Wetzel, Brian

From: Rowe, Greg <Greg.Rowe@perdue.com>
Sent: Wednesday, November 12, 2014 9:11 AM
To: Wetzel, Brian
Cc: Black, Wayne; John Schmelzle (jschmelzle@rettew.com)
Subject: FW: DEP Submittal of Requested Addendum Items
Attachments: Perdue-Plan Approval Application Revisions-11-06-2014-2.pdf; Trip Generation Memo (11-06-14).pdf; DEP Ltr-11-07-2014-2.docx

Mr. Wetzel,

Please find attached the requested items for your review and submission: DEP submittal letter (Microsoft Word file), Revised application sections and emission calculations (PDF file), and the traffic memo.

I believe this addresses all items that were discussed at the Monday meeting, with the exception of ERC's which we will address with you in the near future.

Please advise any questions or if additional information is needed.

Best Regards,

Gregory Rowe
VP Grain Operations
Safety, Health & Environment
Perdue Agribusiness
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November 7, 2014

Thomas J. Hanlon, P.E., Facility Permitting Chief
Pennsylvania Department of Environmental Protection
Air Quality Program
South-central Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110

Re: Perdue Grain & Oilseed, LLC
Conoy Township, Lancaster County
Plan Approval Application No. 36-05158A, Soybean Processing Facility

Dear Mr. Hanlon:

Please find enclosed supporting information to our November 3, 2014 submittal to pending Plan Approval Application No. 36-05158A ("Pending Application") for the construction of the above-referenced soybean processing facility ("Facility"). Perdue Grain & Oilseed, LLC ("Perdue") is amending the Pending Application to revise the Facility's soybean throughput rates and associated particulate matter emissions to reflect "worst case" potential to emit. As noted in our November 3, 2014 submittal, no revisions to the Facility's VOC and/or hexane emissions are being proposed. It is Perdue's understanding that the Facility's maximum potential VOC emissions will be limited to 208 tons per year, based on the Department of Environmental Protection ("DEP") review of the previously submitted Air Dispersion Modeling and Health Risk Assessment and the DEP review of the previously submitted Lowest Achievable Emission Rate (LAER) Evaluation. The following components of the Pending Application are being revised.

Plan Approval Application Forms – Grain Elevator Operations:

Section B.4.B, Page 6
Revised turnover rate for Wet Grain Storage Bins.

Section B.4.B, Page 15
Revised turnover rates for Grain Storage Bins.

Section C.1, Page 23
Revised precontrol emission rates for the Grain Baghouse.

Section F.1, Page 29
Revised atmospheric emission rates for Grain Receiving & Processing.

Section F.1, Page 30
Revised atmospheric emission rates for the Wet Grain Storage Bins.

Section F.1, Page 31
Revised atmospheric emission rates for Grain Dryer No. 1.

Section F.1, Page 32
Revised atmospheric emission rates for Grain Dryer No. 2.

Section F.1, Page 33
Revised atmospheric emission rates for the Grain Storage Bins.

Section F.1, Page 34
Revised atmospheric emission rates for Grain Loadout.

Plan Approval Application Forms – Soybean Oil Extraction Operations:

Section B.1, Page 2
Revised maximum and rated capacities for the Soybean Preparation Process.

Section B.4.B, Page 3
Revised turnover rate for the Soybean Preparation Process tanks.

Section B.1, Page 5
Revised maximum and rated capacities for Bean Conditioning.

Section B.1, Page 8
Revised maximum and rated capacities for the Flaking Rolls.

Section B.1, Page 11
Revised maximum and rated capacities for the Extraction Process.

Section B.1, Page 23
Revised maximum and rated capacities for Mill Feed (Hull) Grinding.

Section B.4.B, Page 27
Revised turnover rates for the Meal/Mill Feed Storage Bins.

Section B.4.B, Page 30
Revised turnover rates for the Meal/Mill Feed Loadout Tank.

Section B.4.B, Page 36
Revised turnover rate for the Soybean Day Tanks.

Section C.1, Page 44

Revised precontrol emission rates for the Soybean Preparation Process.

Section C.5, Page 45
Revised inlet/outlet emissions data for the Soybean Preparation Process Baghouses.

Section C.1, Page 47
Revised precontrol emission rates for Bean Conditioning.

Section C.1, Page 50
Revised precontrol emission rates for the Flaking Rolls.

Section C.4, Page 51
Revised inlet/outlet emissions data for the Flaking Rolls Cyclone.

Section C.1, Page 56
Revised precontrol emission rates for the Meal Dryer.

Section C.1, Page 59
Revised precontrol emission rates for the Meal Cooler.

Section C.1, Page 62
Revised precontrol emission rates for Meal Screening and Grinding.

Section C.1, Page 65
Revised precontrol emission rates for Mill Feed (Hull) Grinding.

Section C.5, Page 66
Revised inlet/outlet emissions data for Mill Feed (Hull) Grinding Baghouse.

Section C.1, Page 68
Revised precontrol emission rates for Meal Loadout Area.

Section F.1, Page 74
Revised atmospheric emission rates for the Soybean Preparation Process.

Section F.1, Page 75
Revised atmospheric emission rates for Bean Conditioning.

Section F.1, Page 76
Revised atmospheric emission rates for the Flaking Rolls.

Section F.1, Page 79
Revised atmospheric particulate matter emission rates for the Meal Dryer.

Section F.1, Page 80
Revised atmospheric particulate matter emission rates for the Meal Cooler.

Section F.1, Page 81
Revised atmospheric emission rates for Meal Screening and Grinding.

Section F.1, Page 82
Revised atmospheric emission rates for Mill Feed (Hull) Grinding.

Section F.1, Page 83
Revised atmospheric emission rates for the Meal/Mill Feed Storage Bins.

Section F.1, Page 84
Revised atmospheric emission rates for the Meal/Mill Feed Loadout Tank.

Section F.1, Page 85
Revised atmospheric emission rates for the Meal Loadout Area.

Section F.1, Page 86
Revised atmospheric emission rates for the Soybean Day Tanks.

Section F.1, Page 88
Revised atmospheric emission rates for the Facility Roadways.

Attachment C – Project Description
A revised Summary Table of Total Project Potential Emissions is provided.

Attachment D – Applicable Requirements
A revised Summary Table of Total Project Potential Emissions is provided.

Attachment G – Potential Emission Calculations
Revised particulate matter potential emissions calculations are provided.

Perdue has reviewed the previously submitted Lowest Achievable Emission Rate (LAER) Evaluation (Attachment H to the Pending Application) and found that the evaluation's conclusions remain valid under the proposed increased throughput rate and the associated increased particulate matter emission rates. In summary, the technical feasibility issues, the fire safety concerns, and the additional cost associated with the operation of a regenerative thermal oxidizer (RTO) for VOC control would preclude Perdue from moving forward with construction of the Facility. Therefore, there are no proposed changes to the LAER Evaluation.

As noted in the previously submitted Alternatives Analysis (Attachment I to the Pending Application), based on existing and projected traffic volumes, the existing Lancaster County Solid Waste Management Authority (LCSWMA) driveway that will serve the Facility will be compliant with the current approved Pennsylvania Department of Transportation (PennDOT) Highway Occupancy Permit (HOP) for a Medium Volume Driveway. The enclosed Traffic Assessment Memorandum (RETTEW, 11/06/2014) addresses the increased truck traffic resulting from the increased maximum soybean throughput rate. As noted in the Memorandum, the daily

driveway traffic under the proposed increased throughput rate will still be less than half of the allowable volume for a PennDOT Medium Volume Driveway. Therefore, there are no changes to this finding in the Alternatives Analysis.

We greatly appreciate your attention to this matter and request that the Department review and approve the pending Plan Approval Application as soon as possible. As previously discussed, Perdue understands that Department action on Storage Tank Site Specific Installation Permit (SSIP) Application No. 12021 will be coordinated with its action on Plan Approval Application No. 36-05158A. Please contact me at 252-348-4326 should you have any questions.

Sincerely,

C. Wayne Black

C. Wayne Black
Director—AgriBusiness Environmental

Enclosures

cc: Himanshu Vyas, U.S. EPA, Region 3
John Schmelzle, Rettew Associates
Charles Zukor, Trinity Consultants

Section B - Processes Information (Continued)

3. Burner

Manufacturer	Type and Model No.	Number of Burners
NA	NA	NA

Description:
NA

Rated Capacity	Maximum Capacity
NA	NA

4. Process Storage Vessels

A. For Liquids:

Name of material stored
NA

Tank I.D. No.	Manufacturer	Date Installed
NA	NA	NA

Maximum Pressure	Capacity (gallons/Meter^3)
NA	NA

Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)
NA

Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)
NA	NA

Type of Roof: Describe:
NA

Total Throughput Per Year	Number of fills per day (fill/day): NA Filling Rate (gal./min.): NA Duration of fill hr./fill): NA
NA	

B. For Solids

Type: ☐ Silo ☐ Storage Bin ☒Other, Describe Hopper-bottom, metal storage bin tank	Name of Material Stored Soybeans

Silo/Storage Bin I.D. No.	Manufacturer	Date Installed
Wet Grain Storage Bins Nos. 1 through 4	GSI, Chief, Brock, or equivalent	To be installed

State whether the material will be stored in loose or bags in silos	Capacity (Tons)
Loose	900 (approx., each)
Turn over per year in tons 766,500 tons/year (max. approx., total)	Turn over per day in tons 2,100 tons/day (max. approx., total)

Describe fugitive dust control system for loading and handling operations
Generally accepted best management practices (BMPs) for agricultural grain handling. A closed drag system and enclosed turnhead will be used for loading and handling operations. The vents on each bin will be equipped with a collapsible fabric filter.

Describe material handling system
Bin storage for staging and tempering of soybeans to include closed drag system and enclosed turnhead.

5. Request for Confidentiality

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☒ No
If yes, include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section B - Processes Information (Continued)

3. Burner

Manufacturer	Type and Model No.	Number of Burners
NA	NA	NA

Description:
NA

Rated Capacity	Maximum Capacity
NA	NA

4. Process Storage Vessels

A. For Liquids:

Name of material stored
NA

Tank I.D. No.	Manufacturer	Date Installed
NA	NA	NA

Maximum Pressure	Capacity (gallons/Meter^3)
NA	NA

Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)
NA

Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)
NA	NA

Type of Roof: Describe:
NA

Total Throughput Per Year	Number of fills per day (fill/day): NA Filling Rate (gal./min.): NA Duration of fill hr./fill): NA
NA	

B. For Solids

Type: ☐ Silo ☐ Storage Bin ☒ Other, Describe Metal storage bin tank	Name of Material Stored Soybeans

Silo/Storage Bin I.D. No.	Manufacturer	Date Installed
Grain Storage Bin Tanks Nos. 1 through 4	GSI, Chief, Brock, or equivalent	To be installed

State whether the material will be stored in loose or bags in silos	Capacity (Tons)
Loose	15,000 (approx., each)
Turn over per year in tons 766,500 tons/year (max. approx., total)	Turn over per day in tons 2,100 tons/day (max. approx., total)

Describe fugitive dust control system for loading and handling operations
Generally accepted best management practices (BMPs) for agricultural grain handling. A closed drag system and enclosed turnhead will be used for loading and handling operations.

Describe material handling system
Bin storage for staging and tempering of soybeans to include closed drag system and enclosed turnhead.

5. Request for Confidentiality

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☒ No
If yes, include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section C - Air Cleaning Device

1. Precontrol Emissions* *C101 – Grain Baghouse*

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM		57.60	8,760	36.79	See Attachment G.
PM_{10}		25.08	8,760	16.02	See Attachment G.
SO_x					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----	-----	-----
$PM_{2.5}$		4.26	8,760	2.72	See Attachment G.

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Gas Cooling *Not Applicable (NA)*

Water quenching ☐ Yes ☐ No Water injection rate _____ GPM

Radiation and convection cooling ☐ Yes ☐ No	Air dilution ☐ Yes ☐ No If yes, _____CFM
Forced Draft ☐ Yes ☐ No	Water cooled duct work ☐ Yes ☐ No
Other	
Inlet Volume _____ACFM @ _____°F _____% Moisture	Outlet Volume _____ACFM @ _____°F _____% Moisture

Describe the system in detail.

REVISED NOVEMBER 2014

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *101 – Grain Receiving & Processing*

Pollutant	Maximum emission rate: specify units	Maximum emission rate: lbs/hr	Maximum emission rate: tons/yr.	Calculation/ Estimation Method
PM		0.0555 (stack), 2.10 (fug.)	0.0355 (stack), 1.34 (fug.)	See Attachment G.
PM_{10}		0.0246 (stack), 0.468 (fug.)	0.0157 (stack), 0.299 (fug.)	See Attachment G.
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.0042 (stack), 0.078 (fug.)	0.0027 (stack), 0.050 (fug.)	See Attachment G.

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number S101 - Grain Baghouse Stack; Z101 - Grain Receiving Fugitives

List Source(s) or source ID exhausted to this stack:
101 - Grain Receiving & Processing

% of flow exhausted to stack: 90% stack, 10% fugitive

Stack height above grade (ft.) 10 ft.
Grade elevation (ft.) 350 ft. (approx.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
9.62 sq. ft.

f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
450 ft. (approx.)

Does stack height meet Good Engineering Practice (GEP)?
NA

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude: Degrees	Latitude: Minutes	Latitude: Seconds	Longitude: Degrees	Longitude: Minutes	Longitude: Seconds
NA						

Stack exhaust
Volume 30,000 ACFM Temperature Ambient °F Moisture Ambient %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
Should DEP require stack testing, appropriate sampling ports will be installed.

Exhauster (attach fan curves) 12" S.P. in. of water 73.5 HP @ 1,669 RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *102 – Wet Grain Storage Bins*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		0.1500	0.0958	See Attachment G.
PM_{10}		0.0378	0.0241	See Attachment G.
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.0066	0.0042	See Attachment G.

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number Z102 - Wet Grain Storage Bins Vents Filters

List Source(s) or source ID exhausted to this stack:	% of flow exhausted to stack: 100%
102 - Wet Grain Storage Bins	

Stack height above grade (ft.) 30 ft. Grade elevation (ft.) 350 ft. (approx.)	Stack diameter (ft) or Outlet duct area (sq. ft.) Fugitive vents	f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.

375 ft. (approx.)

Does stack height meet Good Engineering Practice (GEP)?

NA

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NA						

Stack exhaust

Volume NA ACFM Temperature NA °F Moisture NA %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.

NA

Exhauster (attach fan curves) NA in. of water NA HP @ NA RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

REVISED NOVEMBER 2014

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *103 – Grain Dryer No. 1*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		17.42	23.19	See Attachment G.
PM_{10}		4.36	5.80	See Attachment G.
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.74	0.99	See Attachment G.

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number S103 - Grain Dryer No. 1 Stack

List Source(s) or source ID exhausted to this stack:
103 - Grain Dryer No. 1

% of flow exhausted to stack: 100%

Stack height above grade (ft.) 60 ft.
Grade elevation (ft.) 350 ft. (approx.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
2,560 sq. ft. (screened discharge louvers)

f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
500 ft. (approx.)

Does stack height meet Good Engineering Practice (GEP)?
NA

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NA						

Stack exhaust
Volume NA ACFM Temperature NA °F Moisture NA %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
NA

Exhauster (attach fan curves) NA in. of water NA HP @ NA RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

REVISED NOVEMBER 2014

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *104 – Grain Dryer No. 2*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		17.42	23.19	See Attachment G.
PM_{10}		4.36	5.80	See Attachment G.
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.74	0.99	See Attachment G.

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number S104 - Grain Dryer No. 2 Stack

List Source(s) or source ID exhausted to this stack:
104 - Grain Dryer No. 2

% of flow exhausted to stack: 100%

Stack height above grade (ft.) 60 ft.
Grade elevation (ft.) 350 ft. (approx.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
2,560 sq. ft. (screened discharge louvers)

f. Weather Cap
☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
500 ft. (approx.)

Does stack height meet Good Engineering Practice (GEP)?
NA

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NA						

Stack exhaust
Volume NA ACFM Temperature NA °F Moisture NA %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
NA

Exhauster (attach fan curves) NA in. of water NA HP @ NA RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *105 – Grain Storage Bins*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		15.00	9.58	See Attachment G.
PM_{10}		3.78	2.41	See Attachment G.
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.66	0.42	See Attachment G.

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number Z105 - Grain Storage Bins Vents

List Source(s) or source ID exhausted to this stack:
105 - Grain Storage Bins

% of flow exhausted to stack: 100%

Stack height above grade (ft.) 150 ft.
Grade elevation (ft.) 350 ft. (approx.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
Fugitive vents

f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.

350 ft. (approx.)

Does stack height meet Good Engineering Practice (GEP)?
NA

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NA						

Stack exhaust
Volume NA ACFM Temperature NA °F Moisture NA %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
NA

Exhauster (attach fan curves) NA in. of water NA HP @ NA RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *106 – Grain Loadout*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		10.32	5.49	See Attachment G.
PM_{10}		3.48	1.85	See Attachment G.
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.59	0.31	See Attachment G.

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number Z106 - Grain Loadout Fugitives

List Source(s) or source ID exhausted to this stack:	% of flow exhausted to stack: NA - Fugitive
106 - Grain Loadout	

Stack height above grade (ft.) NA - Fugitive Grade elevation (ft.) 350 ft. (approx.)	Stack diameter (ft) or Outlet duct area (sq. ft.) NA - Fugitive	f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.

NA - Fugitive

Does stack height meet Good Engineering Practice (GEP)?

NA - Fugitive

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NA						

Stack exhaust

Volume NA ACFM Temperature NA °F Moisture NA %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.

NA - Fugitive

Exhauster (attach fan curves) NA in. of water NA HP @ NA RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section B - Processes Information

1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.

Soybean Preparation Process (Cleaning/Cracking/Dehulling) - Separation of exterior soybean hull from bean germ via cracking rolls and primary aspiration. Remaining soybean hulls, hull fines, and dust from primary hull separation are further screened, and any processable bean meats are returned to primary hull separation tables via fluidization.

Manufacturer	Model No.	Number of Sources
Rotex or equivalent (cleaner screen)	Rotex 822GC	One (1) cleaner screen
Highland or equivalent (whole bean tank)	10' square x 20' height	One (1) whole bean tank
Highland or equivalent (cracked bean tank)	10' square x 20' height	One (1) cracked bean tank
Roskamp or equivalent (cracking rolls)	Roskamp 12 x 52 or equivalent	Three (3) cracking rolls
Cantrell or equivalent (primary separation tables)	Cantrell 241D or equivalent	Six (6) primary separaton tables
Triple S or equivalent (secondary separation tables)	Triple S Model T-20 or equivalent	Two (2) secondary separation tables

Source Designation	Maximum Capacity	Rated Capacity
201 - Soybean Preparation Process	72.92 tons/hour	72.92 tons/hour

Type of Material Processed
Soybeans

Maximum Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	7	365	8,760

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)

Capacity (specify units)

Per Hour	Per Day	Per Week	Per Year
NA	NA	NA	NA

Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
NA	NA	NA	NA

Seasonal variations (Months) From NA to NA

If variations exist, describe them
NA

2. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number NA	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Gas (other) _____	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Coal _____	TPH	Tons	% by wt		Btu/lb
Other * _____					

*Note: Describe and furnish information separately for other fuels in Addendum B.

Section B - Processes Information (Continued)

3. Burner

Manufacturer	Type and Model No.	Number of Burners
NA	NA	NA

Description:
NA

Rated Capacity	Maximum Capacity
NA	NA

4. Process Storage Vessels

A. For Liquids:

Name of material stored
NA

Tank I.D. No.	Manufacturer	Date Installed
NA	NA	NA

Maximum Pressure	Capacity (gallons/Meter^3)
NA	NA

Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)
NA

Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)
NA	NA

Type of Roof: Describe:
NA

Total Throughput Per Year	Number of fills per day (fill/day): NA Filling Rate (gal./min.): NA Duration of fill hr./fill): NA
NA	

B. For Solids

Type: ☐ Silo ☒ Storage Bin ☐Other, Describe	Name of Material Stored
	Soybeans

Silo/Storage Bin I.D. No.	Manufacturer	Date Installed
Whole Bean Tank and Cracked Bean Tank	Highland or equivalent	Not yet installed.

State whether the material will be stored in loose or bags in silos	Capacity (Tons)
Loose	75 tons, each

Turn over per year in tons	Turn over per day in tons
638,750 tons/year (max. approx.)	1,750 tons/day (max. approx.)

Describe fugitive dust control system for loading and handling operations
Baghouse emissions control.

Describe material handling system
Enclosed conveyance.

5. Request for Confidentiality

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☒ No
If yes, include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section B - Processes Information

1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.
Bean Conditioning - Cracked soybean pieces are heated by steam to make them pliable and keep them hydrated.

Manufacturer	Model No.	Number of Sources
Crown Iron Works or equivalent	95-7	One (1)
Source Designation	**Maximum Capacity**	**Rated Capacity**
202 - Bean Conditioning	68.54 tons/hour	68.54 tons/hour

Type of Material Processed
Soybeans

Maximum Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	7	365	8,760

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)

Capacity (specify units)

Per Hour	Per Day	Per Week	Per Year
NA	NA	NA	NA

Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
NA	NA	NA	NA

Seasonal variations (Months) From NA to NA

If variations exist, describe them
NA

2. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number NA	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Gas (other) _____	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Coal _____	TPH	Tons	% by wt		Btu/lb
Other * _____					
_____					
_____					

*Note: Describe and furnish information separately for other fuels in Addendum B.

Section B - Processes Information

1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.

Flaking Rolls - Cracked, dehulled, conditioned soybean pieces are compressed into flakes that are approximately 15,000th of an inch thick to increase surface area for proper oil extraction.

Manufacturer	Model No.	Number of Sources
Roskamp or equivalent	Roskamp 28 x 62 or equivalent	Five (5) flaking mills
Source Designation	**Maximum Capacity**	**Rated Capacity**
203 - Flaking Rolls	68.54 tons/hour	68.54 tons/hour

Type of Material Processed
Soybeans

Maximum Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	7	365	8,760

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)

Capacity (specify units)

Per Hour	Per Day	Per Week	Per Year
NA	NA	NA	NA

Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
NA	NA	NA	NA

Seasonal variations (Months) From NA to NA

If variations exist, describe them
NA

2. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number NA	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Gas (other) _____	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Coal _____	TPH	Tons	% by wt		Btu/lb
Other * _____					
_____					
_____					

*Note: Describe and furnish information separately for other fuels in Addendum B.

Section B - Processes Information

1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.

Extraction Process - Soybean flakes are "washed" with hexane solvent in a counter-current extractor to remove the soybean oil from the flakes. The solvent-laden flakes are then desolventized and toasted in the desolventizer-toaster (DT) by using steam to evaporate the hexane solvent and toast the flakes to produce soybean meal.

Manufacturer	Model No.	Number of Sources
Desmet	372 RE Reflex (oil extractor) Dimax DT-4000 (DT)	Two (2) - oil extractor and DT
Source Designation	**Maximum Capacity**	**Rated Capacity**
204 - Extraction Process	68.54 tons/hour	68.54 tons/hour

Type of Material Processed
Soybean flakes/meal

Maximum Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	7	365	8,760

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)

Capacity (specify units)

Per Hour	Per Day	Per Week	Per Year
NA	NA	NA	NA

Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
NA	NA	NA	NA

Seasonal variations (Months) From NA to NA

If variations exist, describe them
NA

2. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number NA	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Gas (other) _____	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Coal _____	TPH	Tons	% by wt		Btu/lb
Other * _____					
_____					
_____					

*Note: Describe and furnish information separately for other fuels in Addendum B.

Section B - Processes Information

1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.

Mill Feed (Hull) Grinding - Soybean hulls and dust from the hull separation process are conditioned and ground for use as feed.

Manufacturer	Model No.	Number of Sources
Custom fabricated (hull conditioner) Roskamp or equivalent (hull grinder)	NA (hull conditioner) 4424 or equivalent (hull grinder)	One (1) hull conditioner Two (2) hull grinders
Source Designation	**Maximum Capacity**	**Rated Capacity**
207 - Mill Feed (Hull) Grinding	4.74 tons/hour	4.74 tons/hour

Type of Material Processed
Soybean hulls

Maximum Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	7	365	8,760

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)

Capacity (specify units)

Per Hour	Per Day	Per Week	Per Year
NA	NA	NA	NA

Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
NA	NA	NA	NA

Seasonal variations (Months) From NA to NA

If variations exist, describe them
NA

2. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number NA	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Gas (other)	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Coal	TPH	Tons	% by wt		Btu/lb
Other *					

*Note: Describe and furnish information separately for other fuels in Addendum B.

Section B - Processes Information (Continued)

3. Burner

Manufacturer	Type and Model No.	Number of Burners
NA	NA	NA

Description:
NA

Rated Capacity	Maximum Capacity
NA	NA

4. Process Storage Vessels

A. For Liquids:

Name of material stored
NA

Tank I.D. No.	Manufacturer	Date Installed
NA	NA	NA

Maximum Pressure	Capacity (gallons/Meter^3)
NA	NA

Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)
NA

Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)
NA	NA

Type of Roof: Describe:
NA

Total Throughput Per Year	Number of fills per day (fill/day): NA Filling Rate (gal./min.): NA Duration of fill hr./fill): NA
NA	

B. For Solids

Type: ☐ Silo ☒ Storage Bin ☐Other, Describe	Name of Material Stored Soybean meal and mill feed

Silo/Storage Bin I.D. No.	Manufacturer	Date Installed
Meal/Mill Feed Bins Nos. 1 through 4	CST Columbia Storage Tank or equivalent	To be installed

State whether the material will be stored in loose or bags in silos	Capacity (Tons)
Loose	500 tons, each (meal); 300 tons, each (mill feed)
Turn over per year in tons 520,582 tons/year (max. approx.)	Turn over per day in tons 1,434 tons/day (max. approx.)

Describe fugitive dust control system for loading and handling operations
Collapsible bin vent fabric filters and generally accepted best management practices (BMPs) for agricultural commodities. A closed drag system will be used for loading and handling operations.

Describe material handling system
Closed drag conveyance.

5. Request for Confidentiality

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☒ No
If yes, include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section B - Processes Information (Continued)

3. Burner

Manufacturer	Type and Model No.	Number of Burners
NA	NA	NA

Description:
NA

Rated Capacity	Maximum Capacity
NA	NA

4. Process Storage Vessels

A. For Liquids:

Name of material stored
NA

Tank I.D. No.	Manufacturer	Date Installed
NA	NA	NA

Maximum Pressure	Capacity (gallons/Meter^3)
NA	NA

Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)
NA

Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)
NA	NA

Type of Roof: Describe:
NA

Total Throughput Per Year	Number of fills per day (fill/day): NA Filling Rate (gal./min.): NA Duration of fill hr./fill): NA
NA	

B. For Solids

Type: ☐ Silo ☒ Storage Bin ☐Other, Describe	Name of Material Stored
	Soybean meal and mill feed

Silo/Storage Bin I.D. No.	Manufacturer	Date Installed
Meal/Mill Feed Loadout Tank	Lamco/Intersystems or equivalent	To be installed

State whether the material will be stored in loose or bags in silos	Capacity (Tons)
Loose	300 tons (max. approx.)
Turn over per year in tons 520,582 tons/year (max. approx.)	Turn over per day in tons 1,434 tons/day (max. approx.)

Describe fugitive dust control system for loading and handling operations
Collapsible bin vent fabric filters and generally accepted best management practices (BMPs) for agricultural commodities. A closed drag system will be used for loading and handling operations.

Describe material handling system
Closed drag conveyance.

5. Request for Confidentiality

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☒ No
If yes, include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section B - Processes Information (Continued)

3. Burner

Manufacturer	Type and Model No.	Number of Burners
NA	NA	NA

Description:
NA

Rated Capacity	Maximum Capacity
NA	NA

4. Process Storage Vessels

A. For Liquids:

Name of material stored
NA

Tank I.D. No.	Manufacturer	Date Installed
NA	NA	NA

Maximum Pressure	Capacity (gallons/Meter^3)
NA	NA

Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)
NA

Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)
NA	NA

Type of Roof: Describe:
NA

Total Throughput Per Year	Number of fills per day (fill/day): NA Filling Rate (gal./min.): NA Duration of fill hr./fill): NA
NA	

B. For Solids

Type: ☒ Silo ☐ Storage Bin ☐Other, Describe	Name of Material Stored
	Soybeans

Silo/Storage Bin I.D. No.	Manufacturer	Date Installed
Soybean Day Tanks No. 1 through 3	Chief or equivalent	To be installed

State whether the material will be stored in loose or bags in silos	Capacity (Tons)
Loose	1,750 tons, each (max. approx.)

Turn over per year in tons	Turn over per day in tons
638,750 tons/year (max. approx.)	1,750 tons/day (max. approx.)

Describe fugitive dust control system for loading and handling operations
Collapsible bin vent fabric filters and generally accepted best management practices (BMPs) for agricultural commodities. A closed drag system will be used for loading and handling operations.

Describe material handling system
Closed drag conveyance.

5. Request for Confidentiality

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☒ No
If yes, include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section C - Air Cleaning Device

1. Precontrol Emissions* *201 – Soybean Preparation Process*

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM		317.19	8,760	1,389.28	AP-42, Sec. 9.11.1
PM_{10}		79.30	8,760	347.32	AP-42, Sec. 9.11.1 & 9.9.1
SO_x					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----	-----	-----
$PM_{2.5}$		13.48	8,760	59.04	AP-42, Sec. 9.11.1 & 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Gas Cooling *Not Applicable (NA)*

Water quenching ☐ Yes ☐ No Water injection rate _____ GPM

Radiation and convection cooling ☐ Yes ☐ No	Air dilution ☐ Yes ☐ No If yes, _____CFM
Forced Draft ☐ Yes ☐ No	Water cooled duct work ☐ Yes ☐ No
Other	
Inlet Volume _____ACFM @ _____°F _____% Moisture	Outlet Volume _____ACFM @ _____°F _____% Moisture

Describe the system in detail.

Section C - Air Cleaning Device (Continued)

5. Fabric Collector *C201A, B, C, D, E – Soybean Preparation Process Baghouses (five (5) identical baghouses)*

Equipment Specifications

Manufacturer	Model No.	
Airlanco	236/158RLP8	☐ Pressurized Design ☒ Suction Design

Number of Compartments	Number of Filters Per Compartment	Is Baghouse Insulated?
1	158	☐ Yes ☒ No

Can each compartment be isolated for repairs and/or filter replacement? ☐ Yes ☒ No

NA

Are temperature controls provided? (Describe in detail) ☐ Yes ☒ No

NA

Dew point at maximum moisture 20 (approx.) °F | Design inlet volume 12,500 SCFM

Type of Fabric

Material Polyester ☐ Felted ☐ Membrane

Weight 16 oz/sq.yd ☐ Woven ☐ Others: List: _____

Thickness Unknown in ☒ Felted-Woven

Fabric permeability (clean) @ ½" water-Δ P Unknown CFM/sq.ft.

Filter dimensions Length 8' Diameter/Width 6.25"

Effective area per filter 13.10 sq. ft. | Maximum operating temperature (°F) 120

Effective air to cloth ratio Minimum Unknown Maximum 6.04:1

Drawing of Fabric Filter

A sketch of the fabric filter showing all access doors, catwalks, ladders and exhaust ductwork, location of each pressure and temperature indicator should be attached.

Operation and Cleaning

Volume of gases handled

12,500 ACFM @ Ambient °F

Pressure drop across collector (in. of water). 1-6"

Describe the equipment to be used to monitor the pressure drop. Magnehelic gauge/pressure delta

Type of filter cleaning

☐ Manual Cleaning ☐ Bag Collapse ☐ Reverse Air Jets

☐ Mechanical Shakers ☐ Sonic Cleaning ☐ Other: _____

☐ Pneumatic Shakers ☒ Reverse Air Flow

Describe the equipment provided if dry oil free air is required for collector operation NA

Cleaning Initiated By

☐ Timer Frequency if timer actuated _____

☐ Expected pressure drop range _____ in. of water ☒ Other Specify Continuous clean

Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If yes, describe.

NA

Describe the warning/alarm system that protects against operation when the unit is not meeting design requirements.

Manual checks and pressure drop gauge readings.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)
PM	317.19 lbs/hr	0.32 lb/hr	≥99.9%
PM10	79.30 lbs/hr	0.079 lb/hr	≥99.9%
PM2.5	13.48 lbs/hr	0.014 lb/hr	≥99.9%

Section C - Air Cleaning Device

1. Precontrol Emissions* *202 – Bean Conditioning*

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM		6.85	8,760	30.02	AP-42, Sec. 9.11.1
PM_{10}		1.71	8,760	7.51	AP-42, Sec. 9.11.1 & 9.9.1
SO_x					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----	-----	-----
$PM_{2.5}$		0.29	8,760	1.28	AP-42, Sec. 9.11.1 & 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Gas Cooling *Not Applicable (NA)*

Water quenching ☐ Yes ☐ No Water injection rate _____ GPM

Radiation and convection cooling ☐ Yes ☐ No

Air dilution ☐ Yes ☐ No
If yes, _____CFM

Forced Draft ☐ Yes ☐ No

Water cooled duct work ☐ Yes ☐ No

Other

Inlet Volume _____ACFM
@ _____°F _____% Moisture

Outlet Volume _____ACFM
@ _____°F _____% Moisture

Describe the system in detail.

Section C - Air Cleaning Device

1. Precontrol Emissions* *203 - Flaking Rolls*

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM		2,536.04	8,760	11,108	AP-42, Sec. 9.11.1
PM_{10}		634.01	8,760	2,777	AP-42, Sec. 9.11.1 & 9.9.1
SO_x					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----	-----	-----
$PM_{2.5}$		107.78	8,760	472	AP-42, Sec. 9.11.1 & 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Gas Cooling *Not Applicable (NA)*

Water quenching ☐ Yes ☐ No Water injection rate _____ GPM

Radiation and convection cooling ☐ Yes ☐ No

Air dilution ☐ Yes ☐ No
If yes, _____CFM

Forced Draft ☐ Yes ☐ No

Water cooled duct work ☐ Yes ☐ No

Other

Inlet Volume _____ACFM
@ _____°F _____% Moisture

Outlet Volume _____ACFM
@ _____°F _____% Moisture

Describe the system in detail.

Section C - Air Cleaning Device (Continued)

3. Settling Chambers *Not Applicable (NA)*

Manufacturer	Volume of gas handled _____ACFM @ _____°F	Gas velocity (ft/sec.)

Length of chamber (ft.)	Width of chamber (ft.)	Height of chamber (ft.)	Number of trays

Water injection ☐ Yes ☐ No | Water injection rate (GPM)

Emissions Data

Inlet	Outlet	Removal Efficiency (%)

4. Inertial and Cyclone Collectors *C203 - Flaking Rolls Cyclone*

Manufacturer Aircon	Type High efficiency cyclone	Model No. HE-54
Pressure drop (in. of water) 2" to 6"	Inlet volume 18,000 ACFM @ 110 (approx.) °F	Outlet volume 18,000 ACFM @ 110 (approx.) °F

Number of individual cyclone(s) 1	Outlet straightening vanes used? ☐ Yes ☒ No

Length of Cyclone(s) Cylinder (ft.) 8' (approx.)	Diameter of Cyclone(s) Cylinder (ft.) 4.5' (approx.)	Length of Cyclone(s) cone (ft.) 9.7' (approx.)

Inlet Diameter (ft.) or duct area (ft.²) of cyclone(s) 4.375 sq. ft. (approx.)	Outlet Diameter (ft.) or duct area (ft.²) of cyclone(s) 4.69 sq. ft. (approx.)

If a multi-clone or multi-tube unit is installed, will any of the individual cyclones or cyclone tubes be blanked or blocked off?
NA

Describe any exhaust gas recirculation loop to be employed.
NA

Attach particle size efficiency curve
Not available

Emissions Data

Inlet	Outlet	Removal Efficiency (%)
PM - 2,536 lbs/hr	2.54 lbs/hr	99.9% (approx.)

Section C - Air Cleaning Device

1. Precontrol Emissions* *205A - Meal Dryer*

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM		379.29	8,760	1,539.84	AP-42, Sec. 9.11.1
PM_{10}		94.82	8,760	384.96	AP-42, Sec. 9.11.1 & 9.9.1
SO_x					
CO					
NO_x					
VOC		12.00	8,760	50.42	LAER/material balance
Others: (e.g., HAPs)	-----	-----	-----	-----	-----
$PM_{2.5}$		16.12	8,760	65.44	AP-42, Sec. 9.11.1 & 9.9.1
n-Hexane (HAP)		6.00	8,760	25.21	LAER/material balance

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Gas Cooling *Not Applicable (NA)*

Water quenching ☐ Yes ☐ No Water injection rate _____ GPM

Radiation and convection cooling ☐ Yes ☐ No

Air dilution ☐ Yes ☐ No
If yes, _____CFM

Forced Draft ☐ Yes ☐ No

Water cooled duct work ☐ Yes ☐ No

Other

Inlet Volume _____ACFM
@_____°F _____% Moisture

Outlet Volume _____ACFM
@_____°F _____% Moisture

Describe the system in detail.

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Section C - Air Cleaning Device

1. Precontrol Emissions* *205B - Meal Cooler*

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM		400.36	8,760	1,625.39	AP-42, Sec. 9.11.1
PM_{10}		100.09	8,760	406.35	AP-42, Sec. 9.11.1 & 9.9.1
SO_x					
CO					
NO_x					
VOC		6.00	8,760	25.21	LAER/material balance
Others: (e.g., HAPs)	-----	-----	-----	-----	-----
$PM_{2.5}$		17.02	8,760	69.08	AP-42, Sec. 9.11.1 & 9.9.1
n-Hexane (HAP)		3.00	8,760	12.61	LAER/material balance

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Gas Cooling *Not Applicable (NA)*

Water quenching ☐ Yes ☐ No Water injection rate _____ GPM

Radiation and convection cooling ☐ Yes ☐ No

Air dilution ☐ Yes ☐ No
If yes, _____CFM

Forced Draft ☐ Yes ☐ No

Water cooled duct work ☐ Yes ☐ No

Other

Inlet Volume _____ACFM
@ _____°F _____% Moisture

Outlet Volume _____ACFM
@ _____°F _____% Moisture

Describe the system in detail.

Section C - Air Cleaning Device

1. Precontrol Emissions* *206 - Meal Screening and Grinding*

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM		187.00	8,760	814.41	AP-42, Sec. 9.11.1
PM_{10}		46.75	8,760	203.60	AP-42, Sec. 9.11.1 & 9.9.1
SO_x					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----	-----	-----
$PM_{2.5}$		7.95	8,760	34.61	AP-42, Sec. 9.11.1 & 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Gas Cooling *Not Applicable (NA)*

Water quenching ☐ Yes ☐ No Water injection rate _____ GPM

Radiation and convection cooling ☐ Yes ☐ No

Air dilution ☐ Yes ☐ No
If yes, _____CFM

Forced Draft ☐ Yes ☐ No

Water cooled duct work ☐ Yes ☐ No

Other

Inlet Volume _____ACFM
@ _____°F _____% Moisture

Outlet Volume _____ACFM
@ _____°F _____% Moisture

Describe the system in detail.

Section C - Air Cleaning Device

1. Precontrol Emissions* *207 - Mill Feed (Hull) Grinding*

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM		9.48	8,760	41.52	AP-42, Sec. 9.11.1
PM_{10}		2.37	8,760	10.38	AP-42, Sec. 9.11.1 & 9.9.1
SO_x					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----	-----	-----
$PM_{2.5}$		0.40	8,760	1.76	AP-42, Sec. 9.11.1 & 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Gas Cooling *Not Applicable (NA)*

Water quenching ☐ Yes ☐ No Water injection rate _____ GPM

Radiation and convection cooling ☐ Yes ☐ No

Air dilution ☐ Yes ☐ No
If yes, _____CFM

Forced Draft ☐ Yes ☐ No

Water cooled duct work ☐ Yes ☐ No

Other

Inlet Volume _____ACFM
@ _____°F _____% Moisture

Outlet Volume _____ACFM
@ _____°F _____% Moisture

Describe the system in detail.

Section C - Air Cleaning Device (Continued)

5. Fabric Collector *C207 - Mill Feed (Hull) Grinding Baghouse*

Equipment Specifications

Manufacturer	Model No.	
Airlanco	124RLP8	☐ Pressurized Design ☒ Suction Design

Number of Compartments	Number of Filters Per Compartment	Is Baghouse Insulated?
1	124	☒ Yes ☐ No

Can each compartment be isolated for repairs and/or filter replacement? ☐ Yes ☒ No

NA

Are temperature controls provided? (Describe in detail) ☐ Yes ☒ No

NA

Dew point at maximum moisture 40 (approx.) °F | Design inlet volume 7,000 SCFM

Type of Fabric

Material Polyester ☐ Felted ☐ Membrane

Weight 16 oz/sq.yd ☐ Woven ☐ Others: List:

Thickness Unknown in ☒ Felted-Woven

Fabric permeability (clean) @ ½" water-Δ P Unknown CFM/sq.ft.

Filter dimensions Length 8' Diameter/Width 6.25"

Effective area per filter 13.10 sq. ft. | Maximum operating temperature (°F) 120

Effective air to cloth ratio Minimum Unknown Maximum 4.39:1

Drawing of Fabric Filter

A sketch of the fabric filter showing all access doors, catwalks, ladders and exhaust ductwork, location of each pressure and temperature indicator should be attached.

Operation and Cleaning

Volume of gases handled

7,000 ACFM @ Ambient °F

Pressure drop across collector (in. of water). 1-6"

Describe the equipment to be used to monitor the pressure drop. Magnehelic gauge/pressure delta

Type of filter cleaning

☐ Manual Cleaning ☐ Bag Collapse ☐ Reverse Air Jets

☐ Mechanical Shakers ☐ Sonic Cleaning ☐ Other:

☐ Pneumatic Shakers ☒ Reverse Air Flow

Describe the equipment provided if dry oil free air is required for collector operation NA

Cleaning Initiated By

☐ Timer Frequency if timer actuated

☐ Expected pressure drop range in. of water ☒ Other Specify Continuous clean

Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If yes, describe.

NA

Describe the warning/alarm system that protects against operation when the unit is not meeting design requirements.

Manual checks and pressure drop gauge readings.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)
PM	9.48 lbs/hr	0.0095 lb/hr	≥99.9%
PM10	2.37 lbs/hr	0.0024 lb/hr	≥99.9%
PM2.5	0.40 lb/hr	0.0004 lb/hr	≥99.9%

Section C - Air Cleaning Device

1. Precontrol Emissions* *210 - Meal Loadout Area*

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM		27.00	8,760	70.28	AP-42, Sec. 9.11.1
PM_{10}		6.75	8,760	17.57	AP-42, Sec. 9.11.1 & 9.9.1
SO_x					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----	-----	-----
$PM_{2.5}$		1.15	8,760	2.99	AP-42, Sec. 9.11.1 & 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Gas Cooling *Not Applicable (NA)*

Water quenching ☐ Yes ☐ No Water injection rate _____ GPM

Radiation and convection cooling ☐ Yes ☐ No

Air dilution ☐ Yes ☐ No
If yes, _____CFM

Forced Draft ☐ Yes ☐ No

Water cooled duct work ☐ Yes ☐ No

Other

Inlet Volume _____ACFM
@ _____°F _____% Moisture

Outlet Volume _____ACFM
@ _____°F _____% Moisture

Describe the system in detail.

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *201 – Soybean Preparation Process*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		0.32	1.39	AP-42, Sec. 9.11.1
PM_{10}		0.079	0.35	AP-42, Sec. 9.11.1 & 9.9.1
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.014	0.059	AP-42, Sec. 9.11.1 & 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number S201A-E - Soybean Preparation Process Baghouse Stacks (Five (5) identical stacks)

List Source(s) or source ID exhausted to this stack:
201 - Soybean Preparation Process

% of flow exhausted to stack: 100%

Stack height above grade (ft.) 40 (approx.)
Grade elevation (ft.) 350 (approx.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
3.69 sq. ft.

f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
450 ft. (approx.)

Does stack height meet Good Engineering Practice (GEP)?
NA

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NA						

Stack exhaust
Volume 12,500 ACFM Temperature Ambient °F Moisture Ambient %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
Should DEP require stack testing, appropriate sampling ports will be installed.

Exhauster (attach fan curves) Not available in. of water Not available HP @ Not available RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

REVISED NOVEMBER 2014

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *202 – Bean Conditioning*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		0.0069	0.030	AP-42, Sec. 9.11.1
PM_{10}		0.0017	0.0075	AP-42, Sec. 9.11.1 & 9.9.1
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.00029	0.0013	AP-42, Sec. 9.11.1 & 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number S201E - Miscellaneous Aspiration Baghouse Stack (Soybean Preparation Process Baghouse Stack)

List Source(s) or source ID exhausted to this stack:	% of flow exhausted to stack: 100%
202 - Bean Conditioning	

Stack height above grade (ft.) 40 (approx.) Grade elevation (ft.) 350 (approx.)	Stack diameter (ft) or Outlet duct area (sq. ft.) 3.69 sq. ft.	f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.

450 ft. (approx.)

Does stack height meet Good Engineering Practice (GEP)?

NA

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NA						

Stack exhaust

Volume 12,500 ACFM Temperature Ambient °F Moisture Ambient %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
Should DEP require stack testing, appropriate sampling ports will be installed.

Exhauster (attach fan curves) Not available in. of water Not available HP @ Not available RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

REVISED NOVEMBER 2014

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *203 - Flaking Rolls*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		2.54	11.11	AP-42, Sec. 9.11.1
PM_{10}		0.63	2.78	AP-42, Sec. 9.11.1 & 9.9.1
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.11	0.47	AP-42, Sec. 9.11.1 & 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number S203 - Flaking Rolls Cyclone Stack

List Source(s) or source ID exhausted to this stack:
203 - Flaking Rolls

% of flow exhausted to stack: 100%

Stack height above grade (ft.) 40 (approx.)
Grade elevation (ft.) 350 (approx.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
4.69 sq. ft.

f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
375 ft. (approx.)

Does stack height meet Good Engineering Practice (GEP)?
NA

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NA						

Stack exhaust
Volume 18,000 ACFM Temperature 110 (approx.) °F Moisture 80 (approx.) R.H. %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
Should DEP require stack testing, appropriate sampling ports will be installed.

Exhauster (attach fan curves) Not available in. of water Not available HP @ Not available RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

REVISED NOVEMBER 2014

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *205A - Meal Dryer*

Pollutant	Maximum emission rate: specify units	Maximum emission rate: lbs/hr	Maximum emission rate: tons/yr.	Calculation/ Estimation Method
PM		10.62	43.12	AP-42, Sec. 9.11.1
PM_{10}		2.66	10.78	AP-42, Sec. 9.11.1 & 9.9.1
SO_x				
CO				
NO_x				
VOC		12.00	50.42	LAER/material balance
Others: (e.g., HAPs)	-----	-----	-----	-----
n-Hexane		6.00	25.21	LAER/material balance
PM2.5		0.45	1.83	AP-42, Sec. 9.11.1 & 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number S205A - Meal Dryer Cyclone Stack

List Source(s) or source ID exhausted to this stack:
205A - Meal Dryer

% of flow exhausted to stack: 100%

Stack height above grade (ft.) 40 (approx.)
Grade elevation (ft.) 350 (approx.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
2.42 ft. (approx.)

f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
375 ft. (approx.)

Does stack height meet Good Engineering Practice (GEP)?
Not available

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. See supplemental Air Dispersion Modeling and Health Risk Assessment.

Location of stack** Latitude/Longitude Point of Origin	Latitude: Degrees	Latitude: Minutes	Latitude: Seconds	Longitude: Degrees	Longitude: Minutes	Longitude: Seconds
See supplemental Air Dispersion Modeling and Health Risk Assessment.						

Stack exhaust
Volume 23,540 ACFM Temperature 140 (approx.) °F Moisture 85 (approx.) R.H. %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
Should DEP require stack testing, appropriate sampling ports will be installed.

Exhauster (attach fan curves) Not available in. of water Not available HP @ Not available RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

REVISED NOVEMBER 2014

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *205B - Meal Cooler*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		11.21	45.51	AP-42, Sec. 9.11.1
PM_{10}		2.80	11.38	AP-42, Sec. 9.11.1 & 9.9.1
SO_x				
CO				
NO_x				
VOC		6.00	25.21	LAER/material balance
Others: (e.g., HAPs)	-----	-----	-----	-----
n-Hexane		3.00	12.61	LAER/material balance
PM2.5		0.48	1.93	AP-42, Sec. 9.11.1 & 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number S205B - Meal Cooler Cyclone Stack

List Source(s) or source ID exhausted to this stack:
205B - Meal Cooler

% of flow exhausted to stack: 100%

Stack height above grade (ft.) 40 (approx.)
Grade elevation (ft.) 350 (approx.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
2.42 ft. (approx.)

f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.

375 ft. (approx.)

Does stack height meet Good Engineering Practice (GEP)?
Not available

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. See supplemental Air Dispersion Modeling and Health Risk Assessment.

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
See supplemental Air Dispersion Modeling and Health Risk Assessment.						

Stack exhaust
Volume 23,540 ACFM Temperature 110 (approx.) °F Moisture 70 (approx.) R.H. %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
Should DEP require stack testing, appropriate sampling ports will be installed.

Exhauster (attach fan curves) Not available in. of water Not available HP @ Not available RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *206 - Meal Screening and Grinding*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		0.19	0.81	AP-42, Sec. 9.11.1
PM_{10}		0.047	0.20	AP-42, Sec. 9.11.1 & 9.9.1
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.0079	0.035	AP-42, Sec. 9.11.1 & 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number S206 - Meal Screening and Grinding Baghouse Stack

List Source(s) or source ID exhausted to this stack:
206 - Meal Screening and Grinding

% of flow exhausted to stack: 100%

Stack height above grade (ft.) 40 (approx.)
Grade elevation (ft.) 350 (approx.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
3.69 sq. ft.

f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
450 ft. (approx.)

Does stack height meet Good Engineering Practice (GEP)?
NA

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NA						

Stack exhaust
Volume 12,500 ACFM Temperature Ambient °F Moisture Ambient %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
Should DEP require stack testing, appropriate sampling ports will be installed.

Exhauster (attach fan curves) Not available in. of water Not available HP @ Not available RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *207 - Mill Feed (Hull) Grinding*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		0.0095	0.042	AP-42, Sec. 9.11.1
PM_{10}		0.0024	0.010	AP-42, Sec. 9.11.1 & 9.9.1
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.0004	0.0018	AP-42, Sec. 9.11.1 & 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number S207 - Mill Feed (Hull) Grinding Baghouse Stack

List Source(s) or source ID exhausted to this stack:
207 - Mill Feed (Hull) Grinding

% of flow exhausted to stack: 100%

Stack height above grade (ft.) 70 (approx.)
Grade elevation (ft.) 350 (approx.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
3.69 sq. ft.

f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
450 ft. (approx.)

Does stack height meet Good Engineering Practice (GEP)?
NA

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NA						

Stack exhaust
Volume 7,000 ACFM Temperature Ambient °F Moisture Ambient %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
Should DEP require stack testing, appropriate sampling ports will be installed.

Exhauster (attach fan curves) Not available in. of water Not available HP @ Not available RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *208 – Meal/Mill Feed Storage Bins*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		0.015	0.065	AP-42, Sec. 9.9.1
PM_{10}		0.0038	0.016	AP-42, Sec. 9.9.1
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.00066	0.0029	AP-42, Sec. 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number Z208 - Meal/Mill Feed Storage Bin Filter Vents

List Source(s) or source ID exhausted to this stack:
208 - Meal/Mill Feed Storage Bins

% of flow exhausted to stack: 100%

Stack height above grade (ft.) 64 (approx.)
Grade elevation (ft.) 350 (approx.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
2.33 ft. (approx.)

f. Weather Cap ☒ YES ☐ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
450 ft. (approx.)

Does stack height meet Good Engineering Practice (GEP)?
NA

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NA						

Stack exhaust
Volume NA ACFM Temperature Ambient °F Moisture Ambient %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
NA

Exhauster (attach fan curves) NA in. of water NA HP @ NA RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *209 – Meal/Mill Feed Loadout Tank*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		0.015	0.065	AP-42, Sec. 9.9.1
PM_{10}		0.0038	0.016	AP-42, Sec. 9.9.1
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.00066	0.0029	AP-42, Sec. 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number Z209 - Meal/Mill Feed Loadout Tank Filter Vent

List Source(s) or source ID exhausted to this stack:
209 - Meal/Mill Feed Loadout Tank

% of flow exhausted to stack: 100%

Stack height above grade (ft.) 40 (approx.)
Grade elevation (ft.) 350 (approx.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
2.33 ft. (approx.)

f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
450 ft. (approx.)

Does stack height meet Good Engineering Practice (GEP)?
NA

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NA						

Stack exhaust
Volume NA ACFM Temperature Ambient °F Moisture Ambient %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
NA

Exhauster (attach fan curves) NA in. of water NA HP @ NA RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

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Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *210 - Meal Loadout Area*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		0.027	0.070	AP-42, Sec. 9.11.1
PM_{10}		0.0068	0.018	AP-42, Sec. 9.11.1 & 9.9.1
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.0011	0.003	AP-42, Sec. 9.11.1 & 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number S210 - Meal Loadout Area Baghouse Stack

List Source(s) or source ID exhausted to this stack:
210 - Meal Loadout Area

% of flow exhausted to stack: 100%

Stack height above grade (ft.) 10 (approx.)
Grade elevation (ft.) 350 (approx.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
9.62 sq. ft.

f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
450 (approx.)

Does stack height meet Good Engineering Practice (GEP)?
NA

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NA						

Stack exhaust
Volume 30,000 ACFM Temperature Ambient °F Moisture Ambient %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
Should DEP require stack testing, appropriate sampling ports will be installed.

Exhauster (attach fan curves) Not available in. of water Not available HP @ Not available RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *211 – Soybean Day Tanks*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		0.018	0.080	AP-42, Sec. 9.9.1
PM_{10}		0.0046	0.020	AP-42, Sec. 9.9.1
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.00080	0.0035	AP-42, Sec. 9.9.1

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number Z211 - Soybean Day Tanks Vents

List Source(s) or source ID exhausted to this stack:
211 - Soybean Day Tanks

% of flow exhausted to stack: 100%

Stack height above grade (ft.) 40 (approx.)
Grade elevation (ft.) 350 (approx.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
2.33 ft. (approx.)

f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
350 ft. (approx.)

Does stack height meet Good Engineering Practice (GEP)?
NA

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NA						

Stack exhaust
Volume NA ACFM Temperature Ambient °F Moisture Ambient %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
NA

Exhauster (attach fan curves) NA in. of water NA HP @ NA RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* *301 - Facility Roadways*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		2.84	12.46	AP-42, Sec. 13.2.1
PM_{10}		0.57	2.49	AP-42, Sec. 13.2.1
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----
PM2.5		0.14	0.61	AP-42, Sec. 13.2.1

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number Z301 - Facility Roadways Fugitives

List Source(s) or source ID exhausted to this stack:
301 - Facility Roadways

% of flow exhausted to stack: NA - Fugitive

Stack height above grade (ft.) NA - Fugitive
Grade elevation (ft.) 350 (approx.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
NA - Fugitive

f. Weather Cap ☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
NA - Fugitive

Does stack height meet Good Engineering Practice (GEP)?
NA - Fugitive

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions. NA

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NA						

Stack exhaust
Volume NA ACFM Temperature NA °F Moisture NA %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
NA - Fugitive

Exhauster (attach fan curves) NA in. of water NA HP @ NA RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Perdue Grain & Oilseed, LLC
Plan Approval Application - Potential Emission Calculations
Soybean Processing Facility
Conoy Township, Lancaster County

Revised November 2014

Perdue Grain & Oilseed, LLC - Soybean Processing Facility - Summary Table of Total Project Potential Emissions

Source	PM (tons/yr)	PM-10 (tons/yr)	PM-2.5 (tons/yr)	SOx (tons/yr)	CO (tons/yr)	NOx (tons/yr)	VOC (tons/yr)	n-Hexane (tons/yr)	Formaldehyde (tons/yr)	Total HAPs (tons/yr)	CO2 (tons/yr)	N2O (tons/yr)	CH4 (tons/yr)	CO2-e (tons/yr)
101 - Grain Receiving/Processing														
- Stack Emissions	0.0355	0.0157	0.0027											
- Fugitive Emissions	1.3414	0.2989	0.0498											
102 - Wet Grain Storage Bins (4 bin tanks)	0.0958	0.0241	0.0042											
103 - Grain Dryer 1	23.19	5.80	0.99											
104 - Grain Dryer 2	23.19	5.80	0.99											
105 - Grain Storage Bins (4 bin tanks)	9.58	2.41	0.42											
106 - Grain Loadout	5.49	1.85	0.31											
201 - Soybean Preparation Process	1.39	0.35	0.06											
202 - Bean Conditioning	0.0300	0.00751	0.00128											
203 - Flaking Rolls	11.11	2.78	0.47											
204 - Extraction Process														
- Final Vent Emissions							7.24	3.62		3.62				
- Fugitive Emissions - Crude Meal							81.63	40.82		40.82				
- Fugitive Emissions - Crude Oil							26.87	13.43		13.43				
- Fugitive Emissions - Equipment Component Leaks							16.53	8.27		8.27				
- Fugitive Emissions - Wastewater							0.10	0.05		0.05				
205A - Meal Dryer	43.12	10.78	1.83				50.42	25.21		25.21				
205B - Meal Cooler	45.51	11.38	1.93				25.21	12.61		12.61				
206 - Meal Screening and Grinding	0.8144	0.2036	0.0346											
207 - Mill Feed (Hull) Grinding	0.0415	0.0104	0.0018											
208 - Meal/Mill Feed Storage Bins (4 bin tanks)	0.0651	0.0164	0.0029											
209 - Meal/Mill Feed Loadout Tank	0.0651	0.0164	0.0029											
210 - Meal Loadout Area	0.0703	0.0176	0.0030											
211 - Soybean Day Tanks (3 tanks)	0.0798	0.0201	0.0035											
212 - Hexane Storage Tanks (2 tanks)*							0.0091	0.0045		0.0045				
301 - Soybean Processing Facility Roadways	12.46	2.49	0.61											
Temporary Portable Emergency Boiler(s)	0.67	0.47	0.32	0.044	1.02	4.08	0.0408		0.0124	0.0145	4,549.20	0.053	0.0106	4,565.87
TOTAL PROJECT FACILITY EMISSIONS:	178.34	44.73	8.05	0.044	1.02	4.08	208.05	104.00	0.0124	104.02	4,549.20	0.053	0.0106	4,565.87

* Emissions from the Hexane Storage Tanks are accounted for in the Extraction Process final vent emissions, since hexane storage tank vents will be routed to the distillation/condensing/mineral oil scrubber system.

Perdue Grain & Oilseed, LLC
Plan Approval Application - Potential Emission Calculations - Attachment G
Soybean Processing Facility
Conoy Township, Lancaster County

Revised November 2014

Perdue Grain & Oilseed, LLC - Soybean Processing Facility - Summary Table of Total Project Potential Emissions

Source	PM (tons/yr)	PM-10 (tons/yr)	PM-2.5 (tons/yr)	SOx (tons/yr)	CO (tons/yr)	NOx (tons/yr)	VOC (tons/yr)	n-Hexane (tons/yr)	Formaldehyde (tons/yr)	Total HAPs (tons/yr)	CO2 (tons/yr)	N2O (tons/yr)	CH4 (tons/yr)	CO2-e (tons/yr)
101 - Grain Receiving/Processing														
- Stack Emissions	0.0355	0.0157	0.0027											
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205A - Meal Dryer	43.12	10.78	1.83				50.42	25.21		25.21				
205B - Meal Cooler	45.51	11.38	1.93				25.21	12.61		12.61				
206 - Meal Screening and Grinding	0.8144	0.2036	0.0346											
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212 - Hexane Storage Tanks (2 tanks)*							0.0091	0.0045		0.0045				
301 - Soybean Processing Facility Roadways	12.46	2.49	0.61											
Temporary Portable Emergency Boiler(s)	0.67	0.47	0.32	0.044	1.02	4.08	0.0408		0.0124	0.0145	4,549.20	0.053	0.0106	4,565.87
TOTAL PROJECT FACILITY EMISSIONS:	178.34	44.73	8.05	0.044	1.02	4.08	208.05	104.00	0.0124	104.02	4,549.20	0.053	0.0106	4,565.87

* Emissions from the Hexane Storage Tanks are accounted for in the Extraction Process final vent emissions, since hexane storage tank vents will be routed to the distillation/condensing/mineral oil scrubber system.

Perdue Grain & Oilseed, LLC
Plan Approval Application - Potential Emission Calculations
Soybean Processing Facility
Conoy Township, Lancaster County

Revised November 2014

Perdue Grain & Oilseed, LLC - Soybean Processing Facility - Summary Table of Total Project Potential Emissions

Source	PM (tons/yr)	PM-10 (tons/yr)	PM-2.5 (tons/yr)	SOx (tons/yr)	CO (tons/yr)	NOx (tons/yr)	VOC (tons/yr)	n-Hexane (tons/yr)	Formaldehyde (tons/yr)	Total HAPs (tons/yr)	CO2 (tons/yr)	N2O (tons/yr)	CH4 (tons/yr)	CO2-e (tons/yr)
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- Stack Emissions	0.0355	0.0157	0.0027											
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- Fugitive Emissions - Crude Meal							81.63	40.82		40.82				
- Fugitive Emissions - Crude Oil							26.87	13.43		13.43				
- Fugitive Emissions - Equipment Component Leaks							16.53	8.27		8.27				
- Fugitive Emissions - Wastewater							0.10	0.05		0.05				
205A - Meal Dryer	43.12	10.78	1.83				50.42	25.21		25.21				
205B - Meal Cooler	45.51	11.38	1.93				25.21	12.61		12.61				
206 - Meal Screening and Grinding	0.8144	0.2036	0.0346											
207 - Mill Feed (Hull) Grinding	0.0415	0.0104	0.0018											
208 - Meal/Mill Feed Storage Bins (4 bin tanks)	0.0651	0.0164	0.0029											
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211 - Soybean Day Tanks (3 tanks)	0.0798	0.0201	0.0035											
212 - Hexane Storage Tanks (2 tanks)*							0.0091	0.0045		0.0045				
301 - Soybean Processing Facility Roadways	12.46	2.49	0.61											
Temporary Portable Emergency Boiler(s)	0.67	0.47	0.32	0.044	1.02	4.08	0.0408		0.0124	0.0145	4,549.20	0.053	0.0106	4,565.87
TOTAL PROJECT FACILITY EMISSIONS:	178.34	44.73	8.05	0.044	1.02	4.08	208.05	104.00	0.0124	104.02	4,549.20	0.053	0.0106	4,565.87

* Emissions from the Hexane Storage Tanks are accounted for in the Extraction Process final vent emissions, since hexane storage tank vents will be routed to the distillation/condensing/mineral oil scrubber system.

Perdue Grain & Oilseed, LLC
Plan Approval Application - Potential Emission Calculations - Attachment G
Soybean Processing Facility
Conoy Township, Lancaster County

Revised November 2014

101 - Grain Receiving/Processing

Grain Receiving:

Pollutant	Uncontrolled Emission Factor (lb/ton grain handled)	Maximum Grain Handling Rate (tons/hr)	(tons/yr)	Enclosure Capture Efficiency (%)	Baghouse Control Efficiency (%)	Potential Generated Emissions (lbs/hr)	(tons/yr)	Potential Fugitive Atmospheric Emissions (lbs/hr)	(tons/yr)	Potential Stack Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.035	600	766,500	90.0%	99.9%	21.00	13.41	2.1000	1.3414	0.0189	0.0121
PM-10	0.0078	600	766,500	90.0%	99.9%	4.68	2.99	0.4680	0.2989	0.0042	0.0027
PM-2.5	0.0013	600	766,500	90.0%	99.9%	0.78	0.50	0.0780	0.0498	0.0007	0.0004

Emission Factor Source: U.S. EPA AP-42, Section 9.9.1, Table 9.9.1-1, 03/2003.
Emission factors shown above are for "Grain receiving - Hopper truck" and include the grain truck dump pits.
Enclosure capture efficiency from Texas Commission on Environmental Quality Grain Elevators Guidance Document, Page 8, Reference (d), Choke Feed with Aspiration.
Baghouse control efficiency from manufacturer guarantee (Airlanco, 06/07/2012).
Fugitive emissions (Z101) are released to the atmosphere from the truck receiving area.
Captured emissions are controlled by C101 - Grain Baghouse.

Grain Processing:

Pollutant	Uncontrolled Emission Factor (lb/ton grain handled)	Maximum Grain Handling Rate (tons/hr)	(tons/yr)	Baghouse Control Efficiency (%)	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Stack Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.061	600	766,500	99.9%	36.60	23.38	0.0366	0.0234
PM-10	0.034	600	766,500	99.9%	20.40	13.03	0.0204	0.0130
PM-2.5	0.0058	600	766,500	99.9%	3.48	2.22	0.0035	0.0022

Emission Factor Source: U.S. EPA AP-42, Section 9.9.1, Table 9.9.1-1, 03/2003.
Emission factors shown above are for "Headhouse and grain handling" and include grain handling (drag conveyance, legs, turnhead, enclosed scalper screens, etc.).
Baghouse control efficiency from manufacturer guarantee (Airlanco, 06/07/2012).
Emissions are controlled by C101 - Grain Baghouse.

Total Source 101 Emissions:

Pollutant	Potential Generated Emissions (lbs/hr)	(tons/yr)	Potential Fugitive (Z101) Atmospheric Emissions (lbs/hr)	(tons/yr)	Potential Stack (S101) Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	57.60	36.79	2.1000	1.3414	0.0555	0.0355
PM-10	25.08	16.02	0.4680	0.2989	0.0246	0.0157
PM-2.5	4.26	2.72	0.0780	0.0498	0.0042	0.0027

Perdue Grain & Oilseed, LLC
Plan Approval Application - Potential Emission Calculations - Attachment G
Soybean Processing Facility
Conoy Township, Lancaster County

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102 - Wet Grain Storage Bins (4 bin tanks)

Pollutant	Uncontrolled Emission Factor (lb/ton grain processed)	Maximum Grain Processing Rate (tons/hr)	(tons/yr)	Control Efficiency (%)	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.025	600	766,500	99.0%	15.00	9.58	0.1500	0.0958
PM-10	0.0063	600	766,500	99.0%	3.78	2.41	0.0378	0.0241
PM-2.5	0.0011	600	766,500	99.0%	0.66	0.42	0.0066	0.0042

Emission Factor Source: U.S. EPA AP-42, Section 9.9.1, Table 9.9.1-1, 03/2003.
Filter control efficiency from Virginia DEQ, Statement of Legal and Factual Basis, Perdue AgriBusiness Inc., Chesapeake, VA (07/01/2010) and EPA-452/F-03-004, Air Pollution Control Technology Fact Sheet, Paper/Nonwoven Filters.
Emissions are controlled by C102 - Wet Grain Storage Bins Filters.

Perdue Grain & Oilseed, LLC
Plan Approval Application - Potential Emission Calculations - Attachment G
Soybean Processing Facility
Conoy Township, Lancaster County

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103 - Grain Dryer 1
104 - Grain Dryer 2

(Emissions shown below are per dryer. Each dryer is heated indirectly using steam; no fuel combustion.)

Pollutant	Uncontrolled Emission Factor (lb/ton grain processed)	Maximum Grain Processing Rate (tons/hr)	(tons/yr)	Total Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Screen/Cyclone Control Efficiency (%)	Screen/Cyclone Controlled Potential Atmospheric Emissions (lbs/hr)	(tons/yr)	Uncontrolled Potential Atmospheric Emissions (lbs/hr)	(tons/yr)	Total Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.22	144	383,250	31.68	42.16	90.0%	1.58	2.11	15.84	21.08	17.42	23.19
PM-10	0.055	144	383,250	7.92	10.54	90.0%	0.40	0.53	3.96	5.27	4.36	5.80
PM-2.5	0.0094	144	383,250	1.35	1.80	90.0%	0.07	0.09	0.68	0.90	0.74	0.99

Emission Factor Source: U.S. EPA AP-42, Section 9.9.1, Table 9.9.1-1, 03/2003.

Based on discussions with Shanzer (dryer manufacturer) and Perdue's operational experience with the proposed dryer model, on average, approximately 50% of the total airflow is recirculated within the dryer system and 50% of the total airflow is discharged. The 50% that is recirculated is controlled by two (2) 14' diameter 24-mesh screens in conjunction with an internal cyclone.

Screen/cyclone control efficiency based on Virginia DEQ, Statement of Legal and Factual Basis, Perdue AgriBusiness Inc., Chesapeake, VA (07/01/2010) and EPA-452/F-03-005, Air Pollution Control Technology Fact Sheet, Cyclones.

Perdue Grain & Oilseed, LLC
Plan Approval Application - Potential Emission Calculations - Attachment G
Soybean Processing Facility
Conoy Township, Lancaster County

Revised November 2014

105 - Grain Storage Bins (4 bin tanks)

	Uncontrolled Emission Factor	Maximum Grain Processing Rate		Potential Precontrol Emissions		Potential Atmospheric Emissions	
Pollutant	(lb/ton grain processed)	(tons/hr)	(tons/yr)	(lbs/hr)	(tons/yr)	(lbs/hr)	(tons/yr)
PM	0.025	600	766,500	15.00	9.58	15.00	9.58
PM-10	0.0063	600	766,500	3.78	2.41	3.78	2.41
PM-2.5	0.0011	600	766,500	0.66	0.42	0.66	0.42

Emission Factor Source: U.S. EPA AP-42, Section 9.9.1, Table 9.9.1-1, 03/2003.

Perdue Grain & Oilseed, LLC
Plan Approval Application - Potential Emission Calculations - Attachment G
Soybean Processing Facility
Conoy Township, Lancaster County

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106 - Grain Loadout

Pollutant	Uncontrolled Emission Factor (lb/ton grain handled)	Maximum Grain Handling Rate (tons/hr)	(tons/yr)	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.086	120	127,750	10.32	5.49	10.32	5.49
PM-10	0.029	120	127,750	3.48	1.85	3.48	1.85
PM-2.5	0.0049	120	127,750	0.59	0.31	0.59	0.31

Emission Factor Source: U.S. EPA AP-42, Section 9.9.1, Table 9.9.1-1, 03/2003.
Grain loadout is typically only used to remove off-spec soybeans from the process and to transport soybeans offsite.

Perdue Grain & Oilseed, LLC
Plan Approval Application - Potential Emission Calculations - Attachment G
Soybean Processing Facility
Conoy Township, Lancaster County

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201 - Soybean Preparation Process

(Includes Rotex cleaner, whole bean tank, cracked bean tank, cracking rolls, and primary/secondary dehulling aspiration.)

Pollutant	Cyclone Controlled Emission Factor (lb/ton soybeans processed)	Calculated Uncontrolled Emission Factor (lb/ton soybeans processed)	Maximum Soybean Processing Rate (tons/hr)	(tons/yr)	Baghouse Control Efficiency (%)	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.435	4.35	72.92	638,750	99.9%	317.19	1,389.28	0.3172	1.3893
PM-10						79.30	347.32	0.0793	0.3473
PM-2.5						13.48	59.04	0.0135	0.0590

PM Emission Factor Source: U.S. EPA AP-42, Section 9.11.1, Table 9.11.1-1, 11/1995 and Section 9.9.1, Table 9.9.1-1, 03/2003.
Emission factor shown above is the sum of 0.36 lb/ton (Table 9.11.1-1 Cracking/Dehulling factor) and 0.075 lb/ton (Table 9.9.1-1 Grain Cleaning factor).
AP-42 emission factors based on cyclone control. Uncontrolled emission factor "back calculated" assuming 90% cyclone control efficiency, based on EPA-452/F-03-005, Air Pollution Control Technology Fact Sheet, Cyclones.
AP-42 Section 9.11.1 PM-10 and PM-2.5 emission factors not available.
PM-10 emissions estimated as 25% of PM emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
PM-2.5 emissions estimated as 17% of PM-10 emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
Baghouse control efficiency from manufacturer guarantee (Airlanco, 06/07/2012).
Emissions are controlled by C201A-C - Primary Hull Separation Baghouses, C201D - Secondary Hull Separation Baghouse, and C201E - Miscellaneous Aspiration Baghouse.

202 - Bean Conditioning

Pollutant	Cyclone Controlled Emission Factor (lb/ton soybeans processed)	Calculated Uncontrolled Emission Factor (lb/ton soybeans processed)	Maximum Soybean Processing Rate (tons/hr)	(tons/yr)	Baghouse Control Efficiency (%)	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.010	0.10	68.54	600,425	99.9%	6.85	30.02	0.0069	0.030
PM-10						1.71	7.51	0.0017	0.0075
PM-2.5						0.29	1.28	0.00029	0.0013

PM Emission Factor Source: U.S. EPA AP-42, Section 9.11.1, Table 9.11.1-1, 11/1995.
AP-42 emission factor based on cyclone control. Uncontrolled emission factor "back calculated" assuming 90% cyclone control efficiency, based on EPA-452/F-03-005, Air Pollution Control Technology Fact Sheet, Cyclones.
PM-10 and PM-2.5 emission factors not available.
PM-10 emissions estimated as 25% of PM emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
PM-2.5 emissions estimated as 17% of PM-10 emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
Baghouse control efficiency from manufacturer guarantee (Airlanco, 06/07/2012).
Emissions are controlled by C201E - Miscellaneous Aspiration Baghouse.

203 - Flaking Rolls

Pollutant	Cyclone Controlled Emission Factor (lb/ton soybeans processed)	Maximum Soybean Processing Rate (tons/hr)	(tons/yr)	High Efficiency Cyclone Control Efficiency (%)	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.037	68.54	600,425	99.9%	2,536.04	11,107.86	2.54	11.11
PM-10					634.01	2,776.97	0.63	2.78
PM-2.5					107.78	472.08	0.11	0.47

PM Emission Factor Source: U.S. EPA AP-42, Section 9.11.1, Table 9.11.1-1, 11/1995.
PM-10 and PM-2.5 emission factors not available.
PM-10 emissions estimated as 25% of PM emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
PM-2.5 emissions estimated as 17% of PM-10 emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
Precontrol emissions calculated based on high efficiency cyclone control efficiency from manufacturer (Aircon, 04/29/2013).
Emissions are controlled by C203 - Flaking Rolls Cyclone.

Perdue Grain & Oilseed, LLC
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Conoy Township, Lancaster County

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205A - Meal Dryer

Pollutant	Cyclone Controlled Emission Factor (lb/ton soybeans processed)	Maximum Soybean Processing Rate (tons/hr)	(tons/yr)	Cyclone Control Efficiency (%)	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.18	59	479,063	97.2%	379.29	1,539.84	10.62	43.12
PM-10					94.82	384.96	2.66	10.78
PM-2.5					16.12	65.44	0.451	1.83

PM Emission Factor Source: U.S. EPA AP-42, Section 9.11.1, Table 9.11.1-1, 11/1995.
PM-10 and PM-2.5 emission factors not available.
PM-10 emissions estimated as 25% of PM emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
PM-2.5 emissions estimated as 17% of PM-10 emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
Precontrol emissions calculated based on cyclone overall control efficiency from manufacturer (Kice Industries, Inc.).
PM Emissions are controlled by C205A - Meal Dryer Cyclone.

Pollutant	Potential Facility-Wide Emissions per LAER (tons/yr)	Estimated Percent Emitted via Meal Dryer	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
VOC (hexane)	208.01	24.24%	12.00	50.42	12.00	50.42
n-Hexane	104.00	24.24%	6.00	25.21	6.00	25.21

As per AP-42 and 40 CFR Part 63 Subpart GGGG, hexane emissions from solvent utilization are calculated on a facility-wide basis. In order to attribute hexane emissions to individual sources, Perdue has developed percentage estimates based on the Vegetable Oil NESHAP Model MACT Plant Emissions.
Consistent with AP-42 and 40 CFR Part 63 Subpart GGGG, Perdue is requesting that VOC (hexane) emissions be limited via LAER on a facility-wide basis and not on a source-specific basis due to variability of the process.

205B - Meal Cooler

Pollutant	Cyclone Controlled Emission Factor (lb/ton soybeans processed)	Maximum Soybean Processing Rate (tons/hr)	(tons/yr)	Cyclone Control Efficiency (%)	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.19	59	479,063	97.2%	400.36	1,625.39	11.21	45.51
PM-10					100.09	406.35	2.80	11.38
PM-2.5					17.02	69.08	0.476	1.93

PM Emission Factor Source: U.S. EPA AP-42, Section 9.11.1, Table 9.11.1-1, 11/1995.
PM-10 and PM-2.5 emission factors not available.
PM-10 emissions estimated as 25% of PM emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
PM-2.5 emissions estimated as 17% of PM-10 emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
Precontrol emissions calculated based on cyclone overall control efficiency from manufacturer (Kice Industries, Inc.).
PM Emissions are controlled by C205B - Meal Cooler Cyclone.

Pollutant	Potential Facility-Wide Emissions per LAER (tons/yr)	Estimated Percent Emitted via Meal Cooler	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
VOC (hexane)	208.01	12.12%	6.00	25.21	6.00	25.21
n-Hexane	104.00	12.12%	3.00	12.61	3.00	12.61

As per AP-42 and 40 CFR Part 63 Subpart GGGG, hexane emissions from solvent utilization are calculated on a facility-wide basis. In order to attribute hexane emissions to individual sources, Perdue has developed percentage estimates based on the Vegetable Oil NESHAP Model MACT Plant Emissions.
Consistent with AP-42 and 40 CFR Part 63 Subpart GGGG, Perdue is requesting that VOC (hexane) emissions be limited via LAER on a facility-wide basis and not on a source-specific basis due to variability of the process.

Perdue Grain & Oilseed, LLC
Plan Approval Application - Potential Emission Calculations - Attachment G
Soybean Processing Facility
Conoy Township, Lancaster County

Revised November 2014

206 - Meal Screening and Grinding

Pollutant	Cyclone Controlled Emission Factor (lb/ton soybeans processed)	Calculated Uncontrolled Emission Factor (lb/ton soybeans processed)	Maximum Soybean Processing Rate (tons/hr)	(tons/yr)	Baghouse Control Efficiency (%)	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.34	3.4	55	479,063	99.9%	187.00	814.41	0.1870	0.8144
PM-10						46.75	203.60	0.0468	0.2036
PM-2.5						7.95	34.61	0.0079	0.0346

PM Emission Factor Source: U.S. EPA AP-42, Section 9.11.1, Table 9.11.1-1, 11/1995.
AP-42 emission factor based on cyclone control. Uncontrolled emission factor "back calculated" assuming 90% cyclone control efficiency, based on EPA-452/F-03-005, Air Pollution Control Technology Fact Sheet, Cyclones.
PM-10 and PM-2.5 emission factors not available.
PM-10 emissions estimated as 25% of PM emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
PM-2.5 emissions estimated as 17% of PM-10 emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
Baghouse control efficiency from manufacturer guarantee (Airlanco, 06/07/2012).
Emissions are controlled by C206 - Meal Screening and Grinding Baghouse.

207 - Mill Feed (Hull) Grinding

Pollutant	Cyclone Controlled Emission Factor (lb/ton soybeans processed)	Calculated Uncontrolled Emission Factor (lb/ton soybeans processed)	Maximum Soybean Processing Rate (tons/hr)	(tons/yr)	Baghouse Control Efficiency (%)	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.20	2.0	4.74	41,519	99.9%	9.48	41.52	0.00948	0.04152
PM-10						2.37	10.38	0.00237	0.01038
PM-2.5						0.40	1.76	0.00040	0.00176

PM Emission Factor Source: U.S. EPA AP-42, Section 9.11.1, Table 9.11.1-1, 11/1995.
AP-42 emission factor based on cyclone control. Uncontrolled emission factor "back calculated" assuming 90% cyclone control efficiency, based on EPA-452/F-03-005, Air Pollution Control Technology Fact Sheet, Cyclones.
PM-10 and PM-2.5 emission factors not available.
PM-10 emissions estimated as 25% of PM emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
PM-2.5 emissions estimated as 17% of PM-10 emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
Baghouse control efficiency from manufacturer guarantee (Airlanco, 06/07/2012).
Emissions are controlled by C207 - Mill Feed (Hull) Grinding Baghouse.

208 - Meal/Mill Feed Storage Bins (4 bin tanks)

Pollutant	Uncontrolled Emission Factor (lb/ton soybeans processed)	Maximum Soybean Processing Rate (tons/hr)	(tons/yr)	Filter Control Efficiency (%)	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.025	59.74	520,582	99.0%	1.49	6.51	0.015	0.065
PM-10	0.0063	59.74	520,582	99.0%	0.38	1.64	0.0038	0.016
PM-2.5	0.0011	59.74	520,582	99.0%	0.07	0.29	0.00066	0.0029

Emission Factor Source: U.S. EPA AP-42, Section 9.9.1, Table 9.9.1-1, 03/2003.
Filter control efficiency based on Virginia DEQ, Statement of Legal and Factual Basis, Perdue AgriBusiness Inc., Chesapeake, VA (07/01/2010) and EPA-452/F-03-004, Air Pollution Control Technology Fact Sheet, Paper/Nonwoven Filters.
Emissions are controlled by C208 - Meal/Mill Feed Storage Bin Filters.

Perdue Grain & Oilseed, LLC
Plan Approval Application - Potential Emission Calculations - Attachment G
Soybean Processing Facility
Conoy Township, Lancaster County

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209 - Meal/Mill Feed Loadout Tank

Pollutant	Uncontrolled Emission Factor (lb/ton soybeans processed)	Maximum Soybean Processing Rate (tons/hr)	(tons/yr)	Filter Control Efficiency (%)	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.025	59.74	520,582	99.0%	1.49	6.51	0.015	0.065
PM-10	0.0063	59.74	520,582	99.0%	0.38	1.64	0.0038	0.016
PM-2.5	0.0011	59.74	520,582	99.0%	0.07	0.29	0.00066	0.0029

Emission Factor Source: U.S. EPA AP-42, Section 9.9.1, Table 9.9.1-1, 03/2003.
Filter control efficiency based on Virginia DEQ, Statement of Legal and Factual Basis, Perdue AgriBusiness Inc., Chesapeake, VA (07/01/2010) and EPA-452/F-03-004, Air Pollution Control Technology Fact Sheet, Paper/Nonwoven Filters.
Emissions are controlled by C209 - Meal/Mill Feed Loadout Tank Bin Filter.

210 - Meal Loadout Area

Pollutant	Uncontrolled Emission Factor (lb/ton soybeans processed)	Maximum Soybean Processing Rate (tons/hr)	(tons/yr)	Baghouse Control Efficiency (%)	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.27	100	520,582	99.9%	27.00	70.28	0.0270	0.0703
PM-10					6.75	17.57	0.0068	0.0176
PM-2.5					1.15	2.99	0.0011	0.0030

PM Emission Factor Source: U.S. EPA AP-42, Section 9.11.1, Table 9.11.1-1, 11/1995.
AP-42 emission factor based on no control.
PM-10 and PM-2.5 emission factors not available.
PM-10 emissions estimated as 25% of PM emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
PM-2.5 emissions estimated as 17% of PM-10 emissions, as per AP-42, Section 9.9.1, Grain Elevators and Processes.
Enclosed loadout area with suction being pulled. 100% capture efficiency per Texas Commission on Environmental Quality Grain Elevators Guidance Document, Page 8, Reference (d).
Baghouse control efficiency from manufacturer guarantee (Airlanco, 06/07/2012).
Emissions are controlled by C210 - Meal Loadout Area Baghouse.

211 - Soybean Day Tanks (3 tanks)

Pollutant	Uncontrolled Emission Factor (lb/ton soybeans processed)	Maximum Soybean Processing Rate (tons/hr)	(tons/yr)	Filter Control Efficiency (%)	Potential Precontrol Emissions (lbs/hr)	(tons/yr)	Potential Atmospheric Emissions (lbs/hr)	(tons/yr)
PM	0.025	72.92	638,750	99.0%	1.82	7.98	0.018	0.080
PM-10	0.0063	72.92	638,750	99.0%	0.46	2.01	0.0046	0.020
PM-2.5	0.0011	72.92	638,750	99.0%	0.080	0.35	0.00080	0.0035

Emission Factor Source: U.S. EPA AP-42, Section 9.9.1, Table 9.9.1-1, 03/2003.
Filter control efficiency based on Virginia DEQ, Statement of Legal and Factual Basis, Perdue AgriBusiness Inc., Chesapeake, VA (07/01/2010) and EPA-452/F-03-004, Air Pollution Control Technology Fact Sheet, Paper/Nonwoven Filters.
Emissions are controlled by C211 - Soybean Day Tanks Vent Filters.

Perdue Grain & Oilseed, LLC
Plan Approval Application - Potential Emission Calculations - Attachment G
Soybean Processing Facility
Conoy Township, Lancaster County

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301 - Soybean Processing Facility Roadways

Equation 2 from U.S. EPA AP-42, Section 13.2.1, 01/2011 was used to estimate PM, PM-10, and PM-2.5 emissions:

$E_{ext} = [\, k\,(sL)^{0.91} \times (W)^{1.02}\,]\,(1-P/4N)$

where:

E_{ext} = annual average particulate emission factor (lb/VMT)
k = particle size multiplier for particle size range and units of interest (lb/VMT)
sL = road surface silt loading (g/m^2)
W = average weight (tons) of the vehicles traveling the road
P = number of "wet" days with at least 0.254 mm (0.01 in) of precipitation during the averaging period
N = number of days in the averaging period (e.g., 365 days for annual)

Pollutant	k Particle Size Multiplier (lb/VMT)	sL Road Surface Silt Loading (g/m^2)	W Average Weight of Vehicles (tons)	P Number of "Wet" Days with at Least 0.254 mm of Precipitation	N Number of Days in the Averaging Period	E_{ext} Annual Average Particulate Emission Factor (lb/VMT)	Annual Vehicle Miles Traveled (VMT/yr)	Potential Precontrol Emissions (lbs/hr)	Potential Precontrol Emissions (tons/yr)	Potential Atmospheric Emissions (lbs/hr)	Potential Atmospheric Emissions (tons/yr)
PM	0.011	1.1	34	140	365	0.3957	62,949.7	2.84	12.46	2.84	12.46
PM-10	0.0022	1.1	34	140	365	0.0791	62,949.7	0.57	2.49	0.57	2.49
PM-2.5	0.00054	1.1	34	140	365	0.0194	62,949.7	0.14	0.61	0.14	0.61

k, particle size multiplier from AP-42 Table 13.2.1-1; PM (PM-30) = 0.011 lb/VMT, PM-10 = 0.0022 lb/VMT, and PM-2.5 = 0.00054 lb/VMT.
sL, road surface silt loading from AP-42 Table 13.2.1-3; Corn wet mills, mean = 1.1 g/m^2.
P, number of "wet" days with at least 0.254 mm (0.01 in) of precipitation from AP-42 Figure 13.2.1-2.
VMT = vehicle miles traveled.

Breakdown by Truck Type:

Truck Type	Maximum Annual Number of Trucks (trucks/yr)	Approximate Total Miles Traveled On-Site (Round Trip) (miles/truck)	Approximate Total Annual Miles Traveled (miles/yr)
Soybean Haul	39,525	1.1	43,477.5
Meal Haul	19,163	0.76	14,563.9
Oil Haul	4,727	0.74	3,498.0
Hull Haul	1,845	0.76	1,402.2
Hexane Haul	11	0.74	8.1
Total:	65,271		62,949.7

Notes:
- Maximum annual number of trucks is calculated based on mass balance of maximum quantity of soybeans inbound and outbound, maximum quantity of meal, oil, and hulls outbound, and maximum quantity of hexane inbound. Average quantities per truck are as follows: soybean haul: 24.75 tons (Jan-Sep) and 19.5 tons (Oct-Dec); meal haul and oil haul: 25 tons; hull haul: 22.5 tons; and hexane haul: 6,800 gallons.
- Based on operations at Perdue's existing soybean processing facilities, the average weight of all trucks traveling the facility roadways is conservatively estimated to be 34 tons.
- The U.S. Department of Energy, Vehicle Technologies Office, Fact #621 - Gross Vehicle Weight vs. Empty Vehicle Weight, May 3, 2010 lists a gross vehicle weight range of 33,001 to 80,000 pounds (16.5 to 40 tons) for tractor trailers.

Perdue Grain & Oilseed, LLC
Plan Approval Application - Potential Emission Calculations - Attachment G
Soybean Processing Facility
Conoy Township, Lancaster County

Revised November 2014

Temporary Portable Emergency Boiler(s)

In the rare event that the LCSWMA RRF goes offline, Perdue may need to bring a portable temporary emergency boiler(s) onsite to generate process steam.
It is anticipated that the longest time period for such a boiler(s) to be operating onsite would be four (4) weeks (672 hours) during the course of a year.
Perdue has determined a total maximum heat input rating of approximately 85 MMBTU/hr would be necessary to generate the required quantity of steam for both the extraction process and the grain dryers.
The temporary portable emergency boiler(s) would be No. 2 fuel oil-fired.
Although such boiler(s) are not anticipated and would not be a permanent air emission source at the facility, emission estimates are provided for completeness.

Emissions Due to No. 2 Fuel Oil Combustion:

		Maximum Heat Input	Fuel Heating							
	Emission Factor	Rating	Value	Maximum Operation	Maximum Fuel Combustion Rate		Potential Precontrol Emissions		Potential Atmospheric Emissions	
Pollutant	(lb/Mgal)	(MMBTU/hr)	(BTU/gal)	(hrs/yr)	(gal/hr)	(gal/yr)	(lbs/hr)	(tons/yr)	(lbs/hr)	(tons/yr)
PM (Total)	3.3	85	140,000	672	607.14	408,000	2.00	0.673	2.00	0.673
PM (Condensable)	1.3	85	140,000	672	607.14	408,000	0.79	0.265	0.79	0.265
PM (Filterable)	2	85	140,000	672	607.14	408,000	1.21	0.408	1.21	0.408
PM-10 (Total)	2.3	85	140,000	672	607.14	408,000	1.40	0.469	1.40	0.469
PM-10 (Filterable)	1.00	85	140,000	672	607.14	408,000	0.61	0.204	0.61	0.204
PM-2.5 (Total)	1.55	85	140,000	672	607.14	408,000	0.94	0.316	0.94	0.316
PM-2.5 (Filterable)	0.25	85	140,000	672	607.14	408,000	0.15	0.0510	0.15	0.0510
SOx	0.216	85	140,000	672	607.14	408,000	0.13	0.0441	0.13	0.0441
CO	5	85	140,000	672	607.14	408,000	3.04	1.02	3.04	1.02
NOx	20	85	140,000	672	607.14	408,000	12.14	4.08	12.14	4.08
VOC	0.2	85	140,000	672	607.14	408,000	0.121	0.0408	0.121	0.0408
Formaldehyde	0.061	85	140,000	672	607.14	408,000	0.037	0.0124	0.037	0.0124
POM	0.0033	85	140,000	672	607.14	408,000	0.0020	0.00067	0.0020	0.00067
Arsenic	5.6E-04	85	140,000	672	607.14	408,000	0.00034	0.000114	0.00034	0.000114
Beryllium	4.2E-04	85	140,000	672	607.14	408,000	0.00026	0.000086	0.00026	0.000086
Cadmium	4.2E-04	85	140,000	672	607.14	408,000	0.00026	0.000086	0.00026	0.000086
Chromium	4.2E-04	85	140,000	672	607.14	408,000	0.00026	0.000086	0.00026	0.000086
Lead	1.3E-03	85	140,000	672	607.14	408,000	0.00077	0.000257	0.00077	0.000257
Manganese	8.4E-04	85	140,000	672	607.14	408,000	0.00051	0.000171	0.00051	0.000171
Mercury	4.2E-04	85	140,000	672	607.14	408,000	0.00026	0.000086	0.00026	0.000086
Nickel	4.2E-04	85	140,000	672	607.14	408,000	0.00026	0.000086	0.00026	0.000086
Selenium	2.1E-03	85	140,000	672	607.14	408,000	0.00128	0.000428	0.00128	0.000428
Total HAPs	7.1E-02	85	140,000	672	607.14	408,000	0.043	0.0145	0.043	0.0145
TOC	0.252	85	140,000	672	607.14	408,000	0.15	0.0514	0.15	0.0514
Copper	8.4E-04	85	140,000	672	607.14	408,000	0.00051	0.000171	0.00051	0.000171
Zinc	5.6E-04	85	140,000	672	607.14	408,000	0.00034	0.000114	0.00034	0.000114
CO2	22,300	85	140,000	672	607.14	408,000	13,539.29	4,549.20	13,539.29	4,549.20
N2O	0.26	85	140,000	672	607.14	408,000	0.16	0.053	0.16	0.053
Methane (CH4)	0.052	85	140,000	672	607.14	408,000	0.032	0.0106	0.032	0.0106
CO2-e							13,588.88	4,565.87	13,588.88	4,565.87

Emission Factor Source: U.S. EPA AP-42, Section 1.3, Tables 1.3-1, 1.3-2, 1.3-3, 1.3-6, 1.3-8, 1.3-10, and 1.3-12, 05/2010.
No. 2 fuel oil sulfur content = 0.0015% by weight (ultra-low sulfur fuel oil).

RETTEW

We answer to you.

3020 Columbia Avenue, Lancaster, PA 17603
Phone: (717) 394-3721
E-mail: rettew@rettew.com • Web site: rettew.com

MEMORANDUM

TO:	Grant Smith		
FROM:	John M. Schick		
DATE:	11/06/14		
PROJECT NAME:	Perdue Grain & Oilseed, LLC	**PROJECT NO.:**	0911010001
SUBJECT:	Traffic Assessment		

As per your request, we reviewed the trip generation characteristics and PennDOT driveway classification under a possible increased production rate. The following results and findings are based on information provided by Perdue:

Original Traffic Assumptions and Analyses

The plant would receive/process 17.5 million bushels per year with peak receiving/processing occurring in October with approximately 3.325 million bushels or 19% of the yearly total beans.

Based on processing 17.5 million bushel of soybeans, the proposed facility will generate approximately **598 truck trips per day** (299 entering and 299 exiting) along with approximately **72 daily employee trips** (36 employees over three shifts (approximately 12 entering and 12 exiting per shift)) for a total of **670 trips per day.**

The proposed facility would generate **96 AM peak hour trips** and approximately **80 PM peak hour trips.**

Proposed Increased Production Assumptions and Analyses

The plant production rate would increase to 25,547,446 bushels per year with peak receiving/processing occurring in November with approximately 3.53 million bushels or 14% of the yearly total beans.

The facility's increased production would result in approximately **842 truck trips per day** (421 entering and 421 exiting) along with approximately **72 daily employee trips** (36 employees over three shifts (approximately 12 entering and 12 exiting per shift)) for a total of **914 trips per day.**

The higher production facility would generate **125 AM peak hour trips** and approximately **103 PM peak hour trips.**

PennDOT Driveway Classification

LCSWMA currently holds a PennDOT Highway Occupancy Permit (HOP) for a Medium Volume Driveway. A Medium-Volume Driveway permits 1,500 to 3,000 trips per day. The existing LCSWMA Driveway averages approximately 383+/- trips per day with a peak of approximately 500+/- trips per day.

Under the original production rate of 17.5 million bushels per year, the peak daily driveway volume would be 1,170 trips per day (500 LCSWMA trips + 670 Perdue trips).

Under the proposed increased production rate of 25,547,446 bushels per year, the peak daily driveway volume would increase approximately 244 trips per day to 1,414 trips per day (500 LCSWMA trips + 914 Perdue trips).

As you can see the daily driveway traffic under the proposed increased production rate will still be less than half of the allowable volume for a PennDOT Medium Volume Driveway. If you have any questions, please call me to discuss.