TITLE V OPERATING PERMIT MODIFICATION APPLICATION EVALUATION AND REVIEW

Cargill, Inc
Source No. 00045

November 01, 2016

SHELBY COUNTY HEALTH DEPARTMENT
AIR POLLUTION CONTROL SECTION
MAJOR SOURCES BRANCH

PERMIT APPLICATION EVALUATION

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TITLE V OPERATING PERMIT MODIFICATION APPLICATION EVALUATION AND REGULATORY REVIEW

This narrative was prepared to assist the reviewer in understanding the facility and sources being permitted, and the content, the regulatory basis, and decisions made in preparing this Title V operating permit renewal and modification. This document was also prepared to meet the requirements for the statement of basis in 40 CFR § 70.7(a)(5). This document will become a part of the permanent facility record maintained by the Pollution Control Section of the Shelby County Health Department.

I. FACILITY INFORMATION

Facility Name:	Cargill, Inc.
Facility Address:	2330 Buoy Street Memphis, Tennessee 38113
Mailing Address:	PO Box 13368 Memphis, Tennessee 38113
Facility Owner:	Cargill, Inc.
Owner Address:	2330 Buoy Street Memphis, Tennessee 38113
Responsible Official, Title:	Keith Grieser, Facility Manager
Mailing Address:	Same
Telephone:	(901) 775-5800
Environmental Contact:	Mark Blouin, EHS Engineer
Mailing Address:	Same
Telephone:	(901) 775-7085 (Office) (901) 634-0276 (Cellular)
Billing Contact:	Mark Blouin, EHS Manager
Mailing Address:	Same
Telephone:	(901) 775-7085 (Office)
Owner's Registered Agent:	CT Corporation Systems 530 Gay Street Knoxville, Tennessee 37902
Facility's Primary Activity:	Extraction of corn oil from germ and refining of imported corn oil
NAICS Code:	31122 (Oil Manufacturing) 311221 (Corn Oil Extraction) 311225 (Oil Refining)

II. APPLICATION INFORMATION

Application and Related Correspondence Received:	July 17, 2015 *(Responsible official change)* July 7, 2015 (Revised July 29, 2016) *(Modification application to limit Boilers 8001 and 8301 to natural gas)* January 19, 2016 *(Modification application to remove emission units associated with corn milling operation closure)* June 13, 2016 *(Email request to remove pelletizing related processes from permit)* July 29, 2016 *(Operational flexibility request to allow for other potential oilseed handling and processing in addition to corn germ)*
Application and Related Correspondence Dated:	July 13, 2015 *(Responsible official change)* July 7, 2015 (Revised July 29, 2016) *(Modification application to limit Boilers 8001 and 8301 to natural gas)* January 15, 2016 *(Modification application to remove emission units associated with corn milling operation closure)* June 13, 2016 *(Email request to remove pelletizing related processes from permit)* July 29, 2016 *(Operational flexibility request to allow for other potential oilseed handling and processing in addition to corn germ)*
Permit Engineer:	Gregg P. Fortunato
Surrounding States Notice:	8/12/2016
Public Notice:	08/12/2016
Public Hearing:	None requested
Comments Received:	None
EPA Notice:	08/15/2016
EPA Comments Received:	None
Permit Issue Date:	November 01, 2016

Type of permit:

[x] Title V Operating

[x] Major Modification *(Emission Reduction – All Pollutants)*

Facility classification:

[x] Major-NSR/PSD *(VOC)*

[x] Major-Title V *(VOC and HAP)*

[x] NSPS (40 CFR Part 60) *(Subpart DD – Grain Elevators)*

[x] MACT (40 CFR Part 63) (*Subpart GGGG - Vegetable Oil Production, Subpart DDDDD - Natural Gas-fired Boilers and Subpart ZZZZ - Emergency Engines)*

III. SPECIFIC REASON(S) FOR APPLICATION

Closure of Corn Milling Operations

During the 2015 calendar year the corn milling operations at the 2330 Buoy Street Cargill, Inc. (Cargill) facility were permanently shutdown. Cargill submitted a permit application on January 19, 2016 for the removal of multiple emission units and processes from Title V Operating Permit No. 0045-01TV.

Conversion of Coal-Fired Boilers to Natural Gas-Fired Only Units

Cargill submitted an application on July 7, 2015 (Updated on July 29, 2016) requesting enforceable limits restricting the two coal-fired boilers at this facility (Emission Units 8001 and 8301) to the use of only natural gas using the existing gas burners associated with these boilers. Emission Units 8001 and 8301 were previously 247 MMBtu/hr Stoker and PC coal-fired boilers.

Coal burning permanently ceased at this facility in February 2015.

CEMS requirements for these boilers have been removed since the basis for continuous monitoring was directly related to the use of coal. Furthermore, Consent Decree (2006) emission limits associated with coal burning have been removed in lieu of more stringent limits associated with the combustion of natural gas.

Conversion of Emission Units 8001 and 8301 to natural gas also resulted in the derating of these boilers from 247 MMBtu/hr to 70 and 90 MMBtu/hr, respectively, based on the existing gas feed capacity. The July 29, 2016 application update included an operational flexibility request to increase the natural gas feed orifice size on Emission Unit 8301 that would result in a potential heat input increase from 90 MMBtu/hr to 95 MMBtu/hr to accommodate possible future business opportunities for the facility. This change is insignificant and does not trigger any additional regulatory requirements.

Responsible Official Change

The responsible official for this facility changed in 2015.

The following operations will be removed from Title V Operating Permit No. 0045-01TV:

Emission Group or Unit No.	Description	Status
EU-1001B	Barge Pellet Belt Loadout	Permanently Shutdown
EU-1015, 1019, 1020, 1021 and 1024	Gluten product conveying and storage	Permanently Shutdown
EG-2000	Steephouse	Permanently Shutdown
EG-3000	Millhouse	Permanently Shutdown
EG-4000	Feedhouse	Permanently Shutdown
EG-5000	Starch Modification	Permanently Shutdown
EG-6000	Syrup Refining	Permanently Shutdown
EG-7000	Starch Loadout	Permanently Shutdown
EU-8500	Foster-Wheeler 312 MMBtu/hr Natural Gas-Fired Boiler	Permanently Shutdown
EG-9000	Fructose Plant	Permanently Shutdown
EU-10001-10006, 10012 and 10014	Pelletizing Process (within EG-10000)	Permanently Shutdown
EU-12002	65 HP Emergency Generator[1]	Permanently Shutdown

[1] *Identified as removed during a site inspection on April 20, 2016*

Remaining operations consist of the following:

Emission Group	Description
EG-1000	Elevator Department (*Being maintained for possible future use; less barge pellet loadout and gluten product conveying and storage)*
EG-8000	Power Plant *(Includes a 70 MMBtu/hr and 95 MMBtu/hr natural gas-fired boiler)*
EG-10000	Oilseed Preparation *(Being maintained for possible future use; less the pelletizing process)*
EG-11000	Oil Extraction and Refining *(The extraction process is being maintained for possible future use. Imported oil refining operations are active)*
EG-12000	Emergency Engines *(Includes a 400 HP Generator and a 170 HP Fire Pump Engine)*

IV. PROCESS DESRIPTION

Emission Group 1000
Elevator Department

The elevator department has a number of silos, bins, and conveyors that are being maintained for possible future use. This may include grain storage and/or oilseed and solvent extracted meal storage if extraction operations are returned to service.

Pelletizing operations have permanently ceased, therefore the barge pellet belt conveyor (Emission Point 1001B) has been removed from Title V Operating Permit No. 0045-01TV. Furthermore, emission units associated with the shutdown Gluten Flash Dryers

- ✓ *1015 (EL Gluten Flash Dryer Receiver No. 1)*
- ✓ *1019 (EL Gluten Flash Dryer Receiver No. 2)*

and gluten meal conveying and storage

- ✓ *1020 (EL Gluten Meal Loadout Receiver)*
- ✓ *1021 (EL Gluten Meal Loadout Aspiration)*
- ✓ *1024 (EL Gluten Bin)*

have also been removed from the permit.

Emission Group 8000
Power Plant

The Power Plant provides steam to the facility using a 70 MMBtu/hr (Emission Unit 8001) natural gas-fired boiler and a 95 MMBtu/hr (Emission Unit 8301) natural gas-fired boiler. Both boilers exhaust through a common stack (Emission Point 8001/8301).

Boilers 8001 and 8301 were previously Stoker and PC coal-fired boilers (247 MMBtu/hr each). These boilers were converted to natural gas only units in February 2015 and were de-rated to 70 and 95 MMBtu/hr based on the gas feed capacity for these units.

The Foster-Wheeler 312 MMBtu/hr natural gas-fired boiler has been removed from the facility and Title V Operating Permit No. 0045-01TV.

Emission Group 10000
Oilseed Preparation

The Oilseed Preparation Plant has been shutdown, but is being maintained for possible future use.

Flakers and expellers mechanically extract oil from the oilseed. The crude oil is pumped to the oil refinery where it is further processed and the remaining oilseed is sent to the extraction department for further oil recovery.

Two baghouses (Emission Points 10009 and 10013) and a cyclone (Emission Point 10011) control particulate matter emissions from the conveying of oilseed and meal. Wet scrubbers (Emission Points 10007, 10008, 10010) control particulate matter emissions from the flakers and expellers.

Pelletizing operations have permanently ceased, therefore the following associated emission points within EG-10000 have been removed from the permit.

- ✓ *10001 (GP Fiber Storage Bin Aspiration Baghouse)*
- ✓ *10002-10005 (GP Pellet Cooler Cyclones 2 – 5)*
- ✓ *10006 (GP Secondary Pellet Cooler Cyclone)*
- ✓ *10012 (GP Retec Bin Baghouse)*
- ✓ *10014 (GP Pellet Belt Aspiration Baghouse)*

Emission Group 11000
Oil Extraction and Refining

<u>Extraction</u>

The oil extraction process has been shutdown, but is being maintained for possible future use.

The oilseed from the Oilseed Preparation Plant is soaked in iso-hexane (hexane) to remove the remaining oil from the oilseed. Hexane is the only solvent utilized within the extraction process and Cargill limits the amount of HAP (n-hexane) impurities to less than 3.0% by contract specification.

The hexane/oil mixture is separated in an oil stripper and the oil is pumped to the oil refinery and the recovered hexane is reused in the process. Residual hexane is removed from the oilseed in the desolventizer toaster; the desolventized meal is returned to the Oilseed Preparation Plant for palletizing; and the recovered hexane is reused.

Multiple condensers are utilized throughout the extraction and refining process to capture hexane for reuse. A mineral oil scrubber (Emission Point 11001) also assists in the control of VOC and HAP (n-hexane) emissions from extraction plant. A cyclone (Emission Point 11002) controls particulate matter emissions from the meal dryer cooler. There are also some fugitive VOC emissions from equipment and piping leaks.

Refining

The crude oil from the Oilseed Preparation Plant and the extraction plant is centrifuged, degassed, filtered, and deodorized in the oil refinery. Two baghouses (Emission Points 11003 and 11004) control particulate matter emissions from the bleaching clay and diatomaceous earth storage bins.

Cargill also imports vegetable oil for processing through the refinery. The hexane loss from the refining of imported oil is accounted for by analyzing the imported oil hexane content. Cargill assumes 100% of the hexane content is emitted.

Emission Group-12000
Emergency Engines

Cargill has one 170 HP diesel emergency fire pump engine that was installed in 1990 and one 400 HP diesel emergency generator that was installed in 1980.

V. EMISSION UNITS and POINTS

Emission Units:

Emission Group 1000
(Elevator Department)

Emission Point	Process Description	Process Capture/ Control Type	Pollutants
Emission Unit Group A 1001A, 1017	Marine tower pneumatic unloading	Baghouses	PM/PM_{10}
Emission Unit Group B 1002, 1013	Rail unloading	Baghouses	PM/PM_{10}
Emission Unit Group C 1003A, 1003B 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1012	Grain conveying and storage	Baghouses	PM/PM_{10}
Emission Unit Group D 1014, 1016A, 1016B, 1018, 1025	Oilseed, meal and SEM conveying and storage	Baghouses	PM/PM_{10}, VOC, HAP
Emission Unit Group E 1022, 1023,1026	SEM truck and rail loadout	Baghouses	PM/PM_{10}, VOC, HAP

Emission Group 8000
(Power Plant)

Emission Point	Process Description	Process Capture/ Control Type	Pollutants
8001/8301	Natural Gas-Fired Boiler (1976) (70 MM Btu/hr)	None	PM/PM_{10}, SO_2, NO_x, CO, VOC
8001/8301	Natural Gas-Fired Boiler (1984) (95 MM Btu/hr)	None	PM/PM_{10}, SO_2, NO_x, CO, VOC,

[1] *Both natural gas fired boilers (Emission Units 8001 and 8301) exhaust through a common stack.*

Emission Group 10000
(Oilseed Preparation)

Emission Point	Process Description	Process Capture/ Control Type	Pollutants
10007, 10008	Mechanical extraction process (expellers)	Water Scrubbers	PM/PM_{10},VOC, HAP
10009 and 10013	Oilseed conveying and handling (10013 also aspirates oilseed cracking mills)	Baghouses	PM/PM_{10},VOC, HAP
10010	Oilseed conditioning (flakers)	Water Scrubber	PM/PM_{10},VOC, HAP
10011	Meal Conveying	Cyclone	PM/PM_{10},VOC, HAP

Emission Group 11000

(Oil Extraction and Refining)

Emission Point	Process Description	Process Capture/ Control Type	Pollutants
11000[1] (conglomerate)	Miscellaneous Points (Imported Oil Refining)	None	HAP and VOC
11001	Miscellaneous Points (Oilseed Extraction)	Mineral Oil Scrubber	HAP and VOC
11002A, 11002B	SEM Drying	Cyclones	PM/PM_{10}
11003	Bleaching clay storage and handling	Baghouse	PM/PM_{10}
11004	Precoat storage and handling	Baghouse	PM/PM_{10}

[1] Includes all emission points (including fugitive emissions) from imported corn oil refining operations. HAP/VOC emissions from imported oil refining are calculated assuming 100% of HAP/VOC content in the imported oil is emitted throughout the process.

Emission Group 12000

(Emergency Generators and Fire Pump Engines)

Emission Point	Process Description	Process Capture/ Control Type	Pollutants
12001	400 HP Diesel Emergency Generator	No	PM/PM_{10}, SO_2, NO_x, CO, VOC
12003	170 HP Diesel Emergency Fire Pump Engine	No	PM/PM_{10}, SO_2, NO_x, CO, VOC

Emission Points:

Emission Point	Description
Elevator Department (Emission Group 1000)	
1001A	EL Barge Grain Belt Baghouse
1002	EL Rail Receiving Baghouse
1003A	EL Rail Scale Baghouse
1003B	EL Barge Scale Baghouse
1004	EL Grain Aspiration Baghouse
1005	EL Grain Silo Vent Filter No. 1 and 2
1006	EL Grain Silo Vent Filter No. 3
1007	EL Grain Silo Vent Filter No. 4
1008	EL Grain Silo Vent Filter No. 5 and 6
1009	EL Grain Silo Vent Filter No. 7
1010	EL Grain Silo Vent Filter No. 8 and 9
1012	EL Grain Bin Baghouse
1013	EL Oilseed Scale/No. 2 Rail Unload Pit Baghouse
1014	EL Oilseed Bin Baghouse No. 1 and 2
1016A	EL Process Oilseed Bin Baghouse
1016B	EL Oilseed Bin Baghouse No. 1
1017	EL Barge Unload Baghouse
1018	EL Meal Bin Baghouse
1022	EL Meal Loadout Receiver Baghouse
1023	EL Meal Loadout Aspiration Baghouse
1025	EL SEM Storage Bin
1026	EL SEM Truck Loadout
Power Plant (Emission Group 8000)	
8001/8301	Natural Gas-Fired Boiler Exhaust Stack (EU-8001 and 8301 share a common exhaust stack)

Oilseed Preparation (Emission Group 10000)	
10007	GP Expeller Aspiration Scrubber
10008	GP Expeller Cake Aspiration Scrubber
10009	GP Oilseed Receiver Baghouse
10010	GP Flaker Aspiration Scrubber
10011	GP Null Point (Oilseed Conveyance) Cyclone
10013	GP Oilseed Front End Aspiration Baghouse (Oilseed Rate Bin/Cracking Mill Baghouse)
Oil Extraction and Refining (Emission Group 11000)	
11000	EX Miscellaneous Points (Imported Oil Refining)
11001	EX Miscellaneous Points (Oilseed Extraction)
11002A	EX Meal Dryer Cooler Hot Deck Cyclone
11002B	EX Meal Dryer Cooler Cold Deck Cyclone
11003	OR Bleaching Clay Bin Baghouse
11004	OR Precoat Bin Baghouse
Emergency Engines (Emission Group 12000)	
12001	400 HP Diesel Emergency Generator (1980)
12003	170 HP Diesel Emergency Fire Pump Engine (1990)

VI. REGULATORY ANALYSIS *(See Appendix B for a full regulatory applicability overview)*

1) New Source Review

- Non-Attainment New Source review (NSR):

  Shelby County is designated in marginal non-attainment with the 8-hour ozone national ambient air quality standard (NAAQS). Shelby County was declared in non-attainment of the NAAQS for ozone within the Federal Register on May 21, 2012. Non-attainment status therefore became effective as of July 20, 2012 (60 days following the Federal Register publication date).

  In order to be subject to New Source Review in Shelby County, potential emissions of NO_x or VOCs from a facility must be greater than 100 tons per year.

  This permit modification resulted in a reduction in both NO_x and VOCs, therefore NSR is not applicable.

- Prevention of Significant Deterioration of Ambient Air Quality (PSD)

  PSD is only applicable for NSR pollutants for which Shelby County is in attainment of the associated NAAQS. PSD review therefore must be considered for carbon monoxide (CO), sulfur dioxide (SO_2) and particulate matter (PM_{10}) emissions.

  Under PSD an affected source is a facility with emissions exceeding 250 tons per year of any regulated NSR pollutants, or emissions exceeding 100 tons per year of any regulated NSR pollutants at sources in specific categories.

  This permit modification resulted in a reduction in CO, SO_2, and PM_{10} emissions, therefore PSD is not applicable. Furthermore, permitted emissions are well below these applicability levels.

2) New Source Performance Standards (NSPS) – 40 CFR Part 60

- Subpart Dc - Standards of Performance: Industrial-Commercial-Institutional Steam Generating Units

  This subpart is applicable to steam generating units for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of less than or equal to 100 MM Btu/hr and greater than or equal to 10 MM Btu/hr. Boilers 8001 and 8301 were converted from coal to gas-fired boilers in 2015. Since these boilers always had the capability to burn natural gas it is not considered a modification under NSPS.

  Furthermore, these natural gas-fired boilers were originally constructed prior to June 9, 1989 and are therefore grandfathered out of the requirements of this rule.

- Subpart DD - Standards of Performance: Grain Elevators

The provisions of this subpart apply to each affected facility at any grain terminal elevator or any grain storage elevator. §60.301(f) defines a grain storage elevator as any grain elevator located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant which has a permanent grain storage capacity of 35,200 m^3 (ca. 1 million bushels). Grain as defined under §60.301(a) means corn, wheat, sorghum, rice, rye, oats, barley, and soybeans. This Cargill facility has a storage capacity of 1,065,000 bushels, but currently is not storing any grain as defined in this subpart.

The elevator department at this facility has a number of silos and bins that are being maintained for potential grain storage and/or oilseed and solvent extracted meal (SEM) storage if extraction operations are returned to service.

Should the facility maintain a storage capacity above 1 million bushels following the closure of corn milling operations and utilize it for the storage of grain as defined in this subpart; each truck, rail and barge grain loading and unloading station and all grain handling operations at this facility constructed, modified, or reconstructed after August 3, 1978 would be affected. These emission units include:

Emission Unit	Emission Unit Description	Emission Points	Emission Point Description	Opacity Limit
1000-A	Marine tower pneumatic unloading	1001A	EL Barge Grain Belt Baghouse	0%
		1017	EL Barge Unload Baghouse	0%
1000-B	Rail unloading	1002	EL Rail Receiving Baghouse	0%
		1013	EL Oilseed Scale/No. 2 Rail Unload Pit Baghouse	0%
1000-C	Grain conveying and storage	1003A	EL Rail Scale Baghouse	0%
		1003B	EL Barge Scale Baghouse	0%
		1004	EL Grain Aspiration Baghouse	0%
		1005	EL Grain Silo Vent Filter No. 1 and 2	0%
		1006	EL Grain Silo Vent Filter No. 3	0%
		1007	EL Grain Silo Vent Filter No. 4	0%
		1008	EL Grain Silo Vent Filter No. 5 and 6	0%
		1009	EL Grain Silo Vent Filter No. 7	0%
		1010	EL Grain Silo Vent Filter No. 8 and 9	0%
		1012	EL Grain Bin Baghouse	0%

§60.302 Standard for particulate matter

(a) No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere any gases which exhibit greater than 0 percent opacity from any:

(1) Column dryer with column plate perforation exceeding 2.4 mm diameter (ca. 0.094 inch)); and

(2) Rack dryer in which exhaust gases pass through a screen filter coarser than 50 mesh.

Cargill has no grain dryers at this facility.

(b) No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility except a grain dryer any process emission which:

(1) Contains particulate matter in excess of 0.023 g/dscm (ca. 0.01 gr/dscf); and

(2) Exhibits greater than 0 percent opacity.

These Standards are applicable to EUGs 1000-A through 1000-C

(c) No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere any fugitive emission from:

(1) Any individual truck unloading station, railcar unloading station, or railcar loading station, which exhibits greater than 5 percent opacity;

(2) Any grain handling operation which exhibits greater than 0 percent opacity;

(3) Any truck loading station which exhibits greater than 10 percent opacity; and

(4) Any barge or ship loading station which exhibits greater than 20 percent opacity.

(d) The owner or operator of any barge or ship unloading station shall operate as follows:

(1) The unloading leg shall be enclosed from the top (including the receiving hopper) to the center line of the bottom pulley and ventilation to a control device shall be maintained on both sides of the leg and the grain receiving hopper; and

(2) The total rate of air ventilated shall be at least 40 actual cubic feet per bushel of grain handling capacity.

- Subpart IIII - Standards of Performance for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE)

  A diesel powered emergency generator and fire pump engine at this facility are categorized but not subject to this rule because construction was commenced prior to July 11, 2005 and no reconstruction or modifications have occurred since that time.

3) NESHAP (40 CFR Part 61)

None of the 7 hazardous air contaminants regulated by this part are emitted at this facility.

4) NESHAP / MACT (40 CFR Part 63)

- Subpart GGGG - National Emission Standard for Hazardous Air Pollutants: Solvent Extractions for Vegetable Oil Production

  The facility is subject to this subpart GGGG and affected by its requirements. Subpart GGGG§63.3832 (a)(1) defines sources subject to this MACT as follows:

  "You own or operate a vegetable oil production process that is a major source of HAP emissions or is collocated within a plant site with other sources that are individually or collectively a major source of HAP emissions."

  Cargill is also defined as an *"existing source"* under §63.2833. Applicable requirements for existing sources include the following:

  §63.2840 What emission requirements must I meet?

  For each facility meeting the applicability criteria in §63.2832, you must comply with either the requirements specified in paragraphs (a) through (d), or the requirements in paragraph (e) of this section.

  (a)(1) The emission requirements limit the number of gallons of HAP lost per ton of listed oilseeds processed. For each operating month, you must calculate a compliance ratio which compares your actual HAP loss to your allowable HAP loss for the previous 12 operating months as shown in Equation 1 of this section. An operating month, as defined in §63.2872, is any calendar month in which a source processes a listed oilseed, excluding any entire calendar month in which the source operated under an initial startup period subject to §63.2850(c)(2) or (d)(2) or a malfunction period subject to §63.2850(e)(2). Equation 1 of this section follows:

$$\text{Compliance Ratio} = \frac{\text{Actual Hap Loss}}{\text{Allowable Hap Loss}} \qquad (Eq.\ 1)$$

(2) Equation 1 of this section can also be expressed as a function of total solvent loss as shown in Equation 2 of this section. Equation 2 of this section follows:

$$\text{Compliance Ratio} = \frac{f * \text{Actual Solvent Loss}}{0.64 * \sum_{i=1}^{n}\left((\text{Oilseed})_i * (\text{SLF})_i\right)} \qquad (Eq.\ 2)$$

Where:

f = The weighted average volume fraction of HAP in solvent received during the previous 12 operating months, as determined in §63.2854, dimensionless.

0.64 = The average volume fraction of HAP in solvent in the baseline performance data, dimensionless.

Actual Solvent Loss = Gallons of actual solvent loss during previous 12 operating months (Ref. §63.2853).

Oilseed Processed = 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 §63.2840

(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 §63.2840.

(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.

§63.2850 How do I comply with the hazardous air pollutant emission standards?

(a) *General requirements.* The requirements in paragraphs (a)(1)(i) through (iv) of this section apply to all affected sources:

(1) Submit the necessary notifications in accordance with §63.2860

(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).

(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.

Table 1 of §63.2850
Requirements for Compliance with HAP Emission Standards

Are you required to . . .	For periods of normal operation?	For initial startup periods subject to §63.2850(c)(2) or (d)(2)?	For malfunction periods subject to §63.2850(e)(2)?
(a) Operate and maintain your source in accordance with general duty provisions of §63.6(e)?	Yes. Additionally, the HAP emission limits will apply.	Yes, you are required to minimize emissions to the extent practicable throughout the initial startup period. Such measures should be described in the SSM plan.	Yes, you are required to minimize emissions to the extent practicable throughout the initial startup period. Such measures should be described in the SSM plan.
(b) Determine and record the extraction solvent loss in gallons from your source?	Yes, as described in §63.2853	Yes, as described in §63.2862(e)	Yes, as described in §63.2862(e).
(c) Record the volume fraction of HAP present at greater than 1 percent by volume and gallons of extraction solvent in shipment received?	Yes	Yes	Yes.
(d) Determine and record the tons of each oilseed type processed by your source?	Yes, as described in §63.2855	No	No.
(e) Determine the weighted average volume fraction of HAP in extraction solvent received as described in §63.2854 by the end of the following calendar month?	Yes	No. Except for solvent received by a new or reconstructed source commencing operation under an initial startup period, the HAP volume fraction in any solvent received during an initial startup period is included in the weighted average HAP determination for the next operating month	No, the HAP volume fraction in any solvent received during a malfunction period is included in the weighted average HAP determination for the next operating month.
(f) Determine and record the actual solvent loss, weighted average volume fraction HAP, oilseed processed and compliance ratio for each 12 operating month period as described in §63.2840 by the end of the following calendar month?	Yes,	No, these requirements are not applicable because your source is not required to determine the compliance ratio with data recorded for an initial startup period	No, these requirements are not applicable because your source is not required to determine the compliance ratio with data recorded for a malfunction period.
(g) Submit a Notification of Compliance Status or Annual Compliance Certification as appropriate?	Yes, as described in §§63.2860(d) and 63.2861(a)	No. However, you may be required to submit an annual compliance certification for previous operating months, if the deadline for the annual compliance certification happens to occur during the initial startup period	No. However, you may be required to submit an annual compliance certification for previous operating months, if the deadline for the annual compliance certification happens to occur during the malfunction period.
(h) Submit a Deviation Notification Report by the end of the calendar month following the month in which you determined that the compliance ratio exceeds 1.00 as described in §63.2861(b)?	Yes	No, these requirements are not applicable because your source is not required to determine the compliance ratio with data recorded for an initial startup period	No, these requirements are not applicable because your source is not required to determine the compliance ratio with data recorded for a malfunction period.
(i) Submit a Periodic SSM Report as described in §63.2861(c)?	No, a SSM activity is not categorized as normal operation	Yes	Yes.
(j) Submit an Immediate SSM Report as described in §63.2861(d)?	No, a SSM activity is not categorized as normal operation	Yes, only if your source does not follow the SSM plan	Yes, only if your source does not follow the SSM plan.

40 CFR §63.2851: What is a plan for demonstrating compliance?

(a) You must develop and implement a written plan for demonstrating compliance that provides the detailed procedures you will follow to monitor and record data necessary for demonstrating compliance with this subpart. Procedures followed for quantifying solvent loss from the source and amount of oilseed processed vary from source to source because of site-specific factors such as equipment design characteristics and operating conditions. Typical procedures include one or more accurate measurement methods such as weigh scales, volumetric displacement, and material mass balances. Because the industry does not have a uniform set of procedures, you must develop and implement your own site-specific plan for demonstrating compliance before the compliance date for your source. You must also incorporate the plan for demonstrating compliance by reference in the source's title V permit and keep the plan on-site and readily available as long as the source is operational. If you make any changes to the plan for demonstrating compliance, then you must keep all previous versions of the plan and make them readily available for inspection for at least 5 years after each revision. The plan for demonstrating compliance must include the items in paragraphs (a)(1) through (7) of this section:

(1) The name and address of the owner or operator.

(2) The physical address of the vegetable oil production process.

(3) A detailed description of all methods of measurement your source will use to determine your solvent losses, HAP content of solvent, and the tons of each type of oilseed processed.

(4) When each measurement will be made.

(5) Examples of each calculation you will use to determine your compliance status. Include examples of how you will convert data measured with one parameter to other terms for use in compliance determination.

(6) Example logs of how data will be recorded.

(7) A plan to ensure that the data continue to meet compliance demonstration needs.

The Department has a copy of this written plan on file.

40 CFR §63.2852: What is a startup, shutdown, and malfunction plan?

You must develop a written SSM plan in accordance with 40 CFR §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 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 40 CFR §63.2850(e)(2) malfunction period, or the 40 CFR §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.

The SSM plan is readily available at the facility. If the source chooses to operate under a malfunction period, they must submit a periodic SSM report by the end of the calendar month following each month in which the malfunction period occurred.

§63.2862 - What records must I keep?

(a) You must satisfy the recordkeeping requirements of this section by the compliance date for your source specified in Table 1 of §63.2834.

(b) Prepare a plan for demonstrating compliance (as described in §63.2851) and a SSM plan (as described in §63.2852). In these two plans, describe the procedures you will follow in obtaining and recording data, and determining compliance under normal operations or a SSM subject to the §63.2850(c)(2) or (d)(2) initial startup period or the §63.2850(e)(2) malfunction period. Complete both plans before the compliance date for your source and keep them on-site and readily available as long as the source is operational.

(c) If your source processes any listed oilseed, record the items in paragraphs (c)(1) through (5) of this section:

(1) For the solvent inventory, record the information in paragraphs (c)(1)(i) through (vii) of this section in accordance with your plan for demonstrating compliance:

(i) Dates that define each operating status period during a calendar month.
(ii) The operating status of your source such as normal operation, nonoperating, initial startup period, malfunction period, or exempt operation for each recorded time interval.
(iii) Record the gallons of extraction solvent in the inventory on the beginning and ending dates of each normal operating period.
(iv) The gallons of all extraction solvent received, purchased, and recovered during each calendar month.
(v) All extraction solvent inventory adjustments, additions, or subtractions. You must document the reason for the adjustment and justify the quantity of the adjustment.
(vi) The total solvent loss for each calendar month, regardless of the source operating status.
(vii) The actual solvent loss in gallons for each operating month.

(2) For the weighted average volume fraction of HAP in the extraction solvent, you must record the items in paragraphs (c)(2)(i) through (iii) of this section:

(i) The gallons of extraction solvent received in each delivery.
(ii) The volume fraction of each HAP exceeding 1 percent by volume in each delivery of extraction solvent.
(iii) The weighted average volume fraction of HAP in extraction solvent received since the end of the last operating month as determined in accordance with §63.2854(b)(2).

Note: Iso-hexane is the only solvent utilized within the extraction process and Cargill limits the amount of HAP (n-hexane) impurities to less than 3.0% by contract specification.

(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.

- Subpart ZZZZ - National Emission Standard for Hazardous Air Pollutants: Stationary Reciprocating Internal Combustion Engines (RICE)

The following two emergency engines are defined as existing emergency RICE located at a major source of HAP emissions and subject to the requirements of this Subpart (Reference §63.6585).

Emission Point	Description	Year Installed or Last Modified
12001	400 HP Diesel Emergency Generator	1980
12003	170 HP Diesel Emergency Fire Pump Engine	1990

Applicable requirements for these RICE include the following:

§63.6602 - What emission limitations must I meet if I own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions?

If you own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 2c to this subpart which apply to you.

Table 2c to Subpart ZZZZ

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
1. Emergency stationary CI RICE and black start stationary CI RICE.[1]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[2] b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3]	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.[3]

[1] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in Table 2c of this subpart, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under Federal, State, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under Federal, State, or local law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, State, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the Federal, State or local law under which the risk was deemed unacceptable.

[2] Sources have the option to utilize an oil analysis program as described in §63.6625(i) in order to extend the specified oil change requirement in Table 2c of this subpart.

[3] Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

§63.6640 - How do I demonstrate continuous compliance with the emission limitations and operating limitations?

(a) You must demonstrate continuous compliance with each emission limitation and operating limitation in Tables 1a and 1b (neither applicable > 500 HP only), Tables 2a and 2b (neither applicable > 500 HP only), Table 2c (applicable), and Table 2d (not applicable – area sources only) to this subpart that apply to you according to methods specified in Table 6 to this subpart.

Table 6 to Subpart ZZZZ - Continuous Compliance With Emission Limitations, Operating Limitations, Work Practices, and Management Practices

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
9. Existing emergency and black start stationary RICE ≤500 HP located at a major source of HAP....	a. Work or Management practices	i. Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or ii. Develop and follow your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

(f) *Requirements for emergency stationary RICE.* (1) If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions….., you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1)(i) through (iii) of this section. Any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1)(i) through (iii) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1)(i) through (iii) of this section, the engine will not be considered an emergency engine under this subpart and will need to meet all requirements for non-emergency engines.

(i) There is no time limit on the use of emergency stationary RICE in emergency situations.

(ii) You may operate your emergency stationary RICE for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency RICE beyond 100 hours per year.

(iii) You may operate your emergency stationary RICE up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity; except that owners and operators may operate the emergency engine for a maximum of 15 hours per year as part of a demand response program if the regional transmission organization or equivalent balancing authority and transmission operator has determined there are emergency conditions that could lead to a potential electrical blackout, such as unusually low frequency, equipment overload, capacity or energy deficiency, or unacceptable voltage level. The engine may not be operated for more than 30 minutes prior to the time when the emergency condition is expected to occur, and the engine operation must be terminated immediately after the facility is notified that the emergency condition is no longer imminent. The 15 hours per year of demand response operation are counted as part of the 50 hours of operation per year provided for non-emergency situations. The supply of emergency power to another entity or entities pursuant to financial arrangement is not limited by this paragraph (f)(1)(iii), as long as the power provided by the financial arrangement is limited to emergency power.

§63.6655(f)(1) - What records must I keep?

(f) If you own or operate any of the stationary RICE in paragraphs (f)(1) or (2) of this section, you must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engines are used for demand response operation, the owner or operator must keep records of the notification of the emergency situation, and the time the engine was operated as part of demand response.

(1) An existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions that does not meet the standards applicable to non-emergency engines.

- Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants: Industrial, Commercial, and Institutional Boilers and Process Heaters

This final rule was published in the Federal Register on March 21, 2011. The existing natural gas-fired boilers (Emission Units 8001 and 8301) are subject to subpart DDDDD and affected by its requirements. Subpart DDDDD defines sources subject to this MACT as follows:

"You are subject to this subpart if you own or operate an industrial, commercial, or institutional boiler or process heater as defined in §63.7575 that is located at, or is part of, a major source of HAP, except as specified in §63.7491."

Cargill is also defined as an "*existing source"* under §63.7490(d). Additionally, the subject boilers are subcategorized as follows:

Boiler Name and Emission Unit (EU) ID	Fuel Type	Subcategory under §63.7499	Reference
Boiler (8001)	Natural Gas	Units designed to burn gas 1 fuels	§63.7499(l)
Boiler (8301)	Natural Gas	Units designed to burn gas 1 fuels	§63.7499(l)

Units designed to burn gas 1 subcategory under §63.7575 includes any boiler or process heater that burns only natural gas, refinery gas, and/or other gas 1 fuels. Gaseous fuel boilers and process heaters that burn liquid fuel for periodic testing of liquid fuel, maintenance, or operator training, not to exceed a combined total of 48 hours during any calendar year, are included in this definition. Gaseous fuel boilers and process heaters that burn liquid fuel during periods of gas curtailment or gas supply interruptions of any duration are also included in this definition.

Periods of gas curtailment or supply interruption under §63.7575 means a period of time during which the supply of gaseous fuel to an affected boiler or process heater is restricted or halted for reasons beyond the control of the facility. The act of entering into a contractual agreement with a supplier of natural gas established for curtailment purposes does not constitute a reason that is under the control of a facility for the purposes of this definition. An increase in the cost or unit price of natural gas due to normal market fluctuations not during periods of supplier delivery restriction does not constitute a period of natural gas curtailment or supply interruption. On-site gaseous fuel system emergencies or equipment failures qualify as periods of supply interruption when the emergency or failure is beyond the control of the facility.

§63.7495(b) When do I have to comply with this subpart?

(b) If you have an existing boiler or process heater, you must comply with this subpart no later than January 31, 2016, except as provided in §63.6(i).

§63.7500 What emission limitations, work practice standards, and operating limits must I meet?

Sub-sections (a) and (f) of this section are applicable to the natural gas-fired boilers at this facility (Emission Units 8001 and 8301) as follows:

(a) You must meet the requirements in paragraphs (a)(1) through (3) of this section, except as provided in paragraphs (b), through (e) of this section. You must meet these requirements at all times the affected unit is operating, except as provided in paragraph (f) of this section.

(1) You must meet each emission limit and work practice standard in Tables 1 through 3, and 11 through 13 to this subpart that applies to your boiler or process heater, for each boiler or process heater at your source, except as provided under §63.7522. The output-based emission limits, in units of pounds per million Btu of steam output, in Tables 1 or 2 to this subpart are an alternative applicable only to boilers and process heaters that generate steam.

The work practice standards in Table 3 (Items 3 and 4) are applicable to boilers 8001 and 8301.

Table 1 emission limits are for new or reconstructed units and are not applicable. Table 2 emission limits are not applicable to units designed to burn gas 1 fuels. The alternative emission limits within Tables 12 and 13 are only for new or reconstructed units. Table 11 lists Toxic Equivalency Factors for Dioxins/Furans, which are not applicable to units designed to burn gas 1 fuels.

Table 3 to Subpart DDDDD - Work Practice Standards (Items 3 and 4)

If your unit is . . .	You must meet the following . . .
3. A new or existing boiler or process heater without a continuous oxygen trim system and with heat input capacity of 10 million Btu per hour or greater	Conduct a tune-up of the boiler or process heater annually as specified in §63.7540. Units in either the Gas 1 or Metal Process Furnace subcategories will conduct this tune-up as a work practice for all regulated emissions under this subpart. Units in all other subcategories will conduct this tune-up as a work practice for dioxins/furans.
4. An existing boiler or process heater located at a major source facility, not including limited use units	Must have a one-time energy assessment performed by a qualified energy assessor. An energy assessment completed on or after January 1, 2008, that meets or is amended to meet the energy assessment requirements in this table, satisfies the energy assessment requirement. A facility that operates under an energy management program compatible with ISO 50001 that includes the affected units also satisfies the energy assessment requirement. The energy assessment must include the following with extent of the evaluation for items a. to e. appropriate for the on-site technical hours listed in §63.7575:
	a. A visual inspection of the boiler or process heater system.
	b. An evaluation of operating characteristics of the boiler or process heater systems, specifications of energy using systems, operating and maintenance procedures, and unusual operating constraints.
	c. An inventory of major energy use systems consuming energy from affected boilers and process heaters and which are under the control of the boiler/process heater owner/operator.
	d. A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage.
	e. A review of the facility's energy management practices and provide recommendations for improvements consistent with the definition of energy management practices, if identified.
	f. A list of cost-effective energy conservation measures that are within the facility's control.
	g. A list of the energy savings potential of the energy conservation measures identified.
	h. A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments.

(2) You must meet each operating limit in Table 4 to this subpart that applies to your boiler or process heater.

Table 4 control device operating limits are not applicable to the natural gas-fired boilers (Emission Units 8001 and 8301) at this facility.

(3) At all times, you must operate and maintain any affected source (as defined in §63.7490), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

(f) These standards apply at all times the affected unit is operating, except during periods of startup and shutdown during which time you must comply only with Table 3 to this subpart.

§63.7540 How do I demonstrate continuous compliance with the emission limits, fuel specifications and work practice standards?

§63.7540(a)(10) is applicable to the natural gas-fired boilers (Emission Units 8001 and 8301) at this facility.

(10) If your boiler or process heater has a heat input capacity of 10 million Btu per hour or greater, you must conduct an annual tune-up of the boiler or process heater to demonstrate continuous compliance as specified in paragraphs (a)(10)(i) through (vi) of this section. You must conduct the tune-up while burning the type of fuel (or fuels in case of units that routinely burn a mixture) that provided the majority of the heat input to the boiler or process heater over the 12 months prior to the tune-up. This frequency does not apply to limited-use boilers and process heaters, as defined in §63.7575, or units with continuous oxygen trim systems that maintain an optimum air to fuel ratio.

(i) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (you may perform the burner inspection any time prior to the tune-up or delay the burner inspection until the next scheduled unit shutdown). Units that produce electricity for sale may delay the burner inspection until the first outage, not to exceed 36 months from the previous inspection. At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment;

(ii) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;

(iii) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (you may delay the inspection until the next scheduled unit shutdown). Units that produce electricity for sale may delay the inspection until the first outage, not to exceed 36 months from the previous inspection;

(iv) Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NO_X requirement to which the unit is subject;

(v) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer; and

(vi) Maintain on-site and submit, if requested by the Administrator, a report containing the information in paragraphs (a)(10)(vi)(A) through (C) of this section,

(A) The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater;

(B) A description of any corrective actions taken as a part of the tune-up; and

(C) The type and amount of fuel used over the 12 months prior to the tune-up, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel used by each unit.

5) **<u>Greenhouse Gas (GHG)</u> (40 CFR Parts 52, 70 and 98)**

Maximum potential annual CO_2e emissions from the two natural gas-fired boilers at this facility (95 and 90 MMBtu/hr), as calculated using the EPA Simplified GHG Emissions Calculator (SGEC) spreadsheet, assuming 1,000 btu/ft^3 natural gas and maximum gas usage of 1,445,400,000 ft^3/yr, are approximately 86,827 U.S. tons (78,768 metric tonnes).

- <u>40 CFR Parts 52 and 70 (PSD Applicability and Title V Permitting)</u>

  The GHG Tailoring Rule sets the threshold for both Title V permitting and PSD applicability at 100,000 tons per year. These parts are not applicable to this facility because potential CO_2e emissions are less than 100,000 tons annually.

- U.S. Supreme Court Decision in *Utility Air Regulatory Group v. EPA*

  On June 23, 2014, the U.S. Supreme Court issued its decision in *Utility Air Regulatory Group v. EPA* (No. 12-1146). The Court said that EPA may not treat greenhouse gases as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD or title V permit. The Court also said that PSD permits that are otherwise required (based on emissions of other pollutants) may continue to require limitations on greenhouse gases emissions based on the application of Best Available Control Technology.

- 40 CFR Part 98 (Mandatory Greenhouse Gas Reporting)

  Cargill is subject to this rule because potential CO_2e emissions are greater than the 25,000 metric tonnes per year applicability threshold. Although subject, this is not an "applicable requirement" and will not be incorporated into the synthetic minor permit. Cargill is required to submit these reports directly to the EPA.

VII. POTENTIAL to EMIT (PTE) EVALUATION *(Includes an Emission Reduction Summary)*

Emission Group 1000 (Elevator Department)

Emission Group 1000 is a source of PM and VOC emissions. Cargill has calculated PM emission rates based upon the expected grain loading of the gases exhausting from each baghouse (Reference Cargill updated Title V permit renewal application, dated April 4, 2013). Each emission unit within Emission Group 1000 is deemed inherent process equipment by Cargill since the majority of material captured is collected and used as animal feed ingredients. Additionally, the baghouses are also purposed for safety to reduce the explosive dust hazard risk or to improve product conveyance by separating air from pneumatically conveyed product. This is detailed in the Cargill CAM applicability analysis included in the Title V permit renewal application, dated April 4, 2013. PTE in tons per year (tpy) is calculated based on the maximum emission rate and 8,760 hours per year, as displayed in the following table.

VOC emissions in the Elevator Department are a result of downstream flow of solvent extracted meal (SEM) from the extraction process. VOC emissions are based on the "Cargill non-emission control plan source proposed VOC emissions" document, dated December 23, 2008 (Reference 2006 Consent Decree – paragraph 39).

Emission Point	Max. PM Emissions (lbs/hr)	PTE for PM (tpy)	Max. VOC Emissions (lbs/hr)	PTE for VOC (tpy)
1001A	0.21	0.94	Not Applicable (NA)	NA
1002	0.21	0.94	NA	NA
1003A	0.17	0.75	NA	NA
1003B	0.21	0.94	NA	NA
1004	0.81	3.52	NA	NA
1005	0.01	0.02	NA	NA
1006	0.01	0.02	NA	NA
1007	0.01	0.02	NA	NA
1008	0.01	0.02	NA	NA
1009	0.01	0.02	NA	NA
1010	0.01	0.02	NA	NA
1012	0.09	0.38	NA	NA
1013	0.63	2.76	NA	NA
1014	0.03	0.13	NA	NA
1016A	0.24	1.04	NA	NA
1016B	0.13	0.56	NA	NA
1017	0.56	2.44	NA	NA
1018	0.15	0.66	0.48	2.10
1022	0.25	1.08	0.49	2.16
1023	0.86	3.76	2.74	12.01
1025	0.35	1.54	1.12	4.93
1026	2.14	9.38	6.86	30.03
TOTAL:		30.9		51.2

Emission Group 1000 allowable emissions are based on PTE.

Emission Group 8000 (Power Plant)

The Power Plant consists of 70 and 95 MMBtu/hr natural gas-fired boilers (Emission Units 8001 and 8301). PTE criteria pollutant emission calculations are based on EPA's Compilation of Air Pollutant Emission Factors, AP-42, 5th Edition, Section 1.4 as follows:

AP-42 Emission Factors (lbs/MMft^3)		**PTE (tpy)**
PM/PM$_{10}$	7.6	5.49
SO2	0.6	0.43
NOx	100	72.27
CO	84	60.71
VOC	5.5	3.97

- ✓ Natural Gas: 1000 Btu/ft^3
- ✓ Total Burner Capacity: (70 + 95) = 165 MMBtu/hr
- ✓ Maximum Hours: 8,760 hours
- ✓ Maximum gas Usage: 1,445.4 MMft^3/yr

PTE for CO_2e emissions from the two natural gas-fired boilers is calculated to be approximately 86,827 tons using the SGEC spreadsheet and 1,000 btu/ft^3 natural gas (1,445,400,000 ft^3/yr).

Emission Group 8000 allowable emissions are based on PTE.

Emission Group 10000 (Oilseed Preparation)

Emission Group 10000 is a source of PM and VOC emissions. Cargill has calculated PM emission rates based upon the expected grain loading of the gases exhausting from each emission point in this process (baghouses, cyclones and scrubbers).

Each emission unit within Emission Group 10000 is deemed inherent process equipment by Cargill since the majority of material captured in the baghouses (Emission Points 10009 and 10013) and the cyclone (Emission Point 10011) is collected and used as animal feed ingredients. Additionally, these devices are also purposed for safety to reduce the explosive dust hazard risk. The scrubbers (Emission Points 10007, 10008 and 10010) are purposed for safety as well to reduce the explosive dust hazard risk and/or to keep hexane vapors from entering the oilseed prep area. This is detailed in the Cargill CAM applicability analysis included in the updated Title V permit renewal application, dated April 4, 2013. PTE is calculated based on the maximum emission rate and 8,760 hours per year, as displayed in the following table.

VOC emissions in the Oilseed Preparation Plant are from the oilseed flakers and expellers and downstream oilseed conveyance after extraction. VOC emissions based on the Cargill non-emission control plan source proposed VOC emissions document, dated December 23, 2008 (Reference 2006 Consent Decree – paragraph 39).

Emission Group 10000 allowable emissions are based on PTE.

Emission Point	Description	Max. PM Emissions (lbs/hr)	PTE for PM (tpy)	Max. VOC Emissions (lbs/hr)	PTE for VOC (tpy)
10007	GP Expeller Aspiration Scrubber	0.82	3.60	4.13	18.07
10008	GP Expeller Cake Aspiration Scrubber	0.47	2.05	4.13	18.07
10009	GP Oilseed Receiver Baghouse	0.21	0.90	NA	NA
10010	GP Flaker Aspiration Scrubber	0.89	3.89	1.05	4.60
10011	GP Null Point (Oilseed Conveyance) Cyclone	1.39	6.10	0.77	3.36
10013	GP Oilseed Front End Aspiration Baghouse (Oilseed Rate Bin/Cracking Mill Baghouse)	0.25	1.08	NA	NA
TOTAL:			17.6		44.1

Emission Group 11000 (Oil Extraction and Refining)

VOC Extraction:

Maximum potential VOC emissions (VOC_{PTE}) from oil extraction are calculated as follows:

- ✓ Maximum solvent loss ratio = 0.33 gallons of VOC/ton of oilseed (germ)
  (Reference 2006 Consent Decree – Paragraph 20 and Appendix F)

- ✓ Maximum potential oilseed (germ) throughput = 547,500 tons/year

- ✓ Density of hexane = 5.5 lbs/gallon

$VOC_{PTEextraction}$ = (0.33 gal VOC/ton of oilseed (germ) x 547,500 tons oilseed (germ)/year x 5.5 lbs/gal) / 2,000 lbs/ton

$VOC_{PTEextraction}$ = 497 tons/year (tpy)

VOC Refining:

VOC_{PTE} from the refining of imported oil (49 lbs/hr) is calculated as follows:

- ✓ Maximum hexane content of imported oil = 817 ppm

- ✓ Maximum imported oil throughput rate = 60,000 lbs/hr

$VOC_{PTErefining}$ = (817 ppm hexane x 60,000 lbs/hr x 8,760 hours/year / 1,000,000) / 2,000 lbs/ton

$VOC_{PTErefining}$ = 215 tpy

Total:

$VOC_{PTEextraction}$ + $VOC_{PTErefining}$ = 497 tpy + 215 tpy = 712 tpy

PM Extraction:

SEM drying results in PM emissions. Cargill has calculated PM emission rates based upon the expected grain loading of the gases exhausting from the meal dryer cyclones (Reference Cargill updated Title V permit renewal application, dated April 4, 2013). These cyclones are considered emission control devices by Cargill.

The maximum PM emission rate from each cyclone is 0.48 lbs/hr and 2.1 tpy (based on 8,760 hours).

Based on an expected cyclone efficiency of 95%, the potential to emit from each cyclone is 42.0 tpy (84.0 tons combined).

The maximum PM emission rate from the two baghouses is negligible ~0.1 tpy.

Emission Group 11000 allowable emissions are based on PTE.

Emission Group 12000 (Emergency Engines)

PTE is based on AP-42, Chapter 3 (Stationary Internal Combustion Sources), Section 3.3 (Gasoline and Diesel Industrial Engines), Table 3.3-1 and 500 hours per year.

Facility-wide PTE and Post Permit Modification Allowable Emissions Summary

		Facility-wide PTE (tpy)					
Emission Group	**Description**	**PM_{10}**	**NO_x**	**CO**	**SO_2**	**VOC**	**HAP**
1000	Elevator Department	30.9				51.2	
8000	Power Plant	5.49	72.27	60.71	0.43	3.97	
10000	Oilseed Preparation	17.6				44.1	
11000	Extraction and Refining	84.0				712	>25
12000	Emergency Engines (Based on 500 hrs)	0.31	4.42	0.95	0.29	0.36	
TOTAL:		138.3	76.7	61.7	0.7	811.6	>25

		Post Permit Modification Facility-wide Allowable Emissions (tpy)					
Emission Group	**Description**	**PM_{10}**	**NO_x**	**CO**	**SO_2**	**VOC**	**HAP**
1000	Elevator Department	30.9				51.2	
8000	Power Plant	5.49	72.27	60.71	0.43	3.97	
10000	Oilseed Preparation	17.6				44.1	
11000	Extraction and Refining	4.4				712	>25
12000	Emergency Engines (Based on 500 hrs)	0.31	4.42	0.95	0.29	0.36	
TOTAL:		58.7	76.7	61.7	0.7	811.6	>25

This facility is a major source for VOCs and HAPs and a synthetic minor source for PM/PM_{10}.

Allowable emission reductions as a result of this modification are as follows:

Description	Facility-wide Allowable Emission Reductions (tpy)					
	PM_{10}	**NO_x**	**CO**	**SO_2**	**VOC**	**CO2e**
Pre-Modification	460.9	1,059.3	2,490.2	4,009.3	1,744.4	730,721
Post Modification	58.7	76.7	61.7	0.7	811.6	86,827
Net Reductions	**- 402.2**	**- 982.6**	**- 2,428.5**	**- 4,008.6**	**- 932.8**	**- 643,894**

VIII. FEES

The following fees are applicable to these permit actions:

No.	Permit Action	Description	Fee
1	Major Modification	Removal of shutdown emission units due to closure of corn milling operations	$130.00
2	Major Modification	Conversion of coal-fired boilers to natural gas	$130.00
3	Administrative Amendment	Change of responsible official	$ 0.00
4	Publication	Publication fee	$150.00
		TOTAL:	$410.00

APPENDIX A

(Regulatory Applicability Overview Table)

APPENDIX B

(Emission Summary Table)