system to the oxidizer presents a fire and explosion hazard.

A catalytic oxidizer is not used on a DT dryer and cooler exhaust at any existing soybean processing facility. Although it is a potential crossover technology, significant concerns about catalytic oxidation include technical and safety issues. Catalytic oxidizers are susceptible to plugging and catalyst fouling. The amount of PM10 (4.46 lbs/hour) in the exhaust gas during normal operation is likely to cause plugging of the inlet screens or catalyst bed of the oxidizer. The exhaust from the dryer and cooler will also contain a small amount of soy oil in an aerosol form. This oil is likely to cause fouling of the catalyst bed. Also, soybeans naturally contain sulfur compounds. Sulfur compounds in the exhaust stream are likely to cause fouling of the catalyst bed. The particulate matter in the exhaust stream may be reduced by a high efficiency filtration system. The aerosol oil and sulfur compounds cannot be similarly removed.

A regenerative oxidizer is not used on a DT dryer and cooler exhaust at any existing soybean processing facility. The packing material in the regeneration system is susceptible to plugging by particulate matter. The amount of PM10 (4.46 lbs/hour) in the exhaust gas during normal operation is likely to cause plugging of the inlet screens or packing of the oxidizer. Carbonization of the packing due to the aerosol oil is likely to cause degradation of the packing, loss of heat transfer, and possibly a reduction in control efficiency.

A recuperative oxidizer is not used on a DT dryer and cooler exhaust at any existing soybean processing facility. The particulate loading and sulfur compounds in the dryer exhaust are not likely to cause operational problems with a recuperative oxidizer. The aerosol oils may cause carbonization of the oxidizer chamber that could result in a loss of control efficiency.

The National Fire Prevention Association (NFPA) standard for solvent extraction plants, NFPA 36, requires that all ignition sources (e.g. incineration) be located in excess of 100 feet from the extraction process due to the flammability of hexane. Additionally, NFPA 36 requires that all potential ignition sources be equipped with approved devices to prevent flashbacks into the process area. The inherent presence of fugitive hexane vapors at processing plants could lead to catastrophic results.

In addition to the potential for explosions and fires due to fugitive hexane emissions, normal shutdown procedures, process upsets, and malfunctions may result in a near LEL condition in the dryer exhaust. Normal shutdown procedures require purging the hexane out of the process units. As each system is purged, the concentration is reduced from greater than 100% of the UEL through the explosive range to less than 10% of the LEL. This presents a significant safety issue for the use of an incinerator on the dryer exhaust.

The combination of technical and safety concerns make thermal and catalytic oxidation technically infeasible for this process.

(2) Condensers are commonly used in soybean extraction facilities for hexane recovery. These systems are very efficient and have a long history of safe operation. However, no existing facility has a condenser on the DT dryer or cooler vent.

Condensers are designed for high inlet hexane concentrations. No manufacturer makes a condenser for the low inlet concentration of the DT dryers and cooler.

Therefore, a condenser is not technically feasible for the dryer and cooler.

(3) A cryogenic VOC control system uses liquid nitrogen as a cooling agent to reduce the temperature of the condenser to as low as –160º F. The evaporated nitrogen is used for other processes at the facility, such as a blanketing agent for VOC storage tanks or as a process gas. The VOCs are condensed and are reused, recycled or disposed.

According to BOC Gases, the manufacturer of the patented Kryoclean system, the system is designed for low flow rates (<1,000 acfm), high inlet VOC concentrations and low moisture content. BOC Gases stated that the Kryoclean system is not technically feasible for this source due to the low concentration, high flow rate (123,656 acfm), and high moisture content of the exhaust gas from the DT dryer and cooler.

(4) Absorption is feasible for emissions streams that have high pollutant concentrations. Mineral oil absorbers are commonly used in soybean extraction facilities for control of hexane emissions from the main Desolventizer Toaster (DT) vent. These systems are very efficient and have a long history of safe operations. However, no existing facility has a mineral oil absorber on the DT dryer and cooler vent.

The mineral oil absorber is designed for low flow rates (<1,000 acfm) and high inlet hexane emissions from the main DT vent. No manufacturer makes a mineral oil absorber for the flow rate (123,656 acfm) and low inlet concentration of the DT dryer and cooler.

Therefore, a mineral oil absorber is not technically feasible for the dryer and cooler.

(5) Carbon adsorption is a common technique for control of VOC emissions.

Carbon adsorption is not used on a DT dryer and cooler exhaust at any existing soybean processing facility. Significant technical and safety concerns prohibit its use as an add-on control at a soybean extraction facility.

Carbon adsorbers are susceptible to plugging and fouling. The amount of PM10 in the exhaust gas during normal operation is likely to cause plugging of the inlet screens or carbon bed. The exhaust from the dryer and cooler will also contain a small amount of oil in an aerosol form. This oil is likely to cause fouling of the carbon bed. Also, soybeans naturally contain sulfur compounds. These sulfur compounds will cause fouling of the carbon bed.

Although the particulate matter concentration can be reduced by a high efficiency filtration system, the aerosol oils and sulfur compounds cannot be similarly removed.

The adsorption of hexane onto carbon is an exothermic reaction. Increases in the concentration of the inlet stream will cause additional heat to build up in the carbon bed. Under optimum conditions, the air movement through the bed will remove the heat via convection. However, if channeling occurs in the carbon bed, or if the increase in concentration is too large (as in upset condition), the bed can overheat to the point of auto-ignition. Carbon bed fires have historically occurred in the soybean processing industry. If an internal fire occurs, the carbon bed provides additional fuel to the fire.

The combination of technical and safety concerns make carbon adsorption technically infeasible for the DT meal dryer and cooler.

(6) Carbon Adsorption/Oxidation – Safety concerns raised for carbon adsorption and thermal oxidation would exist for this technology as discussed previously.

(7) Vacuum Assisted Desolventization Systems “VADS” and Fluidized bed adsorption have not been applied in this industry or similar source categories. These technologies are not commercially available; therefore, they are technically infeasible.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness

There are no technically feasible add-on control systems.

Step 4: Evaluate the Most Effective Controls and Document the Results

The following companies’ BACT determinations from the RBLC and from permits issued by Indiana and other states were evaluated to determine the BACT for this plant.

Company	Date	BACT determined	Comments
Louis Dreyfus Agricultural Industries, LLC, Claypool, Indiana	January 24, 2006	No controls, 0.03 gal/ton of soybean and 32.8 lbs/hr of VOC combined	
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***No controls, 0.17 lb VOC/ton of soybean, 0.03 gallon/ton of soybean, and 45.92 lbs/hr of VOC combined.***	
Bunge North America (East), Inc., Morristown, Indiana	1995	Meal Dryer – 0.16 lb of Hexane/ton Meal Cooler - 0.16 lb of Hexane/ton	
Con Agra Soybean Processing Company, Indiana	August, 1998	Dryer - 0.228 lb of Hexane/ton Cooler – 0.083 lb of Hexane/ton	The company shall continue to minimize hexane emissions losses by training the operators, and supervisor of the plant. At the end of each calendar year, the company shall send a report of the progress made in minimizing the hexane emissions from the plant to IDEM.
Cargill Inc., Sioux City, Iowa	May, 1999	Overall limit on Hexane Emissions – 0.19 gal/ton 890 tons/year limit on Hexane uses	
Consolidated Grain & Barge Company, Mt. Vernon, Indiana	April, 1995	Dryer – 0.33 lb of Hexane/ton Cooler - 0.06 lb of Hexane/ton	The company shall continue to minimize hexane emissions losses by training the operators, and supervisors of the plant. At the end of each calendar year, the company shall send a report of the progress made in minimizing the hexane emissions form the plant to IDEM.

Company	Date	BACT determined	Comments
Zeeland Farm Service Zeeland, Michigan	May, 2003	Overall solvent 0.15 Gal/ton based on a 12-Month rolling time period. 0.25 gal/ton of soybeans based on three-month rolling time period. Both dryer cyclones – 12.5 pounds/hr and 51.9 tons per year based on a 12-month rolling time period	
Archer Daniel Midland North Kansas City, Missouri	October, 1997	Overall limit on Hexane Emission – 0.25 gals/ton BACT includes a leak detection plan.	
Archer Daniel Midland North Kansas City, Missouri	October, 1997	Overall limit on Hexane Emissions – 0.25 gals/ton	
Boon Valley Corp Eagle Grove, Iowa	November, 1983	Dryer - 0.25 lb of Hexane/ton Cooler – 0.20 lb of Hexane/ton	
Southern Soya Corp. Estill, South Carolina	October, 1995	Overall limit on Hexane emissions – 2.0 lbs/ton or 0.357 gal/ton	
Owensboro Grain, Owensboro, Kentucky	February, 1981	Overall limit on Hexane emissions from the plant - 2.9 lb/ton	
Cargill Inc. Savage, Minnesota	December, 1986	Overall limit on Hexane emissions – 2.9 lb/ton (24 hr) 2.0 lb/ton (30 day) Fugitive emission limit 2.0 lb/ton	
Archer Daniel Midland Valdosta, Georgia	April, 1996	Overall limit on Hexane emissions – 2.93 lbs/ton or 0.523 gals/ton	
Avoca Inc., Merry Hill, North Carolina	September, 2004	VOC (Hexane) emissions - 197 tons per year	

Step 5: Select BACT

Ultra Soy proposes the following BACT for the DTDC dryer and cooler respectively.

Dryers and cooler exhausting to stack EP-15:

(a) VOC emissions shall not exceed 0.17 pound per ton of soybean received, 0.03 gallons per ton of soybean, and 45.92 pounds of VOC per hour.

(b) The maximum annual soybean received shall not exceed 2,366,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Although the pounds per hour limit is higher in this case than the pound per hour limit for the dryers and cooler at the Louis Dreyfus Agricultural Industries plant, the gallons per ton VOC limit is the same as the most stringent limit in the table above.

<u>VOC BACT Analysis</u>

Methylester "Biodiesel" Reactor, Vacuum Pump, and Distillation System, EP-16

The VOC emissions from the biodiesel production operation are emitted as methanol and result from the production of methylesters or biodiesel. The emission units in this operation include the primary and secondary methylester reactors, where methanol and catalyst are added for the formation of methylesters from the pretreated soybean oil received from the extraction process, the primary and secondary decanters, which separate glycerin from the methylesters, the inline mixer, where hydrochloric acid added to the flow will neutralize the catalyst ceasing the reaction, the water wash mixer, where water is added to remove any remaining glycerin from the methylesters, the water wash decanter, which separates the washed methylesters from the glycerin water phase, the wet methylester surge tank, the methylester vacuum dryer, where the methanol and water stripped form the methylesters is condensed and pumped to the wet methanol tank, and the filter slurry tank, the methylester finishing filter, and the final polishing filter where final filtration of the methylesters occurs.

Step 1: Identify Potential Control Technologies

<u>Oxidation Controls</u>

(1) Thermal Oxidation

The destruction of organic compounds usually requires temperatures ranging from 1200º F to 2200º F, depending on their chemical composition and the desired destruction efficiency. When complete combustion is achieved, carbon dioxide and water vapor result as products. Good mixing and combustion chamber retention times of 0.5 to 1.0 second are necessary to obtain high destruction efficiency. Normally, natural gas is used to fuel the combustion chamber and maintain the required temperatures, but fuel oil is substituted in some cases. Concentrated VOC streams having high heat contents require less supplementary fuel than dilute VOC streams. In some cases, the VOC streams have high enough heat content to be self sustaining and do not require supplemental fuel combustion.

Thermal oxidizers can have design efficiencies up to 99.99% and above, depending on system requirements and characteristics of the contaminated stream. The typical design conditions needed to meet 98% or greater control efficiency or a 20 parts per million by volume (ppmv) compound exit concentration are 870º C (1600º F) combustion temperature, 0.75 second resident time, and proper mixing with air.

(2) Catalytic Oxidation:

Catalytic oxidizers operate very similar to thermal oxidizers with the primary difference being that the gas, after passing through the flame area, passes through a catalyst bed. The catalyst promotes oxidation, enabling conversion at lower reaction temperatures than in thermal oxidizers. Catalysts, therefore, also allow for smaller oxidizer size.

Waste gas is heated by auxiliary burners to approximately 320º C to 430ºC (600º F to 800º F) before entering the catalyst bed. The maximum design exhaust temperature of the catalyst is typically 540º C – 675º C (1000º F – 1250º F). Good mixing and combustion chamber retention times of 0.5 to 1.0 second are necessary to obtain high destruction efficiency.

VOC destruction efficiency is dependent upon VOC composition and concentration, operating temperature, oxygen concentration, catalyst characteristics, and space velocity.

Space velocity is commonly defined as the volumetric flow of gas entering the catalyst bed chamber divided by the volume of the catalyst bed.

Destruction efficiencies of 98 – 99 percent are achievable using a catalytic oxidizer.

(3) Recuperative Thermal Oxidation:

The air streams entering the oxidizer are preheated by a gas-to-gas heat exchanger. The resulting preheated stream is then further heated to the incineration temperature, causing combustion of the VOCs. The resulting “hot exhaust gas” is passed back through the gas-to-gas heat exchanger to preheat the incoming pollutant gas stream before being vented to the stack.

Thermal oxidation is recommended for emission streams containing a minimum of 20 ppm of combustible VOCs but less than 25% of the lower explosive limit (LEL) of the pollutant. When higher VOC concentrations exist due to process upset, additional air (dilution air) is required to eliminate the explosive hazard.

Thermal oxidizers do not efficiently adjust to highly variable process exhaust flow rates due to poor mixing and varying residence times. Varying concentrations may also cause wide fluctuations in the combustion chamber temperature, adversely affecting the destruction efficiency.

For streams with VOC concentration below approximately 2000 ppmv, reaction rates decrease and the maximum VOC destruction efficiency decreases.

Studies based on actual field test data, show that commercial oxidizers should generally be run at 870º C (1600º F) with a nominal residence time of 0.75 seconds to ensure 98% destruction of non-halogenated organics.

Recuperative oxidizers usually are more economical than straight thermal oxidizers because they recover about 70% of the waste heat from the exhaust gases. This waste heat can be used to preheat incoming air, provide process heating, or generate steam or hot water.

(4) Regenerative Thermal Oxidizer (RTO)

RTOs use a high-density media such as a ceramic-packed bed still hot from a previous cycle to preheat the incoming VOC-laden waste gas stream. The preheated, partially oxidized gases then enter a combustion chamber where they are heated by auxiliary fuel combustion (usually natural gas) to a final oxidation temperature. The oxidation temperature is typically maintained between 760º C to 820º C (1400º F to 1500ºF) to achieve maximum VOC destruction. However, temperatures of up to 1100º C (2000º F) may be achieved, if required, for very high control efficiencies of certain toxic VOC. The purified, hot gases exit this chamber and are directed to one or more different ceramic-packed beds cooled by an earlier cycle. Heat from the purified gases is absorbed by these beds before the gases are exhausted to the atmosphere. The reheated packed bed then begins a new cycle by heating a new incoming waste gas stream.

RTOs are applicable over the same range of concentrations as recuperative thermal oxidizers and have the same LEL requirements.

VOC destruction efficiency depends upon design criteria (i.e. chamber temperature, residence time, inlet VOC concentration, compound type, and degree of mixing). Typical RTOs can achieve control efficiencies from 95 to 99%.

RTOs have been used effectively at VOC inlet loadings as low as 100 ppm or less. For safety considerations, as with thermal and recuperative oxidizers, the maximum concentration of the organics in the waste gas must be substantially below the lower flammable level (lower explosive limit, or LEL) of the specific compound being controlled. As a rule, a safety factor of four (i.e., 25% of the LEL) is used. The waste gas may be diluted with ambient air, if necessary, to lower the concentration.

(5) Flare
A flare can be used for controlling VOC emissions. Basically, the gases in the vent line are burned constantly as they are emitted.

Reclamation Controls

(1) Condensation

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. When condensers are used for air pollution control, they usually operate at the pressure of the emission steam, and typically require a refrigeration unit to obtain the temperature necessary to condense the VOCs from the emission stream. The emission stream enters a heat exchanger, usually of shell-and-tube design, and encounters the cold surface to the tube carrying the refrigerant. The emission stream temperature drops to the dew point of its VOC constituents. The VOC liquefies and drops out of the emissions stream. The “cleaned” emission stream is then vented to the stack while the condensed solvent is collected for reuse or disposal.

Condensation systems are recommended for emission steams containing between 5,000 and 10,000 ppm.

(2) Cryogenic Condensation

A cryogenic VOC control system uses liquid nitrogen as a cooling agent to reduce the temperature of the condenser to a low as –160º F. According to BOC Gases, the manufacturer of the patented Kryoclean system, the system is designed for low flow rate (<1,000 acfm), high inlet VOC concentrations and low moisture content.

(3) Absorption

Absorption is a surface phenomenon where components of a gas phase mixture (pollutants) are selectively transferred to a relatively nonvolatile liquid. Although water is typically used, organic liquids, such as mineral oil or non-volatile hydrocarbons, are suitable adsorption solvents for certain types of waste streams. The choice of solvent depends on the solubility of the pollutant in the solvent. As a part of this BACT analysis for the solvent extraction process, Ultra Soy has evaluated a soybean oil scrubber followed by a water scrubber to control VOC emissions from the biodiesel process to absorb the pollutant (methanol).

(4) Carbon Adsorption

Carbon adsorption is the predominant method for adsorption of VOC streams. As a general rule, the vent gases were cooled as far as practical before entering the carbon adsorption system to minimize the thermal loading on the carbon. The carbon adsorption systems are conservatively designed to have a very low pressure drop so that a vent blower is not required in the system. These systems, when operating as designed, efficiently remove VOC from the stream.

(5) Carbon Adsorption/Oxidation

In some cases, a combination of control technologies results in the most efficient and cost effective VOC control method. A combination of carbon adsorption and oxidation has had good results on low concentration emission streams.

Carbon Adsorption/Oxidation combines a carbon adsorption system and a recuperative thermal oxidation system for capture and incineration of VOCs. This system concentrates the VOC stream by using carbon adsorption by removing low concentration VOCs from large gas flows to the carbon bed and then much lower gas flow is used to regenerate the carbon. The gas stream coming from the regeneration process contains much higher concentration of VOCs, which are then sent to a thermal oxidizer for a more efficient destruction.

The carbon adsorption system is usually configured as a rotating wheel. During rotation, most of the wheel is utilized for adsorbing VOCs while approximately 10% of the wheel is being regenerated using high temperature air. The low concentration emission stream passes through the carbon adsorption system where up to 95% of the VOCs which were present in the low concentration emission stream are captured for oxidation. High temperature air form the gas-to-gas heat exchanger flows counter current to the flow of the emission stream desorbing the carbon wheel. This desorbing air, now laden with a high concentration of VOCs is destroyed at up to 98% efficiency (i.e., 98% of the 95% of VOC captured from the low concentration emission stream are destroyed). The system concentrates and reduces the air flow of the emission stream, thereby decreasing the size and fuel requirement of the thermal oxidizer. Substantial operational saving may be realized with this type of system. The capital cost is significantly higher than that of either a carbon adsorption system or a recuperative thermal oxidizer alone.

Step 2: Eliminate Technically Infeasible Options

(1) Condensation – Condensation is not as efficient as the proposed absorber/scrubber combination. Therefore, this option was not considered further.

(2) A cryogenic VOC control system uses liquid nitrogen as a cooling agent to reduce the temperature of the condenser to as low as –160º F. The evaporated nitrogen is used for other processes at the facility, such as a blanketing agent for VOC storage tanks or as a process gas. The VOCs are condensed and are reused, recycled or disposed.

This technology would be a possible alternative, but a soy oil absorber followed by water scrubbing is a more proven method with 97% recovery at a fraction of the cost. Therefore, this option was not considered further.

(3) The adsorption of methanol onto carbon is an exothermic reaction. Increases in the concentration of the inlet stream will cause additional heat to build up in the carbon bed. Under optimum conditions, the air movement through the bed will remove the heat via convection. However, if channeling occurs in the carbon bed, or if the increase in concentration is too large (as in upset condition), the bed can overheat to the point of auto-ignition. Carbon bed fires have historically occurred in the soybean processing industry.

Carbon systems do not fail in a safe mode. If an internal fire occurs, the carbon bed provides additional fuel to the ongoing fire.

The combination of technical and safety concerns make carbon adsorption technically infeasible for the methyl ester production.

(4) Carbon Adsorption/Oxidation – Safety concerns raised for carbon adsorption would also exist for this technology as discussed previously.

(5) Flare – A flare may be acceptable for stand-alone biodiesel facilities, but it is a large and unacceptable risk for a facility located adjacent to a solvent extraction plant.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness

There are only two technically feasible add-on control systems.

Technology	Control Efficiency
Scrubber (Absorber)	99%
Thermal Oxidation	98%

Step 4: Evaluate the Most Effective Controls and Document the Results

The following companies' BACT determinations from permits issued by other states were evaluated to determine the BACT for this plant. There were no entries found in the RBLC Clearinghouse database for a biodiesel plant.

Company	Date	BACT determined	Comments
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***Soy oil absorber followed by a water scrubber with a combined VOC control efficiency of 99% and a VOC emission rate of 0.22 lbs/hr without methanol unloading and 0.43 lbs/hr with methanol unloading.***	
Louis Dreyfus Agricultural Industries, LLC, Claypool, Indiana	January 24, 2006	Soy oil Absorber Followed by water scrubber. 0.3 lb/hr without Methanol unloading, 0.63 lb/hr with methanol unloading.	80 million gallons per year plant
Minnesota Soybean Processors Brewster, Minnesota	May, 2004	No controls. Volatile Organic Compounds: less than or equal to 619 tons/year using 12-month rolling sum for VOC solvent loss (after first eighteen months of operation).	30 million gallons per year biodiesel plant

Step 5: Selection of BACT

The following has been determined to be BACT for the biodiesel production operation:

(1) VOC emissions shall be controlled by a soy oil absorber followed by a water scrubber with a combined VOC control efficiency of 99%;

(2) VOC emissions shall not exceed 0.22 pound per hour without methanol unloading and 0.43 pounds per hour with methanol unloading.

Although the absorption by the soy bean oil is not highly efficient, ranging from 50 to 80%, this step allows direct reuse of the methanol. The efficiency of the water scrubber will theoretically be greater than 96%. The combined removal of the two absorbers arranged in series is estimated to be 99%.

Since Ultra Soy has chosen the top available control option, no cost analysis is required.

PM/PM10 BACT Analysis

Grain receiving (R1 through R9) exhausting through stack EP-1: The grain handling/processing operation uses a variety of conveying equipment to receive and deposit in the storage facility the grain required for the process. The movement of these materials results in PM and PM10 emissions.

Step 1: Identify Potential Control Technologies for R1 through R9

(1) Fabric Filter Dust Collectors

Fabric filter dust collectors, or baghouses, efficiently collect particulate material by passing the emission stream through a woven cloth filter lodging the particle on the cloth fabric. Periodically either the air stream is ceased and the fabric is shaken or a pulse of air counter current to the air stream is used to dislodge particles built up on the filter fabric. The design of the filter container or canister allows the dislodged particulate matter to fall with the aid of gravity to collect in the bottom of the unit. With the aid of an airlock, the particulate matter is reintroduced in to the process stream preferably down stream further in the process to eliminate handling of the particulate matter repeatedly or removed for disposal depending on the particular stream.

Fabric filter dust collectors operate at a pressure drop between the clean air and process air sides of the filter fabric. The rate of increase in the pressure drop across the filter fabric can be indicative of the operating performance of the filtering unit. Fabric filter dust collectors using mechanical shaking, reverse air, or reverse pulse jet methods for cleaning or dislodging the particulate matter will yield flow rate concentrations of approximately 0.005 grains per standard cubic foot (scf) of particulate matter at the outlet regardless of inlet loading changes when used to filter dusts with particle size distributions similar to agricultural processing types of dust. Fabric filter dust collectors are least efficient with particles 0.1 micrometer to 0.3 micrometer and are sensitive to temperatures exceeding 550 degrees Fahrenheit (F). The temperature of the emission stream should be at least 50 to 100 degrees F above its dew point. If the temperature is below this range, condensation can occur, leading to binding to and/or deterioration of the fabric filter bags resulting in filter failure. Fabric filter dust collectors are technologically feasible for high moisture gas streams if the gas stream is pretreated prior to entering the fabric filter dust collector or other methods are used to ensure the temperature in the collector does not drop below the dew point resulting in condensation in the system.

(2) Electrostatic Precipitators

Electrostatic precipitators remove particles by charging the particles, collecting the particles, and discharging the particles and transporting the particles to the collection hopper. The area where the particles are charged is referred to as the corona.

(3) Venturi Scrubbers or Wet Scrubbers

Venturi scrubbers use an aqueous stream to remove particulate materials from an emissions stream. The resulting wastewater must be treated or properly disposed of. Venturi scrubbers perform most efficiently for particles with diameters above 0.5 micrometers. Venturi scrubbers require a high-pressure drop (40” of H_20 or greater) for high collection efficiencies for small particulates.

(4) Cyclones

Cyclones remove particles from the waste gas stream using cyclonic airflow. The gas stream enters a tangential inlet near the top of a cylindrical body creating primary vortex. The spiral created increases the tangential acceleration. The particles with larger masses separate out toward the outer walls of the cyclone as they spiral downward toward the centrally placed discharge outlet as a result of the force created by the mass and acceleration of the particle. The flow continues downward until it approaches the bottom of the cone of the separator, where the vortex changes, forming an inner vortex traveling upward to the gas outlet. The centrifugal forces induced by the main vortex cause the particulate material to impact on the walls of the cyclone as described above. This action concentrates the dust layer as it forms near the walls and spirals toward the discharge where it is collected. The collected material may be reintroduced to the processing stream or removed for disposal.

(5) Combination Cyclone and Fabric Filter Dust Collectors

The combination of cyclones and fabric filter dust collectors can be accomplished either in one unit or as separate units. In some applications the design will accommodate the cyclone in the same housing or enclosure as the fabric filter dust collector. In these cases, the cyclone is designed as the lower section of the unit. Particulate matter is first separated out in the cyclone. The air travels out of the cyclone through the fabric filter dust collector. If the design prohibits the use of the combination unit, the cyclones and fabric filter dust collector are installed as stand alone units. The air leaves the cyclone or cyclones as the primary separation and enters the fabric filter dust collectors for the subsequent separation. The combination cyclone and fabric filter dust collector typically does not offer a higher degree of separation. The combination cyclone and fabric filter dust collector is useful in maintaining the desired degree of control in bulky and heavily loaded air streams.

(6) Gravity Collector/Settling Chamber

The Settling chamber consists of a contained area in which particulate matter is allowed to settle. The chamber must have a large enough cross-sectional area to allow a vertical velocity of the gas to be slower than the terminal velocity of the particle to be separated. The particulate matter drifts to the bottom, where it is collected.

Step 2: Elimination of Technically Infeasible Options for R1 through R9

Electrostatic Precipitators

The electrostatic precipitator is not used to control organic matter since the corona discharge would constitute a fire hazard. The electrostatic precipitator requires that the particles to be collected receive a charge. Organic particles at this source have a low resistively indicating that they would be very difficult to charge at a reasonable potential difference. Therefore, operation of an electrostatic precipitator at a safe potential difference on the organic gas stream proposed results in very little efficiency. Therefore, this option is not technically feasible.

Step 3: Ranking of the Remaining Control Technologies by Control Effectiveness for R1 through R9 (PM 10 Range of Control Efficiencies from AP-42)

Technology	**Control Efficiency**
Baghouse/Fabric Filter Dust Collector	99.0 – 99.9%
Combination Cyclone and Fabric Filter Dust Collector	99.0 – 99.0%
Venturi Scrubber	90.0 – 99.0%

Technology	Control Efficiency
Wet Scrubber	30.0 – 99.0%
High Efficiency Cyclones	80.0 – 98.0 %
Medium Efficiency Cyclones	50.0 – 85.0 %
Low Efficiency Cyclones	10.0 – 60.0 %
Gravity Collector	1.5 – 6.0 %

Step 4: Evaluation of the Most Effective Controls R1 through R9

1. Baghouse/Fabric Filter Dust Collector is an effective control for PM and PM10 emissions from the grain receiving operations. The gas or air associated with this emission point will be relatively dry as the dew point of the air will be more than 40^{o} F from its dew point during normal operations.
2. Combination Cyclone and Baghouse/Fabric Filter Dust Collector is an effective control for PM and PM10 emissions from the grain receiving operations.
3. Venturi scrubbers and wet scrubbers do not provide as effective control of PM and PM10 emissions from the grain receiving operations as the fabric filter dust collector or combination cyclone and fabric filter dust collector. Therefore, they are not considered as BACT.
4. Cyclones alone will not provide sufficient control for PM and PM10 emissions from the grain receiving operations to be considered as BACT.
5. Gravity Collection will not provide sufficient control for PM and PM10 emissions from the grain receiving operations to be considered as BACT.

The following companies' BACT determinations from the RBLC and from permits issued by other states were evaluated to determine the BACT for this plant.

Table 1: Comparison of PM and PM10 limits for Grain receiving operations

Company	Date	BACT determined	Control
Golden Grain Energy, Cerro Gordo County, Iowa	4/19/06	Grain receiving PM and PM10 limit: 0.40 lb/hr as 3-hour average with additional limit of 0.0012 gr/dscf as 3-hour average for each pollutant. Visible emissions not to exceed 0% 1- hour average opacity.	Enclosed receiving pit and baghouse with 99% control efficiency.
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***PM emissions shall not exceed 0.76 lb/hr and 0.004 gr/dscf. PM10 emissions shall not exceed 0.40 lb/hr and 0.0025 gr/dscf. Fugitive emissions shall not exceed 0% opacity for the grain receiving operations.***	***Install fabric filter dust collector DC-1 with 99.3% control efficiency to control PM and PM10 emissions from grain receiving operations.***

Company	Date	BACT determined	Control
Central Soya Company, Inc., Huron County, Ohio	11/29/01	Grain Receiving #1, Truck – PM limit: 0.073 lb/hr, 0.53 ton/yr and 0.0025 gr/dscf (standardized). Grain Receiving #2, Truck – PM limit: 0.12 lb/hr, 0.53 ton/yr and 0.0025 gr/dscf (standardized). Visible emissions not to exceed 5% opacity.	Choke flow and 2-sided enclosure considered 90% control; baghouse w/ removal efficiency of 99.9%.
Central Soya Company, Inc., Huron County, Ohio	11/29/01	Grain Receiving #3, Truck and Rail - 0.019 lb/hr PM, 0.08 ton/yr PM, and 0.0025 gr/dscf (standardized). Visible emissions not to exceed 5% opacity.	Choke flow and 2-sided enclosure considered 90% control; baghouse w/ removal efficiency of 99.9%.
Archer Daniels Midland, Linn County, Iowa	6/29/07	Grain receiving: PM and PM10 limits of 0.004 gr/dscf each as the average of 3 test runs. Visible emissions not to exceed 0% 6-minute average opacity.	Baghouse. Truck unloading conducted within an enclosure; both the entrance and exit doors closed. Rail unloading within an enclosure; physical barrier which totally covers any opening. Choke flow unloading for hopper trucks and rail.
Homeland Energy Solutions, LLC, Chickasaw County, Iowa	8/8/07	Grain Receiving Storage and Handling: PM and PM10 limits of 0.004 gr/dscf each. Visible emissions not to exceed 0% opacity.	Baghouse.
Cargill, Inc. – Sioux City, Iowa	June, 1998	Truck receiving: PM limit of 0.006 gr/dscf and 1.8 lbs/hr; and PM10 limit of 0.003 gr/dscf and 0.87 lb/hr.	Bag filter with 99.9% control efficiency for PM and 99% control efficiency for PM10.
Bunge Corporation, Mills County, Iowa	May, 1997	Bean Truck receiving and Bean Rail receiving each: PM limit of 0.35 lb/hr, 1.54 tons/yr, and 0.01 gr/dscf (standardized); PM10 limit of 0.35 lb/hr, 1.54 tons/yr, and 0.002 gr/dscf (standardized).	Bag filter.

Step 5: Selection of BACT for R1 through R9

A fabric filter dust collector is the most efficient control option and is proposed as BACT for controlling PM and PM10 from R1 through R9. Therefore, Ultra Soy is proposing to install fabric filter dust collector DC-1 to control PM and PM10 emissions from units R1 through R9.

Therefore, BACT for units R1 through R9 shall be the following:

(a) PM emissions from stack EP-1 shall not exceed 0.76 pound per hour and 0.004 gr/dscf;

(b) PM10 emissions from stack EP-1 shall not exceed 0.40 pound per hour and 0.0025 gr/dscf;

(c) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-1.

(d) Enclosures and intake hoods designed to minimize fugitive losses for the specific receiving application will have the air drawn to the fabric filter dust collector for the receiving areas. The conveying equipment shall be totally enclosed and the air drawn from the enclosed conveying equipment through the fabric filter dust collector will result in negative pressure within the conveying enclosure. This will ensure zero emissions from the conveying units.

(e) Fugitive emissions shall meet an opacity limit of 0% for the grain receiving.

Although the PM emission limit for the grain receiving at Golden Grain Energy is 0.40 pound per hour pursuant to BACT, the fabric filter dust collector or baghouse being installed by Ultra Soy will have a greater control efficiency of 99.3%. A PM limit of 0.40 pound per hour is not achievable by the grain receiving operations at this source which have a greater throughput than those at Golden Grain Energy, which have a throughput of 4,000 tons per day.

PM/PM10 BACT Analysis

Grain Storage and Handling Operations (R10, P1 through P6, D1 through D13) exhausting through stack EP-2: The grain handling/processing operation uses a variety of conveying equipment moving grain from storage to subsequent processing. The movement of these materials results in PM and PM10 emissions.

Step 1: Identify Potential Control Technologies for Grain Handling & Storage (R10, P1 through P6, D1 through D13)

(1) Fabric Filter Dust Collectors

Fabric filter dust collectors, or baghouses, efficiently collect particulate material by passing the emission stream through a woven cloth filter lodging the particle on the cloth fabric. Periodically either the air stream is ceased and the fabric is shaken or a pulse of air counter current to the air stream is used to dislodge particles built up on the filter fabric. The design of the filter container or canister allows the dislodged particulate matter to fall with the aid of gravity to collect in the bottom of the unit. With the aid of an airlock, the particulate matter is reintroduced in to the process stream preferably down stream further in the process to eliminate handling of the particulate matter repeatedly or removed for disposal depending on the particular stream.

Fabric filter dust collectors operate at a pressure drop between the clean air and process air sides of the filter fabric. The rate of increase in the pressure drop across the filter fabric can be indicative of the operating performance of the filtering unit. Fabric filter dust collectors using mechanical shaking, reverse air, or reverse pulse jet methods for cleaning or dislodging the particulate matter will yield flow rate concentrations of approximately 0.005 grains per standard cubic foot (scf) of particulate matter at the outlet regardless of inlet loading changes when used to filter dusts with particle size distributions similar to agricultural processing types of dust. Fabric filter dust collectors are least efficient with particles 0.1 micrometer to 0.3 micrometer and are sensitive to temperatures exceeding 550 degrees Fahrenheit (F). The temperature of the emission stream should be at least 50 to 100 degrees F above its dew point. If the temperature is below this range, condensation can occur, leading to binding to and/or deterioration of the fabric filter bags resulting in filter failure. Fabric filter dust collectors are technologically feasible for high moisture gas streams if the gas stream is pretreated prior to entering the fabric filter dust collector or other methods are used to ensure the temperature in the collector does not drop below the dew point resulting in condensation in the system.

(2) Electrostatic Precipitators

Electrostatic precipitators remove particles by charging the particles, collecting the particles, and discharging the particles and transporting the particles to the collection hopper. The area where the particles are charged is referred to as the corona.

(3) Venturi Scrubbers or Wet Scrubbers

Venturi scrubbers use an aqueous stream to remove particulate materials from an emissions stream. The resulting wastewater must be treated or properly disposed of. Venturi scrubbers perform most efficiently for particles with diameters above 0.5 micrometers. Venturi scrubbers require a high-pressure drop (40” of H_20 or greater) for high collection efficiencies for small particulates.

(4) Cyclones

Cyclones remove particles from the waste gas stream using cyclonic airflow. The gas stream enters a tangential inlet near the top of a cylindrical body creating primary vortex. The spiral created increases the tangential acceleration. The particles with larger masses separate out toward the outer walls of the cyclone as they spiral downward toward the centrally placed discharge outlet as a result of the force created by the mass and acceleration of the particle. The flow continues downward until it approaches the bottom of the cone of the separator, where the vortex changes, forming an inner vortex traveling upward to the gas outlet. The centrifugal forces induced by the main vortex cause the particulate material to impact on the walls of the cyclone as described above. This action concentrates the dust layer as it forms near the walls and spirals toward the discharge where it is collected. The collected material may be reintroduced to the processing stream or removed for disposal.

(5) Combination Cyclone Fabric Filter Dust Collectors

The combination of cyclones and fabric filter dust collectors can be accomplished either in one unit or as separate units. In some applications the design will accommodate the cyclone in the same housing or enclosure as the fabric filter dust collector. In these cases, the cyclone is designed as the lower section of the unit. Particulate matter is first separated out in the cyclone. The air travels out of the cyclone through the fabric filter dust collector. If the design prohibits the use of the combination unit, the cyclones and fabric filter dust collector are installed as stand alone units. The air leaves the cyclone or cyclones as the primary separation and enters the fabric filter dust collector for the subsequent separation. The combination cyclone and fabric filter dust collector typically does not offer a higher degree of separation. The combination cyclone and fabric filter dust collector is useful in maintaining the desired degree of control in bulky and heavily loaded air streams.

(6) Gravity Collector/Settling Chamber

The Settling chamber consists of a contained area in which particulate matter is allowed to settle. The chamber must have a large enough cross-sectional area to allow a vertical velocity of the gas to be slower than the terminal velocity of the particle to be separated. The particulate matter drifts to the bottom, where it is collected.

Step 2: Elimination of Technically Infeasible Options for Grain Handling & Storage (R10, P1 through P6, D1 through D13)

Electrostatic Precipitators

The electrostatic precipitator is not used to control organic matter since the corona discharge would constitute a fire hazard. The electrostatic precipitator requires that the particles to be collected receive a charge. Organic particles at this source have a low resistively indicating that they would be very difficult to charge at a reasonable potential difference. Therefore, operation of an electrostatic precipitator at a safe potential difference on the organic gas stream proposed results in very little efficiency. Therefore, this option is not technically feasible.

Step 3: Ranking of the Remaining Control Technologies by Control Effectiveness for Grain Handling & Storage (R10, P1 through P6, D1 through D13)

Technology	**Control Efficiency**
Baghouse/Fabric Filter Dust Collector	99.0 – 99.9%
Combination Cyclone and Fabric Filter Dust Collector	99.0 – 99.0%

Technology	Control Efficiency
Venturi Scrubber	90.0 – 99.0%
Wet Scrubber	30.0 – 99.0%
High Efficiency Cyclones	80.0 – 98.0 %
Medium Efficiency Cyclones	50.0 – 85.0 %
Low Efficiency Cyclones	10.0 – 60.0 %
Gravity Collector	1.5 – 6.0 %

Step 4: Evaluation of the Most Effective Controls for Grain Handling & Storage (R10, P1 through P6, D1 through D13)

1. Baghouse/Fabric Filter Dust Collector is the most effective control for PM and PM10 emissions from grain handling and storage. Gas or air will be relatively dry as the dew point of the air will be more than 40^{o} F from its dew point during normal operations.
2. Combination Cyclone and Baghouse/Fabric Filter Dust Collector is a very effective control for PM and PM10 emissions from grain handling and storage.
3. Venturi scrubbers and wet scrubbers do not provide as effective control of PM and PM10 emissions from the grain handling and storage operations as the fabric filter dust collector or combination cyclone and fabric filter dust collector. Therefore, they are not considered as BACT.
4. Cyclones alone will not provide sufficient control for PM and PM10 emissions from the grain handling and storage operations to be considered as BACT.
5. Gravity Collection will not provide sufficient control for PM and PM10 emissions from the grain handling and storage operations to be considered as BACT.

The following companies' BACT determinations from the RBLC and from permits issued by other states were evaluated to determine the BACT for this plant.

Table 1: Comparison of PM and PM10 limits for Grain Handling & Storage operations

Company	Date	BACT determined	Control
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***PM emissions shall not exceed 0.68 lb/hr and 0.006 gr/dscf. PM10 emissions shall not exceed 0.38 lb/hr and 0.003 gr/dscf. Fugitive emissions will meet an opacity limit of 0% for the grain storage and handling operations.***	***Install fabric filter dust collector DC-2 to control PM and PM10 emissions from grain handling and storage operations.***
Cargill, Inc., Sioux City, Iowa	6/1/98	Grain transfer: PM limit of 0.006 gr/dscf, 1.29 lbs/hr. PM10 limit of 0.003 gr/dscf, 0.64 lb/hr. Visible emissions not to exceed 0% opacity.	Bagfilter as control.
Bunge Corporation, Mills County, Iowa	5/20/97	Grain cleaning: PM limit: 0.26 lb/hr and 1.13 tons/yr and 0.1 gr/dscf (standardized). PM10 limit: 0.26 lb/hr and 1.13 tons/yr and 0.002 gr/dscf (standardized).	Bagfilter as control.

Company	Date	BACT determined	Control
Cargill, Inc., Sioux City, Iowa	6/1/98	Grain cleaning: PM limit of 1.21 lbs/hr and 0.006 gr/dscf. PM10 limit of 0.6 lb/hr and 0.003 gr/dscf. Visible emissions not to exceed 0% opacity.	Bagfilter as control.
Central Soya Company, Inc., Huron County, Ohio	11/29/01	Bean cleaning: PM limit of 11.83 lbs/hr. Visible emissions not to exceed 20% opacity.	Baghouse as control.

Step 5: Selection of BACT for Grain Handling & Storage (R10, P1 through P6, D1 through D13)

A fabric filter dust collector is the most efficient control option and is proposed as BACT for controlling PM and PM10 emissions from the grain handling and storage operations (R10, P1 through P6, D1 through D13). Therefore, Ultra Soy is proposing to install fabric filter dust collector DC-2 to control PM and PM10 emissions from units R10, P1 through P6, and D1 through D13.

Therefore, BACT for the grain handling and storage operations (R10, P1 through P6, D1 through D13) shall be the following:

(a) PM emissions from stack EP-2 shall not exceed 0.68 pound per hour and 0.006 gr/dscf;

(b) PM10 emissions from stack EP-2 shall not exceed 0.38 pound per hour and 0.003 gr/dscf;

(c) PM and PM10 emissions shall be controlled by fabric filter dust collector DC-2.

(d) The conveying equipment shall be totally enclosed by design and the air drawn from the enclosed conveying equipment through the fabric filter dust collector will result in negative pressure with the conveying enclosure. This will ensure zero emissions from the conveying units.

(e) Fugitive emissions shall meet an opacity limit of 0% for the grain handling and storage operations.

PM/PM10 BACT Analysis

Soybean Preparation and Handling Operations (P7 through P13, P11A, P12A, P17, P18, P22 through P66, P68, F1 through F24, F26 through F37) exhausting through stack EP-3:

Soybean preparation and handling of the soybeans and the resulting intermediate materials, such as the soybean cracks and fibers, results in PM and PM10 emissions.

Step 1: Identify Potential Control Technologies for Soybean Preparation and Handling Operations (P7 through P13, P11A, P12A, P17, P18, P22 through P66, P68, F1 through F24, F26 through F37)

(1) Fabric Filter Dust Collectors

Fabric filter dust collectors, or baghouses, efficiently collect particulate material by passing the emission stream through a woven cloth filter lodging the particle on the cloth fabric. Periodically either the air stream is ceased and the fabric is shaken or a pulse of air counter current to the air stream is used to dislodge particles built up on the filter fabric. The design of the filter container or canister allows the dislodged particulate matter to fall with the aid of gravity to collect in the bottom of the unit. With the aid of an airlock, the particulate matter is reintroduced in to the process stream preferably down stream further in the process to eliminate handling of the particulate matter repeatedly or removed for disposal depending on the particular stream.

Fabric filter dust collectors operate at a pressure drop between the clean air and process air sides of the filter fabric. The rate of increase in the pressure drop across the filter fabric can be indicative of the operating performance of the filtering unit. Fabric filter dust collectors using mechanical shaking, reverse air, or reverse pulse jet methods for cleaning or dislodging the particulate matter will yield flow rate concentrations of approximately 0.005 grains per standard cubic foot (scf) of particulate matter at the outlet regardless of inlet loading changes when used to filter dusts with particle size distributions similar to agricultural processing types of dust. Fabric filter dust collectors are least efficient with particles 0.1 micrometer to 0.3 micrometer and are sensitive to temperatures exceeding 550 degrees Fahrenheit (F). The temperature of the emission stream should be at least 50 to 100 degrees F above its dew point. If the temperature is below this range, condensation can occur, leading to binding to and/or deterioration of the fabric filter bags resulting in filter failure. Fabric filter dust collectors are technologically feasible for high moisture gas streams if the gas stream is pretreated prior to entering the fabric filter dust collector or other methods are used to ensure the temperature in the collector does not drop below the dew point resulting in condensation in the system.

(2) Electrostatic Precipitators

Electrostatic precipitators remove particles by charging the particles, collecting the particles, and discharging the particles and transporting the particles to the collection hopper. The area where the particles are charged is referred to as the corona.

(3) Venturi Scrubbers or Wet Scrubbers

Venturi scrubbers use an aqueous stream to remove particulate materials from an emissions stream. The resulting wastewater must be treated or properly disposed of. Venturi scrubbers perform most efficiently for particles with diameters above 0.5 micrometers. Venturi scrubbers require a high-pressure drop (40” of H_20 or greater) for high collection efficiencies for small particulates.

(4) Cyclones

Cyclones remove particles from the waste gas stream using cyclonic airflow. The gas stream enters a tangential inlet near the top of a cylindrical body creating primary vortex. The spiral created increases the tangential acceleration. The particles with larger masses separate out toward the outer walls of the cyclone as they spiral downward toward the centrally placed discharge outlet as a result of the force created by the mass and acceleration of the particle. The flow continues downward until it approaches the bottom of the cone of the separator, where the vortex changes, forming an inner vortex traveling upward to the gas outlet. The centrifugal forces induced by the main vortex cause the particulate material to impact on the walls of the cyclone as described above. This action concentrates the dust layer as it forms near the walls and spirals toward the discharge where it is collected. The collected material may be reintroduced to the processing stream or removed for disposal.

(5) Combination Cyclone Fabric Filter Dust Collectors

The combination of cyclones and fabric filter dust collectors can be accomplished either in one unit or as separate units. In some applications the design will accommodate the cyclone in the same housing or enclosure as the fabric filter dust collector. In these cases, the cyclone is designed as the lower section of the unit. Particulate matter is first separated out in the cyclone. The air travels out of the cyclone through the fabric filter dust collector. If the design prohibits the use of the combination unit, the cyclones and fabric filter dust collector are installed as stand alone units. The air leaves the cyclone or cyclones as the primary separation and enters the fabric filter dust collector for the subsequent separation. The combination cyclone and fabric filter dust collector typically does not offer a higher degree of separation. The combination cyclone and fabric filter dust collector is useful in maintaining the desired degree of control in bulky and heavily loaded air streams.

(6) Gravity Collector/Settling Chamber

The Settling chamber consists of a contained area in which particulate matter is allowed to settle. The chamber must have a large enough cross-sectional area to allow a vertical velocity of the gas to be slower than the terminal velocity of the particle to be separated. The particulate matter drifts to the bottom, where it is collected.

Step 2: Elimination of Technically Infeasible Options for Soybean Preparation and Handling Operations (P7 through P13, P11A, P12A, P17, P18, P22 through P66, P68, F1 through F24, F26 through F37)

Electrostatic Precipitators

The electrostatic precipitator is not used to control organic matter since the corona discharge would constitute a fire hazard. The electrostatic precipitator requires that the particles to be collected receive a charge. Organic particles at this source have a low resistively indicating that they would be very difficult to charge at a reasonable potential difference. Therefore, operation of an electrostatic precipitator at a safe potential difference on the organic gas stream proposed results in very little efficiency. Therefore, this option is not technically feasible.

Step 3: Ranking of the Remaining Control Technologies by Control Effectiveness for Soybean Preparation and Handling Operations (P7 through P13, P11A, P12A, P17, P18, P22 through P66, P68, F1 through F24, F26 through F37)

Technology	Control Efficiency
Baghouse/Fabric Filter Dust Collector	99.0 – 99.9%
Combination Cyclone and Fabric Filter Dust Collector	99.0 – 99.0%
Venturi Scrubber	90.0 – 99.0%
Wet Scrubber	30.0 – 99.0%
High Efficiency Cyclones	80.0 – 98.0 %
Medium Efficiency Cyclones	50.0 – 85.0 %
Low Efficiency Cyclones	10.0 – 60.0 %
Gravity Collector	1.5 – 6.0 %

Step 4: Evaluation of the Most Effective Controls for Soybean Preparation and Handling Operations (P7 through P13, P11A, P12A, P17, P18, P22 through P66, P68, F1 through F24, F26 through F37)

1. Combination Cyclone & Baghouse/Fabric Filter Dust Collector is the most effective control for PM and PM10 emissions from the soybean preparation and handling operations.
2. Bag-house/Fabric Filter Dust Collector is a very effective control for PM and PM10 emissions from the soybean preparation and handling operations.
3. Venturi Scrubbers don't provide sufficient control of PM and PM10 for this source. Therefore, they are not considered as BACT.
4. Wet Scrubbers do not provide sufficient control of PM and PM10 for this source. Therefore, they are not considered as BACT.
5. Cyclones alone will not provide sufficient control for PM and PM 10 for this source. Therefore, they are not considered as BACT.
6. Gravity Collection will not provide sufficient control for PM and PM10 for this source. Therefore, they are not considered as BACT.

The following companies' BACT determinations from the RBLC and from permits issued by other states were evaluated to determine the BACT for this plant.

Table 1: Comparison of PM and PM10 limits for Soybean Preparation and Handling Operations

Company	Date	BACT determined	Control
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***PM emissions shall not exceed 5.92 lbs/hr and 0.006 gr/dscf. PM10 emissions shall not exceed 3.16 lbs/hr and 0.003 gr/dscf. Fugitive emissions will meet an opacity limit of 0% for the soybean preparation and handling operations.***	***Install fabric filter dust collector DC-3 to control PM and PM10 emissions from soybean preparation and handling. Some operations will also have a cyclone.***
Bunge Corporation, Mills County, Iowa	5/20/97	Aspiration Flaker: PM: 1.5 lbs/hr, 0.1 gr/dscf (standardized). PM10: 1.08 lbs/hr, 0.0043 gr/dscf (standardized).	Cyclone
Bunge Corporation, Mills County, Iowa	5/20/97	Dehulling #1: PM and PM10: 1.23 lbs/hr each.	Bag filter

Company	Date	BACT determined	Control
Bunge North America, Pottawattamie County, Iowa	01/29/07	Flaker Aspiration: PM: 0.006 gr/dscf. PM10: 0.003 gr/dscf.	Baghouse
Cargill, Inc., Sioux City, Iowa	6/1/98	Mill/Milling Process (Hull Grinding): PM: 0.006 gr/dscf. PM10: 0.003 gr/dscf. Visible emissions shall not exceed 0% opacity.	Bag filter
Cargill, Inc., Sioux City, Iowa	6/1/98	Aspiration – Flaker: PM: 0.006 gr/dscf.	Product recovery cyclone
Cargill, Inc., Sioux City, Iowa	02/06/01	Flaker Aspiration and Product Recovery: PM and PM10: 1.75 lbs/hr each. Visible emissions shall not exceed 0% opacity.	Product recovery cyclone
Central Soya Company, Inc., Huron County, Ohio	11/29/01	Meal Screening: PM: 0.086 lb/hr. Visible emissions shall not exceed 20% opacity.	Baghouse
Central Soya Company, Inc., Huron County, Ohio	11/29/01	Hull Grinding: PM: 0.22 lb/hr. Visible emissions shall not exceed 20% opacity.	Baghouse

Step 5: Selection of BACT for EP-3

A combination cyclone and fabric filter dust collector is the most efficient control option and is proposed as BACT for controlling PM and PM10 from the soybean preparation and handling operations (P7 through P13, P11A, P12A, P17, P18, P22 through P66, P68, F1 through F24, F26 through F37). Therefore, Ultra Soy is proposing to install fabric filter dust collector DC-3 to control PM and PM10 emissions from units P7 through P13, P11A, P12A, P17, P18, P22 through P66, P68, F1 through F24, and F26 through F37. The following cyclones will also be installed to provide additional PM and PM10 emissions control for the following operations:

Cyclone (CY-1) for the whole bean aspirator (P11-P12);
Cyclones (CCD and CCC) for the cascade dryers 1 through 6 (P28-P33) and the cascade coolers 1 through 6 (P40-P45), respectively;
Cyclone (CY-12) for the flaker feed conveyor (P46) and the flakers (P47-P66);
Cyclone (CY-13) for the hull screeners (F3-F6);
Cyclone (CY-14) for the secondary mid aspirators (F7-F10);
Cyclone (CY-15) for the secondary “overs” aspirators (F11-F14);
Cyclone (CY-16) for the whole hull grinding feed conveyor (F17), whole hull grinding (F18-F22), and the ground hull leg (F24);
Cyclone (CY-17) for the ground hull storage outfeed conveyor (F26), the pellet feed leg (F27), pellet feed conveyor A (F28), the pelleter (F29-F32), the pelleter discharge conveyor (F33), the pellet leg (F34), the pellet cooler (F35), the pellet cooler discharge conveyor (F36), and the pellet leg (F37).

Additionally, the following limits shall apply:

(a) PM emissions from stack EP-3 shall not exceed 5.92 pounds per hour and 0.006 gr/dscf;

(b) PM10 emissions from stack EP-3 shall not exceed 3.16 pounds per hour and 0.003 gr/dscf;

(c) Fugitive emissions shall meet an opacity limit of 0% for the soybean preparation and handling operations.

Since this is the most effective control option for PM and PM10 emissions control, no further analysis of the other control options is necessary.

PM/PM10 BACT Analysis

Jet Dryers and Vertical Seed Conditioners (VSCs) (P14 through P19) exhausting through stack EP-13: The drying of the grain entails increasing the temperature of the seed which leads to a migration of moisture from the seed to the air stream. The resulting stream will be approximately 165 ^{o} F and very saturated with moisture. The drying and preparation of the soybean and the resulting intermediate materials, such as the soybean cracks, fibers and dusts, results in PM and PM10 emissions.

Step 1: Identify Potential Control Technologies for Jet Dryers and VSCs (P14 through P19)

(1) Fabric Filter Dust Collectors

Fabric filter dust collectors, or baghouses, efficiently collect particulate material by passing the emission stream through a woven cloth filter lodging the particle on the cloth fabric. Periodically either the air stream is ceased and the fabric is shaken or a pulse of air counter current to the air stream is used to dislodge particles built up on the filter fabric. The design of the filter container or canister allows the dislodged particulate matter to fall with the aid of gravity to collect in the bottom of the unit. With the aid of an airlock, the particulate matter is reintroduced in to the process stream preferably down stream further in the process to eliminate handling of the particulate matter repeatedly or removed for disposal depending on the particular stream.

Fabric filter dust collectors operate at a pressure drop between the clean air and process air sides of the filter fabric. The rate of increase in the pressure drop across the filter fabric can be indicative of the operating performance of the filtering unit. Fabric filter dust collectors using mechanical shaking, reverse air, or reverse pulse jet methods for cleaning or dislodging the particulate matter will yield flow rate concentrations of approximately 0.005 grains per standard cubic foot (scf) of particulate matter at the outlet regardless of inlet loading changes when used to filter dusts with particle size distributions similar to agricultural processing types of dust. Fabric filter dust collectors are least efficient with particles 0.1 micrometer to 0.3 micrometer and are sensitive to temperatures exceeding 550 degrees Fahrenheit (F). The temperature of the emission stream should be at least 50 to 100 degrees F above its dew point. If the temperature is below this range, condensation can occur, leading to binding to and/or deterioration of the fabric filter bags resulting in filter failure. Fabric filter dust collectors are technologically feasible for high moisture gas streams if the gas stream is pretreated prior to entering the fabric filter dust collector or other methods are used to ensure the temperature in the collector does not drop below the dew point resulting in condensation in the system.

(2) Electrostatic Precipitators

Electrostatic precipitators remove particles by charging the particles, collecting the particles, and discharging the particles and transporting the particles to the collection hopper. The area where the particles are charged is referred to as the corona.

(3) Venturi Scrubbers or Wet Scrubbers

Venturi scrubbers use an aqueous stream to remove particulate materials from an emissions stream. The resulting wastewater must be treated or properly disposed of. Venturi scrubbers perform most efficiently for particles with diameters above 0.5 micrometers. Venturi scrubbers require a high-pressure drop (40” of H_20 or greater) for high collection efficiencies for small particulates.

(4) Cyclones

Cyclones remove particles from the waste gas stream using cyclonic airflow. The gas stream enters a tangential inlet near the top of a cylindrical body creating primary vortex. The spiral created increases the tangential acceleration. The particles with larger masses separate out toward the outer walls of the cyclone as they spiral downward toward the centrally placed discharge outlet as a result of the force created by the mass and acceleration of the particle. The flow continues downward until it approaches the bottom of the cone of the separator, where the vortex changes, forming an inner vortex traveling upward to the gas outlet. The centrifugal forces induced by the main vortex cause the particulate material to impact on the walls of the cyclone as described above. This action concentrates the dust layer as it forms near the walls and spirals toward the discharge where it is collected. The collected material may be reintroduced to the processing stream or removed for disposal.

(5) Combination Cyclone Fabric Filter Dust Collectors

The combination of cyclones and fabric filter dust collectors can be accomplished either in one unit or as separate units. In some applications the design will accommodate the cyclone in the same housing or enclosure as the fabric filter dust collector. In these cases, the cyclone is designed as the lower section of the unit. Particulate matter is first separated out in the cyclone. The air travels out of the cyclone through the fabric filter dust collector. If the design prohibits the use of the combination unit, the cyclones and fabric filter dust collector are installed as stand alone units. The air leaves the cyclone or cyclones as the primary separation and enters the fabric filter dust collector for the subsequent separation. The combination cyclone and fabric filter dust collector typically does not offer a higher degree of separation. The combination cyclone and fabric filter dust collector is useful in maintaining the desired degree of control in bulky and heavily loaded air streams.

(6) Gravity Collector/Settling Chamber

The Settling chamber consists of a contained area in which particulate matter is allowed to settle. The chamber must have a large enough cross-sectional area to allow a vertical velocity of the gas to be slower than the terminal velocity of the particle to be separated. The particulate matter drifts to the bottom, where it is collected.

Step 2: Elimination of Technically Infeasible and Economically Infeasible Options for Jet Dryers and VSCs (P14 through P19)

(1) Electrostatic Precipitators

The electrostatic precipitator is not used to control organic matter since the corona discharge would constitute a fire hazard. The electrostatic precipitator requires that the particles to be collected receive a charge. Organic particles at this source have a low resistively indicating that they would be very difficult to charge at a reasonable potential difference. Therefore, operation of an electrostatic precipitator at a safe potential difference on the organic gas stream proposed results in very little efficiency. Therefore, this option is not technically feasible.

(2) Baghouse/Fabric Filter Dust Collector

The baghouse/fabric filter dust collector is not an effective control for PM and PM10 emissions for the jet dryers and VSCs. The temperature of the emission stream should be at least 50 to 100 degrees F above its dew point. If the temperature is below this range, condensation can occur, leading to binding to and/or deterioration of the fabric filter bags resulting in filter failure. The gas or air from the jet dryers and VSCs will be relatively wet as the temperature of the air will be less than 40° F above its dew point during normal operations resulting in condensation and, therefore, a dysfunctional unit.

Fabric filter dust collectors used for the soybean processing emissions sources pose additional problems. High oil or free oil dusts will quickly bind to the fabric unless the air to cloth ratio is below the filter to cloth ratio of approximately 5:1. Also, the dehulling system requires a constant air flow to enable the jet drying and dehulling systems to function properly. Both units of the system use concurrent air flow to remove hulls from the bean meat. In some units, cyclones are used as primary collectors to decrease the filterable PM loads insuring the maintenance of the constant airflow. This slows the pressure drop increase as a function of time to a manageable level. Particle buildup in the fabric will increase the superficial velocity through the filter fabric. This situation increases the average pressure drop across the filter and increases erosion of the fabric both of which reduce the effective life of the filter fabric to less than 3 months. It is unadvisable to shut down extraction systems especially in cold weather situations. Shutting down and starting up extraction plants increases the risks of upset conditions. During periods of cold weather there is the risk of the soybean oil gelling, condensation, and water systems freezing. As a result the use of a baghouse or fabric filter dust collector is technically infeasible.

(3) Combination Cyclone & Baghouse/Fabric Filter Dust Collector

The combination cyclone & baghouse/fabric filter dust collector is not an effective control for PM and PM10 emissions for the jet dryers and VSCs. The gas or air will be relatively wet as the temperature of the air will be less than 40° F from its dew point during normal operations resulting in condensation and, therefore, a dysfunctional baghouse. Therefore use of a combination cyclone and baghouse or fabric filter dust collector is technically infeasible.

(4) Venturi Scrubbers or Wet Scrubbers

Wet scrubbers are a technically feasible option. A wet scrubber equipment cost quote was obtained by Ultra Soy from a vendor, Bionomic Industries, Inc. to perform a cost analysis to determine if this option is economically feasible. Additionally, a cost quote was obtained by Ultra Soy for a high efficiency cyclone system from a vendor, Kice Industries, to perform an incremental cost analysis.

A cost effectiveness analysis was performed by Ultra Soy for the use of a wet scrubber and for the use of high efficiency cyclones in series to control PM and PM10 emissions from the jet dryers and VSCs. The results are shown below in Tables 1 and 2. An input PM emission rate of 378.52 tons per year and an input PM10 emission rate of 137.21 tons per year were used to calculate the cost per ton of PM and PM10 removed.

Table 1: Cost/Economic Analysis for a Wet Scrubber

A. Direct Capital Cost		
Item	**Cost Estimate**	**Reference/Source of Cost Estimate**
Purchase Equipment Costs		
1. Equipment Cost Bionomics Wet Scrubber	$ 200,000	Vendor Quote
2. Instrumentation/controls	$ 20,000	EPA Cost Manual
3. Sales Tax	$ 6,000	EPA Cost Manual

4. Freight	$ 10,000	EPA Cost Manual
5. Other	$	
6. Purchased Equipment Subtotal	**$ 236,000**	
Direct Installation Costs		
7. Foundations and Supports	$ 14,160	EPA Cost Manual
8. Erection/Handling	$ 94,400	EPA Cost Manual
9. Electrical	$ 2,360	EPA Cost Manual
10. Piping	$ 11,800	EPA Cost Manual
11. Insulation and Painting	$ 9,440	EPA Cost Manual
12. Site Preparation	$ 0	EPA Cost Manual
13. Other	$	
14. Direct Installation Costs Subtotal	**$ 132,160**	
15. Direct Capital Cost Subtotal	**$ 368,160**	
B. Indirect Installation Costs		
1. Engineering and Supervision	$ 23,600	EPA Cost Manual
2. Construction and Field Expenses	$ 23,600	EPA Cost Manual
3. Contractor Fees	$ 23,600	EPA Cost Manual
4. Start-up and Performance Tests	$ 4,720	EPA Cost Manual
5. Over-all Contingencies	$ 7,080	EPA Cost Manual
7. Other		
8. Indirect Installation Costs Subtotal	**$ 82,600**	
C. Total Capital Cost	**$ 450,760**	
D. Direct Annual Cost		
1. Operating Labor Operator (@ $25.00 per hour x 5,250 hrs/yr) Supervision (15% of labor)	 $ 131,250 $ 19,687	EPA Cost Manual. Based on 5 hrs per shift.
2. Maintenance Labor Maintenance Labor (@ $25.00 per hour x 525 hrs/yr) Maintenance Materials (100% of labor)	 $ 13,125 $ 13,125	EPA Cost Manual. Based on 1.5 hrs per shift.
3. Replacement parts (as required)	$	
4. Utilities 150 hp (100 kW/hr) Water	 $ 84,000 $ 30,000	Bionomics Quote
5. Other Wastewater treatment	 $ 30,000	
6. Direct Annual Cost Subtotal	**$ 321,187**	
E. Indirect Annual Costs		
1. Overhead	$ 106,312	EPA Cost Manual.
2. Property Taxes	$ 4,508	EPA Cost Manual.
3. Insurance	$ 4,508	EPA Cost Manual.
4. Administration	$ 9,016	EPA Cost Manual.

5. Capital Recovery a. Interest Rate b. Economic Lifetime	7% 15 years	0.10979 x Total Capital Cost An economic lifetime of 15 years is used per Section 6, Chapter 2 of the EPA Cost Manual.
6. CAPITAL RECOVERY COST	$ 49,489	EPA Cost Manual.
7. Other		
8. Indirect Annual Cost Subtotal	**$ 173,833**	
F. Recovery Credits		
1. Materials Recovered	$	
2. Energy Recovered	$	
3. Other	$	
4. Recovery Credits Subtotal	$ 0	
G. Total Annualized Cost Summary		
1. Direct Annual Costs Subtotal	$ 321,187	
2. Indirect Annual Costs Subtotal	$ 173,833	
3. Recovery Credits Subtotal	$ 0	
4. Total Annualized Cost (TAC)	**$ 495,020**	
H. Cost Effectiveness		
1. Baseline PM Emissions Rate (tons/year)	378.52	
2. Post –BACT Emissions Rate (tons/year)	3.79	
3. Total Pollution Removed (tons/year)	374.73	
4. Average Cost Effectiveness of BACT Option ($/ton of PM) (G4 ÷ H3)	**$ 1,321**	
5. Baseline PM10 Emissions Rate (tons/year)	137.21	
6. Post –BACT Emissions Rate (tons/year)	1.37	
7. Total Pollution Removed (tons/year)	135.84	
8. Average Cost Effectiveness of BACT Option ($/ton of PM10) (G4 ÷ H7)	**$ 3,644**	

"EPA Air Pollution Control Cost Manual, Sixth Edition", EPA-452-02-001, January 2002

Table 2: Cost/Economic Analysis for High Efficiency Cyclones

A. Direct Capital Cost		
Item	**Cost Estimate**	**Reference/Source of Cost Estimate**
Purchase Equipment Costs		
1. Equipment Cost 6 Kice CK-96 Cyclones	$ 54,000	Vendor Quote
2. Instrumentation/controls	$ 540	EPA Cost Manual
3. Sales Tax	$ 1,620	EPA Cost Manual
4. Freight	$ 2,700	EPA Cost Manual
5. Other	$	
6. Purchased Equipment Subtotal	**$ 58,860**	
Direct Installation Costs		
7. Foundations and Supports	$ 2,354	EPA Cost Manual
8. Erection/Handling	$ 29,430	EPA Cost Manual
9. Electrical	$ 0	EPA Cost Manual

10. Piping	$ 589	EPA Cost Manual
11. Insulation and Painting	$ 6,475	EPA Cost Manual
12. Site Preparation	$ 0	EPA Cost Manual
13. Other	$	
14. Direct Installation Costs Subtotal	**$ 38,848**	
15. Direct Capital Cost Subtotal	**$ 97,708**	
B. Indirect Installation Costs		
1. Engineering and Supervision	$ 5,886	EPA Cost Manual
2. Construction and Field Expenses	$ 11,772	EPA Cost Manual
3. Contractor Fees	$ 5,886	EPA Cost Manual
4. Start-up and Performance Tests	$ 1,177	EPA Cost Manual
5. Over-all Contingencies	$ 1,766	EPA Cost Manual
7. Other		
8. Indirect Installation Costs Subtotal	**$ 26,487**	
C. Total Capital Cost	**$ 124,195**	
D. Direct Annual Cost		
1. Operating Labor Operator (@ $25.00 per hour x 1,095 hrs/yr) Supervision (15% of labor)	$ 27,375 $ 4,106	EPA Cost Manual. Based on 5 hrs per shift.
2. Maintenance Labor Maintenance Labor (@ $25.00 per hour x 109.5 hrs/yr) Maintenance Materials (100% of labor)	$ 2,738 $ 2,738	EPA Cost Manual. Based on 1.5 hrs per shift.
3. Replacement parts (as required)	$	
4. Utilities 87.5 kW/hr	$ 73,500	Estimate based on experience
5. Other	$ 0	
6. Direct Annual Cost Subtotal	**$ 83,082**	
E. Indirect Annual Costs		
1. Overhead	$ 36,957	EPA Cost Manual.
2. Property Taxes	$ 1,242	EPA Cost Manual.
3. Insurance	$ 1,242	EPA Cost Manual.
4. Administration	$ 2,484	EPA Cost Manual.
5. Capital Recovery a. Interest Rate b. Economic Lifetime	7% 10 years	0.14238 x Total Capital Cost
6. CAPITAL RECOVERY COST	$ 17,683	EPA Cost Manual.
7. Other		
8. Indirect Annual Cost Subtotal	**$ 59,608**	
F. Recovery Credits		
1. Materials Recovered 370.6 tons/yr of soybean cracks @ $313/ton	$ 115,998	Soybean cracks would be recovered with the high efficiency cyclones.
2. Energy Recovered	$	
3. Other	$	
4. Recovery Credits Subtotal	$ 115,998	

G. Total Annualized Cost Summary		
1. Direct Annual Costs Subtotal	$ 83,082	
2. Indirect Annual Costs Subtotal	$ 59,608	
3. Recovery Credits Subtotal	$ 115,998	
4. Total Annualized Cost (TAC)	**$ 26,692**	
H. Cost Effectiveness		
1. Baseline PM Emissions Rate (tons/year)	378.52	
2. Post –BACT Emissions Rate (tons/year)	7.95	
3. Total Pollution Removed (tons/year)	370.57	
4. Average Cost Effectiveness of BACT Option ($/ton of PM) (G4 ÷ H3)	**$ 72**	
5. Baseline PM10 Emissions Rate (tons/year)	137.21	
6. Post –BACT Emissions Rate (tons/year)	2.88	
7. Total Pollution Removed (tons/year)	134.33	
8. Average Cost Effectiveness of BACT Option ($/ton of PM10) (G4 ÷ H7)	**$ 199**	

"EPA Air Pollution Control Cost Manual, Sixth Edition", EPA-452-02-001, January 2002

The basis of cost effectiveness, used to evaluate the control options, is the ratio of the annualized cost to the amount of PM or PM10 (tons) removed per year. In Table 1 above, it shows that the wet scrubber for the jet dryers and VSCs would cost $1,321 per ton of PM with 374.73 tons per year of PM reduction from the baseline emission rate of 378.52 tons per year having an overall control efficiency of 99%. The wet scrubber for the jet dryers and VSCs would cost $3,644 per ton of PM10 with 135.84 tons per year of PM10 reduction from the baseline emission rate of 137.21 tons per year having an overall control efficiency of 99%.

In Table 2 above, it shows that the cyclones for the jet dryers and VSCs would cost $72 per ton of PM with 370.57 tons per year of PM reduction from the baseline emission rate of 378.52 tons per year having an overall control efficiency of 97.9%. The cyclones for the jet dryers and VSCs would cost $199 per ton of PM10 with 134.33 tons per year of PM10 reduction from the baseline emission rate of 137.21 tons per year having an overall control efficiency of 97.9%.

The annualized incremental cost increase of using the wet scrubbers instead of the cyclones would be $468,328 per year to reduce emissions by an additional 4.16 tons per year of PM, for an incremental cost per ton of additional PM emissions control of $112,579. The additional reduction of PM10 emissions would be 1.51 tons per year for an incremental cost per ton of additional PM10 emissions control of $310,151. Therefore, on an incremental cost basis, the use of the wet scrubbers would be economically infeasible. The cyclones are the most cost effective option.

Step 3: Ranking of the Remaining Control Technologies by Control Effectiveness for Jet Dryers and VSCs (P14 through P19)

Technology	Control Efficiency
High Efficiency Cyclones	80.0 – 98.0 %
Medium Efficiency Cyclones	50.0 – 85.0 %
Low Efficiency Cyclones	10.0 – 60.0 %
Gravity Collector	1.5 - 6.0 %

Step 4: Evaluation of the Most Effective Controls for Jet Dryers and VSCs (P14 through P19)

1. Cyclones alone provide best available control of PM and PM10 from this operation.
2. Gravity Collection will not provide sufficient control for PM and PM10 for this source.

The following companies' BACT determinations from the RBLC and from permits issued by other states were evaluated to determine the BACT for this plant.

Table 2: Comparison of PM and PM10 limits for Jet Dryers and Vertical Seed Conditioners

Company	Date	BACT determined	Comments
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***PM emissions shall not exceed 1.81 lbs/hr and 0.006 gr/dscf. PM10 emissions shall not exceed 0.66 lb/hr and 0.001 gr/dscf.***	***Install high efficiency cyclones in series to control PM and PM10 emissions from the jet dryers and VSCs.***
Central Soya Company, Inc., Huron County, Ohio	11/29/01	Hot De-hulling operation: PM: 1.07 lbs/hr	Baghouse
Central Soya Company, Inc., Huron County, Ohio	11/29/01	Hot De-hulling operation w/ preheater: PM: 0.60 lb/hr	Baghouse

Step 5: Selection of BACT for Jet Dryers and VSCs (P14 through P19) exhausting through stack EP-13

The Jet Dryers and VSCs (P14 through P19) discharge an air stream which is very saturated with moisture. The stream is typically operated at a temperature near the dew point in an effort to maintain efficiencies due to the ever increasing cost of energy. Therefore the high efficiency cyclones in series is proposed as BACT for control of particulate emissions collected from the Jet Dryers and VSCs discharged from EP13. Cyclones CY2 and CY3 will control emissions from the three (3) vertical seed conditioners, cyclones CY4 and CY5 will control emissions from Jet Dryer 1, cyclones CY6 and CY7 will control emissions from Jet Dryer 2, and CY8 and CY9 will control emissions from Jet Dryer 3. In addition, the following limits shall apply:

(a) PM emissions from stack EP-13 shall not exceed 1.81 pounds per hour and 0.006 gr/dscf.

(b) PM10 emissions from stack EP-13 shall not exceed 0.66 pound per hour and 0.001 gr/dscf.

PM/PM10 BACT Analysis

Flaker Discharge Conveyor (P67) exhausting through stack EP-4: The grain handling/processing industry uses a variety of conveying and processing equipment for moving and preparing the grain for the subsequent oil extraction. The handling of the soybean, soybean cracks, soybean fibers and the resulting intermediate flakes result in PM and PM10 emissions.

Step 1: Identify Potential Control Technologies for Flaker Discharge Conveyor (P67)

(1) Fabric Filter Dust Collectors

Fabric filter dust collectors, or baghouses, efficiently collect particulate material by passing the emission stream through a woven cloth filter lodging the particle on the cloth fabric. Periodically either the air stream is ceased and the fabric is shaken or a pulse of air counter current to the air stream is used to dislodge particles built up on the filter fabric. The design of the filter container or canister allows the dislodged particulate matter to fall with the aid of gravity to collect in the bottom of the unit. With the aid of an airlock, the particulate matter is reintroduced in to the process stream preferably down stream further in the process to eliminate handling of the particulate matter repeatedly or removed for disposal depending on the particular stream.

Fabric filter dust collectors operate at a pressure drop between the clean air and process air sides of the filter fabric. The rate of increase in the pressure drop across the filter fabric can be indicative of the operating performance of the filtering unit. Fabric filter dust collectors using mechanical shaking, reverse air, or reverse pulse jet methods for cleaning or dislodging the particulate matter will yield flow rate concentrations of approximately 0.005 grains per standard cubic foot (scf) of particulate matter at the outlet regardless of inlet loading changes when used to filter dusts with particle size distributions similar to agricultural processing types of dust. Fabric filter dust collectors are least efficient with particles 0.1 micrometer to 0.3 micrometer and are sensitive to temperatures exceeding 550 degrees Fahrenheit (F). The temperature of the emission stream should be at least 50 to 100 degrees F above its dew point. If the temperature is below this range, condensation can occur, leading to binding to and/or deterioration of the fabric filter bags resulting in filter failure. Fabric filter dust collectors are technologically feasible for high moisture gas streams if the gas stream is pretreated prior to entering the fabric filter dust collector or other methods are used to ensure the temperature in the collector does not drop below the dew point resulting in condensation in the system.

(2) Electrostatic Precipitators

Electrostatic precipitators remove particles by charging the particles, collecting the particles, and discharging the particles and transporting the particles to the collection hopper. The area where the particles are charged is referred to as the corona.

(3) Venturi Scrubbers or Wet Scrubbers

Venturi scrubbers use an aqueous stream to remove particulate materials from an emissions stream. The resulting wastewater must be treated or properly disposed of. Venturi scrubbers perform most efficiently for particles with diameters above 0.5 micrometers. Venturi scrubbers require a high-pressure drop (40” of H_20 or greater) for high collection efficiencies for small particulates.

(4) Cyclones

Cyclones remove particles from the waste gas stream using cyclonic airflow. The gas stream enters a tangential inlet near the top of a cylindrical body creating primary vortex. The spiral created increases the tangential acceleration. The particles with larger masses separate out toward the outer walls of the cyclone as they spiral downward toward the centrally placed discharge outlet as a result of the force created by the mass and acceleration of the particle. The flow continues downward until it approaches the bottom of the cone of the separator, where the vortex changes, forming an inner vortex traveling upward to the gas outlet. The centrifugal forces induced by the main vortex cause the particulate material to impact on the walls of the cyclone as described above. This action concentrates the dust layer as it forms near the walls and spirals toward the discharge where it is collected. The collected material may be reintroduced to the processing stream or removed for disposal.

(5) Combination Cyclone Fabric Filter Dust Collectors

The combination of cyclones and fabric filter dust collectors can be accomplished either in one unit or as separate units. In some applications the design will accommodate the cyclone in the same housing or enclosure as the fabric filter dust collector. In these cases, the cyclone is designed as the lower section of the unit. Particulate matter is first separated out in the cyclone. The air travels out of the cyclone through the fabric filter dust collector. If the design prohibits the use of the combination unit, the cyclones and fabric filter dust collector are installed as stand alone units. The air leaves the cyclone or cyclones as the primary separation and enters the fabric filter dust collector for the subsequent separation. The combination cyclone and fabric filter dust collector typically does not offer a higher degree of separation. The combination cyclone and fabric filter dust collector is useful in maintaining the desired degree of control in bulky and heavily loaded air streams.

(6) Gravity Collector/Settling Chamber

The Settling chamber consists of a contained area in which particulate matter is allowed to settle. The chamber must have a large enough cross-sectional area to allow a vertical velocity of the gas to be slower than the terminal velocity of the particle to be separated. The particulate matter drifts to the bottom, where it is collected.

Step 2: Elimination of Technically Infeasible and Economically Infeasible Options for Flaker Discharge Conveyor (P67)

Electrostatic Precipitators

The electrostatic precipitator is not used to control organic matter since the corona discharge would constitute a fire hazard. The electrostatic precipitator requires that the particles to be collected receive a charge. Organic particles at this source have a low resistively indicating that they would be very difficult to charge at a reasonable potential difference. Therefore, operation of an electrostatic precipitator at a safe potential difference on the organic gas stream proposed results in very little efficiency. Therefore, this option is not technically feasible.

Step 3: Ranking of The Remaining Control Technologies By Control Effectiveness for Flaker Discharge Conveyor (P67)

Technology	**Control Efficiency**
Baghouse/Fabric Filter Dust Collector	99.0 – 99.9%
Combination Cyclone and Fabric Filter Dust Collector	99.0 – 99.0%

Technology	Control Efficiency
Venturi Scrubber	90.0 – 99.0%
Wet Scrubber	30.0 – 99.0%
High Efficiency Cyclones	80.0 – 98.0 %
Medium Efficiency Cyclones	50.0 – 85.0 %
Low Efficiency Cyclones	10.0 – 60.0 %
Gravity Collector	1.5 – 6.0 %

Step 4: Evaluation of the Most Effective Controls for Flaker Discharge Conveyor (P67)

1. Baghouse/Fabric Filter Dust Collector is an effective control for PM and PM10 emissions from the flaker discharge conveyor. The gas or air associated with this emission point will be relatively dry as the dew point of the air will be more than 40^o F from its dew point during normal operations.
2. Combination Cyclone and Baghouse/Fabric Filter Dust Collector is an effective control for PM and PM10 emissions from the flaker discharge conveyor.
3. Venturi scrubbers and wet scrubbers do not provide as effective control of PM and PM10 emissions from the flaker discharge conveyor as the fabric filter dust collector or combination cyclone and fabric filter dust collector. Therefore, they are not considered as BACT.
4. Cyclones alone will not provide sufficient control for PM and PM10 emissions from the flaker discharge conveyor to be considered as BACT.
5. Gravity Collection will not provide sufficient control for PM and PM10 emissions from the flaker discharge conveyor to be considered as BACT.

The following companies' BACT determinations from the RBLC and from permits issued by other states were evaluated to determine the BACT for this plant.

Table 1: Comparison of PM and PM10 limits for Flaker Discharge Conveying Operations

Company	Date	BACT determined	Control
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***PM emissions shall not exceed 0.16 lb/hr and 0.006 gr/dscf. PM10 emissions shall not exceed 0.09 lb/hr and 0.003 gr/dscf. Visible emissions shall not exceed 0% opacity.***	***Install fabric filter dust collector DC-4 to control PM and PM10 emissions from the flaker discharge conveyor.***
Cargill, Inc., Wapello County, Iowa	02/24/1997	Flaker Conditioner/Conveyor Aspiration: PM10: 0.479 lb/hr, 0.008 gr/dscf (standardized).	High efficiency cyclone/scrubber.
Cargill, Inc., Wapello County, Iowa	02/24/1997	Feed House Conveyor: PM10: 1.025 lbs/hr, 0.005 gr/dscf (standardized).	Fabric Filter
Cargill, Inc., Wapello County, Iowa	02/24/1997	Feed House Conveyor Aspiration: PM10: 0.3 lb/hr, 0.005 gr/dscf (standardized). Visible emissions shall not exceed 0% opacity.	Fabric Filter

Company	Date	BACT determined	Control
Cargill, Inc., Wapello County, Iowa	02/24/1997	Feed House Conveyor Aspiration II: PM10: 0.3 lb/hr, 0.005 gr/dscf (standardized). Visible emissions shall not exceed 0% opacity.	Fabric Filter

Step 5: Selection of BACT for Flaker Discharge Conveyor (P67)

A fabric filter dust collector is the most efficient control option and is proposed as BACT for controlling PM and PM10 emissions from the flaker discharge conveyor (P67). Therefore, Ultra Soy is proposing to install fabric filter dust collector DC-4 to control PM and PM10 emissions from unit P67 and will exhaust through stack EP-4. Additionally, the following limits shall apply:

(a) PM emissions from stack EP-4 shall not exceed 0.16 pound per hour and 0.006 gr/dscf.

(b) PM10 emissions from stack EP-4 shall not exceed 0.09 pound per hour and 0.003 gr/dscf.

(c) The conveying equipment shall be totally enclosed by design and the air drawn from the enclosed conveying equipment through the fabric filter dust collector will result in negative pressure with the conveying enclosure. This will ensure zero emissions from the conveying units.

(d) Fugitive emissions shall meet an opacity limit of 0% for the flaker discharge conveyor.

PM/PM10 BACT Analysis

Meal Grinding and Handling Operations (M1 – M16) exhausting through stack EP-5: The grain handling/processing industry uses a variety of conveying and processing equipment to move and prepare the soybean meal for marketing. Handling of the spent dried soybean meal as well as the classifying, subsequent milling and conveyance to storage results in PM and PM10 emissions.

Step 1: Identify Potential Control Technologies for Meal Grinding and Handling Operations (M1 – M16)

(1) Fabric Filter Dust Collectors

Fabric filter dust collectors, or baghouses, efficiently collect particulate material by passing the emission stream through a woven cloth filter lodging the particle on the cloth fabric. Periodically either the air stream is ceased and the fabric is shaken or a pulse of air counter current to the air stream is used to dislodge particles built up on the filter fabric. The design of the filter container or canister allows the dislodged particulate matter to fall with the aid of gravity to collect in the bottom of the unit. With the aid of an airlock, the particulate matter is reintroduced in to the process stream preferably down stream further in the process to eliminate handling of the particulate matter repeatedly or removed for disposal depending on the particular stream.

Fabric filter dust collectors operate at a pressure drop between the clean air and process air sides of the filter fabric. The rate of increase in the pressure drop across the filter fabric can be indicative of the operating performance of the filtering unit. Fabric filter dust collectors using mechanical shaking, reverse air, or reverse pulse jet methods for cleaning or dislodging the particulate matter will yield flow rate concentrations of approximately 0.005 grains per standard cubic foot (scf) of particulate matter at the outlet regardless of inlet loading changes when used to filter dusts with particle size distributions similar to agricultural processing types of dust. Fabric filter dust collectors are least efficient with particles 0.1 micrometer to 0.3 micrometer and are sensitive to temperatures exceeding 550 degrees Fahrenheit (F). The temperature of the emission stream should be at least 50 to 100 degrees F above its dew point. If the temperature is below this range, condensation can occur, leading to binding to and/or deterioration of the fabric filter bags resulting in filter failure. Fabric filter dust collectors are technologically feasible for high moisture gas streams if the gas stream is pretreated prior to entering the fabric filter dust collector or other methods are used to ensure the temperature in the collector does not drop below the dew point resulting in condensation in the system.

(2) Electrostatic Precipitators

Electrostatic precipitators remove particles by charging the particles, collecting the particles, and discharging the particles and transporting the particles to the collection hopper. The area where the particles are charged is referred to as the corona.

(3) Venturi Scrubbers or Wet Scrubbers

Venturi scrubbers use an aqueous stream to remove particulate materials from an emissions stream. The resulting wastewater must be treated or properly disposed of. Venturi scrubbers perform most efficiently for particles with diameters above 0.5 micrometers. Venturi scrubbers require a high-pressure drop (40” of H_20 or greater) for high collection efficiencies for small particulates.

(4) Cyclones

Cyclones remove particles from the waste gas stream using cyclonic airflow. The gas stream enters a tangential inlet near the top of a cylindrical body creating primary vortex. The spiral created increases the tangential acceleration. The particles with larger masses separate out toward the outer walls of the cyclone as they spiral downward toward the centrally placed discharge outlet as a result of the force created by the mass and acceleration of the particle. The flow continues downward until it approaches the bottom of the cone of the separator, where the vortex changes, forming an inner vortex traveling upward to the gas outlet. The centrifugal forces induced by the main vortex cause the particulate material to impact on the walls of the cyclone as described above. This action concentrates the dust layer as it forms near the walls and spirals toward the discharge where it is collected. The collected material may be reintroduced to the processing stream or removed for disposal.

(5) Combination Cyclone Fabric Filter Dust Collectors

The combination of cyclones and fabric filter dust collectors can be accomplished either in one unit or as separate units. In some applications the design will accommodate the cyclone in the same housing or enclosure as the fabric filter dust collector. In these cases, the cyclone is designed as the lower section of the unit. Particulate matter is first separated out in the cyclone. The air travels out of the cyclone through the fabric filter dust collector. If the design prohibits the use of the combination unit, the cyclones and fabric filter dust collector are installed as stand alone units. The air leaves the cyclone or cyclones as the primary separation and enters the fabric filter dust collector for the subsequent separation. The combination cyclone and fabric filter dust collector typically does not offer a higher degree of separation. The combination cyclone and fabric filter dust collector is useful in maintaining the desired degree of control in bulky and heavily loaded air streams.

(6) Gravity Collector/Settling Chamber

The Settling chamber consists of a contained area in which particulate matter is allowed to settle. The chamber must have a large enough cross-sectional area to allow a vertical velocity of the gas to be slower than the terminal velocity of the particle to be separated. The particulate matter drifts to the bottom, where it is collected.

Step 2: Elimination of Technically Infeasible and Economically Infeasible Options for Meal Grinding and Handling Operations (M1 – M16)

Electrostatic Precipitators

The electrostatic precipitator is not used to control organic matter since the corona discharge would constitute a fire hazard. The electrostatic precipitator requires that the particles to be collected receive a charge. Organic particles at this source have a low resistively indicating that they would be very difficult to charge at a reasonable potential difference. Therefore, operation of an electrostatic precipitator at a safe potential difference on the organic gas stream proposed results in very little efficiency. Therefore, this option is not technically feasible.

Step 3: Ranking of The Remaining Control Technologies By Control Effectiveness for Meal Grinding and Handling Operations (M1 – M16)

Technology	Control Efficiency
Baghouse/Fabric Filter Dust Collector	99.0 – 99.9%
Combination Cyclone and Fabric Filter Dust Collector	99.0 – 99.0%
Venturi Scrubber	90.0 – 99.0%
Wet Scrubber	30.0 – 99.0%
High Efficiency Cyclones	80.0 – 98.0 %
Medium Efficiency Cyclones	50.0 – 85.0 %
Low Efficiency Cyclones	10.0 – 60.0 %
Gravity Collector	1.5 – 6.0 %

Step 4: Evaluation of the Most Effective Controls for Meal Grinding and Handling Operations (M1 – M16)

1. Baghouse/Fabric Filter Dust Collector is a very effective control for PM and PM10 emissions from the meal grinding and handling operations (M1 – M16). The gas or air associated with this emission point will be relatively dry as the dew point of the air will be more than 40^{o} F from its dew point during normal operations.
2. Combination Cyclone and Baghouse/Fabric Filter Dust Collector is a very effective control for PM and PM10 emissions from the meal grinding and handling operations (M1 – M16).
3. Venturi scrubbers and wet scrubbers do not provide as effective control of PM and PM10 emissions from the meal grinding and handling operations (M1 – M16) as the fabric filter dust collector or combination cyclone and fabric filter dust collector. Therefore, they are not considered as BACT.
4. Cyclones alone will not provide sufficient control for PM and PM10 emissions from the meal grinding and handling operations (M1 – M16) to be considered as BACT.
5. Gravity Collection will not provide sufficient control for PM and PM10 emissions from the meal grinding and handling operations (M1 – M16) to be considered as BACT.

The following companies' BACT determinations from the RBLC and from permits issued by other states were evaluated to determine the BACT for this plant.

Table 1: Comparison of PM and PM10 limits for Meal Grinding and Handling Operations

Company	Date	BACT determined	Control
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***PM emissions shall not exceed 2.57 lbs/hr and 0.006 gr/dscf. PM10 emissions shall not exceed 1.58 lbs/hr and 0.003 gr/dscf. Visible emissions shall not exceed 0% opacity.***	***Install fabric filter dust collector DC-5 to control PM and PM10 emissions from the meal grinding and handling operations.***
Cargill, Inc., Sioux City, Iowa	06/01/1998	Mill/Milling Process, Meal Dust Grinding: PM: 0.006 gr/dscf, PM10: 0.003 gr/dscf. Visible emissions not to exceed 0% opacity.	Bag filter

Company	Date	BACT determined	Control
Central Soya Company, Inc., Huron County, Ohio	11/29/01	Meal Grinding: PM: 0.3 lb/hr. Visible emissions shall not exceed 20% opacity as a 6-minute average.	Baghouse

Step 5: Selection of BACT for Meal Grinding and Handling Operations (M1 – M16)

A fabric filter dust collector is the most efficient control option and is proposed as BACT for controlling PM and PM10 from the meal grinding and handling operations (M1 – M16). Therefore, Ultra Soy is proposing to install the fabric filter dust collector DC-5 to control PM and PM10 emissions from units M1 – M16. Additionally, the following limits shall apply:

(a) PM emissions from stack EP-5 shall not exceed 2.57 pounds per hour and 0.006 gr/dscf.

(b) PM10 emissions from stack EP-5 shall not exceed 1.58 pounds per hour and 0.003 gr/dscf.

(c) Fugitive emissions shall meet an opacity limit of 0% for the meal grinding and handling operations (M1 – M16).

Since this is the most effective control option for PM and PM10 emissions control, no further analysis of the other control options is necessary.

PM/PM10 BACT Analysis

Meal Loading Operations (M17-M27) exhausting through stack EP-6: The grain handling/processing industry uses conveying equipment in the loading of meal into trucks and rail cars. The handling of the soybean meal during the rail car and truck loading operations results in PM and PM10 emissions.

Step 1: Identify Potential Control Technologies for Meal Loading Operations (M17-M27)

(1) Fabric Filter Dust Collectors

Fabric filter dust collectors, or baghouses, efficiently collect particulate material by passing the emission stream through a woven cloth filter lodging the particle on the cloth fabric. Periodically either the air stream is ceased and the fabric is shaken or a pulse of air counter current to the air stream is used to dislodge particles built up on the filter fabric. The design of the filter container or canister allows the dislodged particulate matter to fall with the aid of gravity to collect in the bottom of the unit. With the aid of an airlock, the particulate matter is reintroduced in to the process stream preferably down stream further in the process to eliminate handling of the particulate matter repeatedly or removed for disposal depending on the particular stream.

Fabric filter dust collectors operate at a pressure drop between the clean air and process air sides of the filter fabric. The rate of increase in the pressure drop across the filter fabric can be indicative of the operating performance of the filtering unit. Fabric filter dust collectors using mechanical shaking, reverse air, or reverse pulse jet methods for cleaning or dislodging the particulate matter will yield flow rate concentrations of approximately 0.005 grains per standard cubic foot (scf) of particulate matter at the outlet regardless of inlet loading changes when used to filter dusts with particle size distributions similar to agricultural processing types of dust. Fabric filter dust collectors are least efficient with particles 0.1 micrometer to 0.3 micrometer and are sensitive to temperatures exceeding 550 degrees Fahrenheit (F). The temperature of the emission stream should be at least 50 to 100 degrees F above its dew point. If the temperature is below this range, condensation can occur, leading to binding to and/or deterioration of the fabric filter bags resulting in filter failure. Fabric filter dust collectors are technologically feasible for high moisture gas streams if the gas stream is pretreated prior to entering the fabric filter dust collector or other methods are used to ensure the temperature in the collector does not drop below the dew point resulting in condensation in the system.

(2) Electrostatic Precipitators

Electrostatic precipitators remove particles by charging the particles, collecting the particles, and discharging the particles and transporting the particles to the collection hopper. The area where the particles are charged is referred to as the corona.

(3) Venturi Scrubbers or Wet Scrubbers

Venturi scrubbers use an aqueous stream to remove particulate materials from an emissions stream. The resulting wastewater must be treated or properly disposed of. Venturi scrubbers perform most efficiently for particles with diameters above 0.5 micrometers. Venturi scrubbers require a high-pressure drop (40” of H_20 or greater) for high collection efficiencies for small particulates.

(4) Cyclones

Cyclones remove particles from the waste gas stream using cyclonic airflow. The gas stream enters a tangential inlet near the top of a cylindrical body creating primary vortex. The spiral created increases the tangential acceleration. The particles with larger masses separate out toward the outer walls of the cyclone as they spiral downward toward the centrally placed discharge outlet as a result of the force created by the mass and acceleration of the particle. The flow continues downward until it approaches the bottom of the cone of the separator, where the vortex changes, forming an inner vortex traveling upward to the gas outlet. The centrifugal forces induced by the main vortex cause the particulate material to impact on the walls of the cyclone as described above. This action concentrates the dust layer as it forms near the walls and spirals toward the discharge where it is collected. The collected material may be reintroduced to the processing stream or removed for disposal.

(5) Combination Cyclone Fabric Filter Dust Collectors

The combination of cyclones and fabric filter dust collectors can be accomplished either in one unit or as separate units. In some applications the design will accommodate the cyclone in the same housing or enclosure as the fabric filter dust collector. In these cases, the cyclone is designed as the lower section of the unit. Particulate matter is first separated out in the cyclone. The air travels out of the cyclone through the fabric filter dust collector. If the design prohibits the use of the combination unit, the cyclones and fabric filter dust collector are installed as stand alone units. The air leaves the cyclone or cyclones as the primary separation and enters the fabric filter dust collector for the subsequent separation. The combination cyclone and fabric filter dust collector typically does not offer a higher degree of separation. The combination cyclone and fabric filter dust collector is useful in maintaining the desired degree of control in bulky and heavily loaded air streams.

(6) Gravity Collector/Settling Chamber

The Settling chamber consists of a contained area in which particulate matter is allowed to settle. The chamber must have a large enough cross-sectional area to allow a vertical velocity of the gas to be slower than the terminal velocity of the particle to be separated. The particulate matter drifts to the bottom, where it is collected.

Step 2: Elimination of Technically Infeasible and Economically Infeasible Options for Meal Loading Operations (M17 – M27)

Electrostatic Precipitators

The electrostatic precipitator is not used to control organic matter since the corona discharge would constitute a fire hazard. The electrostatic precipitator requires that the particles to be collected receive a charge. Organic particles at this source have a low resistively indicating that they would be very difficult to charge at a reasonable potential difference. Therefore, operation of an electrostatic precipitator at a safe potential difference on the organic gas stream proposed results in very little efficiency. Therefore, this option is not technically feasible.

Step 3: Ranking of The Remaining Control Technologies By Control Effectiveness for Meal Loading Operations (M17 – M27)

Technology	Control Efficiency
Baghouse/Fabric Filter Dust Collector	99.0 – 99.9%
Combination Cyclone and Fabric Filter Dust Collector	99.0 – 99.0%

Technology	Control Efficiency
Venturi Scrubber	90.0 – 99.0%
Wet Scrubber	30.0 – 99.0%
High Efficiency Cyclones	80.0 – 98.0 %
Medium Efficiency Cyclones	50.0 – 85.0 %
Low Efficiency Cyclones	10.0 – 60.0 %
Gravity Collector	1.5 – 6.0 %

Step 4: Evaluation of the Most Effective Controls for Meal Loading Operations (M17 – M27)

1. Baghouse/Fabric Filter Dust Collector is a very effective control for PM and PM10 emissions from the meal loading operations (M17 – M27). The gas or air associated with this emission point will be relatively dry as the dew point of the air will be more than 40^{o} F from its dew point during normal operations.
2. Combination Cyclone and Baghouse/Fabric Filter Dust Collector is a very effective control for PM and PM10 emissions from the meal loading operations (M17 – M27).
3. Venturi scrubbers and wet scrubbers do not provide as effective control of PM and PM10 emissions from the meal loading operations (M17 – M27) as the fabric filter dust collector or combination cyclone and fabric filter dust collector. Therefore, they are not considered as BACT.
4. Cyclones alone will not provide sufficient control for PM and PM10 emissions from the meal loading operations (M17 – M27) to be considered as BACT.
5. Gravity Collection will not provide sufficient control for PM and PM10 emissions from the meal loading operations (M17 – M27) to be considered as BACT.

The following companies' BACT determinations from the RBLC and from permits issued by other states were evaluated to determine the BACT for this plant.

Table 1: Comparison of PM and PM10 limits for Meal Loading Operations

Company	Date	BACT determined	Control
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***PM emissions shall not exceed 0.94 lb/hr and 0.006 gr/dscf. PM10 emissions shall not exceed 0.54 lb/hr and 0.003 gr/dscf. Visible emissions shall not exceed 0% opacity.***	***Install fabric filter dust collector DC-6 to control PM and PM10 emissions from the meal loading operations.***
Cargill, Inc., Sioux City, Iowa	06/01/98	Mill/Milling Process – Meal Loadout: PM: 0.006 gr/dscf, PM10: 0.003 gr/dscf. Visible emissions not to exceed 0% opacity.	Bag filter
ADM Co., – Northern Sun Vegetable Oil, Ransom County, North Dekota	07/09/98	Truck Meal Loadout: PM: 0.27 lb/hr.	Bag filter

Step 5: Selection of BACT for Meal Loading Operations (M17 – M27)

A fabric filter dust collector is the most efficient control option and is proposed as BACT for controlling PM and PM10 emissions from the meal loading operations (M17 – M27). Therefore, Ultra Soy is proposing to install fabric filter dust collector DC-6 to control PM and PM10 emissions from units M17 – M27. Additionally, the following limits shall apply:

(a) PM emissions from stack EP-6 shall not exceed 0.94 pound per hour and 0.006 gr/dscf.

(b) PM10 emissions from stack EP-6 shall not exceed 0.54 pound per hour and 0.003 gr/dscf.

(c) The conveying equipment shall be totally enclosed by design and the air drawn from the enclosed conveying equipment through the fabric filter dust collector will result in negative pressure with the conveying enclosure. This will ensure zero emissions from the conveying units.

(d) Fugitive emissions shall meet an opacity limit of 0% for the meal loading operations.

Since this is the most effective control option for PM and PM10 emissions control, no further analysis of the other control options is necessary.

PM/PM10 BACT Analysis

Meal Drying and Cooling Operations (DTDC) exhausting through stack EP-15: The grain processing industry uses fluidized bed technology to remove moisture and cool the spent meal after it is discharged from the Desolventizer Toaster. The air passing through the fluidized bed of meal generates PM and PM10 emissions.

Step 1: Identify Potential Control Technologies for Meal Dryer and Cooler (DTDC)

(1) Fabric Filter Dust Collectors

Fabric filter dust collectors, or baghouses, efficiently collect particulate material by passing the emission stream through a woven cloth filter lodging the particle on the cloth fabric. Periodically either the air stream is ceased and the fabric is shaken or a pulse of air counter current to the air stream is used to dislodge particles built up on the filter fabric. The design of the filter container or canister allows the dislodged particulate matter to fall with the aid of gravity to collect in the bottom of the unit. With the aid of an airlock, the particulate matter is reintroduced in to the process stream preferably down stream further in the process to eliminate handling of the particulate matter repeatedly or removed for disposal depending on the particular stream.

Fabric filter dust collectors operate at a pressure drop between the clean air and process air sides of the filter fabric. The rate of increase in the pressure drop across the filter fabric can be indicative of the operating performance of the filtering unit. Fabric filter dust collectors using mechanical shaking, reverse air, or reverse pulse jet methods for cleaning or dislodging the particulate matter will yield flow rate concentrations of approximately 0.005 grains per standard cubic foot (scf) of particulate matter at the outlet regardless of inlet loading changes when used to filter dusts with particle size distributions similar to agricultural processing types of dust. Fabric filter dust collectors are least efficient with particles 0.1 micrometer to 0.3 micrometer and are sensitive to temperatures exceeding 550 degrees Fahrenheit (F). The temperature of the emission stream should be at least 50 to 100 degrees F above its dew point. If the temperature is below this range, condensation can occur, leading to binding to and/or deterioration of the fabric filter bags resulting in filter failure. Fabric filter dust collectors are technologically feasible for high moisture gas streams if the gas stream is pretreated prior to entering the fabric filter dust collector or other methods are used to ensure the temperature in the collector does not drop below the dew point resulting in condensation in the system.

(2) Electrostatic Precipitators

Electrostatic precipitators remove particles by charging the particles, collecting the particles, and discharging the particles and transporting the particles to the collection hopper. The area where the particles are charged is referred to as the corona.

(3) Venturi Scrubbers or Wet Scrubbers

Venturi scrubbers use an aqueous stream to remove particulate materials from an emissions stream. The resulting wastewater must be treated or properly disposed of. Venturi scrubbers perform most efficiently for particles with diameters above 0.5 micrometers. Venturi scrubbers require a high-pressure drop (40” of H_20 or greater) for high collection efficiencies for small particulates.

(4) Cyclones

Cyclones remove particles from the waste gas stream using cyclonic airflow. The gas stream enters a tangential inlet near the top of a cylindrical body creating primary vortex. The spiral created increases the tangential acceleration. The particles with larger masses separate out toward the outer walls of the cyclone as they spiral downward toward the centrally placed discharge outlet as a result of the force created by the mass and acceleration of the particle. The flow continues downward until it approaches the bottom of the cone of the separator, where the vortex changes, forming an inner vortex traveling upward to the gas outlet. The centrifugal forces induced by the main vortex cause the particulate material to impact on the walls of the cyclone as described above. This action concentrates the dust layer as it forms near the walls and spirals toward the discharge where it is collected. The collected material may be reintroduced to the processing stream or removed for disposal.

(5) Combination Cyclone Fabric Filter Dust Collectors

The combination of cyclones and fabric filter dust collectors can be accomplished either in one unit or as separate units. In some applications the design will accommodate the cyclone in the same housing or enclosure as the fabric filter dust collector. In these cases, the cyclone is designed as the lower section of the unit. Particulate matter is first separated out in the cyclone. The air travels out of the cyclone through the fabric filter dust collector. If the design prohibits the use of the combination unit, the cyclones and fabric filter dust collector are installed as stand alone units. The air leaves the cyclone or cyclones as the primary separation and enters the fabric filter dust collector for the subsequent separation. The combination cyclone and fabric filter dust collector typically does not offer a higher degree of separation. The combination cyclone and fabric filter dust collector is useful in maintaining the desired degree of control in bulky and heavily loaded air streams.

(6) Gravity Collector/Settling Chamber

The Settling chamber consists of a contained area in which particulate matter is allowed to settle. The chamber must have a large enough cross-sectional area to allow a vertical velocity of the gas to be slower than the terminal velocity of the particle to be separated. The particulate matter drifts to the bottom, where it is collected.

Step 2: Elimination of Technically Infeasible and Economically Infeasible Options for Meal Dryer and Cooler (DTDC)

(1) Baghouse/Fabric Filter Dust Collector

The baghouse/fabric filter dust collector is not an effective control for PM and PM10 emissions for the meal dryer and cooler. The temperature of the emission stream should be at least 50 to 100 degrees F above its dew point. If the temperature is below this range, condensation can occur, leading to binding to and/or deterioration of the fabric filter bags resulting in filter failure. The gas or air from the meal dryer and cooler will be relatively wet as the temperature of the air will be less than 40^{o} F above its dew point during normal operations resulting in condensation and, therefore, a dysfunctional unit.

(2) Electrostatic Precipitators

The electrostatic precipitator is not used to control organic matter since the corona discharge would constitute a fire hazard. The electrostatic precipitator requires that the particles to be collected receive a charge. Organic particles at this source have a low resistively indicating that they would be very difficult to charge at a reasonable potential difference. Therefore, operation of an electrostatic precipitator at a safe potential difference on the organic gas stream proposed results in very little efficiency. Therefore, this option is not technically feasible.

(3) Combination Cyclone & Baghouse/Fabric Filter Dust Collector

The combination cyclone & baghouse/fabric filter dust collector is not an effective control for PM and PM10 emissions for the meal dryer and cooler. The gas or air will be relatively wet as the temperature of the air will be less than 40^o F from its dew point during normal operations resulting in condensation and, therefore, a dysfunctional baghouse. Therefore use of a combination cyclone and baghouse or fabric filter dust collector is technically infeasible.

(4) Venturi Scrubbers or Wet Scrubbers

Wet scrubbers are a technically feasible option. However, based on investigations performed by Ultra Soy with wet scrubber vendors, the highest control efficiency that would be guaranteed for a wet scrubber is 99%. Since the high efficiency cyclones in series that are being proposed to control PM and PM10 emissions from the meal dryer and cooler are expected to achieve an overall control efficiency of 99.1%, this is a more effective control option than the wet scrubber. Therefore, the wet scrubber was not considered further as BACT.

Step 3: Ranking of the Remaining Control Technologies By Control Effectiveness for Meal Dryer and Cooler (DTDC)

Technology	**Control Efficiency**
High Efficiency Cyclones	80.0 – 99.1 %
Medium Efficiency Cyclones	50.0 – 85.0 %
Low Efficiency Cyclones	10.0 – 60.0 %
Gravity Collector	1.5 – 6.0 %

Step 4: Evaluation of the Most Effective Controls for Meal Dryer and Cooler (DTDC)

1. High efficiency cyclones alone provide best available control of PM and PM10 from this operation.
2. Gravity Collection will not provide sufficient control for PM and PM10 for this source.

The following companies' BACT determinations from the RBLC and from permits issued by other states were evaluated to determine the BACT for this plant.

Table 1: Comparison of PM and PM10 limits for Meal Dryer and Cooler

Company	**Date**	**BACT determined**	**Control**
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***PM emissions shall not exceed 7.17 lbs/hr and 0.0075 gr/dscf. PM10 emissions shall not exceed 4.46 lbs/hr and 0.005 gr/dscf.***	***Install high efficiency cyclones in series to control PM and PM10 emissions from the meal dryer and cooler.***
Bunge North America, Pottawattamie County, Iowa	01/29/07	Dryer Cooler: PM: 0.0075 gr/dscf, PM10: 0.005 gr/dscf.	Cyclone recovery considered part of process unit.

Company	Date	BACT determined	Control
ADM Co., – Northern Sun Vegetable Oil, Ransom County, North Dekota	07/09/98	Desolventizer, Toaster, Dryer and Cooler: PM: 0.42 lb/hr.	Cyclones.
Cargill, Inc., Wapello County, Iowa	02/24/1997	Meal Dryer/Cooler: PM10: 0.672 lb/hr, 0.006 gr/dscf (standardized).	Two high efficiency cyclones.
Con Agra Soybean Processing Co., Marrs Township, Indiana	08/14/98	Meal Dryers (5): PM10: 3.56 lbs/hr. Meal Cooler: PM10: 1.16 lbs/hr.	Cyclones.

Step 5: Selection of BACT for Meal Dryer and Cooler (DTDC)

The high efficiency cyclone system is the most efficient control option and is proposed as BACT for controlling PM and PM10 emissions from the meal dryer and cooler (DTDC). Cyclones CY20 – CY23 will control PM and PM10 emissions from the meal dryer and cyclones CY18 and CY19 will control PM and PM10 emissions from the meal cooler. All cyclones will exhaust through stack EP-15. Additionally, the following limits shall apply:

(a) Total PM emissions from stack EP-15 shall not exceed 7.17 pounds per hour and 0.0075 gr/dscf.

(b) Total PM10 emissions from stack EP-15 shall not exceed 4.46 pounds per hour and 0.005 gr/dscf.

PM/PM10 BACT Analysis

Fiber Loading and Handling Operations (F39-F45) exhausting through stack EP-7: The grain processing industry uses equipment for moving fiber to a Truck and Rail Car Loading facility. The conveyance of the fiber results in PM and PM10 emissions.

Step 1: Identify Potential Control Technologies for Fiber Loading and Handling Operations (F39-F45)

(1) Fabric Filter Dust Collectors

Fabric filter dust collectors, or baghouses, efficiently collect particulate material by passing the emission stream through a woven cloth filter lodging the particle on the cloth fabric. Periodically either the air stream is ceased and the fabric is shaken or a pulse of air counter current to the air stream is used to dislodge particles built up on the filter fabric. The design of the filter container or canister allows the dislodged particulate matter to fall with the aid of gravity to collect in the bottom of the unit. With the aid of an airlock, the particulate matter is reintroduced in to the process stream preferably down stream further in the process to eliminate handling of the particulate matter repeatedly or removed for disposal depending on the particular stream.

Fabric filter dust collectors operate at a pressure drop between the clean air and process air sides of the filter fabric. The rate of increase in the pressure drop across the filter fabric can be indicative of the operating performance of the filtering unit. Fabric filter dust collectors using mechanical shaking, reverse air, or reverse pulse jet methods for cleaning or dislodging the particulate matter will yield flow rate concentrations of approximately 0.005 grains per standard cubic foot (scf) of particulate matter at the outlet regardless of inlet loading changes when used to filter dusts with particle size distributions similar to agricultural processing types of dust. Fabric filter dust collectors are least efficient with particles 0.1 micrometer to 0.3 micrometer and are sensitive to temperatures exceeding 550 degrees Fahrenheit (F). The temperature of the emission stream should be at least 50 to 100 degrees F above its dew point. If the temperature is below this range, condensation can occur, leading to binding to and/or deterioration of the fabric filter bags resulting in filter failure. Fabric filter dust collectors are technologically feasible for high moisture gas streams if the gas stream is pretreated prior to entering the fabric filter dust collector or other methods are used to ensure the temperature in the collector does not drop below the dew point resulting in condensation in the system.

(2) Electrostatic Precipitators

Electrostatic precipitators remove particles by charging the particles, collecting the particles, and discharging the particles and transporting the particles to the collection hopper. The area where the particles are charged is referred to as the corona.

(3) Venturi Scrubbers or Wet Scrubbers

Venturi scrubbers use an aqueous stream to remove particulate materials from an emissions stream. The resulting wastewater must be treated or properly disposed of. Venturi scrubbers perform most efficiently for particles with diameters above 0.5 micrometers. Venturi scrubbers require a high-pressure drop (40” of H_20 or greater) for high collection efficiencies for small particulates.

(4) Cyclones

Cyclones remove particles from the waste gas stream using cyclonic airflow. The gas stream enters a tangential inlet near the top of a cylindrical body creating primary vortex. The spiral created increases the tangential acceleration. The particles with larger masses separate out toward the outer walls of the cyclone as they spiral downward toward the centrally placed discharge outlet as a result of the force created by the mass and acceleration of the particle. The flow continues downward until it approaches the bottom of the cone of the separator, where the vortex changes, forming an inner vortex traveling upward to the gas outlet. The centrifugal forces induced by the main vortex cause the particulate material to impact on the walls of the cyclone as described above. This action concentrates the dust layer as it forms near the walls and spirals toward the discharge where it is collected. The collected material may be reintroduced to the processing stream or removed for disposal.

(5) Combination Cyclone Fabric Filter Dust Collectors

The combination of cyclones and fabric filter dust collectors can be accomplished either in one unit or as separate units. In some applications the design will accommodate the cyclone in the same housing or enclosure as the fabric filter dust collector. In these cases, the cyclone is designed as the lower section of the unit. Particulate matter is first separated out in the cyclone. The air travels out of the cyclone through the fabric filter dust collector. If the design prohibits the use of the combination unit, the cyclones and fabric filter dust collector are installed as stand alone units. The air leaves the cyclone or cyclones as the primary separation and enters the fabric filter dust collector for the subsequent separation. The combination cyclone and fabric filter dust collector typically does not offer a higher degree of separation. The combination cyclone and fabric filter dust collector is useful in maintaining the desired degree of control in bulky and heavily loaded air streams.

(6) Gravity Collector/Settling Chamber

The Settling chamber consists of a contained area in which particulate matter is allowed to settle. The chamber must have a large enough cross-sectional area to allow a vertical velocity of the gas to be slower than the terminal velocity of the particle to be separated. The particulate matter drifts to the bottom, where it is collected.

Step 2: Elimination of Technically Infeasible and Economically Infeasible Options for Fiber Loading and Handling Operations (F39-F45)

Electrostatic Precipitators

The electrostatic precipitator is not used to control organic matter since the corona discharge would constitute a fire hazard. The electrostatic precipitator requires that the particles to be collected receive a charge. Organic particles at this source have a low resistively indicating that they would be very difficult to charge at a reasonable potential difference. Therefore, operation of an electrostatic precipitator at a safe potential difference on the organic gas stream proposed results in very little efficiency. Therefore, this option is not technically feasible.

Step 3: Ranking of The Remaining Control Technologies By Control Effectiveness for Fiber Loading and Handling Operations (F39-F45)

Technology	**Control Efficiency**
Baghouse/Fabric Filter Dust Collector	99.0 – 99.9%
Combination Cyclone and Fabric Filter Dust Collector	99.0 – 99.0%

Technology	Control Efficiency
Venturi Scrubber	90.0 – 99.0%
Wet Scrubber	30.0 – 99.0%
High Efficiency Cyclones	80.0 – 98.0 %
Medium Efficiency Cyclones	50.0 – 85.0 %
Low Efficiency Cyclones	10.0 – 60.0 %
Gravity Collector	1.5 – 6.0 %

Step 4: Evaluation of the Most Effective Controls for Fiber Loading and Handling Operations (F39-F45)

1. Baghouse/Fabric Filter Dust Collector is a very effective control for PM and PM10 emissions from the fiber loading and handling operations (F39-F45). The gas or air associated with this emission point will be relatively dry as the dew point of the air will be more than 40^{o} F from its dew point during normal operations.
2. The combination Cyclone and Baghouse/Fabric Filter Dust Collector is an effective control for PM and PM10 for the fiber loading and handling operations but will not increase control over the fabric filter dust collector alone for this application due to the loading nature of this process.
3. Venturi scrubbers and wet scrubbers do not provide as effective control of PM and PM10 emissions from the fiber loading and handling operations (F39-F45) as the fabric filter dust collector or combination cyclone and fabric filter dust collector. Therefore, they are not considered as BACT.
4. Cyclones alone will not provide sufficient control for PM and PM10 emissions from the fiber loading and handling operations (F39-F45) to be considered as BACT.
5. Gravity Collection will not provide sufficient control for PM and PM10 emissions from the fiber loading and handling operations (F39-F45) to be considered as BACT.

The following companies' BACT determinations from the RBLC and from permits issued by other states were evaluated to determine the BACT for this plant.

Table 1: Comparison of PM and PM10 limits for Fiber Loading and Handling Operations

Company	Date	BACT determined	Control
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***PM emissions shall not exceed 0.15 lb/hr and 0.006 gr/dscf. PM10 emissions shall not exceed 0.08 lb/hr and 0.0024 gr/dscf. Visible emissions shall not exceed 0% opacity.***	***Install fabric filter dust collector DC-7 to control PM and PM10 emissions from the fiber loading and handling operations.***
Con Agra Soybean Processing Co., Marrs Township, Indiana	08/14/98	Soybean Unloading, Receiving, and Conveying: PM10: 0.001 gr/dscf.	Baghouse.
Cargill, Inc., Wapello County, Iowa	02/24/97	Feed Loadout Rail System: PM10: 0.186 lb/hr, 0.005 gr/dscf (standardized).	High efficiency fabric filter.
Cargill, Inc., Wapello County, Iowa	02/24/97	Feed Loadout Truck System: PM10: 1.286 lbs/hr, 0.005 gr/dscf (standardized).	Primary: separate hood. Secondary: fabric filter.

Step 5: Selection of BACT for Fiber Loading and Handling Operations (F39-F45)

A fabric filter dust collector is the most efficient control option and is proposed as BACT for controlling PM and PM10 emissions from the fiber loading and handling operations (F39-F45). Therefore, Ultra Soy is proposing to install fabric filter dust collector DC-7 to control PM and PM10 emissions from units F39 – F45. Additionally, the following limits shall apply:

(a) PM emissions from stack EP-7 shall not exceed 0.15 pound per hour and 0.006 gr/dscf.

(b) PM10 emissions from stack EP-7 shall not exceed 0.08 pound per hour and 0.0024 gr/dscf.

Note: Although the PM10 grain loading BACT limit in the permit for Con Agra Soybean Processing Company is more stringent than the PM10 grain loading limit proposed as BACT for Ultra Soy, the Con Agra plant was permitted but never constructed, so the PM10 limit of 0.001 gr/dscf is not able to be verified as an attainable limit.

(c) The conveying equipment shall be totally enclosed by design and the air drawn from the enclosed conveying equipment through the fabric filter dust collector will result in negative pressure with the conveying enclosure. This will ensure zero emissions from the conveying units.

(d) Fugitive emissions shall meet an opacity limit of 0% for the fiber loading and handling operations.

Since this is the most effective control option for PM and PM10 emissions control, no further analysis of the other control options is necessary.

PM/PM10 BACT Analysis

Dry Material Handling and Storage Operations (S209 – S211) exhausting through stacks EP-10 – EP-12: The methyl ester manufacturing industry uses dry powders in the preparation of vegetable oil for the esterification reaction. Diatomaceous earth (DE or filter aid), silica adsorbents and bleaching clays are received by bulk pneumatic trucks into bulk storage silos. The conveyance of these materials results in PM and PM10 emissions.

Step 1: Identify Potential Control Technologies for the Dry Material Handling and Storage Operations (S209 – S211)

(1) Fabric Filter Dust Collectors

Fabric filter dust collectors, or baghouses, efficiently collect particulate material by passing the emission stream through a woven cloth filter lodging the particle on the cloth fabric. Periodically either the air stream is ceased and the fabric is shaken or a pulse of air counter current to the air stream is used to dislodge particles built up on the filter fabric. The design of the filter container or canister allows the dislodged particulate matter to fall with the aid of gravity to collect in the bottom of the unit. With the aid of an airlock, the particulate matter is reintroduced in to the process stream preferably down stream further in the process to eliminate handling of the particulate matter repeatedly or removed for disposal depending on the particular stream.

Fabric filter dust collectors operate at a pressure drop between the clean air and process air sides of the filter fabric. The rate of increase in the pressure drop across the filter fabric can be indicative of the operating performance of the filtering unit. Fabric filter dust collectors using mechanical shaking, reverse air, or reverse pulse jet methods for cleaning or dislodging the particulate matter will yield flow rate concentrations of approximately 0.005 grains per standard cubic foot (scf) of particulate matter at the outlet regardless of inlet loading changes when used to filter dusts with particle size distributions similar to agricultural processing types of dust. Fabric filter dust collectors are least efficient with particles 0.1 micrometer to 0.3 micrometer and are sensitive to temperatures exceeding 550 degrees Fahrenheit (F). The temperature of the emission stream should be at least 50 to 100 degrees F above its dew point. If the temperature is below this range, condensation can occur, leading to binding to and/or deterioration of the fabric filter bags resulting in filter failure. Fabric filter dust collectors are technologically feasible for high moisture gas streams if the gas stream is pretreated prior to entering the fabric filter dust collector or other methods are used to ensure the temperature in the collector does not drop below the dew point resulting in condensation in the system.

(2) Electrostatic Precipitators

Electrostatic precipitators remove particles by charging the particles, collecting the particles, and discharging the particles and transporting the particles to the collection hopper. The area where the particles are charged is referred to as the corona.

(3) Venturi Scrubbers or Wet Scrubbers

Venturi scrubbers use an aqueous stream to remove particulate materials from an emissions stream. The resulting wastewater must be treated or properly disposed of. Venturi scrubbers perform most efficiently for particles with diameters above 0.5 micrometers. Venturi scrubbers require a high-pressure drop (40” of H_20 or greater) for high collection efficiencies for small particulates.

(4) Cyclones

Cyclones remove particles from the waste gas stream using cyclonic airflow. The gas stream enters a tangential inlet near the top of a cylindrical body creating primary vortex. The spiral created increases the tangential acceleration. The particles with larger masses separate out toward the outer walls of the cyclone as they spiral downward toward the centrally placed discharge outlet as a result of the force created by the mass and acceleration of the particle. The flow continues downward until it approaches the bottom of the cone of the separator, where the vortex changes, forming an inner vortex traveling upward to the gas outlet. The centrifugal forces induced by the main vortex cause the particulate material to impact on the walls of the cyclone as described above. This action concentrates the dust layer as it forms near the walls and spirals toward the discharge where it is collected. The collected material may be reintroduced to the processing stream or removed for disposal.

(5) Combination Cyclone Fabric Filter Dust Collectors

The combination of cyclones and fabric filter dust collectors can be accomplished either in one unit or as separate units. In some applications the design will accommodate the cyclone in the same housing or enclosure as the fabric filter dust collector. In these cases, the cyclone is designed as the lower section of the unit. Particulate matter is first separated out in the cyclone. The air travels out of the cyclone through the fabric filter dust collector. If the design prohibits the use of the combination unit, the cyclones and fabric filter dust collector are installed as stand alone units. The air leaves the cyclone or cyclones as the primary separation and enters the fabric filter dust collectors for the subsequent separation. The combination cyclone and fabric filter dust collector typically does not offer a higher degree of separation. The combination cyclone and fabric filter dust collector is useful in maintaining the desired degree of control in bulky and heavily loaded air streams.

(6) Gravity Collector/Settling Chamber

The Settling chamber consists of a contained area in which particulate matter is allowed to settle. The chamber must have a large enough cross-sectional area to allow a vertical velocity of the gas to be slower than the terminal velocity of the particle to be separated. The particulate matter drifts to the bottom, where it is collected.

Step 2: Elimination of Technically Infeasible and Economically Infeasible Options for the Dry Material Handling and Storage Operations (S209 – S211)

Electrostatic Precipitators

The electrostatic precipitator is not used to control organic matter since the corona discharge would constitute a fire hazard. The electrostatic precipitator requires that the particles to be collected receive a charge. Organic particles at this source have a low resistively indicating that they would be very difficult to charge at a reasonable potential difference. Therefore, operation of an electrostatic precipitator at a safe potential difference on the organic gas stream proposed results in very little efficiency. Therefore, this option is not technically feasible.

Step 3: Ranking of The Remaining Control Technologies By Control Effectiveness for the Dry Material Handling and Storage Operations (S209-S211)

Technology	Control Efficiency
Baghouse/Fabric Filter Dust Collector	99.0 – 99.9%
Combination Cyclone and Fabric Filter Dust Collector	99.0 – 99.0%
Venturi Scrubber	90.0 – 99.0%
Wet Scrubber	30.0 – 99.0%
High Efficiency Cyclones	80.0 – 98.0 %
Medium Efficiency Cyclones	50.0 – 85.0 %
Low Efficiency Cyclones	10.0 – 60.0 %
Gravity Collector	1.5 – 6.0 %

Step 4: Evaluation of the Most Effective Controls for the Dry Material Handling and Storage Operations (S209 – S211)

1. Baghouse/Fabric Filter Dust Collector is a very effective control for PM and PM10 emissions from the dry material handling operations (S209-S211). The gas or air associated with this emission point will be relatively dry as the dew point of the air will be more than 40^{o} F from its dew point during normal operations.
2. The combination Cyclone and Baghouse/Fabric Filter Dust Collector is an effective control for PM and PM10 for the dry material handling operations (S209-S211). Due to the cross sectional area of the silos and the loading nature of the sources, the vertical air velocity with in the silos allows a downward drift of the particulate solid therefore the cyclone doesn't offer additional control of PM & PM10 from this source.
3. Venturi scrubbers and wet scrubbers do not provide as effective control of PM and PM10 emissions from the dry material handling operations (S209-S211) as the fabric filter dust collector or combination cyclone and fabric filter dust collector. Therefore, they are not considered as BACT.
4. Cyclones alone will not provide sufficient control for PM and PM10 emissions from the fiber loading and handling operations (F39-F45) to be considered as BACT.
5. Gravity Collection will not provide sufficient control for PM and PM10 emissions from the fiber loading and handling operations (F39-F45) to be considered as BACT.

There were no BACT determinations for other similar operations found in the RBLC database.

Step 5: Selection of BACT for Dry Material Handling and Storage Operations (S209 – S211)

The dry material handling operations (S209-S211) emit relatively dry air streams containing dry powders. The silos are filled intermittently from bulk pneumatic trucks. The bin top style of fabric filter is proposed as the BACT for control of the particulate emissions from the dry material handling operations (S209 – S211) exhausting through stacks EP-10, EP-11, and EP-12. Additionally, the following limits shall apply:

(a) PM emissions from each of stacks EP-10, EP-11, and EP-12 shall not exceed 0.03 pound per hour and 0.006 gr/dscf.

(b) PM10 emissions from each of stacks EP-10, EP-11, and EP-12 shall not exceed 0.005 pound per hour and 0.003 gr/dscf.

(c) Fugitive emissions will meet an opacity limit of 0% for each of the stacks EP-10, EP-11 and EP-12.

PM/PM10 BACT Analysis

Ground Hull, Pellet, and Kaolin Storage Units (S121, S122, and S212) exhausting through stacks EP-8, EP-9, and EP-19: The soybean processing industry stores intermediate products for further processing and finished products for shipping. Moving products in and out of these units results in PM and PM10 emissions.

Step 1: Identify Potential Control Technologies for the Ground Hull, Pellet, and Kaolin Storage Units (S121, S122, and S212)

(1) Fabric Filter Dust Collectors

Fabric filter dust collectors, or baghouses, efficiently collect particulate material by passing the emission stream through a woven cloth filter lodging the particle on the cloth fabric. Periodically either the air stream is ceased and the fabric is shaken or a pulse of air counter current to the air stream is used to dislodge particles built up on the filter fabric. The design of the filter container or canister allows the dislodged particulate matter to fall with the aid of gravity to collect in the bottom of the unit. With the aid of an airlock, the particulate matter is reintroduced in to the process stream preferably down stream further in the process to eliminate handling of the particulate matter repeatedly or removed for disposal depending on the particular stream.

Fabric filter dust collectors operate at a pressure drop between the clean air and process air sides of the filter fabric. The rate of increase in the pressure drop across the filter fabric can be indicative of the operating performance of the filtering unit. Fabric filter dust collectors using mechanical shaking, reverse air, or reverse pulse jet methods for cleaning or dislodging the particulate matter will yield flow rate concentrations of approximately 0.005 grains per standard cubic foot (scf) of particulate matter at the outlet regardless of inlet loading changes when used to filter dusts with particle size distributions similar to agricultural processing types of dust. Fabric filter dust collectors are least efficient with particles 0.1 micrometer to 0.3 micrometer and are sensitive to temperatures exceeding 550 degrees Fahrenheit (F). The temperature of the emission stream should be at least 50 to 100 degrees F above its dew point. If the temperature is below this range, condensation can occur, leading to binding to and/or deterioration of the fabric filter bags resulting in filter failure. Fabric filter dust collectors are technologically feasible for high moisture gas streams if the gas stream is pretreated prior to entering the fabric filter dust collector or other methods are used to ensure the temperature in the collector does not drop below the dew point resulting in condensation in the system.

(2) Electrostatic Precipitators

Electrostatic precipitators remove particles by charging the particles, collecting the particles, and discharging the particles and transporting the particles to the collection hopper. The area where the particles are charged is referred to as the corona.

(3) Venturi Scrubbers or Wet Scrubbers

Venturi scrubbers use an aqueous stream to remove particulate materials from an emissions stream. The resulting wastewater must be treated or properly disposed of. Venturi scrubbers perform most efficiently for particles with diameters above 0.5 micrometers. Venturi scrubbers require a high-pressure drop (40” of H_20 or greater) for high collection efficiencies for small particulates.

(4) Cyclones

Cyclones remove particles from the waste gas stream using cyclonic airflow. The gas stream enters a tangential inlet near the top of a cylindrical body creating primary vortex. The spiral created increases the tangential acceleration. The particles with larger masses separate out toward the outer walls of the cyclone as they spiral downward toward the centrally placed discharge outlet as a result of the force created by the mass and acceleration of the particle. The flow continues downward until it approaches the bottom of the cone of the separator, where the vortex changes, forming an inner vortex traveling upward to the gas outlet. The centrifugal forces induced by the main vortex cause the particulate material to impact on the walls of the cyclone as described above. This action concentrates the dust layer as it forms near the walls and spirals toward the discharge where it is collected. The collected material may be reintroduced to the processing stream or removed for disposal.

(5) Combination Cyclone Fabric Filter Dust Collectors

The combination of cyclones and fabric filter dust collectors can be accomplished either in one unit or as separate units. In some applications the design will accommodate the cyclone in the same housing or enclosure as the fabric filter dust collector. In these cases, the cyclone is designed as the lower section of the unit. Particulate matter is first separated out in the cyclone. The air travels out of the cyclone through the fabric filter dust collector. If the design prohibits the use of the combination unit, the cyclones and fabric filter dust collector are installed as stand alone units. The air leaves the cyclone or cyclones as the primary separation and enters the fabric filter dust collector for the subsequent separation. The combination cyclone and fabric filter dust collector typically does not offer a higher degree of separation. The combination cyclone and fabric filter dust collector is useful in maintaining the desired degree of control in bulky and heavily loaded air streams.

(6) Gravity Collector/Settling Chamber

The Settling chamber consists of a contained area in which particulate matter is allowed to settle. The chamber must have a large enough cross-sectional area to allow a vertical velocity of the gas to be slower than the terminal velocity of the particle to be separated. The particulate matter drifts to the bottom, where it is collected.

Step 2: Elimination of Technically Infeasible and Economically Infeasible Options for the Ground Hull, Pellet, and Kaolin Storage Units (S121, S122, and S212)

Electrostatic Precipitators

The electrostatic precipitator is not used to control organic matter since the corona discharge would constitute a fire hazard. The electrostatic precipitator requires that the particles to be collected receive a charge. Organic particles at this source have a low resistively indicating that they would be very difficult to charge at a reasonable potential difference. Therefore, operation of an electrostatic precipitator at a safe potential difference on the organic gas stream proposed results in very little efficiency. Therefore, this option is not technically feasible.

Step 3: Ranking of The Remaining Control Technologies By Control Effectiveness for the Ground Hull, Pellet, and Kaolin Storage Units (S121, S122, and S212)

Technology	**Control Efficiency**
Baghouse/Fabric Filter Dust Collector	99.0 – 99.9%

Technology	Control Efficiency
Combination Cyclone and Fabric Filter Dust Collector	99.0 – 99.0%
Venturi Scrubber	90.0 – 99.0%
Wet Scrubber	30.0 – 99.0%
High Efficiency Cyclones	80.0 – 98.0 %
Medium Efficiency Cyclones	50.0 – 85.0 %
Low Efficiency Cyclones	10.0 – 60.0 %
Gravity Collector	1.5 – 6.0 %

Step 4: Evaluation of the Most Effective Controls for the Ground Hull, Pellet, and Kaolin Storage Units (S121, S122, and S212)

1. Baghouse/Fabric Filter Dust Collector is a very effective control for PM and PM10 emissions from the ground hull, pellet, and kaolin storage units (S121, S122, and S212). The gas or air associated with this emission point will be relatively dry as the dew point of the air will be more than 40^{o} F from its dew point during normal operations.
2. The combination Cyclone and Baghouse/Fabric Filter Dust Collector is an effective control for PM and PM10 for the ground hull, pellet, and kaolin storage units (S121, S122, and S212). Due to the cross sectional area of the silos and the loading nature of the sources, the vertical air velocity with in the silos allows a downward drift of the particulate solid therefore the cyclone doesn't offer additional control of PM & PM10 from this source.
3. Venturi scrubbers and wet scrubbers do not provide as effective control of PM and PM10 emissions from the ground hull, pellet, and kaolin storage units (S121, S122, and S212) as the fabric filter dust collector or combination cyclone and fabric filter dust collector. Therefore, they are not considered as BACT.
4. Cyclones alone will not provide sufficient control for PM and PM10 emissions from the ground hull, pellet, and kaolin storage units (S121, S122, and S212) to be considered as BACT.
5. Gravity Collection will not provide sufficient control for PM and PM10 emissions from the ground hull, pellet, and kaolin storage units (S121, S122, and S212) to be considered as BACT.

The following companies' BACT determinations from the RBLC and from permits issued by other states were evaluated to determine the BACT for this plant.

Table 1: Comparison of PM and PM10 limits for the Ground Hull and Pellet Storage Units

Company	Date	BACT determined	Control
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***PM emissions shall not exceed 0.03 lb/hr and 0.006 gr/dscf from each of stacks EP-8, EP-9 and EP-19. PM10 emissions shall not exceed 0.01 lb/hr and 0.002 gr/dscf from each of stacks EP-8 and EP-9 and PM10 emissions shall not exceed 0.005 lb/hr and 0.002 gr/dscf from stack EP-19. Visible emissions shall not exceed 0% opacity.***	***Install fabric filter dust collector DC-7 to control PM and PM10 emissions from the fiber loading and handling operations.***

Company	Date	BACT determined	Control
Bunge North America, Pottawattamie County, Iowa	11/02/04	Meal storage bin: PM: 0.21 lb/hr and 0.1 gr/dscf. PM10: 0.21 lb/hr and 0.002 gr/dscf. Visible emissions shall not exceed 0% opacity.	

There were no BACT determinations for other similar operations to the kaolin storage unit exhausting through stack EP19 found in the RBLC database.

Step 5: Selection of BACT for the Ground Hull, Pellet, and Kaolin Storage Units (S121, S122, and S212)

The ground hull, pellet, and kaolin storage units (S121, S122, and S212) emit relatively dry air streams containing dry powders. The silos are filled intermittently from bulk pneumatic trucks. The bin top style of fabric filter is proposed as the BACT for control of the particulate emissions from the ground hull, pellet, and kaolin storage units (S121, S122, and S212) exhausting through stacks EP-8, EP-9, and EP-19. Additionally, the following limits shall apply:

(a) PM emissions from each of stacks EP-8, EP-9, and EP-19 shall not exceed 0.03 pound per hour and 0.006 gr/dscf.

(b) PM10 emissions from each of stacks EP-8 and EP-9 shall not exceed 0.01 pound per hour and 0.002 gr/dscf. PM10 emissions from stack EP-19 shall not exceed 0.005 pound per hour and 0.002 gr/dscf.

(c) Fugitive emissions shall meet an opacity limit of 0% for each of the stacks EP-8, EP-9 and EP-19.

NOx BACT Analysis

Boilers B1 and B2 exhausting through stack EP-17: Each of the 197.7 MMBtu per hour natural gas fired boilers generates NOx emissions from combustion. Each of the boilers has the potential to emit 32.21 tons per year of NOx emissions.

Step 1: Identify Potential Control Technologies for the Boilers B1 and B2

Four methods were evaluated for controlling the NOx emissions from the boilers. These were:

(1) low NOx burners;
(2) low NOx burners with flue gas recirculation;
(3) ammonia injection or selective non-catalytic reduction (SNCR); and
(4) selective catalytic reduction (SCR).

Step 2: Elimination of Technically Infeasible Options for the Boilers B1 and B2

(1) SCR Technical Feasibility

In the SCR system, ammonia (NH_3) is injected into the flue gas upstream of the catalyst bed, where mixing occurs between the ammonia and NOx (predominantly NO at this point in the process). The mixture then passes through a catalyst bed such that reduction of NO to N_2 is promoted.

$NO + NH_3 = N_2 + H_2O$.

The function of the catalyst is to lower the activation energy of the NO decomposition to N_2 reaction. In other words, if there were no catalyst, the reaction would have to take place in the combustion chamber (or other location) where the temperature ranges from 1600 - 1800ºF, which is the necessary temperature range for NO decomposition. With the catalyst, however, the optimum temperature required for NO reduction is between 530 and 800ºF. If the catalyst were placed in a location with a lower temperature, the reaction rates would decrease. Catalyst location at higher temperatures would impair the catalyst's performance and shorten catalyst life.

For the proposed steam boilers, the flue gas would have to be reheated to raise the temperature to at least 525ºF for successful SCR performance. Also, specific problems have been associated with the design and operation of an ammonia injection system. Such considerations as control of NOx/NH_3 ratio for variable load conditions, locations and operation of the NH_3 injection nozzles, and breakthrough of NH_3 from the catalytic reactor have been noted in test programs and operational units.

The steam boilers are not suitable for the use of SCR. The ammonia introduced in the boilers would contaminate the soybean products produced by the proposed Ultra Soy plant. Therefore this technology is technically infeasible.

(2) Ammonia Injection Technical Feasibility

Ammonia injection is a post-combustion, selective non-catalytic reduction (SNCR) method for NOx control. The process selectively reduces NOx by reaction with ammonia (NH_3) which is injected directly into the combustion chamber or into a thermally favorable location further downstream. The process was originally applied to combustion sources in Japan to achieve 65% NOx reduction. Recently improved technology has resulted in some domestic commercial facilities achieving removal performances of 80%.

One major design challenge for all applications is achieving and maintaining the required reaction temperature. The necessary temperature window for the system to operate is found in different areas of the combustion source; the exact location depends on the boiler design and operating load. Another major design problem for all applications is allowance for adequate NO/NH_3 contact.

Adequate contact requires both optimum injector locations and appropriate residence time. Without optimum injector location and residence time, more ammonia is required to achieve a given NOx reduction, at the expense of greater levels of ammonia slip, and raw ammonia injection. For an application on the boilers of the size of boilers B1 and B2, assuming that a suitable location is available for ammonia injection, and the flue gas temperature and residence time profile is satisfactory, 50% NOx reductions can be achieved with the SNCR process, with less than 20 ppm ammonia slip. It has been reported that the optimum operating conditions are not always available, and therefore, the potential NOx reductions will be much lower. Based on an expected NOx control efficiency of 30% to 40%, application of this technology is not better than low NOx burner and flue gas recirculation, whose efficiency for the proposed boilers are approximately 80%.

The steam boilers are not suitable for the use of SNCR. The ammonia introduced in the boilers would contaminate the soybean products produced by the proposed Ultra Soy plant. Therefore this technology is technically infeasible.

Furthermore, the EPA-453/R-94/022 report “Alternative Control Techniques Document–NOx Emissions from Industrial/Commercial/Institutional (ICI) Boilers” excludes the SNCR technology as control for reducing NOx emissions from natural gas fired boilers. A search of the BACT/LAER Clearinghouse was conducted to determine if SCR or SNCR control technologies have been determined as BACT for these types of boilers. No natural gas fired boilers were found to have these types of controls.

Step 3: Ranking of the Remaining Control Technologies by Control Effectiveness for the Boilers B1 and B2

Technology	Control Efficiency
Low NOx burners with flue gas recirculation	60-90%
Low NOx burners	40-85%

Table 1: Comparison of NOx limits for the Boilers B1 and B2

Company	Date	BACT determined	Control
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***NOx emissions from each of the 197.7 MMBtu/hr boilers shall not exceed 0.037 lb/MMBtu.***	***Low NOx burner and flue gas recirculation (FGR) on each boiler.***
Con Agra Soybean Processing Company, Marrs Township, Indiana	08/14/98	200 MMBtu/hr natural gas fired boiler: NOx: 0.035 lb/MMBtu	Low NOx burner and FGR. (Never constructed).
Heartland Corn Products, Sibley County, Minnesota	12/22/05	198 MMBtu/hr natural gas fired boiler: NOx emissions limited to 0.04 lb/MMBtu.	No add on controls.

Company	Date	BACT determined	Control
Cargill – Eddyville, Monroe County, Iowa	04/22/99	182.1 MMBtu/hr natural gas fired boiler: NOx emissions limited to 0.05 lb/MMBtu.	Low NOx burner and FGR.

Step 4: Evaluation of the Most Effective Controls for the Boilers B1 and B2

1. The low NOx burners with flue gas recirculation provide the highest level of NOx control for the boilers.
2. The low NOx burners alone will reduce NOx emissions, however, this control option is not as effective as low NOx burners combined with flue gas recirculation, therefore, it is not considered as BACT.

Step 5: Selection of BACT for the Boilers B1 and B2

The following is established as BACT for the boilers:

(a) NOx emissions from each of the two natural gas fired boilers (197.7 MMBtu/hr each) shall not exceed the allowable NOx emission rate of 0.037 pounds/MMBtu heat input; and

(b) Each of the boilers shall be equipped with low NOx burners and flue gas recirculation systems. Installation and operation of the low NOx burners and the flue gas recirculation systems for the boilers are necessary to comply with the BACT emissions limits.

Note that although the NOx BACT limit in the permit for Con Agra Soybean Processing Company is more stringent than the NOx limit proposed as BACT for Ultra Soy, the Con Agra plant was permitted but never constructed, so the NOx limit of 0.035 lb/MMBtu is not able to be verified as an attainable limit.

NOx BACT Analysis

Grain dryers exhausting fugitively: Each of the 45 MMBtu per hour natural gas fired grain dryers generate NOx emissions from combustion. Each of the dryers has the potential to emit 23.19 tons per year of NOx emissions for a total of 69.56 tons per year of NOx combined.

Step 1: Identify Potential Control Technologies for the Grain Dryers

Four methods were evaluated for controlling the NOx emissions from the grain dryers. These were:

(1) low NOx burners;
(2) ammonia injection or selective non-catalytic reduction (SNCR); and
(3) selective catalytic reduction (SCR).

Step 2: Elimination of Technically Infeasible Options for the Grain Dryers

(1) SCR Technical Feasibility

In the SCR system, ammonia (NH_3) is injected into the flue gas upstream of the catalyst bed, where mixing occurs between the ammonia and NOx (predominantly NO at this point in the process). The mixture then passes through a catalyst bed such that reduction of NO to N_2 is promoted.

$NO + NH_3 = N_2 + H_2O$.

The function of the catalyst is to lower the activation energy of the NO decomposition to N_2 reaction. In other words, if there were no catalyst, the reaction would have to take place in the combustion chamber (or other location) where the temperature ranges from 1600 - 1800ºF, which is the necessary temperature range for NO decomposition. With the catalyst, however, the optimum temperature required for NO reduction is between 530 and 800ºF. If the catalyst were placed in a location with a lower temperature, the reaction rates would decrease. Catalyst location at higher temperatures would impair the catalyst's performance and shorten catalyst life.

For the proposed grain dryers, the flue gas would have to be reheated to raise the temperature to at least 525ºF for successful SCR performance. Also, specific problems have been associated with the design and operation of an ammonia injection system. Such considerations as control of NOx/NH_3 ratio for variable load conditions, locations and operation of the NH_3 injection nozzles, and breakthrough of NH_3 from the catalytic reactor have been noted in test programs and operational units.

The grain dryers are not suitable for the use of SCR. The ammonia introduced in the dryers would contaminate the soybean products produced by the proposed Ultra Soy plant. Therefore this technology is technically infeasible.

(2) Ammonia Injection Technical Feasibility

Ammonia injection is a post-combustion, selective non-catalytic reduction (SNCR) method for NOx control. The process selectively reduces NOx by reaction with ammonia (NH_3) which is injected directly into the combustion chamber or into a thermally favorable location further downstream.

One major design challenge for all applications is achieving and maintaining the required reaction temperature. The necessary temperature window for the system to operate is found in different areas of the combustion source; the exact location depends on the boiler design and operating load. Another major design problem for all applications is allowance for adequate NO/NH_3 contact.

Adequate contact requires both optimum injector locations and appropriate residence time. Without optimum injector location and residence time, more ammonia is required to achieve a given NOx reduction, at the expense of greater levels of ammonia slip, and raw ammonia injection.

The grain dryers are not suitable for the use of SNCR. The ammonia introduced in the dryers would contaminate the soybean products produced by the proposed Ultra Soy plant. Therefore this technology is technically infeasible.

Step 3: Ranking of the Remaining Control Technologies by Control Effectiveness for the Grain Dryers

1. Low NOx burners 40-85%

Table 1: Comparison of NOx limits for the Grain Dryers

Company	Date	BACT determined	Control
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***NOx emissions from each of the 45 MMBtu/hr grain dryers shall not exceed 0.12 lb/MMBtu.***	***Low NOx burner on each grain dryer.***
Con Agra Soybean Processing Company, Marrs Township, Indiana	08/14/98	45 MMBtu/hr natural gas fired grain dryer: NOx: 0.033 lb/MMBtu	Low NOx burner.
Bunge Corporation, Mills County, Iowa	05/20/97	Grain dryers firing natural gas or fuel oil: NOx limit for each dryer of 3.41 lbs/hr, 14.93 tons/yr.	Use of clean fuel.

Step 4: Selection of BACT for the Grain Dryers

The following is established as BACT for the grain dryers:

(a) NOx emissions from each of the 45 MMBtu/hr natural gas fired grain dryers shall not exceed 0.12 pound per MMBtu heat input;

(b) Each of the grain dryers shall be equipped with a low NOx burner.

Installation and operation of the low NOx burner for each of the grain dryers is necessary to comply with the BACT emissions limit.

Note that although the NOx BACT limit in the permit for Con Agra Soybean Processing Company is more stringent than the NOx limit proposed as BACT for Ultra Soy, the Con Agra plant was permitted but never constructed, so the NOx limit of 0.033 lb/MMBtu is not able to be verified as an attainable limit.

CO BACT Analysis

Boilers B1 and B2 exhausting through stack EP-17 and grain dryers exhausting fugitively:
CO will be emitted from Ultra Soy's plant combustion sources (i.e. steam boilers and grain dryers).

Step 1: Identify Potential Control Technologies for the Boilers and Grain Dryers

Two methods were evaluated for controlling the CO emissions from the boilers and grain dryers. These were:

(1) Catalytic oxidation; and
(2) Combustion control.

Step 2: Elimination of Technically Infeasible Options for the Boilers and Grain Dryers

(1) Catalytic oxidation

Catalytic oxidation operates in a narrow temperature "window". Optimum operating temperatures for these systems generally fall into the range of 700 - 1,100^{o} F. Below 700^{o} F, CO destruction efficiency falls off, while above 1,200^{o} F catalyst sintering may occur, thus causing permanent damage to the catalyst. Also, the additional CO emissions generated from the additional natural gas combustion that would be required to raise the exhaust gas temperature to the 700 - 1,100^{o} F range required by the catalytic oxidizer, would only replace those nominally controlled by the catalyst with little or no change in overall CO emissions. Therefore, catalytic oxidation is not considered technically feasible for the boilers and grain dryers.

Step 3: Ranking of the Remaining Control Technologies by Control Effectiveness for the Boilers and Grain Dryers

(2) Combustion Control

Another means of controlling emissions of CO is through the design and operation of the combustion unit in a manner that will limit CO formation. Such controls are commonly referred to as combustion controls. In general, a combustion control system maintains the proper conditions to ensure complete combustion through one or more of the following operation design features: low excess air, staged combustion, overfire air, sufficient residence time, and good mixing. In the case of this project, the boilers and dryers incorporate design features that enhance uniform fuel/air distribution and mixing to suppress CO formation. This practice also reduces VOC emissions. Because combustion controls are the highest level of control not considered technically infeasible, Ultra Soy will install combustion controls as BACT.

Emissions of CO will be controlled through the use of tight control on the combustion variables; especially the supply of fuel and air and the air/fuel mixing. The combustion control is the top control technology evaluated and considered BACT for CO control for both the grain dryers and boilers.

Table 1: Comparison of CO limits for the Boilers and Grain Dryers

Company	Date	BACT determined	Control
Ultra Soy of America, LLC, South Milford, Indiana	***Proposed***	***Dryers: CO emissions from each of the grain dryers shall not exceed 0.29 lb/MMBtu.*** ***Boilers: CO emissions from each of the boilers shall not exceed 0.04 lb/MMBtu.***	***Good combustion control.***
Grain Processing Corp., Washington, Indiana	06/10/97	244 MMBtu/hr natural gas fired boilers: CO: 0.04 lb/MMBtu each	Good combustion control.
Heartland Corn Products, Sibley County, Minnesota	12/22/05	198 MMBtu/hr natural gas fired boiler: CO: 0.04 lb/MMBtu	No control.
Quincy Soybean Company of Arkansas, Quincy, Arkansas	03/04/97	123 MMBtu/hr natural gas fired boiler: CO: 0.05 lb/MMBtu	
Con Agra Soybean Processing Company, Marrs Township, Indiana	08/14/98	Grain dryer: CO: 0.12 lb/MMBtu Boilers: CO: 0.074 lb/MMBtu	Combustion controls.
Bunge Corporation, Mills County, Iowa	05/20/97	Grain dryers firing natural gas or fuel oil: CO limit for each dryer of 2.41 lbs/hr, 10.56 tons/yr.	Use of clean fuel.
ADM Co. – Northern Sun Vegetable Oil, Ransom County, North Dekota	07/09/98	189 MMBtu/hr natural gas fired boiler: CO: 0.08 lb/MMBtu	No control.

Step 4: Selection of BACT for the Boilers and Grain Dryers

The following is established as BACT for the boilers and grain dryers for CO:

(a) CO emissions from each of the 197.7 MMBtu per hour boilers shall not exceed 0.04 pounds per million Btu, corrected to 3% dry excess air in the exhaust gas of the boilers.

(b) CO emissions from each of the 45 MMBtu per hour grain dryers shall not exceed 0.29 pounds per million Btu, corrected to 3% dry excess air in the exhaust gas of the dryers.

(c) Emissions of CO from the boilers and grain dryers will be controlled through the use of tight control on the combustion variables; especially the supply of fuel and air and the air/fuel mixing.

Note that although the CO BACT limit for the grain dryer in the permit for Con Agra Soybean Processing Company is more stringent than the CO limit proposed as BACT for the grain dryers at Ultra Soy, the Con Agra plant was permitted but never constructed, so the CO limit of 0.12 lb/MMBtu is not able to be verified as an attainable limit.

Appendix C
Air Quality Analysis

Ultra Soy of America, LLC – Soybean Processing Facility
South Milford, Indiana (LaGrange County)
Tracking and Plant ID: 087-24953-00069

Proposed Project

ITG had submitted PSD modeling for Ultra Soy of America, LLC (Ultra Soy) on August 17, 2007, to build a soybean processing facility two miles west northwest of South Milford, Indiana. The facility will include soybean receiving, storage, handling and processing for 6500 tons/day. The processing will include cleaning and preparation of soybeans for flaking, management of soybean hull/fiber as a by-product and hexane extraction of soybean oil from the soybean flakes. The facility will also include biodiesel production.

ERM did the final modeling submittal for Ultra Soy's permit on December 6, 2007. This technical support document provides the air quality analysis review of the submitted modeling by ERM for Ultra Soy.

Analysis Summary

Based on the potential emissions after controls, a PSD air quality analysis was triggered for PM_{10}, CO, and NO_2. The significant impact analysis for CO determined that modeling concentrations did not exceed the significant impact levels. A refined analysis was required for NO_2 and PM_{10}. Pre-construction and post construction monitoring requirements are not necessary since nearby monitoring data was available from St. Joseph and DeKalb County. An additional impact analysis was conducted and showed no significant impact. A Hazardous Air Pollutant (HAP) analysis was performed since their aggregate HAP emissions were greater than 25 tons per year. Based on the modeling results, the source will not have a significant impact upon federal air quality standards.

Air Quality Impact Objectives

The purpose of the air quality impact analysis in the permit application is to accomplish the following objectives. Each objective is individually addressed in this document in each section outlined below.

A. Establish which pollutants require an air quality analysis based on PSD significant emission rates.

B. Provide analyses of actual stack heights with respect to Good Engineering Practice (GEP), the meteorological data used, a description of the model used in the analysis, and the receptor grid utilized for the analyses.

C. Determine the significant impact level, the area impacted by the source's emissions and background air quality levels.

D. Demonstrate that the source will not cause or contribute to a violation of the National Ambient Air Quality Standard (NAAQS) or PSD increment if the applicant exceeds significant impact levels.

E. Perform a qualitative analysis of the source's impact on general growth, soils, vegetation and visibility in the impact area with emphasis on any Class I areas. The nearest Class I area is Kentucky's Mammoth Cave National Park.

F. Perform a Hazardous Air Pollutant (HAP) screening for informational purposes.

G. Summarize the Air Quality Analysis.

Section A - Pollutants Analyzed for Air Quality Impact

Applicability

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 and in the Code of Federal Regulations (CFR) 52.21(b) (23) (i).

Proposed Project Emissions

PM_{10}, NO_2, and CO are the pollutants that will be emitted from Ultra Soy and are summarized below in Table 1. VOCs make Ultra Soy a new major PSD source since they are over 250 tons per year. PM_{10}, CO, and NO_2 potential emissions after controls exceed the PSD significant emission rates and will require an air quality analysis.

TABLE 1
Significant Emission Rates for PSD

POLLUTANT	**SOURCE EMISSION RATE** (Facility totals in tons/year)	**SIGNIFICANT EMISSION RATE** (tons/year)	**PRELIMINARY AQ ANALYSIS REQUIRED**
PM_{10}	86.13	15	Yes
NO_2	144.33	40	Yes
CO	321.87	100	Yes
VOC (O_3)[1]	637.02	40	Yes

[1] An air quality analysis is not performed for VOCs because they are photochemically reactive Photochemical models like UAM-V are used in regulatory or policy assessments to stimulate the impacts from all sources by estimating pollutant concentrations and deposition of both inert and chemically reactive pollutants over large spatial scales. Currently, U.S. EPA has no regulatory photochemical models which can take into account small spatial scales or single source PSD modeling for ozone.

These are Ultra Soy's permitted emission rates and have been taken from Appendix A of the Technical Support Document (TSD).

Section B – Good Engineering Practice (GEP), Met Data, Model Used, Receptor Grid and Terrain

Stack Height Compliance with Good Engineering Practice (GEP)

Applicability

Stacks should comply with GEP requirements established in 326 IAC 1-7-4. If stacks are lower than GEP, excessive ambient concentrations due to aerodynamic downwash may occur. Dispersion modeling credit for stacks taller than 65 meters (213 feet) are limited to GEP for the purpose of establishing emission limitations. The GEP stack height takes into account the distance and dimensions of nearby structures, which would affect the downwind wake of the stack. The downwind wake is considered to extend five times the lesser of the structure's height or width. A GEP stack height is determined for each nearby structure by the following formula:

$$Hg = H + 1.5L$$

Where: Hg is the GEP stack height
H is the structure height
L is the structure's lesser dimension (height or width)

New Stacks

Since the new stack heights for Ultra Soy are below GEP stack height, the effect of aerodynamic downwash will be accounted for in the air quality analysis for the project.

Meteorological Data

The meteorological data used in AERMOD consisted of 1988 through 1992 surface data from the Fort Wayne, Indiana Airport (Station Number 14827), and upper air measurements taken at Dayton Wright Patterson AFB (Station Number 13840). The meteorological data was downloaded from Lakes Environmental and preprocessed using AERMET.

Model Description

ERM used AERMOD, Version 07026. OAQ used the same model version to determine maximum off-property concentrations or impacts for each pollutant. All regulatory default options were utilized in the U.S. EPA approved model, as listed in the 40 Code of Federal Regulations Part 51, Appendix W “Guideline on Air Quality Models”.

Receptor Grid

OAQ modeling used the same receptor grids generated by ERM. ERM’s receptor grid used the 2890 receptors. The property line receptors were spaced 100 meters apart along the boundary of the property. The four additional sets of receptor grids that were included in the modeling analysis are: fence line to 1.5km at 100 meters apart, from 1.5km to 3.0km at 250 meters apart, from 3.0km to 5.0km 500 meters apart, and from 5.0km to 10.0km 1000 meters apart.

Treatment of Terrain

The terrain surrounding Ultra Soy consists of only simple terrain. Receptor terrain elevations inputted into the model were interpolated from DEM data obtained from the USGS. DEM terrain data was preprocessed using AERMAP.

Section C - Significant Impact Level/Area (SIA) and Background Air Quality Levels

A significant impact analysis was conducted to determine if the source would exceed the PSD significant impact levels (concentrations). If the source's concentrations would exceed these levels, further air quality analysis is required. Modeling for PM_{10} and NO_2 was required because the results did exceed significant impact levels. Significant impact levels are defined by the following time periods in Table 2 below with all maximum-modeled concentrations from the worst case operating scenarios.

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
NO_2	Annual*	11.26	1	Yes
PM_{10}	Annual*	5.0	1	Yes
PM_{10}	24 hour*	30.2	5	Yes
CO	8 hour*	238.1	500	No
CO	1 hour*	791.8	2000	No

*First highest values per EPA NSR manual October 1990.

Pre-construction Monitoring Analysis

Applicability

The PSD rule, 326 IAC 2-2-4, requires an air quality analysis of the new source or the major modification to determine if the pre-construction monitoring threshold is triggered. In most cases, monitoring data taken from a similar geographic location can satisfy this requirement if the pre-construction monitoring threshold has been exceeded. Also, post construction monitoring could be required if the air quality in that area could be adversely impacted by the applicant's emissions.

Modeling Results

A comparison of the modeling results was made to the PSD preconstruction monitoring thresholds. The results are shown in the table below.

TABLE 3
Preconstruction Monitoring Analysis

POLLUTANT	TIME AVERAGING PERIOD	MAXIMUM MODELED IMPACTS (ug/m^3)	DEMINIMIS LEVEL (ug/m3)	ABOVE DE MINIMIS LEVEL
NO_2	Annual*	11.26	14	No
PM_{10}	24 hour*	30.2	10	Yes
CO	8 hour*	238.1	575	No

*****First highest values per EPA NSR manual October 1990.

PM_{10} did trigger the preconstruction monitoring. Ultra Soy can satisfy the preconstruction monitoring requirement since there is air quality monitoring data representative of the area in St Joseph and DeKalb County.

Background Concentrations

Applicability

EPA's "Ambient Monitoring Guidelines for Prevention of Significant Deterioration" (EPA-450/4-87-007) Section 2.4.1 is cited for approval of the monitoring sites for this area.

Background Monitors

Background data was taken from the closest monitoring stations to Ultra Soy. The closest NO_2 station is located in St Joseph County. The closest PM_{10} monitoring station is located in DeKalb County. Using background data from monitors located in industrialized parts of other areas represents a conservative approach since actual background values from rural LaGrange County would likely be lower. It was agreed between Ultra Soy and IDEM that this approach be taken in place of the preconstruction monitoring requirement.

For all 24-hour background concentrations, the averaged second highest monitoring values were used. Annual background concentrations were taken from the maximum annual values.

TABLE 4
Existing Monitoring Data Used For Background Concentrations *

Pollutant	Monitoring Site	Averaging Period	Concentration (ug/m3)
NO_2	18-141-1008	Annual	30.1
PM_{10}	18-033-0002	Annual	29.0
PM_{10}	18-033-0002	24 hour	51.7

*OAQ used the most conservative values for the air quality analysis. It is standard policy to use the latest 3 years of data.

Section D - NAAQS and PSD Increment

NAAQS Compliance Analysis and Results

NAAQS Compliance Analysis and Results

OAQ supplied emission inventories of all point sources within a 50-kilometer radius of Ultra Soy. The NAAQS inventories are generated from I-STEPS (State Emission Processing System) in accordance with 326 IAC 2-6. The PSD increment inventories include sources that affect the increment and are compiled from permits issued by IDEM.

NAAQS modeling for the appropriate time-averaging periods for NO_2 and PM_{10} was conducted and compared to the respective NAAQS limit. OAQ modeling results are shown in Table 5. All maximum-modeled concentrations were compared to the respective NAAQS limit. All maximum-modeled concentrations during the five years were below the NAAQS limits and further modeling was not required.

TABLE 5
NAAQS Analysis

Pollutant	Year	Time-Averaging Period	Maximum Concentration ug/m3	Background Concentration ug/m3	Total ug/m3	NAAQS Limit ug/m3	NAAQS Violation
NO_2	1988	Annual[1]	11.37	30.1	41.5	100	NO
PM_{10}	1992	Annual[1]	5.2	29.0	34.2	50	NO
PM_{10}	1992	24 hour H2H[2]	25.3	51.7	77	150	NO

[1] First highest values per EPA NSR manual October 1990. Any small discrepancies between the NAAQS and increment numbers are due to slightly different source inventories used for the NAAQS and the increment.
[2] High 2nd high value per EPA NSR manual October 1990.

Analysis and Results of Source Impact on the PSD Increment

Applicability
Maximum allowable increases (PSD increments) are established by 326 IAC 2-2 for PM_{10}. This rule also limits a source to no more than 80 percent of the available PSD increment to allow for future growth.

Source Impact
Since the impact for PM_{10} from Ultra Soy modeled above significant impact levels, a PSD increment analysis for the existing major sources and its surrounding counties was required. Results of the increment modeling are summarized in Table 6 below.

TABLE 6
Increment Analysis

Pollutant	Year	Time-Averaging Period	Maximum Concentration ug/m3	PSD Increment Ug/m3	Percent Impact on the PSD Increment	Increment Violation
NO_2	1988	Annual[1]	11.39	25	45.6%	NO
PM_{10}	1992	Annual[1]	5.2	17	30.6%	NO
PM_{10}	1988	24 hour H2H[2]	23.8	30	79.3%	NO

[1] First highest value per EPA NSR manual October 1990. Any small discrepancies between NAAQS and increment numbers are due to slightly different source inventories used for the NAAQS and the increment.
[2] Highest second high per EPA NSR manual October 1990.

The results of the increment analysis shows all pollutants for all averaging periods were below 80% of the available increment. No further analysis is required.

Part E – Qualitative Analysis

Additional Impact Analysis

All PSD permit applicants must prepare additional impacts analysis for each pollutant subject to regulation under the Act. This analysis assesses the impacts on growth, soils and vegetation, endangered species and visibility caused by any increase in emissions of any regulated pollutant from the source. The Ultra Soy modeling submittal provided an additional impact analysis performed by ERM.

Economic Growth

The purpose of the growth analysis is to quantify project associated growth and estimate the air quality impacts from this growth either quantitatively or qualitatively.

It is estimated that some additional jobs will be created as a result of the proposed project. Some of the employees will be drawn from the nearby population of South Milford; others from surrounding areas as commuters. Along with the new workforce, there will be an anticipated increase in ancillary growth as a result from the proposed project. Since the area is predominately rural, it is not expected the growth impacts will cause a violation of the NAAQs or the PSD increment.

Soils and Vegetation Analysis

A list of soil types present in the general area was determined. Soil types include the following: Sandy and Loamy Lacustrine deposits and Eolian sand; alluvial and outwash deposits; Eolian sand deposits.

Due to the agricultural nature of the land, crops in the LaGrange County area consist mainly of corn, wheat, and soybeans (2002 Agricultural Census for LaGrange County). The maximum modeled concentrations for Ultra Soy are well below the threshold limits necessary to have adverse impacts on the surrounding vegetation such as autumn bent, nimblewill, barnyard grass, bishopscap and horsetail, and milkweed (Flora of Indiana – Charles Deam). Livestock in Decatur County consist mainly of hogs, cattle, and sheep (2002 Agricultural Census for LaGrange County) 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

Federal and state endangered or threatened species are listed by the U.S. Fish and Wildlife Service; Division of Endangered Species for Indiana and includes 5 amphibians, 27 birds, 10 fishes, 7 mammals, 15 mollusks, and 15 reptiles. Of the federal and state endangered species on the list none have habitat within LaGrange County. The facility is not expected to have any additional adverse effects on the habitats of the species than what has already occurred from the industrial, farming, and residential activities in the area.

Federal and state endangered or threatened plants are listed by the U.S. Fish and Wildlife Service, Division of Endangered Species for Indiana. They list 6 state endangered or threatened species of plants. At this time no federally endangered plant species are found in LaGrange County. The endangered plants do not thrive in industrialized and residential areas. The facility is not expected to adversely affect any plant life.

Visibility Analysis

The VISCREEN model is designed as a screening model to determine the visual impact parameters from a single source plume. It is used basically to determine whether or not a plume is visible as an object itself. The visibility impairment analysis considers the impacts that occur within the impact area of the source as defined by the user distances. The user distances are determined by the nearest interstate or airport. EPA has defined these locations in guidance to the state.

The PM_{10} and NO_2 emissions limits were used to run a local visibility Level 1 and a Level 2 analysis. VISCREEN Version 1.01 was used to determine if the color difference parameter (Delta-E) or the plume (green) contrast limits were exceeded. The Delta-E was developed to specify the perceived magnitude of color and brightness changes and is used as the primary basis for determining the perceptibility of plume visual impacts. The plume constant can be defined at any wavelength as the relative difference in the intensity (called spectral radiance) between the viewed object and its background. This is used to determine how the human eye responds differently to different wavelengths of light. The Delta-E of 2.0 and the plume contrast of 0.05 were not exceeded at the nearest interstate location along I-69 and the closet municipal airport.

Potential visibility impacts to Mammoth Cave National Park (over 300km from Ultra Soy) would be insignificant. This is due to the distance from the Class 1 area and magnitude and characteristics of emission sources at Ultra Soy.

Additional Analysis Conclusions

Finally, the results of the additional impact analysis conclude the operation of the facility will have no significant impact on economic growth, soils, vegetation or visibility in the immediate vicinity or on any Class I area.

Part G – HAPs Analysis

OAQ currently requests data concerning the emission of 189 HAPs listed in the 1990 Clean Air Act Amendments (CAAA) that are either carcinogenic or otherwise considered toxic and may be used by industries in the State of Indiana. These substances are listed as air toxic compounds on the State of Indiana, Department of Environmental Management, Office of Air Quality's construction permit application Form GSD-08.

Potential emissions of aggregate HAPs are estimated to be greater than 25 tons per year.

For Ultra Soy, a full HAP analysis was completed comparing the maximum estimated concentrations of each pollutant with the Unit Risk Factor (URF) or Inhalation Unit Risk and the Reference Concentration (RfC). This analysis offers a refined, up to date site specific analysis that takes into account the different potencies and health effects that each pollutant presents to the public.

The Unit Risk Factor (URF) is the upper-bound excess lifetime cancer risk estimated to result from continuous inhalation exposure to a pollutant over a 70 year lifetime. Multiplying the estimated concentration by the URF will produce a cancer risk estimate. The cancer risk estimate is the conservative probability of developing cancer from exposure to a pollutant or a mixture of pollutants over a 70 year lifetime, usually expressed as the number of additional cancer cases in a given number of people, e.g., one in a million. For screening purposes at Ultra Soy, the cancer estimates for each pollutant are considered to be additive when deriving the cumulative maximum individual cancer risk.

Non-cancer health effects are determined using the Reference Concentration (RfC). The RfC is an estimate of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. Dividing the estimated pollutant concentration by the RfC will determine the pollutant’s Hazard Index (HQ). All of the HAPs’ Hazard Indexes were added together to determine Ultra Soy’s Hazard Index (HI).

This HAP screening analysis uses health protective assumptions that overestimate the actual risk associated with emissions from Ultra Soy. Estimates 1) assume a 70 year exposure time, 2) assume that all carcinogens cause the same type of cancer, 3) assume that all non-carcinogens have additive health effects, 4) assume maximum permit allowable emissions from the facility, and 5) use conservatively derived dose-response information. The risk analysis cannot accurately predict whether there will be observed health problems around Ultra Soy; rather it identifies possible avenues of risk.

The results of the HAP modeling are in Table 8.

TABLE 8
Hazardous Air Pollutant Modeling Results

	Annual Concentration	Cancer	Cancer Risk	Non-Cancer	Hazard Index
Compound	**(ug/m3)**	**URF, (ug/m3)-1**		**Chronic RfC, ug/m3**	
1,3-Butadiene	0.0016716	3.0E-05	5.01E-08	2.00	0.001
1,3-Dichlorobenzene	0.0000563		0.00E+00	105.00	0.000
2-Methylnaphthalene	0.0000011			70.00	0.000
3-Methylcholanthrene	0.0000001	6.3E-03	5.32E-10		
7,12-Dimethylbenz[a]anthracene	0.0000008	7.1E-02	5.33E-08		
Acenaphthene	0.0000770			210.00	0.000
Acenaphthylene	0.0000770			35.00	0.000
Acetaldehyde	0.0327914	2.2E-06	7.21E-08	9.00	0.004
Acrolein	0.0039546			0.02	0.198
Anthracene	0.0001027			1050.00	0.000
Arsenic compounds	0.0000094	4.3E-03	4.04E-08	0.03	0.000
Benzene	0.0898793	7.8E-06	7.01E-07	30.00	0.003
Benzo[a]anthracene	0.0000770	1.1E-04	8.47E-09		
Benzo[a]pyrene	0.0000514	1.1E-03	5.65E-08		
Benzo[b]fluoranthene	0.0000770	1.1E-04	8.47E-09		
Benzo[g,h,i]perylene	0.0000514	8.9E-03	4.57E-07		
Benzo[k]fluoranthene	0.0000770	1.1E-04	8.47E-09		
Beryllium compounds	0.0000006	2.4E-03	1.35E-09	0.02	0.000
Butane	0.0985853				
Cadmium compounds	0.0000516	1.8E-03	9.30E-08	0.02	0.003
Chromium (VI) compounds	0.0000657	1.2E-02	7.89E-07	0.10	0.001
Chrysene	0.0000770	8.9E-04	6.86E-08		
Cobalt	0.0000039			0.10	0.000
Dibenz[a,h]anthracene	0.0000514	1.2E-03	6.16E-08		
Ethane	0.1455307				
Fluoranthene	0.0001284			140.00	0.000
Fluorene	0.0001198			140.00	0.000
Formaldehyde	3.2099768	1.3E-05	4.17E-05	9.80	0.328
Indeno[1,2,3-cd]pyrene	0.0000770	1.1E-04	8.47E-09		
Manganese compounds	0.0000178			0.05	0.000
Mercury, elemental	0.0000122			0.30	0.000
Methanol	11.1000000			4000.00	0.003
Naphthalene	0.0261078	3.4E-05	8.88E-07	3.00	0.009
n-Hexane	209.2000000			200.00	**1.046**
Nickel compounds	0.0000986	2.4E-04	2.37E-08	0.20	0.000
Phenanthrene	0.0007276			10.50	0.000
Propylene glycol monmethyl ether	0.1103021			2000.00	0.000

Propylene oxide	0.0001020	3.7E-06	3.77E-10	30.00	0.000
P-Xylene				200.00	0.000
Pyrene	0.0002140			105.00	0.000
Selenium compounds	0.0000011			20.00	0.000
Toluene	0.1455189			400.00	0.000
Xylenes	0.0121845			100.00	0.000
		Total Cancer Risk	**4.51E-05**	**Hazard Index (HI)**	**1.5954**

* Further information on how URFs and RfCs are obtained can be found at the following EPA website:
http://www.epa.gov/ttn/atw/toxsource/chronicsources.html

The Hazard Index for the project does exceed 1. Pollutants with a Hazard Quotient greater than 1 are considered to be at concentrations that could represent a health concern. Hazard Quotients above 1 do not represent areas where adverse health effects will be observed but indicate that the potential exists.

Most of the Hazard Index is attributable to n-hexane. The HAP n-hexane by itself has a Hazard Quotient of 1.046. By combining the other HAPs into this mix, the Hazard Index comes to 1.5954 (see above table) assuming all highs concentrations are occurring at one location. The highest concentration of n-hexane occurs on the west side of property line. The analysis assumed all high concentrations occur at one receptor location which makes the analysis overly conservative. These highs all occur along the fence line and there are no nearby residences that sit in close proximity to these highs. Most of the area is rural farmland. The Hazard Index would be well below 1 if concentrations were used at any nearby residences.

The additive cancer risk estimate from all HAPs has a potential of 4.5 additional cancer cases in one hundred thousand people (1.0E-5). The US EPA considers one in ten thousand (1.0E-04) excess cancer risks to be the upper range of acceptability with ample margin of safety. This means that if an individual breathed in this combined concentration of HAPs from Ultra Soy continuously for 70 years, the risk of getting cancer from this exposure would be 4.5 in 100,000. The receptor where the maximum risk occurs is located on the fence line of Ultra Soy. No residents will be located at the fence line.

Overall, the probability for the general public to be exposed to the excess concentrations for 24 hours a day, seven days a week, 52 weeks a year for 70 years is minimal.

Part H - Summary of Air Quality Analysis

ITG initially prepared the modeling portion of the PSD application. ERM finished the modeling for Ultra Soy. LaGrange County is designated as attainment for all criteria pollutants. VOCs, CO, PM_{10}, and NO_2 emission rates associated with the proposed facility exceeded the respective significant emission rates. Modeling results taken from the AERMOD model showed PM_{10} and NO_2 impacts were predicted to be more than the significant impact levels. Ultra Soy did trigger preconstruction monitoring for PM_{10} but can satisfy the preconstruction monitoring requirement since there is existing air quality monitoring data representative of the area. The NAAQS and increment modeling for PM_{10} and NO_2 showed no violations of the standards. The nearest Class I area is Mammoth Cave National Park in Kentucky over 100 kilometers away from the source. An additional impact analysis was required but the operation of the proposed facility will have no significant impact. A Hazardous Air Pollutant (HAP) analysis was performed but Ultra Soy showed no adverse impact.