

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

MEMORANDUM

July 31, 2013

TO: Phillip Fielder, P.E., Permits and Engineering Group Manager

THROUGH: Phil Martin, P.E., Engineering Manager, Existing Source Permits Section

THROUGH: Peer Review

FROM: Eric L. Milligan, P.E., Engineering Section

SUBJECT: Evaluation of Permit Application No. **2013-0109-C PSD**
Northstar Agri Industries
Northstar Agri Industries – Enid Facility (SIC 2076)
2301 N. 66th Street, Enid, OK
NE/4 of Section 6, T22N, R5W, Garfield County
Latitude: 36.41889°N; Longitude: 97.78303°W

SECTION I. INTRODUCTION

Northstar Agri Industries (NAI) requests approval to construct a new canola oil mill at 2301 N. 66th Street in Enid, OK. The Northstar Agri Industries – Enid facility is anticipated to process 2,500 TPD of canola seeds into vegetable oil. Startup of the new oil mill is proposed for April 2015. The construction permit application served as the initial notice for new sources as required by 40 CFR Part 63, Subpart GGGG.

SECTION II. PROCESS DESCRIPTION

The new Northstar Agri Industries – Enid facility will be designed to convert 2,500 TPD of seeds into crude oil and RBD oil. The facility consists of several processing steps to prepare seed and remove up to 100 million gallons per year of crude oil and RBD oil.

Oilseed Extraction

Receiving

Canola seed will be received from local farmers and regional grain elevators by semi-trailer truck and railcar. Canola seed will be off-loaded onto conveyors that will have aspiration and a bar separator with magnet to remove ferrous and large foreign objects before going into on-site elevators. The facility will have total oilseed storage capacity of 2.15 million bushels. After cleaning, the oilseeds will be transferred to one of four seed storage buildings. PM/PM₁₀/PM_{2.5}

emissions from receiving come from product unloading, storage, and transferring and will be controlled by fabric filter baghouses.

While the rail and truck unloading (receiving) stations and meal loadout stations will be located within buildings and controlled by dust collectors, a small portion of the dust will remain uncaptured considering that the rail and truck doors need to remain open during receiving and loadout. It is assumed that 5% of the receiving emissions will be uncontrolled and emitted as fugitive emissions through the open doors (FS003). It is also assumed that 5% of the emissions from loadout will be uncontrolled and emitted as fugitive emissions through the open doors (FS004). The captured receiving and loadout emissions will be vented through baghouses (SV003 & SV004).

Preparation

For preparation, the canola will be cleaned, conditioned, and rolled flat into flakes. Cleaning is completed on a multiple deck screener. The seeds will then be pre-heated or conditioned in a vertical conditioner. The warm, soft seeds, leaving the pre-heater, are then sent to flaking. The flakes will be conveyed to the rotary flake cooker and heated to approximately 200 °F. Cooked flakes will be pressed to release approximately 20% by weight crude canola oil. The remaining material is referred to as “cake” which will then be cooled in the cake cooler and transferred to the extraction section. PM/PM₁₀/PM_{2.5} emissions from preparation come from cleaning, conditioning, flaking, and cooking the oilseeds and will be controlled by fabric filter baghouses or high efficiency process cyclones used to recover canola and cake which are economically valuable commodities.

Solvent Extraction

Inside the extraction building, the cake will be washed in an extractor with commercial grade hexane which strips the oil from the flakes. Two process streams will leave the extractor: commercial hexane-laden cake and miscella. Miscella is a mixture of commercial hexane, oil, and water. The miscella will be separated into its components using distillation. The separated oil is termed crude oil which will be further refined and sold.

VOC and PM/PM₁₀/PM_{2.5} emission sources from the solvent extraction process include the extraction vent system, DC Drying Decks #1 and #2, DC Cooling Deck vents, and fugitive sources (equipment leaks). PM/PM₁₀/PM_{2.5} emissions will be exhausted through high efficiency process cyclones used to recover the economically valuable meal commodity. A solvent recovery system will recapture the majority of the VOC (hexane) emissions for reuse in the process. A mineral oil scrubber will be used to absorb solvent vapors prior to being discharged from the plant. The mineral oil absorber will be a packed column vessel. Mineral oil flows countercurrent, through the packing, to the upcoming vapors. A mineral oil stripper will be used to evaporate and strip the hexane from the mineral oil using a special vacuum low temperature design. After startup and shakedown of the facility, the plant will recover nearly all of the commercial hexane and re-use it in the extractor. The separated water will be pretreated prior to going to the wastewater treatment system.

Meal System

The meal cake will be “desolventized” by subjecting the commercial hexane-laden meal cake to heat. The meal will then be cooled, ground, or pelletized and conveyed to storage bins. The desolventized meal will be sold as animal feed. The commercial hexane that is driven off of the meal will be piped to the solvent recovery system for re-use. A portion of the hexane solvent is “fixed” to the meal during the desolventizing process and cannot be recovered. The meal will be shipped from the site primarily in bulk quantities via trucks and railcars. The PM/PM₁₀/PM_{2.5} emission sources in the meal section include grinding, pelletizing, and load out of the meal. These processes will exhaust through either high efficiency process cyclones or fabric filter baghouses. The process cyclones and process fabric filter baghouses will be used to recover economically valuable meal commodity.

Extraction Process Liquid Storage Tanks

The liquid storage tanks for the extraction process will include the following:

- Three double walled hexane storage tanks (underground), and
- One distillate fuel oil storage tank (fuel for fire pump – located in Utility building).

Food Grade Refinery

The refining process removes gums, colors, tastes, and odorous compounds from the crude oil to produce a product referred to as Refined Vegetable Oil. The refining process also produces valuable by-products including fatty acids and distillates. PM/PM₁₀/PM_{2.5} emission sources from the refinery section include bleaching and filtering. The silica and filter aid will be unloaded from truck or rail cars and pneumatically conveyed to storage bins. The refinery section will also have one 5.0 MMBTUH steam generator that will supply high-pressure steam to the deodorizing process. The refinery steam generator will be designed to burn natural gas. The refinery steam generator will have emissions of PM/PM₁₀/PM_{2.5}, NO_x, SO₂, CO, and VOC.

Refining Process Liquid Storage Tanks

The liquid storage tanks necessary for the refining process will include the following:

- Three Crude Canola Oil Storage Tanks,
- Five Refined Vegetable Oil Storage Tanks,
- One Specialty Crude Oil Storage Tank,
- One Specialty Refined Vegetable Oil Storage Tank,
- Two Distillate Storage Tank (One light and one heavy), and
- One Soapstock Storage Tank.

Ancillary Facilities

Waste Water Treatment

Wastewater will be generated from all processes in the proposed canola processing plant. The generated wastewater will be treated and discharged to the City of Enid wastewater treatment plant.

Boilers

The facility is permitting the installation of three 95 MMBTUH boilers to provide steam for the oil extraction process. Initially the facility will only be installing two of the boilers, but a third boiler may be installed so the facility would have a backup boiler. The boilers will be designed to burn natural gas. Emissions from the boilers include PM/PM₁₀/PM_{2.5}, NO_x, SO₂, CO, and VOC. The process boilers will be subject to New Source Performance Standard (NSPS) Subpart Dc and National Emissions Standards for Hazardous Air Pollutants (NESHAP) Subpart DDDDD.

Cooling Tower

A cooling tower will be installed to dissipate heat loads from the refinery and extraction processes. Drift from the cooling tower will result in fugitive emissions of particulate matter.

Fire Pump Engine

Two fire pump engines will be installed to provide water for fighting fires at the facility. The 550-hp engines will run on diesel fuel. The engines will be used during emergency situations, training, and testing only. Emissions from the engines will consist of PM/PM₁₀/PM_{2.5}, NO_x, SO₂, CO, and VOC.

Roadway Fugitive Emissions

Low levels of PM/PM₁₀/PM_{2.5} emissions will occur due to emissions of fugitive dust from the use of access and haul roads at the facility. All of the access and haul roads at the facility will be paved to minimize fugitive emissions. Fugitive emissions from access and haul roads are included in the emissions inventory and dispersion modeling since the project is subject to PSD for PM₁₀/PM_{2.5}.

SECTION III. EMISSION UNIT GROUPS

EUG 001. Boilers

EU ID #	Point ID #	EU Name/Description	Const. Date
EU001	SV001	Boiler #1, 95 MMBTUH	2013
EU002	SV001	Boiler #2, 95 MMBTUH	2013
EU003	SV001	Boiler #3, 95 MMBTUH	2013
EU004	SV002	Refinery Boiler, 5 MMBTUH	2013

EUG 002. Mineral Oil Scrubber

EU ID #	Point ID # ¹	EU Name/Description	Const. Date
EU017	SV010	Mineral Oil Scrubber (GP001)	2013
TK017	SV029	Solvent Storage Tank #1	2013
TK018	SV029	Solvent Storage Tank #2	2013
TK019	SV029	Solvent Storage Tank #3	2013

¹ – All of these points are vented through the Mineral Oil Scrubber.

EUG 003. Baghouses

EU ID #	Point ID #	EU Name/Description	Const. Date
EU005	SV003	Oil Seed Receiving (Filter CE001)	2013
EU006	SV004	Meal Loadout & Storage (Filter CE002)	2013
EU007	SV005	Seed Cleaning & Aspirating (Filter CE003)	2013
EU008	SV005	Meal Grinding (Filter CE003)	2013
EU025	SV018	Meal to Storage #1 (Filter CE002)	2013
EU026	SV019	Meal to Storage #2 (Filter CE002)	2013

EUG 004. Cyclones

EU ID #	Point ID #	EU Name/Description	Const. Date
EU009	SV006	Conditioner Cyclone	2013
EU010	SV006	Flaker Cyclone	2013
EU011	SV007	Cooker Cyclone	2013
EU012	SV007	Cake/Meal Cooler Cyclone	2013
EU013	SV008	DC Drying Deck #1	2013
EU014	SV008	DC Drying Deck #2	2013
EU015	SV008	Dryer Cooler (DC Cooler)	2013
EU032	SV025	Meal Pelletizing Cyclone	2013

EUG 005. Passive Fabric Filters

EU ID #	Point ID #	EU Name/Description	Const. Date
EU019	SV012	Silica Storage Silo	2013
EU020	SV013	Filter Aid Storage Silo	2013
EU021	SV014	Bleaching Clay Storage Silo	2013
EU022	SV015	Bulk Product Conveyance	2013
EU028	SV021	Seed Storage #1	2013
EU029	SV022	Seed Storage #2	2013
EU030	SV023	Seed Storage #3	2013
EU031	SV024	Seed Storage #4	2013

EUG 006. Fugitive Sources

EU ID #	Point ID #	EU Name/Description	Const. Date
EU016	SV009	Cooling Tower	2013
FS001	SV026	Extraction Fugitive Leaks	2013
FS002	N/A	Paved Roadways	2013
FS003	N/A	Truck Seed Receiving Fugitives	2013
FS003	N/A	Rail Seed Receiving Fugitives	2013
FS004	N/A	Truck Meal Loadout Fugitives	2013
FS004	N/A	Rail Meal Loadout Fugitives	2013

EUG 007. Miscellaneous

EU ID #	Point ID #	EU Name/Description	Const. Date
EU018	SV011	Fire Pump Engine #1	2013
EU023	N/A	Canola Seed Reclaim #1	2013
EU024	N/A	Canola Seed Reclaim #1	2013
EU027	N/A	Receiving Seed Cleaning	2013
EU034	N/A	Process Feed Bin	2013
EU036	SV036	Fire Pump Engine #2	2013
TK001	N/A	Fire Water Tank	2013
TK002	N/A	Crude Oil Tank #1	2013
TK003	N/A	Crude Oil Tank #2	2013
TK004	N/A	Specialty Crude Oil Tank	2013
TK005	N/A	Crude Oil Tank #3	2013
TK006	N/A	RBD Oil Storage Tank #1	2013
TK007	N/A	RBD Oil Storage Tank #2	2013
TK008	N/A	RBD Oil Storage Tank #3	2013
TK009	N/A	Specialty RBD Oil Storage Tank	2013
TK010	N/A	RBD Oil Storage Tank #5	2013
TK011	N/A	RBD Oil Storage Tank #6	2013
TK012	N/A	Soapstock Tank	2013
TK013	N/A	Heavy Distillate Storage Tank	2013
TK014	N/A	Light Distillate Storage Tank	2013
TK015	N/A	Caustic Storage Tank	2013
TK016	N/A	Phosphoric Acid Tank	2013
N/A	N/A	Fuel Oil Tank	2013

Stack Parameters

Point	Description	Easting	Northing	Height	Dia.	Temp.	Flow
		meters	meters	feet	feet	°F	ACFM
SV001	Boilers	609565	4030762	150	4.50	350	85,000
SV002	Steam Generator	609619	4030850	150	1.50	495	2,400
SV003	Seed Receiving	609749	4030729	150	5.00	60	80,000
SV004	Meal Loadout & Storage	609594	4030664	150	4.00	60	40,000
SV005	Seed Cleaning/Aspiration & Meal Grinder	609592	4030664	150	4.00	75	34,000
SV006	Conditioning & Flaking	609552	4030710	150	4.00	115	25,500
SV007	Cooker & Cake Cooler	609578	4030779	150	4.00	165	51,000
SV008	DT #1 & 2 & DC	609522	4030688	150	3.33	165	30,000
SV009	Cooling Tower			60		60	
SV010	Mineral Oil Scrubber	609561	4030874	70	0.50	90	250
SV011	Fire Pump Engine #1			30			
SV012	Silica Storage Silo	609561	4030865	45	0.67	60	1,250
SV013	Filter Aid Silo	609602	4030822	45	0.67	60	1,250

Stack Parameters

Point	Description	Easting	Northing	Height	Dia.	Temp.	Flow
		meters	meters	feet	feet	°F	ACFM
SV014	Bleaching Clay Silo	609702	4030701	65	0.67	60	1,250
SV015	Bulk Product Conveyance	609695	4030701	70	0.67	60	300
SV016	Seed Reclaim #1	609681	4030683	25	0.67	60	1,500
SV017	Seed Reclaim #2	609701	4030683	25	0.67	60	1,500
SV018	Meal to Storage #1	609792	4030693	120	0.83	60	2,500
SV019	Meal to Storage #2	609826	4030642	120	0.83	60	2,500
SV020	Receiving Seed Cleaning	609826	4030687	150	2.67	60	20,000
SV021	Seed Storage #1	609826	4030762	150	2.67	60	20,000
SV022	Seed Storage #2	609826	4030810	150	2.67	60	20,000
SV023	Seed Storage #3	609575	4030707	150	2.67	60	20,000
SV024	Seed Storage #4	609606	4030711	150	2.67	60	20,000
SV025	Meal Pelleting	609575	4030707	150	3.33	60	30,000
SV027	Process Feed Bin	609606	4030711	65	0.67	60	1,500
SV030	Fire Pump Engine #2			30			

SECTION IV. EMISSIONS

Combustion Equipment

Three 95 MMBTUH process boilers will provide necessary steam capacity for the processes. The process can operate with two boilers; however the third boiler is being installed to provide backup capacity. Because the third boiler is operating in a backup capacity, Northstar Agri is proposing an annual limit of natural gas combusted. This limit along with Low-NO_x burners will enable the facility to be below the NO_x PSD significant emission rate (SER) of 40 TPY.

The permit will limit the amount of natural gas fired by all three of the 95 MMBTUH boilers to 1,900 MMSCFY with a high heating value of 1,020 BTU/SCF. NO_x, CO, VOC, PM, PM₁₀, and PM_{2.5} emission estimates from the boilers are based on the manufacturer’s data listed below and the total fuel throughput. SO₂ emission estimates are based on a fuel sulfur content of 10 ppmv. CO_{2e} emission estimates are based on 40 CFR Part 98 default emission factors for natural gas from Subpart C, Tables C-1 and C-2 and Global Warming Potentials from Subpart A, Table A-1.

In addition, a 5 MMBTUH steam generator will supply high-pressure steam to the refinery for the deodorizing process. NO_x, CO, VOC, PM, PM₁₀, and PM_{2.5} emission estimates from the boiler are based on emission factors from AP-42 (7/98), Section 1.4 and continuous operation. SO₂ emission estimates are based on a fuel sulfur content of 10 ppmv. CO_{2e} emission estimates are based on 40 CFR Part 98 default emission factors for natural gas from Subpart C, Tables C-1 and C-2 and Global Warming Potentials from Subpart A, Table A-1.

The two fire pump engines will be rated at approximately 550-hp. NO_x, CO, PM₁₀, and PM_{2.5} emission estimates from the fire pump engines were calculated using NSPS, Subpart III emission limits and 500 hours of operation. VOC and PM emission estimates from the fire pump engines were calculated using AP-42 (10/96), Section 3.3 emission factors and 500 hours of

operation. SO₂ emission estimates are based on a fuel sulfur content of 15 ppmw. CO_{2e} emission estimates are based on 40 CFR Part 98 default emission factors for natural gas from Subpart C, Tables C-1 and C-2 and Global Warming Potentials from Subpart A, Table A-1.

**Manufacturers' Data
95 MMBTUH Boilers**

Pollutant	lb/MMBTU
NO _x	0.0350
CO	0.0360
VOC	0.0060
PM	0.0400
PM ₁₀	0.0130
PM _{2.5}	0.0126

NSPS Emission Limits for Fire Pump Engines¹

	NMHC + NO _x	CO	PM
Max Engine Power	g/kW-hr (g/hp-hr)	g/kW-hr (g/hp-hr)	g/kW-hr (g/hp-hr)
300 ≤ hp < 600	4.0 (3.0)	3.5 (2.6)	0.2 (0.15)

¹ – For model year 2009 and later.

Emissions from Combustion Equipment

EU	NO _x		CO		VOC		SO ₂	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
EU001	3.325	33.92	3.420	34.88	0.570	5.81	0.157	1.60
EU002	3.325		3.420		0.570		0.157	
EU003	3.325		3.420		0.570		0.157	
EU004	0.490	2.15	0.412	1.80	0.027	0.12	0.008	0.04
EU018	3.638	0.91	3.153	0.79	1.383	0.35	0.003	0.00
EU037	3.638	0.91	3.153	0.79	1.383	0.35	0.003	0.00
Totals	17.741	37.89	16.978	38.26	4.503	6.63	0.485	1.64

Emissions from Combustion Equipment

EU	PM		PM ₁₀		PM _{2.5}		CO _{2e}	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
EU001	3.800	38.76	1.235	12.60	1.197	12.21	11,115	113,377
EU002	3.800		1.235		1.197		11,115	
EU003	3.800		1.235		1.197		11,115	
EU004	0.037	0.16	0.037	0.16	0.037	0.16	585	2,562
EU018	1.210	0.30	0.182	0.045	0.182	0.045	630	157
EU037	1.210	0.30	0.182	0.045	0.182	0.045	630	157
Totals	13.857	39.52	4.106	12.85	3.992	12.46	35,190	116,253

Cooling Tower

PM, PM₁₀, and PM_{2.5} emissions from the cooling tower result from contact of the cooling water with the air passing through the cooling tower resulting in drift droplets. PM, PM₁₀, and PM_{2.5} emission estimates from the cooling tower have been calculated based on the calculation methodology in the Joel Reisman and Gordon Frisbie paper “Calculating Realistic PM₁₀ Emissions from Cooling Towers” which relies on the AP-42 (1/95), Section 13.4 calculation and PM size distributions based on the amount of total dissolved solids (TDS). The paper was presented to the Air & Waste Management Association (A&WMA) annual meeting in 2004 (Abstract No. 216, Session No. AM-1b). Emissions were based on a throughput of 9,600 gpm, a TDS estimate of 308 ppmw, and a drift of 0.006%. PM₁₀ emissions were estimated at 91.6% of PM emissions and PM_{2.5} emissions were estimated at 1.6% of PM emissions and were based on a TDS concentration of 308 ppmw. VOC emissions from the cooling tower are based on a throughput of 9,600 gpm, a concentration of 5 ppmw VOC, and a drift of 0.006%.

PM/PM₁₀/PM_{2.5} Emissions from Cooling Tower

EU	PM		PM ₁₀		PM _{2.5}		VOC	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
EU016	0.089	0.39	0.081	0.04	0.001	0.01	0.001	0.01

Extraction - VOC

VOC emissions from the extraction process are determined by applying a mass balance to the extraction process. A solvent loss factor of 0.29 gal/ton oilseed processed was applied to the oilseed throughput to obtain the total solvent loss. This procedure is consistent with the Maximum Achievable Control Technology (MACT) standard for the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Solvent Extraction for Vegetable Oil Production (40 CFR Part 63, Subpart GGGG). The maximum solvent loss factor in Subpart GGGG for a new canola plant is 0.3 gallons per ton (gal/ton) of oilseed. The solvent that is not emitted but is “fixed” to the meal and shipped off site is calculated by applying a conservative estimate of 200 ppmw solvent content of the meal based on the vendor guarantee from Crown Iron Works of 350 ppmw. The VOC emissions are then calculated by subtracting the meal-bound solvent from the total solvent loss. The solvent used in the extraction process is commercial hexane with an average n-hexane concentration of 65%. For purposes of obtaining worst-case emissions, an n-hexane concentration of 88% was used. The emissions were split among equipment leaks (50%), DC Drying Deck #1 & #2 and DC Cooling Deck (45%), and the mineral oil scrubbing system (5%). None of the VOC emissions from the extraction process are assumed to be fugitive and are all included in the facility emission totals.

VOC Emissions from Solvent Loss

EU	VOC	
	lb/hr	TPY
EU013, EU014, & EU015	65.283	285.94
EU017	7.254	31.77
FS001	72.536	317.71
Totals	145.073	635.42

Extraction Particulates

The particulate emission sources in the extraction process will include receiving, storage, conveying, cleaning, preparation, and extraction of the oilseeds and the conveying, pelletizing, storage and load out of the produced meal. PM, PM₁₀, and PM_{2.5} emission estimates have been calculated using proposed performance limits in grains per dry standard cubic feet (gr/DSCF). The proposed performance limits for the high efficiency process cyclones are based on stack tests performed at the Northstar Agri facility in Hallock, Minnesota. The performance limits for process and control device baghouses are based on the expected grain loading from the filters. For the baghouses PM₁₀ emissions were estimated at 100% of PM emissions and PM_{2.5} emissions were estimated at 17% of PM₁₀ emissions. For the cyclones PM₁₀ emissions were estimated at 50% of PM emissions and PM_{2.5} emissions were estimated at 38.5% of PM₁₀ emissions.

PM/PM₁₀/PM_{2.5} Emissions from Baghouses & Cyclones

Point	Loading	Flow	PM		PM ₁₀		PM _{2.5}	
	gr/DSCF	SCFM	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
SV003	0.005	80,000	3.429	15.019	3.429	15.019	0.583	2.553
SV004	0.005	40,000	1.714	7.507	1.714	7.507	0.291	1.276
SV005	0.005	33,047	1.416	6.202	1.416	6.202	0.241	1.054
SV006	0.026	23,061	5.139	22.509	2.570	11.254	0.989	4.333
SV007	0.026	42,432	9.456	41.417	4.728	20.709	1.820	7.973
SV008	0.026	24,960	5.563	24.366	2.782	12.183	1.071	4.690
SV010	0.026	250	0.056	0.245	0.022	0.094	0.011	0.047
SV016	0.005	1,500	0.064	0.280	0.064	0.280	0.011	0.048
SV017	0.005	1,500	0.064	0.280	0.064	0.280	0.011	0.048
SV018	0.005	2,500	0.107	0.469	0.107	0.469	0.018	0.080
SV019	0.005	2,500	0.107	0.469	0.107	0.469	0.018	0.080
SV020	0.005	20,000	0.857	3.754	0.857	3.754	0.146	0.638
SV021	0.005	20,000	0.857	3.754	0.857	3.754	0.146	0.638
SV022	0.005	20,000	0.857	3.754	0.857	3.754	0.146	0.638
SV023	0.005	20,000	0.857	3.754	0.857	3.754	0.146	0.638
SV024	0.005	20,000	0.857	3.754	0.857	3.754	0.146	0.638
SV025	0.026	28,467	6.344	27.787	3.172	13.893	1.221	5.349
SV027	0.005	1,500	0.064	0.280	0.064	0.140	0.011	0.048
Totals			37.808	165.60	24.524	107.27	7.026	30.77

While the rail and truck unloading (receiving) stations and meal loadout stations will be located within buildings (i.e., closed in on at least three sides) and controlled by dust collectors, there is an expectation that some dust will remain un-captured. PM, PM₁₀, and PM_{2.5} emission estimates from seed receiving and meal loadout were calculated using AP-42 (11/1995), Section 9.11, Vegetable Oil Processing, Table 9.11.1-1 emission factors at soybean milling plants. PM, PM₁₀, and PM_{2.5} emission estimates from seed conveying were calculated using AP-42 (5/2003), Section 9.9, Grain Elevators and Processes, Table 9.9.1-1 emission factor for head house and grain handling. Uncontrolled emissions were estimated at 5% of the total emissions. PM₁₀

emissions were estimated at 25% of PM emissions and PM_{2.5} emissions were estimated at 17% of PM₁₀ emissions based on data from AP-42 (5/2003), Section 9.9.1.

PM, PM₁₀, and PM_{2.5} emission estimates from the silica, filter aid, and bleaching clay silos and bulk product conveyance were calculated using AP-42 (8/2004), Section 11.19.2, Pulverized Mineral Processing Operations, Table 11.19.2-4 emission factor for product storage with fabric filter control. PM₁₀ emissions were estimated at 16% of PM emissions and PM_{2.5} emissions were estimated at 35.7% of PM₁₀ emissions based on data from AP-42 (8/2004), Section 11.19.2.

PM/PM₁₀/PM_{2.5} Emissions from Material Handling

Point	Loading	Flow	PM		PM ₁₀		PM _{2.5}	
	lb/ton	TPD	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
FS003	0.150	2,500	0.781	3.421	0.195	0.855	0.033	0.145
	0.061	2,500	0.318	1.393	0.080	0.348	0.014	0.059
FS004	0.270	1,500	0.844	3.697	0.211	0.924	0.036	0.157
	0.061	1,500	0.191	0.837	0.048	0.209	0.008	0.036
SV012	0.0099	30	0.012	0.053	0.002	0.008	0.001	0.003
SV013	0.0099	30	0.012	0.053	0.002	0.008	0.001	0.003
SV014	0.0099	30	0.012	0.053	0.002	0.008	0.001	0.003
SV015	0.0099	30	0.012	0.053	0.002	0.008	0.001	0.003
Totals			2.182	9.56	0.542	2.37	0.095	0.41

Tanks

VOC emission estimates from miscellaneous tanks not related to solvent loss were calculated using EPA’s TANKS program (Version 4.09d) which is based on AP-42 (1/95), Chapter 7.

Paved Roads

PM, PM₁₀, and PM_{2.5} emission estimates from vehicle traffic in the facility were calculated using equations from AP-42 (1/1995), Section 13.2.1 for Paved Roads. PM₁₀ emissions were estimated at 20% of PM emissions and PM_{2.5} emissions were estimated at 25% of PM₁₀ emissions based on data from AP-42 (1/1995), Section 13.2.1.

Variables

Vehicle Weight ¹	Vehicle Speed	Silt Loading ²	# Days w/Precip. ³
26.5 tons	15 mph	1.1 g/m ²	80 days

¹ - Based on typical loaded and empty weights of trucks.

² - Based on the paved road silt loading for wet corn mills.

³ - AP-42 (1/1995), Section 13.2.1

PM/PM₁₀/PM_{2.5} Emissions from Roads

	Factor	VMT	PM	PM₁₀	PM_{2.5}
Traffic	lb PM/VMT	Miles	TPY	TPY	TPY
Seed ¹	0.321	37,944.2	6.090	1.218	0.305
Meal ²	0.321	10,375.4	1.665	0.333	0.083
Oil ³	0.321	2,979.2	0.478	0.096	0.024
Bi-Products ⁴	0.321	270.8	0.043	0.009	0.002
Hexane ⁵	0.321	43.3	0.007	0.001	0.000
Chemicals ⁶	0.321	270.8	0.043	0.009	0.002
Totals			8.33	1.67	0.42

¹ - Based on 640 trips/week; ² - Based on 175 trips/week; ³ - Based on 55 trips/week.

⁴ - Based on 5 trips/week; ⁵ - Based on 1 trip/week; ⁶ - Based on 5 trips/week.

PM is assumed to be PM₃₀

Facility-Wide Emissions

EU	NO_x		CO		VOC		SO₂	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Combustion	17.74	37.89	16.98	38.26	4.50	6.63	0.49	1.64
Cooling Tower	0	0	0	0	0.00	0.01	0	0
Extraction	0	0	0	0	145.07	635.42	0	0
Mat. Hand.	0	0	0	0	0	0	0	0
Tanks	0	0	0	0	0	0.01	0	0
Roads	0	0	0	0	0	0	0	0
Totals	17.74	37.89	16.98	38.26	149.58	642.07	0.49	1.64

Facility-Wide Emissions

EU	PM		PM₁₀		PM_{2.5}		CO_{2e}	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Combustion	13.86	39.52	4.11	12.85	3.99	12.46	35,190	116,253
Cooling Tower	0.09	0.39	0.08	0.04	0.00	0.01	0	0
Extraction	37.81	165.60	24.52	107.27	7.03	30.77	0	0
Mat. Hand.	2.18	9.56	0.54	2.37	0.10	0.41	0	0
Tanks	0	0	0	0	0	0	0	0
Roads	---	8.33	---	1.67	---	0.42	0	0
Totals	53.94	223.40	29.25	124.20	11.12	44.07	35,190	116,253

SECTION V. PSD REVIEW

The source will have allowable emissions of VOC greater than the 250 TPY PSD threshold. Therefore, the project will be subject to PSD review. Because the facility is classified as “Major” for PSD, the facility is also subject to PSD requirements for PM₁₀, PM_{2.5}, and greenhouse gases (GHG) because the emissions for these pollutants are above the PSD Significant Emission Rates (SER). The facility will also be a major source of HAP since hexane emissions will be greater than the major source threshold of 10 TPY.

A. BACT

To be approved for a construction permit, a new major stationary source shall meet each applicable emissions limitation under OAC 252:100, each applicable emission standard and standard of performance under 40 CFR Parts 60 and 61, and shall apply BACT for each regulated NSR pollutant that exceeds the SER. Best available control technology (BACT) “means an emissions limitation (including a visible emissions standard) based on the maximum degree of reduction for each regulated NSR pollutant which would be emitted from any proposed major stationary source or major modification which the Director, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combination techniques for control of such pollutant. In no event shall application of BACT result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60 and 61.”

BACT results in a specific emission limitation based on the maximum degree of reduction for each pollutant and emission unit, on a case-by-case basis, taking into account technical feasibility, energy, environmental, and economic impacts. The case-by-case BACT determination results from an analysis referred to as a “top down” analysis.

The “top down” analysis required for BACT involves the identification of all applicable control technologies in order of effectiveness. The review is then conducted beginning with the “top”, or most effective emission control and/or reduction technology to determine if the technology is technologically, environmentally, and economically feasible. If the analysis reveals that a technology is not feasible based on any of these criteria, the next most effective control technology is then evaluated in the same manner. This is continued until the control technology under consideration cannot be eliminated based on technological feasibility, environmental impacts, or economics. This control technology is then proposed as BACT.

The top down BACT approach must not only look at the most stringent emission limits previously approved, but it also must evaluate all demonstrated and potentially applicable technologies, including innovative controls, lower polluting processes, etc. These technologies and emission limits are generally identified through a review of the EPA RACT/BACT/LAER Clearinghouse (RBLC). If the proposed BACT is equivalent to the most stringent emission limit (top), no further analysis is necessary. However, if the most stringent emission limit is not

selected, additional analyses are required. Any decision to require a lesser degree of emissions reduction must be justified by an objective analysis of “energy, environmental, and economic” impacts, as described previously.

The five basic steps involved in the “top down” BACT analysis are listed below:

- Step 1. Identify Available Control Technologies
- Step 2. Eliminate Technically Infeasible Options
- Step 3. Rank Remaining Control Technologies by Control Effectiveness
- Step 4. Evaluate Most Effective Controls Based on Energy, Environmental, and Economic Impacts
- Step 5. Select BACT and Document the Selection as BACT

If due to technological or economic limitations to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.

1. VOC BACT REVIEW

Not only is solvent recovery cost effective for this type of facility, it is required to keep competitive. Collection and control of solvent loss is an important part of the process. The primary purpose of the mineral oil scrubber is to reduce production costs and the cost savings from the solvent recovery far exceed the cost of the mineral oil scrubber. This type of facility is typically operated with a mineral oil scrubber. Therefore, any collection and recovery equipment up to and including the mineral oil scrubber is considered inherent process equipment.

In reviewing the Maximum Achievable Control Technology (MACT) standard (Subpart GGGG) for vegetable oil production facilities, the EPA identified the following nine emission points:

- Exhaust from the mineral oil absorber system;
- Exhaust from the meal dryer vent;
- Exhaust from the meal cooler vent;
- Residual losses from crude meal;
- Residual losses from equipment leaks;
- Solvent storage tanks;
- Process wastewater collection; and
- Process startup/shutdowns.

In developing the MACT, the EPA stated that it was not practical from a cost standpoint to quantify losses of HAPs from the individual emission points. However, total HAP emissions from the entire source could be determined using records of deliveries and inventories of solvent and oilseed. As a result, the regulatory format for the MACT was selected as an emission limit expressed in terms of gallons of HAP lost per ton of oilseed processed. The EPA also

investigated the differences in meal solvent retention among oilseed types and process operations, which affect the lowest achievable level of HAP emissions. The MACT standard established the following emission limits:

Allowable Hexane Loss for Type of Oil Seed Processed

Oil Seeds	Hexane Lost (gal/ton seeds)
Corn Germ, Dry Milling	0.7
Cotton Seed	0.4
Peanut	0.7
Canola (Rapeseed)	0.3
Safflower	0.7
Sunflower	0.3

While not requiring a specific control technology, the MACT standard did not exclude the use of any pollution control or prevention techniques which would assist a source in complying with the HAP emission limits. The rule was structured to offer each source the flexibility of complying with an overall HAP emission limit for the entire source, instead of requiring a specific means of control for specific emission points. It is the responsibility of each affected source to identify and develop its own unique set of techniques to demonstrate compliance with the HAP emission limits. Therefore, the overall HAP emission limit format of the MACT allows each source to develop a compliance plan that is the most cost effective and appropriate for that source.

This BACT determination will follow that same ideology as did most of the determinations on the RACT/BACT/LAER Clearinghouse (RBLC). Based on a review of the RBLC there have been several PSD determinations for various vegetable oil facilities in the past ten years. PSD determinations for non-canola vegetable oil extraction plants are not appropriate for making a PSD compliance determination as each type of plant will have various solvent loss ratios. The Northstar Agri facility is proposing a limit of 0.29 gallons/ton of seed processed. Even though there will be VOC emissions from other sources not specifically related to the handling and usage of the solvent, these emissions are insignificant compared to the emissions from solvent handling and usage. This facility will have emissions of VOC of approximately 641 tons/year.

After review of BACT, a facility-wide emissions limit of 0.29 gallons/ton of seed is being proposed to simplify the permit and to also comply with the applicable MACT limit of 0.3 gallons/ton of seed. Most of the control technologies were determined to be either technically or economically infeasible.

In the following review, each of the individual sources within the vegetable oil extraction process is addressed separately in each step of the process, since the control devices for the sources are similar.

Step 1 - Identify Control Technologies

Northstar Agri Industries has identified technically feasible control technologies and emissions data through a review of EPA’s RACT/BACT/LAER Clearinghouse (RBLC).

Potential VOC Control Technologies

VOC/Hexane	Oxidation/RTO
	Biofiltration
	Carbon Adsorption
	Condensers
	Condensers/Oil Absorption

Step 2 – Eliminate Technically Infeasible Options

Due to the issues in the discussions below, Oxidation/RTO, Biofiltration, and Carbon Adsorption have been determined to be technically infeasible for most of the facility’s processes. Additional technically infeasible determinations are included below for specific processes.

Oxidation/RTO

Oxidation systems such as regenerative thermal oxidizers (RTOs) are not used to control VOC emissions in oilseed oil extracting facilities for both technical and safety reasons. The mineral oil scrubber exhaust will include a small amount of oil in aerosol form. The aerosol oil will likely cause carbonization and degradation of packing in an RTO which will result in a lower heat transfer efficiency. Therefore, an RTO on the outlet of the mineral oil absorber to control VOC emissions is technically infeasible. Second, the exhaust from the meal dryer/cooler will include PM₁₀. The packing material and the inlet screen in the regeneration system of an RTO are susceptible to plugging by particulate matter. The plugging will cause the RTO to malfunction. Therefore, an RTO to control VOC emissions for the meal dryer/cooler is technically infeasible. In addition to the technical infeasibility of an RTO, RTOs and incinerators are not feasible for safety reasons. The National Fire Protection Agency (NFPA) standards for solvent extraction plants require that any flame operations, such as RTOs, be located at least 100 feet from the process area. These standards also require potential ignition sources be equipped with approved devices to prevent flashbacks into the process area. The inherent potential presence of fugitive hexane vapors at the plant and the presence of an open flame from an RTO present an unacceptable risk of explosion and fire hazard.

In addition to possible fugitive hexane vapors, variations in flow and solvent concentrations during normal operation, normal shutdown procedures, process upsets, and malfunctions may result in near Lower Explosive Limit (LEL) conditions in the vent exhaust and increase the risk of explosion. Furthermore, no applications of this type at solvent extraction plants have been demonstrated. After consideration of the safety and technical feasibility concerns and a cost analysis prepared in conjunction with the MACT standard, it is not appropriate to consider RTO/incineration as BACT at this point in time.

Biofiltration

The application of the biofiltration technology outside of the bench-scale and pilot plant operations has been limited. There is no methodology or theory established to design for or predict the destruction efficiency that could be achieved for Northstar Agri’s proposed new oilseed plant. A biofilter system is dynamic, since the system continually changes with alterations in the microbial growths it contains. Knowledge of the behavior of these dynamic systems over extended operating periods is not available. Thus, there is no basis from which the long-term reliability of the system could be established.

At this stage in its development, the application of biofiltration for control of the hexane in the mineral oil absorber and meal dryer/cooler exhaust stream would be technically infeasible, primarily due to the large gas flow rate to be treated. Destruction efficiencies in biofilter systems are largely governed by gas residence time in the biofilter bed and the degradability of the contaminant to be treated. Hexane does have a relatively high degree of biodegradability. However, the bed volume would have to be prohibitively large in order to provide even a five second residence time, which is the minimum suitable residence time. Since biofiltration is not a technically-proven control for hexane emissions from solvent extraction plants, this technology is eliminated from further consideration.

Carbon Adsorption

Carbon adsorption is not used to control VOC emissions in oilseed oil extraction facilities for technical and safety reasons. Carbon adsorption systems were applied rather widely to the final vent stream from solvent extraction plants in the late 1940s and early 1950s. In the late 1950s, mineral oil absorption systems began to replace carbon units. The technical issues for carbon adsorption are similar to the RTO/incineration units. The aerosol oil in the mineral oil absorber exhaust and the PM₁₀ in the meal dryer/cooler exhaust cause fouling of the carbon bed. Also, oilseeds naturally contain small amounts of sulfur compounds, which also cause fouling of the carbon bed. Although the PM₁₀ concentration in the meal dryer/cooler exhaust can be reduced by a high efficiency filtration system, the aerosol oils and sulfur compounds cannot be similarly removed.

In addition, the adsorption of hexane onto carbon is an exothermic reaction. Increases in the concentration of the inlet stream will cause additional heat to build up in the carbon bed. Under optimum conditions, the air movement through the bed will remove the heat via convection. However, if channeling occurs in the carbon bed, or if the increase in concentration is too large (as in an upset condition), the bed can overheat to the point of auto-ignition. Good design and control can eliminate overheating of the carbon bed, but during an upset or when the equipment or controls fail, overheating will result. This makes the carbon absorbers a potential source of ignition.

Although an absorber vessel would usually contain fires resulting from overheating, the vessel is directly connected to the process by duct work, which allows a flame path back to the process. The highest probability of a fire occurs in the absorber during process upsets when solvent vapor fills the duct connecting the process to the absorber. A flame front could flow back into the process from the absorber creating a fire and explosion hazard. The inherent potential presence of fugitive hexane vapors at the plant could also lead to catastrophic results. This creates an unacceptable risk of explosion. Because of these technical and safety concerns, carbon adsorption is technically infeasible and is eliminated from further consideration as BACT.

Step 3 – Rank remaining control technologies by effectiveness

The remaining control technologies will be reviewed for each source of emissions to rank the effectiveness of each technology for each type of source.

VOC Control Technology
Condensers/Mineral Oil Absorption
Condensers

Extraction Process

The extraction system includes several sources of emissions as identified in the NESHAP. The use of condensers with mineral oil absorption for a vapor recovery program will provide the greatest level of control and will be utilized at the facility. The system will achieve a VOC control efficiency of approximately 95% and will meet the proposed 0.29 gallons/ton of seed processed limitation. A condensation system would be less effective than a condensation system with the mineral oil absorption.

Dryer/Cooler

Optimizing DC Drying operation to increase solvent recovery from the meal is the only control considered technically feasible. Northstar Agri has designed the system to maximize the solvent recovery from the meal. The system will ensure that it is maximizing solvent recovery by establishment of a minimum vapor temperature of 157 °F, the boiling point of hexane, in the desolventizer-toaster.

Residual Crude Meal Emissions

Optimizing DC Drying operation to increase solvent recovery from the meal is the only control considered technically feasible. Northstar Agri has designed the system to maximize the solvent recovery from the meal. The system will ensure that it is maximizing solvent recovery by establishment of a minimum vapor temperature of 157 °F, the boiling point of hexane, in the desolventizer-toaster.

Storage Tanks

The most stringent control will be applied to the solvent storage tanks including the solvent work tank. The solvent storage tanks will be operated with a closed vent system routed to the mineral oil absorber, which is considered inherent process equipment. The other storage tanks that contain VOCs will be reviewed for control with a vapor recovery system or internal floating roofs.

Equipment Leaks

The most effective control method for equipment leaks is a maintenance program that will comply with NFPA 36 and will also allow the facility to comply with the MACT limit of 0.30 gal/ton. Since hexane gas is heavier than air, fugitive hexane emissions in the extraction building will collect below the grated floor before being vented to the atmosphere. This area will contain several hexane monitors which will be used to detect any fugitive releases. The hexane monitoring and maintenance program will include the following:

1. The facility will comply with NFPA 36 for Solvent Extraction Plants. The rule includes specific requirements to minimize fugitive emissions including the following:
 - a. Aboveground solvent pipe sections larger than 2 inches shall be welded and flanged;
 - b. Drain valves shall be provided with plugs to prevent leakage;

- c. All piping systems shall be pressure tested to not less than 1.5 times the working pressure;
 - d. Monitoring shall be performed with an approved combustible gas detection system with audible and visible alarms (See number 2);
 - e. Vapor seals shall be used to prevent the escape of solvent at the point where solids enter the system;
 - f. A vapor seal shall be used on the final discharge of material from the extraction system;
 - g. Gaskets shall be made of a material that does not decompose or soften in the presence of oil, solvent, or steam; and
 - h. There shall be no open ended lines.
2. Gas detection monitors will be installed with audible and visible alarms.
 - a. NAI will install several monitors inside and outside the extraction plant at ground level that will be used to determine if there are any fugitive emissions of hexane.
 - b. The monitors will measure the percentage of lower explosive limit (LEL). An alarm will be set for 25% of the LEL and the shutdown of the extraction plant will be triggered at 50% of the LEL. The LEL for hexane is 11,000 ppm (1.1%).
 - c. All alarms will be investigated and documented.
 3. All hexane leaks will be reported and repaired immediately.
 4. Any monitor used for measuring fugitive hexane emissions that records a concentration over 2% of the LEL (220 ppm) will be investigated and documented.
 5. All repairs will be logged in a Computerized Maintenance Management System (CMMS).
 6. Visual inspections of the area outside the extraction plant will take place once per shift.

Wastewater

Wastewater is collected from several sources, including from the solvent work tank (the work tank also functions in conjunction with a water separator) and from a vacuum condenser that receives vapor streams from several process units. Prior to discharge, wastewater is processed by an evaporator that reduces the hexane content in the wastewater. The BACT analysis will focus on solvent vapors stripped from the wastewater in the evaporator. Condensation is considered the most effective control technology, followed by recirculation/closed vent system.

Startup/Shutdown Emissions

Per 40 CFR 63.6 (e)(3)(v), Northstar Agri Industries is required to develop a Startup, Shutdown and Malfunction (SSM) plan to minimize emissions of HAP during those events. The SSM plan will describe procedures for operating and maintaining environmental controls and equipment during startup, shutdown, and periods of operation when the process equipment or solvent recovery equipment malfunctions. Since the HAP (hexane) used at the facility accounts for 88% of the VOC emissions, the SSM plan developed for compliance of the MACT standard will also ensure that VOC emissions during startup, shutdown, and malfunctions will be minimized.

Step 4 – Evaluate Most Effective Controls and Document Results

Extraction Process

The current design of the Northstar Agri facility includes an additional vent condenser (utilizing cooling water) after the initial atmospheric condenser. Also included is a chilled condenser

(using chilled water) that will increase absorber performance, particularly during periods of high ambient temperatures. While these additional condensers would be considered process equipment (since they are located before the vegetable oil absorber) and not control equipment, the use of these additional condensers results in hexane emission reductions that exceed what could be achieved with an add-on condenser.

Dryer/Cooler

Optimizing DC Drying operation to increase solvent recovery from the meal is the only control considered technically feasible. The system will ensure that it is maximizing solvent recovery by establishment of a minimum vapor temperature of 157 °F, the boiling point of hexane, in the desolventizer-toaster.

Residual Crude Meal Emissions

Optimizing DC Drying operation to increase solvent recovery from the meal is the only control considered technically feasible. The system will ensure that it is maximizing solvent recovery by establishment of a minimum vapor temperature of 157 °F, the boiling point of hexane, in the desolventizer-toaster.

Storage Tanks

Vapor Recovery

The three hexane storage tanks will be equipped with vapor recovery as part of complying with the NESHAP Subpart GGGG requirements. The fire water, soapstock, caustic, and phosphoric acid tanks do not contain VOC. The four crude oil, six refined vegetable oil, and two distillate storage tanks all contain VOC. Based on the physical parameters of the products stored, the combined emissions from the 12 tanks have been calculated to be 0.006 tons/year. Installing a vapor recovery unit on these tanks would be expected to cost well over \$100,000. Based on this estimate, the cost for effectiveness for vapor recovery is \$16,666,666/ton which is considered to be economically infeasible for BACT.

Internal Floating Roofs

The most commonly considered control technology for fixed roof tanks is the installation of internal floating roofs (IFR). IFR are listed as one of the required control devices in 40 CFR Part 60, NSPS, Subpart Kb. Using a conservative estimate of \$50,000 per tank for an IFR the total cost to install IFR on the 12 tanks would be \$600,000. Based on the calculated emissions of 0.006 tons/year and an emission reduction of 98%, the cost effectiveness of IFR is greater than \$102,000,000/ton which is not economically feasible.

Equipment Leaks

A PSM and MOC program in conjunction with a CMMS will be used to monitor, track, investigate, and log hexane concentrations in and around the solvent extraction plant. Additional equipment standards will make up the leak detection and repair program for the facility. Details of the program are covered in Step 3.

Wastewater

Condensation is the most effective and feasible option. Overhead vapors from the wastewater evaporator will be collected and vented through vapor recovery system condensers.

Startup/Shutdown Emissions

A SSM plan will be developed for compliance with the MACT standard. This plan will ensure that VOC emissions during startup, shutdown, and malfunctions will be minimized.

Combustion Equipment

Northstar Agri proposes using good combustion practices along with only combusting clean fuels for the combustion equipment. Good combustion practices for the boilers will combine operational and combustion design elements to control the amount and distribution of excess air in the flue gas to ensure enough oxygen is present for complete combustion. The good combustion practices for the boilers will also include the installation of economizers, insulation, oxygen trim control, energy capture of boiler blowdown, and a condensate return system. Good combustion practices are technically feasible and are generally considered the baseline control technology.

Step 5 – Select BACT

Extraction Process

BACT for the vegetable oil production process is use of additional process condensers and the mineral oil absorber to meet an emission limit of 0.29 gallons/ton of seed processed. There is only one other BACT determination listed on the RBLC which is 0.30 gallons/ton of seed processed.

Dryer/Cooler

Optimizing DC Drying/Cooling Deck operation to increase solvent recovery from the meal is the only control considered technically feasible.

Residual Crude Meal Emissions

Optimizing DT operation to increase solvent recovery from the meal is the only control considered technically feasible.

Storage Tanks

BACT for the hexane storage tanks is the installation of a vapor collection system which will be vented to the mineral oil condenser and meeting the emission limit of 0.29 gallons/ton of seed processed. BACT for the remaining storage tanks that contain VOC will be no control and the allowable emissions from the tanks.

Equipment Leaks

A PSM and MOC program in conjunction with a CMMS will be used to monitor, track, investigate, and log hexane concentrations in and around the solvent extraction plant. Additional equipment standards will make up the leak detection and repair program for the facility.

Process Wastewater Emissions

BACT for wastewater will be optimizing operation of the wastewater evaporator to reduce solvent losses in the wastewater and venting the evaporator emissions to the solvent recovery system.

Startup/Shutdown Emissions

BACT for startup/shutdown emissions will be compliance with the SSM plan developed for compliance with the MACT standard.

Combustion equipment

Proper operation and good combustion practices is considered BACT for the natural gas-fired boilers and the diesel-fired fire pump engines. This is equivalent to other BACT determinations listed on the RBLC.

Below is a summary of the control technology selected as BACT for VOC.

Control Technology Summary

Source	Control Technology	Emission Limit
Extraction Process	Condensation with Mineral Oil Scrubber	0.29 gallons/ton of seed processed
Pellet Dryer/Cooler	Optimization of DT Operation ¹	
Residual Crude Meal	Optimization of DT Operation ¹	
Solvent Storage Tanks	Closed Vent System to Mineral Oil Scrubber	
Equipment Leaks	Process Safety Management Program	
Wastewater Evaporator	Closed Vent System to Mineral Oil Scrubber	
Startup/Shutdown	MACT Startup/Shutdown/Malfunction Plan	
Combustion Equipment	Good Combustion	N/A

¹ - Involves monitoring of the DT operation.

2. PM₁₀/PM_{2.5} BACT REVIEW

The PM₁₀/PM_{2.5} BACT analysis concluded the following:

- Fabric filter dust collectors that achieve an outlet grain loading for PM₁₀/PM_{2.5} of approximately 0.005 grains per dry standard cubic feet (gr/DSCF) are considered BACT for emission units with dry exhaust streams.
- High efficiency cyclones that achieve an outlet grain loading for PM₁₀ of 0.01 gr/DSCF and for PM_{2.5} of 0.005 gr/DSCF are considered BACT for emission units with high moisture content exhaust streams.
- BACT for the combustion equipment at the facility is being proposed to be the use of clean fuels in the process boilers, refinery steam generator, and fire pump. Natural gas will be used in the process boilers and refinery steam generator and ultra-low sulfur diesel fuel will be used in the emergency use fire pumps.
- BACT for all roadways at the site is being proposed as paving the roadways.

Northstar Agri performed a review of the RACT/BACT/LAER Clearinghouse (RBLC) for an expansion of their facility in Hallock, Minnesota. A review of the RBLC determined that there were no additional PSD determinations made for particulate emissions at vegetable oil extraction plants. Below is the top-down approach for identifying BACT for the particulate emission sources at the facility.

Step 1 - Identify Control Technologies

Northstar Agri Industries identified the following particulate control technologies to potentially consider as BACT for the primary processes at the facility.

- Fabric Filter (99%+)
- Venturi Scrubber (90-99%)
- Wet Scrubber (20-99%)
- High Efficiency Cyclone (80-95%)
- Medium Efficiency Cyclone (50-85%)
- Low Efficiency Cyclone (10-50%)

For the haul roads at the facility, the following emission minimization options were considered.

- Paving (~94%)
- Class "A" Crushed Limestone (~92%)
- Gravel with oiling (68-88%)
- Gravel with wetting (40-60%)

For the combustion sources at the facility (process boilers, refinery steam generator, and fire pump), the following control equipment was considered.

- Fabric Filter
- Wet Scrubber
- High Efficiency Cyclone
- Electrostatic Precipitator

Step 2 – Eliminate Technically Infeasible Options

Due to the issues in the discussions below, fabric filters have been determined to be technically infeasible for emission sources that have high moisture exhaust streams. Additional technically infeasible determinations are included below for specific control options.

Fabric Filters

For dry exhaust streams, fabric filters have been identified as being feasible control options.

Bag filter style dust collection systems are not practical for aspiration streams which involve warm moist air (seed conditioning, flaking, cooking, cake cooling, and meal drying/cooling). Due to high dew points in these exhaust streams, there is the potential for condensation to occur on the inside surfaces of the baghouse along with the potential for condensation to occur on or within the filter socks. This condensation has the potential for blinding the filter socks, reducing air flow to the point of requiring a system shutdown. Because of this and the other reasons, fabric filters have been determined to be technically infeasible for the control of aspiration streams that exhaust warm moist air.

For the haul roads all of the identified emission minimization methods have been identified as technically feasible.

For the combustion equipment all of the identified control options will have relatively low capture efficiencies due to small particle sizes from the combustion of clean fuels. AP-42 (7/98), Section 1.4 for external combustion of natural gas states that particulate matter from natural gas combustion is expected to be less than 1 micrometer in diameter (PM₁). AP-42 (1/95), Appendix B.2 also states that particulate emissions from diesel combustion engines will contain greater than 90% of PM_{2.5} and greater than 82% of PM₁. Because of the low capture efficiencies for control equipment used to capture emissions from the combustion of clean fuels, all identified control options have been determined to be technically infeasible.

Step 3 – Rank remaining control technologies by effectiveness

The remaining control technologies will be reviewed for each source of emissions to rank the effectiveness of each technology for each type of source.

- Fabric Filters (99%+)
- High Efficiency Cyclone (80-95%)
- Medium Efficiency Cyclone (50-85%)
- Low Efficiency Cyclone (10-50%)
- Venturi Scrubber (90-99%)
- Wet Scrubber (20-99%)

Fabric Filters (99%+)

A fabric filter separates dry particles from a gas stream by filtering the exhaust stream through the filter. The material being filtered accumulates on the fabric. Filters in baghouses can be cleaned using several different methods including reverse air, pulse-jet air, and mechanical shakers. Particles removed from the bags drop and are collected in hoppers below the filter bags. A well-maintained fabric filter system can remove greater than 99% of the incoming particulate matter. Fabric filters (baghouses) are the most effective method of controlling emission from dry exhaust streams and will be used to control particulate emissions from the dry exhaust streams.

High Efficiency Cyclone (80-95%)

Cyclones are mechanical separators that are designed to spiral the exhaust gas in the cylindrical section of the cyclone. The particles move outward from the center due to the centrifugal force until they hit the body of the cyclone. The particles are then caught in the thin laminar layer of air next to the wall and are carried downward due to gravity. High efficiency cyclones will be used to collect product from all aspiration streams with high moisture contents.

Medium Efficiency Cyclone (50-85%)

Medium efficiency cyclones are designed with different dimensions than high efficiency cyclones and can provide a capital cost savings as compared to high efficiency cyclones. Medium efficiency cyclones will not be used at the proposed facility.

Low Efficiency Cyclone (10-0%)

Low efficiency cyclones are designed with different dimensions than high efficiency cyclones or medium efficiency cyclones and can provide a capital cost savings as compared to high or medium efficiency cyclones. Low efficiency cyclones will not be used at the proposed facility.

Venturi Scrubber (~90-99%)

A venturi scrubber uses the differential between high velocity gases and free-flowing water to create droplets which entrap contaminants and hold them in suspension and then deliver them to a slurry. The venturi scrubber utilizes a non-plugging method of introducing scrubbing liquids which does not result in plugging of nozzles. Venturi scrubbers can achieve up to 99% removal rates based on the particle size distribution of the incoming materials. For the aspiration exhaust streams, the majority of the large particles will have already been collected by the process cyclones which will result in a smaller particle size entering the scrubber. This smaller particle size will result in a lower removal rate.

Impingement Plate Scrubber (~20-99%)

An impingement plate scrubber uses a perforated plate with impingement baffle strips to collect particulates. Impingement plate scrubbers can achieve 99% removal rates based on the particle size distribution of the incoming materials. For the aspiration exhaust streams, the majority of the large particles will have already been collected by the process cyclones which will result in a smaller particle size entering the scrubber. This smaller particle size will result in a lower removal rate.

For the haul roads, the paving is classified as the most effective emission minimization method.

Since all of the control options for the combustion of clean fuels have been determined to be technically infeasible the control options cannot be ranked.

Step 4 – Evaluate Most Effective Controls and Document ResultsFabric Filters (99%+)

Fabric filters (baghouses) are the most effective method of controlling emissions from dry exhaust streams and will be used to control particulate emissions from the dry exhaust streams. The fabric filters are expected to meet an outlet grain loading of 0.005 gr/DSCF.

High Efficiency Cyclone (80-95%)

High efficiency cyclones are the most effective method of controlling emissions from warm moist exhaust streams and will be used to control particulate emissions from the aspiration streams. Northstar Agri has had a cyclone supplier analyze the powder at their facility in Hallock, Minnesota to determine an estimated efficiency of the cyclones for various exhaust streams. It is expected that the high efficiency cyclones will meet an outlet grain loading for PM₁₀ of 0.013 gr/DSCF and for PM_{2.5} of 0.005 gr/DSCF.

Scrubbers (61.5%)

NAI believes that scrubbers are not feasible or practical to control PM emissions on aspiration streams with high moisture contents (seed conditioning, flaking, cake cooking, and meal drying/cooling). Wet scrubbers do have maintenance issues when used to control PM emissions on aspiration streams with high moisture contents (seed conditioning, flaking, cake cooking, and meal drying/cooling). Some types of wet scrubbers have a tendency to have plugged nozzles at the liquid discharge point which leads to process downtime and maintenance issues.

The applicant evaluated two types of scrubbers for reducing PM emissions venturi and impingement scrubbers. NAI also evaluated combining gas streams and calculated the cost feasibility based on these combined gas streams. However, only two streams were determined to be able to be evaluated for combined control (SV006 & SV025). The combined air flow from these two gas streams will be 55,500 ACFM. Based on information received from the scrubber manufacturer, the largest venturi or impingement scrubbers can only treat around 50,000 ACFM. They indicated that air flows greater than this would be required to be split among multiple units. Based on the information provided, the total capital investment for a venturi scrubber is \$754,415. The annualized cost was estimated from standard EPA Control Cost Manual factors. The cost effectiveness for streams SV006, SV007, SV008, and SV025 was estimated between \$24,014 and \$45,835 per ton of PM₁₀ removed and even higher per ton for PM_{2.5}. Therefore, use of a venturi scrubber was determined to not be cost effective and was removed from consideration. Based on the information provided, the total capital investment for an impingement scrubber is \$811,065. The annualized cost was estimated from standard EPA Control Cost Manual factors. The cost effectiveness for streams SV006, SV007, SV008, and SV025 was estimated between \$21,314 and \$42,336 per ton of PM₁₀ removed and even higher per ton for PM_{2.5}. Therefore, use of an impingement scrubber is not cost effective and it is therefore removed from consideration.

Based on the expected outlet particulate concentrations from the high efficiency cyclones, wet scrubbers would have a relatively low control efficiency (61.5%). Use of the cyclones is considered inherent to the process in order to collect meal which is fed back into the process. For the level of control, wet scrubbers have a relatively high cost of installation and operation. Because of the high relative costs and documented maintenance issues, wet scrubbers were not proposed for the facility.

Combustion Equipment

Northstar Agri proposes using good combustion practices along with only combusting clean fuels for the combustion equipment. Good combustion practices for the boilers will combine operational and combustion design elements to control the amount and distribution of excess air in the flue gas to ensure the enough oxygen is present for complete combustion. The good combustion practices for the boilers will also include the installation of economizers, insulation, oxygen trim control, energy capture of boiler blowdown, and a condensate return system. Good combustion practices are technically feasible and are generally considered the baseline control technology.

For the haul roads, paving is the most effective control option and is expected to reduce particulate emissions by approximately 94%.

Step 5 – Select BACT

Processes with dry exhaust streams

BACT for the processes that have dry exhaust streams is use of fabric filters (baghouses) to control particulate emissions to an emission limit of 0.005 gr/DSCF. This is equivalent to other BACT determinations listed on the RBLC.

Processes with warm moist exhaust streams

BACT for the processes that have warm moist exhaust streams is use of high efficiency cyclones to control particulate emissions to an emission limit of 0.013 gr/DSCF for PM₁₀ and 0.005 gr/DSCF for PM_{2.5}. This is equivalent to other BACT determinations listed on the RBLC.

Haul Roads

BACT for the haul roads is paving the haul roads to control emissions of PM. This is considered the highest level of control.

Combustion Equipment

Northstar Agri proposes using good combustion practices along with only combusting clean fuels (Natural gas & Ultra Low Sulfur Diesel) for the combustion equipment. The fire pump engines have to comply with the PM emission limits in NSPS, Subpart IIII of 0.15 g/hp-hr. This is equivalent to other BACT determinations listed on the RBLC.

Cooling Tower

BACT for the cooling tower is use of drift eliminators that maintain an average drift of less than 0.006%. This is equivalent to other BACT determinations listed on the RBLC.

3. GHG BACT REVIEW

The GHG BACT analysis concludes the following:

- The 95 MMBTUH process boilers will have the following GHG emission minimization options:
 - Economizers;
 - Insulation;
 - Oxygen Trim Control;
 - Energy Capture From Boiler Blowdown; and
 - Condensate Return System.
- The 5 MMBTUH refinery steam generator will be operated as indicated by manufacturer operating and maintenance procedures.
- Since the fire pump engines are emergency use only they will not have any GHG minimization options. However, the proposed engines will be the most efficient units offered by the manufacturer in this horsepower range and service class in order to achieve the emission standards under 40 CFR Part 60, NSPS, Subpart IIII. Accordingly, proper operation of the proposed diesel-fired engines, compliant with Subpart IIII, Tier III emissions standards, is proposed as BACT.

Step 1 - Identify Control Technologies

Northstar Agri Industries has identified the following GHG emission reduction techniques to consider for BACT for the process boilers and refinery steam generator.

- Economizer;
- Insulation;
- Oxygen trim control;

- Energy capture from boiler blowdown;
- Condensate return system; and
- Geologic carbon capture and storage.

Step 2 – Eliminate Technically Infeasible Options

Geologic carbon sequestration is not yet commercially available and appropriate geologic formations have not been proven for long-term underground storage in the vicinity of the facility. In addition, potential environmental impacts that could result from sequestration have not been evaluated and would require further study. Therefore, geologic sequestration is not considered to be a technically feasible control option at this time and is therefore eliminated from further consideration in this analysis.

In addition, since sequestration is not yet commercially available, it is not possible to accurately estimate control costs. Use of alternative fuels, or fuel switching, is a control option that would typically be considered in the top-down CO_{2e} BACT analysis. Combustion of natural gas produces less GHG emissions per unit of energy than other fossil fuels. For CO_{2e}, the resulting BACT for the process boilers and refinery steam generator is efficiency and good work practices.

Step 3 – Rank remaining control technologies by effectiveness

The only remaining GHG emission reduction methods to consider all involve increasing the efficiency of the combustion equipment. Northstar Agri has elected to utilize all of the remaining identified emission reduction techniques to reduce GHG Emissions.

Step 4 – Evaluate Most Effective Controls and Document Results

Since it was determined that using carbon to capture and store GHG emissions is an emerging technology and yet to be proved to be cost effective this control option is not being considered. All of the remaining emission reduction options have varying degrees of emission reductions. Since Northstar Agri has elected to utilize all of the emission reduction options for the 95 MMBTUH process boilers they have not been ranked in regards to the most effective. After utilization of the identified emission reduction techniques, the process boilers will reduce the amount of heat input per work output.

Step 5 – Select BACT

For the purpose of the BACT analysis, GHG is assumed to be composed primarily of CO₂, with much smaller quantities of CH₄ and N₂O. Under EPA's new guidelines for GHG BACT, the typical top-down analysis approach is to be followed. However, CO₂ is not typically feasible to control and the available control options focus on potential improved process efficiency, leading to improved fuel efficiency, rather than end-of-stack types of control systems. BACT for the 95 MMBTUH process boilers include the following GHG emission minimization options to meet an emission limit of 146 lb CO_{2e}/1,000 lb steam produced on a 30 day rolling average:

- Economizers;
- Insulation;
- Oxygen Trim Control;
- Energy Capture From Boiler Blowdown; and
- Condensate Return System.

The steam produced is at 150 psig and 750°F.

Use of an economizer, added insulation, oxygen trim control, energy capture from boiler blowdown, and a condensate return system for the 5 MMBTUH boiler is not cost effective due to its size and was removed from consideration. BACT for the 5 MMBTUH refinery steam generator is implementation of good combustion practices as indicated by manufacturer operating and maintenance procedures.

BACT for the diesel-fired engines is proper operation and compliance with NSPS, Subpart III, Tier III emissions standards.

B. Air Quality Impacts

For any pollutant exceeding its PSD significant emission rate (SER) as part of a new construction, a PSD air quality impact analysis is required to demonstrate compliance with any applicable ambient air quality standards established for that pollutant. The allowable GHG, VOC, PM₁₀, and PM_{2.5} emissions from this project exceed the SER. Air quality impacts from GHG emissions are not required to be modeled. EPA regulates VOC as precursors to tropospheric ozone formation.

Ozone is unique because the EPA has not established a significant impact level (SIL) (an ambient concentration expressed in either µg/m³ or ppmv) for ozone or a significant monitoring concentration (SMC). However, a net emission increase of 100 TPY or more of VOC or NO_x would require an ambient impact analysis, including gathering of ambient air quality data.

Comparison of Emission Increases to Monitoring Exemption Levels

Pollutant	Exemption Level	Ambient Impacts
VOC or NO _x	100 TPY	641 TPY VOC/38 TPY NO _x

Since, VOC emissions are greater than the 100 TPY monitoring significance level. Ozone pre-construction monitoring is required. The Seiling and OKC North monitoring sites located 109 km WSW and 93.5 SSE of the facility are sufficiently representative of the area in lieu of pre-construction monitoring.

2009-2011 3 YR AVG	40-043-0860	40-109-1037
Ranking	Concentration (ppb)	Concentration (ppb)
First High	60.69	64.14
Second High	57.57	61.94
Third High	57.14	61.50
Fourth High	56.26	60.86

Methods for evaluating single source impacts on ozone concentrations are not consistent, due to the lack of availability of data at a refined level, readily available tools and EPA guidance. DEQ has evaluated the impact of the proposed construction of Northstar’s Enid facility using an existing air quality database generated for a SIP evaluation and the CAMx photochemical modeling system.

Oklahoma entered into Early Action Compact (EAC) agreements with EPA for the Tulsa and Oklahoma City metropolitan areas. Photochemical modeling evaluations were prepared in support of the agreements. These evaluations were conducted in accordance with EPA guidance and underwent an extensive public comment process and EPA review. The modeling was based on a two week episode beginning in Mid-August of 1999 and extending through the first week of September 1999. This episode was chosen both by virtue of being a prolonged period of high ozone concentrations and a reflection of the most common meteorological conditions that spawn high concentrations for Tulsa and Oklahoma City.

Modeling for Northstar's Enid facility was conducted using the EAC 2007 control case. Emissions to be modeled were calculated by adding the future potential increases identified in the application to the 2007 grown emissions. The primarily hexane emissions were further speciated for chemistry used in the EAC modeling.

Maximum impacts from the proposed increases occur in Garfield County. A maximum 8-hour increase of 8 parts per trillion (ppt) was predicted. Based on current monitoring data (61 ppb) combined with the predicted impacts from the facility (8 ppt), the facility will not cause or contribute to a violation of the NAAQS (75 ppb).

The PM₁₀/PM_{2.5} impact assessment used the AERMOD model which is the current model established by the EPA as a guideline "Preferred/Recommended model" for completing air quality modeling analyses required for new source construction permits regulated under PSD. The AERMOD model is a Gaussian plume dispersion model, which accounts for multiple source impacts, building downwash influences, adjustments for elevated terrain, and other required features to evaluate the impact of new or existing industrial sources. This modeling analysis used the current EPA AERMOD model version 12345. The Lakes Environmental graphical user interface (GUI) AERMOD View, Version 8.10 (updated in January 2013) was used to help expedite model data entry and help assure accuracy of model setup.

Area Maps and Facility Plot Plans

A facility plot plan was provided which included a clearly marked scale, property lines, fence lines, and downwash structures. Additionally, area maps and aerial photos were provided along with drawings developed by the AERMOD model. The AERMOD output shows the location of point sources, process fugitive sources, buildings and roadway fugitive emissions, and receptor points. The isopleth concentration lines with UTM coordinates were also included.

Receptor Grid

The receptor grid was a nested cartesian grid with uniform spacing: 100 m out to 1 km, 200m out to 2 km, 500 m out to 5 km, and 1 km out to 10 km. The discrete receptors were then reviewed for fence locations and those not located in ambient air were deleted. The same receptor grid was used for all parts of the analysis. Fence lines and rail corridors that are patrolled for trespassers are considered to be barriers that define areas that are not ambient air. From a practical perspective a complete receptor grid is developed, with required 100 m spacing (per DEQ guidelines) then areas encircled by such barriers are excluded (receptor point removed from the receptor set).

Land Use

Land use evaluation showed that the area is predominantly rural, although some areas to the west have some urban features. The Auer Land-use analysis looked at the land use inside of a circle with a 3 km radius from the proposed source center. More than 50% of the area is rural and the project is therefore modeled as rural.

Terrain

Terrain was considered for all cases. This is accomplished by running the AERMAP function within the AERMOD model. The AERMAP function used terrain data stored by USGS in the NED database. This is the preferred EPA data source. Related terrain adjustments were consistently used for buildings, sources and receptors.

Reference UTM Coordinates and Locations

The stack locations and centroids of the fugitive sources were identified in the modeling input parameters. Stack locations were identified directly from the distances to the north and west fence lines provided by NAI. The fences were then referenced against a reference point with USGS UTM Coordinates available from an aerial photograph for the area. The intersection of Willow Street with 66th street was the reference point.

The drawings provided by NAI included a schedule with specific buildings including the building heights. These buildings were referenced against all structures shown on the plot plan and reviewed to be complete. The building horizontal dimensions were determined from the scaled drawing and the southwest building corners were located and entered into the input files. All data were converted to UTM coordinates, consistent with that used by the source and receptors. The elevations for structures, stack base, and receptors were all determined using AERMAP with values based on USGS NED data.

Background Concentrations & Pre-construction Monitoring

The background concentrations, based on available regional monitoring sites, were provided by AQD. The amount of monitoring sites and the number of years of data available was reviewed as acceptable and no new monitoring was required. These background concentrations were added to the modeled concentrations to determine the total impact.

Source Data

In all cases the emission rates and stack gas flow rates and temperatures were identified based on maximum capacity (potential or allowed conditions). There was no consideration for emission variation on a daily, monthly, or seasonal scale.

Meteorological Data

Meteorological data obtained from the ODEQ was used for the modeling analysis. Integrated Surface Hourly (ISH) meteorological data from the Enid Woodring Regional Airport (KWDG - Station # 723536-53986) was used for years 2006, 2008, 2009, and 2010. For 2007, ISH meteorological data from Guthrie Airport (KGOK - Station # 723537-53913) was used. For all meteorological years (2006 to 2010), upper air data from the OU Max Westheimer Airport, (KOUN - Station # 3948) was used. For all meteorological years, 5-minute average

meteorological data from the Breckenridge Oklahoma Mesonet Site (14) was incorporated as on-site data. Oklahoma Mesonet data was provided to the ODEQ courtesy of the Oklahoma Mesonet, a cooperative venture between Oklahoma State University and the University of Oklahoma and supported by the taxpayers of Oklahoma.

Significant Impact Modeling

The significant impact modeling analysis can limit the amount of modeling needed if the impacts from the project do not exceed the SIL. The impacts from the facility are shown below in comparison with the SIL and SMC.

Significant Monitoring Concentrations (SMC)

		SMC	Impact ¹
Pollutant	Averaging Period	µg/m ³	µg/m ³
PM ₁₀	24-Hour ²	10	21.1
PM _{2.5}	24-Hour ²	4	7.5

¹ - Impacts were based on the highest first high (H1H) concentration.

² - Based on a five year average of the H1H daily maximum.

On January 22, 2013, a decision by the United States Court of Appeals for the District of Columbia Circuit vacated the current EPA SMC for PM_{2.5}, finding that the EPA was precluded from using the PM_{2.5} SMCs to exempt permit applicants from the statutory requirement to compile preconstruction monitoring data. The Court also remanded the current EPA SIL for PM_{2.5} so that they could correct an error in regard to use of the SIL.

Significant Impact Levels (SIL)

		Class II	Impacts ¹	Class I	Impacts ²
Pollutant	Averaging Period	µg/m ³	µg/m ³	µg/m ³	µg/m ³
PM ₁₀	Annual ³	1.0	3.7	0.20	0.05
	24-Hour ⁴	5.0	21.1	0.30	0.60
PM _{2.5}	Annual ⁵	0.3	1.1	0.06	0.02
	24-Hour ⁴	1.2	7.5	0.07	0.19

¹ - Highest first high (H1H) concentration in modeling domain.

² - Highest concentration at edge of the domain (10 km) in the direction of the nearest Class I area.

³ - Highest annual mean concentration.

⁴ - Five year average daily maximum concentration.

⁵ - Five year average of the annual weighted averages of the 24-hour average concentration.

NAAQS & Increment Modeling

The specific procedures related to meet PSD analysis requirements were reviewed for use in this modeling study. Specifically, the analysis included the following:

PM₁₀ / PM_{2.5} NAAQS

NAAQS modeling was completed of the proposed sources at NAI (including process fugitive sources, stack-vented (point) sources and roadway fugitive dust emissions), as well as other nearby sources. The nearby sources were provided by the AQD. The nearby sources were selected to be of sufficient size and proximity to likely cause a significant

concentration gradient in the vicinity of the project source or in the areas of high impacts associated with the project source. The modeling for the NAAQS included an extensive cluster of 96 sources. The number of relevant nearby sources for PM_{2.5} was somewhat smaller than that for PM₁₀ and in all cases the emissions were lower reflecting the smaller PM_{2.5} fraction.

National Ambient Air Quality Standards (NAAQS)

	Averaging	NAAQS	Impact	Background¹	Total
Pollutant	Period	µg/m³	µg/m³	µg/m³	µg/m³
PM ₁₀	24-Hour ²	150	66.8	47.0	113.8
PM _{2.5}	Annual ³	12	2.6	9.4	12.0
	24-Hour ⁴	35	19.9	24.6	44.5

¹ - Design values from monitor 40-109-1127.

² - Highest sixth high (H6H) of the five year average daily maximum concentration.

³ - Five year average of the annual weighted averages of the 24-hour average concentration.

⁴ - Five year average of the 24-hour average concentration.

NAI did not have a significant impact or cause or contribute at any of the receptors where there was a violation of the PM_{2.5} 24-hour NAAQS.

PM₁₀/PM_{2.5} Increment

The Class II PSD increment modeling is another analysis required for PSD analyses. The increment modeling included all of the same NAI sources along with a subset of the nearby sources. The subset of nearby sources included all sources constructed or modified after the PSD baseline was triggered for the county. Again, AQD provided the data for these sources. No background concentrations are included for increment modeling.

Increments¹

		Class II	Impacts¹	Class I	Impacts²
Pollutant	Averaging Period	µg/m³	µg/m³	µg/m³	µg/m³
PM ₁₀	Annual ³	17.0	4.0	4.0	0.21
	24-Hour ⁴	30.0	36.7	8.0	3.06
PM _{2.5}	Annual ⁵	4.0	1.1	1.0	0.02
	24-Hour ⁴	9.0	7.5	2.0	0.19

¹ - Highest second high (H2H) concentration in modeling domain.

² - H2H concentration at edge of the domain (10 km) in the direction of the nearest Class I area.

³ - Highest annual mean concentration.

C. Additional Impacts Analysis

An additional impacts analysis considering existing air quality, the quantity of emissions, and the sensitivity of local soils, vegetation, and visibility in the source's impact area was performed as part of this application. The following are addressed:

- Growth Impact Analysis
- Soil and Vegetation Impact Analysis
- Visibility Impairment Impact Analysis

Growth Impact Analysis

A growth impact analysis is intended to identify any new growth that is likely to occur in support of the proposed facility and to estimate emissions resulting from that associated growth. Associated growth includes residential and commercial/industrial growth resulting from the new facility. Residential growth is dependent on the number of new employees and the availability of housing in the area, while associated commercial and industrial growth consists of new sources providing services to the new employees and the facility. Northstar Agri expects that no additional residential and commercial/industrial growth will result from the proposed facility since the facility will be located in an area that has an available population to supply employees and the area is currently commercially/industrially developed.

Soil And Vegetation Analysis

The effects of gaseous air pollutants on vegetation may be classified into three rather broad categories: acute, chronic, and long-term. Acute effects are those that result from relatively short (less than 1 month) exposures to high concentrations of pollutants. Chronic effects occur when organisms are exposed for months or even years to certain threshold levels of pollutants. Long-term effects include abnormal changes in ecosystems and subtle physiological alterations in organisms. Acute and chronic effects are caused by the gaseous pollutants acting directly on the organism, whereas long-term effects may be indirectly caused by secondary agents such as changes in soil pH.

VOC are regulated by the EPA as precursors to tropospheric ozone. Elevated ground-level ozone concentrations can damage plant life and reduce crop production. However since Northstar Agri only emits small levels of NO_x from the boilers and comfort-heating, it is reasonable to conclude that the facility will not be a primary contributor to ozone formation and therefore will not adversely affect vegetation in the surrounding area.

Documentation of any direct effects of ozone on soils was not found during literature searches. The proposed project will not alter the pH balance of the soils in the area. Therefore, it is concluded that the increased VOC emissions from Northstar Agri will not have an adverse effect on soils in the surrounding area.

The maximum predicted concentrations of PM₁₀ and PM_{2.5} emissions from the proposed facility are less than the ambient concentrations that will result in adverse impacts on soils and vegetation.

The maximum predicted concentrations of GHG emissions from the proposed facility are not expected to have adverse impacts on soils and vegetation.

Visibility Impairment Impact Analysis

A visibility impairment impact analysis is required by PSD regulations. Any decrease in visibility is expected to be minimal since the majority of emissions are captured by process baghouses, process cyclones, or control equipment. Operation of the facility should produce a nearly non-visible plume except for condensation of water vapor under certain atmospheric conditions. The current Northstar Agri facility in Hallock, Minnesota operates with nearly non-

visible plumes except for conditions that result in the condensation of water vapor. Therefore no local visibility issues are expected. Since the Q/D ratio calculated in the Class I Impact Analysis below is less than 10, it is not expected that there will be any long-range visibility issues.

Class I Impact Analysis

Class I Areas are defined by the U.S. EPA’s New Source Review Manual as those areas of the nation that are of special natural scenic, recreational, or historic interest to the public. The closest Class I Area to the Northstar Agri facility is the Wichita Mountain Wildlife Refuge, which is located approximately 200 kilometers (km) south southwest of the facility. This Class I Area is managed by the U.S. Forest Service (FS).

Class I Area analyses examine two separate items: (1) Class I Increments and (2) Air Quality Related Values (AQRVs). Class I Increment modeling is regulated by the EPA and the AQRV are regulated by the FLM. The FLM considers a source located greater than 50 km from a Class I area to have negligible impacts with respect to Class I AQRV if it’s total SO₂, NO_x, PM₁₀, and H₂SO₄ annual emissions (in TPY), divided by the distance (in km) from the Class I area (Q/D) is 10 or less. Based on the Federal Land Managers’ Air Quality Related Values Workgroup (FLAG), *Phase I Report-Revised 2010*, the FLM would not request any further Class I AQRV impact analyses from such sources. Therefore, the FLM recommended formula Q/D<10 was used to complete the Class I impact analysis. Based on the maximum lb/hr multiplied by 8,760 hours per year, the proposed facility will have potential emissions of the following pollutants.

- SO₂: 2 TPY
- NO_x: 78 TPY
- PM₁₀: 159 TPY
- H₂SO₄: 0 TPY
- Total: 239 TPY

The only Class I area within 300 km of the affected facility was reviewed for the AQRV.

Q/D<10 Analysis

Class I Area	Quantity (TPY)	Distance (km)	Q/D	Q/D<10?
Wichita Mountains Wilderness, Oklahoma	239	200	1.2	Yes

The Q/D ratio to this area is less than 10 which indicates that the project is not expected to significantly impact any AQRV. Therefore, no further analyses are required.

For the Increment analysis, the impacts of the facility in the general direction of the Class I area were compared to the Class I SIL in the previous modeling discussion. Impacts for the project at 10 km were below the Class I SIL.

SECTION VII. INSIGNIFICANT ACTIVITIES

The insignificant activities identified and justified in the application are duplicated below. Records are available to confirm the insignificance of the activities. Any activity to which a state or federal applicable requirement applies is not insignificant even if it is included on the insignificant activities list. Appropriate recordkeeping of activities indicated below with "*" is specified in the Specific Conditions.

- Space heaters, boilers, process heaters, and emergency flares less than or equal to 5 MMBTUH heat input (commercial natural gas). The facility will have a boiler which will be rated less than or equal to 5 MMBTUH.
- * Emissions from storage tanks constructed with a capacity less than 39,894 gallons which store VOC with a vapor pressure less than 1.5 psia at maximum storage temperature. The facility has tanks that store oil which will have capacities less than 39,894 gallons and will store products having a vapor pressure less than 1.5 psia.
- * Welding and soldering operations utilizing less than 100 pounds of solder and 53 tons per year of electrodes. The facility will do welding and soldering mainly for maintenance which is a trivial activity and recordkeeping will not be required.
- * Torch cutting and welding of under 200,000 tons of steel fabricated per year. The facility will do torch cutting and welding mainly for maintenance which is a trivial activity and recordkeeping will not be required.
- Hazardous waste and hazardous materials drum staging areas. The facility will have hazardous waste and hazardous materials drum staging areas.
- * Surface coating operations which do not exceed a combined total usage of more than 60 gallons/month of coatings, thinners, and clean-up solvents at any one emissions unit. The facility coating usage should not exceed a combined total usage of more than 60 gallons/month of coatings, thinners, and clean-up solvents.
- * Activities having the potential to emit no more than 5 TPY (actual) of any criteria pollutant. Below is a list of activities that qualify and others may be used in the future.

SECTION VIII. OKLAHOMA AIR POLLUTION CONTROL RULES

OAC 252:100-1 (General Provisions) [Applicable]
Subchapter 1 includes definitions but there are no regulatory requirements.

OAC 252:100-2 (Incorporation by Reference) [Applicable]
This subchapter incorporates by reference applicable provisions of Title 40 of the Code of Federal Regulations. These requirements are addressed in the "Federal Regulations" section.

OAC 252:100-3 (Air Quality Standards and Increments) [Applicable]
Primary Standards are in Appendix E and Secondary Standards are in Appendix F of the Air Pollution Control Rules. At this time, all of Oklahoma is in attainment of these standards.

OAC 252:100-5 (Registration, Emissions Inventory and Annual Operating Fees) [Applicable]
Subchapter 5 requires sources of air contaminants to register with Air Quality, file emission inventories annually, and pay annual operating fees based upon total annual emissions of regulated pollutants. Required annual information (Turn-Around Document) shall be provided to Air Quality.

OAC 252:100-8 (Permits for Part 70 Sources) [Applicable]
Part 5 includes the general administrative requirements for part 70 permits. Any planned changes in the operation of the facility which result in emissions not authorized in the permit and which exceed the “Insignificant Activities” or “Trivial Activities” thresholds require prior notification to AQD and may require a permit modification. Insignificant activities mean individual emission units that either are on the list in Appendix I (OAC 252:100) or whose actual calendar year emissions do not exceed the following limits:

- 5 TPY of any one criteria pollutant; or
- 2 TPY of any one hazardous air pollutant (HAP) or 5 TPY of multiple HAPs or 20% of any threshold less than 10 TPY for a HAP that the EPA may establish by rule

Emissions limitations have been established based on information in the permit application.

OAC 252:100-9 (Excess Emissions Reporting Requirements) [Applicable]
Except as provided in OAC 252:100-9-7(a)(1), the owner or operator of a source of excess emissions shall notify the Director as soon as possible but no later than 4:30 p.m. the following working day of the first occurrence of excess emissions in each excess emission event. No later than thirty (30) calendar days after the start of any excess emission event, the owner or operator of an air contaminant source from which excess emissions have occurred shall submit a report for each excess emission event describing the extent of the event and the actions taken by the owner or operator of the facility in response to this event. Request for affirmative defense, as described in OAC 252:100-9-8, shall be included in the excess emission event report. Additional reporting may be required in the case of ongoing emission events and in the case of excess emissions reporting required by 40 CFR Parts 60, 61, or 63.

OAC 252:100-13 (Open Burning) [Applicable]
Open burning of refuse and other combustible material is prohibited except as authorized in the specific examples and under the conditions listed in this subchapter.

OAC 252:100-19 (Particulate Matter (PM)) [Applicable]
This subchapter specifies a PM emissions limitation of 0.6 lb/MMBTU for fuel-burning equipment with a maximum heat input of 10 MMBTUH or less. This subchapter also limits emissions of PM from fuel-burning equipment with a heat input greater than 10 MMBTUH

based on the maximum heat input of the fuel-burning equipment. The 75 MMBTUH boilers are limited to approximately 0.37 lb/MMBTU.

AP-42 (7/98), Section 1.4, lists the total PM emissions from the combustion of natural gas to be 7.6 lb/MMft³ or about 0.0075 lb/MMBTU. AP-42 (10/96), Section 3.3, lists the total PM emissions from combustion of diesel in small (<600-hp) CI-ICE to be 0.31 lb/MMBTU. The permit requires the use of natural gas in the boilers and diesel fuel in the CI-ICE to ensure compliance with Subchapter 19.

This subchapter also limits emissions of particulate matter from industrial processes based on their process weight rates. For process weight rates less than 60,000 lb/hr, the limits are determined using the formula in Appendix G ($E = 4.10 * P^{(0.67)}$) where (E) is the emission rate in pounds per hour and (P) is the process weight rate in tons per hour. For process weight rates in excess of 60,000 lb/hr, the limits are determined using the formula in Appendix G ($E = 55.0 * P^{(0.11)} - 40$) where (E) is the emission rate in pounds per hour and (P) is the process weight rate in tons per hour.

			Rate	Limit	Emissions
EU	Point	EU Name/Description	TPH	lb/hr	lb/hr
EU005	SV003	Seed Receiving	104.17	51.69	3.43
	FS003				0.28
EU006	SV004	Meal Loadout and Storage	62.50	46.68	1.71
	FS004				0.26
EU007	SV005	Seed Cleaning & Aspirator	104.17	51.69	0.42
EU008	SV005	Meal Grinder Baghouse	62.50	46.68	1.00
EU009	SV006	Conditioner Cyclone	104.17	51.69	0.76
EU010	SV006	Flaker Cyclone	104.17	51.69	1.81
EU011	SV007	Cooker Cyclone	104.17	51.69	1.95
EU012	SV007	Meal Cooler Cyclone	78.13	48.83	2.78
EU013	SV008	DC Drying Deck #1 Cyclone	62.50	46.68	0.93
EU014	SV008	DC Drying Deck #2 Cyclone	62.50	46.68	0.93
EU015	SV008	DC Cooling Deck Cyclone	62.50	46.68	0.93
EU019	SV012	Silca Storage Silo	104.17	51.69	0.01
EU020	SV013	Filter Aid Storage Silo	104.17	51.69	0.01
EU021	SV014	Bleaching Clay Storage Silo	104.17	51.69	0.01
EU022	SV015	Bulk Product Conveyance	104.17	51.69	0.01
EU023	SV016	Canola Seed Reclaim #1	104.17	51.69	0.06
EU024	SV017	Canola Seed Reclaim #2	104.17	51.69	0.06
EU025	SV018	Meal to Storage #1	62.50	46.68	0.11
EU026	SV019	Meal to Storage #2	62.50	46.68	0.11
EU027	SV020	Receiving Seed Cleaning	104.17	51.69	0.86
EU028	SV021	Seed Storage #1-4	104.17	51.69	3.43
EU029	SV022				
EU030	SV023				

			Rate	Limit	Emissions
EU	Point	EU Name/Description	TPH	lb/hr	lb/hr
EU031	SV024				
EU032	SV025	Meal Pelleting	62.50	46.68	3.17
EU034	SV027	Process Feed Bin Vent	104.17	51.69	0.06

The industrial processes at this facility are controlled using either baghouses or cyclones. Compliance with the emission limits of this subchapter will be ensured by properly operating and maintaining these control devices. The permit will establish requirements for the facility to properly operate and maintain the control devices.

OAC 252:100-24 (PM Emissions from Grain, Feed or Seed Operations) [Applicable]

The purpose of this subchapter is to control emissions from facilities that handle, store or process grains, feeds or seeds. The provisions of this subchapter are applicable to all new, modified, and existing grain, feed, or seed facilities in the State of Oklahoma. However, facilities in compliance with Subchapters 25, 19-12, and 29 are not required to comply with this subchapter. This facility will be in compliance with the requirements of Subchapters 25, 19-12, and 29 and will not be required to comply with this subchapter.

OAC 252:100-25 (Visible Emissions and PM) [Applicable]

No discharge of greater than 20% opacity is allowed except for short-term occurrences that consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case, shall the average of any six-minute period exceed 60% opacity. Units subject to an opacity limit promulgated under section 111 (NSPS) of the Federal Clean Air Act are exempt from this subchapter.

When burning natural gas in the boilers, there is very little possibility of the boilers exceeding the opacity standards. Therefore, compliance with the standard is assured without any special monitoring provisions for the boilers. When burning diesel in the small CI-ICE, there is very little possibility of the CI-ICE exceeding the opacity standards. Therefore, compliance with the standard is assured without any special monitoring provisions for the CI-ICE.

Other sources at the facility are controlled using baghouses and cyclones. Compliance with the opacity standards will be ensured by properly operating and maintaining these control devices. The permit will establish requirements for the facility to properly operate and maintain the control devices.

OAC 252:100-29 (Fugitive Dust) [Applicable]

No person shall cause or permit the discharge of any visible fugitive dust emissions beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. No person shall cause or allow any fugitive dust source to be operated, or any substances to be handled, transported or stored, or any structure constructed, altered, or demolished to the extent that such operation or activity may enable fugitive dust to become airborne and result in air pollution, without taking reasonable precautions to minimize or

prevent pollution. Reasonable precautions include, but are not limited to, those actions set forth below:

- 1) The use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, driveways and parking lots or the clearing of land for commercial, industrial, or residential development.
- 2) The application of water or suitable chemicals or some other covering on materials stockpiles and other surfaces that can create air-borne dusts under normal conditions.
- 3) The installation and use of hoods, fans and dust collectors to enclose and vent the handling of dusty materials or the use of water sprays or other acceptable measures to suppress dust emission during handling. Adequate containment methods shall be employed during sandblasting or other similar operations.
- 4) The covering or wetting of open-bodied trucks, trailers, or railroad cars when transporting dusty materials in areas where the general public must have access.
- 5) The removal as necessary from paved street and parking surfaces of materials that have a tendency to become airborne.
- 6) The planting and maintenance of vegetative ground cover as necessary.
- 7) Make the best efforts to reduce fugitive dust emissions during load-out by minimizing the distance from the load-out spout to the top of the receiving vessel.

The permit will require the facility to take the applicable reasonable precautions to minimize or prevent fugitive dust. The facility will be paving the roadways to minimize fugitive dust from the roadways. The facility will also be controlling emissions from seed receiving and meal loadout to minimize fugitive dust from these activities.

OAC 252:100-31 (Sulfur Compounds)

[Applicable]

Part 5 limits sulfur dioxide emissions from new fuel-burning equipment (constructed after July 1, 1972). For gaseous fuels, the limit is 0.2 lb/MMBTU heat input averaged over 3 hours. For fuel gas having a gross calorific value of 1,000 BTU/SCF, this limit corresponds to fuel sulfur content of 1,203 ppmv. The permit requires the use of gaseous fuel with sulfur content less than 10 ppmv to ensure compliance with Subchapter 31.

For liquid fuels the limit is 0.8 lb/MMBTU heat input averaged over 3 hours. The only liquid fuel used at this facility is diesel in the CI-ICE. All diesel fuel must now meet the Tier II fuel standards for ultra-low sulfur diesel and have a maximum sulfur content of 15 ppmw. AP-42 (10/96), Section 3.4, gives an emission factor of $1.01 * S$ lb/MMBTU, where S is the percent sulfur, which is approximately 0.0015 lb/MMBTU for ultra-low sulfur diesel. The permit will require the use of fuel oil with a maximum sulfur content of 15 ppmw sulfur for the diesel fired CI-ICE.

OAC 252:100-33 (Nitrogen Oxides)

[Applicable]

NO_x emissions are limited to 0.20 lb/MMBTU, three-hour average, from all new gas-fired fuel-burning equipment with a rated heat input of 50 MMBTUH or greater. The three boilers located at this facility will be subject to this subchapter. Manufacturers' data estimates emissions of NO_x from the boilers at 0.035 lb/MMBTU, which is in compliance with this subchapter.

OAC 252:100-37 (Volatile Organic Compounds) [Applicable]

Part 3 requires storage tanks constructed after December 28, 1974, with a capacity of 400 gallons or more and storing a VOC with a vapor pressure greater than 1.5 psia at maximum storage temperature to be equipped with a permanent submerged fill pipe or with an organic vapor recovery system. The solvent/hexane tanks will be equipped with a vapor recovery system and there will be no emissions from these tanks. All other tanks store a VOC with a vapor pressure of less than 1.5 psia at maximum storage temperature.

Part 5 limits the VOC content of coating or other operations. This facility does not normally conduct coating or painting operations except for routine maintenance of the facility and equipment, which is exempt.

Part 7 requires fuel-burning equipment and refuse-burning equipment to be operated and maintained so as to minimize VOC emissions. Temperature and available air must be sufficient to provide essentially complete combustion.

Part 7 requires all effluent water separator openings, which receive water containing more than 200 gallons per day of any VOC, to be sealed or the separator to be equipped with an external floating roof or a fixed roof with an internal floating roof or a vapor recovery system. The effluent water separators located at this facility do not receive 200 gallons per day of VOC. The hexane/water separator will be equipped with vapor recovery system and there will be no emissions from the separator.

OAC 252:100-42 (Toxic Air Contaminants (TAC)) [Applicable]

This subchapter regulates toxic air contaminants (TAC) that are emitted into the ambient air in areas of concern (AOC). Any work practice, material substitution, or control equipment required by the Department prior to June 11, 2004, to control a TAC, shall be retained unless a modification is approved by the Director. Since no Area of Concern (AOC) has been designated anywhere in the state, there are no specific requirements for this facility at this time.

OAC 252:100-43 (Testing, Monitoring, and Recordkeeping) [Applicable]

This subchapter provides general requirements for testing, monitoring and recordkeeping and applies to any testing, monitoring or recordkeeping activity conducted at any stationary source. To determine compliance with emissions limitations or standards, the Air Quality Director may require the owner or operator of any source in the state of Oklahoma to install, maintain and operate monitoring equipment or to conduct tests, including stack tests, of the air contaminant source. All required testing must be conducted by methods approved by the Air Quality Director and under the direction of qualified personnel. A notice-of-intent to test and a testing protocol shall be submitted to Air Quality at least 30 days prior to any EPA Reference Method stack tests. Emissions and other data required to demonstrate compliance with any federal or state emission limit or standard, or any requirement set forth in a valid permit shall be recorded, maintained, and submitted as required by this subchapter, an applicable rule, or permit requirement. Data from any required testing or monitoring not conducted in accordance with the provisions of this subchapter shall be considered invalid. Nothing shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

The following Oklahoma Air Pollution Control Rules are not applicable to this facility:

OAC 252:100-11	Alternative Emissions Reduction	Not requested
OAC 252:100-15	Mobile Sources	Not in source category
OAC 252:100-17	Incinerators	Not type of emission unit
OAC 252:100-23	Cotton Gins	Not type of emission unit
OAC 252:100-24	Grain Elevators	Complies with SC 19, 25, &29
OAC 252:100-35	Carbon Monoxide	Not type of emission unit
OAC 252:100-39	Nonattainment Areas	Not in area category
OAC 252:100-47	Municipal Solid Waste Landfills	Not in source category

SECTION IX. FEDERAL REGULATIONS

PSD, 40 CFR Part 52 [Applicable]
 VOC emissions are greater than the major source threshold of 250 TPY of any single regulated pollutant and the facility is not one of the 26 specific industries with a threshold of 100 TPY. PSD review has been completed in Section V for VOC, PM₁₀, PM_{2.5}, and GHG including BACT and modeling as applicable.

NSPS, 40 CFR Part 60 [Subparts Dc, Kb, and III are Applicable]
Subpart Dc, Small Industrial-Commercial-Institutional Steam Generating Units. This subpart affects steam generating units with a heat input capacity between 10 and 100 MMBTUH and that commence construction, modification, or reconstruction after June 9, 1989. The three 95 MMBTUH boilers were all constructed after the applicability date and are subject to this subpart.

Steam generating units that commence construction, reconstruction, or modification after February 28, 2005, with a heat input capacity of 30 MMBTUH or greater, and that combust coal, oil, wood, a mixture of these fuels, or a mixture of these fuels with any other fuels are subject to a PM emission limit of 0.030 lb/MMBTU, heat input. Since these boilers will only fire natural gas, they are not subject to the PM emission limit.

As an alternative to meeting the requirements of § 60.48c (g)(1) [daily records of fuel usage], the owner or operator of multiple affected facilities located on a contiguous property unit where the only fuel combusted in any steam generating unit (including steam generating units not subject to this subpart) at that property are natural gas may elect to record and maintain records of the total amount of each steam generating unit fuel delivered to that property during each calendar month. The boilers at this facility will only fire natural gas and will keep records of the total amount of fuel delivered each calendar month. All applicable requirements have been incorporated into the specific conditions.

Subpart Kb, VOL Storage Vessels. This subpart affects storage vessels for VOL that have a storage capacity greater than 19,813 gallons and which commenced construction, reconstruction, or modification after July 23, 1984. The following storage vessels:

- Storage vessels with a capacity greater than or equal to 39,890 gallons that store a liquid with a maximum true vapor pressure (MTVP) greater than or equal to 0.5076 psia; or
- Storage vessels with a capacity greater than or equal to 19,813 but less than 39,890 gallons that store a liquid with a MTVP greater than or equal to 2.1756 psia.

shall be equipped with one of the following: a fixed roof in combination with an internal floating roof, an external floating roof, or a closed vent system and control device. The hexane/solvent (vp - 2.4 @ 70 °F) storage tanks are subject to this subpart and will be equipped with a closed vent system and control device meeting the requirements of this subpart.

The following storage vessels are only required to keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel:

- Storage vessels with a capacity greater than or equal to 39,890 gallons that store a liquid with a maximum true vapor pressure (MTVP) less than 0.5076 psia; or
- Storage vessels with a capacity greater than or equal to 19,813 but less than 39,890 gallons that store a liquid with a MTVP less than 2.1756 psia.

All of the other storage vessels at this site are either below the de minimis capacity or vapor pressure and are only required to keep records of the capacity of the storage vessel. All applicable requirements have been incorporated into the specific conditions.

Subpart DD, Grain Elevators. This subpart applies to each affected facility which commences construction, modification, or reconstruction after August 3, 1978, at any grain terminal elevator or any grain storage elevator. The affected facilities are each truck unloading station, truck loading station, barge and ship unloading station, barge and ship loading station, railcar loading station, railcar unloading station, grain dryer, and all grain handling operations.

Grain terminal elevator means any grain elevator which has a permanent storage capacity of more than 88,100 m³ (ca. 2.5 million U.S. bushels), except those located at animal food manufacturers, pet food manufacturers, cereal manufacturers, breweries, and livestock feedlots. Grain elevator means any plant or installation at which grain is unloaded, handled, cleaned, dried, stored, or loaded. Grain means corn, wheat, sorghum, rice, rye, oats, barley, and soybeans. This facility will have a grain elevator. However, the total storage capacity of this facility will be approximately 2.15 million bushels. Therefore, this facility is below the de minimis size and is not subject to this subpart.

Grain storage elevator means any grain elevator located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant which has a permanent grain storage capacity of 35,200 m³ (ca. 1 million bushels). This facility is not one of the specified mills or a soybean oil extraction plant.

Subpart VVa, Equipment Leaks of VOC in the SOCMI. This subpart affects equipment constructed, reconstructed or modified after November 7, 2006. This facility does not produce, as intermediates or final products, any of the chemicals listed in §60.489 and is not an affected facility in the SOCMI. Hexane is not a listed chemical.

Subpart NNN, VOC Emissions from SOCMI Distillation Operations. This subpart affects facilities that are a part of a process unit that produce, as a product, co-product, by-product, or intermediate, any of the chemicals listed in § 60.667. Hexane is a listed chemical. This facility produces listed chemicals and uses distillation to separate the desired product. However, none of the distillation and recovery process streams are vented to the atmosphere. Also, the EPA has determined that solvent recovery operations do not “produce” chemicals or is not considered a chemical manufacturing process and would not be subject to this subpart as detailed in ADI 970112 and 9600064.

Subpart IIII, Stationary Compression Ignition Internal Combustion Engines. This subpart affects stationary compression ignition (CI) internal combustion engines (ICE) based on power and displacement ratings, depending on date of construction, beginning with those constructed after July 11, 2005. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator. The new diesel fired emergency fire pump engines were manufactured after the applicability date and are subject to this subpart. The new units will have a displacement of less than 30 liters and a rating of 550-hp (7385 kW). Per 60.4205(c) fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in Table 4 of Subpart IIII, for all pollutants. These units will be subject to the following emission limitations:

Emission Limits for Fire Pump Engines¹

	NMHC + NO_x	CO	PM
Max Engine Power	g/kW-hr (g/hp-hr)	g/kW-hr (g/hp-hr)	g/kW-hr (g/hp-hr)
300 ≤ hp < 600	4.0 (3.0)	3.5 (2.6)	0.2 (0.15)

¹ – For model year 2009 and later.

Any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year is prohibited. There is no time limit on the use of emergency stationary ICE in emergency situations. You may operate your emergency stationary ICE for any combination of the purposes specified in § 60.4211(f)(2)(i) through (iii) for a maximum of 100 hours per calendar year. All applicable requirements were incorporated into the specific conditions.

NESHAP, 40 CFR Part 61

[Not Applicable]

There are no emissions of any of the regulated pollutants: arsenic, asbestos, beryllium, benzene, coke oven emissions, mercury, radionuclides or vinyl chloride except for trace amounts of benzene. Subpart J, Equipment Leaks of Benzene only affects process streams that contain more than 10% benzene by weight. All process streams at this facility are below this threshold.

NESHAP, 40 CFR Part 63 [Subparts EEEE, GGGG, ZZZZ, and DDDDD are Applicable] Subpart Q, Industrial Cooling Towers. This subpart applies to all new and existing industrial process cooling towers that are operated with chromium-based water treatment chemicals on or after September 8, 1994, and are either major sources or are integral parts of facilities that are major sources as defined in § 63.401. This facility does not have or use industrial process cooling towers that are operated with chromium-based water treatment chemicals.

Subpart EEEE, Organic Liquids Distribution (Non-Gasoline). This subpart affects organic liquid distribution (OLD) operations at major sources of HAP. The affected source is the collection of activities and equipment used to distribute organic liquids into, out of, or within a facility that is a major source of HAP. The affected source is composed of:

- (1) All storage tanks storing organic liquids.
- (2) All transfer racks at which organic liquids are loaded into or unloaded out of transport vehicles and/or containers.
- (3) All equipment leak components in organic liquids service that are associated with:
 - (i) Storage tanks storing organic liquids;
 - (ii) Transfer racks loading or unloading organic liquids;
 - (iii) Pipelines that transfer organic liquids directly between two storage tanks that are subject to this subpart;
 - (iv) Pipelines that transfer organic liquids directly between a storage tank subject to this subpart and a transfer rack subject to this subpart; and
 - (v) Pipelines that transfer organic liquids directly between two transfer racks that are subject to this subpart.
- (4) All transport vehicles while they are loading or unloading organic liquids at transfer racks subject to this subpart.
- (5) All containers while they are loading or unloading organic liquids at transfer racks subject to this subpart.

Storage tanks, transfer racks, transport vehicles, containers, and equipment leak components that are part of an affected source under another NESHAP are excluded from the affected source. This facility is subject to NESHAP, Subpart GGGG but the affected source is defined as the following: oilseed preparation operations, solvent extractors, desolventizer-toasters, meal dryers, meal coolers, meal conveyor systems, oil distillation units, solvent evaporators and condensers, solvent recovery system (also referred to as a mineral oil absorption system), vessels storing solvent-laden materials, and crude meal packaging and storage vessels.

The remaining components listed below are subject to this subpart:

- (1) All transfer racks at which organic liquids are loaded into or unloaded out of transport vehicles and/or containers.
- (3) All equipment leak components in organic liquids service that are associated with:
 - (i) Transfer racks loading or unloading organic liquids;
 - (iv) Pipelines that transfer organic liquids directly between a storage tank subject to this subpart and a transfer rack subject to this subpart; and

- (v) Pipelines that transfer organic liquids directly between two transfer racks that are subject to this subpart.
- (4) All transport vehicles while they are loading or unloading organic liquids at transfer racks subject to this subpart.
- (5) All containers while they are loading or unloading organic liquids at transfer racks subject to this subpart.

Organic liquids excludes liquids with an annual average true vapor pressure of less than 0.1 psia and liquids that contain less than 5% by weight one or more HAP listed in Table 1 of Subpart EEEE. n-Hexane is a listed HAP. Most of the oils produced at this facility will have low annual average vapor pressures and HAP contents of less than 5%. However, the solvent will contain greater than 5% by weight or more of n-hexane and will have a vapor pressure greater than 0.1 psia. Therefore, the transport vehicles while they are loading the solvent, the transfer rack at which the solvent will be unloaded out of the transport vehicles, and all equipment leaks associated with the transfer racks, and pipelines that are used to transport the solvent to the storage tanks will be subject to this subpart. The permit will require compliance with all applicable requirements.

Subpart GGGG, Solvent Extraction for Vegetable Oil Production. This subpart affects vegetable oil production processes at a major source of HAP emissions that processes any combination of the following eight types of oilseeds: Corn germ, Cottonseed, Flax, Peanut, Rapeseed (for example, canola), Safflower, Soybean, and Sunflower. This facility has vegetable oil production processes that processes the listed oilseeds and will be a major source of HAP emissions. Therefore, it is an affected facility and will have to comply with this subpart.

Vegetable oil production process means the equipment comprising a continuous process for producing crude vegetable oil and meal products, including specialty soybean products, in which oil is removed from listed oilseeds through direct contact with an organic solvent. Process equipment typically includes the following components: oilseed preparation operations (including conditioning, drying, dehulling, and cracking), solvent extractors, desolventizer-toasters, meal dryers, meal coolers, meal conveyor systems, oil distillation units, solvent evaporators and condensers, solvent recovery system (also referred to as a mineral oil absorption system), vessels storing solvent-laden materials, and crude meal packaging and storage vessels. A vegetable oil production process does not include vegetable oil refining operations (including operations such as bleaching, hydrogenation, and deodorizing) and operations that engage in additional chemical treatment of crude soybean meals produced in specialty desolventizer units (including operations such as soybean isolate production).

The new facility will be regulated as a new source upon startup since construction will begin after May 26, 2000. The allowable solvent loss factor per Table 1 of § 63.2840 is listed below.

Oil Seeds	Hexane Loss (gal/ton seeds)
Canola (rapeseed)	0.3

The facility will comply with this subpart using material balance calculations to determine the emissions of hexane. The solvent/hexane usage will be compliant with the above-listed solvent loss factors. Per § 63.2840, the facility is subject to a rolling 12-month compliance ratio of 1.00 or less to be calculated monthly based on operating months. Per § 63.2851, the facility will develop a plan for demonstrating compliance that details the procedures for monitoring and recording the appropriate data. Per § 63.2852, the facility will develop an SSM Plan prior to facility startup. All applicable requirements have been incorporated into the permit.

Subpart ZZZZ, Reciprocating Internal Combustion Engines (RICE). This subpart affects any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions. Owners and operators of the following new or reconstructed RICE must meet the requirements of Subpart ZZZZ by complying with either 40 CFR Part 60 Subpart IIII (for CI engines) or 40 CFR Part 60 Subpart JJJJ (for SI engines):

- 1) Stationary RICE located at an area source;
- 2) The following Stationary RICE located at a major source of HAP emissions:
 - i) 2SLB and 4SRB stationary RICE with a site rating of ≤ 500 brake HP;
 - ii) 4SLB stationary RICE with a site rating of < 250 brake HP;
 - iii) Stationary RICE with a site rating of ≤ 500 brake HP which combust landfill or digester gas equivalent to 10% or more of the gross heat input on an annual basis;
 - iv) Emergency or limited use stationary RICE with a site rating of ≤ 500 brake HP; and
 - v) CI stationary RICE with a site rating of ≤ 500 brake HP.

No further requirements apply for engines subject to NSPS under this part. The new fire pump engines are subject to this subpart and will comply with this subpart by complying with NSPS, Subpart IIII.

Subpart DDDDD, Industrial, Commercial and Institutional Boilers and Process Heaters. This subpart affects industrial, commercial and institutional boilers and process heaters at major sources of HAPs. On January 31, 2013, EPA published the final changes to this subpart which became effective on April 1, 2013. This subpart establishes emission limitations and work practice standards for HAP emitted from industrial, commercial, and institutional boilers and process heaters within a fuel subcategory located at major sources of HAP. A boiler or process heater is new or reconstructed if it commenced construction or reconstruction after June 4, 2010.

A new boiler or process heater in the Gas 1 subcategory with a continuous oxygen trim system, that maintains an optimum air to fuel ratio, or with a heat input capacity of less than or equal to 5 MMBTUH shall conduct a tune-up of the boiler or process heater every 5 years as specified in § 63.7540. A new or existing boiler or process heater in the Gas 1 subcategory without a continuous oxygen trim system and with a heat input capacity of 10 MMBTUH or greater must conduct a tune-up of the boiler or process heater annually as specified in § 63.7540. Units in the Gas 1 subcategory will conduct the tune-up as a work practice for all regulated emissions under this subpart. The three new 95 MMBTUH and the 5 MMBTUH natural gas-fired boilers are subject to this subpart. Since the new 95 MMBTUH boilers will be equipped with continuous oxygen trim systems, they will be subject to the 5 year tune-up requirements along with the 5

MMBTUH boiler. Hot water heaters with a capacity of less than 120-gallons are not subject to this subpart. All applicable requirements have been incorporated into the permit.

Compliance Assurance Monitoring, 40 CFR Part 64 [Not Applicable]
 Compliance Assurance Monitoring (CAM) applies to any pollutant specific emission unit at a major source, that is required to obtain a Part 70 permit, if it meets all of the following criteria:

- It is subject to an emission limit or standard for an applicable regulated air pollutant;
- It uses a control device to achieve compliance with the applicable emission limit or standard;
- It has potential emissions, prior to the control device, of the applicable regulated air pollutant greater than major source levels.

The requirements of this part do not apply to:

- Emission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act;
- An emissions cap that meets the requirements specified in § 70.4(b)(12) or § 71.6(a)(13)(iii);

Control device means equipment, other than inherent process equipment, that is used to destroy or remove air pollutant(s) prior to discharge to the atmosphere. Some of the equipment that will be used to collect potential pollutants prior to being released from the atmosphere at the facility has been described as inherent process equipment including the Mineral Oil Scrubber and cyclones for specific processes. In general, the baghouses are considered control devices.

The facility will be subject to a facility wide cap for VOC/HAP emissions established under 40 CFR Part 63, NESHAP, Subpart GGGG and would not be subject to CAM for that emission limit.

The EU at this facility that have the potential to emit more than the major source levels of a pollutant prior to control do not emit more than major source levels after control. Therefore, they would not be subject to CAM until renewal of their Part 70 operating permit.

CAM affects the emission units that use a control device to reduce emissions below major source thresholds. Those emission units potentially include the following:

EUG 003. Baghouses

EU ID #	Point ID #	EU Name/Description
EU005	SV003	Oil Seed Receiving (Filter CE001)
EU006	SV004	Meal Loadout & Storage (Filter CE002)
EU007	SV005	Seed Cleaning & Aspirating (Filter CE003)
EU008	SV005	Meal Grinding (Filter CE003)
EU025	SV018	Meal to Storage #1 (Filter CE002)
EU026	SV019	Meal to Storage #2 (Filter CE002)

EUG 004. Cyclones

EU ID #	Point ID #	EU Name/Description
EU009	SV006	Conditioner Cyclone
EU010	SV006	Flaker Cyclone
EU011	SV007	Cooker Cyclone
EU012	SV007	Cake/Meal Cooler Cyclone
EU013	SV008	DC Drying Deck #1
EU014	SV008	DC Drying Deck #2
EU015	SV008	Dryer Cooler (DC Cooler)
EU032	SV025	Meal Pelletizing Cyclone

NAI proposes to include pressure differential monitoring per manufacturer’s recommendations, when operating, to ensure compliance with the proposed emission limitations.

Chemical Accident Prevention Provisions, 40 CFR Part 68 [Not Applicable]
 The definition of a stationary source does not apply to transportation, including storage incident to transportation, of any regulated substance or any other extremely hazardous substance under the provisions of this part. This facility does not store any regulated substance above the applicable threshold limits. Hexane is not a listed toxic or flammable substance. More information on this federal program is available on the web page: www.epa.gov/ceppo.

Stratospheric Ozone Protection, 40 CFR Part 82 [Subparts A and F are Applicable]
 These standards require phase out of Class I & II substances, reductions of emissions of Class I & II substances to the lowest achievable level in all use sectors, and banning use of nonessential products containing ozone-depleting substances (Subparts A & C); control servicing of motor vehicle air conditioners (Subpart B); require Federal agencies to adopt procurement regulations which meet phase out requirements and which maximize the substitution of safe alternatives to Class I and Class II substances (Subpart D); require warning labels on products made with or containing Class I or II substances (Subpart E); maximize the use of recycling and recovery upon disposal (Subpart F); require producers to identify substitutes for ozone-depleting compounds under the Significant New Alternatives Program (Subpart G); and reduce the emissions of halons (Subpart H).

Subpart A, Production and Consumption Controls. This subpart identifies ozone-depleting substances and divides them into two classes. Class I controlled substances are divided into seven groups; the chemicals typically used by the manufacturing industry include carbon tetrachloride (Class I, Group IV) and methyl chloroform (Class I, Group V). A complete phase-out of production of Class I substances is required by January 1, 2000 (January 1, 2002, for methyl chloroform). Class II chemicals, which are hydrochlorofluorocarbons (HCFCs), are generally seen as interim substitutes for Class I CFCs. Class II substances consist of 33 HCFCs. A complete phase-out of Class II substances, scheduled in phases starting by 2002, is required by January 1, 2030.

Subpart F, Recycling and Emission reduction. This subpart requires that any persons servicing, maintaining, or repairing appliances except for motor vehicle air conditioners; persons disposing of appliances, including motor vehicle air conditioners; refrigerant reclaimers, appliance owners, and manufacturers of appliances and recycling and recovery equipment comply with the standards for recycling and emissions reduction.

The standard conditions of the permit address the requirements specified at § 82.156 for persons opening appliances for maintenance, service, repair, or disposal; § 82.158 for equipment used during the maintenance, service, repair, or disposal of appliances; § 82.161 for certification by an approved technician certification program of persons performing maintenance, service, repair, or disposal of appliances; § 82.166 for recordkeeping; § 82.158 for leak repair requirements; and § 82.166 for refrigerant purchase records for appliances normally containing 50 or more pounds of refrigerant.

SECTION X. COMPLIANCE

Tier Classification

This application has been determined to be Tier III based on the request for a construction permit for a new Part 70 source. The permittee has submitted an affidavit that they are not seeking a permit for land use or for any operation upon land owned by others without their knowledge. The affidavit certifies that the applicant owns the land.

Fees Paid

Part 70 source construction permit application fee of \$7,500.

Public Review

The applicant published the “Notice of Filing a Tier III Application” in *The Enid News and Eagle*, a daily newspaper in Garfield County on March 2, 2013. The notice stated that the application was available for public review for a period of thirty days at the Enid Public Library located at 120 West Main in Enid, at the AQD main office, and on the Air Quality section of the DEQ web page at <http://www.deq.state.ok.us>. The applicant published the “Notice of Draft Permit” in *The Enid News and Eagle* a daily newspaper in Garfield County on June 7, 2013. The notice stated that the draft permit was available for public review for a period of thirty days at the Enid Public Library, the AQD main office, and on the Air Quality section of the DEQ web page at <http://www.deq.state.ok.us>. No comments were received on the draft permit. The applicant published the notice for the Tier III proposed permit in *The Enid News and Eagle* a daily newspaper in Garfield County on July 11, 2013. The notice stated that the proposed permit was available for public review for a period of 20 days at the Enid Public Library, the AQD main office, and on the Air Quality section of the DEQ web page at <http://www.deq.state.ok.us>. No requests for an administrative hearing were made.

State Review

This facility is not located within 50 miles of the border of Oklahoma and any other state.

EPA Review

This permit was approved for concurrent public and EPA review. The draft permit was forwarded to EPA for review for a 45-day period. Since no comments were received from the public, the draft permit was deemed the proposed permit. No comments were received from the EPA.

SECTION XI. SUMMARY

The facility has demonstrated the ability to comply with all applicable rules and regulations. Ambient air quality standards are not threatened at this site. There are no active Air Quality compliance or enforcement issues concerning this facility. Issuance of the construction permit is recommended.

**PERMIT TO CONSTRUCT
AIR POLLUTION CONTROL FACILITY
SPECIFIC CONDITIONS**

**Northstar Agri Industries
Northstar Agri Industries - Enid Facility**

Permit Number 2013-0109-C PSD

The permittee is authorized to construct in conformity with the specifications submitted to Air Quality on January 31, 2013, February 20, 2013, and all supplemental materials. The Evaluation Memorandum dated July 31, 2013, explains the derivation of applicable permit requirements and estimates of emissions; however, it does not contain operating limitations or permit requirements. Commencing construction or continuing operations under this permit constitutes acceptance of, and consent to, the conditions contained herein:

1. Points of emissions and emission limitations for each point: [OAC 252:100-8-6(a)(1)]

D) Facility Wide Emission Limits: The facility shall not emit more than 635 TPY of VOC, based on a 12-month rolling total, from solvent handling and usage. The vegetable oil production process shall also comply with a BACT emission limit of 0.29 gallons of solvent (VOC/Hexane) per ton of seed processed which shall include emissions from startup, shutdown, and maintenance.

VOC emissions from solvent handling and usage shall be based on material balances and shall be determined as follows:

- a. Within 30 days following the end of a calendar or accounting month, determine the total solvent loss in gallons (gal) and pounds (lb) and quantity of seeds processed in tons for the previous calendar or accounting month and the 12 month rolling total solvent loss in gal and lb and seeds processed in tons by summing the solvent loss or seeds processed for the previous 12 months.
 - i. *Accounting month* means a time interval defined by a business firm during which corporate economic and financial factors are determined on a consistent and regular basis. An accounting month will consist of approximately 4 to 5 calendar weeks and each accounting month will be of approximate equal duration. An accounting month may not correspond exactly to a calendar month, but 12 accounting months will correspond exactly to a calendar year.
- b. If an accounting month is used rather than a calendar month, document the measurement frequency selection and the facility must remain on this schedule.
- c. Measure and record the solvent and seed inventory on the beginning and ending dates of each calendar or accounting month.
- d. Record the total gallons/lb of solvent received in each shipment. The gallons of solvent received represent purchases of delivered solvent added to the solvent storage inventory.
- e. Record the type of oilseed and tons of each shipment of oilseed received and added to your on-site storage.

- f. *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.” In such cases, the total solvent loss may be adjusted as long as a reasonable justification for the adjustment is provided. Situations that may require adjustments of the total solvent loss include, but are not limited to:
 - i. Changes in solvent working capacity. Document any process modifications resulting in changes to the solvent working capacity. 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.
 - ii. 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.
- g. *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. 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:
 - iii. Oilseed that mold or otherwise become unsuitable for processing.
 - iv. Oilseed you sell before it enters the processing operation.
 - v. Oilseed destroyed by an event such as a process malfunction, fire, or natural disaster.
 - vi. 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.
- h. Monthly solvent loss shall be calculated as follows:

$$\text{Monthly Solvent Loss} = (\text{SOLV}_B - \text{SOLV}_E + \text{SOLV}_R \pm \text{SOLV}_A)$$

Where:

SOLV_B = Amount of solvent in the inventory at the beginning of calendar or accounting month.

SOLV_E = Amount of solvent in the inventory at the end of calendar or accounting month.

SOLV_R = Amount of solvent received between the beginning and ending of the calendar or accounting month.

SOLV_A = Amount of solvent added or removed from the inventory during the calendar or accounting month.

- i. Monthly quantity of seed processed shall be calculated as follows:

$$\text{Monthly quantity of seed processed} = (\text{SEED}_B - \text{SEED}_E + \text{SEED}_R \pm \text{SEED}_A)$$

Where:

SEED_B = Tons of oilseed in the inventory at the beginning of calendar or accounting month.

SEED_E = Tons of oilseed in the inventory at the end of calendar or accounting month.

SEED_R = Tons of oilseed received between the beginning and ending of the calendar or accounting month.

SEED_A = Tons of oilseed added or removed from the oilseed inventory during the calendar or accounting month.

EU ID #	Point ID #	EU Name/Description
EU017	SV010 ¹	Mineral Oil Scrubber (GP001)
TK017	SV029 ¹	Solvent Storage Tank #1
TK018	SV029 ¹	Solvent Storage Tank #2
TK019	SV029 ¹	Solvent Storage Tank #3

¹ – All of these points are vented through the Mineral Oil Scrubber.

- g. The permittee shall install, maintain, and operate a continuous temperature monitoring system in the Desolventizer-Toaster. The facility shall maintain a minimum vapor temperature of 157 °F for the Desolventizer-Toaster. [OAC 252:100-8-34(b)]
- h. The permittee shall monitor and record the Mineral Oil Absorber pressure differential at least daily while gases are being vented to the Mineral Oil Absorber. [OAC 252:100-8-6(a)(3)]
- i. The permittee shall comply with the established threshold for the pressure differential established during the initial compliance period. [OAC 252:100-8-6(a)(3)]
- j. The permittee shall install, maintain, and operate a chiller for the Mineral Oil Absorber. The chiller shall be used during the months of April through October. Operation of the chiller is not required during the months of November through March. [OAC 252:100-8-34(b)]
- k. Emissions from the solvent storage tanks shall be routed through a closed vent system to the Mineral Oil Absorber. [OAC 252:100-8-34(b)]
- l. The vapors from the wastewater evaporator shall be routed through a closed vent system to the Mineral Oil Absorber. [OAC 252:100-8-34(b)]

II) EUG 003, 004, and 005. Baghouses, Cyclones, & Passive Fabric Filters: The facility shall conduct monitoring, recordkeeping, and reporting as specified. The emission limits represent BACT. The EU shall not exceed the following:

EUG 003. Baghouses

EU ID #	Point ID #	EU Name/Description	PM ₁₀ /PM _{2.5} gr/DSCFM
EU005	SV003	Oil Seed Receiving (Filter CE001)	0.005
EU006	SV004	Meal Loadout & Storage (Filter CE002)	0.005
EU007	SV005	Seed Cleaning & Aspirating (Filter CE003)	0.005

EUG 003. Baghouses

EU ID #	Point ID #	EU Name/Description	PM₁₀/PM_{2.5} gr/DSCFM
EU008	SV005	Meal Grinding (Filter CE003)	0.005
EU025	SV018	Meal to Storage #1 (Filter CE002)	0.005
EU026	SV019	Meal to Storage #2 (Filter CE002)	0.005
EU028	SV021	Seed Storage #1	0.005
EU029	SV022	Seed Storage #2	0.005
EU030	SV023	Seed Storage #3	0.005
EU031	SV024	Seed Storage #4	0.005

EUG 004. Cyclones

EU ID #	Point ID #	EU Name/Description	PM₁₀ gr/DSCFM	PM_{2.5} gr/DSCFM
EU013	SV008	DC Drying Deck #1	0.013	0.005
EU014	SV008	DC Drying Deck #2		
EU015	SV008	Dryer Cooler (DC Cooler)		
EU009	SV006	Conditioner Cyclone	0.013	0.005
EU010	SV006	Flaker Cyclone	0.013	0.005
EU011	SV007	Cooker Cyclone		
EU012	SV007	Cake/Meal Cooler Cyclone		
EU032	SV025	Meal Pelletizing Cyclone	0.013	0.005

EUG 005. Passive Fabric Filters

EU ID #	Point ID #	EU Name/Description
EU019	SV012	Silica Storage Silo
EU020	SV013	Filter Aid Storage Silo
EU021	SV014	Bleaching Clay Storage Silo
EU022	SV015	Bulk Product Conveyance

- a. The permittee shall monitor and record the pressure differential daily when operating and conduct visible emissions observations using Method 22 at least monthly for each of the control devices listed when operating. If visible emissions are detected, then the permittee shall conduct a thirty-minute opacity reading in accordance with EPA Reference Method No. 9 during operation of that control device. [OAC 252:100-8-6(a)(3)]
- b. The permittee shall comply with the established threshold for the pressure differential established during the initial compliance period. [OAC 252:100-8-6(a)(3)]
- c. The permittee shall inspect, maintain, and operate the control devices according to manufacturer's instructions. [OAC 252:100-8-6(a)(1)]

III) **EUG 006. Fugitive Sources:** The facility shall comply with those operating limitations established for the applicable EU.

EU ID #	Point ID #	EU Name/Description
EU016	SV009	Cooling Tower
FS001	SV026	Extraction Fugitive Leaks
FS002	N/A	Paved Roadways
FS003	N/A	Truck Seed Receiving Fugitives
FS003	N/A	Rail Seed Receiving Fugitives
FS004	N/A	Truck Meal Loadout Fugitives
FS004	N/A	Rail Meal Loadout Fugitives

- a. All loading and unloading operations shall be conducted within a building designed and operated to reduce emissions from loading and unloading operations.
 - b. The roadways at the facility shall be paved. [OAC 252:100-8-34(b)]
 - c. The facility shall comply with NFPA 36 for Solvent Extraction Plants. The rule includes specific requirements to minimize fugitive emissions including but not limited to the following:
 - i. Aboveground solvent pipe sections larger than 2 inches shall be welded and flanged;
 - ii. Drain valves shall be provided with plugs to prevent leakage;
 - iii. All piping systems shall be pressure tested to not less than 1.5 times the working pressure;
 - iv. Monitoring shall be performed with an approved combustible gas detection system with audible and visible alarms;
 - v. Vapor seals shall be used to prevent the escape of solvent at the point where solids enter the system;
 - vi. A vapor seal shall be used on the final discharge of material from the extraction system;
 - vii. Gaskets shall be made of a material that does not decompose or soften in the presence of oil, solvent, or steam; and
 - viii. There shall be no open ended lines.
- [OAC 252:100-8-34(b)]
- d. The permittee shall institute a Process Safety Management (PSM) program with a Computerized Maintenance Management System (CMMS) that will track corrective maintenance throughout the plant including plant leaks. The PSM program shall include monitoring of airborne concentrations of VOC in and around the Solvent Extraction Plant.
 - i. NAI shall install several monitors inside and outside the extraction plant at ground level that will be used to determine if there are any fugitive emissions of hexane.
 - ii. The gas detection monitors shall be installed with audible and visible alarms.
 - iii. The monitors shall measure the percentage of lower explosive limit (LEL). An alarm shall be set for 25% of the LEL and shutdown of the extraction plant shall be triggered at 50% of the LEL. The LEL for hexane is 11,000 ppm (1.1%).
 - iv. All alarms shall be investigated and documented.

- v. All hexane leaks shall be reported and repaired immediately.
 - vi. Any monitor used for measuring fugitive hexane emissions that records a concentration over 2% of the LEL (220 ppm) shall be investigated and documented.
 - vii. All repairs shall be logged on the CMMS.
 - viii. Visual inspections of the area outside the extraction plant shall be conducted once per shift.
- [OAC 252:100-8-34(b)]
- e. The cooling tower shall be equipped with high efficiency drift eliminators that maintain an average drift of less than 0.006% to reduce emissions of PM₁₀ and PM_{2.5} as demonstrated by the manufacturer’s specifications. [OAC 252:100-8-34(b)]

IV) EUG 001. Boilers: The permittee shall conduct monitoring, recordkeeping, and reporting as specified. The total emissions from all of the boilers shall not exceed those listed below.

EU ID #	Point ID #	EU Name/Description
EU001	SV001	Boiler #1, 95 MMBTUH
EU002	SV001	Boiler #2, 95 MMBTUH
EU003	SV001	Boiler #3, 95 MMBTUH
EU004	SV002	Refinery Boiler, 5 MMBTUH

Emissions Limits

EU	NO _x		CO		VOC		SO ₂	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
EU001	3.325	33.92	3.420	34.88	0.570	5.81	0.157	1.60
EU002	3.325		3.420		0.570		0.157	
EU003	3.325		3.420		0.570		0.157	
EU004	0.490	2.15	0.412	1.80	0.027	0.12	0.008	0.04

Emissions Limits

EU	PM		PM ₁₀		PM _{2.5}		CO _{2e}	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
EU001	3.800	38.76	1.235	12.60	1.197	12.21	11,115	113,377
EU002	3.800		1.235		1.197		11,115	
EU003	3.800		1.235		1.197		11,115	
EU004	0.037	0.16	0.037	0.16	0.037	0.16	585	2,562

- a. The boilers shall comply with the tuning requirements of NESHAP, Subpart DDDDD which represents BACT for VOC. [OAC 252:100-8-34(b)]
- b. The boilers shall only be fired with natural gas meeting the requirements of Specific Condition No. 2 which represents BACT for PM_{2.5}. [OAC 252:100-8-34(b)]
- c. The permittee shall monitor the amount of natural gas combusted in each of the boilers daily. Each month the total amount of NG and total heat content of the gases combusted in the boilers shall be determined and recorded. [OAC 252:100-8-6(a)(3)]

- d. The total heat content of the gases combusted in the boilers shall not exceed the following based on a 12-month rolling total: [OAC 252:100-8-6(a)(1)]
 - i. 1,938,000 MMBTU.
- e. EU EU001, EU002, and EU003, shall be equipped with Low-NO_x burners that achieve an emission rate of 0.035 lb NO₂/MMBTU @ 3% O₂ as demonstrated by the manufacturer’s specifications. [OAC 252:100-8-6(a)(1)]
- f. EU EU001, EU002, and EU003 shall be equipped and operated with the following to achieve BACT requirements for CO₂:
 - i. Economizers;
 - ii. Insulation;
 - iii. Oxygen Trim Control;
 - iv. Energy Capture From Boiler Blowdown; and
 - v. Condensate Return System. [OAC 252:100-8-34(b)]
- g. EU EU001, EU002, and EU003 shall meet an emission limit of 146 lb CO_{2e}/1,000 lb steam produced based on a 30-day rolling average. Steam production shall be determined from a gauge on the outlet of the boiler. [OAC 252:100-8-34(b)]
- h. The facility shall maintain records of the amount of steam produced by the boiler, daily. The facility shall calculate and maintain records of the lb/hr and TPY CO_{2e} emissions based on metered gas usage, fuel heat content (BTU/SCF), and the emission factors and global warming potentials from 40 CFR Part 98. The facility shall calculate and maintain records of the lb CO_{2e} / 1000 lb steam produced (30 day rolling average).

v) **EUG 007. Miscellaneous Sources:**

EU ID #	Point ID #	EU Name/Description
EU018	SV011	Fire Pump Engine #1
EU023	N/A	Canola Seed Reclaim #1
EU024	N/A	Canola Seed Reclaim #1
EU027	N/A	Receiving Seed Cleaning
EU034	N/A	Process Feed Bin
EU036	SV036	Fire Pump Engine #2
TK001	N/A	Fire Water Tank
TK002	N/A	Crude Oil Tank #1
TK003	N/A	Crude Oil Tank #2
TK004	N/A	Specialty Crude Oil Tank
TK005	N/A	Crude Oil Tank #3
TK006	N/A	RBD Oil Storage Tank #1
TK007	N/A	RBD Oil Storage Tank #2
TK008	N/A	RBD Oil Storage Tank #3
TK009	N/A	Specialty RBD Oil Storage Tank
TK010	N/A	RBD Oil Storage Tank #5
TK011	N/A	RBD Oil Storage Tank #6
TK012	N/A	Soapstock Tank
TK013	N/A	Heavy Distillate Storage Tank
TK014	N/A	Light Distillate Storage Tank

EU ID #	Point ID #	EU Name/Description
TK015	N/A	Caustic Storage Tank
TK016	N/A	Phosphoric Acid Tank
N/A	N/A	Fuel Oil Tank

2. The fuel-burning equipment shall be fired with pipeline grade natural gas or other gaseous fuel with a maximum sulfur content of less than 10 ppmv, except for the emergency compression ignition (CI) internal combustion engines (ICE) which shall be fired with fuel oil No. 2 (diesel) with a maximum sulfur content of 0.0015 % by weight or less. Compliance can be shown by the following methods: for pipeline grade natural gas: a current gas company bill; for other gaseous fuel: a current lab analysis, stain-tube analysis, gas contract, tariff sheet, or other approved methods; for fuel oil, supplier’s latest delivery ticket(s). Compliance shall be demonstrated at least once annually. [OAC 252:100-31]

3. Upon issuance of an operating permit, the permittee shall be authorized to operate this facility continuously (24 hours per day, every day of the year). [OAC 252:100-8-6(a)(1)]

4. The owner/operator shall comply with all applicable requirements of the NSPS, Subpart Dc: Small Industrial-Commercial-Institutional Steam Generating Units, for the boilers (EU001, EU002, & EU003) including but not limited to:

- a. § 60.40c Applicability and delegation of authority.
- b. § 60.41c Definitions.
- c. § 60.42c Standard for sulfur dioxide (SO₂).
- d. § 60.43c Standard for particulate matter (PM).
- e. § 60.44c Compliance and performance test methods and procedures for SO₂.
- f. § 60.45c Compliance and performance test methods and procedures for PM.
- g. § 60.46c Emission monitoring for SO₂.
- h. § 60.47c Emission monitoring for PM.
- i. § 60.48c Reporting and recordkeeping requirements.

5. The owner/operator shall comply with all applicable requirements of the NSPS, Subpart Kb: VOL Storage Vessels for the solvent storage tanks (EU TK017, TK018, & TK019), including but not limited to:

- a. § 60.110b Applicability and designation of affected facility
- b. § 60.111b Definitions.
- c. § 60.112b Standard for volatile organic compounds (VOC).
- d. § 60.113b Testing and procedures.
- e. § 60.114b Alternative means of emission limitation.
- f. § 60.115b Reporting and recordkeeping requirements.
- g. § 60.116b Monitoring of operations.

6. The owner/operator shall comply with all applicable requirements of the NSPS, Subpart III: Stationary Compression Ignition (CI) Internal Combustion Engines (ICE), for the emergency fire pumps (EU 018 & EU036) including but not limited to:

What This Subpart Covers

- a. § 60.4200 Am I subject to this subpart?

Emission Standards for Owners and Operators

- b. § 60.4204 What emission standards must I meet for non-emergency engines if I am an owner or operator of a stationary CI internal combustion engine?
 c. § 60.4205 What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?
 d. § 60.4206 How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?

Fuel Requirements for Owners and Operators

- e. § 60.4207 What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?

Other Requirements for Owners and Operators

- f. § 60.4208 What is the deadline for importing or installing stationary CI ICE produced in previous model years?
 g. § 60.4209 What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?

Compliance Requirements

- h. § 60.4211 What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?

Testing Requirements for Owners and Operators

- i. § 60.4212 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?
 j. § 60.4213 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of greater than or equal to 30 liters per cylinder?

Notification, Reports, and Records for Owners and Operators

- k. § 60.4214 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?

General Provisions

- l. § 60.4218 What parts of the General Provisions apply to me?
 m. § 60.4219 What definitions apply to this subpart?

7. The owner/operator shall comply with all applicable requirements of the NESHAP, Subpart EEEE: Organic Liquids Distribution (Non-Gasoline), upon startup for each affected facility including but not limited to:

What This Subpart Covers

- a. § 63.2330 What is the purpose of this subpart?
 b. § 63.2334 Am I subject to this subpart?

- c. § 63.2338 What parts of my plant does this subpart cover?
- d. § 63.2342 When do I have to comply with this subpart?
- e. § 63.2343 What are my requirements for emission sources not requiring control?
Emission Limitations, Operating Limits, and Work Practice Standards
- f. § 63.2346 What emission limitations, operating limits, and work practice standards must I meet?
General Compliance Requirements
- g. § 63.2350 What are my general requirements for complying with this subpart?
Testing and Initial Compliance Requirements
- h. § 63.2354 What performance tests, design evaluations, and performance evaluations must I conduct?
- i. § 63.2358 By what date must I conduct performance tests and other initial compliance demonstrations?
- j. § 63.2362 When must I conduct subsequent performance tests?
- k. § 63.2366 What are my monitoring installation, operation, and maintenance requirements?
- l. § 63.2370 How do I demonstrate initial compliance with the emission limitations, operating limits, and work practice standards?
Continuous Compliance Requirements
- m. § 63.2374 When do I monitor and collect data to demonstrate continuous compliance and how do I use the collected data?
- n. § 63.2378 How do I demonstrate continuous compliance with the emission limitations, operating limits, and work practice standards?
Notifications, Reports, and Records
- o. § 63.2382 What notifications must I submit and when and what information should be submitted?
- p. § 63.2386 What reports must I submit and when and what information is to be submitted in each?
- q. § 63.2390 What records must I keep?
- r. § 63.2394 In what form and how long must I keep my records?
Other Requirements and Information
- s. § 63.2396 What compliance options do I have if part of my plant is subject to both this subpart and another subpart?
- t. § 63.2398 What parts of the General Provisions apply to me?
- u. § 63.2402 Who implements and enforces this subpart?
- v. § 63.2406 What definitions apply to this subpart?

8. The owner/operator shall comply with all applicable requirements of the NESHAP, Subpart GGGG: Solvent Extraction for Vegetable Oil Production, upon startup for each affected facility including but not limited to:

What This Subpart Covers

- a. § 63.2830 What is the purpose of this subpart?
- b. § 63.2831 Where can I find definitions of key words used in this subpart?
- c. § 63.2832 Am I subject to this subpart?
- d. § 63.2833 Is my source categorized as existing or new?

- e. § 63.2834 When do I have to comply with the standards in this subpart?
Standards
- f. § 63.2840 What emission requirements must I meet?
Compliance Requirements
- g. § 63.2850 How do I comply with the hazardous air pollutant emission standards?
- h. § 63.2851 What is a plan for demonstrating compliance?
- i. § 63.2852 What is a startup, shutdown, and malfunction plan?
- j. § 63.2853 How do I determine the actual solvent loss?
- k. § 63.2854 How do I determine the weighted average volume fraction of HAP in the actual solvent loss?
- l. § 63.2855 How do I determine the quantity of oilseed processed?
Notifications, Reports, and Records
- m. § 63.2860 What notifications must I submit and when?
- n. § 63.2861 What reports must I submit and when?
- o. § 63.2862 What records must I keep?
- p. § 63.2863 In what form and how long must I keep my records?
Other Requirements and Information
- q. § 63.2870 What parts of the General Provisions apply to me?
- r. § 63.2871 Who implements and enforces this subpart?
- s. § 63.2872 What definitions apply to this subpart?

9. The owner/operator shall comply with all applicable requirements of the NESHAP, Subpart DDDDD: Industrial, Commercial, and Institutional Boilers and Process Heaters, upon startup for each affected facility (EU001, EU002, EU003, & EU004) including but not limited to:

What This Subpart Covers

- a. § 63.7480 What is the purpose of this subpart?
- b. § 63.7485 Am I subject to this subpart?
- c. § 63.7490 What is the affected source of this subpart?
- d. § 63.7491 Are any boilers or process heaters not subject to this subpart?
- e. § 63.7495 When do I have to comply with this subpart?

Emission Limitations and Work Practice Standards

- f. § 63.7499 What are the subcategories of boilers and process heaters?
- g. § 63.7500 What emission limitations, work practice standards, and operating limits must I meet?
- h. § 63.7501 Affirmative Defense for Violation of Emission Standards During Malfunction.

General Compliance Requirements

- i. § 63.7505 What are my general requirements for complying with this subpart?
Testing, Fuel Analyses, and Initial Compliance Requirements
- j. § 63.7510 What are my initial compliance requirements and by what date must I conduct them?
- k. § 63.7515 When must I conduct subsequent performance tests, fuel analyses, or tune-ups?
- l. § 63.7520 What stack tests and procedures must I use?
- m. § 63.7521 What fuel analyses, fuel specification, and procedures must I use?
- n. § 63.7522 Can I use emissions averaging to comply with this subpart?

- o. § 63.7525 What are my monitoring, installation, operation, and maintenance requirements?
- p. § 63.7530 How do I demonstrate initial compliance with the emission limitations, fuel specifications and work practice standards?
- q. § 63.7533 Can I use efficiency credits earned from implementation of energy conservation measures to comply with this subpart?

Continuous Compliance Requirements

- r. § 63.7535 Is there a minimum amount of monitoring data I must obtain?
- s. § 63.7540 How do I demonstrate continuous compliance with the emission limitations, fuel specifications and work practice standards?
- t. § 63.7541 How do I demonstrate continuous compliance under the emissions averaging provision?

Notification, Reports, and Records

- u. § 63.7545 What notifications must I submit and when?
- v. § 63.7550 What reports must I submit and when?
- w. § 63.7555 What records must I keep?
- x. § 63.7560 In what form and how long must I keep my records?

Other Requirements and Information

- y. § 63.7565 What parts of the General Provisions apply to me?
- z. § 63.7570 Who implements and enforces this subpart?
- aa. § 63.7575 What definitions apply to this subpart?

10. The following records shall be maintained on-site to verify Insignificant Activities. No recordkeeping is required for those operations that qualify as Trivial Activities.

[OAC 252:100-8-6 (a)(3)(B)]

- a. For fluid storage tanks with a capacity of less than 39,894 gallons and a true vapor pressure less than 1.5 psia: records of capacity of the tanks and contents.
- b. For surface coating operations: total usage of coatings, thinners, and clean-up solvents at any one emissions unit per month.
- c. For activities that have the potential to emit less than 5 TPY (actual) of any criteria pollutant: the type of activity and the amount of emissions from that activity (annual).

11. The permittee shall maintain records of operations as listed below. These records shall be maintained on-site or at a local field office for at least five years after the date of recording and shall be provided to regulatory personnel upon request.

[OAC 252:100-8-6 (a)(3)(B)]

- a. Monthly and 12-month rolling totals in gallons and lbs solvent loss calculations and VOC emissions for compliance with Specific Condition No. 1. (I).
- b. Monthly and 12-month rolling totals in tons seeds processed for compliance with Specific Condition No. 1. (I).
- c. Temperature monitoring of the Desolventizer-Toaster as required by Specific Condition No. 1 (I).
- d. Daily pressure differentials for the Mineral Oil Absorber as required by Specific Condition No. 1 (I).
- e. Records of chiller operation as required by Specific Condition No. 1. (I).

- f. Daily pressure differentials for cyclones and baghouses as required by Specific Condition No. 1 (II).
- g. Monthly visible emission observations as required by Specific Condition No. 1 (II).
- h. Maintenance and inspection of the air pollution control devices as required by manufacturer and Specific Condition No. 1 (II).
- i. Records demonstrating compliance with NFPA 36 for Solvent Extraction Plants and Specific Condition No. 1 (III).
- j. Daily fuel usage and monthly heat content of gas combusted for EU EU001, EU002, and EU003 and calculations of compliance with the CO_{2e} emission limit required by Specific Condition No. 1 (IV).
- k. Monthly and 12-month rolling total heat content of the gases combusted in the boilers in MMBTU for EU EU001, EU002, and EU003 and compliance with fuel limitation of Specific Condition No. 1 (IV).
- l. For fuel(s) burned, the appropriate document(s) as described in Specific Condition No. 2.
- m. Records required by NSPS, Subpart Kb, Dc, IIII.
- n. Records required by NESHAP, Subparts ZZZZ, EEEE, GGGG, and DDDDD.

12. Within 180 days of start-up, the permittee shall determine the parameters (such as monitoring the vapor temperature in the desolventizer-toaster to ensure that it stays above the boiling point for n-hexane 157 °F) to be monitored and recorded to ensure that operation of the desolventizer-toaster has been optimized to reduce the amount of solvent in the meal prior to discharging the meal to the pellitizer. The parameters shall be recorded continuously (at least once every fifteen minutes). The permittee shall submit the parameters and target values along with the operating permit application. The permittee shall design the monitoring to obtain data for one or more indicators of performance for the Desolventizer-Toaster of solvent control in the meal. The owner or operator shall establish an appropriate range(s) or designated condition(s) for the selected indicator(s) such that operation within the ranges provides a reasonable assurance that the amount of solvent remaining in the meal will be minimized for the anticipated range of operating conditions. Such range(s) or condition(s) shall reflect the proper operation and maintenance of the Desolventizer-Toaster for minimizing the amount of solvent remaining in the meal over the anticipated range of operating conditions. The design of indicator ranges or designated conditions may be:

- a. Based on a single maximum or minimum value or at multiple levels that are relevant to distinctly different operating conditions;
- b. Expressed as a function of process variables;
- c. Expressed as maintaining the applicable parameter in a particular operational status or designated condition; or
- d. Established as interdependent between more than one indicator.

[OAC 252:100-8-34(b)]

13. Within 180 days of start-up, the permittee shall determine the compliance thresholds for the mineral oil absorber, cyclones, and baghouses (pressure differential) will comply with to ensure that operation of the mineral oil absorber, cyclones, and baghouses are functioning properly. The permittee shall submit the compliance threshold values along with the operating permit

application. The owner or operator shall establish an appropriate range(s) or designated condition(s) for the compliance threshold such that operation within the ranges provides a reasonable assurance of proper operation and maintenance of the control device over the anticipated range of operating conditions. The compliance threshold may be:

- a. Based on a single maximum or minimum value or at multiple levels that are relevant to distinctly different operating conditions; [OAC 252:100-8-6 (a)(3)(B)]
14. Reasonable precautions shall be taken to minimize fugitive dust emissions from construction and source operations such as: truck loading and unloading operations and stockpiles. These precautions shall include, but not be limited to:
- a. The use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, driveways and parking lots or the clearing of land for commercial, industrial, or residential development.
 - b. The application of water or suitable chemicals or some other covering on materials stockpiles and other surfaces that can create air-borne dusts under normal conditions.
 - c. The installation and use of hoods, fans, and dust collectors to enclose and vent the handling of dusty materials or the use of water sprays or other acceptable measures to suppress dust emission during handling.
 - d. The covering or wetting of open-bodied trucks, trailers, or railroad cars when transporting dusty materials in areas where the general public must have access.
 - e. The removal as necessary from paved street and parking surfaces of materials that have a tendency to become airborne.
 - f. The planting and maintenance of vegetative ground cover as necessary.
15. After completion of construction, the permittee shall submit an application for a Part 70 operating permit within 180 days of commencement of operation. The permittee shall also include in the application any testing showing compliance with the applicable emission limitations and the following: [OAC 252:100-8-4(b)(5)]
- a. Compliance demonstrations for NSPS, Subpart Kb for the solvent storage vessels,
 - b. Compliance demonstrations for NSPS, Subpart IIII for the new CI-ICE; and
 - c. Compliance demonstrations for NESHAP, Subpart DDDDD for the new boilers.
 - d. Initial compliance demonstration for NESHAP, Subpart GGGG.
16. The permittee shall conduct NO_x and CO testing on at least one of the boilers (EU001, EU002, & EU003), provided that the three boilers are of the same make and model, at the 60% and 100% operating rates. Performance testing shall include determination of the heat content (GHV) and sulfur content of the gaseous fuel using the appropriate ASTM method.

The permittee shall conduct PM₁₀/PM_{2.5} testing on the baghouses and cyclones (Points SV003, SV004, SV005, SV006, SV007, SV008, SV018, SV019, SV021, SV022, SV023, SV024, SV025).

Performance testing shall be conducted while the units are operating within 10% of the desired operating rates. The permittee shall provide a testing protocol and notice of the actual test date to AQD for review and approval at least 30 days prior to the start of such testing.

The following USEPA methods shall be used for testing of emissions, unless otherwise approved by Air Quality:

- Method 1: Sample and Velocity Traverses for Stationary Sources.
- Method 2: Determination of Stack Gas Velocity and Volumetric Flow Rate.
- Method 3: Gas Analysis for Carbon Dioxide, Excess Air, and Dry Molecular Weight.
- Method 4: Determination of Moisture in Stack Gases.
- Method 5: Determination of Particulate Emissions from Stationary Sources.
- Method 10: Determination of Carbon Monoxide Emissions from Stationary Sources.
- Method 6C: Quality Assurance Procedures (Range and Sensitivity, Measurement System Performance Specification, and Measurement System Performance Test Procedures) Shall Be Used in Conducting Method 10.
- Method 7E: NO_x – Instrumental
- Method 19: SO₂ Removal & PM, SO₂, NO_x Rates from Electric Utility Steam Generators
- Method 201/201A: Determination of PM₁₀ Emissions.
- Method 202: Determination of Condensable Emissions.

**MAJOR SOURCE AIR QUALITY PERMIT
STANDARD CONDITIONS
(July 21, 2013)**

SECTION I. DUTY TO COMPLY

A. This is a permit to operate / construct this specific facility in accordance with the federal Clean Air Act (42 U.S.C. 7401, et al.) and under the authority of the Oklahoma Clean Air Act and the rules promulgated there under. [Oklahoma Clean Air Act, 27A O.S. § 2-5-112]

B. The issuing Authority for the permit is the Air Quality Division (AQD) of the Oklahoma Department of Environmental Quality (DEQ). The permit does not relieve the holder of the obligation to comply with other applicable federal, state, or local statutes, regulations, rules, or ordinances. [Oklahoma Clean Air Act, 27A O.S. § 2-5-112]

C. The permittee shall comply with all conditions of this permit. Any permit noncompliance shall constitute a violation of the Oklahoma Clean Air Act and shall be grounds for enforcement action, permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application. All terms and conditions are enforceable by the DEQ, by the Environmental Protection Agency (EPA), and by citizens under section 304 of the Federal Clean Air Act (excluding state-only requirements). This permit is valid for operations only at the specific location listed.

[40 C.F.R. §70.6(b), OAC 252:100-8-1.3 and OAC 252:100-8-6(a)(7)(A) and (b)(1)]

D. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in assessing penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continuing operations. [OAC 252:100-8-6(a)(7)(B)]

SECTION II. REPORTING OF DEVIATIONS FROM PERMIT TERMS

A. Any exceedance resulting from an emergency and/or posing an imminent and substantial danger to public health, safety, or the environment shall be reported in accordance with Section XIV (Emergencies). [OAC 252:100-8-6(a)(3)(C)(iii)(I) & (II)]

B. Deviations that result in emissions exceeding those allowed in this permit shall be reported consistent with the requirements of OAC 252:100-9, Excess Emission Reporting Requirements. [OAC 252:100-8-6(a)(3)(C)(iv)]

C. Every written report submitted under this section shall be certified as required by Section III (Monitoring, Testing, Recordkeeping & Reporting), Paragraph F. [OAC 252:100-8-6(a)(3)(C)(iv)]

SECTION III. MONITORING, TESTING, RECORDKEEPING & REPORTING

A. The permittee shall keep records as specified in this permit. These records, including monitoring data and necessary support information, shall be retained on-site or at a nearby field office for a period of at least five years from the date of the monitoring sample, measurement, report, or application, and shall be made available for inspection by regulatory personnel upon request. Support information includes all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Where appropriate, the permit may specify that records may be maintained in computerized form.

[OAC 252:100-8-6 (a)(3)(B)(ii), OAC 252:100-8-6(c)(1), and OAC 252:100-8-6(c)(2)(B)]

B. Records of required monitoring shall include:

- (1) the date, place and time of sampling or measurement;
- (2) the date or dates analyses were performed;
- (3) the company or entity which performed the analyses;
- (4) the analytical techniques or methods used;
- (5) the results of such analyses; and
- (6) the operating conditions existing at the time of sampling or measurement.

[OAC 252:100-8-6(a)(3)(B)(i)]

C. No later than 30 days after each six (6) month period, after the date of the issuance of the original Part 70 operating permit or alternative date as specifically identified in a subsequent Part 70 operating permit, the permittee shall submit to AQD a report of the results of any required monitoring. All instances of deviations from permit requirements since the previous report shall be clearly identified in the report. Submission of these periodic reports will satisfy any reporting requirement of Paragraph E below that is duplicative of the periodic reports, if so noted on the submitted report.

[OAC 252:100-8-6(a)(3)(C)(i) and (ii)]

D. If any testing shows emissions in excess of limitations specified in this permit, the owner or operator shall comply with the provisions of Section II (Reporting Of Deviations From Permit Terms) of these standard conditions.

[OAC 252:100-8-6(a)(3)(C)(iii)]

E. In addition to any monitoring, recordkeeping or reporting requirement specified in this permit, monitoring and reporting may be required under the provisions of OAC 252:100-43, Testing, Monitoring, and Recordkeeping, or as required by any provision of the Federal Clean Air Act or Oklahoma Clean Air Act.

[OAC 252:100-43]

F. Any Annual Certification of Compliance, Semi Annual Monitoring and Deviation Report, Excess Emission Report, and Annual Emission Inventory submitted in accordance with this permit shall be certified by a responsible official. This certification shall be signed by a responsible official, and shall contain the following language: "I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."

[OAC 252:100-8-5(f), OAC 252:100-8-6(a)(3)(C)(iv), OAC 252:100-8-6(c)(1), OAC 252:100-9-7(e), and OAC 252:100-5-2.1(f)]

G. Any owner or operator subject to the provisions of New Source Performance Standards (“NSPS”) under 40 CFR Part 60 or National Emission Standards for Hazardous Air Pollutants (“NESHAPs”) under 40 CFR Parts 61 and 63 shall maintain a file of all measurements and other information required by the applicable general provisions and subpart(s). These records shall be maintained in a permanent file suitable for inspection, shall be retained for a period of at least five years as required by Paragraph A of this Section, and shall include records of the occurrence and duration of any start-up, shutdown, or malfunction in the operation of an affected facility, any malfunction of the air pollution control equipment; and any periods during which a continuous monitoring system or monitoring device is inoperative.

[40 C.F.R. §§60.7 and 63.10, 40 CFR Parts 61, Subpart A, and OAC 252:100, Appendix Q]

H. The permittee of a facility that is operating subject to a schedule of compliance shall submit to the DEQ a progress report at least semi-annually. The progress reports shall contain dates for achieving the activities, milestones or compliance required in the schedule of compliance and the dates when such activities, milestones or compliance was achieved. The progress reports shall also contain an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted. [OAC 252:100-8-6(c)(4)]

I. All testing must be conducted under the direction of qualified personnel by methods approved by the Division Director. All tests shall be made and the results calculated in accordance with standard test procedures. The use of alternative test procedures must be approved by EPA. When a portable analyzer is used to measure emissions it shall be setup, calibrated, and operated in accordance with the manufacturer’s instructions and in accordance with a protocol meeting the requirements of the “AQD Portable Analyzer Guidance” document or an equivalent method approved by Air Quality.

[OAC 252:100-8-6(a)(3)(A)(iv), and OAC 252:100-43]

J. The reporting of total particulate matter emissions as required in Part 7 of OAC 252:100-8 (Permits for Part 70 Sources), OAC 252:100-19 (Control of Emission of Particulate Matter), and OAC 252:100-5 (Emission Inventory), shall be conducted in accordance with applicable testing or calculation procedures, modified to include back-half condensables, for the concentration of particulate matter less than 10 microns in diameter (PM₁₀). NSPS may allow reporting of only particulate matter emissions caught in the filter (obtained using Reference Method 5).

K. The permittee shall submit to the AQD a copy of all reports submitted to the EPA as required by 40 C.F.R. Part 60, 61, and 63, for all equipment constructed or operated under this permit subject to such standards. [OAC 252:100-8-6(c)(1) and OAC 252:100, Appendix Q]

SECTION IV. COMPLIANCE CERTIFICATIONS

A. No later than 30 days after each anniversary date of the issuance of the original Part 70 operating permit or alternative date as specifically identified in a subsequent Part 70 operating permit, the permittee shall submit to the AQD, with a copy to the US EPA, Region 6, a certification of compliance with the terms and conditions of this permit and of any other applicable requirements which have become effective since the issuance of this permit.

[OAC 252:100-8-6(c)(5)(A), and (D)]

B. The compliance certification shall describe the operating permit term or condition that is the basis of the certification; the current compliance status; whether compliance was continuous or intermittent; the methods used for determining compliance, currently and over the reporting period. The compliance certification shall also include such other facts as the permitting authority may require to determine the compliance status of the source.

[OAC 252:100-8-6(c)(5)(C)(i)-(v)]

C. The compliance certification shall contain a certification by a responsible official as to the results of the required monitoring. This certification shall be signed by a responsible official, and shall contain the following language: "I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."

[OAC 252:100-8-5(f) and OAC 252:100-8-6(c)(1)]

D. Any facility reporting noncompliance shall submit a schedule of compliance for emissions units or stationary sources that are not in compliance with all applicable requirements. This schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the emissions unit or stationary source is in noncompliance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the emissions unit or stationary source is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based, except that a compliance plan shall not be required for any noncompliance condition which is corrected within 24 hours of discovery.

[OAC 252:100-8-5(e)(8)(B) and OAC 252:100-8-6(c)(3)]

SECTION V. REQUIREMENTS THAT BECOME APPLICABLE DURING THE PERMIT TERM

The permittee shall comply with any additional requirements that become effective during the permit term and that are applicable to the facility. Compliance with all new requirements shall be certified in the next annual certification.

[OAC 252:100-8-6(c)(6)]

SECTION VI. PERMIT SHIELD

A. Compliance with the terms and conditions of this permit (including terms and conditions established for alternate operating scenarios, emissions trading, and emissions averaging, but excluding terms and conditions for which the permit shield is expressly prohibited under OAC 252:100-8) shall be deemed compliance with the applicable requirements identified and included in this permit.

[OAC 252:100-8-6(d)(1)]

B. Those requirements that are applicable are listed in the Standard Conditions and the Specific Conditions of this permit. Those requirements that the applicant requested be determined as not applicable are summarized in the Specific Conditions of this permit.

[OAC 252:100-8-6(d)(2)]

SECTION VII. ANNUAL EMISSIONS INVENTORY & FEE PAYMENT

The permittee shall file with the AQD an annual emission inventory and shall pay annual fees based on emissions inventories. The methods used to calculate emissions for inventory purposes shall be based on the best available information accepted by AQD.

[OAC 252:100-5-2.1, OAC 252:100-5-2.2, and OAC 252:100-8-6(a)(8)]

SECTION VIII. TERM OF PERMIT

A. Unless specified otherwise, the term of an operating permit shall be five years from the date of issuance. [OAC 252:100-8-6(a)(2)(A)]

B. A source's right to operate shall terminate upon the expiration of its permit unless a timely and complete renewal application has been submitted at least 180 days before the date of expiration. [OAC 252:100-8-7.1(d)(1)]

C. A duly issued construction permit or authorization to construct or modify will terminate and become null and void (unless extended as provided in OAC 252:100-8-1.4(b)) if the construction is not commenced within 18 months after the date the permit or authorization was issued, or if work is suspended for more than 18 months after it is commenced. [OAC 252:100-8-1.4(a)]

D. The recipient of a construction permit shall apply for a permit to operate (or modified operating permit) within 180 days following the first day of operation. [OAC 252:100-8-4(b)(5)]

SECTION IX. SEVERABILITY

The provisions of this permit are severable and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

[OAC 252:100-8-6 (a)(6)]

SECTION X. PROPERTY RIGHTS

A. This permit does not convey any property rights of any sort, or any exclusive privilege. [OAC 252:100-8-6(a)(7)(D)]

B. This permit shall not be considered in any manner affecting the title of the premises upon which the equipment is located and does not release the permittee from any liability for damage to persons or property caused by or resulting from the maintenance or operation of the equipment for which the permit is issued. [OAC 252:100-8-6(c)(6)]

SECTION XI. DUTY TO PROVIDE INFORMATION

A. The permittee shall furnish to the DEQ, upon receipt of a written request and within sixty (60) days of the request unless the DEQ specifies another time period, any information that the DEQ may request to determine whether cause exists for modifying, reopening, revoking,

reissuing, terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the DEQ copies of records required to be kept by the permit.

[OAC 252:100-8-6(a)(7)(E)]

B. The permittee may make a claim of confidentiality for any information or records submitted pursuant to 27A O.S. § 2-5-105(18). Confidential information shall be clearly labeled as such and shall be separable from the main body of the document such as in an attachment.

[OAC 252:100-8-6(a)(7)(E)]

C. Notification to the AQD of the sale or transfer of ownership of this facility is required and shall be made in writing within thirty (30) days after such sale or transfer.

[Oklahoma Clean Air Act, 27A O.S. § 2-5-112(G)]

SECTION XII. REOPENING, MODIFICATION & REVOCATION

A. The permit may be modified, revoked, reopened and reissued, or terminated for cause. Except as provided for minor permit modifications, the filing of a request by the permittee for a permit modification, revocation and reissuance, termination, notification of planned changes, or anticipated noncompliance does not stay any permit condition.

[OAC 252:100-8-6(a)(7)(C) and OAC 252:100-8-7.2(b)]

B. The DEQ will reopen and revise or revoke this permit prior to the expiration date in the following circumstances:

[OAC 252:100-8-7.3 and OAC 252:100-8-7.4(a)(2)]

- (1) Additional requirements under the Clean Air Act become applicable to a major source category three or more years prior to the expiration date of this permit. No such reopening is required if the effective date of the requirement is later than the expiration date of this permit.
- (2) The DEQ or the EPA determines that this permit contains a material mistake or that the permit must be revised or revoked to assure compliance with the applicable requirements.
- (3) The DEQ or the EPA determines that inaccurate information was used in establishing the emission standards, limitations, or other conditions of this permit. The DEQ may revoke and not reissue this permit if it determines that the permittee has submitted false or misleading information to the DEQ.
- (4) DEQ determines that the permit should be amended under the discretionary reopening provisions of OAC 252:100-8-7.3(b).

C. The permit may be reopened for cause by EPA, pursuant to the provisions of OAC 100-8-7.3(d).

[OAC 100-8-7.3(d)]

D. The permittee shall notify AQD before making changes other than those described in Section XVIII (Operational Flexibility), those qualifying for administrative permit amendments, or those defined as an Insignificant Activity (Section XVI) or Trivial Activity (Section XVII). The notification should include any changes which may alter the status of a "grandfathered source," as defined under AQD rules. Such changes may require a permit modification.

[OAC 252:100-8-7.2(b) and OAC 252:100-5-1.1]

E. Activities that will result in air emissions that exceed the trivial/insignificant levels and that are not specifically approved by this permit are prohibited. [OAC 252:100-8-6(c)(6)]

SECTION XIII. INSPECTION & ENTRY

A. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow authorized regulatory officials to perform the following (subject to the permittee's right to seek confidential treatment pursuant to 27A O.S. Supp. 1998, § 2-5-105(18) for confidential information submitted to or obtained by the DEQ under this section):

- (1) enter upon the permittee's premises during reasonable/normal working hours where a source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;
- (2) have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
- (3) inspect, at reasonable times and using reasonable safety practices, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
- (4) as authorized by the Oklahoma Clean Air Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit.

[OAC 252:100-8-6(c)(2)]

SECTION XIV. EMERGENCIES

A. Any exceedance resulting from an emergency shall be reported to AQD promptly but no later than 4:30 p.m. on the next working day after the permittee first becomes aware of the exceedance. This notice shall contain a description of the emergency, the probable cause of the exceedance, any steps taken to mitigate emissions, and corrective actions taken.

[OAC 252:100-8-6 (a)(3)(C)(iii)(I) and (IV)]

B. Any exceedance that poses an imminent and substantial danger to public health, safety, or the environment shall be reported to AQD as soon as is practicable; but under no circumstance shall notification be more than 24 hours after the exceedance. [OAC 252:100-8-6(a)(3)(C)(iii)(II)]

C. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error. [OAC 252:100-8-2]

D. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that: [OAC 252:100-8-6 (e)(2)]

- (1) an emergency occurred and the permittee can identify the cause or causes of the emergency;
- (2) the permitted facility was at the time being properly operated;
- (3) during the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit.

E. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof. [OAC 252:100-8-6(e)(3)]

F. Every written report or document submitted under this section shall be certified as required by Section III (Monitoring, Testing, Recordkeeping & Reporting), Paragraph F. [OAC 252:100-8-6(a)(3)(C)(iv)]

SECTION XV. RISK MANAGEMENT PLAN

The permittee, if subject to the provision of Section 112(r) of the Clean Air Act, shall develop and register with the appropriate agency a risk management plan by June 20, 1999, or the applicable effective date. [OAC 252:100-8-6(a)(4)]

SECTION XVI. INSIGNIFICANT ACTIVITIES

Except as otherwise prohibited or limited by this permit, the permittee is hereby authorized to operate individual emissions units that are either on the list in Appendix I to OAC Title 252, Chapter 100, or whose actual calendar year emissions do not exceed any of the limits below. Any activity to which a State or Federal applicable requirement applies is not insignificant even if it meets the criteria below or is included on the insignificant activities list.

- (1) 5 tons per year of any one criteria pollutant.
- (2) 2 tons per year for any one hazardous air pollutant (HAP) or 5 tons per year for an aggregate of two or more HAP's, or 20 percent of any threshold less than 10 tons per year for single HAP that the EPA may establish by rule.

[OAC 252:100-8-2 and OAC 252:100, Appendix I]

SECTION XVII. TRIVIAL ACTIVITIES

Except as otherwise prohibited or limited by this permit, the permittee is hereby authorized to operate any individual or combination of air emissions units that are considered inconsequential and are on the list in Appendix J. Any activity to which a State or Federal applicable requirement applies is not trivial even if included on the trivial activities list.

[OAC 252:100-8-2 and OAC 252:100, Appendix J]

SECTION XVIII. OPERATIONAL FLEXIBILITY

A. A facility may implement any operating scenario allowed for in its Part 70 permit without the need for any permit revision or any notification to the DEQ (unless specified otherwise in the

permit). When an operating scenario is changed, the permittee shall record in a log at the facility the scenario under which it is operating. [OAC 252:100-8-6(a)(10) and (f)(1)]

B. The permittee may make changes within the facility that:

- (1) result in no net emissions increases,
- (2) are not modifications under any provision of Title I of the federal Clean Air Act, and
- (3) do not cause any hourly or annual permitted emission rate of any existing emissions unit to be exceeded;

provided that the facility provides the EPA and the DEQ with written notification as required below in advance of the proposed changes, which shall be a minimum of seven (7) days, or twenty four (24) hours for emergencies as defined in OAC 252:100-8-6 (e). The permittee, the DEQ, and the EPA shall attach each such notice to their copy of the permit. For each such change, the written notification required above shall include a brief description of the change within the permitted facility, the date on which the change will occur, any change in emissions, and any permit term or condition that is no longer applicable as a result of the change. The permit shield provided by this permit does not apply to any change made pursuant to this paragraph. [OAC 252:100-8-6(f)(2)]

SECTION XIX. OTHER APPLICABLE & STATE-ONLY REQUIREMENTS

A. The following applicable requirements and state-only requirements apply to the facility unless elsewhere covered by a more restrictive requirement:

- (1) Open burning of refuse and other combustible material is prohibited except as authorized in the specific examples and under the conditions listed in the Open Burning Subchapter. [OAC 252:100-13]
- (2) No particulate emissions from any fuel-burning equipment with a rated heat input of 10 MMBTUH or less shall exceed 0.6 lb/MMBTU. [OAC 252:100-19]
- (3) For all emissions units not subject to an opacity limit promulgated under 40 C.F.R., Part 60, NSPS, no discharge of greater than 20% opacity is allowed except for: [OAC 252:100-25]
 - (a) Short-term occurrences which consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case shall the average of any six-minute period exceed 60% opacity;
 - (b) Smoke resulting from fires covered by the exceptions outlined in OAC 252:100-13-7;
 - (c) An emission, where the presence of uncombined water is the only reason for failure to meet the requirements of OAC 252:100-25-3(a); or
 - (d) Smoke generated due to a malfunction in a facility, when the source of the fuel producing the smoke is not under the direct and immediate control of the facility and the immediate constriction of the fuel flow at the facility would produce a hazard to life and/or property.

- (4) No visible fugitive dust emissions shall be discharged beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. [OAC 252:100-29]
- (5) No sulfur oxide emissions from new gas-fired fuel-burning equipment shall exceed 0.2 lb/MMBTU. No existing source shall exceed the listed ambient air standards for sulfur dioxide. [OAC 252:100-31]
- (6) Volatile Organic Compound (VOC) storage tanks built after December 28, 1974, and with a capacity of 400 gallons or more storing a liquid with a vapor pressure of 1.5 psia or greater under actual conditions shall be equipped with a permanent submerged fill pipe or with a vapor-recovery system. [OAC 252:100-37-15(b)]
- (7) All fuel-burning equipment shall at all times be properly operated and maintained in a manner that will minimize emissions of VOCs. [OAC 252:100-37-36]

SECTION XX. STRATOSPHERIC OZONE PROTECTION

A. The permittee shall comply with the following standards for production and consumption of ozone-depleting substances: [40 CFR 82, Subpart A]

- (1) Persons producing, importing, or placing an order for production or importation of certain class I and class II substances, HCFC-22, or HCFC-141b shall be subject to the requirements of §82.4;
- (2) Producers, importers, exporters, purchasers, and persons who transform or destroy certain class I and class II substances, HCFC-22, or HCFC-141b are subject to the recordkeeping requirements at §82.13; and
- (3) Class I substances (listed at Appendix A to Subpart A) include certain CFCs, Halons, HBFCs, carbon tetrachloride, trichloroethane (methyl chloroform), and bromomethane (Methyl Bromide). Class II substances (listed at Appendix B to Subpart A) include HCFCs.

B. If the permittee performs a service on motor (fleet) vehicles when this service involves an ozone-depleting substance refrigerant (or regulated substitute substance) in the motor vehicle air conditioner (MVAC), the permittee is subject to all applicable requirements. Note: The term “motor vehicle” as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term “MVAC” as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo, or the system used on passenger buses using HCFC-22 refrigerant. [40 CFR 82, Subpart B]

C. The permittee shall comply with the following standards for recycling and emissions reduction except as provided for MVACs in Subpart B: [40 CFR 82, Subpart F]

- (1) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to § 82.156;
- (2) Equipment used during the maintenance, service, repair, or disposal of appliances must

- comply with the standards for recycling and recovery equipment pursuant to § 82.158;
- (3) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to § 82.161;
 - (4) Persons disposing of small appliances, MVACs, and MVAC-like appliances must comply with record-keeping requirements pursuant to § 82.166;
 - (5) Persons owning commercial or industrial process refrigeration equipment must comply with leak repair requirements pursuant to § 82.158; and
 - (6) Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to § 82.166.

SECTION XXI. TITLE V APPROVAL LANGUAGE

A. DEQ wishes to reduce the time and work associated with permit review and, wherever it is not inconsistent with Federal requirements, to provide for incorporation of requirements established through construction permitting into the Source's Title V permit without causing redundant review. Requirements from construction permits may be incorporated into the Title V permit through the administrative amendment process set forth in OAC 252:100-8-7.2(a) only if the following procedures are followed:

- (1) The construction permit goes out for a 30-day public notice and comment using the procedures set forth in 40 C.F.R. § 70.7(h)(1). This public notice shall include notice to the public that this permit is subject to EPA review, EPA objection, and petition to EPA, as provided by 40 C.F.R. § 70.8; that the requirements of the construction permit will be incorporated into the Title V permit through the administrative amendment process; that the public will not receive another opportunity to provide comments when the requirements are incorporated into the Title V permit; and that EPA review, EPA objection, and petitions to EPA will not be available to the public when requirements from the construction permit are incorporated into the Title V permit.
- (2) A copy of the construction permit application is sent to EPA, as provided by 40 CFR § 70.8(a)(1).
- (3) A copy of the draft construction permit is sent to any affected State, as provided by 40 C.F.R. § 70.8(b).
- (4) A copy of the proposed construction permit is sent to EPA for a 45-day review period as provided by 40 C.F.R. § 70.8(a) and (c).
- (5) The DEQ complies with 40 C.F.R. § 70.8(c) upon the written receipt within the 45-day comment period of any EPA objection to the construction permit. The DEQ shall not issue the permit until EPA's objections are resolved to the satisfaction of EPA.
- (6) The DEQ complies with 40 C.F.R. § 70.8(d).
- (7) A copy of the final construction permit is sent to EPA as provided by 40 CFR § 70.8(a).
- (8) The DEQ shall not issue the proposed construction permit until any affected State and EPA have had an opportunity to review the proposed permit, as provided by these permit conditions.
- (9) Any requirements of the construction permit may be reopened for cause after incorporation into the Title V permit by the administrative amendment process, by

DEQ as provided in OAC 252:100-8-7.3(a), (b), and (c), and by EPA as provided in 40 C.F.R. § 70.7(f) and (g).

- (10) The DEQ shall not issue the administrative permit amendment if performance tests fail to demonstrate that the source is operating in substantial compliance with all permit requirements.

B. To the extent that these conditions are not followed, the Title V permit must go through the Title V review process.

SECTION XXII. CREDIBLE EVIDENCE

For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any provision of the Oklahoma implementation plan, nothing shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

[OAC 252:100-43-6]



PART 70 PERMIT

AIR QUALITY DIVISION
STATE OF OKLAHOMA
DEPARTMENT OF ENVIRONMENTAL QUALITY
707 NORTH ROBINSON, SUITE 4100
P.O. BOX 1677
OKLAHOMA CITY, OKLAHOMA 73101-1677

Permit No. 2013-0109-C PSD

Northstar Agri Industries,

having complied with the requirements of the law, is hereby granted permission to construct the Northstar Agri Industries - Enid Facility in NE/4 of Section 8, T22N, R5W, Garfield County, Oklahoma, subject subject to Specific Conditions and Standard Conditions dated July 21, 2013, both of which are attached:

In the absence of construction commencement, this permit shall expire 18 months from the issuance date, except as authorized under Section VIII of the Standard Conditions.

Division Director, Air Quality Division

Date

Northstar Agri Industries
Attn: Mr. Jim Dudley
15 Broadway N, Suite 500
Fargo, ND 58102

SUBJECT: Construction Permit No. **2013-0109-C PSD**
Facility: Northstar Agri Industries - Enid Facility
Location: NE/4 of SECTION 6, T22N, R5W, Garfield County, Oklahoma

Dear Mr. Dudley:

Enclosed is the permit authorizing construction of the referenced facility. Please note that this permit is issued subject to the certain standards and specific conditions that are attached. These conditions must be carefully followed since they define the limits of the permit and will be confirmed by periodic inspections.

Also note that you are required to annually submit an emissions inventory for this facility. An emissions inventory must be completed on approved AQD forms and submitted (hardcopy or electronically) by April 1st of every year. Any questions concerning the form or submittal process should be referred to the Emissions Inventory Staff at 405-702-4100.

If you have any questions, refer to the permit number above and contact me at eric.milligan@deq.ok.gov or at (405) 702-4217. Thank you for your cooperation.

Sincerely,

Eric L. Milligan, P.E.
Engineering Section
AIR QUALITY DIVISION

Enclosures