



Notice of Construction Application

A notice of construction permit is required before installing a new source of air pollution or modifying an existing source of air pollution. This application applies to facilities in Ecology’s jurisdiction. Submit this application for review of your project. For general information about completing the application, refer to Ecology Forms ECY 070-410a-g, “Instructions for Ecology’s Notice of Construction Application.”

Ecology offers up to 2 hours of free pre-application help. We encourage you to schedule a pre-application meeting with the contact person specified for the location of your proposal (see below). For more help than the initial 2 free hours, submit Part 1 of the application and the application fee. You may schedule a meeting with us at any point in the process.

Completing the application, enclose it with a check for the initial fee and mail to:

WA Department of Ecology
Cashiering Unit
P.O. Box 47611
Olympia, WA 98504-7611

For Fiscal Office Use Only:
 001-NSR-216-0299-000404

Check the box for the location of your proposal. For help, call the contact listed below.		
	Ecology Permitting Office	Contact
<input type="checkbox"/>	Chelan, Douglas, Kittitas, Klickitat, or Okanogan County Ecology Central Regional Office – Air Quality Program	Lynnette Haller (509) 457-7126 lynnette.haller@ecy.wa.gov
<input checked="" type="checkbox"/>	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Stevens, Walla Walla, or Whitman County Ecology Eastern Regional Office – Air Quality Program	Karin Baldwin (509) 329-3452 karin.baldwin@ecy.wa.gov
<input type="checkbox"/>	San Juan County Ecology Northwest Regional Office – Air Quality Program	Dave Adler (425) 649-7267 david.adler@ecy.wa.gov
<input type="checkbox"/>	Kraft and Sulfite Paper Mills and Aluminum Smelters Ecology Industrial Section – Waste 2 Resources Program Permit manager: _____	James DeMay (360) 407-6868 james.demay@ecy.wa.gov
<input type="checkbox"/>	U.S. Department of Energy Hanford Reservation Ecology Nuclear Waste Program	Lilyann Murphy (509) 372-7951 lilyann.murphy@ecy.wa.gov

To request ADA accommodation, call (360) 407-6800, 711 (relay service), or 877-833-6341(TTY). ECY



Notice of Construction Application

Check the box for the fee that applies to your application.

New project or equipment

<input type="checkbox"/>	\$1,500: Basic project initial fee covers up to 16 hours of review
<input type="checkbox"/>	\$10,000: Complex project initial fee covers up to 106 hours of review

Change to an existing permit or equipment

<input checked="" type="checkbox"/>	\$200: Administrative or simple change initial fee covers up to 3 hours of review Ecology may determine your change is complex during completeness review of your application. If your project is complex, you must pay the additional \$675 before we will continue working on your application.
<input type="checkbox"/>	\$875: Complex change initial fee covers up to 10 hours of review
<input type="checkbox"/>	\$350 flat fee: Replace or alter control technology equipment (WAC 173-400-114) Ecology will contact you if we determine your change belongs in another fee category. You must pay the fee associated with that category before we will continue working on your application.

Read each statement, then check the box next to it to acknowledge that you agree.

<input type="checkbox"/>	The initial fee you submitted may not cover the cost of processing your application. Ecology will track the number of hours spent on your project. If the number of hours Ecology spends exceeds the hours included in your initial fee, Ecology will charge you \$95 per hour for the extra time.
<input type="checkbox"/>	You must include all information in this application. Ecology may not process your application if it does not include all the information requested.
<input type="checkbox"/>	Submittal of this application allows Ecology staff to inspect your facility.



Notice of Construction Application

Part 1: General Information

I. Project, Facility, and Company Information

1. Project Name	Washington State University - Feed Preparation Lab
2. Facility Name	Washington State University - Feed Preparation Lab
3. Facility Street Address	2660 Grimes Way, Pullman WA 99164
4. Facility Legal Description	Research and Teaching University
5. Company Legal Name (if different than Facility Name)	
6. Company Mailing Address (street, city, state, zip)	PO Box 641172, Pullman, WA 99164

II. Contact Information and Certification

1. Facility Contact Name (who will be on-site)		Jason Sampson	
2. Facility Contact Mailing Address (if different than Company Mailing Address)			
3. Facility Contact Phone Number	509-335-3564	4. Facility Contact Email	sampsonj@wsu.edu
5. Billing Contact Name (who should receive billing information)			
Jason Sampson			
6. Billing Contact Mailing Address (if different than Company Mailing Address)			
7. Billing Contact Phone Number	509-335-9564	8. Billing Contact Email	sampsonj@wsu.edu
9. Consultant Name (optional – if 3rd party hired to complete application)			
10. Consultant Organization/Company			
11. Consultant Mailing Address (street, city, state, zip)			
12. Consultant Phone Number		13. Consultant Email	
14. Responsible Official Name and Title (person responsible for project policy or decision-making)			
Jason Sampson, Director Environmental Health and Safety			
15. Responsible Official Mailing Address			
PO Box 641172, Pullman, WA 99164			
16. Responsible Official Phone	509-335-95645	17. Responsible Official Email	sampsonj@wsu.edu
18. Responsible Official Certification and Signature			
I certify that the information on this application is accurate and complete.			
Signature		<i>Jason T Sampson</i>	
		Date 3/9/2021	



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<input type="checkbox"/> NWP	U.S. Department of Energy Hanford Reservation Ecology Nuclear Waste Program Lilyann Murphy (509) 372-7951 lilyann.murphy@ecy.wa.gov

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Notice of Construction Application Part 1: General Information

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2. Facility Name Washington State University-Pullman Agronomy Seedhouse	
3. Facility Street Address 2660 Grimes Way, Pullman, WA 99164	
4. Facility Legal Description Research and Teaching University	
5. Company Legal Name (if different than Facility Name)	
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16. Responsible Official Phone 509-335-9564	17. Responsible Official Email sampsonj@wsu.edu
18. Responsible Official Certification and Signature I certify that the information on this application is accurate and complete.	
Signature _____	Date <u>3/9/2021</u>

Washington State University (WSU) Feed and Seed Project Description

Background:

Washington State University (WSU) shut down their Hospital/Medical/Infectious Waste Incinerator (Incinerator) in February 2020. With this operational change, the facility is below the Title V potential-to-emit regulatory thresholds which eliminates the requirements for their Title V Air Operating Permit (AOP) No. 07AQ-E211. As directed by the Department of Ecology (Ecology), WSU must apply for notice of construction (NOC) permits for the existing sources to support Ecology's elimination of the AOP permit. Five NOC applications for existing sources have been submitted to Ecology for review and approval. Ecology has requested additional information for the Feed Preparation Plant and the Agronomy Seedhouse, located at 2660 Grimes Way, Pullman, Washington.

Feed Preparation (see Process Flow Diagram in Figure 1, Appendix 1):

The feed plant was originally installed in the early 1970s, and was grandfathered into Ecology's air program and included in the AOP permit. Some equipment specifications are not available.

Raw materials (peas, wheat, barley, soy, alfalfa, and corn) are delivered by trucks into an open receiving pit. The materials pass through an enclosed elevator into one of twelve silos with bin vents. When materials are needed for processing feed, they pass through a scalper and up the enclosed elevator into one of nine bins partially enclosed by the feed plant building. Four of the bins feed to the grinder, three feed to the roller mill, and two feed to the pellet mill.

From four storage bins, materials are directed to the Curlee (CSE-10146-H-Z-CG4-S6) grinder. Dust from the grinder exhausts to a Champion Cyclone (Model 987; Serial #831FVE). The ground materials from the Curlee grinder are then directed to a weigh hopper.

From three storage bins, materials are directed through a steam chest partially enclosed by the feed plant building. The material proceeds through the Curlee (CEE-10146-H-Z-CG64-E6) roller mill, and the dust from the roller mill exhausts to a MAC cyclone. Following the roller mill, materials are cooled and proceed to the weigh hopper.

From two storage bins, materials proceed to the Curlee (CSE-10145-H-Z-CG4-3S5) pellet mill. Dust from the pellet mill exhausts to a MAC cyclone. After the pellet mill, materials proceed through a California Pellet Mill Company cooler (model 2GA, Serial #395253) and a crumbler before entering the weigh hopper.

Materials travel from the weigh hopper through the mixer before they are ready to ship out. The weigh hopper and mixer are partially enclosed by the feed plant building. The majority of the feed product (75%) proceeds to one of five bulk Blount/York feed loadout bins for loadout into trucks. About 15% of the feed product is loaded into totes which is partially enclosed by the feed plant building. The other 10% of feed product proceeds from the mixer to a Toledo bagger to fill 50-pound bags; this process also is partially enclosed by the feed plant building. For purposes of minimal tracking requirements, the emissions inventory assumes 100% of the feed is directed to uncontrolled loadout bins. The feed plant building also includes a 2.49 MMBtu/hr natural gas Parker Boiler.

Seed Plant (see Process Flow Diagram in Figure 2, Appendix 1):

The seed plant was originally installed in the late 1960s, and was grandfathered into Ecology's air program and included in the AOP permit. Some equipment specifications are not available.

Raw materials (barley, wheat, garbs, lentils, and peas) are delivered by trucks into an open receiving pit. The materials are conveyed into the seed plant on a partially enclosed conveyor. The materials travel up an enclosed Universal seed elevator and through a debearder, which exhausts dust emissions to a cyclone. After the debearder, the materials proceed up an enclosed elevator and through a AT Ferrell Co. screen. The dust from the screen exhausts to 2 small cyclones. After screening, a shaker conveyor conveys materials to a Oliver Manufacturing gravity separator and holding bin. Finally, the seed is weighed on a scale before being bagged or boxed. All of the activities after receiving are partially enclosed by the seed plant building.

Project Details:

Operating Schedule:

The facility typically operates 2 days per week, 8-hours per day, up to 52 weeks per year. This was doubled along with production in the potential to emit calculations (Attachment 2).

Production:

The maximum 5-year feed throughput was 1,051 tons per year. The maximum 5-year seed throughput was 641 tons per year. These values were doubled in the potential to emit calculations (Attachment 2).

Emissions:

Particulate emissions are a result of the processing through the feed and seed plants. Minor particulate emissions also result from a small natural gas boiler in the feed plant. All toxic emissions are also a result of the small natural gas boiler in the feed plant. These are all existing sources that are being permitted because the facility is being reclassified from a Title V source. Therefore, no de minimis or permitting assessment is made in the emissions inventory.

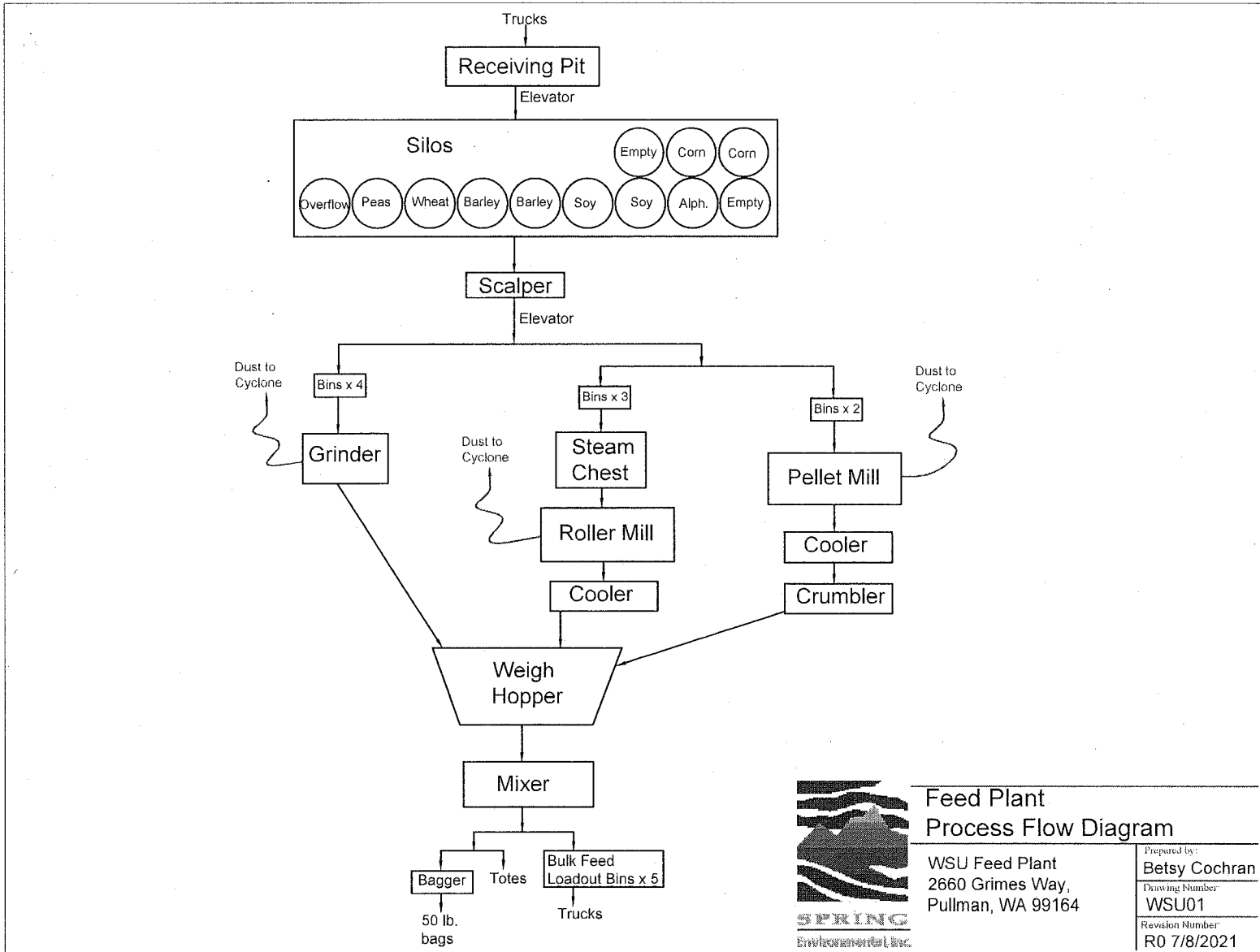
BACT/Modeling:

The feed and seed plants are existing sources and this permit is being generated to document emissions from seed and feed plants. Best achievable control technologies (BACT) and modeling assessments were not made per a 9/11/2020 e-mail from Robert Koster and a 5/19/2021 pre-application meeting.

Applicable Regulations:

- WAC 173-400 and 173-460
- New Source Performance Standard (40 CFR 60) Subpart DD "Grain Elevators".
- National Emission Standards for Hazardous Air Pollutants (40 CFR 63) Subparts A "General Provisions" and JJJJJ "Industrial, Commercial, and Institutional Boilers Area Sources".

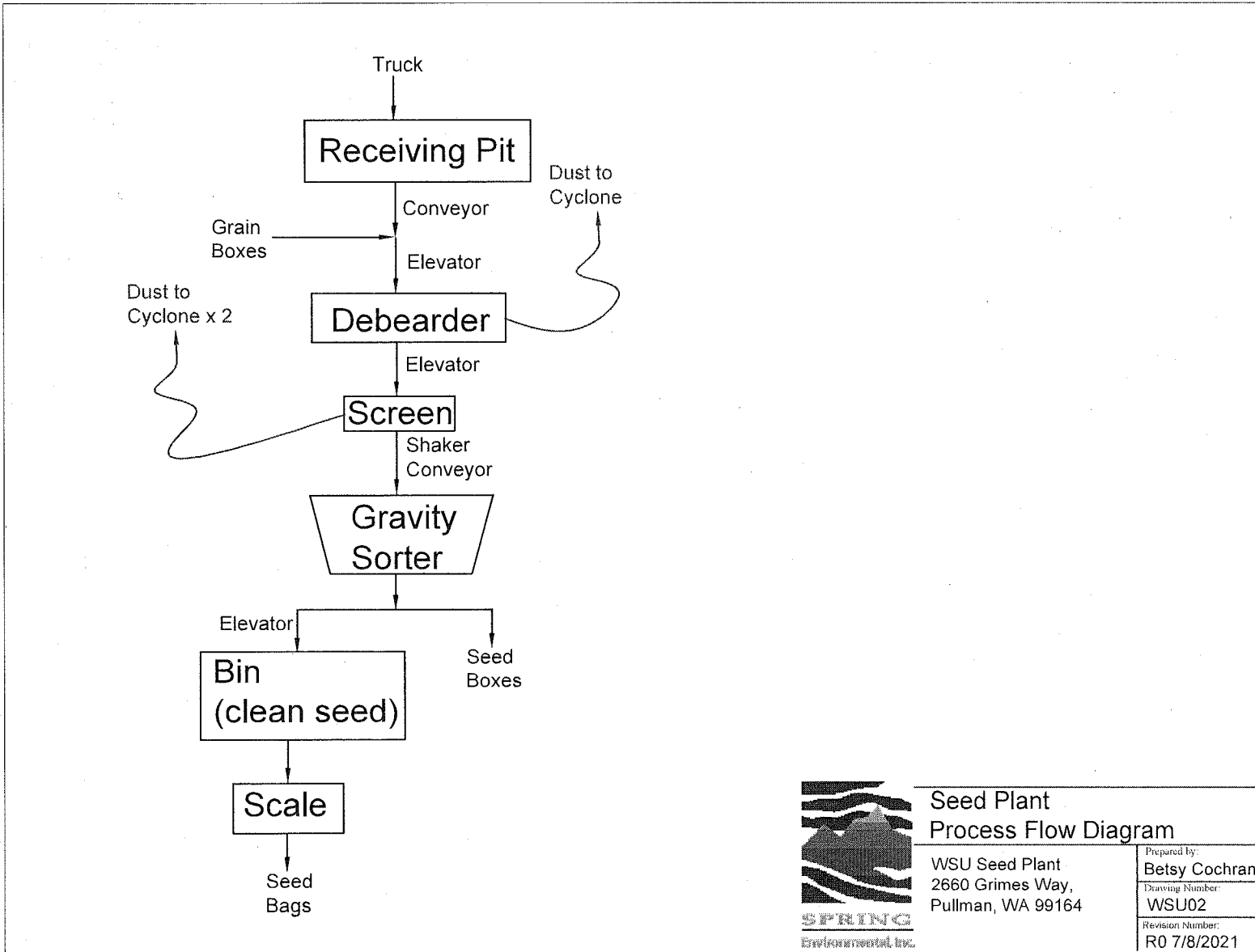
Attachment 1
Process Flow Diagrams



**Feed Plant
Process Flow Diagram**

WSU Feed Plant
2660 Grimes Way,
Pullman, WA 99164

Prepared by: Betsy Cochran
Drawing Number: WSU01
Revision Number: R0 7/8/2021



**Seed Plant
Process Flow Diagram**

WSU Seed Plant
2660 Grimes Way,
Pullman, WA 99164

Prepared by:	Betsy Cochran
Drawing Number:	WSU02
Revision Number:	R0 7/8/2021

Attachment 2
Emissions Inventory

WSU
Facility Information

Facility Summary

Production:

Feed Throughput ¹ :	2,102	tpy
Seed Throughput ² :	1,282	tpy
Operations ³ :	1,664	hours/yr
Storage:	8,760	hours/yr

Criteria Pollutants

Pollutant	PTE Uncontrolled (tpy)	Controlled Emissions (tpy)
PM ₁₀	24	4.4
PM _{2.5}	4.2	0.76
NOX	0.20	0.20
CO	0.17	0.17
SO ₂	1.2E-03	1.2E-03
Lead	1.0E-06	1.0E-06
VOCs	1.1E-02	1.1E-02
CO ₂ e	222	222

Toxic Air Pollutants

Pollutant	PTE Uncontrolled (tpy)	Controlled Emissions (tpy)
3-Methylcholanthrene	3.7E-09	3.7E-09
Dimethylbenz(a)anthracene	3.2E-08	3.2E-08
Benz(a)anthracene	3.7E-09	3.7E-09
Benzene	4.3E-06	4.3E-06
Benzo(a)pyrene	2.4E-09	2.4E-09
Benzo(b)fluoranthene	3.7E-09	3.7E-09
Benzo(k)fluoranthene	3.7E-09	3.7E-09
Chrysene	3.7E-09	3.7E-09
Dibenz(a,h)anthracene	2.4E-09	2.4E-09
Formaldehyde	1.5E-04	1.5E-04
Hexane	3.7E-03	3.7E-03
Indeno(1,2,3-cd)pyrene	3.7E-09	3.7E-09
Naphthalene	1.2E-06	1.2E-06
Toluene	6.9E-06	6.9E-06
Arsenic	4.1E-07	4.1E-07
Beryllium	2.4E-08	2.4E-08
Cadmium	2.2E-06	2.2E-06
Chromium (hexavalent)	1.1E-07	1.1E-07
Cobalt	1.7E-07	1.7E-07
Copper	1.7E-06	1.7E-06
Manganese	7.7E-07	7.7E-07
Mercury	5.3E-07	5.3E-07
Nickel	4.3E-06	4.3E-06
Selenium	4.9E-08	4.9E-08
Vanadium	4.7E-06	4.7E-06

Notes:

1. Maximum 5-year feed throughput x 2.
2. Maximum 5-year seed throughput x 2.
3. Feed plant is operational 2 days per week, but will be doubled for purposes of these emission calculations due to the doubled throughput. Seed plant operates less frequently, but will use the same schedule for these emission calculations.
4. Per WAC 173-400-110(5).

WSU
Feed Plant

Receiving, Handling, Processing, and Shipping

Production:
 Feed Processed: 2,102 tpy
 Grinder¹: 846 tpy
 Roller Mill²: 1,156 tpy
 Pellet Mill³: 210 tpy
 Operations: 1,664 hours/yr
 Storage: 8,780 hours/yr

Source	Pollutant	Emission Factor	Emission Factor Units	Uncontrolled PTE Emissions		Emission Control	Control Efficiency	Controlled Emissions	
				lb/yr	tpy			lb/yr	tpy
Grain Receiving (Animal Feed Mill) ^{4,5}	PM ₁₀	0.0025	lb/ton	5.3	2.6E-03	None	0%	5.3	2.6E-03
	PM _{2.5}	0.00043	lb/ton	0.89	4.5E-04	None	0%	0.89	4.5E-04
Grain Handling (Elevator) ^{6,7}	PM ₁₀	0.034	lb/ton	71	3.6E-02	Enclosed	100%	0	0.0E+00
	PM _{2.5}	0.0058	lb/ton	12	6.1E-03	Enclosed	100%	0.0	0.0E+00
Storage Vents (Silos) ⁸	PM ₁₀	0.0063	lb/ton	13	6.6E-03	None	0%	13	6.6E-03
	PM _{2.5}	0.0011	lb/ton	2.3	1.2E-03	None	0%	2.3	1.2E-03
Scalper (Grain Cleaning) - No Control ^{6,8}	PM ₁₀	0.022	lb/ton	47	2.3E-02	None	0%	47	2.3E-02
	PM _{2.5}	0.0038	lb/ton	7.9	4.0E-03	None	0%	7.9	4.0E-03
Grain Handling (Elevator) ^{6,7}	PM ₁₀	0.034	lb/ton	71	3.6E-02	Enclosed	100%	0	0.0E+00
	PM _{2.5}	0.0058	lb/ton	12	6.1E-03	Enclosed	100%	0.0	0.0E+00
Storage Vents (Bins) ^{6,9}	PM ₁₀	0.0063	lb/ton	13	6.6E-03	Partial Enclosure	70%	4	2.0E-03
	PM _{2.5}	0.0011	lb/ton	2.3	1.2E-03	Partial Enclosure	70%	0.7	3.5E-04
Grinder (Hammermill) ^{4,5,10}	PM ₁₀	0.034	lb/ton	32	1.6E-02	Cyclone	0%	32	1.6E-02
	PM _{2.5}	0.0057	lb/ton	5.4	2.7E-03	Cyclone	0%	5.4	2.7E-03
Pelletizing (Pellet Cooler) ^{4,5,10}	PM ₁₀	0.18	lb/ton	38	1.9E-02	Cyclone	0%	38	1.9E-02
	PM _{2.5}	0.0306	lb/ton	6.4	3.2E-03	Cyclone	0%	6.4	3.2E-03
Pellet Crumbler (Wheat Milling) ^{4,5,10}	PM ₁₀	35	lb/ton	7,357	3.7E+00	Partial Enclosure	70%	2,207	1.1E+00
	PM _{2.5}	6.0	lb/ton	1,251	6.3E-01	Partial Enclosure	70%	375	1.9E-01
Roller Mill (Wheat Milling) ^{4,5,7,10}	PM ₁₀	35	lb/ton	40,464	2.0E+01	Cyclone	86%	6,070	3.0E+00
	PM _{2.5}	6.0	lb/ton	6,879	3.4E+00	Cyclone	86%	1,032	5.2E-01
Grain Handling (Weigh Hopper) ^{6,9}	PM ₁₀	0.034	lb/ton	71	3.6E-02	Partial Enclosure	70%	21	1.1E-02
	PM _{2.5}	0.0058	lb/ton	12	6.1E-03	Partial Enclosure	70%	3.7	1.8E-03
Grain Handling (Mixer) ^{6,9}	PM ₁₀	0.034	lb/ton	71	3.6E-02	Partial Enclosure	70%	21	1.1E-02
	PM _{2.5}	0.0058	lb/ton	12	6.1E-03	Partial Enclosure	70%	3.7	1.8E-03
Storage (Loadout Bins) ⁵	PM ₁₀	0.0063	lb/ton	13	6.6E-03	Partial Enclosure	70%	4	2.0E-03
	PM _{2.5}	0.0011	lb/ton	2.3	1.2E-03	Partial Enclosure	70%	0.7	3.5E-04
Grain Handling (Truck Loadout) ^{6,11}	PM ₁₀	0.034	lb/ton	71	3.6E-02	None	0%	71	3.6E-02
	PM _{2.5}	0.0058	lb/ton	12	6.1E-03	None	0%	12.2	6.1E-03
Grain Handling (Bagger) ^{6,9,11}	PM ₁₀	0.034	lb/ton	0	0.0E+00	Partial Enclosure	70%	0	0.0E+00
	PM _{2.5}	0.0058	lb/ton	0	0.0E+00	Partial Enclosure	70%	0.0	0.0E+00
Grain Handling (Tote Loadout) ^{6,9,11}	PM ₁₀	0.034	lb/ton	0	0.0E+00	Partial Enclosure	70%	0	0.0E+00
	PM _{2.5}	0.0058	lb/ton	0	0.0E+00	Partial Enclosure	70%	0.0	0.0E+00
Grain Shipping - Truck ^{6,11}	PM ₁₀	0.029	lb/ton	61	3.0E-02	None	0%	61	3.0E-02
	PM _{2.5}	0.0049	lb/ton	10	5.1E-03	None	0%	10	5.1E-03
Total PM ₁₀ (tpy)				24				4.3	
Total PM _{2.5} (tpy)				4.1				0.7	

Notes:

1. Approximately 45% of feed plant throughput goes through the grinder.
2. Approximately 55% of feed plant throughput goes through the roller mill. Note: due to original assumptions, this estimate is conservative.
3. The pellet mill accounts for very little of the feed plant throughput. A conservative estimate of 10% of the feed plant throughput is used in these emission calculations. Note: due to original assumptions, this estimate is conservative.
4. Emission factors from AP-42 Table 9.9.1-2 (May 2003).
5. Per AP-42 Table 9.9.1-1 (May 2003) footnote g, PM_{2.5} = 17% x PM₁₀.
6. Emission factors from AP-42 Table 9.9.1-1 (May 2003).
7. Elevators and conveyors are enclosed, so 100% control is assumed.
8. "Grain Elevators and Processing Plants in Supplement B to compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources" so 85% was used to back calculate.
9. Partial enclosure was selected because the facility is enclosed but may operate with the doors open. Partial enclosure has a control efficiency of 70% per CHS Inc Approval Order 16AQ-E036.
10. Per AP-42 Table 9.9.1.2 footnote g, PM₁₀=50% PM.
11. Normal maximum of 75% of grain loaded in trucks, 15% of grain loaded in totes, and 10% of grain loaded in bags. Worst case is 100% to trucks.

WSU
Feed Plant Boiler

Natural Gas Boiler

Specifications		
Rating:	2.49	MMBtu/hr
Operating Hours:	1,664	hrs/yr
Conversion:	1,020	lb/10 ⁶ scf to lb/MMBtu

PTE Criteria Pollutants (Uncontrolled=controlled)

Pollutant	Emission Factor ¹	Emission Estimate	
	(lb/10 ⁶ scf)	(lb/yr)	(tpy)
PM ₁₀ =PM _{2.5}	7.6	30.9	1.54E-02
NO _x	100	406.2	0.203
CO	84	341.2	0.171
SO ₂	0.60	2.4	1.22E-03
Lead	0.0005	0.0	1.02E-06
VOCs	5.5	22.3	1.12E-02

Greenhouse Gases

Pollutant	Emission Factor ¹	Emission Estimate	GWP ²
	(lb/10 ⁶ scf)	(metric tons/yr)	
CO ₂	120,000	221	1
Methane	2.3	4.24E-03	25
N ₂ O	2.2	4.05E-03	298
CO ₂ e, tpy		222	

Toxic Air Pollutants

Pollutant	Emission Factor ³	Emission Estimate	
	(lb/10 ⁶ scf)	(lb/yr)	(tpy)
3-Methylcholanthrene	1.80E-06	7.31E-06	3.66E-09
Dimethylbenz(a)anthracene	1.60E-05	6.50E-05	3.25E-08
Benz(a)anthracene	1.80E-06	7.31E-06	3.66E-09
Benzene	2.10E-03	8.53E-03	4.27E-06
Benzo(a)pyrene	1.20E-06	4.87E-06	2.44E-09
Benzo(b)fluoranthene	1.80E-06	7.31E-06	3.66E-09
Benzo(k)fluoranthene	1.80E-06	7.31E-06	3.66E-09
Chrysene	1.80E-06	7.31E-06	3.66E-09
Dibenz(a,h)anthracene	1.20E-06	4.87E-06	2.44E-09
Formaldehyde	7.50E-02	3.05E-01	1.52E-04
Hexane	1.80E+00	7.31E+00	3.66E-03
Indeno(1,2,3-cd)pyrene	1.80E-06	7.31E-06	3.66E-09
Naphthalene	6.10E-04	2.48E-03	1.24E-06
Toluene	3.40E-03	1.38E-02	6.91E-06
Arsenic	2.00E-04	8.12E-04	4.06E-07
Beryllium	1.20E-05	4.87E-05	2.44E-08
Cadmium	1.10E-03	4.47E-03	2.23E-06
Chromium (hexavalent) ⁴	1.40E-03	2.27E-04	1.14E-07
Cobalt	8.40E-05	3.41E-04	1.71E-07
Copper	8.50E-04	3.45E-03	1.73E-06
Manganese	3.80E-04	1.54E-03	7.72E-07
Mercury	2.60E-04	1.06E-03	5.28E-07
Nickel	2.10E-03	8.53E-03	4.27E-06
Selenium	2.40E-05	9.75E-05	4.87E-08
Vanadium	2.30E-03	9.34E-03	4.67E-06

Notes:

1. Emission factors from AP-42 tables 1.4-1 and 1.4-2.
2. 40 CFR Part 98 Table A-1 (August 2016).
3. Emission factors from AP-42 tables 1.4-3 and 1.4-4.
4. Chromium VI (regulated by WAC 173-460-150) is 4% of total chromium (AP-42 emission factor) according to EPA's 2002 National-Scale Air Toxics Assessment released June 2009.

WSU
Seed Plant

Receiving, Handling, Processing, and Shipping

Production:
Seed Processed: 1,282 tpy
Operations: 1,664 hours/yr
Storage: 8,760 hours/yr

Source	Pollutant	Emission Factor ¹	Emission Factor Units	Uncontrolled PTE Emissions		Emission Control	Control Efficiency	Controlled Emissions	
				lb/yr	tpy			lb/yr	tpy
Seed Receiving (Hopper Truck)	PM ₁₀	0.0078	lb/ton	10	5.0E-03	None	0%	10	5.0E-03
	PM _{2.5}	0.0013	lb/ton	1.7	8.3E-04	None	0%	1.7	8.3E-04
Seed Handling (Conveyor)	PM ₁₀	0.034	lb/ton	44	2.2E-02	Partial Enclosure ²	70%	13.1	6.5E-03
	PM _{2.5}	0.0058	lb/ton	7.4	3.7E-03	Partial Enclosure ²	70%	2.2	1.1E-03
Seed Handling (Grain Box Unloading)	PM ₁₀	0.034	lb/ton	44	2.2E-02	Partial Enclosure ²	70%	13.1	6.5E-03
	PM _{2.5}	0.0058	lb/ton	7.4	3.7E-03	Partial Enclosure ²	70%	2.2	1.1E-03
Seed Handling (Elevator)	PM ₁₀	0.034	lb/ton	44	2.2E-02	Enclosed ³	100%	0.0	0.0E+00
	PM _{2.5}	0.0058	lb/ton	7.4	3.7E-03	Enclosed ³	100%	0.0	0.0E+00
Seed Cleaning (Debearder)	PM ₁₀	0.019	lb/ton	24	1.2E-02	Cyclone	0%	24	1.2E-02
	PM _{2.5}	0.0032	lb/ton	4.1	2.1E-03	Cyclone	0%	4.1	2.1E-03
Seed Handling (Elevator)	PM ₁₀	0.034	lb/ton	44	2.2E-02	Enclosed ³	100%	0.0	0.0E+00
	PM _{2.5}	0.0058	lb/ton	7.4	3.7E-03	Enclosed ³	100%	0.0	0.0E+00
Seed Cleaning (Screen)	PM ₁₀	0.019	lb/ton	24	1.2E-02	Cyclone	0%	24	1.2E-02
	PM _{2.5}	0.0032	lb/ton	4.1	2.1E-03	Cyclone	0%	4.1	2.1E-03
Seed Handling (Shaker Conveyor)	PM ₁₀	0.034	lb/ton	44	2.2E-02	Partial Enclosure ²	70%	13.1	6.5E-03
	PM _{2.5}	0.0058	lb/ton	7.4	3.7E-03	Partial Enclosure ²	70%	2.2	1.1E-03
Seed Handling (Gravity Sorter)	PM ₁₀	0.034	lb/ton	44	2.2E-02	Partial Enclosure ²	70%	13.1	6.5E-03
	PM _{2.5}	0.0058	lb/ton	7.4	3.7E-03	Partial Enclosure ²	70%	2.2	1.1E-03
Seed Handling (Elevator)	PM ₁₀	0.034	lb/ton	44	2.2E-02	Enclosed ³	100%	0.0	0.0E+00
	PM _{2.5}	0.0058	lb/ton	7.4	3.7E-03	Enclosed ³	100%	0.0	0.0E+00
Seed Storage (Bin)	PM ₁₀	0.0063	lb/ton	8.1	4.0E-03	Partial Enclosure ²	70%	2.4	1.2E-03
	PM _{2.5}	0.0011	lb/ton	1.4	7.1E-04	Partial Enclosure ²	70%	0.42	2.1E-04
Seed Handling (Scale)	PM ₁₀	0.034	lb/ton	44	2.2E-02	Partial Enclosure ²	70%	13.1	6.5E-03
	PM _{2.5}	0.0058	lb/ton	7.4	3.7E-03	Partial Enclosure ²	70%	2.2	1.1E-03
Seed Handling (Seed Bagging)	PM ₁₀	0.034	lb/ton	44	2.2E-02	Partial Enclosure ²	70%	13.1	6.5E-03
	PM _{2.5}	0.0058	lb/ton	7.4	3.7E-03	Partial Enclosure ²	70%	2.2	1.1E-03
Seed Handling (Box Loadout)	PM ₁₀	0.034	lb/ton	44	2.2E-02	Partial Enclosure ²	70%	13.1	6.5E-03
	PM _{2.5}	0.0058	lb/ton	7.4	3.7E-03	Partial Enclosure ²	70%	2.2	1.1E-03
Total PM ₁₀ (tpy)					2.5E-01	7.6E-02			
Total PM _{2.5} (tpy)					4.3E-02	1.3E-02			

Notes:

1. Emission factors from AP-42 table 9.9.1-1 (May 2003).
2. Partial enclosure was selected because the facility is enclosed but may operate with the doors open. Partial enclosure has a control efficiency of 70% per CHS Inc Approval Order 16AQ-E036.
3. Elevators are enclosed, so 100% control is assumed.