

APPLICANT: Cargill - North American Oilseed Processing		SITE LOCATION: Fayetteville		COUNTY: Cumberland
TECHNICAL CONTACT: Mr. Thomas S. Flynn	PHONE:	RESPONSIBLE OFFICIAL: Mr. Tim Gathman		TITLE: Plant Superintendent
REVIEW ENGINEER: Ms. Susan McCarthy, P.E., Contractor Mr. Kevin Godwin, Title V Coordinator		SIGNATURE:		DATE: xx
REGIONAL CONTACT: Ms. Rhonda Hall		REGIONAL OFFICE: Fayetteville Regional Office		SIC CODE: 2075
APPLICATION NUMBER: 260016A5.A	EXISTING PERMIT NUMBER: 03903R21		NEW PERMIT NUMBER: 03903T22	

I. Introduction

The U.S. Environmental Protection Agency (EPA) has given final approval to North Carolina’s Title V operating permits program effective on October 1, 2001. This EPA approval triggered the requirements for Title V facilities to submit permit applications to the Division of Air Quality. Title V facilities are required to obtain an operating permit which addresses all applicable regulations under the State Implementation Plan, Federal Implementation Plan, and other provisions of the Clean Air Act (CAA). The Title V Operating Permit will define all of the facility’s obligations under the CAA.

This Initial Title V Air Permit application Review intends to convey all pertinent emissions data, rules, policies, and engineering assumptions used to construct the DRAFT Title V operating permit. The primary source of information used to construct the DRAFT permit is the above referenced air permit application.

II. Background Information

The DRAFT Title V operating permit replaces an existing Air Quality Construction and Operation Permit No. 03903R21 issued on March 15, 2002 and is currently scheduled to expire on December 31, 2006.

Pursuant to 15A NCAC 2Q .0506 Cargill, Inc., North American Oilseed Processing, Fayetteville Plant submitted its initial Title V application to the Division of Air Quality on February 13, 1996. The application was considered complete for processing on April 11, 1996. The DRAFT permit is required to go to public notice pursuant to 15A NCAC 2Q .0521.

III. Facility Description

Cargill, Incorporated, North American Oilseed Processing, Fayetteville Plant receives soybeans and then dries, dehulls, conditions, flakes, and extracts oil from the bean flakes. The hulls, soybean meal from the depleted flakes, and the soybean oil are then processed and transferred off-site. The facility is considered both a soybean processing and refining facility. The facility consists of the Crush Plant where soybean meal and crude oil are produced and the Refinery Plant where crude oil is refined to edible soybean oil for salad dressings.

Title V Emissions

Cargill is Title V due to the fact that they emit greater than 100 tons per year of SO₂ (927.1 tpy), NO_x (225.2 tpy), VOC (384.0 tpy), TSP (290.6 tpy) and greater than 10 tons per year of hydrogen chloride (18.8 tpy) and hexane isomers and n-hexane (382.6 tpy), individual HAPs.

IV. Statement of Compliance

The DAQ has reviewed the compliance status of this facility. The last facility inspection was conducted on September 25, 2001 by Steven Vozzo and Rhonda Hall of the Fayetteville Regional Office, and the facility appeared to be in compliance. The facility is currently in compliance with all applicable requirements. The applicant has certified that the facility will be in compliance with all applicable requirements. The applicant has also certified that the facility will be in compliance with any applicable requirements taking effect during the term of the permit and will meet such requirements on a timely basis.

V. Summary of Emission Sources and Control Devices

The following table identifies all emission sources and associated control devices for which the Initial Title V Operating Permit is being issued.

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
Raw Soybean Storage and Handling			
ES-1	Rail unloading system consisting of elevators, belts, and drag conveyors	1C	One bagfilter (1,155 square feet of filter area [Carter Day])
ES-2	Truck unloading system consisting of one dump pit with a roof and a three sided enclosure	2C	One bagfilter (1,155 square feet of filter area [Carter Day])
ES-4	Bean cleaning operation (bean dryer, shaker, shaker aspiration, trash grinders, conveyors, and dryer cleaning process)	BF-106 C-106	One bagfilter (2,413 square feet of filter area) in series with one simple cyclone (84 inches in diameter)
ES-16	Steam-heated pre-cleaned soybean dryer (3,500 bushels per hour) [Aeroglide bean dryer] with self-cleaning 50 mesh screen filter system	16C	One simple cyclone(46 inches in diameter)
ES-17	Steam-heated pre-cleaned soybean dryer (3,000 bushels per hour) [Carter-Day Dryer]	n/a	n/a
ES-51, ES-52, ES-53, and ES-54	Soybean storage silos (steel tanks, 1,000,000 bushels capacity each)	BF-32, BF-33, BF-34, and BF-35	Four bagfilters (412 square feet of filter area each) [Bin Vent Bagfilters]
Raw Soybean Processing			
ES-5	Cracking process (consisting of the bean preparation aspirator, cracking rolls, duo-aspirators, and conveying process)	5C	One bagfilter (1,155 square feet of filter area [Carter Day])

ES-6A and ES-6B	Soybean flaker process A and soybean flaker process B	6A-C and 6B-C	Two simple cyclones (54 inches in diameter each)
ES-12	Secondary dehulling (coarse fraction)	BF-41, BF-10, and C-12A, C-12B, and C-12C	One bagfilter (2,240 square feet of filter area [Pneumafil]) and one bagfilter (960 square feet of filter area [Carter Day]) in series with three simple cyclone (108, 108, and 84 inches in diameter, respectively)
ES-33	Scale for weighing soybean throughput	BF-72	One bagfilter (1,155 square feet of filter area, also controls ES-61, ES-3A, ES-27)
ES-39	Whole bean storage bin	BF-39	One bagfilter (85 square feet of filter area)
ES-65	Primary dehulling	65-BF1, C-65A, C-65B, and C-65C	One bagfilter (6,738 square feet of filter area) installed on the exhausts from three simple cyclones (96 inches, 96 inches, and 108 inches in diameter, respectively)
ES-66	Hot dehulling	BF-10, 66C-1	One bagfilter (960 square feet of filter area [Carter Day]) in series with one simple cyclone (78 inches in diameter)
ES-30	Raw flake Reddler downspout/ raw flake conveyor	CY-30	One simple cyclone (24 inches in diameter)
Oil Extraction, Meal Drying, and Cooling			
ES-13	Meal drying operation	CY-13	One simple cyclone (102 inches in diameter)
ES-14	Rotary meal cooling operation	CY-14	One simple cyclone(102 inches in diameter)
<u>NSPS, Subpart Kb</u> ES-29A, ES-29B	Two 25,000 gallons capacity underground hexane storage tanks	n/a	n/a
<u>MACT</u> ES-31	One soybean oil/ hexane solvent extraction process	CD-31	One packed column mineral oil scrubber (ceramic saddle)
ES-32A and ES-32B	Floor sweeping No. 1 and No. 2	n/a	n/a
Miscellaneous Support Services and Boilers			
ES-19	One natural gas/ No. 2 fuel oil/ landfill gas-fired boiler (7.14 million Btu per hour heat input)	n/a	n/a

BACT ES-22	One coal/ No. 6 fuel oil/ No. 2 fuel oil/ natural gas/ landfill gas/ refinery skimmings/ reducer oil-fired boiler (129 million Btu per hour heat input)	BF-1	One bagfilter (33,912 square feet of filter area)
ES-24A and ES-24B	Ash conveying and handling system utilizing water control during loadout	BF-11	One bagfilter (360 square feet of filter area) [Mikro Pulsair]
ES-25	Fine clay receiving operation consisting of a clay truck unloading area and the clay receiving tank bin vent	BF-12	One bagfilter (58 square feet of filter area) [Flex Clean]
ES-26	Clay conveying receiver operation	BF-13	One bagfilter (58 square feet of filter area) [Flex Clean]
ES-40	One natural gas/ No. 2 fuel oil/ landfill gas-fired boiler (27.3 million Btu per hour heat input)	n/a	n/a
Meal and Hull Handling, Storage, and Loadout			
ES-3A	One meal and hull loading rail station	BF-72	One bagfilter (1,155 square feet of filter area [Carter Day])
ES-3B	One meal and hull loading truck station	BF-232	One bagfilter (3,590 square feet of filter area [Carter Day])
ES-11	Meal grinding operation (meal grinding, sifting, and conveying process)	BF-9	One bagfilter (3,910 square feet of filter area [Torit])
ES-18A	Hull grinding operation	5C, CY-9, CY-10	One bagfilter (2,300 square feet of filter area) installed on the exhaust from two simple cyclones (60 inches in diameter each)
ES-27 and ES-61	Hull Storage Tanks 60 and 61	BF-72	One bagfilter (1,155 square feet of filter area [Carter Day])
ES-62, ES-63, and ES-64	Three meal storage tanks (two 1,000 tons capacity each and one 3,000 tons capacity)	BF-232	One bagfilter (3,590 square feet of filter area [Carter Day])
ES-316	One meal leg/ hull conveyor	BF-232	One bagfilter (3,590 square feet of filter area [Carter Day])
Oil Refinery			
ES-34	Oil refinery	n/a	n/a

VI. Emission Source-by-Source Evaluation

A. Raw Soybean Storage and Handling Operations consisting of:

- C Rail unloading system (ID No. ES-1) consisting of elevators, belts, and drag conveyors with associated bagfilter (ID No. 1C, 1,155 square feet of filter area [Carter Day])**
- C Truck unloading system (ID No. ES-2) consisting of one dump pit with a roof and a three sided enclosure with associated bagfilter (ID No. 2C, 1,155 square feet of filter area [Carter Day])**
- C Bean cleaning operation (ID No. ES-4) (bean dryer, shaker, shaker aspiration, trash grinders, conveyors, and dryer cleaning process) with associated bagfilter (ID No. BF-106, 2,413 square feet of filter area [Carter Day]) in series with one simple cyclone (ID No. C106, 84 inches in diameter)**
- C Steam-heated pre-cleaned soybean dryer (3,000 bushels per hour) [Aeroglide bean dryer] with self-cleaning 50 mesh screen filter system (ID No. ES-16) with associated simple cyclone (ID No. 16C, 46 inches in diameter)**
- C Steam-heated pre-cleaned soybean dryer (ID No. ES-17, 5,000 bushels per hour [Carter-Day Dryer])**
- C Soybean storage silos (ID Nos. ES-51, ES-52, ES-53, and ES-54, steel tanks, 1,000,000 bushels capacity each) with four associated bagfilters (one each, ID Nos. BF-32, BF-33, BF-34, and BF-35, 412 square feet of filter area each [Bin Vent Bagfilters])**

1. Description

The raw soybean storage and handling operations begin with the arrival of purchased raw soybeans to the facility via rail or truck unloading (ID Nos. ES-1 and ES-2). Bean drag conveyors are used to transport the soybeans from the railcars and trucks directly to the process silos (no emission points) or over to the wet bean storage silos (ID Nos. ES-51, ES-52, ES-53, and ES-54) for long-term storage.

Bean conveyors transport the soybeans from the wet-side process silos to the bean cleaning process (ID No. ES-4). The process cleans the outer hull of the soybean. The steam-heated soybean dryers (ID Nos. ES-16 and ES-17) are used to initially dry the soybeans after the bean cleaning stage. Excess moisture is removed from the raw soybeans in the process. It is assumed that there is a 2% removal of moisture from the beans. The beans are then stored in the dry-side process silos (no emission points) prior to being transported to the raw soybean processing area. The only pollutant emitted from the above operations is particulate matter.

None of the above equipment is subject to NSPS Subpart DD. Only the portion of the plant that handles and stores whole soybeans is potentially subject to Subpart DD according to an 8/11/98 applicability determination by EPA Region 5. However, all whole soybean storage and handling equipment was constructed prior to the August 3, 1978 applicability date.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
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particulate matter including PM ₁₀	$E=4.10P^{0.67}$ or $E=55.0P^{0.11} - 40$ where E = allowable emission rate in pounds per hour P = process weight in tons per hour	15A NCAC 2D .0515
visible emissions	20 percent opacity	15A NCAC 2D .0521

a. 2D .0515 “Particulates from Miscellaneous Industrial Processes”

i. Regulatory Analysis

The allowable particulate emission limit is calculated by the following equation:

For process rates greater than 30 tons per hour:

$$E' 55.0P^{0.11} \&40$$

where: E = allowable emission rate for particulate matter in pounds per hour, and
P = process weight in tons per hour

Rail Unloading System (ID No. ES-1)

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
Process Rate (Application forms)	116.8 tons per hour	This is based on a soybean weight of 60 lbs./bushel and a process rate of 3,893 bushels per hour.
Process Rate (Calculations Section)	77.53 tons per hour	$P = (679,131 \text{ tons/yr}) \times (\text{year}/ 8,760 \text{ hrs}) = 77.53 \text{ tons/hour}$
Emission Limit	$E = 55.0 (77.53)^{0.11} - 40 =$ 48.76 lbs./hour	
Emission Factor	0.15 lb./ton	Based on AP-42, 5th Edition, Table 9.11.1-1, 11/95 for receiving at vegetable oil processing facilities.
Control Device Efficiency (Applicant)	91.92%	Bagfilter (ID No. 1C)
Before and After Control Emission Rate (Applicant)	11.63 lbs./hour and 0.94 lbs./hour, respectively	
DAQ Spreadsheet Control Device Efficiency	99.95%	Bagfilter (ID No. 1C)
Compliance Indicated?	Yes	

Truck Unloading System (ID No. ES-2)

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
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Process Rate (Application forms)	555 tons per hour	This is based on a soybean weight of 60 lbs./bushel and a process rate of 18,500 bushels per hour.
Process Rate (Calculations Section)	52.52 tons per hour	$P = (460,056 \text{ tons/yr}) \times (\text{yr} / 8,760 \text{ hrs}) = 52.52 \text{ tons/hour}$
Emission Limit	$E = 55.0 (52.52)^{0.11} - 40 =$ 45.03 lbs./hour	
Emission Factor	0.15 lb./ton	Based on AP-42, 5th Edition, Table 9.11.1-1, 11/95 for receiving at vegetable oil processing facilities.
Control Device Efficiency (Applicant)	86.93%	Bagfilter (ID No. 2C)
Before and After Control Emission Rate (Applicant)	7.88 lbs./hour and 1.03 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99.95%	Bagfilter (ID No. 2C)
Compliance Indicated?	Yes	

Bean Cleaning Operation (ID No. ES-4)

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
Process Rate (Application forms)	165 tons per hour	This is based on a soybean weight of 60 lbs./bushel and a process rate of 5,500 bushels per hour.
Process Rate (Calculations section)	130.04 tons per hour	$P = (1,139,897 \text{ tons/year}) \times (\text{year} / 8,760 \text{ hours}) = 130.04 \text{ tons per hour}$
Emission Limit	$E = 55.0 (130.04)^{0.11} - 40 =$ 53.95 lbs./hour	
Emission Factor	2.05 lb./ton	This factor is based on the NCDAQ guidance memo for Grain and Feed Mills, dated 2/96.
Control Device Efficiency (Applicant)	99.49%	For one bagfilter (ID No. BF-106) in series with one simple cyclone (ID No. C106)
Before and After Control Emission Rate (Applicant)	266.59 lbs./hour and 1.37 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency		Bagfilter (ID No. ES-4) 99.95%, Cyclone (ID No. C-106) 99.22%. If you multiply these two together, the overall control efficiency is 99.17%.
Compliance Indicated?	Yes	

Soybean Dryer (ID No. ES-16)

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
Process Rate (Application forms)	105 tons per hour	This is based on a soybean weight of 60 lbs./bushel and a process rate of 3,500 bushels per hour.

Process Rate (Calculations Section)	25.0 tons per hour	$P = (219,074 \text{ tons/yr}) \times (\text{yr}/ 8,760 \text{ hrs}) = 25.0 \text{ tons/hour}$
Emission Limit	$E = 4.10 (25.0)^{0.67} = \mathbf{35.44 \text{ lbs./hour}}$	
Emission Factor	0.22 lb./ton	Based on AP-42, 5th Edition, Table 9.11.1-1, 11/95 for column dryers at vegetable oil processing facilities.
Control Device Efficiency (Applicant)	not estimated	For simple cyclone (ID No. 16C)
Before and After Control Emission Rate (Applicant)	16.71 lbs./hour	This would be 5.5 lbs./hr if you use above emission factor.
DAQ Spreadsheet Control Device Efficiency	99.72%	For simple cyclone (ID No. 16C) using Method of Leith-Licht
Compliance Indicated?	Yes	

Soybean Dryer (ID No. ES-17)

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
Process Rate (Application forms)	150 tons per hour	This is based on a soybean weight of 60 lbs./bushel and a process rate of 5,000 bushels per hour.
Process Rate (Calculations Section)	100.03 tons per hour	$P = (876,298 \text{ tons/yr}) \times (\text{yr}/ 8,760 \text{ hrs}) = 100.03 \text{ tons/hour}$
Emission Limit	$E = 55.0 (100.03)^{0.11} - 40 = \mathbf{51.28 \text{ lbs./hour}}$	
Emission Factor	0.22 lb./ton	Based on AP-42, 5th Edition, Table 9.11.1-1, 11/95 for column dryers at vegetable oil processing facilities.
Control Device Efficiency	n/a	n/a
Before and After Control Emission Rate (Applicant)	22.01 lbs./hour	This would be 5.5 lbs./hr if you use above emission factor.
Compliance Indicated?	Yes	

Soybean Storage Silos (ID No. ES-51, ES-52, ES-53, and ES-54)

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
Process Rate (Application forms)	900 tons per hour each silo	
Process Rate (Calculations section)	32.51 tons per hour each silo	$P = (284,797 \text{ tons/yr}) \times (\text{yr}/ 8,760 \text{ hrs}) = 32.51 \text{ tons/hr}$

Emission Limit	$E = 55.0 (32.51)^{0.11} - 40 =$ 40.67 lbs./hour	
Emission Factor	0.05 lb./ton	Based on the NCDAQ guidance memo for Grain and Feed Mills, 2/96 for bin loading
Control Device Efficiency (Applicant)	96.93%	Each bagfilter (ID Nos. BF-32, BF-33, BF-34, and BF-35)
Before and After Control Emission Rate (Applicant)	1.63 lbs./hour and 0.05 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99.95%	Each bagfilter (ID Nos. BF-32, BF-33, BF-34, and BF-35)
Compliance Indicated?	Yes	

ii. Monitoring Requirements

To ensure that optimum control efficiency of particulate matter is obtained by the bagfilters and cyclones, monthly inspections will be performed and maintenance will be performed as recommended by the manufacturer. As a minimum, the inspections will include a monthly external inspection of the bagfilters, cyclones, and ductwork, and an annual internal inspection of the bagfilter to ensure structural integrity.

iii. Recordkeeping Requirements

The results of the inspection and maintenance will be kept in a log.

iv. Reporting Requirements

A summary report of the monitoring will be submitted by January 30 and July 30 of each year. The results of any maintenance to the control devices shall be reported within 30 days of a written request by DAQ.

b. 2D .0521 “Control of Visible Emissions”

i. Regulatory Analysis

The rail unloading station (ID No. ES-1), the truck unloading station (ID No. ES-2), the bean cleaning operation (ID No. ES-4), the soybean dryers (ID Nos. ES-16 and ES-17), and the four soybean storage silos (ID Nos. ES-51, ES-52, ES-53, and ES-54) were first operated in 1970, 1970, 1971, and 1970, respectively. Although some of these sources were established before July 1, 1971 and could be subject to the 40% opacity standard, they are requesting to be subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute averaging not more than 87 percent opacity may occur not more than once any hour nor more than four times in any 24-hour period. Compliance is indicated with this regulation, because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring Requirements

The Permittee will either observe the emission points of the sources above once a month for visible emissions above normal or perform a Method 9. Monthly observations should provide reasonable assurance of compliance. The Permittee will establish what normal visible emissions are through recordkeeping.

iii. Recordkeeping Requirements

The results of the observations and tests along with any corrective actions taken to reduce visible emissions shall be recorded in a log.

iv. Reporting Requirements

A summary report of the observation results will be submitted by January 30 and July 30 of each year.

B. Raw Soybean Processing Operations consisting of:

- C Bean cracking process (ID No. ES-5, consisting of the bean preparation aspirator, cracking rolls, duo-aspirators, and conveying process) with associated bagfilter (ID No. 5C, 1,155 square feet of filter area [Carter Day])**
- C Soybean flaker process A and soybean flaker process B (ID Nos. ES-6A and ES-6B) and two associated simple cyclones (ID Nos. 6A-C and 6B-C, 54 inches in diameter each)**
- C Secondary dehulling (coarse fraction, ID No. ES-12) with one associated bagfilter (ID No. BF-41, 2,240 square feet of filter area [Pneumafil]) and one bagfilter (ID No. BF-10, 960 square feet of filter area [Carter Day]) in series with three simple cyclones (ID Nos. C-12A, C-12B, and C-12C, 108, 108, and 84 inches in diameter, respectively)**
- C Scale for weighing soybean throughput (ID No. ES-33) with one associated bagfilter (ID No. BF-72, 1,155 square feet of filter area, also controls ES-61, ES-3A, and ES-27)**
- C Whole bean storage bin (ID No. ES-39) with one associated bagfilter (ID No. BF-39, 85 square feet of filter area)**
- C Primary Dehulling (ID No. ES-65) with associated bagfilter (ID No. 65-BF1, 6,738 square feet of filter area) installed on the exhausts from three simple cyclones (ID Nos. C-65A, C-65B, and C-65C, 96 inches, 96 inches, and 108 inches in diameter, respectively)**
- C Hot Dehulling (ID No. ES-66) with associated bagfilter (ID No. BF-10, 960 square feet of filter area [Carter Day]) in series with one simple cyclone (ID No. 66C-1, 78 inches in diameter)**
- C One raw flake Reddler downspout/ raw flake conveyor (ID No. ES-30) with one associated simple cyclone (ID No. CY-30, 24 inches in diameter)**

1. Description

In the raw soybean processing operations, the soybeans are transported from the dry side process silos to a process scale (ID No. ES-33). After being weighed, the beans are stored in the whole bean storage bin (ID No. ES-39). The soybeans are conveyed to the bean cracking process (ID No. ES-9) from the whole bean storage bin. The soybeans must be “cracked” to separate the meats from the hard outer shells (hulls). Particulate matter is the only air pollutant emitted from the whole bean storage

and bean cracking.

Next, dehulling occurs (separation of the hulls and meats of the cracked soybeans). More refined hull and meat separation is done in secondary dehulling (ID No. ES-12). Hulls removed during primary and secondary dehulling are moved to a storage area. The meats that pass through dehulling are sent to a bean conditioner (no emission points). After leaving the bean conditioner, the meats are transferred to two flaking systems (ID Nos. ES-6A and ES-6B). The soybeans are “flaked” so that they can be sent to the oil extraction operations. Particulate matter is the only pollutant emitted from the dehulling and flaking processes. The raw flake reddler downspout (ID No. ES-30) transports the meats that have been “flaked” to the oil extraction process (ID No. ES-31). Particulate matter is the only pollutant emitted from the downspout.

None of the above equipment is subject to NSPS Subpart DD. Only the portion of the plant that handles and stores whole soybeans is potentially subject to Subpart DD according to an 8/11/98 applicability determination by EPA Region 5. However, all whole soybean storage and handling equipment was constructed prior to the August 3, 1978 applicability date.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter including PM ₁₀	$E=55.0P^{0.11} - 40$ where E = allowable emission rate in pounds per hour P = process weight in tons per hour	15A NCAC 2D .0515
visible emissions	20 percent opacity	15A NCAC 2D .0521

a. 2D .0515 “Particulates from Miscellaneous Industrial Processes”

i. Regulatory Analysis

The allowable particulate emission limit is calculated by the following equation:

For process rates greater than 30 tons per hour:

$$E' 55.0P^{0.11}&40$$

where: E = allowable emission rate for particulate matter in pounds per hour, and
P = process weight in tons per hour

Bean Cracking (ID No. ES-5)

Parameter	Value	Notes
Process Rate (Application forms)	137.5 tons per hour	This is based on a soybean weight of 60 lbs./bushel and a process rate of 4,853 bushels per hour.

Process Rate (Calculations section)	122.54 tons per hour	$P = (1,073,465 \text{ tons/year}) \times (\text{year}/ 8,760 \text{ hours}) = 122.54 \text{ tons per hour}$
Emission Limit	$E = 55.0 (122.54)^{0.11} - 40 =$ 53.34 lbs./hour	
Emission Factor	9.0 lbs./ton	Based on AP-42, 5th Edition, Table 9.11.1-1, 11/95 for cracking/ dehulling at vegetable oil processing facilities.
Control Efficiency (Applicant)	96.88%	Bagfilter (ID No. 5C, 1,155 square feet of filter area)
Before and After Control Emission Rate (Applicant)	1,102.87 lbs./hour and 1.37 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99.95%	Bagfilter (ID No. 5C) - However, DAQ spreadsheet states that the filtering velocity is exceeded by 38.5%.
Compliance Indicated?	Yes	

Soybean Flaker Process A and Soybean Flaker Process B (ID Nos. ES-6A and ES-6B)

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
Process Rate (Application forms)	66.7 tons per hour	This is based on a soybean weight of 60 lbs./bushel and a process rate of 2,223 bushels per hour.
Process Rate (Calculations section)	61.24 tons per hour per source	$P = (536,432 \text{ tons/year}) \times (\text{year}/ 8,760 \text{ hours}) = 61.24 \text{ tons per hour per source (ID No. ES-6A and ES-6B)}$
Emission Limit	$E = 55.0 (61.24)^{0.11} - 40 =$ 46.49 lbs./hour for each source	
Emission Factor	0.92 lbs./ton	Based on AP-42, 5th Edition, Table 9.11.1-1, 11/95 for flaker rolls at vegetable oil processing facilities.
Control Device Efficiency (Applicant)	97.7%	Cyclones (ID Nos. 6A-C and 6B-C)
Before and After Control Emission Rate (Applicant)	1,102.87 lbs./hour and 1.37 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99.67%	Cyclones (ID Nos. 6A-C and 6B-C) using the Method of Leith -Licht.
Compliance Indicated?	Yes	

Secondary Dehulling (ID Nos. ES-12)

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
Process Rate (Application forms)	144.39 tons per hour	This is based on a soybean weight of 60 lbs./bushel and a process rate of 4,813 bushels per hour.

Process Rate (Calculations section)	61.24 tons per hour per source	$P = (536,432 \text{ tons/year}) \times (\text{year} / 8,760 \text{ hours}) = 61.24 \text{ tons per hour per source (ID No. ES-6A and ES-6B)}$
Emission Limit	$E = 55.0 (61.24)^{0.11} - 40 =$ 46.49 lbs./hour for each source	
Emission Factor	9.0 lbs./ton	Based on AP-42, 5th Edition, Table 9.11.1-1, 11/95 for cracking/ dehulling at vegetable oil processing facilities.
Control Device Efficiency (Applicant)	97.75%	For series of cyclones (ID Nos. C12-A, C12-B, and C-12C) and bagfilters (ID Nos. BF-41 and BF-10)
Before and After Control Emission Rate (Applicant)	551.44 and 1.37 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99.85%	Bagfilter (BF-41) 99.95%, Bagfilter (ES-10) 99.95%, Cyclones (C-12A, C-12B) 98.60% each, and Cyclone (C12-C) 99.34%. If you multiply these control efficiencies together, the resulting control efficiency is 99.85%.
Compliance Indicated?	Yes	

Soybean Scale (ID No. ES-33)

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
Process Rate (Application forms)	133.38 tons per hour	This is based on a soybean weight of 60 lbs./bushel and a process rate of 4,446 bushels per hour.
Process Rate (Calculations section)	122.54 tons per hour per source	$P = (1,073,465 \text{ tons/year}) \times (\text{year} / 8,760 \text{ hours}) = 122.54 \text{ tons per hour}$
Emission Limit	$E = 55.0 (122.54)^{0.11} - 40 =$ 53.34 lbs./hour	
Emission Factor	0.05 lbs./ton	This factor is based on the NCDAQ guidance memo for Grain and Feed Mills, dated 2/96.
Control Device Efficiency (Applicant)	97.88%	Bagfilter (ID No. BF-72)
Before and After Control Emission Rate (Applicant)	6.13 lbs./hour and 0.13 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99.95%	Bagfilter (ID No. BF-72)
Compliance Indicated?	Yes	

Whole Bean Storage Bin (ID No. ES-39)

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
Process Rate (Application forms)	133.38 tons per hour	This is based on a soybean weight of 60 lbs./bushel and a process rate of 4,446 bushels per hour.
Process Rate (Calculations section)	122.54 tons per hour per source	$P = (1,073,465 \text{ tons/year}) \times (\text{year}/ 8,760 \text{ hours}) = 122.54 \text{ tons per hour}$
Emission Limit	$E = 55.0 (122.54)^{0.11} - 40$ =53.34 lbs./hour	
Emission Factor	0.05 lbs./ton	This factor is based on the NCDAQ guidance memo for Grain and Feed Mills, dated 2/96.
Control Device Efficiency (Applicant)	99.67%	Bagfilter (ID No. BF-39)
Before and After Control Emission Rate (Applicant)	6.13 lbs./hour and 0.02 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99.95%	Bagfilter (ID No. BF-39)
Compliance Indicated?	Yes	

Primary Dehulling Operation (ID No. ES-65)

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
Process Rate (Application forms)	133.38 tons per hour	This is based on a soybean weight of 60 lbs./bushel and a process rate of 4,446 bushels per hour.
Process Rate (Calculations section)	122.54 tons per hour	$P = (1,073,465 \text{ tons/year}) \times (\text{year}/ 8,760 \text{ hours}) = 122.54 \text{ tons per hour}$
Emission Limit	$E = 55.0 (122.54)^{0.11} - 40$ =53.34 lbs./hour	
Emission Factor	0.25 lbs./ton	This is based on AP-42, 5th Edition, Table 9.11.1-1, 11/95 for bean conditioning at vegetable oil processing facilities.
Control Device Efficiency (Applicant)	85.99%	For the bagfilter (ID No. 65-BF1) in series with three cyclones (ID Nos. C-65A, C-65B, and C-65C).
Before and After Control Emission Rate (Applicant)	30.63 lbs./hour and 4.29 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	96.8%	According to the DAQ spreadsheets, the control devices have the following control efficiencies: Bagfilter (65-BF1) 99.95%, Cyclones (C-65A, C-65B) 98.51% each, and Cyclone (C-65C) 98.33%. If you multiply these control efficiencies together, the resulting control efficiency is 96.8%.

Compliance Indicated?	Yes	
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Hot Dehulling Operation (ID No. ES-66)

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
Process Rate (Application forms)	133.38 tons per hour	This is based on a soybean weight of 60 lbs./bushel and a process rate of 4,446 bushels per hour.
Process Rate (Calculations section)	122.54 tons per hour	$P = (1,073,465 \text{ tons/year}) \times (\text{year} / 8,760 \text{ hours}) = 122.54 \text{ tons per hour}$
Emission Limit	$E = 55.0 (122.54)^{0.11} - 40$ =53.34 lbs./hour	
Emission Factor	9.0 lbs./ton	This is based on AP-42, 5th Edition, Table 9.11.1-1, 11/95 for bean cracking/ dehulling at vegetable oil processing facilities.
Control Device Efficiency (Applicant)	99.88%	For the bagfilter (ID No. BF-10) in series with the cyclone (ID No. 66C-1).
Before and After Control Emission Rate (Applicant)	1,102.87 lbs./hour and 1.37 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	98.78%	According to the DAQ spreadsheets, the control devices have the following control efficiencies: Bagfilter (BF-10) 99.95%, Cyclones (66C-1) 99.78%. If you multiply these control efficiencies together, the resulting control efficiency is 98.78%.
Compliance Indicated?	Yes	Even if you use the lower efficiencies calculated by the DAQ spreadsheets, the after control emission rate is 13.46 lbs./hour and in compliance with the 2D .0515 limit.

Reddler Downspout (ID No. ES-30)

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
Process Rate (Application forms)	137.5 tons per hour	This is based on a soybean weight of 60 lbs./bushel and a process rate of 4,583 bushels per hour.
Process Rate (Calculations section)	122.54 tons per hour per source	$P = (1,073,465 \text{ tons/year}) \times (\text{year} / 8,760 \text{ hours}) = 122.54 \text{ tons per hour}$
Emission Limit	$E = 55.0 (122.54)^{0.11} - 40$ =53.34 lbs./hour	
Emission Factor	0.0275 lbs./ton	This is based on the NCDAQ guidance memo for Grain and Feed Mills dated 2/96 (loadout emission factor for grain and feed mills).

Control Device Efficiency (Applicant)	97.03%	Cyclone (ID No. CY-13)
Before and After Control Emission Rate (Applicant)	3.37 lbs./hour and 0.1 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99.5%	Cyclone (ID No. CY-13)
Compliance Indicated?	Yes.	

ii. Monitoring Requirements

To ensure that optimum control efficiency of particulate matter is obtained by the bagfilters and cyclones, monthly inspections will be performed and maintenance will be performed as recommended by the manufacturer. As a minimum, the inspections will include a monthly external inspection of the bagfilters, cyclones, and ductwork, and an annual internal inspection of the bagfilter to ensure structural integrity.

iii. Recordkeeping Requirements

The results of the inspection and maintenance will be kept in a log.

iv. Reporting Requirements

A summary report of the monitoring will be submitted by January 30 and July 30 of each year. The results of any maintenance to the control devices shall be reported within 30 days of a written request by DAQ.

b. 2D .0521 “Control of Visible Emissions”

i. Regulatory Analysis

The bean cracking process (ID No. ES-5), the soybean flaker process A and B (ID No. ES-6A and ES-6B), the secondary dehulling operation (ID No. ES-12), the scale (ID No. ES-33), the whole bean storage bin (ID No. ES-39), the primary dehulling operation (ID No. ES-65), and the hot dehulling operation (ID No. ES-66), and the raw flake Reddler downspout (ID No. ES-30) were all established in 1971. Sources which were established after July 1, 1971 are subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute averaging not more than 87 percent opacity may occur not more than once any hour nor more than four times in any 24-hour period. Compliance is indicated with this regulation, because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring Requirements

The Permittee will either observe the emission points of the sources above once a month for visible emissions above normal or perform a Method 9. Monthly observations should provide reasonable assurance of compliance. The Permittee will establish what normal visible emissions are through recordkeeping.

iii. Recordkeeping Requirements

The results of the observations and tests along with any corrective actions taken to reduce visible emissions shall be recorded in a log.

iv. Reporting Requirements

A summary report of the observation results will be submitted by January 30 and July 30 of each year.

C. Meal Drying and Cooling Operations associated with the Soybean Oil Extraction Process consisting of:

- C One meal drying operation (ID No. ES-13) with associated simple cyclone (ID No. CY-13, 102 inches in diameter)**
- C One rotary meal cooling operation (ID No. ES-14) with associated simple cyclone (ID No. CY-14, 102 inches in diameter)**

1. Description

The meal drying and cooling operations occur after the oil has been extracted from the soybeans. Particulate matter from each of these sources are controlled by a simple cyclone (ID Nos. C-13 and CY-14, 102 inches in diameter each). The applicant estimates that 58% of the total hexane losses occur from meal drying and 4% of the total hexane losses occur from meal cooling.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter including PM ₁₀	$E=55.0P^{0.11} - 40$ where E = allowable emission rate in pounds per hour P = process weight in tons per hour	15A NCAC 2D .0515
visible emissions	20 percent opacity	15A NCAC 2D .0521
odors	See Section VII.(A)(1); State-enforceable only	15A NCAC 2D .1806
toxic air pollutants	See Section VII.(A)(2); State-enforceable only	15A NCAC 2Q .0711
volatile organic compounds	See Section VII.(B)(1)	15A NCAC 2D .0958
	See Section VII.(C)(1)	15A NCAC 2D .0530

a. 2D .0515 “Particulates from Miscellaneous Industrial Processes”

i. Regulatory Analysis

The allowable particulate emission limit is calculated by the following equation:

For process rates greater than 30 tons per hour:

$$E = 55.0P^{0.11} - 40$$

where: E = allowable emission rate for particulate matter in pounds per hour, and

P = process weight in tons per hour

Meal Drying Operation (ID No. ES-13)

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
Process Rate (Application forms)	133.38 tons per hour	This is based on a soybean weight of 60 lbs./bushel and a process rate of 4,446 bushels per hour.
Process Rate (Calculations section)	105 tons per hour	$P = (920,112 \text{ tons/year}) \times (\text{year} / 8,760 \text{ hours}) = 105.0 \text{ tons per hour}$
Emission Limit	$E = 55.0 (105.0)^{0.11} - 40 =$ 51.77 lbs./hour	
Emission Factor	4.5 lbs./ton	This is based on AP-42, 5th Edition, Table 9.11.1-1, 11/95 for meal drying at vegetable oil processing facilities.
Control Device Efficiency (Applicant)	98.37%	Cyclone (ID No. CY-13)
Before and After Control Emission Rate (Applicant)	472.66 lbs./hour and 7.71 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99.0%	Cyclone (ID No. CY-13)
Compliance Indicated?	Yes	

Meal Cooling (ID No. ES-14)

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
Process Rate (Application forms)	133.38 tons per hour	This is based on a soybean weight of 60 lbs./bushel and a process rate of 4,446 bushels per hour.
Process Rate (Calculations section)	105.0 tons per hour	$P = (920,112 \text{ tons/year}) \times (\text{year} / 8,760 \text{ hours}) = 105.0 \text{ tons per hour}$
Emission Limit	$E = 55.0 (105.0)^{0.11} - 40 =$ 51.77 lbs./hour	
Emission Factor	4.75 lbs./ton	This is based on AP-42, 5th Edition, Table 9.11.1-1, 11/95 for meal cooling at vegetable oil processing facilities.

Control Device Efficiency (Applicant)	98.97%	Cyclone (ID No. CY-14)
Before and After Control Emission Rate (Applicant)	498.92 lbs./hour and 5.14 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99%	Cyclone (ID No. CY-14)
Compliance Indicated?	Yes	

ii. Monitoring Requirements

To ensure that optimum control efficiency of particulate matter is obtained by the cyclones, monthly inspections will be performed and maintenance will be performed as recommended by the manufacturer. As a minimum, the inspections will include a monthly external inspection of the cyclones, and ductwork to ensure structural integrity.

iii. Recordkeeping Requirements

The results of the inspection and maintenance will be kept in a log.

iv. Reporting Requirements

A summary report of the monitoring will be submitted by January 30 and July 30 of each year. The results of any maintenance to the control devices shall be reported within 30 days of a written request by DAQ.

b. 2D .0521 “Control of Visible Emissions”

i. Regulatory Analysis

The meal drying and cooling operations (ID Nos. ES-13 and ES-14) were first operated in 1970. However, the applicant is requesting the 20% opacity limit in 2D .0521(d). Sources which were established after July 1, 1971 are subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute averaging not more than 87 percent opacity may occur not more than once any hour nor more than four times in any 24-hour period. Compliance is indicated with this regulation, because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring Requirements

The Permittee will either observe the emission points of the sources above once a month for visible emissions above normal or perform a Method 9. Monthly observations should provide reasonable assurance of compliance. The Permittee will establish what normal visible emissions are through recordkeeping.

iii. Recordkeeping Requirements

The results of the observations and tests along with any corrective actions taken to reduce visible emissions shall be recorded in a log.

iv. Reporting Requirements

A summary report of the observation results will be submitted by January 30 and July 30 of each year.

NSPS

D. NSPS Subpart Kb affected underground hexane storage tanks associated with the soybean oil extraction process consisting of:

C Hexane Underground Storage Tank #1 (ID No. ES-29A) and Hexane Underground Storage Tank #2 (ID No. ES-29B) with associated packed column mineral oil scrubber (ceramic saddle, ID No. CD-29, 6.5 gallons per minute mineral oil injection rate)

1. Description

All of the storage tanks were constructed after 1984 and are greater than 40 m³ (10,560 gallons) and are subject to the recordkeeping requirement of NSPS Subpart Kb.

The hexane storage tanks are not exempt from the provisions of subpart A and the provisions of this subpart, because they have a design capacity of greater than 75 m³ (19,600 gallons) per tank and they have a vapor pressure of greater than 15.0 kPa. The maximum vapor pressure of the liquid stored is 2.29 psi, which is greater than 2.2 psi (15.0 kPa). These tanks are not required to install extra control measures as specified by Section 60.112b or the testing and procedures in 60.113b, or the reporting and recordkeeping requirements in 60.115b, because their vapor pressure is less than 27.6 kPa (4.0 psi). Cargill will, however, be required to keep dimensions of the storage tanks on site and notify the Administrator within 30 days if the true vapor pressure ever exceeds 27.6 kPa (4.0 psi).

The following table provides a summary of limits and standards for the emission source(s) described above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
NA	recordkeeping	15A NCAC 2D .0524 (40 CFR Part 60 Subpart Kb)

a. 15A NCAC 2D .0524: NEW SOURCE PERFORMANCE STANDARDS (40 CFR PART 60 SUBPART Kb)

Recordkeeping [15A NCAC 2Q .0508(f)]

The Permittee shall comply with the recordkeeping requirements of this standard by maintaining readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel. All records shall be kept for the life of the source. These sources are exempt from the General Provisions (40 CFR Part 60, Subpart A) and from any other provisions of Subpart Kb.

Monitoring

The owner or operator of each storage vessel with a design capacity of greater than 75 m³ but less than 151 m³ storing a liquid with a maximum true vapor pressure that is normally less than 27.6 kPa shall notify the Administrator within 30 days when the maximum true vapor pressure of the liquid exceeds the maximum of 27.6 kPa.

E. Soybean Oil/ Hexane Solvent Extraction Process and associated operations consisting of:

MACT

C One soybean oil/ hexane solvent extraction process (ID No. ES-31) with one associated packed column mineral oil scrubber (ceramic saddle, ID No. CD-29, 6.5 gallons per minute mineral oil injection rate)

C Floor Sweeping No. 1 and No. 2 (ID No. ES-32A and ES-32B)

1. Description

Hexane is mixed with the meat flakes as part of the soybean oil extraction process. The oil is extracted from the soybean meat and refined on-site using clay to settle out the impurities. Hexane fugitive emissions are also associated with the extraction building floor sweeps (ID Nos. ES-32A and ES-32B). In addition to emissions of volatile organic compounds (hexane and n-hexane), there are also a small amount of particulate emissions associated with this process group. This source is subject to the MACT, Subpart GGGG, “National Emissions Standards for Hazardous Air Pollutants: Solvent Extraction for Vegetable Oil Production.”

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
visible emissions	20 percent opacity	15A NCAC 2D .0521
odors	See Section VII.(A)(1); State-enforceable only	15A NCAC 2D .1806
toxic air pollutants	See Section VII.(A)(2); State-enforceable only	15A NCAC 2Q .0711
volatile organic compounds	See Section VII.(B)(1)	15A NCAC 2D .0958
	See Section VII.(C)(1)	15A NCAC 2D .0530
hazardous air pollutants	See Section VII.(D)(1)	15A NCAC 2D .1111 (Subpart GGGG)

a. 2D .0521 “Control of Visible Emissions”

i. Regulatory Analysis

The soybean oil/ hexane solvent extraction process (ID Nos. ES-31) was first operated in 1971. Sources which were established after July 1, 1971 are subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute averaging not more than 87 percent opacity may occur not more than once any hour nor more than four times in any 24-hour period. Compliance is indicated with this regulation, because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring Requirements

The Permittee will either observe the emission points of the soybean oil/ hexane solvent extraction process (ID Nos. ES-31) once a month for visible emissions above normal or perform a Method 9. Monthly observations should provide reasonable assurance of compliance. The Permittee will establish what normal visible emissions are through recordkeeping.

iii. Recordkeeping Requirements

The results of the observations and tests along with any corrective actions taken to reduce visible emissions shall be recorded in a log.

iv. Reporting Requirements

A summary report of the observation results will be submitted by January 30 and July 30 of each year.

F. One natural gas/ No. 2 fuel oil/ landfill gas-fired boiler (ID No. ES-19, 7.14 million Btu per hour heat input rate)

1. Description:

This 7.14 million Btu per hour boiler combusts natural gas, landfill gas, and No. 2 fuel oil. It was first operated in 1971. In the state operating permits, this boiler was incorporated into the PSD BACT condition by mistake. This condition will be removed with this Title V permit. Following is a history to explain this:

1. In 1979, a PSD permit (Air Permit No. 3903) was issued for the construction and operation of the coal-fired boiler (129 mmBtu/hr, ID No. ES-22). At that time, two other state operating permits existed (Permits Nos. 2835 and 2907) for other permitted equipment at the facility. As a condition of the PSD permit, two existing natural gas/ No. 2 fuel oil-fired boilers (ID Nos. ES-20 and ES-21) were to be removed upon installation of the coal-fired unit.
2. June 6, 1979 - Air Permit No. 3903R2 was issued. This revision to the air permit for the coal-fired boiler included the specific condition limiting the entire site to 129 million Btu per hour. It is postulated that this condition was to account for the removal of boilers (ID Nos. ES-20 and ES-21).
3. October 1, 1984 - All existing permits (Permit Nos. 2835R4, 2907R2, and 3903R4) were combined into Permit No. 3903R5. Boilers (ID Nos. ES-20 and ES-21) are not included in this revision. Boilers (ID Nos. ES-19 and ES-22) are the only boilers listed in this permit, and the permit limits these two boilers to a total heat input rate of 129 million Btu per hour as part of the PSD BACT condition. The boiler (ID No. ES-19) appears to be included as a mistake.

2. Applicable Regulatory Requirements

The following provides a summary of emission and/or operation limits for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
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particulate matter	0.33 pounds per million Btu heat input	15A NCAC 2D .0503
sulfur dioxide	2.3 pounds per million Btu heat input	15A NCAC 2D .0516
visible emissions	20 percent opacity	15A NCAC 2D .0521

a. 2D .0503(a) "Particulates from Fuel Burning Indirect Heat Exchangers"

i. Regulatory Analysis

This rule applies to installations burning fuel, including natural gas and fuel oils, for the purpose of producing heat or power by indirect heat transfer.

Allowable emissions of particulate matter from fuel combustion shall be calculated as follows:

$$E = 1.090 Q^{0.2594}$$

where: E =allowable particulate emission rate, pounds per million Btu
 Q=maximum heat input rate (total at plant site), million Btu per hour

Allowable particulate emissions for boiler (ID No. ES-19) are determined based on a total plant site heat input rate from the fuel-fired indirect heat exchangers at the time that the emission limit was set. The boilers which were existing at that time were boilers (ID Nos. ES-19, ES-20, and ES-21) with heat input rates of 7.14 mmBtu/hr, 37.5 mmBtu/hr, and 50.5 mmBtu/hr, respectively. Thus, the total heat input rate to the facility at the time this boiler was installed was 95.14 million Btu per hour and the allowable emission rate is:

$$E = 1.09 \times (95.14)^{0.2594} = 0.33 \text{ pound per million Btu}$$

or $E = 0.33 \text{ lb/million Btu} \times 7.14 \text{ million Btu per hour} = 2.4 \text{ lbs./hour}$

The AP-42 emission factor for total particulate emissions from natural gas combustion is 7.6 pounds of particulate per million cubic feet combusted [ref: AP-42 Table 1.4-2; July 1998]. Assuming a heating value of 1,020 Btu per cubic foot, this equates to:

$$\frac{7.6 \text{ lb particulate}}{1,000,000 \text{ cubic ft}} \times \frac{1 \text{ cuft}}{1,020 \text{ Btu}} \times \frac{1,000,000 \text{ Btu}}{\text{million Btu}} = 0.007 \frac{\text{pounds particulate}}{\text{million Btu heat input}}$$

Landfill gas particulate emissions are estimated to be similar to the natural gas emissions calculated above.

The DAQ's "Fuel Oil Combustion Emissions Calculator" spreadsheet uses AP-42 emission factors to estimate worst case particulate emissions. This emission factor of 3.3 pounds per 1,000 gallons adds the 2.0 lbs./1000 gal filterable particulate matter and 1.3 lb./1000 gal condensable particulate matter. Thus, using the standard heat content of No. 2 fuel oil of 141,000 Btu per gallon, the worst case particulate emissions are estimated to be 0.023 pound of particulate matter per million Btu. Compliance is indicated, since estimated emissions are less than allowable.

$$\frac{3.3 \text{ lb particulate}}{1,000 \text{ gallons}} \times \frac{1 \text{ gallon}}{141,000 \text{ Btu}} \times \frac{1,000,000 \text{ Btu}}{\text{million Btu}} = 0.023 \frac{\text{pounds particulate}}{\text{million Btu heat input}}$$

ii. Monitoring/Recordkeeping/Reporting Requirements

Since the potential particulate emissions are less than the allowable, no monitoring, recordkeeping or reporting are required. Stack testing is not required to ensure compliance with this regulation. However the test method condition will be put in the permit in the event that DAQ or EPA finds that due to improper operation violations, etc, source testing is required.

b. 2D .0516 "Sulfur Dioxide Emissions From Combustion Sources"

i. Regulatory Analysis

Sulfur dioxide emissions from any source of combustion that is discharged from any vent, stack, or chimney shall not exceed 2.3 pounds per million Btu heat input.

ii. Monitoring/Recordkeeping/Reporting Requirements

There are no testing, monitoring, recordkeeping, and reporting requirements for this source due to the inherently low sulfur content of natural gas and No. 2 fuel oil.

The AP-42 emission factor for total sulfur dioxide emissions from natural gas combustion is 0.6 pounds of sulfur dioxide per million cubic feet combusted [ref: AP-42 Table 1.4-2; July 1998]. Assuming a heating value of 1,020 Btu per cubic foot, this equates to:

$$\frac{0.6 \text{ lb sulfur dioxide}}{1,000,000 \text{ cubic ft}} \times \frac{1 \text{ cuft}}{1,020 \text{ Btu}} \times \frac{1,000,000 \text{ Btu}}{\text{million Btu}} = 0.0006 \frac{\text{pounds sulfur dioxide}}{\text{million Btu heat input}}$$

The sulfur content of No. 2 fuel oil is less than or equal to 0.5% by weight. The AP-42 emission factor for sulfur dioxide emissions from the combustion of No. 2 fuel oil in boilers smaller than 100 million Btu per hour is 157(S) pounds of sulfur dioxide per thousand gallons of fuel oil. The sulfur dioxide emissions from combustion of 0.5 weight % sulfur No. 2 fuel oil are:

$$E = \frac{142(0.5) \text{ pounds sulfur dioxide}}{1,000 \text{ gallons No. 2 fuel oil}} \times \frac{1,000 \text{ gallons No. 2 fuel oil}}{141 \text{ million Btu}} = 0.56 \frac{\text{lbs sulfur dioxide}}{\text{million Btu}}$$

c. 2D .0521 "Control of Visible Emissions"

i. Regulatory Analysis

The boiler (ID Nos. ES-19) was first operated in 1971. Sources which were established after July 1, 1971 are subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute averaging not more than 87 percent opacity may occur not more than once any hour nor more than four times in any 24-hour period. Compliance is indicated with this regulation, because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring/ Recordkeeping/ Reporting Requirements

No monitoring/recordkeeping/reporting is required for visible emissions from the firing of natural gas/ landfill gas/ No. 2 fuel oil in this source.

BACT

- G. **One coal/ No. 6 fuel oil/ No. 2 fuel oil/ natural gas/ landfill gas/ refinery skimmings/ reducer oil-fired boiler (ID No. ES-22, 129 million Btu per hour heat input) with one associated bagfilter (ID No. BF-1, 33,912 square feet of filter area)**

1. Description:

This boiler was originally permitted in 1979 and has BACT permit conditions for sulfur dioxide, nitrogen oxides, and particulate matter.

2. Applicable Regulatory Requirements

The following provides a summary of emission and/or operation limits for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter	0.1 pound per million Btu heat input	15A NCAC 2D .0530
nitrogen oxides	0.7 pound per million Btu	15A NCAC 2D .0530
sulfur dioxide	2.2 pounds per million Btu heat input	15A NCAC 2D .0530
visible emissions	20 percent opacity	15A NCAC 2D .0521
toxic air pollutants	Less than TPERS; State-enforceable only	15A NCAC 2Q .0711

- a. 2D .0530 "Prevention of Significant Deterioration - Particulate Matter"

i. Regulatory Analysis

The BACT particulate emission limit for the boiler (ID Nos. ES-22) is 0.1 lb./million Btu. Particulate emissions from this boiler are controlled by a bagfilter (20,000 square feet of filter area, ID No. ES-22) which is projected to have a 98% control efficiency. The applicant calculates particulate emissions using AP-42 emission factors.

Bituminous Coal Combustion

The uncontrolled particulate emission factor for coal combustion is 66 lbs./ton which equates to 315.3 lbs./hour or 2.44 lbs./million Btu. When you factor in the 98% particulate control efficiency, the controlled emission factor becomes 1.32 lbs./ton which equates to 6.31 lbs/hour or 0.049 lb/million Btu, less than the BACT emission limit of 0.1 lb./million Btu.

No. 6 Fuel Oil/ Reducer Oil/ Refinery Skimmings Combustion

The uncontrolled particulate emission factor for No. 6 fuel oil combustion is 23.1 lbs./1,000 gallons which equates to 19.9 lbs./hour or 0.154 lb./million Btu. When you factor in the 98%

particulate control efficiency, the controlled emission factor becomes 0.462 lbs./1,000 gallons which equates to 0.398 lbs/hour or 0.0031 lb/million Btu, well under the BACT emission limit.

No. 2 Fuel Oil Combustion

The DAQ's "Fuel Oil Combustion Emissions Calculator" spreadsheet uses AP-42 emission factors to estimate worst case uncontrolled particulate emissions. This uncontrolled emission factor of 3.3 pounds per 1,000 gallons adds the 2.0 lbs./1000 gal filterable particulate matter and 1.3 lb./1000 gal condensable particulate matter. Thus, using the standard heat content of No. 2 fuel oil of 141,000 Btu per gallon, the worst case particulate emissions are estimated to be 0.023 pound of particulate matter per million Btu. Compliance is indicated, since estimated emissions are less than allowable.

$$\frac{3.3 \text{ lb particulate}}{1,000 \text{ gallons}} \times \frac{1 \text{ gallon}}{141,000 \text{ Btu}} \times \frac{1,000,000 \text{ Btu}}{\text{million Btu}} = \frac{0.023 \text{ pounds particulate}}{\text{million Btu heat input}}$$

When you factor in 98% control, the controlled particulate emission factor for No. 2 fuel oil combustion is 0.00046 lb./ton

Natural Gas Combustion

The AP-42 emission factor for total particulate emissions from natural gas combustion is 7.6 pounds of particulate per million cubic feet combusted [ref: AP-42 Table 1.4-2; July 1998]. Assuming a heating value of 1,020 Btu per cubic foot, this equates to:

$$\frac{7.6 \text{ lb particulate}}{1,000,000 \text{ cubic ft}} \times \frac{1 \text{ cuft}}{1,020 \text{ Btu}} \times \frac{1,000,000 \text{ Btu}}{\text{million Btu}} = \frac{0.007 \text{ pounds particulate}}{\text{million Btu heat input}}$$

Thus, controlled natural gas emissions (with 98% particulate control) would be 0.000014 lb/million Btu. Landfill gas particulate emissions are estimated to be similar to the natural gas emissions calculated above.

ii. Testing Requirements

Under the provisions of NCGS 143-215.108, the Permittee shall demonstrate compliance with the emission limit **within 12 months of the issuance date of this permit** by testing the boiler (ID Nos. ES-22) for particulate matter emissions, (1) utilizing EPA Reference Methods 1 through 5, contained in 40 CFR 60, Appendix A, **OR** in accordance with a testing protocol approved by the DAQ.

- 1) The boiler shall be fired on coal and shall be operated with its typical fuel mixture at a minimum of 90 percent of maximum operating conditions or at a level representative of average load over the previous twelve months during stack testing to determine compliance with the maximum allowable particulate emission rate.

iii. Monitoring/Recordkeeping Requirements

To ensure that optimum control efficiency of particulate matter is obtained by the bagfilter (ID No. BF-1), inspections and maintenance will be performed as recommended by the manufacturer. If no manufacturer's recommendations are available, as a minimum, the inspections will include an annual internal inspection of the bagfilter's structural integrity and a monthly external visual inspection of the ductwork and collection unit for leaks. Monthly inspections should provide assurance of compliance since the expected life of a bagfilter is

several years.

iv. Reporting Requirements

A summary report of the monitoring will be submitted by January 30th and July 30th of each year. The results of any maintenance to the control devices shall be reported within 30 days of a written request by DAQ.

b. 2D .0530 “Prevention of Significant Deterioration - Nitrogen Oxides”

i. Regulatory Analysis

The BACT nitrogen oxides emission limit for the boiler (ID Nos. ES-22) is 0.7 lb./million Btu. Nitrogen oxide emissions from this boiler are uncontrolled. Following are estimates of nitrogen oxide emissions based on the AP-42 emission factors (as used by the applicant).

Bituminous Coal Combustion

The uncontrolled nitrogen oxide emission factor for coal combustion is 13.7 lbs./ton coal which equates to 65.5 lbs./hour or 0.51 lb./million Btu. Compliance is indicated based on AP-42 emission factors.

No. 6 and No. 2 Fuel Oil Combustion

The uncontrolled nitrogen oxide emission factor for No. 6 and No. 2 fuel oil combustion is 47.00 lbs./1,000 gallons which equates to 40.42 lbs./hour or 0.313 lb./million Btu. Compliance is indicated based on AP-42 emission factors.

Natural Gas Combustion

The AP-42 nitrogen oxide emission factor for natural gas/ landfill gas combustion is 100 pounds per million cubic feet burned. This equates to 23.76 lbs./hour or 0.184 lb./million Btu. Thus compliance is indicated.

ii. Testing Requirements

Since nitrogen oxide emissions are well under the allowable BACT limit, no testing will be required to demonstrate compliance with this standard.

iii. Monitoring/Recordkeeping/ Reporting Requirements

No monitoring/ recordkeeping/ reporting will be required to demonstrate compliance with this standard.

c. 2D .0530 “Prevention of Significant Deterioration - Sulfur Dioxide”

i. Regulatory Analysis

The BACT sulfur dioxide emission limit for the boiler (ID Nos. ES-22) is 2.2 lb./million Btu. Sulfur dioxide emissions from this boiler are uncontrolled. Following are estimates of sulfur dioxide emissions based on the AP-42 emission factors (as used by the applicant).

Bituminous Coal Combustion

The applicant uses an uncontrolled sulfur dioxide emission factor for coal combustion of 59.2

lbs./ton coal. This is based on a 1.5% sulfur content coal, although the applicant states that they are using a 0.77% sulfur content coal. This equates to 282.84 lbs./hour or 2.19 lbs./million Btu, just under the BACT limit. If you use the sulfur content that the applicant is reporting of 0.77% sulfur content, the sulfur dioxide emission factor becomes 29.26 lb./ton coal or 139.8 lbs./hour. This equates to a sulfur dioxide emission rate of 1.08 lbs./hour. Compliance is indicated with a limit of 1.5% sulfur content coal.

No. 6 Fuel Oil Combustion

The sulfur dioxide emission factor for No. 6 fuel oil combustion, 2% sulfur content fuel, is 314 lbs./1,000 gallons which equates 270 lbs./hour or 2.09 lb./million Btu. Compliance is indicated based on AP-42 emission factors and a limit of 2.0% sulfur content No. 6 fuel.

No. 2 Fuel Oil Combustion

The sulfur dioxide emission factor for No. 2 fuel oil combustion, 0.5% sulfur content, is 78.5 lbs./1,000 gallons which equates to 65.4 lbs./hour or 0.51 lb./million Btu. Compliance is indicated based on AP-42 emission factors.

Natural Gas Combustion

The AP-42 emission factor for natural gas/ landfill gas combustion is 0.6 pounds per million cubic feet burned. This equates to 0.08 lbs./hour or 0.00062 lb./million Btu. Thus compliance is indicated.

ii. Testing Requirements

Since sulfur dioxide emissions can be limited with a limit on sulfur content of fuel, testing will not be required to demonstrate compliance with this standard.

iii. Monitoring/Recordkeeping Requirements

No monitoring/recordkeeping is required for sulfur dioxide emissions from natural gas/ No. 2 fuel oil/ landfill gas for these sources.

The maximum sulfur content of any coal received and burned in the boiler shall not exceed 1.5 percent by weight. To assure compliance, the Permittee shall monitor the sulfur content of the coal by using coal supplier certification per total shipment received. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the sulfur content of the coal is not monitored and recorded.

The maximum sulfur content of any No. 6 fuel oil burned in the boiler shall not exceed 2.0 percent by weight. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the sulfur content of the fuel oil exceeds this limit. To assure compliance, the Permittee shall monitor the sulfur content of the No. 6 fuel oil by using fuel oil supplier certification per shipment received. The results of the fuel oil supplier certifications shall be recorded in a log (written or electronic format) on a quarterly basis and include the following information:

iv. Reporting Requirements

The Permittee shall submit a summary report of the coal and No. 6 fuel oil supplier certifications postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June a certified statement signed by the responsible

official that the records of coal supplier certification submitted represent all of the coal fired during the reporting period. All instances of deviations from the requirements of this permit must be clearly identified.

d. 2D .0521 “Control of Visible Emissions”

i. Regulatory Analysis

The boiler (ID Nos. ES-22) was first operated in 1971. Sources which were established after July 1, 1971 are subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute averaging not more than 87 percent opacity may occur not more than once any hour nor more than four times in any 24-hour period. Compliance is indicated with this regulation, because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring/ Recordkeeping/ Reporting Requirements

No monitoring/recordkeeping/reporting is required for visible emissions from the firing of natural gas/ landfill gas/ No. 2 fuel oil in this source.

For coal/ No. 6 fuel oil/ reducer oil/ refinery skimmings, once a day the Permittee shall observe the emission points of this source for any visible emissions above normal. The Permittee shall establish “normal” for the source in the first 30 days following the effective date of the permit.

The results of the monitoring shall be maintained in a log (written or electronic format). The Permittee shall submit a summary report of the observations postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

e. State-Only Requirements: 15A NCAC 2Q .0700 Toxic Air Pollutant Procedures

i. The Permittee may burn refinery skimmings in boiler (ID No. ES-22) once the following conditions have been met:

- A. Testing adequate to determine the quantity and type of any toxic materials listed in NCAC 2Q .0711 shall be performed. The results shall be forwarded to the Fayetteville Regional Supervisor, Division of Air Quality.
- B. The Permittee shall request and obtain written permission from the Fayetteville Regional Supervisor, Division of Air Quality, prior to burning the refinery skimmings.
- C. Combustion of this plant waste will occur with the following limitations:
 1. Waste is generated from this plant-site.
 2. Waste is combusted in the boiler (ID No. ES-22) operating under conditions of high fire producing high steam demand.
 3. Combustion of this plant waste will occur with the following limitations that the maximum amount of refinery skimmings shall not exceed 10,000 gallons per month.

ii. The Permittee may burn reducer oil in the boiler (ID No. ES-22) provided that:

- A. Waste is generated from the plant on-site.
- B. Waste is combusted in the boiler (ID No. ES-22) operating under conditions of high-fire

- producing high steam demand.
- C . Combustion of this plant waste will occur with the following limitations that the maximum amount of reducer oil shall not exceed 1,000 gallons for any 12 consecutive months.

Monitoring/ Recordkeeping

- iii. The Permittee shall maintain a plant waste combustion log on-site with the following information:
 - A. The date of plant waste combustion.
 - B. Type of plant waste combusted.
 - C. Quantity of waste materials combusted.
 - D. Feed rate of plant waste to boiler.
 - E. Documentation of any feed rate limitation, if applicable.

Reporting

- iv. Within 30 days after each calendar year, the following shall be reported:
 - A. The total amount of refiner oil combusted.
 - B. The total amount of refinery skimmings combusted.
- v. Within 30 days after the initial use of refinery skimmings, the Permittee shall submit in writing the type of plant waste and the date which the material was first used in the boiler.

Check with region. Has this been fulfilled?

H. One natural gas/ No. 2 fuel oil/ landfill gas-fired boiler (ID No. ES-40, 27.3 million Btu per hour heat input)

1. Description:

Boiler (ID No. ES-40) has a PSD avoidance condition limiting sulfur dioxide emissions to less than 40 tons per year. To ensure compliance, the PSD avoidance condition limits this boiler to only burning No. 2 fuel oil, natural gas, and landfill gas and requires the Permittee to keep calculations of sulfur dioxide emissions. If you assume a worst case scenario of burning No.2 fuel oil 100% of the time, sulfur dioxide emissions could approach 60.6 tons per year.

2. Applicable Regulatory Requirements

The following provides a summary of emission and/or operation limits for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter	0.29 pound per million Btu heat input	15A NCAC 2D .0503
sulfur dioxide	2.3 pounds per million Btu heat input	15A NCAC 2D .0516
	Less than 40 tons per year	Avoidance of 15A NCAC 2D .0530

visible emissions	20 percent opacity	15A NCAC 2D .0521
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a. 2D .0503(a) "Particulates from Fuel Burning Indirect Heat Exchangers"

i. Regulatory Analysis

This rule applies to installations burning fuel, including natural gas and fuel oils, for the purpose of producing heat or power by indirect heat transfer.

Allowable emissions of particulate matter from fuel combustion shall be calculated as follows:

$$E = 1.090 Q^{-0.2594}$$

where: E =allowable particulate emission rate, pounds per million Btu
 Q=maximum heat input rate (total at plant site), million Btu per hour

Allowable particulate emissions for boiler (ID No. ES-22) are determined based on a total plant site heat input rate from the fuel-fired indirect heat exchangers which include the 7.14 million Btu per hour boiler (ID No. ES-19), the 129 million Btu per hour boiler (ID No. ES-22), and the 27.3 million Btu per hour boiler (ID No. ES-40) for which the limit is being calculated. Thus, the total heat input rate to the facility is 163.4 million Btu per hour and the allowable emission rate is:

$$E = 1.09 \times (163.4)^{-0.2594} = 0.29 \text{ pound per million Btu}$$

or $E = 0.29 \text{ lb/million Btu} \times 27.3 \text{ million Btu per hour} = 7.9 \text{ lbs./hour}$

The AP-42 emission factor for total particulate emissions from natural gas combustion is 7.6 pounds of particulate per million cubic feet combusted [ref: AP-42 Table 1.4-2; July 1998]. Assuming a heating value of 1,020 Btu per cubic foot, this equates to:

$$\frac{7.6 \text{ lb particulate}}{1,000,000 \text{ cubic ft}} \times \frac{1 \text{ cuft}}{1,020 \text{ Btu}} \times \frac{1,000,000 \text{ Btu}}{\text{million Btu}} = \frac{0.007 \text{ pounds particulate}}{\text{million Btu heat input}}$$

Landfill gas particulate emissions are estimated to be similar to the natural gas emissions calculated above.

The DAQ's "Fuel Oil Combustion Emissions Calculator" spreadsheet uses AP-42 emission factors to estimate worst case particulate emissions. This emission factor of 3.3 pounds per 1,000 gallons adds the 2.0 lbs./1000 gal filterable particulate matter and 1.3 lb./1000 gal condensable particulate matter. Thus, using the standard heat content of No. 2 fuel oil of 141,000 Btu per gallon, the worst case particulate emissions are estimated to be 0.023 pound of particulate matter per million Btu. Compliance is indicated, since estimated emissions are less than allowable.

$$\frac{3.3 \text{ lb particulate}}{1,000 \text{ gallons}} \times \frac{1 \text{ gallon}}{141,000 \text{ Btu}} \times \frac{1,000,000 \text{ Btu}}{\text{million Btu}} = \frac{0.023 \text{ pounds particulate}}{\text{million Btu heat input}}$$

ii. Monitoring/Recordkeeping/Reporting Requirements

Since the potential particulate emissions are less than the allowable, no monitoring, recordkeeping or reporting are required. Stack testing is not required to ensure compliance with this regulation. However the test method condition will be put in the permit in the event that DAQ or EPA finds that due to improper operation violations, etc, source testing is required.

b. 2D .0516 "Sulfur Dioxide Emissions From Combustion Sources"

i. Regulatory Analysis

Sulfur dioxide emissions from any source of combustion that is discharged from any vent, stack, or chimney shall not exceed 2.3 pounds per million Btu heat input.

ii. Monitoring/Recordkeeping/Reporting Requirements

There are no testing, monitoring, recordkeeping, and reporting requirements for this source due to the inherently low sulfur content of natural gas, landfill gas, and No. 2 fuel oil.

The AP-42 emission factor for total sulfur dioxide emissions from natural gas combustion is 0.6 pounds of sulfur dioxide per million cubic feet combusted [ref: AP-42 Table 1.4-2; July 1998]. Assuming a heating value of 1,020 Btu per cubic foot, this equates to:

$$\frac{0.6 \text{ lb sulfur dioxide}}{1,000,000 \text{ cubic ft}} \times \frac{1 \text{ cuft}}{1,020 \text{ Btu}} \times \frac{1,000,000 \text{ Btu}}{\text{million Btu}} = 0.0006 \frac{\text{pounds sulfur dioxide}}{\text{million Btu heat input}}$$

Sulfur dioxide emissions from landfill gas are assumed to be similar to emissions from natural gas as calculated above.

The sulfur content of No. 2 fuel oil is less than or equal to 0.5% by weight. The AP-42 emission factor for sulfur dioxide emissions from the combustion of fuel oil in boilers smaller than 100 million Btu per hour is 157(S) pounds of sulfur dioxide per thousand gallons of fuel oil. The sulfur dioxide emissions from combustion of 0.5 weight % sulfur No. 2 fuel oil are:

$$E = \frac{142(0.5) \text{ pounds sulfur dioxide}}{1,000 \text{ gallons No. 2 fuel oil}} \times \frac{1,000 \text{ gallons No. 2 fuel oil}}{141 \text{ million Btu}} = 0.56 \frac{\text{lbs sulfur dioxide}}{\text{million Btu}}$$

c. 2D .0521 "Control of Visible Emissions"

i. Regulatory Analysis

The boiler (ID Nos. ES-40) was first operated in 1971. Sources which were established after July 1, 1971 are subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute averaging not more than 87 percent opacity may occur not more than once any hour nor more than four times in any 24-hour period. Compliance is indicated with this regulation, because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring/ Recordkeeping/ Reporting Requirements

No monitoring/recordkeeping/reporting is required for visible emissions from the firing of natural gas/ landfill gas/ No. 2 fuel oil in this source.

d. Avoidance of 2D .0530 “Prevention of Significant Deterioration - Sulfur Dioxide”

i. Regulatory Analysis

To avoid the applicability of NCAC 2D .0530 “Prevention of Significant Deterioration,” sulfur dioxide emissions must be less than 40 tons per 12-month period. The use of fuel in boiler (ID No. ES-40) shall be limited such that sulfur dioxide emissions shall not exceed 40 tons for any consecutive 12-month period. Calculations shall be made monthly and recorded in a logbook (written or in electronic format), according to the following formula:

$$X \cdot Y \times 0.6 \frac{\text{lbs sulfur dioxide}}{\text{million cubic feet}} \% Z \times \frac{157 \text{ lbs sulfur dioxide}}{1000 \text{ gallon fuel oil}} \times S$$

Where: X is the total actual emissions of sulfur dioxide in pounds

Y is the total amount of natural gas and landfill gas used in the boilers in cubic feet

Z is the amount of No. 2 fuel oil used in the boilers in gallons

S is the percent sulfur in the No. 2 fuel oil

ii. Monitoring / Recordkeeping Requirements

The Permittee shall keep monthly records of the amount of fuel used and the sulfur content, including certification of the fuel, in a log (written or in electronic format). The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the sulfur content of the fuel is not monitored.

iii. Reporting Requirements

The Permittee shall submit quarterly summary reports, acceptable to the Regional Air Quality Supervisor of monitoring and recordkeeping activities. The report shall contain the following:

- A. The monthly sulfur dioxide emissions for the previous 14 months. The emissions must be calculated for each of the 12-month periods over the previous 14 months;
- B. The monthly quantities of natural gas and No. 6 fuel oil consumed for the previous 14 months and the average sulfur content for the fuel oil; and
- C. The average sulfur content for the fuel oil.

I. Boiler Support Services including:

- C Ash conveying and handling systems (ID Nos. ES-24A and ES-24B, respectively) with one associated bagfilter (ID No. BF-11, 360 square feet of filter area) [Micro Pulsair]**
- C Fine clay receiving operation consisting of a clay truck unloading area and the clay receiving tank bin vent (ID No. ES-25) with one bagfilter (ID No. BF-12, 58 square feet of filter area) [Flex Clean]**
- C Clay conveying receiver operation (ID No. ES-26) with one bagfilter (ID No. BF-13, 58 square feet of filter area) [Flex Clean]**

1. Description

Ash from the coal-fired boiler is removed with conveying (ID No. ES-24A) and handling (ID No. ES-

24B) processes. Purchased clay by the facility is conveyed (ID No. ES-25) and unloaded (ID No. ES-26) to be used in the oil refinery process. The clay is distributed through the oil tank settling to the bottom with impurities. This clay settling process enhances the final oil product purity. Particulate matter is the only pollutant emitted from the clay conveying and unloading process.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter	$E=4.10P^{0.67}$ where E = allowable emission rate in pounds per hour P = process weight in tons per hour	15A NCAC 2D .0515
visible emissions	20 percent opacity	15A NCAC 2D .0521

a. 2D .0515 “Particulates from Miscellaneous Industrial Processes”

i. Regulatory Analysis

The allowable particulate emission limit is calculated by the following equation:

For process weights up to 30 tons per hour

$$E = 4.10P^{0.67}$$

Ash Conveying and Handling (ID Nos. ES-24A and ES-24B)

Parameter	Value	Notes
Process Rate (Application forms)	6.71 tons per hour of coal each	
Process Rate (Calculations section)	0.234 tons per hour per source	$P = (2,053 \text{ tons/year}) \times (\text{year} / 8,760 \text{ hours}) = 0.234 \text{ tons per hour}$
Emission Limit	$E = 4.10 (0.234)^{0.67} = 1.55$ lbs./hour each source	

Emission Factor	0.16 lbs./ton	This emission factor is conservatively estimated by assuming the emissions from the material transfer of ash in an enclosed system are similar to emissions from aggregate handling operations. The factor is based on predictive equation (1) below: $E \text{ [lb/ton]} = (k * (0.0032)) * ((U/5)^{1.3} / ((M/4)^{1.4})) \text{ Eqn. 1}$ <p>This is based on AP-42, 5th Edition, Section 13.2.4, 1/95. The moisture content (M) is for fly ash and has a value of 27%, according to Table 13.2.4-1. The particulate size multiplier, k, is 0.74, which is conservatively used for particles less than 30 microns in size. The wind speed is also conservatively estimated at 15 mph.</p>
Control Device Efficiency (Applicant)	not calculated	Bagfilter (ID No. BF-11)
Before and After Control Emission Rate (Applicant)	0.09 lbs./hour each source (Based on emission factor, uncontrolled emissions are 0.234 tons/hour x 0.16 lbs./ton = 0.04 lbs./hour.)	
DAQ Spreadsheet Control Device Efficiency	99.95%	Bagfilter (ID No. BF-11)
Compliance Indicated?	yes	

Fine clay receiving operation consisting of a clay truck unloading area and the clay receiving tank bin vent (ID No. ES-25) with one bagfilter (ID No. BF-12, 58 square feet of filter area) [Flex Clean]

<u>Parameter</u>	<u>Value</u>	<u>Notes</u>
Process Rate (Application forms)	Maximum filling rate of 10 tons per hour and a maximum unloading rate of 175 tons per hour.	
Process Rate (Calculations section)	0.194 tons per hour per source	$P = (1,700 \text{ tons/year}) / (8,760 \text{ hours/year}) = 0.194 \text{ tons per hour}$
Emission Limit	$E = 4.10 (0.194)^{0.67} = \mathbf{1.37 \text{ lbs./hour}}$	
Emission Factor	34 lbs./ton	This is based on storage at ceramic clay manufacturing facilities, AP-42, the Edition, Table 8.7-1.
Control Device Efficiency (Applicant)	99.6%	Bagfilter (ID No. BF-12)

Before and After Control Emission Rate (Applicant)	6.6 lbs./hour and 0.03 lb./hour , respectively.	
DAQ Spreadsheet Control Device Efficiency	99.95%	Bagfilter (ID No. BF-12)
Compliance Indicated?	yes	

Clay conveying receiver operation (ID No. ES-26) with one bagfilter (ID No. BF-13, 58 square feet of filter area)

Parameter	Value	Notes
Process Rate (Application forms)	0.33 tons per hour	
Process Rate (Calculations section)	0.194 tons per hour per source	$P = (1,700 \text{ tons/year}) / (8,760 \text{ hours/year}) = 0.194 \text{ tons per hour}$
Emission Limit	$E = 4.10 (0.194)^{0.67} = \mathbf{1.37 \text{ lbs./hour}}$	
Emission Factor	34 lbs./ton	This is based on storage at ceramic clay manufacturing facilities, AP-42, the Edition, Table 8.7-1.
Control Device Efficiency (Applicant)	99.85%	Bagfilter (ID No. BF-13)
Before and After Control Emission Rate (Applicant)	6.6 lbs./hour and 0.01 lb./hour , respectively.	
DAQ Spreadsheet Control Device Efficiency	99.95%	Bagfilter (ID No. BF-13)
Compliance Indicated?	yes	

ii. Monitoring Requirements

To ensure that optimum control efficiency of particulate matter is obtained by the bagfilters, monthly inspections will be performed and maintenance will be performed as recommended by the manufacturer. As a minimum, the inspections will include a monthly external inspection of the bagfilters and ductwork, and an annual internal inspection of the bagfilters to ensure structural integrity.

iii. Recordkeeping Requirements

The results of the inspection and maintenance will be kept in a log.

iv. Reporting Requirements

A summary report of the monitoring will be submitted by January 30 and July 30 of each year. The results of any maintenance to the control devices shall be reported within 30 days of a written request by DAQ.

b. 2D .0521 "Control of Visible Emissions"

i. Regulatory Analysis

All of the above sources were installed in 1971 and are subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute averaging not more than 87 percent opacity may occur not more than once any hour nor more than four times in any 24-hour period. Compliance is indicated with this regulation, because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring Requirements

The Permittee will either observe the emission points of the sources above once a month for visible emissions above normal or perform a Method 9. Monthly observations should provide reasonable assurance of compliance. The Permittee will establish what normal visible emissions are through recordkeeping.

iii. Recordkeeping Requirements

The results of the observations and tests along with any corrective actions taken to reduce visible emissions shall be recorded in a log.

iv. Reporting Requirements

A summary report of the observation results will be submitted by January 30 and July 30 of each year.

J. Meal and Hull Handling, Storage, and Loadout Operations including:

- C One meal and hull loading rail station (ID No. ES-3A) with one associated bagfilter (ID No. BF-72, 1,155 square feet of filter area [Carter Day])**
- C One meal and hull loading truck station (ID No. ES-3B) with one associated bagfilter (ID No. BF-232, 3,590 square feet of filter area [Carter Day])**
- C Meal grinding operation (meal grinding, sifting, and conveying process) (ID No. ES-11) with one associated bagfilter (ID No. BF-9, 3,910 square feet of filter area [Torit])**
- C One hull grinding operation (ID No. ES-18A) with one associated bagfilter (ID No. 5C, 2,300 square feet of filter area) installed on the exhaust from two simple cyclones (ID Nos. CY-9 and CY-10, 60 inches in diameter each)**
- C Hull storage tanks 60 and 61 (ID No. ES-27 and ES-61) with one associated bagfilter (ID No. BF-72, 1,155 square feet of filter area [Carter Day])**
- C Three meal storage tanks (ID Nos. ES-62, ES-63, and ES-64, 1,000 tons capacity each) with one associated bagfilter (ID No. BF-232, 3,590 square feet of filter area [Carter Day])**
- C One meal leg/ hull conveyor (ID No. ES-316) with one associated bagfilter (ID No. BF-232, 3,590 square feet of filter area [Carter Day])**

1. Description

The hulls removed from the soybeans during the primary and secondary dehulling processes are transferred to the hull grinding operation (ID No. ES-18A). The discarded outer shells are ground and crushed into fine particles. These hull particles are stored in two hull storage tanks (ID Nos. ES-27 and ES-61). From the storage tanks, the ground hull is transported to the hull load out operation.

From the oil extraction, meal drying and cooling operations, meal is conveyed to a grinding and sifting process (ID No. ES-11). The soybean meal is crushed and sifted into a fine substance. The meal leg (ID No. ES-316) transports the ground and sifted soybean meal to the three meal storage tanks (ID Nos. ES-62, ES-63, and ES-64) at the facility. The finished meal and collected hulls from the facility operations are loaded out of the facility via rail or truck (ID No. ES-3A or ES-3B). Bean drag conveyors are used to transport the meal and hull from storage tanks to the rail cars and trucks. Small amounts of particulate matter are the only emissions from these operations.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter	$E=4.10P^{0.67}$ or $E=55.0P^{0.11} - 40$ where E = allowable emission rate in pounds per hour P = process weight in tons per hour	15A NCAC 2D .0515
visible emissions	20 percent opacity	15A NCAC 2D .0521

a. 2D .0515 “Particulates from Miscellaneous Industrial Processes”

i. Regulatory Analysis

The allowable particulate emission limit is calculated by the following equation:

For process weights up to 30 tons per hour:

$$E' 4.10P^{0.67}$$

For process rates greater than 30 tons per hour:

$$E' 55.0P^{0.11} - 40$$

where: E = allowable emission rate for particulate matter in pounds per hour, and
 P = process weight in tons per hour

One meal and hull loading rail station (ID No. ES-3A) with one associated bagfilter (ID No. BF-72, 1,155 square feet of filter area [Carter Day])

Parameter	Value	Notes
Process Rate (Application forms)	400 tons per hour	
Process Rate (Calculations section)	55.0 tons per hour	$P = (481,964 \text{ tons/year}) / (8,760 \text{ hours/year}) = 55.0 \text{ tons per hour}$
Emission Limit	$E = 55.0 (55.0)^{0.11} - 40 = \mathbf{45.47 \text{ lbs./hour}}$	
Emission Factor	0.27 lbs./ton	This is based on the emission factor for meal loadout at vegetable oil processing plants, AP-42, 5th Edition, Table 9.11.1-1, 11/95.
Control Device Efficiency (Applicant)	99.13%	Bagfilter (ID No. BF-72)
Before and After Control Emission Rate (Applicant)	14.86 lbs./hour and 0.13 lb./hour , respectively.	
DAQ Spreadsheet Control Device Efficiency	99.95%	Bagfilter (ID No. BF-72)
Compliance Indicated?	yes	

One meal and hull loading truck station (ID No. ES-3B) with one associated bagfilter (ID No. BF-232, 3,590 square feet of filter area [Carter Day])

Parameter	Value	Notes
Process Rate (Application forms)	400 tons per hour	
Process Rate (Calculations section)	55.0 tons per hour	$P = (481,964 \text{ tons/year}) / (8,760 \text{ hours/year}) = 55.0 \text{ tons per hour}$
Emission Limit	$E = 55.0 (55.0)^{0.11} - 40 = \mathbf{45.47 \text{ lbs./hour}}$	
Emission Factor	0.27 lbs./ton	This is based on the emission factor for meal loadout at vegetable oil processing plants, AP-42, 5th Edition, Table 9.11.1-1, 11/95.
Control Device Efficiency (Applicant)	93.34%	Bagfilter (ID No. BF-232)
Before and After Control Emission Rate (Applicant)	14.86 lbs./hour and 0.99 lb./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99.95%	Bagfilter (ID No. BF-232)
Compliance Indicated?	yes	

Meal grinding operation (meal grinding, sifting, and conveying process) (ID No. ES-11) with one associated bagfilter (ID No. BF-9, 3,910 square feet of filter area [Torit])

Parameter	Value	Notes
Process Rate (Application forms)	133.4 tons per hour	4,446 bushels per hour x 60 lbs./bushel
Process Rate (Calculations section)	105.0 tons per hour	$P = (920,112 \text{ tons/year}) / (8,760 \text{ hours/year}) = 105.0 \text{ tons per hour}$
Emission Limit	$E = 55.0 (105.0)^{0.11} - 40 =$ 51.77 lbs./hour	
Emission Factor	8.5 lbs./ton	This is based on the emission factor for meal grinder/sizing at vegetable oil processing plants, AP-42, 5th Edition, Table 9.11.1-1, 11/95.
Control Device Efficiency (Applicant)	99.85%	Bagfilter (ID No. BF-9)
Before and After Control Emission Rate (Applicant)	892.8 lbs./hour and 1.37 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99.95%	Bagfilter (ID No. BF-9)
Compliance Indicated?	yes	

One hull grinding operation (ID No. ES-18A) with one associated bagfilter (ID No. 5C, 2,300 square feet of filter area) installed on the exhaust from two simple cyclones (ID Nos. CY-9 and CY-10, 60 inches in diameter each)

Parameter	Value	Notes
Process Rate (Calculations section)	105.0 tons per hour	$P = (43,815 \text{ tons/year}) / (8,760 \text{ hours/year}) = 5.0 \text{ tons per hour}$
Emission Limit	$E = 4.10 (5.0)^{0.67} =$ 12.1 lbs./hour	
Emission Factor	5.0 lbs./ton	This is based on the emission factor for hull grinding at vegetable oil processing plants, AP-42, 5th Edition, Table 9.11.1-1, 11/95.
Control Device Efficiency (Applicant)	94.52%	Bagfilter (ID No. 5C) in series with the cyclones (ID Nos. CY-9 and CY-10)
Before and After Control Emission Rate (Applicant)	25.01 lbs./hour and 1.37 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99.4%	Bagfilter (ID No. 5C) 99.95%, and Cyclones (ID Nos. CY-9 and CY-10) 99.44% When you multiply these control efficiencies, you get an overall control efficiency of 99.4%.
Compliance Indicated?	yes	

Hull storage tanks 60 and 61 (ID No. ES-27 and ES-61) with one associated bagfilter (ID No. BF-72, 1,155 square

feet of filter area [Carter Day]

Parameter	Value	Notes
Process Rate (Application forms)	Maximum filling and unloading rates of 10 tons per hour and 80 tons per hour, respectively.	
Process Rate (Calculations section)	4.19 tons per hour	$P = (36,755 \text{ tons/year}) / (8,760 \text{ hours/year}) = 4.19 \text{ tons per hour}$
Emission Limit	$E = 4.10 (4.19)^{0.67} = \mathbf{10.72}$ lbs./hour	
Emission Factor	0.05 lbs./ton	This is based on the emission factor for bin loading per the NCDAQ guidance memo for Grain and Feed Mills, dated 2/96.
Control Device Efficiency (Applicant)	48%	Bagfilter (ID No. BF-72)
Before and After Control Emission Rate (Applicant)	0.25 lbs./hour and 0.13 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99.95%	Bagfilter (ID No. BF-72)
Compliance Indicated?	yes	

Three meal storage tanks (ID Nos. ES-62, ES-63, and ES-64, 1,000 tons capacity each) with one associated bagfilter (ID No. BF-232, 3,590 square feet of filter area [Carter Day])

Parameter	Value	Notes
Process Rate (Calculations section)	35.0 tons per hour	$P = (306,704 \text{ tons/year}) / (8,760 \text{ hours/year}) = 35.0 \text{ tons per hour}$
Emission Limit	$E = 55.0 (35.0)^{0.11} - 40 = \mathbf{41.33}$ lbs./hour	
Emission Factor	0.05 lbs./ton	This is based on the emission factor for bin loading per the NCDAQ guidance memo for Grain and Feed Mills, dated 2/96.
Control Device Efficiency (Applicant)	43.43%	Bagfilter (ID No. BF-232)
Before and After Control Emission Rate (Applicant)	1.75 lbs./hour and 0.99 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99.95%	Bagfilter (ID No. BF-232)
Compliance Indicated?	yes	

One meal leg/ hull conveyor (ID No. ES-316) with one associated bagfilter (ID No. BF-232, 3,590 square feet of filter area [Carter Day])

Parameter	Value	Notes
Process Rate (Calculations section)	105.0 tons per hour	$P = (920,112 \text{ tons/year}) / (8,760 \text{ hours/year}) = 105.0 \text{ tons per hour}$
Emission Limit	$E = 55.0 (105.0)^{0.11} - 40 =$ 51.77 lbs./hour	
Emission Factor	0.825 lbs./ton	This is based on the emission factor for internal operations per the NCDAQ guidance memo for Grain and Feed Mills, dated 2/96.
Control Device Efficiency (Applicant)	86.66%	Bagfilter (ID No. BF-232)
Before and After Control Emission Rate (Applicant)	86.6 lbs./hour and 0.99 lbs./hour , respectively	
DAQ Spreadsheet Control Device Efficiency	99.95%	Bagfilter (ID No. BF-232)
Compliance Indicated?	yes	

ii. Monitoring Requirements

To ensure that optimum control efficiency of particulate matter is obtained by the bagfilters and cyclones, monthly inspections will be performed and maintenance will be performed as recommended by the manufacturer. As a minimum, the inspections will include a monthly external inspection of the bagfilters, cyclones, and ductwork, and an annual internal inspection of the bagfilters to ensure structural integrity.

iii. Recordkeeping Requirements

The results of the inspection and maintenance will be kept in a log.

iv. Reporting Requirements

A summary report of the monitoring will be submitted by January 30 and July 30 of each year. The results of any maintenance to the control devices shall be reported within 30 days of a written request by DAQ.

b. 2D .0521 "Control of Visible Emissions"

i. Regulatory Analysis

All of the above sources are subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute averaging not more than 87 percent opacity may occur not more than once any hour nor more than four times in any 24-hour period. Compliance is indicated with this regulation, because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring Requirements

The Permittee will either observe the emission points of the sources above once a month for visible emissions above normal or perform a Method 9. Monthly observations should provide reasonable assurance of compliance. The Permittee will establish what normal visible emissions are through recordkeeping.

iii. Recordkeeping Requirements

The results of the observations and tests along with any corrective actions taken to reduce visible emissions shall be recorded in a log.

iv. Reporting Requirements

A summary report of the observation results will be submitted by January 30 and July 30 of each year.

K. One oil refinery

1. Description

Hexane emissions from the oil refinery (ID No. ES-34) at the facility are generated from the processing of vegetable oils. Residual hexane in the vegetable oils that remains after the extraction process is removed in the refining process. It is assumed that all of the residual hexane in the oil following extraction is emitted to the atmosphere from the refinery. The oil refinery at the Fayetteville facility processes soybean oil as well as vegetable oils extracted at other facilities and shipped to Fayetteville for refining. All hexane emissions from the refinery are summed to get the total for ES-34. VOC emissions from oil refined both on and off-site are based on the oil having 250 ppm residual hexane, of which 64% is n-hexane and 36% is isohexane and assuming that 100% of these hexane emissions are emitted. The potential hexane emissions from onsite oil refinery are calculated to be 65.6 tons per year, based on a potential of 525 million pounds per year of oil being processed. The potential hexane emissions from oil received from offsite were calculated to be 24.0 tons per year, based on 96 million lbs oil processed per year. Thus, total potential hexane emissions from this source are calculated to be 89.6 tons per year.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
visible emissions	20 percent opacity	15A NCAC 2D .0521
odors	See Section VII.(A)(1); State-enforceable only	15A NCAC 2D .1806
toxic air pollutants	See Section VII.(A)(2); State-enforceable only	15A NCAC 2Q .0711
volatile organic compounds	See Section VII.(B)(1)	15A NCAC 2D .0958
	See Section VII.(C)(1)	15A NCAC 2D .0530

a. 2D .0521 “Control of Visible Emissions”

i. Regulatory Analysis

The oil refinery process (ID No. ES-34) was established after July 1, 1971 and is subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute averaging not more than 87 percent opacity may occur not more than once any hour nor more than four times in any 24-hour period. Compliance is indicated with this regulation, because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring Requirements

The Permittee will either observe the emission points of the refinery process (ID Nos. ES-34) once a month for visible emissions above normal or perform a Method 9. Monthly observations should provide reasonable assurance of compliance. The Permittee will establish what normal visible emissions are through recordkeeping.

iii. Recordkeeping Requirements

The results of the observations and tests along with any corrective actions taken to reduce visible emissions shall be recorded in a log.

iv. Reporting Requirements

A summary report of the observation results will be submitted by January 30 and July 30 of each year.

VII. Multiple Emission Source Limits

STATE-ONLY REQUIREMENTS

A. Facility-wide affected sources

The above emission sources are subject to this multiple emission source limit.

Regulated Pollutant	Limits/Standards	Applicable Regulation
odors	odorous emissions must be controlled; State enforceable only	15A NCAC 2D .1806
toxic air pollutants	Toxic air pollutant emissions shall not exceed the levels listed in 2Q .0711 unless ambient standards are not exceeded; State-enforceable only	15A NCAC 2Q .0711

STATE-ENFORCEABLE ONLY

1. 15A NCAC 2D .1806: CONTROL AND PROHIBITION OF ODOROUS EMISSIONS

- a. The Permittee shall not operate the facility without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility’s boundary.

STATE-ENFORCEABLE ONLY

2. LIMITATION TO AVOID 15A NCAC 2Q .0700 “TOXIC AIR POLLUTANT PROCEDURES”

a. Limitations Requirements

To comply with this permit and avoid the applicability of 15A NCAC 2Q .0700 “Toxic Air Pollutant Procedures,” as requested by the Permittee, 24-hour production (midnight to midnight) shall not exceed 100,034 bushels of soybeans.

b. Reporting Requirements

For compliance purposes, within 30 days after the end of each calendar year quarter, the following shall be reported to the Regional Supervisor, Division of Air Quality:

- (1) The highest 24-hour (8 am to 8 am) production in bushels for the previous calendar year quarter.

*Note: The above toxics condition was first added to Air Permit No. 3903R21 (3/15/02). The addition of a new soybean dryer created the potential for n-hexane emissions to increase. In order to avoid the NC Air Toxics Program, Cargill agreed to cap the actual n-hexane emissions at current level. Defined in 15A NCAC 2Q .0703(1)(ii) for TAPS with a 24-hour averaging time (i.e, n-hexane), the “maximum actual emission rate at which the source actual emitted for the applicable averaging period for the two years preceding the modification” is the limit at which toxic emissions must be capped. This maximum emission rate for the facility occurred on November 13, 2001. The facility processed 100,034 bushels of soybeans. This 24-hour production rate represents “actual emissions” of n-hexane, setting the limit of any 24- hour period to 100,034 bushels.

B. Facility-wide affected sources

The above emission sources are subject to this multiple emission source limit.

Regulated Pollutant	Limits/Standards	Applicable Regulation
volatile organic compounds	work practice standards	15A NCAC 2Q .0958

1. 15A NCAC 2D .0958: WORK PRACTICES FOR SOURCES OF VOLATILE ORGANIC COMPOUNDS

- a. Pursuant to 15A NCAC 2D .0958, for all sources that use volatile organic compounds (VOC) as solvents, carriers, material processing media, or industrial chemical reactants, or in similar uses that mix, blend, or manufacture volatile organic compounds, or emit volatile organic compounds as a product of chemical reactions, and whose emissions of VOC are greater than 15 pounds per day; the Permittee shall:

- (1) store all material, including waste material, containing volatile organic compounds in tanks or in containers covered with a tightly fitting lid that is free of cracks, holes, or other defects, when not in use,

- (2) clean up spills of volatile organic compounds as soon as possible following proper safety procedures,
 - (3) store wipe rags containing volatile organic compounds in closed containers,
 - (4) not clean sponges, fabric, wood, paper products, and other absorbent materials with volatile organic compounds,
 - (5) transfer solvents containing volatile organic compounds used to clean supply lines and other coating equipment into closable containers and close such containers immediately after each use, or transfer such solvents to closed tanks, or to a treatment facility regulated under section 402 of the Clean Water Act,
 - (6) clean mixing, blending, and manufacturing vats and containers containing volatile organic compounds by adding cleaning solvent and close the vat or container before agitating the cleaning solvent. The spent cleaning solvent shall then be transferred into a closed container, a closed tank or a treatment facility regulated under section 402 of the Clean Water Act. [15A NCAC 2D .0958(c)]
- b. When cleaning parts with a solvent containing a volatile organic compound, the Permittee shall:
- (1) flush parts in the freeboard area,
 - (2) take precautions to reduce the pooling of solvent on and in the parts,
 - (3) tilt or rotate parts to drain solvent and allow a minimum of 15 seconds for drying or until all dripping has stopped, whichever is longer,
 - (4) not fill cleaning machines above the fill line,
 - (5) not agitate solvent to the point of causing splashing. [15A NCAC 2D .0958(d)]

Monitoring

- c. To assure compliance with paragraphs (a) and (b) above, the Permittee shall, at a minimum, perform a visual inspection once per month of all operations and processes utilizing volatile organic compounds. The inspections shall be conducted during normal operations. If the required inspections are not conducted the permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0958.

Recordkeeping

- d. The results of the inspections shall be maintained in a log (written or electronic format) on-site and made available to an authorized representative upon request. The log shall record the following:
- i. the date and time of each inspection; and
 - ii. the results of each inspection noting whether or not noncompliant conditions were observed.
- If the required records are not maintained the permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0958.

Reporting

- e. The Permittee shall submit a summary report of the observations by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

C. Facility-wide affected sources

The above emission sources are subject to this multiple emission source limit.

Regulated Pollutant	Limits/Standards	Applicable Regulation
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volatile organic compounds	Less than 662 tons per year.	Avoidance of 15A NCAC 2D .0530
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1. 15A NCAC 2D. 0530: PREVENTION OF SIGNIFICANT DETERIORATION

- a. In order to avoid applicability of this regulation, the facility shall discharge into the atmosphere less than 662 tons of VOCs per consecutive 12-month period. [15A NCAC 2D .0530]

Monitoring/Recordkeeping [15A NCAC 2Q .0508 (f)]

- b. Calculations of VOC emissions per month shall be made at the end of each month. VOC emissions shall be determined by multiplying the total amount of each type of VOC-containing material consumed during the month by the VOC content of the material. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the amounts of VOC containing materials or the VOC emissions are not monitored and recorded.
- c. Calculations of VOC emissions per month from the processing of “non-Fayetteville” crude oils at the on-site refinery shall be made at the end of each month. VOC emissions shall be determined by multiplying the total amount of outside oil processed at the on-site refinery by the average hexane content of the monthly shipments. For each shipment of outside or “non-Fayetteville” crude oil that is to be processed at the on-site oil refinery, the Permittee shall sample and record the crude oil residual hexane concentration, and monthly totals of “non-Fayetteville” crude oil processed at the oil refinery should also be recorded. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the amounts of non-Fayetteville oil and concentrations of residual hexane in the oil are not monitored and recorded.
- d. Calculations and the total amount of VOC emissions shall be recorded monthly in a log (written or electronic format). The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the VOC emissions exceed this limit.

Reporting [15A NCAC 2Q .0508(f)]

- e. The Permittee shall submit a summary report of monitoring and recordkeeping activities within 30 days after each calendar year quarter, due and postmarked on or before January 30 of each calendar year for the preceding three-month period between October and December, April 30 of each calendar year for the preceding three-month period between January and March, July 30 of each calendar year for the preceding three-month period between April and June, and October 30 for the calendar year for the preceding three-month period between July and September. The report shall contain the following:
- i. The monthly VOC emissions for the previous 14 months. The emissions shall be calculated for each of the 12-month periods over the previous 14 months.

*Note: The above condition was added to Permit No. 3903R21 (3/15/2002). The addition of the 12,000 cubic foot capacity steam tube meal dryer was considered a modification to the facility. The facility had to demonstrate that this was not a “major modification” due to the facility being a “major stationary source” by showing that the emissions would not increase above the PSD significance level. A facility-wide enforceable VOC emissions level was set at current actual emissions plus 40 tons per year. The VOC emissions from calendar year 2001 were used as a baseline for normal source operations at the facility. The hexane baseline was 622 tons per year, and the limitation for hexane usage (VOC emissions) was set at 662 tons per year (622 tons per year baseline plus 40 tons per year increment).

D. Affected Source - All facilities subject to 40 CFR Part 63 Subpart GGGG: NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS: SOLVENT EXTRACTION FOR VEGETABLE OIL PRODUCTION

C One soybean oil/hexane solvent extraction process (ID No. ES-31)

APPLICABILITY

1. The solvent extraction processes for vegetable oil production (ID No. ES-31) shall comply with all requirements of 15A NCAC 2D .1111 “Maximum Achievable Control Technology” and 40 CFR Part 63 Subpart GGGG “National Emission Standards for Hazardous Air Pollutants: Solvent Extraction for Vegetable Oil Production..” [40 CFR § 63.2832]

DEFINITIONS AND NOMENCLATURE

2. For the purpose of this permit condition, the definitions and nomenclature contained in 40 CFR § 63.2872 shall apply.

REGULATED POLLUTANTS

3. Hazardous Air Pollutants (HAPs) as defined in 40 CFR § 63.2872.

COMPLIANCE DATES FOR EXISTING SOURCES [40 CFR § 63.2834]

4. The facility must comply with this subpart 3 years after the effective date of this subpart which is by April 12, 2004.

EMISSION REQUIREMENTS [40 CFR § 63.5698]

5. (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:

$$\text{Compliance Ratio} = \frac{\text{Actual HAP Loss}}{\text{Allowable HAP Loss}} \quad (\text{Equation 1})$$

- (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:

$$\text{Compliance Ratio} = \frac{f * \text{Actual Solvent Loss}}{0.64 * \sum_{j=1}^n [(\text{Oilseed})_j * (\text{SLF})_j]} \quad (\text{Equation 2})$$

This is for the sum(j) i=1 to i=n.

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. For conventional soybean processing (i.e., uses a conventional style desolventizer to produce crude soybean oil products and soybean animal feed products), at existing sources, this SLF is 0.2.

- (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 (SLF) 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. (For conventional soybean processing (i.e., uses a conventional style desolventizer to produce crude soybean oil products and soybean animal feed products), at existing sources, this SLF is 0.2.)

COMPLIANCE REQUIREMENTS - HOW DO I COMPLY WITH THE HAP EMISSION STANDARDS? [40 CFR § 63.2850]

6. (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.
- (b) Existing sources under normal operation. You must meet all of the requirements listed in paragraph (a) of this section and Table 1 of this section for sources under normal operation, and the schedules for demonstrating compliance for existing sources under normal operation in Table 2 of this section.
- (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.
- (d) Existing or new sources that have been significantly modified. Your existing or new source that has been significantly modified must meet the requirements associated with one of two compliance options. Within 15 days of the modified source startup date, you must choose to comply with one of the options listed in paragraph (d)(1) or (2) of this section:
- (1) Normal operation. Upon startup of your significantly modified existing or new source, you must meet all of the requirements listed in paragraph (a) of this section and Table 1 of this section for sources under normal operation, and the schedules for demonstrating compliance for an existing or new source that has been significantly modified in Table 2 of this section.
 - (2) Initial startup period. For up to 3 calendar months after the startup date of your significantly modified existing or 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 a significantly modified existing or new source operating under an initial startup period in Table 2 of this section. After a maximum of 3 calendar months, your new or existing source must meet all of the requirements listed in Table 1 of this section for sources operating 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 your SSM plan as described in § 63.2852?	No, your source is not subject to the SSM plan, but rather to the limits of this emission standard.	Yes, throughout the entire initial startup period.	Yes, throughout the entire malfunction period.
(b) Determine and record the extraction solvent loss 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 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 for data recorded for a malfunction period.
(g) Submit a Notification of Compliance Status or Annual Compliance Status 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 an 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 a 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 operating under...	Then your recordkeeping schedule...	You must determine your 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 months after the compliance date.	During the first 12 operating months after the compliance date.
(b) New	(1) Normal operation. (2) An initial startup period.	Begins on the startup date of your new source. Begins on the startup date of your new source.	The first 12 operating months after 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 startup date of your new source. 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. (2) An initial startup period.	Resumes on the startup date of the modified source. Resumes on the startup date of the modified source.	The first operating month after the startup date of the modified source. The first operating month after the termination of the initial startup period, which can last up to 3 months.	During the previous 11 operating months prior to the significant modification and the first operating month following the initial startup date of the source. During the 11 operating months before the significant modification and the first operating month after the initial startup period.

WHAT IS A PLAN FOR DEMONSTRATING COMPLIANCE? [40 CFR § 63.2851]

7. (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.

WHAT IS A STARTUP, SHUTDOWN, AND MALFUNCTION PLAN? [40 CFR § 63.2852]

8. You must develop a written SSM plan in accordance with § 63.6(e)(3) and implement the plan, when applicable. You must complete the SSM plan before the compliance date for your source. You must also incorporate the SSM plan by reference in your source's title V permit and 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.

HOW DO I DETERMINE ACTUAL SOLVENT LOSS? [40 CFR § 63.2853]

9. 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© 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:

$$\begin{array}{l} \text{Monthly Actual} \\ \text{Solvent} \\ \text{(gal)} \end{array} = \sum_{i=1}^j (\text{SOLV}_B - \text{SOLV}_E + \text{SOLV}_R \pm \text{SOLV}_A)_i \quad (\text{Eqn. 1})$$

This is for the sum($\sum_{i=1}^j$) $i=1$ to $i=n$.

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

$SOLV_A =$ normal operating period “i” as determined in paragraph (a)(4) of this section.
 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.

HOW DO I DETERMINE THE WEIGHTED AVERAGE VOLUME FRACTION OF HAP IN THE ACTUAL SOLVENT LOSS? [40 CFR § 63.2854]

10. (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:

$$\begin{array}{l} \text{12-Month Weighted} \\ \text{Average of HAP Content} \\ \text{of Extraction Solvent} \\ \text{(volume fraction)} \end{array} = \frac{\sum_{i=1}^n (\text{Received}_i * \text{Content}_i)}{\text{Total Received}} \quad (\text{Eqn. 1})$$

This is for the sum($\sum_{i=1}^n$) $i=1$ to $i=n$.

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:

$$\begin{array}{l} \text{12-Month Weighted} \\ \text{Average of HAP Content} \\ \text{in Solvent Received} \\ \text{(volume fraction)} \end{array} = \frac{\sum_{i=1}^{12} (\text{Received}_i * \text{Content}_i)}{\text{Total Received}} \quad (\text{Eqn. 2})$$

This is for the sum($\sum_{i=1}^{12}$) $i=1$ to $i=12$.

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.

HOW DO I DETERMINE THE QUANTITY OF OILSEED PROCESSED? [40 CFR § 63.2855]

11. 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:

$$\begin{array}{l} \text{Monthly Quantity} \\ \text{of Each Oilseed} \\ \text{Processed (tons)} \end{array} = j \left(\text{SEED}_B - \text{SEED}_E + \text{SEED}_R \pm \text{SEED}_A \right)_i \quad (\text{Eqn. 1})$$

This is for the sum($\sum_{i=1}^j$) $i=1$ to $i=n$.

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.

WHAT NOTIFICATIONS MUST I SUBMIT AND WHEN? [40 CFR § 63.2860]

12. You must submit the one-time notifications listed in paragraphs (a) through (d) of this section to the responsible agency:
- (a) Initial notification for existing sources. For an existing source, submit an initial notification to the agency responsible for these NESHAP no later than 120 days after the effective date of this subpart. In the notification, include the items in paragraphs (a)(1) through (5) of this section:
 - (1) The name and address of the owner or operator.
 - (2) The physical address of the vegetable oil production process.
 - (3) Identification of the relevant standard, such as the vegetable oil production NESHAP, and compliance date.
 - (4) A brief description of the source including the types of listed oilseeds processed, nominal operating capacity, and type of desolventizer(s) used.
 - (5) A statement designating the source as a major source of HAP or a demonstration that the source meets the definition of 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.
 - (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.

WHAT REPORTS MUST I SUBMIT AND WHEN? [40 CFR § 63.2861]

13. 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, 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.

WHAT RECORDS MUST I KEEP? [40 CFR § 63.2862]

14. (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.

IN WHAT FORM AND HOW LONG MUST I KEEP MY RECORDS? [40 CFR § 63.2863]

15. (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 § 63.10(b)(1). You can keep the records off-site for the remaining 3 years.

VIII. MACT Applicability and Requirements

Based on a review of the facility's current operations and emission sources, the facility is subject to the MACT for Solvent Extraction for Vegetable Oil Production, Subpart GGGG. This MACT was promulgated April 12, 2001, and the source is required to comply within 3 years of the promulgation date (April 12, 2004).

IX. Permit Shield (including non-applicable requirements)

In accordance with 2Q .0512 the permit will contain a provision stating that compliance with the terms, conditions, and limitations of the Title V permit shall be deemed in compliance with applicable requirements specifically identified in the permit, as of the date of permit issuance. If the permit does not expressly state that a permit shield exists then it shall be presumed not to provide such a shield.

X. Other Applicable Requirements

None.

XI. General Conditions

The “General Conditions” section of the Title V Operating Permits lists additional applicable rule requirements that the permittee must adhere to, as with any other permit condition. These requirements in general are common to all Title V facilities. The general conditions include provisions such as annual fee payment, permit renewal and expiration, transfer of ownership or operation, property rights, submission of documents, inspections and entry procedures, reopen for cause, and severability.

XII. Insignificant Activities

The insignificant activities listed in the application have been reviewed and verified. Because an emission source or activity is insignificant does not mean that the emission source or activity is exempted from any applicable requirement or that the owner or operator of the source is exempted from demonstrating compliance with any applicable requirement.

Emission Source Description	Basis for Exemption
Eleven concrete storage tanks	NCAC 2D .0503(8)
Coal handling and receiving pile	NCAC 2D .0503(8)
Bean conditioning	NCAC 2D .0503(8)
Process condensers	NCAC 2D .0503(8)
One 10,000 gallons capacity No. 2 fuel oil storage tank	NCAC 2D .0503(8)
One diesel fuel oil storage tank	NCAC 2D .0503(8)
One gasoline storage tank	NCAC 2D .0503(8)

XIII. Public Notice

Pursuant to 15A NCAC 2Q .0521, a notice of the draft Title V Operating Permit shall be placed in a newspaper of general circulation in the area where the facility is located. The notice will provide for a 30 day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA.

XIV. Recommendations

The initial Title V application for Cargill, Inc. has been reviewed by the DAQ to determine compliance with all procedures and requirements under 15A NCAC 2Q .0500 and 40 CFR Part 70. The DAQ has made a preliminary determination that the facility is complying or will achieve compliance as specified in the draft permit with all applicable requirements. Therefore, the DAQ is proposing to issue the Title V Operating Permit upon completion of the public comment period and the EPA review.