Statement of Basis

Permit to Construct No. P-2015.0017
Project ID 61805

Nunhems USA, Inc
Parma, Idaho

Facility ID 027-00130

Final

March 6, 2017
Tom Burnham
Permit Writer

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

FACILITY INFORMATION

Description

Nunhems USA, Inc. operates a seed treatment processing facility at 1200 Anderson Corner Road in Parma, Idaho. There are five processing stages:

- **Warehousing** – When seeds are received at the facility, they are inspected to determine if they are "dirt seed" or "clean seed". Both dirt seed and clean seed are sampled and analyzed to determine trueness to type, purity, vigor, seed health, and seed count. Seeds are then analyzed for moisture content and dried, if needed. A fumigation process is also performed, as needed, in order to eliminate insect infestation that may damage the seeds. Fumigation is accomplished using phosphine gas within a fumigation chamber.
- **Seed Conditioning** – Seed conditioning, also referred to as seed cleaning or seed milling, is the process of extracting the clean, pure seed from the plant parts that came with the seed from the field. Product considered dirt seed is received and stored within an adjacent building before it is conditioned in the conditioning building. Once received in the conditioning building, dirt seed goes through a scalping, or pre-cleaning process where product is run across an air screen cleaner to remove the largest and smallest plant parts from the seed. The seed then goes through another process known as brushing, where the awns, or hairs, of the seed are removed. After scalping and/or brushing, the seed is sent through the conditioning lines where they are further cleaned, density separated, color sorted, and size sorted. If the quality standards are met the seed is moved to climate controlled storage.
- **Seed Enhancement** – During the seed enhancement process, seeds are: 1) disinfected using a 1-percent chlorine solution, 2) primed (pre-germinated), 3) dried, 4) sorted, and 5) pelleted (the application of a polymer and filler to the seed to create a more uniform shape). Additional drying may be conducted following the application of the polymer in the pelleting process.
- **Seed Treatment** – After seed enhancement, seeds are sent for treatment where a thin layer of water-based polymer is applied in order to encapsulate the seed and hold pesticide to the seed.
- **Packaging and Shipment** – The seed is packaged in a variety of containers (pails, cans, pouches). The packaged seed can be stocked on site or distributed for sale.

Nunhems maintains eight Carothers dust collectors, six FARR cartridge dust collectors, one Murphy Rodgers baghouse, and two Herding filtration units to control particulate matter. The process heaters and building heaters use propane exclusively as the fuel source. Nunhems maintains three emergency IC engines for backup power. The engines are fueled exclusively with ultra-low sulfur diesel fuel and each engine is operated less than 100 hours per year for maintenance and testing.

Permitting History

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

June 9, 2016	P-2015.0017, initial PTC for this existing facility, A, but will become S upon issuance of this permit.

Application Scope

This PTC is for a minor modification at an existing minor facility. Seasonal hours of operation are increased for production flexibility.

Application Chronology

October 31, 2016	DEQ received an application and an application fee.
November 8-November23, 2016	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
December 1, 2016	DEQ determined that the application was complete.
January 9, 2017	DEQ made available the draft permit and statement of basis for peer and regional office review.
February 17, 2017	DEQ made available the draft permit and statement of basis for applicant review.
February 28, 2017	DEQ received the permit processing fee.
March 6, 2017	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Source ID No.	Sources	Control Equipment
Caterpillar Generator	Emergency IC Engine Manufacturer: Caterpillar Model: C9-2008 Manufacture Date: 2008 Rating: 398 bhp Fuel: ULSD	None
Generac Generator	Emergency IC Engine Manufacturer: New Holland Model: SD080 Manufacture Date: 2002 Rating: 125 bhp Fuel: ULSD	None
Cummins Generator	Emergency IC Engine Manufacturer: Cummins Model: QSK50-G4 NR2 Manufacture Date: 2009 Rating 2,205 bhp Fuel: ULSD	None
DC-1	Seed Conditioning (Lines 3-4)	CSL Dust Collector No. 1 Control Efficiency (PM_{10}): 99.995%
DC-2	Seed Conditioning (AIM Blending Line)	CSL Dust Collector No. 2 Control Efficiency (PM_{10}): 99.995%
DC-3	Seed Conditioning (Lines 1-2)	CSL Dust Collector No. 3 Control Efficiency (PM_{10}): 99.995%
DC-4	Seed Conditioning (Carrot Seed Brushing)	CSL Dust Collector No. 4 Control Efficiency (PM_{10}): 99.995%
DC-5	Seed Conditioning (Scalping Lines 3-4)	CSL Dust Collector No. 5 Control Efficiency (PM_{10}): 99.995%
DC-6	Seed Conditioning (Scalping Lines 1-2)	CSL Dust Collector No. 6 Control Efficiency (PM_{10}): 99.995%
DC-7	Seed Conditioning (Scalping and Brush Lines)	CSL Dust Collector No. 7 Control Efficiency (PM_{10}): 99.995%
DC-8	Seed Packaging and Shipping	CSL Dust Collector No. 8 Control Efficiency (PM_{10}): 99.995%
FARR 1	Seed Treatment (Film Coating)	FARR Cartridge Collector No. 1 Control Efficiency (PM_{10}): 99.99%
FARR 2	Seed Treatment (Film Coating)	FARR Cartridge Collector No. 2 Control Efficiency (PM_{10}): 99.99%
FARR 3	Seed Enhancement (Pelleting)	FARR Cartridge Collector No. 3 Control Efficiency (PM_{10}): 99.99%
FARR 4	Seed Enhancement (Pelleting)	FARR Cartridge Collector No. 4 Control Efficiency (PM_{10}): 99.99%
FARR 5	Warehousing (Bulk Unloading)	FARR Cartridge Collector No. 5 Control Efficiency (PM_{10}): 99.99%

Source ID No.	Sources	Control Equipment
FARR 6	Warehousing (Bulk Unloading)	FARR Cartridge Collector No. 6 Control Efficiency (PM_{10}): 99.99%
MR BH 1	Seed Enhancement (Priming)	Murphy-Rodgers Baghouse Control Efficiency (PM_{10}): 99.9%
HERD 1	Seed Enhancement (Powder/Blending)	Herding Filtration Unit No. 1 Control Efficiency (PM_{10}): 99.97%
HERD 2	Seed Enhancement (Pelleting)	Herding Filtration Unit No. 2 Control Efficiency (PM_{10}): 99.97%
HEAT 1	Two Propane Building Heaters Manufacturer: RAE Corporation Model No. RCUAC4CD50-H4 Rating: 1 MMBtu/unit (each)	None
HEAT 2	Four Propane Building Heaters South of Building "L" Rating: 0.25 MMBtu/hr (each)	None
DRYER 1	Two Enclosed Propane Seed Dryers within Building "L" Rating: 1 MMBtu/hr (each)	None
DRYER 2	Propane Seed Dryer Northwest of Building "K" Rating: 2.5 MMBtu/hr	None
DRYER 3	Propane Seed Dryer Northwest of Building "L" Rating: 2.0 MMBtu/hr	None
DRYER FARR 3	Two Propane Seed Dryers inside Building "L" Vents through FARR 3 Rating: 0.5 MMBtu/hr (each)	None
DRYER FARR 4	Three Propane Seed Dryers inside Building "L" Vents through FARR 4 Rating: 0.5 MMBtu/hr (each)	None
FUME	Fumigation Chamber Length: 60'9" Width: 9'6" Interior Height: 13'1"	None

Emissions Inventories

Potential to Emit

IDAPA 58.01.01 defines Potential to Emit as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

Using this definition of Potential to Emit an emission inventory was developed for the point sources at the facility. Emissions estimates of criteria pollutant, GHG, and HAP were based on emission factors from AP-42 for the LPG combustion sources and manufacturer data for the filtration units and emergency IC engines.

Uncontrolled Potential to Emit

Using the definition of Potential to Emit, uncontrolled Potential to Emit is then defined as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall **not** be treated as part of its design **since** the limitation or the effect it would have on emissions **is not** state or federally enforceable.

The uncontrolled Potential to Emit is used to determine if a facility is a "Synthetic Minor" source of emissions. Synthetic Minor sources are facilities that have an uncontrolled Potential to Emit for regulated air pollutants or HAP above the applicable Major Source threshold without permit limits.

The following table presents the uncontrolled Potential to Emit for regulated air pollutants as submitted by the applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. Particulate matter emissions from the seed processing operations are controlled by filtration devices. The uncontrolled PTE shown in Table 2 does not include any PM emission control for the seed processing operations and includes limited hours for emergency generator engines as permitted.

Table 2 UNCONTROLLED POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	PM_{10}/ $PM_{2.5}$	SO_2	NO_x	CO	VOC	CO_2e
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Caterpillar Emergency Generator	0.017	0.20	0.65	0.08	0.25	114
Generac Emergency Generator	0.068	0.06	0.46	0.13	0.02	36
Cummins Emergency Generator	0.036	0.13	6.93	0.69	0.10	639
DC-1 - Seed Conditioning (Lines 3-4)	44.9/12.7	--	--	--	--	--
DC-2 - Seed Conditioning (AIM Blending Line)	44.9/12.7	--	--	--	--	--
DC-3 - Seed Conditioning (Line 1-2)	45.1/12.7	--	--	--	--	--
DC-4 - Seed Conditioning (Carrot Seed Brushing)	16.5/4.6	--	--	--	--	--
DC-5 - Seed Conditioning (Scalping Lines 3-4)	25.8/7.3	--	--	--	--	--
DC-6 - Seed Conditioning (Scalping Lines 1-2)	41.9/11.8	--	--	--	--	--
DC-7 - Seed Conditioning (Scalping and Brush Lines)	8.8/2.5	--	--	--	--	--
DC-8 - Seed Packaging and Shipping	32.2/9.1	--	--	--	--	--
FARR 1 - Seed Treatment (Film Coating)	21.5/6.0	--	--	--	0.011	--
FARR 2 - Seed Treatment (Film Coating)	20.2/5.7	--	--	--	0.001	--
FARR 3 - Seed Enhancement (Pelleting)	24.1/6.8	--	--	--	--	--
FARR 4 - Seed Enhancement (Pelleting)	28.8/8.1	--	--	--	--	--
FARR 5 - Warehousing (Bulk Unloading)	39.1/11.0	--	--	--	--	--

Source	PM_{10}/ $PM_{2.5}$	SO_2	NO_x	CO	VOC	CO_2e
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
FARR 6 – Warehousing (Bulk Unloading)	39.1/11 .0	--	--	--	--	--
MR BH 1 - Seed Enhancement (Priming)	1.45/0. 41	--	--	--	--	--
HERD 1 - Seed Enhancement (Powder/Blending)	1.45/0. 41	--	--	--	--	--
HERD 2 - Seed Enhancement (Pelleting)	16.86/4 .75	--	--	--	0.187	--
HEAT 1 - Two Propane Building Heaters	0.005	0.010	0.085	0.05	0.007	82
HEAT 2 - Four Propane Building Heaters	0.013	0.027	0.233	0.016	0.018	224
DRYER 1 - Two Enclosed Propane Seed Dryers	0.068	0.144	1.245	0.718	0.096	1,196
DRYER 2 – Seed Dryer	0.013	0.028	0.245	0.14	0.019	236
DRYER 3 – Seed Dryer	0.007	0.014	0.123	0.070	0.009	118
DRYER FARR 3 – Seed Dryer	0.034	0.072	0.062	0.360	0.048	598
DRYER FARR 4 – Seed Dryer	0.050	0.108	0.933	0.539	0.072	897
Total, Point Sources	**453/128**	**1.67**	**22.69**	**6.02**	**1.74**	**8,999**

The following table presents the uncontrolled Potential to Emit for HAP pollutants as submitted by the applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. The PTE is based upon a worst-case for operations at the facility.

Table 3 UNCONTROLLED POTENTIAL TO EMIT FOR HAZARDOUS AIR POLLUTANTS

Hazardous Air Pollutants	PTE (T/yr)
Acrolein	3.72E-05
Benzene	1.36E-03
Ethylene Glycol	9.83E-04
Formaldehyde	4.44E-04
Hexane	NA
Hydrochloric Acid	5.78E-05
Methanol	1.9E-01
Naphthalene	2.08E-04
Phosphine	1.79E-02
Phosphorus	NA
Toluene	5.12E-04
Xylene	1.11E-02
Total	**0.22**

Pre-Project Potential to Emit

Pre-project Potential to Emit is used to establish the change in emissions at a facility as a result of this project.

The following table presents the pre-project potential to emit for all criteria and GHG pollutants from all emissions units at the facility as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 4 PRE-PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_x		CO		VOC		CO_2e	
	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]
Caterpillar Generator	0.069	0.017	0.82	0.20	2.61	0.65	0.32	0.08	0.98	0.25	458	114
Generac Generator	0.270	0.068	0.26	0.06	1.86	0.46	0.52	0.13	0.06	0.02	144	36
Cummins Generator	0.146	0.036	0.53	0.13	27.71	6.93	2.77	0.69	0.39	0.10	2,558	639
DC-1 - Seed Conditioning (Lines 3-4)	0.103/0.029	0.45/0.13	--	--	--	--	--	--	--	--	--	--
DC-2 - Seed Conditioning (AIM Blending Line)	0.103/0.029	0.45/0.13	--	--	--	--	--	--	--	--	--	--
DC-3 - Seed Conditioning (Line 1-2)	0.103/0.030	0.45/0.13	--	--	--	--	--	--	--	--	--	--
DC-4 - Seed Conditioning (Carrot Seed Brushing)	0.038/0.011	0.16/0.05	--	--	--	--	--	--	--	--	--	--
DC-5 - Seed Conditioning (Scalping Lines 3-4)	0.059/0.017	0.26/0.07	--	--	--	--	--	--	--	--	--	--
DC-6 - Seed Conditioning (Scalping Lines 1-2)	0.096/0.027	0.42/0.12	--	--	--	--	--	--	--	--	--	--
DC-7 - Seed Conditioning (Scalping and Brush Lines)	0.020/0.006	0.09/0.03	--	--	--	--	--	--	--	--	--	--
DC-8 - Seed Packaging and Shipping	0.074/0.021	0.32/0.09	--	--	--	--	--	--	--	--	--	--
FARR 1 - Seed Treatment (Film Coating)	0.049/0.014	0.21/0.06	--	--	--	--	--	--	0.0024	0.011	--	--
FARR 2 - Seed Treatment (Film Coating)	0.046/0.013	0.20/0.06	--	--	--	--	--	--	0.0002	0.001	--	--
FARR 3 - Seed Enhancement (Pelleting)	0.055/0.016	0.24/0.07	--	--	--	--	--	--	--	--	--	--
FARR 4 - Seed Enhancement (Pelleting)	0.066/0.019	0.29/0.08	--	--	--	--	--	--	--	--	--	--
FARR 5 - Warehousing	0.089/0.0	0.39/0.11	--	--	--	--	--	--	--	--	--	--

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_x		CO		VOC		CO_2e	
	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]
(Bulk Unloading)	25											
FARR 6 – Warehousing (Bulk Unloading)	0.089/0.025	0.39/0.11	--	--	--	--	--	--	--	--	--	--
MR BH 1 - Seed Enhancement (Priming)	0.005/0.002	0.02/0.01	--	--	--	--	--	--	--	--	--	--
HERD 1 - Seed Enhancement (Powder/Blending)	0.010/0.003	0.04/0.01	--	--	--	--	--	--	--	--	--	--
HERD 2 - Seed Enhancement (Pelleting)	0.116/0.033	0.51/0.14	--	--	--	--	--	--	0.043	0.187	--	--
HEAT 1 - Two Propane Building Heaters	0.015	0.025	0.033	0.054	0.284	0.467	0.164	0.269	0.022	0.036	273	449
HEAT 2 - Four Propane Building Heaters	0.008	0.013	0.016	0.027	0.142	0.233	0.082	0.016	0.011	0.018	137	224
DRYER 1 - Two Enclosed Propane Seed Dryers	0.015	0.068	0.033	0.144	0.284	1.245	0.164	0.718	0.022	0.096	273	1,196
DRYER 2 – Seed Dryer	0.019	0.035	0.041	0.075	0.356	0.648	0.205	0.374	0.027	0.050	342	623
DRYER 3 – Seed Dryer	0.015	0.005	0.033	0.010	0.284	0.087	0.164	0.050	0.022	0.007	273	83.3
DRYER FARR 3 – Seed Dryer	0.008	0.034	0.016	0.072	0.142	0.062	0.082	0.360	0.011	0.048	137	598
DRYER FARR 4 – Seed Dryer	0.012	0.050	0.024	0.108	0.213	0.933	0.123	0.539	0.016	0.072	205	897
Pre Project Totals	**1.70/0.90**	**5.24/1.75**	**1.81**	**0.88**	**33.89**	**11.72**	**4.59**	**3.23**	**1.61**	**0.90**	**4,800**	**4,859**

Post Project Potential to Emit

Post project Potential to Emit is used to establish the change in emissions at a facility and to determine the facility's classification as a result of this project. Post project Potential to Emit includes all permit limits resulting from this project.

The following table presents the post project Potential to Emit for criteria and GHG pollutants from all emissions units at the facility as determined by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 5 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_x		CO		VOC		CO_2e	
	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]
Caterpillar Generator	0.069	0.017	0.82	0.20	2.61	0.65	0.32	0.08	0.98	0.25	458	114
Generac Generator	0.270	0.068	0.26	0.06	1.86	0.46	0.52	0.13	0.06	0.02	144	36
Cummins Generator	0.146	0.036	0.53	0.13	27.71	6.93	2.77	0.69	0.39	0.10	2,558	639
DC-1 - Seed Conditioning (Lines 3-4)	0.103/0.029	0.45/0.13	--	--	--	--	--	--	--	--	--	--
DC-2 - Seed Conditioning (AIM Blending Line)	0.103/0.029	0.45/0.13	--	--	--	--	--	--	--	--	--	--
DC-3 - Seed Conditioning (Line 1-2)	0.103/0.030	0.45/0.13	--	--	--	--	--	--	--	--	--	--
DC-4 - Seed Conditioning (Carrot Seed Brushing)	0.038/0.011	0.16/0.05	--	--	--	--	--	--	--	--	--	--
DC-5 - Seed Conditioning (Scalping Lines 3-4)	0.059/0.017	0.26/0.07	--	--	--	--	--	--	--	--	--	--
DC-6 - Seed Conditioning (Scalping Lines 1-2)	0.096/0.027	0.42/0.12	--	--	--	--	--	--	--	--	--	--
DC-7 - Seed Conditioning (Scalping and Brush Lines)	0.020/0.006	0.09/0.03	--	--	--	--	--	--	--	--	--	--
DC-8 - Seed Packaging and Shipping	0.074/0.021	0.32/0.09	--	--	--	--	--	--	--	--	--	--
FARR 1 - Seed Treatment (Film Coating)	0.049/0.014	0.21/0.06	--	--	--	--	--	--	0.0024	0.011	--	--
FARR 2 - Seed Treatment (Film Coating)	0.046/0.013	0.20/0.06	--	--	--	--	--	--	0.0002	0.001	--	--
FARR 3 - Seed Enhancement (Pelleting)	0.055/0.016	0.24/0.07	--	--	--	--	--	--	--	--	--	--
FARR 4 - Seed Enhancement (Pelleting)	0.066/0.019	0.29/0.08	--	--	--	--	--	--	--	--	--	--
FARR 5 - Warehousing (Bulk Unloading)	0.089/0.025	0.39/0.11	--	--	--	--	--	--	--	--	--	--
FARR 6 – Warehousing (Bulk	0.089/0.025	0.39/0.11	--	--	--	--	--	--	--	--	--	--

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_x		CO		VOC		CO_2e	
	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]
Unloading)												
MR BH 1 - Seed Enhancement (Priming)	0.005/0.002	0.02/0.01	--	--	--	--	--	--	--	--	--	--
HERD 1 - Seed Enhancement (Powder/Blending)	0.010/0.003	0.04/0.01	--	--	--	--	--	--	--	--	--	--
HERD 2 - Seed Enhancement (Pelleting)	0.116/0.033	0.51/0.14	--	--	--	--	--	--	0.043	0.187	--	--
HEAT 1 - Two Propane Building Heaters	0.015	0.005	0.033	0.054	0.284	0.467	0.164	0.269	0.022	0.036	273	449
HEAT 2 - Four Propane Building Heaters	0.008	0.034	0.016	0.027	0.142	0.233	0.082	0.016	0.011	0.018	137	224
DRYER 1 - Two Enclosed Propane Seed Dryers	0.008	0.034	0.033	0.144	0.284	1.245	0.164	0.718	0.022	0.096	273	1,196
DRYER 2 – Seed Dryer	0.008	0.034	0.041	0.075	0.356	0.648	0.205	0.374	0.027	0.050	342	623
DRYER 3 – Seed Dryer	0.011	0.013	0.033	0.010	0.284	0.087	0.164	0.050	0.022	0.007	273	83.3
DRYER FARR 3 – Seed Dryer	0.006	0.007	0.016	0.072	0.142	0.062	0.082	0.360	0.011	0.048	137	598
DRYER FARR 4 – Seed Dryer	0.008	0.034	0.024	0.108	0.213	0.933	0.123	0.539	0.016	0.072	205	897
Post Project Totals	**1.68/0.87**	**5.23/1.71**	**1.806**	**0.88**	**33.885**	**11.715**	**4.594**	**3.226**	**1.6066**	**0.896**	**4800**	**4859.3**

a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.

Change in Potential to Emit

The change in facility-wide potential to emit is used to determine if a public comment period may be required and to determine the processing fee per IDAPA 58.01.01.225. The following table presents the facility-wide change in the potential to emit for criteria pollutants.

Table 6 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Pre-Project Potential to Emit	1.70/0.90	5.24/1.75	1.81	0.88	33.89	11.72	4.59	3.23	1.61	0.90
Post Project Potential to Emit	1.68/0.87	5.23/1.71	1.806	0.88	33.885	11.715	4.594	3.226	1.6066	0.896
Changes in Potential to Emit	(0.02/0.03)	(0.01/0.04)	(0.004)	0.00	(0.005)	(0.005)	0.004	(0.004)	(0.034)	(0.004)

Non-Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions of non-carcinogenic toxic air pollutants (TAP) is provided in the following table.

Table 7 POTENTIAL TO EMIT FOR NON-CARCINOGENIC TOXIC AIR POLLUTANTS

Pollutant	Hourly Emissions (lb/hr)	Screening Level (lb/hr)	Modeling? (Y/N)	Emissions (tons/yr)
Acrolein	6.19E-06	1.7E-02	N	3.72E-05
Ammonia	1.01E-03	1.2E+00	N	1.10E-03
Aluminum Oxide; Al2O3	3.96E-06	6.67E-01	N	1.7E-05
Calcium Carbonate	3.29E-03	6.67E-01	N	1.4E-02
Chlorpyrifos	2.44E-06	1.30E-02	N	1.1E-05
Ethylene Glycol	2.24E-04	8.46E-01	N	9.8E-04
Hydrogen Chloride (HCL)	1.32E-05	5.00E-02	N	5.8E-05
Kaolin	3.93E-06	1.33E-01	N	1.7E-05
Magnesium Oxide	3.30E-06	6.67E-01	N	1.4E-05
Methanol*	4.26E-02	1.73E+01	N	1.9E-01
Mica	3.51E-04	2.00E-01	N	1.5E-03
Naphthalene	3.46E-05	3.33E+00	N	2.08E-04
Perlite	7.15E-04	6.67E-01	N	3.1E-03
Phosphine	4.10E-03	2.70E-02	N	1.79E-02
Silica - amorphous- Diatomaceous Earth	1.59E-03	6.67E-01	N	7.0E-03
Silica, crystalline - Cristobalite	3.17E-04	3.30E-03	N	1.4E-03
Silica, crystalline - Quartz	5.51E-04	6.70E-03	N	2.4E-03
Sodium Hydroxide	1.10E-02	1.33E-01	N	4.8E-02
Thiram	1.41E-01	3.33E-01	N	6.2E-01
Toluene	8.53E-05	2.5E+01	N	5.12E-04
Xylene	2.50E-03	2.90E+01	N	1.1E-02
TOTAL	**2.09E-01**			**9.14E-01**

None of the PTEs for non-carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any non-carcinogenic TAP because none of the 24-hour average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

<u>Carcinogenic TAP Emissions</u>

A summary of the estimated PTE for emissions of carcinogenic toxic air pollutants (TAP) is provided in the following table.

Table 8 POTENTIAL TO EMIT FOR CARCINOGENIC TOXIC AIR POLLUTANTS

Pollutant	Hourly Emissions (lb/hr)	Screening Level (lb/hr)	Modeling? (Y/N)	Emissions (tons/yr)
Benzene	3.10E-04	8.0E-04	N	1.36E-03
Formaldehyde	3.30E-04	5.1E-04	N	4.44E-04
Naphthalene	3.46E-05	9.1E-05	N	2.08E-04
Thiourea	1.25E-06	1.5E-06	N	1.31E-09
Benzo(a)pyrene	9.50E-08	2.0E-06	N	4.16E-07

Benz(a)anthracene	3.09E-07	NA	N	1.35E-06
Benzo(b)fluoranthene	3.64E-07	NA	N	1.60E-06
Benzo(k)fluoranthene	8.03E-08	NA	N	3.52E-07
Chrysene	5.16E-07	NA	N	2.26E-06
Dibenzo(a,h)anthracene	1.49E-07	NA	N	6.53E-07
Indeno(1,2,3-cd)pyrene	1.58E-07	NA	N	6.90E-07
Total PAHs	7.91E-05	9.1E-05	N	3.46E-04
Total	**7.56E-04**			**2.36E-03**

None of the PTEs for carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any carcinogenic TAP because none of the annual average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

Post Project HAP Emissions

The following table presents the post project potential to emit for HAP pollutants from all emissions units at the facility as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 9 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY

Hazardous Air Pollutants	PTE (T/yr)
Acrolein	3.72E-05
Benzene	1.36E-03
Ethylene Glycol	9.83E-04
Formaldehyde	4.44E-04
Hexane	NA
Hydrochloric Acid	5.78E-05
Methanol	1.9E-01
Naphthalene	2.08E-04
Phosphine	1.79E-02
Phosphorus	NA
Toluene	5.12E-04
Xylene	1.11E-02
Total	**0.22**

Ambient Air Quality Impact Analyses

The applicant has demonstrated pre-construction compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The applicant has also demonstrated pre-construction compliance to DEQ's satisfaction that the emissions increase due to this permitting action will not exceed any acceptable ambient concentration (AAC) or acceptable ambient concentration for carcinogens (AACC) for toxic air pollutants (TAP). A summary of the Ambient Air Impact Analysis for TAP is provided in Appendix A.

An ambient air quality impact analyses document has been crafted by DEQ based on a review of the modeling analysis submitted in the application. That document is part of the final permit package for this permitting action (see Appendix B).

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Payette County, which is designated as attainment or unclassifiable for $PM_{2.5}$, PM_{10}, SO_2, NO_2, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

Facility Classification

The AIRS/AFS facility classification codes are as follows:

For THAPs (Total Hazardous Air Pollutants) Only:

A = Use when any one HAP has actual or potential emissions $\geq$ 10 T/yr or if the aggregate of all HAPS (Total HAPs) has actual or potential emissions $\geq$ 25 T/yr.

SM80 = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the permit sets limits $\geq$ 8 T/yr. of a single HAP or $\geq$ 20 T/yr. of THAP.

SM = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the potential HAP emissions are limited to < 8 T/yr. of a single HAP and/or < 20 T/yr. of THAP.

B = Use when the potential to emit without permit restrictions is below the 10 and 25 T/yr. major source threshold

UNK = Class is unknown

For All Other Pollutants:

A = Actual or potential emissions of a pollutant are $\geq$ 100 T/yr.

SM80 = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr. if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are $\geq$ 80 T/yr.

SM = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr. if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are < 80 T/yr.

B = Actual and potential emissions are < 100 T/yr. without permit restrictions.

UNK = Class is unknown.

Table 10 UNCONTROLLED PTE AND PTE FOR REGULATED AIR POLLUTANTS COMPARED TO THE MAJOR SOURCE THRESHOLDS

Pollutant	Uncontrolled PTE (T/yr)	PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM_{10}	453	5.24	100	SM
$PM_{2.5}$	128	1.75	100	SM
SO_2	0.88	0.88	100	B
NO_x	11.72	11.72	100	B
CO	3.23	3.23	100	B
VOC	0.90	0.90	100	B
CO_2e	4,859	4,859	100,000	B
HAP (single)	0.19	0.19	10	B
HAP (total)	0.22	0.22	25	B

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 .... Permit to Construct Required

The permittee has requested a PTC be issued to the facility for modification to an existing PTC. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401 .... Tier II Operating Permit

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400–410 were not applicable to this permitting action.

Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.625 .... Visible Emissions

The sources of PM_{10} emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Conditions 2.4, 3.3 and 3.17.

Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

IDAPA 58.01.01.301 .... Requirement to Obtain Tier I Operating Permit

Post project facility-wide emissions from this facility do not have a potential to emit greater than 100 tons per year for PM10, SO2, NO_x, CO, VOC, and HAP or 10 tons per year for any single HAP or 25 tons per year for any combination of HAP's as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, the facility is not a Tier I source in accordance with IDAPA 58.01.01.006 and the requirements of IDAPA 58.01.01.301 do not apply.

PSD Classification (40 CFR 52.21)

40 CFR 52.21 .... Prevention of Significant Deterioration of Air Quality

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore in accordance with 40 CFR 52.21(a)(2), PSD requirements are not applicable to this permitting action. The facility is not a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a), and does not have facility-wide emissions of any criteria pollutant that exceed 250 T/yr.

NSPS Applicability (40 CFR 60)

40 CFR 60, Subpart IIII ....Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

The facility is subject to the requirements of 40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. The applicable requirements of the subpart are underlined for identification. A breakdown of this subpart is included in the SOB for P-2015.0017, issued June 9, 2016.

NESHAP Applicability (40 CFR 61)

The facility is not subject to any NESHAP requirements in 40 CFR 61.

MACT Applicability (40 CFR 63)

40 CFR 63, Subpart ZZZZ........National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

The facility has proposed to operate as a minor source of hazardous air pollutant (HAP) emissions, and is subject to the requirements of 40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. The applicable requirements of the subpart are underlined for identification. A breakdown of this subpart is included in the SOB for P-2015.0017, issued June 9, 2016.

Permit Conditions Review

This section describes the permit conditions for this initial permit or only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

Revised Permit Condition 3.7 Dryer 2 Operating Limit

Dryer 2 monthly operation hours were modified from 10 hours a day between the hours of 8:00 a.m. and 6 p.m. for a total of 3,650 hours per year, to 200 hours per month for operational flexibility.

Revised Permit Condition 3.8 Dryer 3 Operating Limit

Dryer 3 monthly and yearly operation hours were modified from 10 hours a day between the hours of 6:00 a.m. and 4 p.m. with weekly and monthly restrictions to 200 hours per month and 2,400 hours per year for operational flexibility.

New Permit Condition 3.15 Heater 1 Operating Limit

Heater 1 monthly and annual operation limits were added and Heater 1 may only be operated August 1through January 31.

New Permit Condition 3.19 Heater 1 Monitoring

Monitoring and recording Heater 1 hourly usage was added to make Heater 1 operation limits enforceable.

PUBLIC REVIEW

Public Comment Opportunity

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c or IDAPA 58.01.01.404.01.c. During this time, there were comments on the application and there was not a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

APPENDIX A – EMISSIONS INVENTORIES

Change in PTE for Regulated Air Pollutants

Nunhems USA

Source	PM10		PM2.5		NOx		SO2		CO		VOC	
	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr
Pre-Project PTE	1.76	5.52	0.95	2.00	35.04	17.36	1.98	1.67	5.26	6.28	1.70	1.27
Post Project PTE	1.74	5.50	0.94	1.98	34.70	17.00	1.94	1.63	5.07	6.07	1.68	1.25
Delta	**-0.02**	**-0.02**	**-0.02**	**-0.02**	**-0.33**	**-0.36**	**-0.04**	**-0.04**	**-0.19**	**-0.21**	**-0.03**	**-0.03**
New Baseline	**1.74**	**5.50**	**0.94**	**1.98**	**34.70**	**17.00**	**1.94**	**1.63**	**5.07**	**6.07**	**1.68**	**1.25**

Note: New Baseline based on replacing two existing seed dryers and proposed monthly and annual limits for Heater 01, Dryer 2, Dryer 3, Dryer 4A and Dryer 4B.

Modified Facility Wide Criteria Pollutant PTE

Nunhems USA

Source	Pound per hour						
	PM10	PM2.5	NOx	SOx	CO	VOC	
Propane Sources	0.06	0.06	1.16	0.18	0.67	0.09	
Process Sources	1.68	0.87	33.54	1.77	4.40	1.59	
Total	**1.74**	**0.94**	**34.70**	**1.94**	**5.07**	**1.68**	

Source	Ton per year						
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e
Propane Sources	0.27	0.27	5.08	0.78	2.93	0.39	4848
Process Sources	5.23	1.71	11.92	0.85	3.14	0.86	4517
Total	**5.50**	**1.98**	**17.00**	**1.63**	**6.07**	**1.25**	**9365**

Note:

PM10 and PM2.5 emissions are based on controlled PTE

Existing Facility Wide Criteria Pollutant PTE

Nunhems USA

Source	Pound per hour						
	PM10	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	
Propane Sources	0.06	0.06	1.16	0.18	0.67	0.09	
Process Sources	1.70	0.89	33.88	1.80	4.59	1.61	
Total	**1.76**	**0.95**	**35.04**	**1.98**	**5.26**	**1.70**	

Source	Ton per year						
	PM10	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2e**
Propane Sources	0.27	0.27	5.08	0.78	2.93	0.39	4848
Process Sources	5.25	1.73	12.28	0.89	3.35	0.88	4862
Total	**5.52**	**2.00**	**17.36**	**1.67**	**6.28**	**1.27**	**9710**

Note:

PM10 and PM2.5 emissions are based on controlled PTE

Emission Tables in June 9, 2016 IDEQ SOB (P-2015.0017, Facility ID 027-00130) does not include propane emissions.

Emission Units and Control Devices

Table 1 EMISSIONS UNIT AND CONTROL DEVICE INFORMATION

	Equipment	Capacity	Manufacturer	Model or Serial No.
Backup Generators	CAT C9-2008 3 Phase Diesel Generator (at pumphouse) / CAT GEN	NA	Caterpillar	Engine: 313 kVA, 250 kW, 60 Hertz; Generator: 480 volts.
Backup Generators	Stamford Cummins 3-Phase Diesel Generator / CUMMINS GEN	NA	Stamford Cummins	Engine: 2015 kVA Base Rate; 1612 kW (BR); 60 Hz; 1800 RPM. Generator: 480 Volts; 2423.7 Amps (BR).
Backup Generators	Generac 2000 Series 3-Phase Diesel Generator (South of Building "C") / GENERAC GEN	NA	Generac	Model #: 1526500100; 100 kVA. Serial #: 2062523 Generator: 120 Volts; 60 Hz; 240.6 Amps; 1800 RPM; 80 kW
	CSL Dust Collector No. 1 (DC-1) for Seed Conditioning	NA	Carothers & Sons, LTD.	Efficiency %: 99.995 Grain Loading gr/dscf: 0.0007 GSCFM Exhaust Volumetric Flow Rate: 34,900 CFM
	CSL Dust Collector No. 2 (DC-2) for Seed Conditioning	NA	Carothers & Sons, LTD.	Efficiency %: 99.995 Grain Loading gr/dscf: 0.0007 GSCFM Exhaust Volumetric Flow Rate: 34,900 CFM
	CSL Dust Collector No. 3 (DC-3) for Seed Conditioning	NA	Carothers & Sons, LTD.	Efficiency %: 99.995 Grain Loading gr/dscf: 0.0007 GSCFM Exhaust Volumetric Flow Rate: 35,000 CFM
	CSL Dust Collector No. 4 (DC-4) for Seed Conditioning	NA	Carothers & Sons, LTD.	Efficiency %: 99.995 Grain Loading gr/dscf: 0.0007 GSCFM Exhaust Volumetric Flow Rate: 12,800 CFM
	CSL Dust Collector No. 5 (DC-5) for Seed Conditioning	NA	Carothers & Sons, LTD.	Efficiency %: 99.995 Grain Loading gr/dscf: 0.0007 GSCFM Exhaust Volumetric Flow Rate: 20,000 CFM
	CSL Dust Collector No. 6 (DC-6) for Seed Conditioning	NA	Carothers & Sons, LTD.	Efficiency %: 99.995 Grain Loading gr/dscf: 0.0007 GSCFM Exhaust Volumetric Flow Rate: 32,500 CFM
	CSL Dust Collector No. 7 (DC-7) for Seed Conditioning	NA	Carothers & Sons, LTD.	Efficiency %: 99.995 Grain Loading gr/dscf: 0.0007 GSCFM Exhaust Volumetric Flow Rate: 6,800 CFM
	CSL Dust Collector No. 8 (DC-8) for Seed Packaging and Shipping	NA	Carothers & Sons, LTD.	Efficiency %: 99.995 Grain Loading gr/dscf: 0.0007 GSCFM Exhaust Volumetric Flow Rate: 25,000 CFM
	FARR Cartridge Collector No. 1 (FARR 1) for Seed Treatment (Film Coating)	NA	Camfil FARR Air Pollution Control	Camfil FARR APC warranties that the emissions from the collectors will not exceed 0.002 gr/dscf in overall particulate emissions, efficiency to be 99.99% on 0.5 micron particles and larger by weight. Serial #: 697544

Filtration Units	FARR Cartridge Collector No. 2 (FARR 2) for Seed Treatment (Film Coating)	NA	Camfil FARR Air Pollution Control	Camfil FARR APC warranties that the emissions from the collectors will not exceed 0.002 gr/dscf in overall particulate emissions, efficiency to be 99.99% on 0.5 micron particles and larger by weight. Serial #: 697544
	FARR Cartridge Collector No. 3 (FARR 3) for Seed Enhancement (Pelleting)	NA	Camfil FARR Air Pollution Control	Camfil FARR APC warranties that the emissions from the collectors will not exceed 0.002 gr/dscf in overall particulate emissions, efficiency to be 99.99% on 0.5 micron particles and larger by weight. Serial #: 660171
	FARR Cartridge Collector No. 4 (FARR 4) for Seed Enhancement (Pelleting)	NA	Camfil FARR Air Pollution Control	Camfil FARR APC warranties that the emissions from the collectors will not exceed 0.002 gr/dscf in overall particulate emissions, efficiency to be 99.99% on 0.5 micron particles and larger by weight. Serial #: 660171
	Murphy-Rodgers Baghouse (MR BH 1) for Seed Enhancement (Priming)	NA	Murphy-Rodgers, Inc	Capacity is 3,900 cfm @ 8" wg, 352 sq/ft of filter area with a realized air to filter ratio of approx. 11 to 1 The usual efficiency of dry filter units is 99.9% on particle sizes of 1 micron or larger. The efficiency as stated is after an initial run in period and the filters have had sufficient time to accumulate a dust cake. Model: MRM-12-4D
	Herding Filtration Unit No. 1 (HERD 1) for Seed Enhancement (Powder/Blending)	NA	Herding Filtration, LLC.	4700-7985 CFM - m3/h % Efficiency / Air Quality: <0.1mg/m3 (=0.0004 gr/ft3) or 99.97% @ 0.3micron Model: P-1899 HSL 1500-12/18 SZ
	Herding Filtration Unit No. 2 (HERD 2) for Seed Enhancement (Pelleting)	NA	Herding Filtration, LLC.	23200-39417 CFM - m3/h % Efficiency / Air Quality: <0.1mg/m3 (=0.0004 gr/ft3) or 99.97% @ 0.3micron Model: P-2112 Delta Sys 1500-144/9 (3KA) GZ
	FARR Cartridge Collector No. 5 (FARR 5) for Warehousing (Bulk Unloading)	NA	Camfil FARR Air Pollution Control	Camfil FARR APC warranties that the emissions from the collectors will not exceed 0.002 gr/dscf in overall particulate emissions, efficiency to be 99.99% on 0.5 micron particles and larger by weight. Serial # 634948-A
LPG Combustion	Two propane building heaters ("Q") for temperature and humidity control (to dry scale out of onion umbels) / Heat 1	1,000,000 BTU/hr/unit	NA	NA
	Ten blower fans on south side of building "Q"	NA	NA	NA
	Eight fans off east side of building "G" for temperature and humidity control.	NA	NA	NA
	Twenty-Nine Total fans (Nine off of the east side of each of the "D" buildings) for temperature and humidity control.	NA	NA	NA
	Four Building heaters south of building "L" / Heat 2	250,000 BTU/hr/unit	NA	NA
	Two Enclosed Propane Seed Dryers within building "L" for Seed Warehousing (Drying) / Dryer 1	1,000,000 BTU/hr/unit	NA	NA
	Seed Dryer northwest of building "K" for Seed Warehousing (Drying) / Dryer 2	2,500,000 BTU/hr/unit	NA	NA

Fumigation	Box chamber fumigation as part of Warehousing (fumigation) Process / Fume	length: 60' 9" Width: 9' 6" interior height: 13' 1" Interior volume: ~7580 cu. Ft	NA	NA
MM Btu/Hr = million Brithish thermal units per hour NA = not available				

CRITERIA POLLUTANTS PTE

Source Descriptions	Emission Controls	PM-Total		PM-10*		PM-2.5*	
		lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Backup Diesl Generators							
(3) Backup Diesel Generators	None	0.485	0.121	0.485	0.121	0.485	0.121
Filtration Units							
Seed Conditioning, Lines 3-4	DC-1 CSL Dust Collector	0.209	0.917	0.103	0.449	0.029	0.127
Seed Conditioning, AIM Blending Lin	DC-2 CSL Dust Collector	0.209	0.917	0.103	0.449	0.029	0.127
Seed Conditioning, Line 1-2	DC-3 CSL Dust Collector	0.210	0.920	0.103	0.451	0.029	0.127
Seed Conditioning, Carrot Seed Brus	DC-4 CSL Dust Collector	0.077	0.336	0.038	0.165	0.011	0.046
Seed Conditioning, Scalping Lines 3-	DC-5 CSL Dust Collector	0.120	0.526	0.059	0.258	0.017	0.073
Seed Conditioning, Scalping Lines 1-	DC-6 CSL Dust Collector	0.195	0.854	0.096	0.419	0.027	0.118
Seed Conditioning, Scalping and Bru	DC-7 CSL Dust Collector	0.041	0.179	0.020	0.088	0.006	0.025
Seed Packaging and Shipping	DC-8 CSL Dust Collector	0.150	0.657	0.074	0.322	0.021	0.091
Seed Treatment (Film Coating)	(FARR 1) FARR Cartridge Collector No. 1	0.100	0.438	0.049	0.215	0.014	0.060
Seed Treatment (Film Coating)	(FARR 2) FARR Cartridge Collector No. 2	0.094	0.411	0.046	0.202	0.013	0.057
Seed Enhancement (Pelleting)	(FARR 3) FARR Cartridge Collector No. 3	0.112	0.491	0.055	0.241	0.015	0.068
Seed Enhancement (Pelleting)	(FARR 4) FARR Cartridge Collector No. 4	0.134	0.588	0.066	0.288	0.019	0.081
Warehousing (Bulk Unloading)	(FARR 5) FARR Cartridge Collector No. 5	0.182	0.798	0.089	0.391	0.025	0.110
Warehousing (Bulk Unloading)	(FARR 6) FARR Cartridge Collector No. 6	0.182	0.798	0.089	0.391	0.025	0.110
Seed Enhancement (Priming)	(MR BH 1) Murphy-Rodgers Baghouse	0.011	0.050	0.006	0.024	0.002	0.007
Seed Enhancement (Powder/Blending)	(HERD 1) Herding Filtration Unit No. 1	0.020	0.089	0.010	0.043	0.003	0.012
Seed Enhancement (Pelleting)	(HERD 2) Herding Filtration Unit No. 2	0.236	1.032	0.1155	0.506	0.0325	0.142
LPG Combustion							
Two propane building heaters ("Q") for temperature and humidity control (Heater 1)	None	0.015	0.005	0.015	0.005	0.015	0.005
Four building heaters south of building "L" (Heater 2)	None	0.008	0.034	0.008	0.034	0.008	0.034
Enclosed Propane Seed Dryer within building "L" (Dryer 1A)	None	0.008	0.034	0.008	0.034	0.008	0.034
Enclosed Propane Seed Dryer within building "L" (Dryer 1B)		0.008	0.034	0.008	0.034	0.008	0.034
Seed Dryer northwest of building "K" (Dryer 2)	None	0.011	0.013	0.011	0.013	0.011	0.013
Seed Dryer northwest of building "L" (Dryer 3)	None	0.006	0.007	0.006	0.007	0.006	0.007
Seed Dryer inside Building L (2 500,000 BTU units, Vent through FARR03)	None	0.008	0.034	0.008	0.034	0.008	0.034
Seed Dryer inside Building L (3 500,000 BTU units, Vent through FARR04)	None	0.011	0.050	0.011	0.050	0.011	0.050
	FACILITY-WIDE TOTAL EMISSIONS	**2.84**	**10.33**	**1.68**	**5.23**	**0.87**	**1.71**

*PM-10 = particulate matter less than or equal to 10 um aerodynamic diameter. All particulate is assumed to be < or = 1 um in size.

CRITERIA POLLUTANTS PTE											
NO_x		CO		CO_2e		SO_x		VOC		Lead	
lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
32.17	8.04	3.61	0.90	3,159.3	789.8	1.61	0.40	1.44	0.36	-	-
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.45E-03	1.07E-02	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.29E-04	1.00E-03	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4.26E-02	1.87E-01	n/a	n/a
0.28	0.0852	0.16	0.05	273.2	82.0	0.033	0.010	0.022	0.007		
0.14	0.6223	0.08	0.36	136.6	598.4	0.016	0.072	0.011	0.048		
0.14	0.6223	0.08	0.36	136.6	598.4	0.016	0.072	0.011	0.048		
0.14	0.6223	0.08	0.36	136.6	598.4	0.016	0.072	0.011	0.048		
0.20	0.2455	0.12	0.14	196.7	236.1	0.024	0.028	0.016	0.019		
0.10	0.1228	0.06	0.07	98.4	118.0	0.012	0.014	0.008	0.009		
0.14	0.6223	0.08	0.36	136.6	598.4	0.016	0.072	0.011	0.048		
0.21	0.9334	0.12	0.54	204.9	897.5	0.025	0.108	0.016	0.072		
33.54	**11.92**	**4.40**	**3.14**	**4,478.92**	**4,516.86**	**1.77**	**0.85**	**1.59**	**0.86**	-	-

CRITERIA EMISSIONS - LIQUEFIED PETROLEUM GAS COMBUSTION - Nunhems USA, Inc.

Emission Factors

Pollutant	Factor	Units	Source
NOx	13.0	lb/10^3 gal	AP-42, Table 1.5-1, EMISSION FACTORS FOR LPG COMBUSTION[a], 1998
CO	7.5	lb/10^3 gal	AP-42, Table 1.5-1, EMISSION FACTORS FOR LPG COMBUSTION[a], 1998
CO_2e	12,500	lb/10^3 gal	AP-42, Table 1.5-1, EMISSION FACTORS FOR LPG COMBUSTION[a], 1998
PM-Total	0.7	lb/10^3 gal	AP-42, Table 1.5-1, EMISSION FACTORS FOR LPG COMBUSTION[a], 1998
SOx[b]	1.5	lb/10^3 gal	AP-42, Table 1.5-1, EMISSION FACTORS FOR LPG COMBUSTION[a], 1998
VOC[c]	1.0	lb/10^3 gal	AP-42, Table 1.5-1, EMISSION FACTORS FOR LPG COMBUSTION[a], 1998
Lead			

Conversion Factor
91.5 x 10^6 Btu/10^3 gal
1.09E-05

a Assumes PM, CO, and TOC emissions are the same, on a heat input basis, as for natural gas combustion. Use heat contents of 91.5 x 10^6 Btu/10^3 gallon for propane, 102 x 106 Btu/103 gallon for butane, 1020 x 106 Btu/106 scf for methane when calculating an equivalent heat input basis. For example, the equation for converting from methane's emissions factors to propane's emissions factors is as follows: lb pollutant/103 gallons of propane = (lb pollutant /106 ft3 methane) * (91.5 x 106 Btu/103 gallons of propane) / (1020 x 106 Btu/106 scf of methane). The NOx emission factors have been multiplied by a correction factor of 1.5, which is the approximate ratio of propane/butane NOx emissions to natural gas NOx emissions. To convert from lb/103 gal to kg/103 L, multiply by 0.12. SCC = Source Classification Code.

b The sulfur emission factor for propane is 0.10S, where S

c VOC assumed to be equal to TOC.

#REF!

Description	Capacity (BTU/hr)/unit	Throughput (hours of operation/unit)	PM-Total* lb/hr	PM-Total* T/yr	PM-10 Emissions* lb/hr	PM-10 Emissions* T/yr	PM-2.5 Emissions* lb/hr	PM-2.5 Emissions* T/yr	NOx Emissions lb/hr	NOx Emissions T/yr	CO Emissions lb/hr	CO Emissions T/yr	CO_2e Emissions lb/hr	CO_2e Emissions T/yr	SOx Emissions lb/hr	SOx Emissions T/yr	VOC** Emissions lb/hr	VOC** Emissions T/yr
Two propane building heaters ("Q") for temperature and humidity control (Heat 01)	1,000,000	600	0.0153	0.0046	0.0153	0.0046	0.0153	0.0046	0.2842	0.0852	0.1639	0.0492	273.2	82.0	0.0328	0.0098	0.0219	0.0066
Ten blower fans on south side of building "Q"	Ambient Air																	
Eight fans off east side of building "G" for temperature and humidity control.	Ambient Air																	
Twenty-Nine Total fans (Nine off of the east side of each of the "D" buildings) for temperature and humidity control.	Ambient Air																	
Four Building heaters south of building "L" (Heat 02)	250,000	8,760	0.0077	0.0335	0.0077	0.0335	0.0077	0.0335	0.1421	0.6223	0.0820	0.3590	136.6	598.4	0.0164	0.0718	0.0109	0.0479
Seed Dryers within building "L." (Dryer 01A)	1,000,000	8,760	0.0077	0.0335	0.0077	0.0335	0.0077	0.0335	0.1421	0.6223	0.0820	0.3590	136.6	598.4	0.0164	0.0718	0.0109	0.0479
Seed Dryers within building "L." (Dryer 01B)	1,000,000	8,760	0.0077	0.0335	0.0077	0.0335	0.0077	0.0335	0.1421	0.6223	0.0820	0.3590	136.6	598.4	0.0164	0.0718	0.0109	0.0479
Seed Dryer northwest of building "L" (Dryer 3)	720,000	2,400	0.0055	0.0066	0.0055	0.0066	0.0055	0.0066	0.1023	0.1228	0.0590	0.0708	98.4	118.0	0.0118	0.0142	0.0079	0.0094
Dryer 4A (Vent through FARR03)	1,000,000	8,760	0.0077	0.0335	0.0077	0.0335	0.0077	0.0335	0.1421	0.6223	0.0820	0.3590	136.6	598.4	0.0164	0.0718	0.0109	0.0479
Dryer 4B (Vent through FARR04)	1,500,000	8,760	0.0115	0.0503	0.0115	0.0503	0.0115	0.0503	0.2131	0.9334	0.1230	0.5385	204.9	897.5	0.0246	0.1077	0.0164	0.0718
Seed Dryer northwest of building "K." (Dryer 2)	1,440,000	2,400	0.0110	0.0132	0.0110	0.0132	0.0110	0.0132	0.2046	0.2455	0.1180	0.1416	196.7	236.1	0.0236	0.0283	0.0157	0.0189
		TOTAL=	0.0739	0.2087	0.0739	0.2087	0.0739	0.2087	1.3725	3.8761	0.7918	2.2362	1319.7	3727.0	0.1584	0.4472	0.1056	0.2982

*PM Total Emission factor given in AP 42; assume that PM_{10} and $PM_{2.5}$ are the same as PM Total

**VOC assumed to be equal to TOC.

TOXIC AIR POLLUTANT EMISSION INVENTORY - NUNHEMS USA, INC. TAPs & HAPs Summary				
NON-CARCINOGENS				
Pollutant	**Hourly Emissions (lb/hr)**	**Screening Level (lb/hr)**	**Modeling? (Y/N)**	**Emissions (tons/yr)**
Acrolein*	6.19E-06	1.7E-02	N	3.72E-05
Ammonia	1.01E-03	1.2E+00	N	1.10E-03
Aluminum Oxide; Al2O3	3.96E-06	6.67E-01	N	1.7E-05
Calcium Carbonate	3.29E-03	6.67E-01	N	1.4E-02
Chlorpyrifos	2.44E-06	1.30E-02	N	1.1E-05
Ethylene Glycol*	2.24E-04	8.46E-01	N	9.8E-04
Hydrogen Chloride (HCL)	1.32E-05	5.00E-02	N	5.8E-05
Kaolin	3.93E-06	1.33E-01	N	1.7E-05
Magnesium Oxide	3.30E-06	6.67E-01	N	1.4E-05
Methanol*	4.26E-02	1.73E+01	N	1.9E-01
Mica	3.51E-04	2.00E-01	N	1.5E-03
Naphthalene*[a]	3.46E-05	3.33E+00	N	2.08E-04
Perlite	7.15E-04	6.67E-01	N	3.1E-03
Phosphine*	4.10E-03	2.70E-02	N	1.79E-02
Silica - amorphous- Diatomaceous Earth	1.59E-03	6.67E-01	N	7.0E-03
Silica, crystalline - Cristobalite	3.17E-04	3.30E-03	N	1.4E-03
Silica, crystalline - Quartz	5.51E-04	6.70E-03	N	2.4E-03
Sodium Hydroxide	1.10E-02	1.33E-01	N	4.8E-02
Thiram	1.41E-01	3.33E-01	N	6.2E-01
Toluene*	8.53E-05	2.5E+01	N	5.12E-04
Xylene*	2.50E-03	2.90E+01	N	1.1E-02
TOTAL	**2.09E-01**			**9.14E-01**

a Although listed as a noncarcinogen in the Rules, DEQ has determined that naphthalene is a possible/probable carcinogen. Compliance for naphthalene emissions should be based on the EL or AACC listed in Section 586 for PAH.

* Also listed Hazardous Air Pollutants. See HAPs Inventory list below.

CARCINOGENS				
Pollutant	Hourly Emissions (lb/hr)	Screening Level (lb/hr)	Modeling? (Y/N)	Emissions (tons/yr)
Benzene*	3.10E-04	8.0E-04	N	1.36E-03
Formaldehyde*	3.30E-04	5.1E-04	N	4.44E-04
Naphthalene*[a]	3.46E-05	9.1E-05	N	2.08E-04
Thiourea	1.25E-06	1.5E-06	N	1.31E-09
Benzo(a)pyrene	9.50E-08	2.0E-06	N	4.16E-07
Benz(a)anthracene	3.09E-07	NA	N	1.35E-06
Benzo(b)fluoranthene	3.64E-07	NA	N	1.60E-06
Benzo(k)fluoranthene	8.03E-08	NA	N	3.52E-07
Chrysene	5.16E-07	NA	N	2.26E-06
Dibenzo(a,h)anthracene	1.49E-07	NA	N	6.53E-07
Indeno(1,2,3-cd)pyrene	1.58E-07	NA	N	6.90E-07
Total PAHs	7.91E-05	9.1E-05	N	3.46E-04
Total	**7.56E-04**			**2.36E-03**

* Also listed Hazardous Air Pollutants. See HAPs Inventory list below.

HAPs Inventory	
Pollutant	Emissions (tons/yr)
Acrolein	3.72E-05
Benzene	1.36E-03
Ethylene Glycol	9.83E-04
Formaldehyde	4.44E-04
Hexane	NA
Hydrochloric Acid	5.78E-05
Methanol	1.9E-01
Naphthalene	2.08E-04
Phosphine*	1.79E-02
Phosphorus	NA
Toluene	5.12E-04
Xylene	1.11E-02
Total	**2.19E-01**

*Maximum Individual HAP

TOXIC AND HAZARDOUS AIR POLLUTANT EMISSION INVENTORY - NUNHEMS USA, INC. SEED COATINGS

NON-CARCINOGENIC TAPs

Pollutant	Hourly Emissions (lb/hr)	Screening Level (lb/hr)	Modeling? (Y/N)	Emissions (tons/yr)
Aluminum Oxide; Al2O3	3.96E-06	6.67E-01	N	1.7E-05
Calcium Carbonate	3.29E-03	6.67E-01	N	1.4E-02
Chlorpyrifos	2.44E-06	1.30E-02	N	1.1E-05
Ethylene Glycol*	2.24E-04	6.67E-01	N	9.8E-04
Hydrogen Chloride (HCL)*	1.32E-05	5.00E-02	N	5.8E-05
Kaolin	3.93E-06	1.33E-01	N	1.7E-05
Magnesium Oxide	3.30E-06	6.67E-01	N	1.4E-05
Methanol*	4.26E-02	1.73E+01	N	1.9E-01
Mica	3.51E-04	2.00E-01	N	1.5E-03
Perlite	7.15E-04	6.67E-01	N	3.1E-03
Phosphine*	4.10E-03	2.70E-02	N	1.8E-02
Silica - amorphous- Diatomaceous Earth	1.59E-03	6.67E-01	N	7.0E-03
Silica, crystalline - Cristobalite	3.17E-04	3.30E-03	N	1.4E-03
Silica, crystalline - Quartz	5.51E-04	6.70E-03	N	2.4E-03
Sodium Hydroxide	1.10E-02	1.33E-01	N	4.8E-02
Thiram	1.41E-01	3.33E-01	N	6.2E-01
Xylene*	2.45E-03	2.90E+01	N	1.1E-02

* Also listed Hazardous Air Pollutants. See HAPs Inventory list below.

CARCINOGENIC TAPs

Pollutant	Max. Hourly Emissions (lb/hr)	Screening Level (lb/hr)	Modeling? (Y/N)	Emissions (tons/yr)
Thiourea	1.25E-06	1.5E-06	N	1.31E-09
Formaldehyde*	2.29E-04	5.1E-04	N	6.97E-09

* Also listed Hazardous Air Pollutants. See HAPs Inventory list below.

HAPs Inventory

Pollutant	Emissions (tons/yr)
Ethylene Glycol	9.83E-04
Formaldehyde	7.0E-09
Hydrochloric Acid	5.78E-05
Methanol	1.9E-01
Phosphine	1.8E-02
Xylene	1.07E-02

Total	**1.88E-01**

TAP Emission Calculations of Process Byproduct - Nunhems USA, Inc. Seed Coatings

Process	Application	Name of Material/ TAPs
Warehousing (Fumigation)	Pesticide	Weevil-cide, Fumitoxin / Phosphine (60%)
Warehousing (Fumigation)	Pesticide	Weevil-cide, Fumitoxin / Ammonia (20%)
Seed Enhancement (Treatment)	Fungicide	42S Thiram / Thiram (42%)
Seed Enhancement (Pelleting)	Fungicide	42S Thiram / Thiram (42%)
Seed Enhancement (Treatment)	Fungicide	Maxim 4FS / Ethylene Glycol (<15%)
Seed Enhancement (Pelleting)	Fungicide	Maxim 4FS / Ethylene Glycol (<15%)
Seed Enhancement (Pelleting)	Fungicide	ProGro / Thiram (50%)
Seed Enhancement (Treatment)	Insecticide	Lorsban 30F / Chlorpyrifos (30%)
Seed Enhancement (Treatment)	Insecticide	Lorsban 30F / Xylene (3%)
Seed Enhancement (Pelleting)	Insecticide	TriGard OMC / Kaolin Clay (<15%),
Seed Enhancement (Pelleting)	Insecticide	TriGard OMC / Amorphous Silica; diatomaceous earth (<15%)
Seed Enhancement (Pelleting)	Powder	C31 / Calcium carbonate (50-100%)
Seed Enhancement (Pelleting)	Powder	C31 / Diatomaceous earth/silica-amorphous (25-50%)
Seed Enhancement (Pelleting)	Powder	C31 / Mica (1-10%)
Seed Enhancement (Pelleting)	Powder	C31 / Silica, crystalline - Quartz (1-10%)
Seed Enhancement (Pelleting)	Powder	C31 / Silica, crystalline - Cristobalite (1-10%)
Seed Enhancement (Pelleting)	Powder	F18 / Mica (50-100%)
Seed Enhancement (Pelleting)	Powder	Mikrosohl 40 / Calcium Carbonate (88%)
Seed Enhancement (Pelleting)	Powder	Mikrosohl 40 / Hydrochloric acid-insoluble components (10%)
Seed Enhancement (Pelleting)	Powder	Wimer 100,130,140 / Silica, crystalline - Quartz (53%)
Seed Enhancement (Pelleting)	Powder	Navajo Brand Grade FFF Pumice / Aluminum Oxide: Al_2O_3 (12%)
Seed Enhancement (Pelleting)	Powder	Navajo Brand Grade FFF Pumice / Calcium Oxide: CaO (<1%)
Seed Enhancement (Pelleting)	Powder	Navajo Brand Grade FFF Pumice / Magnesium Oxide: MgO (<1%)
Seed Enhancement (Pelleting)	Powder	Dicalite 476, 478 Perlite Filter Aids / Perlite (assume 100%)
Seed Enhancement (Pelleting)	Polymer/Binder	SOL 17 / Methanol (<1%)
Seed Enhancement (Treatment)	Polymer/Binder	Sepiret 9256 EKWX / Formaldehyde (~39ppm or 0.0039%)
Seed Enhancement (Priming)	Disinfection	Liquichlor/Sodium Hypochlorite / Sodium hydroxide (0.1-2%)
Seed Enhancement (Priming)	Priming Component	Thiourea / Thiourea (>99%)

[a] Estimated seed coating transfer efficiency provided by Nunhems USA, Inc.
[b] Collection efficiency only for powder coatings; potential vapors from liquid coatings are not controlled by the baghouse.

TAP Emission Calculations of Process Byproduct - Nunhems USA, Inc. Seed Coatings

Max Material Process Rate (lb/hr)	Transfer Efficiency (%)[a]	Wt. Fraction TAP	Filtration Unit Collection Efficiency (%)[b]	TAP Emissions (lb/hr)	TAP Emissions (ton/yr)	
				4.10E-03	4.47E-03	91 fumes/yr
				1.01E-03	1.10E-03	91 fumes/yr
4.000000	95%	0.42	0.00%	8.40E-02	3.68E-01	
0.350000	95%	0.42	0.00%	7.35E-03	3.22E-02	
0.025000	95%	0.15	0.00%	1.88E-04	8.21E-04	
0.004930	95%	0.15	0.00%	3.70E-05	1.62E-04	2.24E-04
1.980000	95%	0.50	0.00%	4.95E-02	2.17E-01	1.41E-01
1.630000	95%	0.30	99.99%	2.44E-06	1.07E-05	
1.630000	95%	0.03	0.00%	2.45E-03	1.07E-02	
5.240000	95%	0.15	99.99%	3.93E-06	1.72E-05	
5.240000	95%	0.15	99.99%	3.93E-06	1.72E-05	
635.000000	95%	1.00	99.99%	3.17E-03	1.39E-02	
635.000000	95%	0.50	99.99%	1.59E-03	6.95E-03	1.59E-03
635.000000	95%	0.10	99.99%	3.17E-04	1.39E-03	
635.000000	95%	0.10	99.99%	3.17E-04	1.39E-03	
635.000000	95%	0.10	99.99%	3.17E-04	1.39E-03	
6.610000	95%	1.00	99.99%	3.30E-05	1.45E-04	3.51E-04
26.400000	95%	0.88	99.99%	1.16E-04	5.09E-04	3.29E-03
26.400000	95%	0.10	99.99%	1.32E-05	5.78E-05	
88.000000	95%	0.53	99.99%	2.33E-04	1.02E-03	5.51E-04
6.600000	95%	0.12	99.99%	3.96E-06	1.73E-05	
6.600000	95%	0.01	99.99%	3.30E-07	1.45E-06	
6.600000	95%	0.01	99.90%	3.30E-06	1.45E-05	
14.300000	95%	1.00	99.90%	7.15E-04	3.13E-03	
85.200000	95%	0.01	0.00%	4.26E-02	1.87E-01	
117.500000	95%	0.000039	0.00%	2.29E-04	1.00E-03	
10.978682	95%	0.02	0.00%	1.10E-02	4.81E-02	
0.000025	95%	0.99	0.00%	1.25E-06	5.46E-06	

Processed Material Parameters - Nunhems USA, Inc. Se

Application	*Product Name;* Constituent(s) of Concern in % by weight	Manufacturer	MSDS Sheet Date	TAPs?	HAPs?
Pesticide	*Weevil-cide or Fumitoxin* ; 55% Aluminum Phosphide (**PH3, phosphine** gas)	Pestcon Systems, Inc.	2004	Yes (585)	Yes
	Weevil-cide or Fumitoxin ; 55% Aluminum Phosphide (**NH3, ammonia** gas)	Pestcon Systems, Inc.	2004	Yes (585)	No
Fungicide	*42S Thiram;* **Thiram (42%)**	Bayer CropScience	2007	Yes (585)	No
	Rovral 4F; Iprdione (41.6%)	Bayer CropScience	2007	No	No
	Apron XL LS; Mefenoxam (33.3%)	Syngenta Crop Protection, Inc.	2010	No	No
	Maxim 4FS ; Fludioxonil (40.3%), **Ethylene Glycol (<15%)**	Syngenta Crop Protection, Inc.	2010	Yes (585); check for "vapor" form	Yes
	Allegiance FL; Metalaxyl (28.35%), Attapulgite Clay (0.40%)	Bayer CropScience	2006	No	No
	Dynasty; Azoxystrobin (9.6%), Propylene glycol (?%)	Syngenta Crop Protection, Inc.	2010	No	No
	ProGro; Carboxin (30%), **Thiram (50%)**	Chemtura	2009	Yes (585)	No

Insecticide	*Lorsban 30F;* **Chlorpyrifos (30%)**, 1,2,4-Trimethylbenzene (4.10 %), **Xylene (3%)**, Ethylbenzene (0.60%)	Bayer CropScience	2006	Yes (Chlorpyrifos, Xylene-585)	Yes (Xylene)
	Cruiser 5FS; Thiamethoxam (47.6%)	Syngenta Crop Protection, Inc.	2011	No	No
	Sepresto 75 Ws; Clothianidin (56.25%), Imidacloprid (18.75%)	Bayer CropScience	2007	No	No

Powder	*C31;* **Calcium carbonate** (50-100%), **Diatomaceous earth**/silica-amorphous (25-50%), **Mica** (1-10%), **Quartz**/SiO2 (1-10%), **Cristobalite** (1-10%).	Incotec	2010	Yes (Diat. Earth, calcium carbonate, mica (dust), quartz, Cristobalite-585)	No
	F18; **Mica** (50-100%)	Incotec	2011	Yes (585)	No
	Mikrosohl 40; **Calcium Carbonate** (88%), Magnesium Carbonate (1%), Fe2O3: Iron (III) Oxide (5%), **Hydrochloric acid**-insoluble components (10%)	Dammann	2006	Yes (Calcium carbonate-585)	Yes (Hydrochloric acid)
	Wimer 100,130,140; Aluminum silicate (?%), **Silica, crystalline/quartz** (53%)	Ankerpoort NV	2004	Yes (Silica, quartz-585)	No
	Ligamed MF-2-K Magnesium Sterate; Sulphate (0-5%), Stearic acid (60-70%), Magnesium (2-8%)	Peter Greven Oleochemicals	2009	No	No
	Navajo Brand Grade FFF Pumice; Silicon dioxide: SiO2 (75%), **Aluminum Oxide: Al2O3** (12%), Potassium Oxide: K2O (4%), Sodium Oxide: Na2O (4%), Fe2O3: Iron (III) Oxide (<2%), **Calcium Oxide: CaO**, **Magnesium Oxide: MgO** and Titanium Dioxide: TiO2 (<1%)	CR Minerals Company, LLC	2009	Yes (Al2O3, CaO, MgO (fume)-585)	No
	Dicalite 476, 478 Perlite Filter Aids; **Perlite**: Amorphous Silicate (?%)	Dicalite Europe	2009	Yes (perlite-585)	No
Polymer/Binder	*SOL 17: Solution 17;* **Methanol** (<1%)	Incotec	2011	Yes(585)	Yes
	SP1090; Vinyl Acetate Polymer (39-41%), Hydrolyzed Polyvinyl Alcohol (>1%), Biocide: Kathlon LX (1.5%)	Industrial Adhesives of Indiana	?	No	No
	Sepiret 9256 EKWX; Filler pigments: Proprietary (5-20%), Filler pigments: Proprietary (5-20%), **Formaldehyde** (~39ppm or 0.0039%)	Becker Underwood, Inc.	2009	Yes (586)	Yes
	Sepiret PF 10 Orange Powder; Filler pigments: Proprietary (10% max)	Becker Underwood, Inc.	2003	No	No

	Certop CT28008; unknown	Bayer CropScience	2008	No	No
	Basiscoat Suspension; Aqeuous suspension with Mica, ChinaClay, Titane-Dioxide, Arylamid-Pigment and Polymer	SUET	2008	No	No
Disinfection-Priming Components	*Liquichlor/Sodium Hypochlorite;* Sodium hypochlorite (9-16%), **Sodium hydroxide** (0.1-2%)	Univar USA, Inc.	2007	Yes (585)	No
	Trisodium Phosphate Anhydrous; Trisodium Phosphate Anhydrous (100%)	Univar USA, Inc.	2003	No	No
	Polyglykol 6000S; Polyethylene glycol (<=100%)	Clariant Corporation	2009	No	No

Priming Component (Lettuce)	*Ethrel Brand Ethephon Plant Regulator;* Ethaphon (21.7%)	Bayer CropScience	2005	No	No
	Thiourea; **Thiourea** (>99%)	Fisher Scientific	2009	Yes (586)	No
	Potassium Hydroxide; **Potassium Hydroxide** (100%)	EMD Chemicals, Inc. (customer service - 800-645-5476)	2007	Yes (585)	No
	Kinetine; Kinetine (90-100%)	MP Biomedicals, LLC	2006	No	No

T: Maximum amount applied during treatment process

P: Maximum amount applied during pelleting process

D: Maximum amount applied during disinfection process

eed Coatings

Max Application Rate (lb/hr or as indicated)	Source/Calculations
0.0041	**Nunhems USA, Inc. Seed Enhancement Manager** 1 pill = 0.634 grams; 200 pills/fume; MAX 91 fumes/year (3 days fume + 1 day of ventilation = 4 days; Emissions assumed to primarily occur on the 4th day of fumigation when doors are opened. 200 pills used per fumigation event; MSDS lists almuminum phosphide as 60% by weight. The following reaction takes place: AlP + 3H2O -> Al(OH)3 + PH3 where 1 pill yields 0.223 g PH3. At 200 pills per fume for 24 hours and 91 days per year. (0.223 g PH3) x (200 pills per fume) x (1 fume/24 hours) x (1 lb/ 453.59 g)
0.0010	**Nunhems USA, Inc. Seed Enhancement Manager** 1 pill = 0.634 grams; 200 pills/fume; MAX 91 fumes/year (3 days fume + 1 day of ventilation = 4 days; Emissions assumed to primarily occur on the 4th day of fumigation when doors are opened. 200 pills used per fumigation event; MSDS lists ammonium carbamate as 20% by weight. The following reaction takes place: NH2COONH4 -> 2NH3 + CO2 where 1 pill yields 0.055 g NH3. At 200 pills per fume for 24 hours and 91 days per year. (0.055 g NH3) x (200 pills per fume) x (1 fume/24 hours) x (1 lb/ 453.59 g)
4 lbs. ^{T} 0.35 lbs. ^{P}	**Nunhems USA, Inc. Seed Enhancement Manager** TRT: 5.95 g / Kg x 305 Kg / hr = 1815 g / hr = 4 lbs / hr PLT: 4.46 g / kg x 18 kg x 6 batches = 482 g / 3 hrs = 160g / hr
0.025 lbs. ^{T} 0.00493 lbs. ^{P}	**Nunhems USA, Inc. Seed Enhancement Manager** TRT: 0.0621 g / Kg x 180 kg / hr = 11.2 g / hr PLT: 0.0621 g / kg x 18 kg / batch x 6 batches = 6.71 g/ 3 hr = 2.24 g / hr
1.98 lbs / hr ^{T}	**Nunhems USA, Inc. Seed Enhancement Manager** 25 g / kg x 18 kg / batch x 6 batches = 2700 g / 3 hr = 900 g / hr, 454 g / lb.

1.63 lbs. [T]	**Nunhems USA, Inc. Seed Enhancement Manager** TRT: 1.94 g / kg x 380 kg / hr = 737 g / hr

635 lbs / hr [P]	**Nunhems USA, Inc. Seed Enhancement Manager** 6 batches x 18 kg x 8:1 build-up = 864 Kgs / 3 hr / batch = 288 Kg / hr
6.61 lbs [P]	**Nunhems USA, Inc. Seed Enhancement Manager** 6 batches x 1.5 kg / batch = 6 Kgs / 3 hr / batch = 3 Kg / hr
26.4 lbs. [P]	**Nunhems USA, Inc. Seed Enhancement Manager** 12 kg / hr
88 lbs. [P]	**Nunhems USA, Inc. Seed Enhancement Manager** 100 Kg (blend) / 2 hrs x 80% = 40 Kg / hr = 88.1 lbs / hr
6.6 lbs. [P]	**Nunhems USA, Inc. Seed Enhancement Manager** 100 Kg (blend) / 2 hrs x 6% = 3 Kg / hr = 6.6 lbs / hr
14.3 lbs. [P]	**Nunhems USA, Inc. Seed Enhancement Manager** 100 Kg (blend) / 2 hrs x 13% = 6.5 Kg / hr = 14.3 lbs / hr
85.2 lbs/hr [P]	**Nunhems USA, Inc. Seed Enhancement Manager** 250 gallons used / 3 days SOL017 has a density of 1.02 g/cm3 or 8.512 lb/gal x 10 gal/hr = 85.2 lb/hr
1.0 gallons (PLT)	
117.5 lbs. [T]	

117.7 lbs. (TRT)	
46.9 lbs. (TRT)	
10.978682 lbs./hr of 12.5% [D]	**Nunhems USA, Inc. Seed Enhancement Manager** Specific gravity of Liquichlor = 1.196 (1.196)x(8.345 lbs/gal of H_2O)x(1.1 gal/hr)= 10.978682 lb/hr
2035 lbs. / week (PR)	

2.51666E-05	**Nunhems USA, Inc. Seed Enhancement Manager** SG=1.405 (1.405)x(8.345 lbs/gal water)x(amount of gallons used) Nunhems uses 5-10 grams of Thiourea per year. (10 grams/year)x(0.00220462262 lbs/gram) = (0.22046 lb/year) or 2.516666E-5 lbs/hr
NA	**Nunhems USA, Inc. Seed Enhancement Manager** Potassium Hydroxide is Neutralized with HCL to pH of 7 prior to seed contact/introduction, therefore there are no emissions of the chemical to the atmosphere.

PRODUCT PARTICULATE EMISSIONS - Nunhems USA, Inc.

Description	Max Amount of Material Received or Otherwise Processed (Kgs/Yr)	Maximum Material Process Rate (lb/hr)	Emission Factor	Grain Loading (Upstream), gr/dscf/min	Grain Loading (Downstream), gr/dscf/min	Volumetric Flow Rate CFM	Filtration Unit Control Efficiency (%)	PTE: Uncontrolled Emissions PM-Total* (lb/hr)	PTE: Uncontrolled Emissions PM-Total* (T/yr)
DC-1 CSL Dust Collector; Seed Conditioning, Lines 3-4[a]	2,000,000.00	503.34		0.0700	0.0007	34,900.00	99.99	20.9400	91.7172
DC-2 CSL Dust Collector; Seed Conditioning, AIM Blending Line and Lines 5-6[a]	2,000,000.00	503.34		0.0700	0.0007	34,900.00	99.99	20.9400	91.7172
DC-3 CSL Dust Collector; Seed Conditioning, Line 1-2[a]	2,000,000.00	503.34		0.0700	0.0007	35,000.00	99.99	21.0000	91.9800
DC-4 CSL Dust Collector; Seed Conditioning, Carrot Seed Brushing Lines 1-3[a]	2,000,000.00	503.34		0.0700	0.0007	12,800.00	99.99	7.6800	33.6384
DC-5 CSL Dust Collector; Seed Conditioning, Scalping Lines 3-4 [a]	2,000,000.00	503.34		0.0700	0.0007	20,000.00	99.99	12.0000	52.5600
DC-6 CSL Dust Collector; Seed Conditioning, Scalping Lines 1-2 [a]	2,000,000.00	503.34		0.0700	0.0007	32,500.00	99.99	19.5000	85.4100
DC-7 CSL Dust Collector; Seed Conditioning, Scalping and Brush Lines Makeup[a]	2,000,000.00	503.34		0.0700	0.0007	6,800.00	99.99	4.0800	17.8704
DC-8 CSL Dust Collector; Seed Packaging and Shipping[b]	450,000.00	113.25		0.0700	0.0007	25,000.00	99.99	15.0000	65.7000
(FARR 1) FARR Cartridge Collector No. 1; Seed Treatment (Film Coating)[b]	450,000.00	113.25		0.2000	0.0020	5,831.00	99.99	9.9960	43.7825
(FARR 2) FARR Cartridge Collector No. 2; Seed Treatment (Film Coating)[b]	450,000.00	113.25		0.2000	0.0020	5,478.00	99.99	9.3909	41.1320
(FARR 3) FARR Cartridge Collector No. 3; Seed Enhancement (Pelleting)[b]	450,000.00	113.25		0.2000	0.0020	6,538.00	99.99	11.2080	49.0910
(FARR 4) FARR Cartridge Collector No. 4; Seed Enhancement (Pelleting)[b]	450,000.00	113.25		0.2000	0.0020	7,828.00	99.99	13.4194	58.7771
(FARR 5) FARR Cartridge Collector No. 5; Warehousing (Bulk Unloading)[a]	2,000,000.00	503.34		0.2000	0.0020	10,627.00	99.99	18.2177	79.7936
(FARR 6) FARR Cartridge Collector No. 6; Warehousing (Bulk Unloading)[a]	2,000,000.00	503.34		0.2000	0.0020	10,627.00	99.99	18.2177	79.7936
(MR BH 1) Murphy-Rodgers Baghouse; Seed Enhancement (Priming)[b]	450,000.00	113.25				3,900.00	99.99	-	-
(HERD 1) Herding Filtration Unit No. 1; Seed Enhancement (Powder/Blending)[b]	450,000.00	113.25		0.0133	0.0004	5,910.00	99.97	0.6754	2.9584
(HERD 2) Herding Filtration Unit No. 2; Seed Enhancement (Pelleting)[b]	450,000.00	113.25		0.0133	0.0004	68,722.00	99.97	7.8539	34.4003
						TOTAL PTE (Uncontrolled)=		210.1191	920.3216

*PM-10 emissions assume 49% of PM is PM-10; PM-2.5 emissions assume 13.8% of PM is PM-2.5 (AP-42, Appendix B.1-9.9.1)

[a] Accounts for total amount of material received, averaged over a 3 year period and increased by greater than 20%, to account for potential growth.

[b] Accounts for total amount of product that is conditioned, averaged over three years and increased by greater than 20%, to account for potential growth. Assumes that the amount of product "conditioned" is the same as the amount of product "enhanced, treated, and/or shipped."

PRODUCT PARTICULATE EMISSIONS - Nunhems USA, Inc.

	PTE: Controlled Emissions					
Control Factor Reference	PM-Total (lb/hr)	PM-Total (T/yr)	PM-10* (lb/hr)	PM-10* (T/yr)	PM-2.5* (lb/hr)	PM-2.5* (T/yr)
Manf. Guarantee - CSL, 01/19/2012 email	0.2094	0.9172	0.1026	0.45	0.0289	0.127
Manf. Guarantee - CSL, 01/19/2012 email	0.2094	0.9172	0.1026	0.45	0.0289	0.127
Manf. Guarantee - CSL, 01/19/2012 email	0.2100	0.9198	0.1029	0.45	0.0290	0.127
Manf. Guarantee - CSL, 01/19/2012 email	0.0768	0.3364	0.0376	0.16	0.0106	0.046
Manf. Guarantee - CSL, 01/19/2012 email	0.1200	0.5256	0.0588	0.26	0.0166	0.073
Manf. Guarantee - CSL, 01/19/2012 email	0.1950	0.8541	0.0956	0.42	0.0269	0.118
Manf. Guarantee - CSL, 01/19/2012 email	0.0408	0.1787	0.0200	0.09	0.0056	0.025
Manf. Guarantee - CSL, 01/19/2012 email	0.1500	0.6570	0.0735	0.32	0.0207	0.091
Manf. Guarantee - FARR, 01/20/2012 email; flowrate info provided by Nunhems USA, via direct measurement, on 04-16-2012.	0.1000	0.4378	0.0490	0.21	0.0138	0.060
Manf. Guarantee - FARR, 01/20/2012 email; flowrate info provided by Nunhems USA, via direct measurement, on 04-16-2012.	0.0939	0.4113	0.0460	0.20	0.0130	0.057
Manf. Guarantee - FARR, 01/20/2012 email; flowrate info provided by Nunhems USA, via direct measurement, on 04-16-2012.	0.1121	0.4909	0.0549	0.24	0.0155	0.0677
Manf. Guarantee - FARR, 01/20/2012 email; flowrate info provided by Nunhems USA, via direct measurement, on 04-16-2012.	0.1342	0.5878	0.0658	0.29	0.0185	0.0811
Manf. Guarantee - FARR, 01/20/2012 email; flowrate info provided by Nunhems USA, via direct measurement, on 04-16-2012.	0.1822	0.7979	0.0893	0.39	0.0251	0.11
Manf. Guarantee - FARR, 01/20/2012 email; flowrate info provided by Nunhems USA, via direct measurement, on 04-16-2012.	0.1822	0.7979	0.0893	0.39	0.0251	0.11
Manf. Guarantee - N.R.Murphy, Ltd, 01/20/2012 email	0.0113	0.0496	0.0055	0.0243	0.0016	0.0068
Manf. Guarantee - Herding Filtration, Ltd, 01/26/2012 email; flowrate info provided by Nunhems USA, Inc. via direct measurement on 04-16-2012.	0.0203	0.0888	0.0099	0.04	0.0028	0.0122
Manf. Guarantee - Herding Filtration, Ltd, 01/26/2012 email; flowrate info provided by Nunhems USA, Inc. via direct measurement on 04-16-2012.	0.2356	1.0320	0.1155	0.51	0.0325	0.142
TOTAL PTE (Controlled)=	2.2831	10.0000	1.1187	4.9000	0.3151	1.3800

GENERATORS - NON-CARCINOGENIC TAPs							
DIESEL FUEL							
Pollutant	EF for >600 hp units[a]	EF for < 600 hp units[b]	Combined Emissions	Combined Emissions	Average lbs/hr	Screening Level	Modeling?
	(lb/MMBtu)	(lb/MMBtu)	(lb/hr)	(tons/yr)	24 hr Avg for 585s	(lb/hr)	(Y/N)
Acrolein	7.88E-06	9.25E-05	1.49E-04	3.72E-05	6.19E-06	1.7E-02	N
Barium	0	0	0	0	0	3.3E-02	N
Chromium	0	0	0	0	0	3.3E-02	N
Cobalt	0	0	0	0	0	3.3E-03	N
Copper	0	0	0	0	0	6.7E-02	N
Hexane	0	0	0	0	0	1.2E+01	N
Manganese	0	0	0	0	0	3.33E-01	N
Moybdenum	0	0	0	0	0	6.67E-01	N
Naphthalene[a]	1.30E-04	8.48E-05	8.30E-04	2.08E-04	3.46E-05	3.33E+00	N
Pentane	0	0	0	0	0	1.18E+02	N
Selenium	0	0	0	0	0	1.3E-02	N
Toluene	2.81E-04	4.09E-04	2.05E-03	5.12E-04	8.53E-05	2.5E+01	N
o-Xylene	1.93E-04	2.85E-04	1.41E-03	3.53E-04	5.88E-05	2.9E+01	N
Vanadium	0	0	0	0	0	3.0E-03	N
Zinc	0	0	0	0	0	6.7E-01	N

[a] Although listed as a noncarcinogen in the Rules, DEQ has determined that naphthalene is a possible/probable carcinogen. Compliance for naphthalene emissions should be based on the EL or AACC listed in Section 586 for PAH.

GENERATORS - CARCINOGENIC TAPs							
DIESEL FUEL							
Pollutant	EF for >600 hp units[a]	EF for < 600 hp units[b]	Emissions	Emissions	Average lbs/hr	Screening Level	Modeling?
	(lb/MMBtu)		(lb/hr)	(tons/yr)	Annual Avg for 586s	(lb/hr)	(Y/N)
Aceteldehyde	2.52E-05	7.67E-04	1.01E-03	2.51E-04	5.74E-05	3.00E-03	N
Arsenic	0	0	0	0	0	1.5E-06	N
Benzene	7.76.E-04	9.33.E-04	5.44E-03	1.36E-03	3.10E-04	8.0E-04	N
Beryllium	0	0	0	0	0	2.8E-05	N
1,3-Butadiene	0	3.91E-05	4.40E-05	1.10E-05	2.51E-06	2.4E-05	N
Cadmium	0	0	0	0	0	3.7E-06	N
Formaldehyde	7.89E-05	1.18E-03	1.77E-03	4.44E-04	1.01E-04	5.1E-04	N
Nickel	0	0	0	0	0	2.7E-05	N
Naphthalene[a]	1.30E-04	8.48E-05	8.30E-04	2.08E-04	3.46E-05	NA	N
Acenaphthylene	9.23E-06	5.60E-06	5.85E-05	1.46E-05	3.34E-06	NA	NA
Acenaphthene	4.68E-06	1.42E-06	2.80E-05	7.01E-06	1.60E-06	NA	NA
Fluorene	1.28E-05	2.92E-05	1.05E-04	2.63E-05	6.00E-06	NA	NA
Phenanthrene	4.08E-05	2.94E-05	2.64E-04	6.59E-05	1.50E-05	NA	NA
Anthracene	1.23E-06	1.87E-06	9.06E-06	2.26E-06	5.17E-07	NA	NA
Fluoranthene	4.03E-06	7.61E-06	3.13E-05	7.83E-06	1.79E-06	NA	NA
Pyrene	3.71E-06	4.78E-06	2.63E-05	6.59E-06	1.50E-06	NA	NA
Benzo(a)pyrene	2.57E-07	1.88E-07	1.66E-06	4.16E-07	9.50E-08	2.0E-06	N
Benz(a)anthracene	6.22E-07	1.68E-06	5.41E-06	1.35E-06	3.09E-07	NA	NA
Benzo(b)fluoranthene	1.11E-06	9.91E-08	6.38E-06	1.60E-06	3.64E-07	NA	NA
Benzo(k)fluoranthene	2.18E-07	1.55E-07	1.41E-06	3.52E-07	8.03E-08	NA	NA
Benzo(g,h,l)perylene	5.56E-07	4.89E-07	3.69E-06	9.23E-07	2.11E-07	NA	NA
Chrysene	1.53E-06	3.53E-07	9.04E-06	2.26E-06	5.16E-07	NA	NA
Dibenzo(a,h)anthracene	3.46E-07	5.83E-07	2.61E-06	6.53E-07	1.49E-07	NA	NA
Indeno(1,2,3-cd)pyrene	4.14E-07	3.75E-07	2.76E-06	6.90E-07	1.58E-07	NA	NA
Total PAHs	2.12E-04	1.69E-04	1.39E-03	3.46E-04	7.91E-05	9.1E-05	N

[a]AP-42, Table 3.4-3
[b]AP-42, Table 3.3-2

Notes: * Emission factor units in pounds per MMBTU.
Emission estimates represent maximum emissions based on burning diesel fuel and based on AP-42 Tables 3.4-3 and 3.4-4.
Emissions based on 100 hours/year of operation.

CRITERIA EMISSIONS - DIESEL COMBUSTION - Nunhems USA, In

Emission Factors: Stationary Internal Combustion Sources (AP-42, Chapter 3)[1]

Small Engines (<600 hp): From Table 3.3-1

		(power output)		(fuel input)	Reference
NOx	3.10E-02	lb/hp-hr	4.41E+00	lb/MMBtu	AP-42, Table 3.3-1, 1997
CO	6.68E-03	lb/hp-hr	9.50E-01	lb/MMBtu	AP-42, Table 3.3-1, 1997
CO_2e	1.15E+00	lb/hp-hr	1.64E+02	lb/MMBtu	AP-42, Table 3.3-1, 1997
PM-10[2]	2.20E-03	lb/hp-hr	3.10E-01	lb/MMBtu	AP-42, Table 3.3-1, 1998
SOx	2.05E-03	lb/hp-hr	2.90E-01	lb/MMBtu	AP-42, Table 3.3-1, 1999
VOC	2.47E-03	lb/hp-hr	3.50E-01	lb/MMBtu	AP-42, Table 3.3-1, 2001
Lead	0.00E+00	lb/hp-hr	0.00E+00	lb/MMBtu	AP-42, Table 3.3-1, 2002

Large Engines (>600 hp): From Table 3.4-1

		(power output)		(fuel input)	
NOx	2.40E-02	lb/hp-hr	3.20E+00	lb/MMBtu	AP-4
CO	5.50E-03	lb/hp-hr	8.50E-01	lb/MMBtu	AP-4
CO2e	1.16E+00	lb/hp-hr	1.65E+02	lb/MMBtu	AP-4
PM Total	7.00E-04	lb/hp-hr	1.00E-01	lb/MMBtu	AP-4
PM10		lb/hp-hr	5.73E-02	lb/MMBtu	AP-4
SOx	1.21E-05	lb/hp-hr	1.52E-03	lb/MMBtu	AP-4
VOC	7.05E-04	lb/hp-hr	9.00E-02	lb/MMBtu	AP-4
Lead	0.00E+00	lb/hp-hr	0.00E+00	lb/MMBtu	AP-4

[1] Manufacturers' specific emission factors were used when available. Otherwise, the appropriate AP-42 emission factors were utilized.

[2] PM-10 = particulate matter less than or equal to 10 um aerodynamic diameter. All particulate is assumed to be < or = 1 um in size.

Emission Factors: Manufacturers' Specific Information[1]

CAT C9-2008 3 Phase Diesel Generator

See "CAT GEN Mfg Spec.pdf" for specific manufacturing data.

NOx	2.97	g/hp-hr	6.55E-03	lb/hp-hr
CO	0.36	g/hp-hr	7.94E-04	lb/hp-hr
HC	0.1	g/hp-hr	2.20E-04	lb/hp-hr
PM	0.079	g/hp-hr	1.74E-04	lb/hp-hr

Generac 2000 Series 3-Phase Diesel Generator

See "GEN GEN Emisson Factors.pdf" for specific manufacturing data.

NOx	6.74	g/hp-hr	1.49E-02	lb/hp-hr
CO	1.9	g/hp-hr	4.19E-03	lb/hp-hr
PM	0.98	g/hp-hr	2.16E-03	lb/hp-hr
THC	0.23	g/hp-hr	5.07E-04	lb/hp-hr

Stamford Cummins 3-F

See "Cummins generator manuf emiss sp

NOx	5.7	g/hp-hr
CO	0.57	g/hp-hr
HC	0.08	g/hp-hr
PM	0.03	g/hp-hr
SO_2	0.11	g/hp-hr

[1] Manufacturers' specific emission factors were used when available. Otherwise, the appropriate AP-42 emission factors were utilized.

Calculated Emissions

Description	kW[a]	MMBtu/hr	hp[b]	Hours of Operation / Year	NOx Emissions (lb/hr)	NOx Emissions (T/yr)	CO Emissions (lb/hr)	CO Emissions (T/yr)	CO2e Emissions (lb/hr)	CO2e Emissions (T/yr)	PM-Total Emissions* (lb/hr)	PM-Total Emissions* (T/yr)	PM-10 Emi (lb/hr)
CAT C9-2008 3 Phase Diesel Generator (at pumphouse)	250	0.85	398	500	2.61	0.65	0.32	0.08	458	114	0.069	0.017	0.069
Generac 2000 Series 3-Phase Diesel Generator (South of Building "C")	80	0.27	125	500	1.86	0.46	0.52	0.13	144	36	0.270	0.068	0.270
		1.13											
Stamford Cummins 3-Phase Diesel Generator[c]	1656	5.65	2205	500	27.71	6.93	2.77	0.69	2558	639	0.146	0.036	0.146
		5.65			**32.17**	**8.04**	**3.61**	**0.90**	**3159**	**790**	**0.49**	**0.12**	**0.49**

[a] 1 kW = 0.003412 MMBtu/hr;

[b] Brake hp ratings provided for all generators; based upon manufacturer's specification information provided in Form EU1 for each unit.

[c] >600 hp; uses AP 42, Table 3.4-1 emissions factors

*PM-10 = particulate matter less than or equal to 10 um aerodynamic diameter. All particulate is assumed to be < or = 1 um in size.

** VOC assumed to be equal to TOC.

c.

Reference
2, Table 3.4-1, 1996
2, Table 3.4-1, 1997
2, Table 3.4-1, 1998
2, Table 3.4-1, 1998
2, Table 3.4-2, 1996
2, Table 3.4-1, 1999
2, Table 3.4-1, 2001
2, Table 3.4-1, 2002

'hase Diesel Generator		
ecs.pdf" for specific manufacturing data.		
	1.26E-02	lb/hp-hr
	1.26E-03	lb/hp-hr
	1.76E-04	lb/hp-hr
	6.61E-05	lb/hp-hr
	2.43E-04	lb/hp-hr

ssions*	PM-2.5 Emissions*		SOx Emissions		VOC Emissions**		Lead Emissions	
(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)
0.017	0.0693	0.017	0.82	0.20	0.98	0.25	0	0
0.068	0.27	0.068	0.26	0.06	0.06	0.02	0	0
0.036	0.15	0.036	0.53	0.13	0.39	0.10	0	0
0.12	0.49	0.12	1.61	0.40	1.435	0.36	0.0	0.0

Appendix E
Nunhems
Process Weight Calculations

Compliance with IDAPA Rule 701 PM Standard for Process Weight

Unit	DC1	DC2	DC3	DC4	DC5	DC6	DC7	DC8	FARR 1	FARR 2	FARR 3	FARR 4	FARR 5	FARR 6	Murphy Rodgers Baghouse	Herding Filtration System 01	Herding Filtration System 02
Process Weight (lb/hr)	503	503	503	503	503	503	503	113	113	113	113	113	503	503	113	113	113
PM Emission Rate (lb/hr)	0.21	0.21	0.21	0.08	0.12	0.20	0.04	0.15	0.10	0.09	0.11	0.13	0.18	0.18	0.011	0.020	0.24
Compliance with Allowable Emission Calculation																	
Calculated Allowable Emissions (E) (lb/hr) [1]	5.21	5.21	5.21	5.21	5.21	5.21	5.21	3.59	3.59	3.59	3.59	3.59	5.21	5.21	0.77	0.77	3.59
Compliance w/ PM Loading Standard	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

[1] **General Restrictions - New Equipment:**
If PW is less than 9,250 pounds per hour
$E = 0.045(PW)^{0.6}$
If PW is greater than 9,250 pounds per hour
$E = 1.10(PW)^{0.25}$

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

MEMORANDUM

DATE: February 15, 2017

TO: Tom Burnham, Permit Writer, Air Program

FROM: Darrin Mehr, Analyst, Air Program

PROJECT: P-2015.0017 PROJ 61805 – PTC Modification to Increase Seed Dryer Operating Hours for Nunhems USA, an Existing Carrot and Onion Seed Processing and Shipping Facility Located Near Parma, Idaho

SUBJECT: Demonstration of Compliance with IDAPA 58.01.01.203.02 (NAAQS) and 203.03 (TAPs)

Contents

Acronyms, Units, and Chemical Nomenclature

AAC	Acceptable Ambient Concentration of a Non-Carcinogenic TAP
AACC	Acceptable Ambient Concentration of a Carcinogenic TAP
ACFM	Actual cubic feet per minute
AERMAP	The terrain data preprocessor for AERMOD
AERMET	The meteorological data preprocessor for AERMOD
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
Appendix W	40 CFR 51, Appendix W – Guideline on Air Quality Models
ARM	Ambient Ratio Method
BPIP	Building Profile Input Program
BRC	Below Regulatory Concern
Btu/hr	British Thermal Units per hour
CFR	Code of Federal Regulations
CH2M	CH2M, Inc. (Nunhems USA's permitting and modeling consultant)
CMAQ	Community Multi-Scale Air Quality Modeling System
CO	Carbon Monoxide
°F	Degrees Fahrenheit
DEQ	Idaho Department of Environmental Quality
EL	Emissions Screening Level of a TAP
EPA	United States Environmental Protection Agency
ft	Feet
fps	Feet per second
GEP	Good Engineering Practice
hr	Hours
Idaho Air Rules	Rules for the Control of Air Pollution in Idaho, located in the Idaho Administrative Procedures Act 58.01.01
ISCST3	Industrial Source Complex Short Term 3 dispersion model
K	Kelvin
m	Meters
m/s	Meters per second
MMBtu	Million British Thermal Units
NAAQS	National Ambient Air Quality Standards
NAD83	North American Datum 1983
NED	National Elevation Dataset
NO	Nitrogen Oxide
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
NWS	National Weather Service
O_3	Ozone
Pb	Lead
PM_{10}	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 10 micrometers
$PM_{2.5}$	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 2.5 micrometers
ppb	Parts Per Billion
PRIME	Plume Rise Model Enhancement
PTC	Permit to Construct

PTE	Potential to Emit
SIL	Significant Impact Level
SO_2	Sulfur Dioxide
TAP	Toxic Air Pollutant
tons/year	Ton(s) per year
T/yr	Tons per year
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VCU	Vapor Control Unit
VOCs	Volatile Organic Compounds
$\mu g/m^3$	Micrograms per cubic meter

1.0 Summary

1.1 General Project Summary

On October 31, 2016, Nunhems USA (Nunhems) submitted a Permit to Construct (PTC) application to increase operating restrictions on seed dryer emissions units and vents at their existing carrot and onion seed processing and shipping facility located near Parma, Idaho, in Canyon County. The facility was issued an initial facility-wide PTC on June 9, 2016. Soon afterward, Nunhems submitted a modification to allow additional flexibility on daily and monthly restrictions on three process dryers regulated in the PTC.

Project-specific air quality impact analyses involving atmospheric dispersion modeling of estimated emissions associated with the identified project were submitted to DEQ to demonstrate that the facility's emissions would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02 and 203.03 [Idaho Air Rules Section 203.02 and 203.03]).

CH2M (CH2M), Nunhems' permitting consultant, submitted analyses and applicable information and data to enable DEQ to evaluate potential impacts to ambient air. CH2M performed project-specific air quality impact analyses to demonstrate compliance of allowable facility emissions with air quality standards. The DEQ review summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the pollutant dispersion modeling analyses used to demonstrate that the estimated emissions associated with operation of the facility as modified will not cause or significantly contribute to a violation of the applicable air quality standards. This review did not evaluate compliance with other rules or analyses that do not pertain to the air impact analyses. This modeling review also did not evaluate the accuracy of emissions estimates. Evaluation of emissions estimates was the responsibility of the permit writer and is addressed in the main body of the DEQ Statement of Basis.

The submitted air quality impact analyses: 1) utilized appropriate methods and models according to established DEQ/EPA rules, policies, guidance, and procedures; 2) was conducted using reasonably accurate or conservative model parameters and input data (review of emissions estimates was addressed by the DEQ permit writer); 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that estimated potential/allowable emissions are at a level defined as below regulatory concern (BRC) and do not require a NAAQS compliance demonstration; b) that predicted pollutant concentrations from emissions associated with the facility as modeled were below Significant Impact Levels (SILs) or other applicable regulatory thresholds; or c) that predicted pollutant concentrations from applicable emissions associated with the project as modeled, when appropriately combined with co-contributing sources and background concentrations, were below applicable National Ambient Air Quality Standards (NAAQS) at ambient air locations where and when the project has a significant impact; 5) showed that Toxic Air Pollutant (TAP) emissions increases associated with the project do not result in ambient air impacts exceeding allowable TAPs increments. Table 1 presents key assumptions and results to be considered in the development of the permit.

Table 1. KEY CONDITIONS USED IN MODELING ANALYSES	
Criteria/Assumption/Result	**Explanation/Consideration**
Limitations on Hours of Operation for Seed Dryers and Heaters The ambient impact assessment used limitations affecting the following emissions units and hours of operation: **HEAT01 (Building L Heaters):** Daily: 24 hour per day Monthly: 100 hours per month Annual: Operates only August through January 600 hour per year operation **DRYER2 (Seed Dryer 2)** Daily: 24 hours per day Monthly: 200 hours per month Annual: 12 months per year for 2,400 hours per year **DRYER3 (Seed Dryer 3)** Daily: 24 hours per day. Weekly: 200 hours per month Annual: 12 months per year for 2,400 hours per year	If operation of HEAT01, DRYER2, and DRYER3 are not inherently limited by the nature of the process, then the issued permit must effectively limit the total operational hours and operational time periods in a manner consistent with assumptions used in the impact analyses. The following restricting assumptions reduced ambient impacts for these sources as needed to demonstrate compliance with the applicable NAAQS—impacts for 1-hour NO_2 are 93% the NAAQS. Compliance has not been demonstrated with additional operating hours.
Dryers 4A and 4B Physical changes must be made to the following release points to enable NAAQS compliance: DRYER4A, propane-fired heaters with a total of 1 MMBtu/hr heat input, exhaust through point source FARR03. DRYER4B, propane-fired heaters with a total of 1.5 MMBtu/hr heat input, exhaust through point source FARR04. FARR03 and FARR 04 will have release points that will be altered from horizontal releases to vertical and uninterrupted releases.	Dispersion of all pollutant emissions from the dryer sources will be improved with the change in stack orientation. Compliance with NAAQS has not been demonstrated for a configuration where the stack orientation is not changed. Emissions from DRYER4A and DRYER4B were mistakenly omitted from the initial facility-wide ambient impact analyses for Project 61508. The current analyses correct this omission. These dryers were modeled for continuous operation at 8,760 hours per year.
Heat Input Capacity and Fan System Changes **DRYER2 (Seed Dryer 2)** Dryer 2 will replace the existing propane burner with a 1.44 MMBtu/hr propane burner and a fan system capable of producing an air flow rate of 39,300 ACFM. **DRYER3 (Seed Dryer 3)** Dryer 3 will replace the existing propane burner with a 720,000 Btu/hr propane burner and will install a fan system capable of producing an air flow rate of 21,750 ACFM.	Fan capacity, as it relates to the exhaust flow from the source, is a critical component for the impact analyses. Flow affects the total volume of the plume and the resulting plume buoyancy flux. NAAQS compliance has not been demonstrated for flows less than what was used in the impact analyses. Burner replacement reduced NOx emission rates compared to the initial facility-wide PTC burners (Project 61508, PTC P-2015.0017, issued June 9, 2016). Dryer 2 was originally equipped with a 2.5 MMBtu/hr propane burner. Dryer 3 was originally equipped with a 2.0 MMBtu/hr propane burner. Dryers 2 and 3 were modeled as volume sources in the initial facility-wide PTC.

Air impact analyses are required by Idaho Air Rules to be conducted according to methods outlined in 40 CFR 51, Appendix W (Guideline on Air Quality Models). Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition. The submitted information and analyses demonstrated to the satisfaction of the Department, using DEQ/EPA established guidance, policies, and procedures, that operation of the proposed facility or modification will not cause or significantly contribute to a violation of any ambient air quality standard, provided the key conditions in Table 1 are representative of facility design capacity or operations as limited by a federally enforceable permit condition.

1.2 Summary of Submittals and Actions

This summary is limited to permit project number 61805 documentation.

June 3, 2016: DEQ, several staff members from Nunhems USA, and CH2M participated in a pre-application meeting for a modification to the proposed facility-wide PTC, permitted under Project Number 61508.

August 12, 2016: DEQ received a modeling protocol via email from CH2M for the modification to PTC No. P-2015.0017, Project 61508, issued June 9, 2016.

October 13, 2016: DEQ issued a modeling protocol approval letter to CH2M and Nunhems via email. The letter was dated October 12, 2016.

October 31, 2016: DEQ received a permit application from Nunhems.

December 1, 2016: DEQ declared the application complete.

December 7, 2016: CH2M submitted additional documentation on the estimation of pseudo point source release parameters for Dryer 2 and Dryer 3 via email.

December 23, 2016: DEQ requested that CH2M and Nunhems submit additional substantiation of the facility's ambient air boundary or submit revised modeling with an ambient air boundary matching the justification.

January 13, 2017: DEQ received a stand-alone revised modeling report addressing the ambient air boundary justification.

2.0 Background Information

2.1 Permit Requirements for Permits to Construct

PTCs are issued to authorize the construction of a new source or modification of an existing source or permit. Idaho Air Rules Section 203.02 requires that emissions from the new source or modification not cause or significantly contribute to a violation of an air quality standard, and Idaho Air Rules Section 203.03 requires that emissions from a new source or modification comply with applicable toxic air pollutant (TAP) increments of Idaho Air Rules Sections 585 and 586.

2.2 Project Location and Area Classification

The facility is located near Parma, Idaho, in Canyon County. The area is designated as attainment or unclassifiable for all pollutants.

2.3 Modeling Applicability for Criteria Pollutants

2.3.1 Below Regulatory Concern and DEQ Modeling Guideline Level I and II Thresholds

Idaho Air Rules Section 203.02 state that a PTC cannot be issued unless the application demonstrates to the satisfaction of DEQ that the new source or modification will not cause or significantly contribute to a NAAQS violation. Atmospheric dispersion modeling is used to evaluate the potential impact of a proposed project to ambient air and demonstrate NAAQS compliance. However, if the emissions associated with a project are very small, project-specific modeling analyses may not be necessary.

A NAAQS compliance demonstration, per Idaho Air Rules Section 203.02, was required for emissions of PM_{10}, $PM_{2.5}$, and NOx. If project-wide potential to emit (PTE) values for criteria pollutants would qualify for a below regulatory concern (BRC) permit exemption as per Idaho Air Rules Section 221 if it were not for potential emissions of one or more criteria pollutants exceeding the BRC threshold of 10 percent of emissions defined by Idaho Air Rules as significant, then an air impact analysis may not be required for those pollutants. DEQ's regulatory interpretation policy of exemption provisions of Idaho Air Rules Section 221 is that: "A DEQ NAAQS compliance assertion will not be made by the DEQ modeling group for specific criteria pollutants having a project emissions increase below BRC levels, provided the proposed project would have qualified for a Category I Exemption for BRC emissions quantities except for the emissions of another criteria pollutant.[1]" The interpretation policy also states that the exemption criteria of uncontrolled PTE not to exceed 100 ton/year (Idaho Air Rules Section 220.01.a.i) is not applicable when evaluating whether a NAAQS impact analyses is required. A permit will be issued limiting PTE below 100 tons per year, thereby negating the need to maintain calculated uncontrolled PTE under 100 tons per year. Table 2 presents the BRC modeling applicability for this project. The values in Table 2 reflect the proposed changes to the potential to emit for the facility, and were compared to the final emission estimate spreadsheet submitted by CH2M and Nunhems for this project.

Table 2. CRITERIA POLLUTANT NAAQS COMPLIANCE DEMONSTRATION APPLICABILITY

Criteria Pollutant	BRC Level (ton/year)	Applicable Facility Wide PTE Emissions (ton/year)	Air Impact Analyses Required?
PM_{10}[a]	1.5	5.5	Yes
$PM_{2.5}$[b]	1.0	2.0	Yes
Carbon Monoxide (CO)	10.0	6.1	No
Sulfur Dioxide (SO_2)	4.0	1.6	No
Nitrogen Oxides (NOx)	4.0	17.0	Yes
Lead (Pb)	0.06	<0.06	No

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

A NAAQS compliance demonstration is required for emissions increases that do not qualify for a BRC exemption. However, if the emissions increases associated with a project are below modeling applicability thresholds established in the *Idaho Air Modeling Guideline*[2] ("State of Idaho Guideline for Performing Air Quality Impact Analyses,") available at http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf), then a project-specific analysis is not required. Modeling applicability emissions thresholds were developed by DEQ based on modeling of a hypothetical source and were designed to reasonably ensure that impacts are below the applicable SIL. DEQ has established two threshold levels: Level 1 thresholds are unconditional thresholds, requiring no approval for use by DEQ; Level 2 thresholds are conditional upon DEQ approval, which depends on evaluation of the project and the site, including emissions quantities, stack parameters, number of sources emissions are distributed amongst, distance between the sources and the ambient air boundary, and the presence of sensitive receptors near the ambient air boundary. Level 1 and Level 2 thresholds are based on both hourly and annual emission rates to be used for short-term (up to a 24-hour averaging period) and long-term NAAQS, respectively.

This proposed modification of the issued permit represents a relaxation of operating restrictions present in the existing permit, rather than a proposed change in the fundamental method of operation of the facility. Therefore, modeling applicability was based on the facility-wide emissions rather than an emissions increase associated with this proposed permit modification. DEQ required modeling for PM_{10}, $PM_{2.5}$, and NO_x to evaluate any effects the changes to enforceable operating requirements would have to the facility-wide NAAQS compliance status. DEQ's modeling protocol approval letter required a facility-wide re-evaluation of compliance with the any NAAQS pollutant and averaging period affected by Nunhems' requested changes under this project. The protocol approval letter also confirmed that the facility's emissions of SO_2, CO, and lead were not subject to a NAAQS compliance demonstration as per Idaho Air Rules Section 203.02. No changes in PTE occurred following issuance of the protocol approval letter that affected any modeling exemptions.

2.3.2 Ozone Modeling Applicability

Ozone (O_3) differs from other criteria pollutants in that it is not typically emitted directly into the atmosphere. O_3 is formed in the atmosphere through reactions of VOCs, NO_x, and sunlight. Atmospheric dispersion models used in stationary source air permitting analyses cannot be used to estimate O_3 impacts resulting from VOC and NOx emissions from an industrial facility. O_3 concentrations resulting from area-wide emissions are predicted by using more complex airshed models such as the Community Multi-Scale Air Quality (CMAQ) modeling system. Use of the CMAQ model is very resource intensive and DEQ asserts that performing a CMAQ analysis for a particular permit application is not typically a reasonable or necessary requirement for air quality permitting.

Addressing secondary formation of O_3 has been somewhat addressed in EPA regulation and policy. As stated in a letter from Gina McCarthy of EPA to Robert Ukeiley, acting on behalf of the Sierra Club (letter from Gina McCarthy, Assistant Administrator, United States Environmental Protection Agency, to Robert Ukeiley, January 4, 2012):

> *. . . footnote 1 to sections 51.166(I)(5)(I) of the EPA's regulations says the following: "No de minimis air quality level is provided for ozone. However, any net emission increase of 100 tons per year or more of volatile organic compounds or nitrogen oxides subject to PSD would be required to perform an ambient impact analysis, including the gathering of air quality data."*
>
> *The EPA believes it unlikely a source emitting below these levels would contribute to such a violation of the 8-hour ozone NAAQS, but consultation with an EPA Regional Office should still be conducted in accordance with section 5.2.1.c. of Appendix W when reviewing an application for sources with emissions of these ozone precursors below 100 TPY."*

Allowable emissions estimates of VOCs of 1.3 ton/year facility-wide and 17.0 ton/year facility-wide of NOx are well below the 100 tons/year threshold, and DEQ determined it was not appropriate or necessary to require a quantitative source specific O_3 impact analysis.

2.3.3 Secondary Particulate Formation Modeling Applicability

The impact from secondary particulate formation resulting from emissions of NOx, SO_2, and/or VOCs was assumed by DEQ to be negligible based on the magnitude of emissions and the short distance from emissions sources to modeled receptors where maximum PM_{10} and $PM_{2.5}$ impacts would be anticipated.

2.4 Significant and Cumulative NAAQS Impact Analyses

If maximum modeled pollutant impacts to ambient air from emissions sources associated with a new facility or the emissions increase associated with a modification exceed the SILs of Idaho Air Rules Section 006 (referred to as a significant contribution in Idaho Air Rules) or as incorporated by reference as per Idaho Air Rules Section 107.03.b, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with NAAQS and Idaho Air Rules Section 203.02. A cumulative NAAQS impact analysis may also be required for permit revisions driven by compliance/enforcement actions, any correction of emissions limits or other operational parameters that may affect pollutant impacts to ambient air, or other cases where DEQ believes NAAQS may be threatened by the emissions associated with the facility or proposed project.

A cumulative NAAQS impact analysis for attainment area pollutants involves assessing ambient impacts, according to established DEQ/EPA guidance, policies, and procedures, from applicable facility-wide emissions and emissions from any nearby co-contributing sources. A DEQ-approved background concentration value is then added to the modeled result that is appropriate for the criteria pollutant/averaging period at the facility location and the area of significant impact. The resulting pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 3. Table 3 also lists SILs and specifies the modeled design value that must be used for comparison to the NAAQS. NAAQS compliance is evaluated on a receptor-by-receptor basis.

Table 3. APPLICABLE REGULATORY LIMITS				
Pollutant	**Averaging Period**	**Significant Impact Levels[a] (μg/m³)[b]**	**Regulatory Limit[c] (μg/m³)**	**Modeled Design Value Used[d]**
PM_{10}[e]	24-hour	5.0	150[f]	Maximum 6th highest[g]
$PM_{2.5}$[h]	24-hour	1.2	35[i]	Mean of maximum 8th highest[j]
	Annual	0.3	12[k]	Mean of maximum 1st highest[l]
Carbon monoxide (CO)	1-hour	2,000	40,000[m]	Maximum 2nd highest[n]
	8-hour	500	10,000[m]	Maximum 2nd highest[n]
Sulfur Dioxide (SO_2)	1-hour	3 ppb[o] (7.8 μg/m³)	75 ppb[p] (196 μg/m³)	Mean of maximum 4th highest[q]
	3-hour	25	1,300[m]	Maximum 2nd highest[n]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb (7.5 μg/m³)	100 ppb[s] (188 μg/m³)	Mean of maximum 8th highest[t]
	Annual	1.0	100[r]	Maximum 1st highest[n]
Lead (Pb)	3-month[u]	NA	0.15[r]	Maximum 1st highest[n]
	Quarterly	NA	1.5[r]	Maximum 1st highest[n]
Ozone (O_3)	8-hour	40 TPY VOC[v]	75 ppb[w]	Not typically modeled

a. Idaho Air Rules Section 006 (definition for significant contribution) or as incorporated by reference as per Idaho Air Rules Section 107.03.b.
b. Micrograms per cubic meter.
c. Incorporated into Idaho Air Rules by reference, as per Idaho Air Rules Section 107.
d. The maximum 1st highest modeled value is always used for the significant impact analysis unless indicated otherwise. Modeled design values are calculated for each ambient air receptor.
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
f. Not to be exceeded more than once per year on average over 3 years.
g. Concentration at any modeled receptor when using five years of meteorological data.
h. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
i. 3-year mean of the upper 98th percentile of the annual distribution of 24-hour concentrations.
j. 5-year mean of the 8th highest modeled 24-hour concentrations at the modeled receptor for each year of meteorological data modeled. For the SIL analysis, the 5-year mean of the 1st highest modeled 24-hour impacts at the modeled receptor for each year.
k. 3-year mean of annual concentration.
l. 5-year mean of annual averages at the modeled receptor.
m. Not to be exceeded more than once per year.
n. Concentration at any modeled receptor.
o. Interim SIL established by EPA policy memorandum.
p. 3-year mean of the upper 99th percentile of the annual distribution of maximum daily 1-hour concentrations.
q. 5-year mean of the 4th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of 1st highest modeled 1-hour impacts for each year is used.
r. Not to be exceeded in any calendar year.
s. 3-year mean of the upper 98th percentile of the annual distribution of maximum daily 1-hour concentrations.
t. 5-year mean of the 8th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of maximum modeled 1-hour impacts for each year is used.
u. 3-month rolling average.
v. An annual emissions rate of 40 ton/year of VOCs is considered significant for O_3.
w. Annual 4th highest daily maximum 8-hour concentration averaged over three years. The O_3 standard was revised (the notice was signed by the EPA Administrator on October 1, 2015) to 70 ppb. However, this standard will not be applicable for permitting purposes until it is incorporated by reference *sine die* into Idaho Air Rules.

If the cumulative NAAQS impact analysis shows a violation of the standard, the permit cannot be issued if the proposed project or facility has a significant contribution (exceeding the SIL) to the modeled violation. This evaluation is made specific to both time and space. The facility or project does not have a significant contribution to a violation if impacts are below the SIL at all specific receptors showing violations during the time periods when modeled violations occurred.

Compliance with Idaho Air Rules Section 203.02 is demonstrated if: a) specific applicable criteria pollutant emissions increases are at a level defined as Below Regulatory Concern (BRC), using the criteria established by DEQ regulatory interpretation[1]; or b) all modeled impacts of the SIL analysis are below the applicable SIL or other level determined to be inconsequential to NAAQS compliance; or c) modeled design values of the cumulative NAAQS impact analysis (modeling applicable emissions from the facility and co-contributing sources, and adding a background concentration) are less than applicable NAAQS at receptors where impacts from the proposed facility/modification exceeded the SIL or other identified level of consequence; or d) if the cumulative NAAQS analysis showed NAAQS violations, the impact of proposed facility/modification to any modeled violation was inconsequential (typically assumed to be less than the established SIL) for that specific receptor and for the specific modeled time when the violation occurred.

2.5 Toxic Air Pollutant Analyses

Emissions of toxic substances are generally addressed by Idaho Air Rules Section 161:

> *Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation.*

Permitting requirements for toxic air pollutants (TAPs) from new or modified sources are specifically addressed by Idaho Air Rules Section 203.03 and require the applicant to demonstrate to the satisfaction of DEQ the following:

> *Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Per Section 210, if the total project-wide emissions increase of any TAP associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Idaho Air Rules Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Idaho Air Rules Section 586, then compliance with TAP requirements has been demonstrated.

Idaho Air Rules Section 210.20 states that if TAP emissions from a specific source are regulated by the Department or EPA under 40 CFR 60, 61, or 63, then a TAP impact analysis under Section 210 is not required for that TAP.

3.0 Analytical Methods and Data

3.1 Modeling Methodology

This section describes the modeling methods used by the applicant's consultant, CH2M, to demonstrate compliance with applicable air quality standards.

3.1.1 Overview of Analyses

CH2M performed project-specific air impact analyses that were determined by DEQ to be reasonably representative of the facility, using established DEQ policies, guidance, and procedures. Results of the submitted analyses, in combination with DEQ's analyses, demonstrated compliance with applicable air quality standards to DEQ's satisfaction, provided the facility is operated as described in the submitted application and in this memorandum.

3.0 Modeling Impact Assessment

3.1 Modeling Methodology

This section describes the modeling methods used by the applicant's consultant, CH2M, to demonstrate compliance with applicable air quality standards.

3.1.1 Overview of Analyses

CH2M performed project-specific air impact analyses that were determined by DEQ to be reasonably representative of the facility, using established DEQ policies, guidance, and procedures. Results of the submitted analyses, in combination with DEQ's analyses, demonstrated compliance with applicable air quality standards to DEQ's satisfaction, provided the facility is operated as described in the submitted application and in this memorandum.

Table 4 provides a brief description of parameters used in the modeling analyses.

Table 4. MODELING PARAMETERS

Parameter	Description/Values	Documentation/Addition Description
General Facility Location	Parma, Idaho	The area is an attainment or unclassified area for all criteria pollutants.
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 15181. Algorithms for horizontal and rain-capped point sources were used in the demonstration.
Meteorological Data	Boise	2011-2015 - See Section 3.1.5 of this memorandum. Surface and upper air data from Boise, Idaho.
Terrain	Considered	Receptor, building, and emissions source stack base elevations were determined using USGS 1/3 arc second National Elevation Dataset (NED) files based on the NAD83 datum. The facility is located within Zone 11.
Building Downwash	Considered	Plume downwash was considered for the structures associated with the facility.
Receptor Grid	Grid 1	25-meter spacing along the ambient air boundary.
	Grid 2	25-meter spacing in an 875-meter (x) by 525-meter (y) grid centered on the facility. This grid provides 25-meter resolution for at least 100 meters distance in all directions.
	Grid 3	100-meter spacing in a rectangular grid with outer dimensions of 2,800-meter (x) by 2,400-meter (y) centered on Grid 2.
	Grid 4	500-meter spacing in an 11,000-meter (x) by 11,000-meter (y) rectangular grid roughly centered on Grid 3.
	Grid 5	Two hot spot grids for 1-hour NO_2 NAAQS demonstration with a total of 32 receptors ranging in distance from 4 meters to 13 meters apart.

3.1.2 Modeling Protocol

A modeling protocol was submitted to DEQ prior to submittal of the application by CH2M on behalf of Nunhems USA on August 12, 2016. DEQ responded via email with a protocol approval letter[2], with comments, on October 13, 2016. Final project-specific modeling was generally conducted using data and methods described in this project's modeling protocol and the *Idaho Air Modeling Guideline*[3].

3.1.3 Model Selection

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models). The refined, steady state, multiple-source, Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. AERMOD retains the single straight line trajectory of ISCST3, but includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD version 15181 was used by CH2M for the modeling analyses to evaluate impacts of the facility. This was the current version of this regulatory guideline model at the time the application was submitted. Version 16216r replaced Version 15181 of the AERMOD modeling system on January 17, 2017[4].

NO_2 1-hour impacts can be assessed using a tiered approach to account for $NO/NO_2/O_3$ chemistry. Tier 1 assumes full conversion of NO to NO_2. Tier 2 Ambient Ratio Method (ARM) assumes a 0.80 default ambient ratio of NO_2/NOx.

Tier 2 ARM2[5] was recently developed for demonstrating compliance with the 1-hour NO_2 standard. Per the most recent EPA guidance[6] on compliance methods for the 1-hour NO_2 NAAQS:

> "This method is based on an evaluation of the ratios of NO_2/NO_x from the EPA's Air Quality System (AQS) record of ambient air quality data. The ARM2 development report (API, 2013) specifies that ARM2 was developed by binning all the AQS data into bins of 10 ppb increments for NO_x values less than 200 ppb and into bins of 20 ppb for NO_x in the range of 200-600 ppb. From each bin, the 98th percentile NO_2/NO_x ratio was determined and finally, a sixth-order polynomial regression was generated based on the 98th percentile ratios from each bin to obtain the ARM2 equation, which is used to compute a NO_2/NO_x ratio based on the total NO_x levels."

Tier 3 methods account for more refined assessment of the NO to NO_2 conversion, using a supplemental modeling program with AERMOD to better account for $NO/NO_2/O_3$ atmospheric chemistry. Either the Plume Volume Molar Ratio Method (PVMRM) or the Ozone Limiting Method (OLM) can be specified within the AERMOD input file for the Tier 3 approach. EPA guidance (Memorandum: from Tyler Fox, Leader, Air Quality Modeling Group, C439-01, Office of Air Quality Planning and Standards, USEPA; to Regional Air Division Directors. *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard.* March 01, 2011) has not indicated a preference for one option over the other (PVMRM vs OLM) for particular applications.

The Tier 2 ARM2 and Tier 3 PVMRM and OLM methods are now regulatory options following the publication of final changes to EPA's Guideline on Air Quality Models on January 17, 2017. The submittal's 1-hour NO_2 NAAQS demonstration was based on the Tier 2 ARM2 approach. CH2M presented a complete justification for the use of the Tier 2 ARM2 method with the modeling protocol, and

DEQ approved use of this method in the project's modeling protocol approval letter. Based on EPA's changes to the Guideline on Air Quality Models, the conditional approval of the Tier 2 ARM2 method is no longer needed but DEQ will have review and approval responsibility of the minimum ambient ratio if a lower value than 0.5 is used for the analyses. CH2M applied the default ARM2_MIN value of 0.5 due to the lack of data on in-stack NO_2 to NO_x ratios for propane combustion sources. DEQ determined this value is either appropriate or conservative without adequate supporting performance test data.

These ambient impact analyses used the algorithms for evaluating impacts for point sources with rain caps and horizontal release orientations, which was considered a "Beta" method for assessing impacts for these atypical stack termination designs. EPA formally incorporated the Beta capped and horizontal release algorithms into the AERMOD regulatory guideline model in the January 17, 2017 final rulemaking for 40 CFR 51, Appendix W.

3.2 Background Concentrations

A background concentration tool was used to establish ambient background concentrations for this project. A beta version of the background concentration tool was developed by the Northwest International Air Quality Environmental Science and Technology Consortium (NW AirQuest) and provided through Washington State University (located at http://lar.wsu.edu/nw-airquest/lookup.html). The tool uses regional scale modeling of pollutants in Washington, Oregon, and Idaho, with modeling results adjusted according to available monitoring data. The background is added to the design value for each pollutant and averaging period.

DEQ provided the ambient backgrounds to CH2M in the modeling protocol approval letter. Ambient background values are listed in Table 5.

Table 5. BACKGROUND CONCENTRATIONS

Pollutant	Averaging Period	NW AIRQUEST Background Concentration (μg/m³)[a]
NO_2 [b]	1-hour	49
	Annual	5.6
PM_{10} [c]	24-hour	73[e]
$PM_{2.5}$ [d]	24-hour	19
	Annual	7.3

a. Micrograms per cubic meter.
b. Nitrogen dioxide.
c. Particulate matter with a mean aerodynamic diameter of ten microns or less.
d. Particulate matter with a mean aerodynamic diameter of 2.5 microns or less.
e. Extreme values were removed.

3.3 Meteorological Data

DEQ provided CH2M with a model-ready meteorological dataset processed from Boise airport surface and Boise upper air meteorological data covering the years 2011-2015. The model-ready dataset for this project was generated from monitored data collected at the Boise airport (FAA airport code KBOI) for surface and Automated Surface Observing System (ASOS) data and upper air data from the National Weather Service (NWS) Station site (site ID 726810-24131). Surface characteristics were determined by DEQ staff using AERSURFACE version 13016. DEQ modeling staff evaluated annual moisture conditions for the AERSURFACE runs based on thirty years of Boise airport precipitation data. Conditions were determined to be "wet" for 2014 only. Years 2011, 2012, 2013, and 2015 were determined to be "average" years for precipitation. Continuous snow cover at the Boise airport site was determined to not have existed during any period from 2011-2015. AERMINUTE version 15271 was used to process ASOS wind data for use in AERMET. AERMET Version 15181 was used to process surface and upper air data and to generate a model-ready meteorological data input file. DEQ determined these data were reasonably representative for the Nunhems Parma, Idaho site and approved use of this dataset for the project.

3.4 Terrain Effects

CH2M used 1/3 arc second National Elevation Dataset (NED) files, in the North American Datum 1983 (NAD83), to calculate elevations of receptors, emission sources, and buildings. The terrain preprocessor AERMAP version 11103 was used to extract the elevations from the NED files and assign them to receptors in the modeling domain in a format usable by AERMOD. AERMAP also determined the hill-height scale for each receptor. The hill-height scale is an elevation value based on the surrounding terrain which has the greatest effect on that individual receptor. AERMOD uses those heights to evaluate whether the emissions plume has sufficient energy to travel up and over the terrain or if the plume will travel around the terrain.

3.5 Building Downwash Effects on Modeled Impacts

Potential downwash effects on the emissions plume were accounted for in the model by using building parameters developed by CH2M and Nunhems. The Building Profile Input Program for the PRIME downwash algorithm (BPIP-PRIME) was used to calculate direction-specific dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and release parameters for input to AERMOD. Building heights and building base elevations were accepted as submitted.

3.6 Facility Layout

Modeled emission points, structures, and ambient air boundary represented in the model setup are shown in Figures 3, 4, and 5. Sources modeled for the 1-hour NO_2 NAAQS are included in Figure 3. Sources of $PM_{2.5}$ emissions are included in Figure 4. The facility's structure locations and horizontal dimensions closely matched those presented in Google earth photographic imagery depicted in Figure 3. The only notable difference was for Building "M" where the modeled footprint appears smaller than the April 1, 2016 imagery date on the Google earth software.

Figure 3. NUNHEMS USA FACILITY LAYOUT – NOx SOURCES

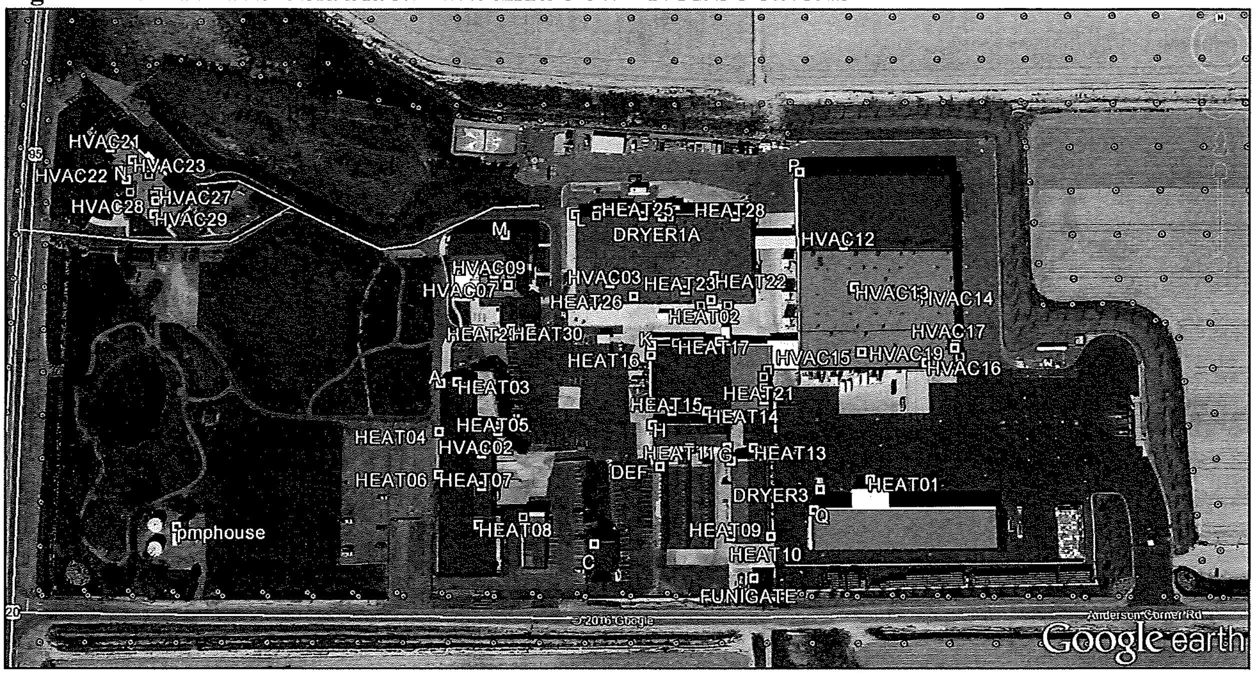


Figure 4. NUNHEMS USA LAYOUT – $PM_{2.5}$ SOURCES

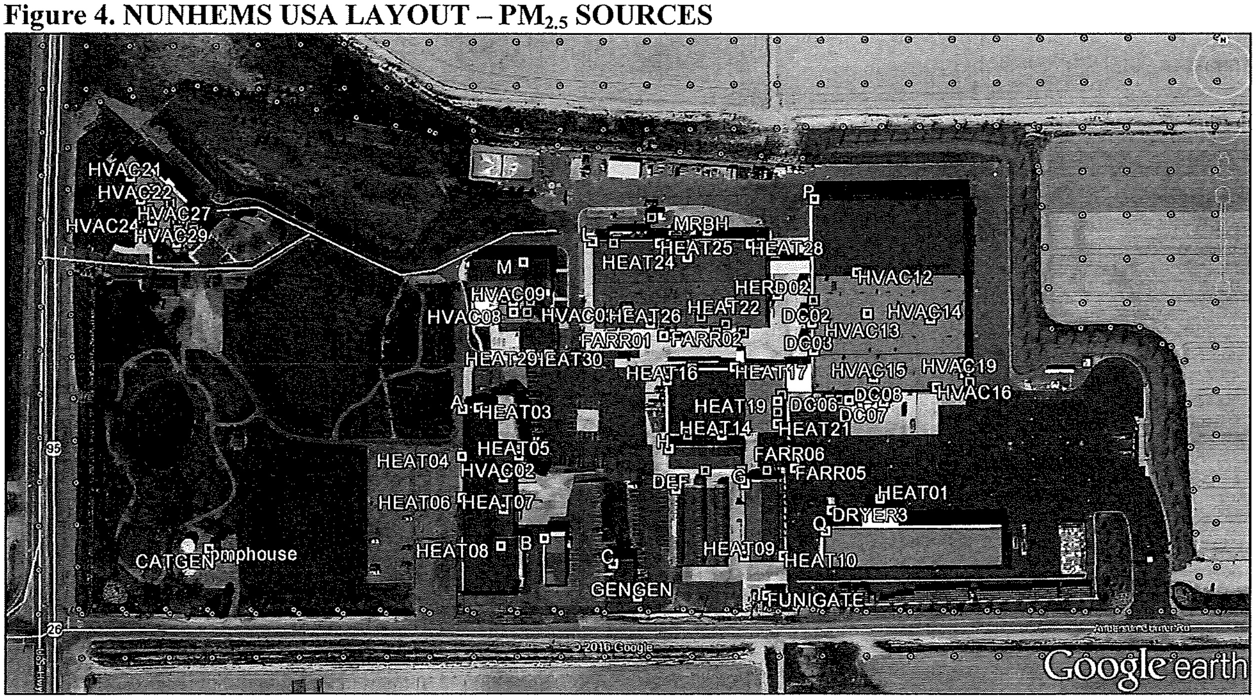
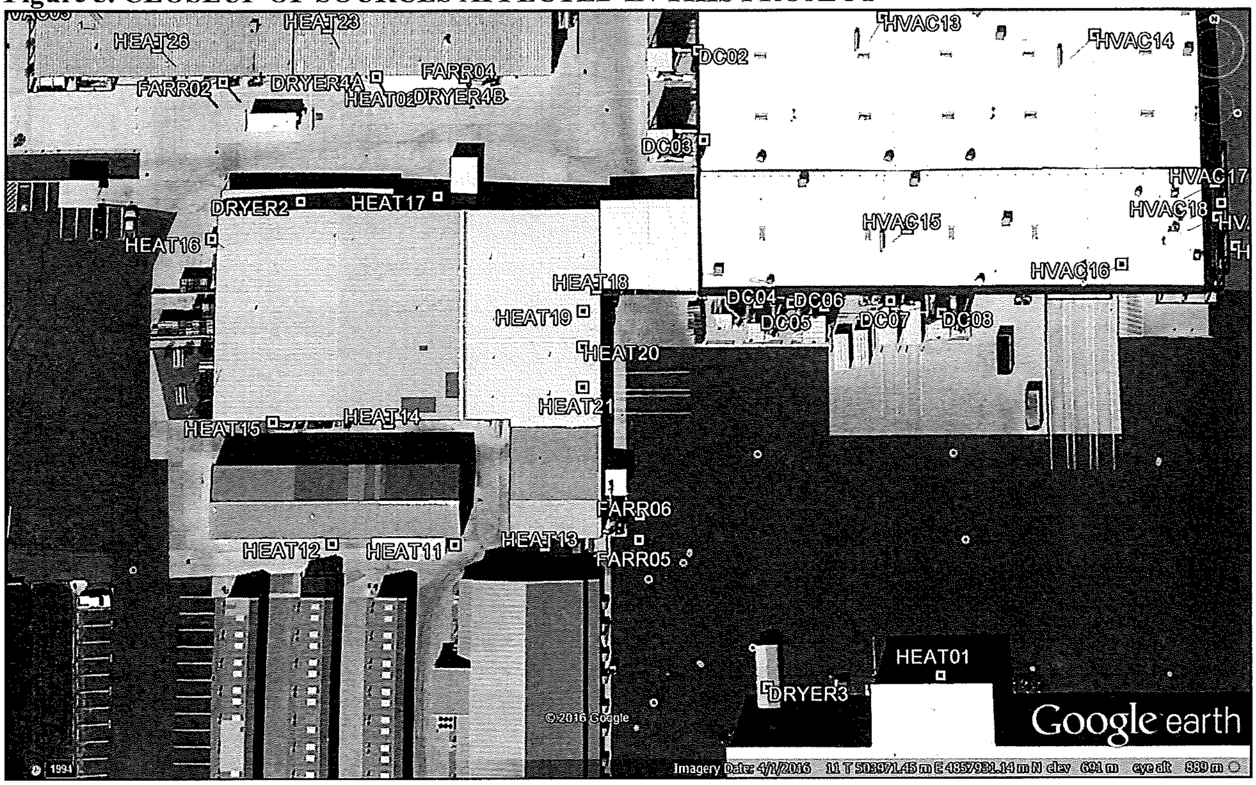


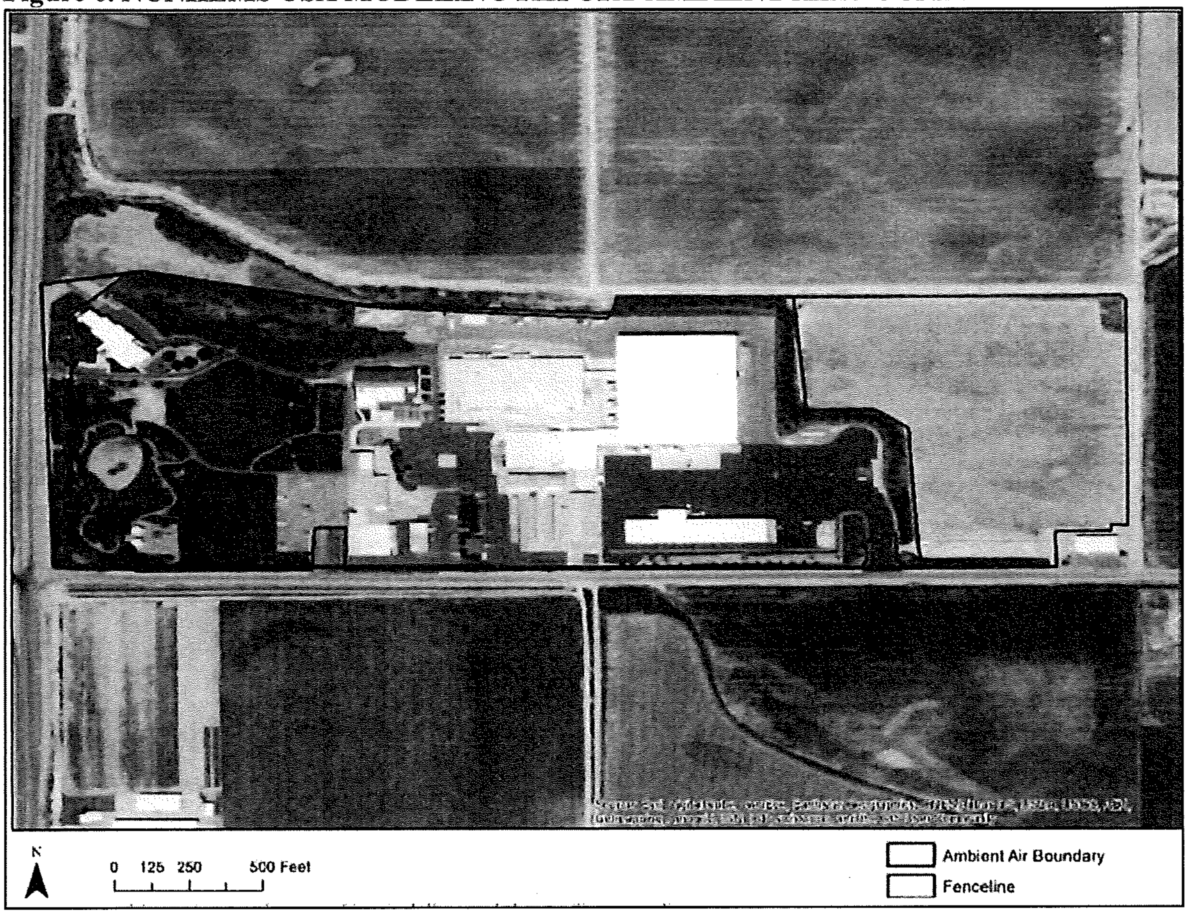
Figure 5. CLOSEUP OF SOURCES AFFECTED IN THIS PROJECT



3.7 Ambient Air Boundary

The ambient air boundary for this project is represented in Figure 6 below. This figure was presented in the final modeling report submitted by Nunhems that was received on January 13, 2017. Section 5.6 of the modeling report describes the ambient air boundary. The ambient air boundary has been established by presence of fencing, gates, and additional "no trespassing" signs along the western ambient air boundary. An easement along the western property boundary between the facility and US Highway 20 is included as area exempted from treatment as ambient air. The posting of no trespassing signs is intended to preclude public access in this region. DEQ determined an ambient air boundary established by a fence line and posting of no trespassing notices" as described in the application's modeling report is an appropriate method to control access, as described in DEQ's *Modeling Guideline*.

Figure 6. NUNHEMS USA MODELING REPORT AMBIENT AIR BOUNDARY



3.8 Receptor Network

Table 4 describes the receptor network used in the submitted modeling analyses. DEQ determined that the receptor network was adequate to reasonably assure compliance with applicable air quality standards at all ambient air locations. Figures 6 and 7 below present the modeled receptor network for the significant impact analyses for the project. The facility-wide emissions rates under the operating scenarios requested for this project were modeled for each applicable NAAQS pollutant and averaging period. The resulting receptor network for each of these modeling demonstration resulted in a unique receptor network for each NAAQS pollutant and averaging period used for the cumulative NAAQS ambient air impact analyses. Please see Attachment A to see the graphic display of the NAAQS analyses receptor networks used for the requested operational control scenario for this permit modification.

Figure 7. NUNHEMS USA FULL RECEPTOR GRID FOR SIL ANALYSES

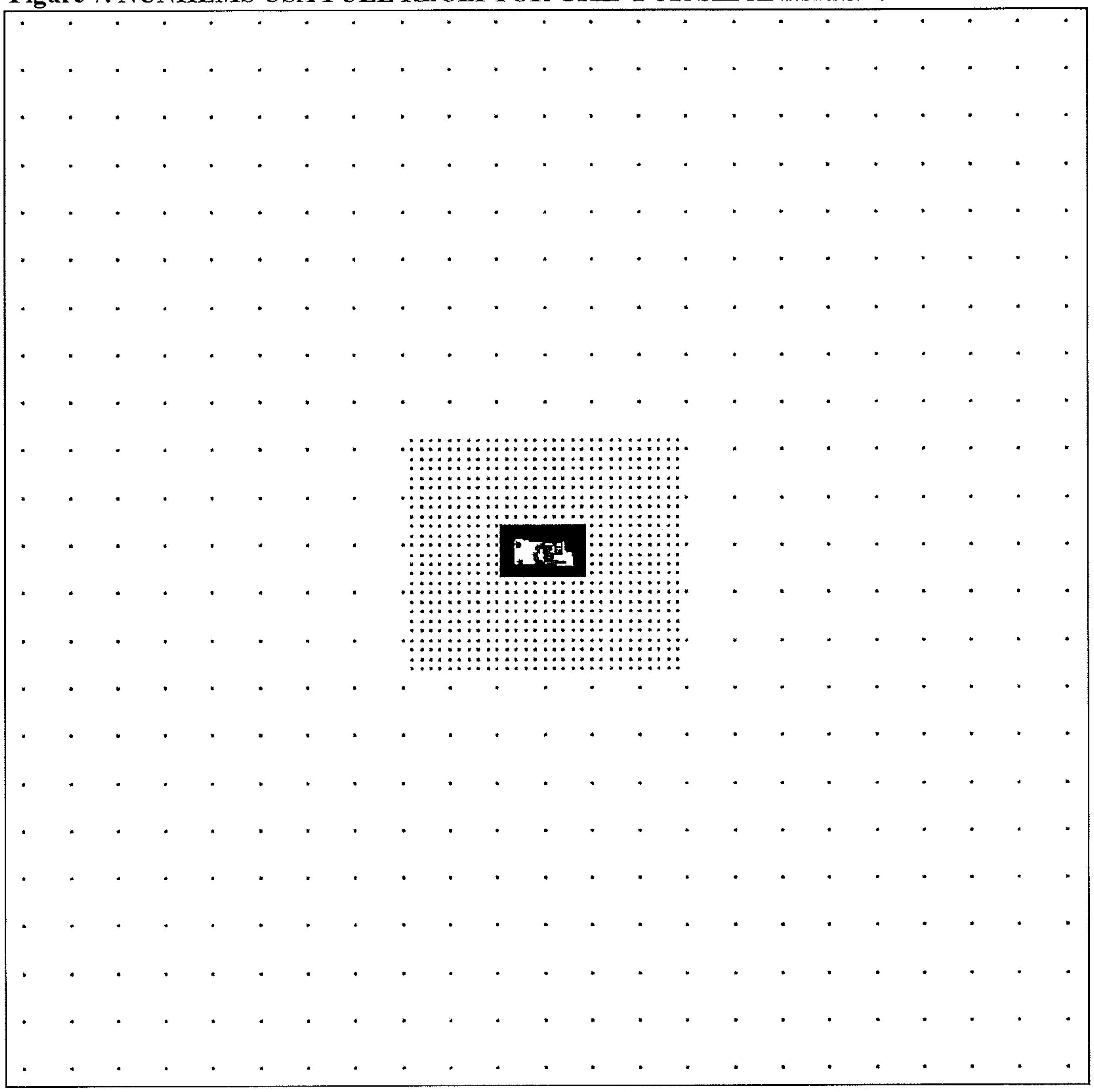
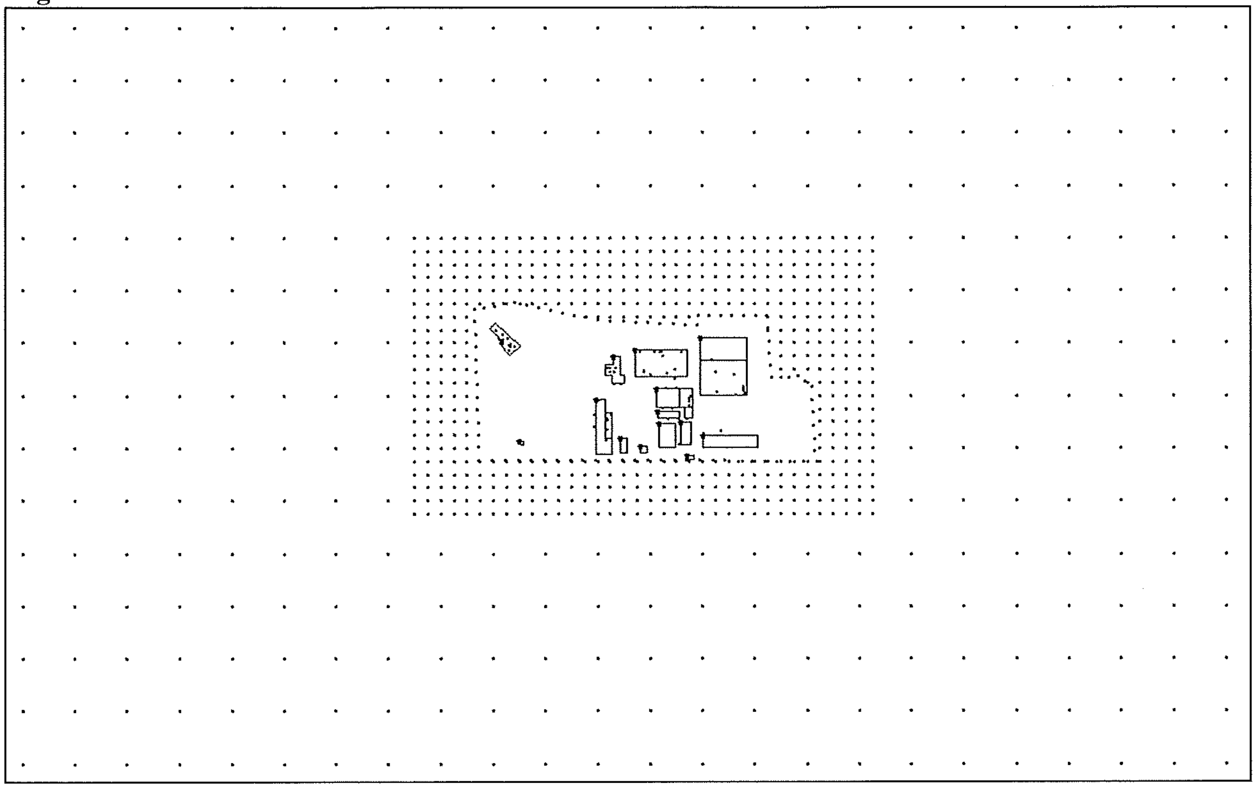


Figure 8. NUNHEMS USA NEAR-FACILITY RECEPTOR GRID FOR SIL ANALYSES



3.9 Emission Rates

Emissions rates of criteria air pollutants and toxic air pollutants were provided by the applicant. DEQ modeling review, described in this memorandum, did not include review of emissions rates for accuracy. Review and approval of estimated emissions was the responsibility of the DEQ permit writer. DEQ modeling staff provided the model inputs for the permit writer to review and determine whether facility-wide potential emissions had been modeled correctly. Hours of operation within a 24-hour period, day-of-week, and monthly operating assumptions used in the model for this analysis were provided to the permit writer for consideration with regard to requested potential to emit calculations and appropriate permit provisions and restrictions.

3.9.1 Criteria Pollutant Emissions Rates

Table 6 lists criteria pollutant continuous (24 hours per day) emissions rates used to evaluate NAAQS compliance for standards with averaging periods of 24 hours or less. Table 7 lists criteria pollutant continuous (8,760 hours per year) emissions rates used to evaluate NAAQS compliance for standards with an annual averaging period. These modeled rates must represent allowable facility-wide emissions for the listed averaging period. The emission rates for the significant impact analyses and the NAAQS demonstration were identical.

Daily emissions rates for some sources were limited by operational factors to a reduced level of emissions per 24-hour period. The requested 1.0 hour per day of operation for each of the three generator engines was used to calculate daily emissions, and then that quantity was averaged over 24 hours to provide an hourly model input value. Each emergency generator engine was modeled for 500 hours per year on an annual basis, representing an upper limit of needed operation.

Operational factors were also applied to seed dryer units DRYER2, DRYER3, and HEAT01. These factors were applied to the 24-hour average $PM_{2.5}$, 24-hour PM_{10}, 1-hour NO_2, annual $PM_{2.5}$, and annual NO_2 ambient impact analyses. The operational factors for DRYER2 and DRYER3 were applied by assuming each emission unit emitted at 100% of the model input emission rate for 24 hours per day, two days per week, for all 52 weeks per year. This is approximately 2,500 hours per year of modeled emissions, and is intended to represent unlimited operation on a 24-hour basis and for a limitation of 200 hours per month of full load operation. On an annual basis, emissions for the requested 2,400 hours per year limitation at full load emissions are appropriately represented with the operational factors being applied to the emissions over the 12-month period for each dryer emissions unit.

The HEAT01 emission source was treated with operational factors. The operational factor applied 100% of model input emission rate representing one day per week for the months of August, September, October, November, December, and January of each year. This setup represents unlimited 24 hours of operation, and 100 hours per month for six months in every year, for a total of 600 hours per year. This operational factor reflects 24 hours of operation on a daily basis and the weekly component of the operational factor represents the 100 hours per month requested for operation. This operational factor also limited evaluation of ambient impacts to six specific months out of the calendar year.

The hourly emission rates of all point sources were modeled at the rate listed in Table 6 for the hourly and 24-hour averaging periods except where the operational factors listed in Table 1 of this memo affect the short-term modeled emissions. The hourly emissions listed in Table 7 were modeled for 8,760 hours per year for the annual averaging period except where the operational factors listed in above and in Table 1 of this memo affect the emissions modeled for annual averaging periods.

Table 6. SHORT-TERM EMISSIONS RATES USED IN MODELING ANALYSES

Modeled Emissions Point	Description	PM_{10}[a] (lb/hr)[b]	$PM_{2.5}$[c] (lb/hr)	NO_x[d] (lb/hr)
CUMGEN	Cummins generator engine	0.0061	0.0061	0.0[e]
MRBH	Murphy Rogers baghouse	0.0055	0.0016	0.0
HERD01	Herding fabric filter #1	0.0099	0.0028	0.0
HERD02	Herding fabric filter #2	0.1155	0.0325	0.0
FARR04	FARR cartridge filter #4	0.0658	0.0185	0.0
FARR03	FARR cartridge filter #3	0.0549	0.0155	0.0
FARR02	FARR cartridge filter #2	0.0460	0.0130	0.0
FARR01	FARR cartridge filter #1	0.0490	0.0138	0.0
DC01	Dust collector #1	0.1026	0.0289	0.0
DC02	Dust collector #2	0.1026	0.0289	0.0
DC03	Dust collector #3	0.1029	0.0290	0.0
DC04	Dust collector #4	0.0376	0.0106	0.0
DC05	Dust collector #5	0.0588	0.0166	0.0
DC06	Dust collector #6	0.0955	0.0269	0.0
DC07	Dust collector #7	0.0200	0.0056	0.0
DC08	Dust collector #8	0.0735	0.0207	0.0
GENGEN	Generac generator engine	0.0113	0.0112	0.0[e]
CATGEN	Caterpillar generator engine	0.0029	0.0029	0.0[e]
FARR05	FARR cartridge filter #5	0.0893	0.0251	0.0
FARR06	FARR cartridge filter #6	0.0893	0.0251	0.0
DRYER1A	Enclosed seed dryer A --Building L	0.0077	0.0076	0.1421
DRYER1B	Enclosed seed dryer B – Building L	0.0077	0.0076	0.1421
HEAT03	Bldg A – Heater 1	0.0011	0.0011	0.0213

HEAT04	Bldg A –Heater 2	0.0011	0.0011	0.0213
HEAT05	Bldg A—Heater 3	0.0005	0.0005	0.0085
HEAT06	Bldg A – Heater 4	0.0011	0.0011	0.0213
HEAT07	Bldg A – Heater 5	0.0011	0.0011	0.0213
HEAT08	Bldg A – Heater 6	0.0011	0.0011	0.0213
HEAT09	Bldg G – Heater 1	0.0015	0.0015	0.0277
HEAT10	Bldg G – Heater 2	0.0011	0.0011	0.0213
HEAT11	Bldg H – Heater 1	0.0006	0.0006	0.0107
HEAT12	Bldg H – Heater 2	0.0011	0.0011	0.0213
HEAT13	Bldg K – Heater 1	0.0011	0.0011	0.0213
HEAT14	Bldg K – Heater 2	0.0011	0.0011	0.0213
HEAT15	Bldg K – Heater 3	0.0011	0.0011	0.0213
HEAT16	Bldg K – Heater 4	0.0011	0.0011	0.0213
HEAT17	Bldg K – Heater 5	0.0011	0.0011	0.0213
HEAT22	Bldg L – Heater 1	0.0006	0.0006	0.0107
HEAT23	Bldg L – Heater 2	0.0015	0.0015	0.0284
HEAT24	Bldg L – Heater 3	0.0008	0.0008	0.0142
HEAT25	Bldg L – Heater 4	0.0010	0.0010	0.0178
HEAT26	Bldg L – Heater 5	0.0010	0.0010	0.0178
HEAT29	Bldg M – Heater 1	0.0015	0.0015	0.0277
HEAT30	Bldg M – Heater 2	0.0015	0.0015	0.0277
HEAT27	Bldg L – Heater 6	0.0010	0.0010	0.0178
HEAT28	Bldg L – Heater 7	0.0008	0.0008	0.0142
HVAC01	Bldg A – HVAC 1	0.0007	0.0007	0.0128
HVAC02	Bldg A – HVAC 2	0.0007	0.0007	0.0128
HVAC03	Bldg L – HVAC 1	0.0006	0.0006	0.0102
HVAC04	Bldg L – HVAC 2	0.0006	0.0006	0.0102
HVAC05	Bldg L – HVAC 3	0.0006	0.0006	0.0102
HVAC06	Bldg L – HVAC 4	0.0006	0.0006	0.0102
HVAC12	Bldg P – HVAC 1	0.0019	0.0019	0.0355
HVAC13	Bldg P – HVAC 2	0.0027	0.0027	0.0502
HVAC14	Bldg P – HVAC 3	0.0027	0.0027	0.0502
HVAC15	Bldg P – HVAC 4	0.0027	0.0027	0.0502
HVAC16	Bldg P – HVAC 5	0.0027	0.0027	0.0502
HVAC17	Bldg P – HVAC 6	0.0003	0.0003	0.0064
HVAC18	Bldg P – HVAC 7	0.0003	0.0003	0.0064
HVAC19	Bldg P – HVAC 8	0.0003	0.0003	0.0064
HVAC20	Bldg P – HVAC 9	0.0003	0.0003	0.0064
HVAC21	Bldg N – HVAC 1	0.0014	0.0014	0.0256
HVAC22	Bldg N – HVAC 2	0.0009	0.0009	0.0163
HVAC23	Bldg N – HVAC 3	0.0009	0.0009	0.0163
HVAC24	Bldg N – HVAC 4	0.0014	0.0014	0.0256
HVAC25	Bldg N – HVAC 5	0.0009	0.0009	0.0163
HVAC26	Bldg N – HVAC 6	0.0009	0.0009	0.0163
HVAC27	Bldg N – HVAC 7	0.0009	0.0009	0.0163
HVAC28	Bldg N – HVAC 8	0.0009	0.0009	0.0163
HVAC29	Bldg N – HVAC 9	0.0009	0.0009	0.0163
HVAC30	Bldg N – HVAC 10	0.0009	0.0009	0.0163
HEAT18	Bldg K – Heater 6	0.0011	0.0011	0.0213
HEAT19	Bldg K – Heater 7	0.0006	0.0006	0.0114
HEAT20	Bldg K – Heater 8	0.0006	0.0006	0.0114
HEAT21	Bldg K – Heater 9	0.0006	0.0006	0.0114
HVAC07	Bldg M – HVAC 1	0.0009	0.0009	0.0163
HVAC08	Bldg M - HVAC 2	0.0009	0.0009	0.0163
HVAC09	Bldg M - HVAC 3	0.0009	0.0009	0.0163
HVAC10	Bldg M - HVAC 4	0.0009	0.0009	0.0163
HVAC11	Bldg M - HVAC 5	0.0027	0.0027	0.0502

DRYER02	Seed dryer #2 – building K	0.011[f]	0.011[f]	0.205[f]
DRYER03	Seed dryer #3 –building Q	0.0055[f]	0.0055[f]	0.102[f]
HEAT01	Building Q heaters	0.0153[f]	0.0153[f]	0.2841[f]
HEAT02	Building L heaters	0.0076[f]	0.0076[f]	0.1421[f]
DRYER4A	Pelleting dryers in Building L (2 dryers)	0.0076	0.0076	0.142
DRYER4B	Pelleting dryers in Building L (3 dryers)	0.011	0.011	0.213

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
b. Pounds per hour.
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
d. Nitrogen oxides.
e. Emergency electrical generator engines are exempt from modeling to demonstrate compliance with the 1-hr NO_2 NAAQS per DEQ policy.
f. Modeled at the listed emission rate for all 24 hours within a day.

Table 7. LONG-TERM EMISSIONS RATES USED IN MODELING ANALYSES

Modeled Emissions Point	Description	$PM_{2.5}$[a] (lb/hr)[b]	NO_x[c] (lb/hr)
CUMGEN	Cummins generator engine	0.0083	1.5815
MRBH	Murphy Rogers baghouse	0.0016	0.0
HERD01	Herding fabric filter #1	0.0028	0.0
HERD02	Herding fabric filter #2	0.0325	0.0
FARR04	FARR cartridge filter #4	0.0185	0.0
FARR03	FARR cartridge filter #3	0.0155	0.0
FARR02	FARR cartridge filter #2	0.0130	0.0
FARR01	FARR cartridge filter #1	0.0138	0.0
DC01	Dust collector #1	0.0289	0.0
DC02	Dust collector #2	0.0289	0.0
DC03	Dust collector #3	0.0290	0.0
DC04	Dust collector #4	0.0106	0.0
DC05	Dust collector #5	0.0166	0.0
DC06	Dust collector #6	0.0269	0.0
DC07	Dust collector #7	0.0056	0.0
DC08	Dust collector #8	0.0207	0.0
GENGEN	Generac generator engine	0.0154	0.1060
CATGEN	Caterpillar generator engine	0.0040	0.1487
FARR05	FARR cartridge filter #5	0.0251	0.0
FARR06	FARR cartridge filter #6	0.0251	0.0
DRYER1A	Enclosed seed dryer A --Building L	0.0076	0.1421
DRYER1B	Enclosed seed dryer B – Building L	0.0076	0.1421
HEAT03	Bldg A – Heater 1	0.0011	0.0213
HEAT04	Bldg A –Heater 2	0.0011	0.0213
HEAT05	Bldg A—Heater 3	0.0005	0.0085
HEAT06	Bldg A – Heater 4	0.0011	0.0213
HEAT07	Bldg A – Heater 5	0.0011	0.0213
HEAT08	Bldg A – Heater 6	0.0011	0.0213
HEAT09	Bldg G – Heater 1	0.0015	0.0277
HEAT10	Bldg G – Heater 2	0.0011	0.0213
HEAT11	Bldg H – Heater 1	0.0006	0.0107
HEAT12	Bldg H – Heater 2	0.0011	0.0213
HEAT13	Bldg K – Heater 1	0.0011	0.0213
HEAT14	Bldg K – Heater 2	0.0011	0.0213
HEAT15	Bldg K – Heater 3	0.0011	0.0213
HEAT16	Bldg K – Heater 4	0.0011	0.0213
HEAT17	Bldg K – Heater 5	0.0011	0.0213
HEAT22	Bldg L – Heater 1	0.0006	0.0107

HEAT23	Bldg L – Heater 2	0.0015	0.0284
HEAT24	Bldg L – Heater 3	0.0008	0.0142
HEAT25	Bldg L – Heater 4	0.0010	0.0178
HEAT26	Bldg L – Heater 5	0.0010	0.0178
HEAT29	Bldg M – Heater 1	0.0015	0.0277
HEAT30	Bldg M – Heater 2	0.0015	0.0277
HEAT27	Bldg L – Heater 6	0.0010	0.0178
HEAT28	Bldg L – Heater 7	0.0008	0.0142
HVAC01	Bldg A – HVAC 1	0.0007	0.0128
HVAC02	Bldg A – HVAC 2	0.0007	0.0128
HVAC03	Bldg L – HVAC 1	0.0006	0.0102
HVAC04	Bldg L – HVAC 2	0.0006	0.0102
HVAC05	Bldg L – HVAC 3	0.0006	0.0102
HVAC06	Bldg L – HVAC 4	0.0006	0.0102
HVAC12	Bldg P – HVAC 1	0.0019	0.0355
HVAC13	Bldg P – HVAC 2	0.0027	0.0502
HVAC14	Bldg P – HVAC 3	0.0027	0.0502
HVAC15	Bldg P – HVAC 4	0.0027	0.0502
HVAC16	Bldg P – HVAC 5	0.0027	0.0502
HVAC17	Bldg P – HVAC 6	0.0003	0.0064
HVAC18	Bldg P – HVAC 7	0.0003	0.0064
HVAC19	Bldg P – HVAC 8	0.0003	0.0064
HVAC20	Bldg P – HVAC 9	0.0003	0.0064
HVAC21	Bldg N – HVAC 1	0.0014	0.0256
HVAC22	Bldg N – HVAC 2	0.0009	0.0163
HVAC23	Bldg N – HVAC 3	0.0009	0.0163
HVAC24	Bldg N – HVAC 4	0.0014	0.0256
HVAC25	Bldg N – HVAC 5	0.0009	0.0163
HVAC26	Bldg N – HVAC 6	0.0009	0.0163
HVAC27	Bldg N – HVAC 7	0.0009	0.0163
HVAC28	Bldg N – HVAC 8	0.0009	0.0163
HVAC29	Bldg N – HVAC 9	0.0009	0.0163
HVAC30	Bldg N – HVAC 10	0.0009	0.0163
HEAT18	Bldg K – Heater 6	0.0011	0.0213
HEAT19	Bldg K – Heater 7	0.0006	0.0114
HEAT20	Bldg K – Heater 8	0.0006	0.0114
HEAT21	Bldg K – Heater 9	0.0006	0.0114
HVAC07	Bldg M – HVAC 1	0.0009	0.0163
HVAC08	Bldg M - HVAC 2	0.0009	0.0163
HVAC09	Bldg M - HVAC 3	0.0009	0.0163
HVAC10	Bldg M - HVAC 4	0.0009	0.0163
HVAC11	Bldg M - HVAC 5	0.0027	0.0502
DRYER2	Seed dryer #2 – building K	0.0030[d]	0.056[d]
DRYER3	Seed dryer #3 – building Q	0.0015[d]	0.028[d]
HEAT01	Building Q heaters	0.0011[e]	0.019[e]
HEAT02	Building L heaters	0.0076	0.142
DRYER4A	Pelleting dryers in Building L (2 dryers)	0.0076	0.142
DRYER4B	Pelleting dryers in Building L (3 dryers)	0.011	0.213

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
b. Pounds per hour.
c. Nitrogen oxides.
d. This source was modeled using operational factors limiting emissions to the listed emission rate for 2,400 hours per year based on 200 hours per month for all 12 months per year.
e. This source was modeled using operational factors limiting emissions to the listed emission rate for 600 hours per year based on 100 hours per month for all 6 months per year in the months of January, August, September October, November, and December.

3.9.2 *TAP Emissions Rates*

The increases in emissions for the project are required to demonstrate compliance with the toxic air pollutant (TAP) increments, with an ambient impact analyses required for any TAP having a requested potential emission rate that exceeds the screening emissions level (EL) specified by Idaho Air Rules Section 585 or 586. This project was evaluated on a facility-wide basis using the requested potential emissions as the basis for evaluating TAPs compliance. Modeling staff compared the average hourly emission rates listed in the modeling report to the TAPs ELs and verified that listed project emissions rates were below the ELs. Review of the TAPs emissions inventory, and authority to request alterations to the inventory, is the responsibility of the permit writer/project manager.

This project's emissions inventory did not present any TAPs with emission rates that exceeded the non-carcinogenic and carcinogenic screening emission rate limits (ELs) specified in Sections 585 and 586 of the Idaho Air Rules.

3.10 Emission Release Parameters

Table 8 lists release parameters for modeled point sources. Table 9 lists release parameters for modeled volume sources. All point sources were modeled as rain-capped or horizontal releases except for the FARR03/DRYER4A common stack and the FARR04/DRYER4B common stack. The existing horizontal orientation for these point sources will be altered to vertical upon issuance of this project's PTC.

Table 8. POINT SOURCE EMISSIONS RELEASE PARAMETERS

Release Point	Description	Release Type	UTM[a] Coordinates[b] Easting (x) (m)[c]	Northing (y) (m)	Source Base Elevation (m)	Stack Release Height (m)	Stack Gas Temp (K)[d]	Stack Flow Velocity (m/s)[e]	Modeled Diameter (m)
CUMGEN	Cummins generator engine	Raincap	504,002.54	4,857,999.4	691.4	4.57	763.71	43.898	0.406
GENGEN	Generac generator engine	Raincap	503,994	4,857,784	693.6	1.52	783.15	49.37	0.076
CATGEN	Caterpillar generator engine	Raincap	503,760	4,857,808	693.5	3.35	729.76	58.01	0.178
MRBH	Murphy Rogers baghouse	Horizontal	504,034	4,857,990.9	690.3	9.14	295.96	0.001	0.305
HERD01	Herding fabric filter #1	Horizontal	504,073.48	4,857,978.42	690.3	5.40	295.96	0.001	0.638
HERD02	Herding fabric filter #2	Horizontal	504,073.98	4,857,954.94	690.3	8.28	295.96	0.001	0.762
FARR06	FARR cartridge filter #6	Horizontal	504,084	4,857,861	690.8	6.55	295.96	0.001	0.457
FARR05	FARR cartridge filter #5	Horizontal	504,083.89	4,857,857	690.8	6.55	295.96	0.001	0.457
FARR04	FARR cartridge filter #4	Default[f]	504,054	4,857,934	690.3	9.04	295.96	0.001	0.457
FARR03	FARR cartridge filter #3	Default[f]	504,039	4,857,934	690.3	9.04	295.96	0.001	0.457
FARR02	FARR cartridge filter #2	Horizontal	504,013.03	4,857,932.96	690.3	9.04	295.96	0.001	0.457
FARR01	FARR cartridge filter #1	Horizontal	504,009.04	4,857,931.96	690.3	9.12	295.96	0.001	0.457
DC01	Dust collector #1	Horizontal	504,094.24	4,857,951.7	692.0	8.23	295.96	0.001	1.298
DC02	Dust collector #2	Horizontal	504,093.46	4,857,938.95	692.0	8.23	295.96	0.001	1.298
DC03	Dust collector #3	Horizontal	504,094.46	4,857,923.47	692.0	8.23	317.16	0.001	1.298
DC04	Dust collector #4	Horizontal	504,103.45	4,857,895.99	692.0	8.23	317.16	0.001	1.021
DC05	Dust collector #5	Horizontal	504,108.94	4,857,895.99	692.0	8.23	295.96	0.001	0.988
DC06	Dust collector #6	Horizontal	504,114.44	4,857,895.49	692.0	8.23	295.96	0.001	1.298
DC07	Dust collector #7	Horizontal	504,125.43	4,857,896.49	692.0	8.23	295.96	0.001	0.516
DC08	Dust collector #8	Horizontal	504,133.92	4,857,894.5	692.0	8.23	295.96	0.001	1.298
DRYER1A	Enclosed seed dryer A -- Building L	Raincap	504,017.5	4,857,983.4	690.3	9.14	317.16	24.53	0.457
DRYER1B	Enclosed seed dryer B – Building L	Raincap	504,021.5	4,857,983.4	690.3	9.14	317.16	19.46	0.457

HEAT03	Bldg A – Heater 1	Horizontal	503,903.8	4,857,891.9	693.1	5.49	334.26	0.001	0.102
HEAT04	Bldg A –Heater 2	Horizontal	503,894.4	4,857,864.5	693.1	5.49	334.26	0.001	0.102
HEAT05	Bldg A—Heater 3	Horizontal	503,926.7	4,857,864.7	693.1	5.49	328.71	0.001	0.102
HEAT06	Bldg A – Heater 4	Horizontal	503,894.5	4,857,841.2	693.1	5.49	334.26	0.001	0.102
HEAT07	Bldg A – Heater 5	Raincap	503,918.2	4,857,834.8	693.1	6.71	334.26	35.00	0.102
HEAT08	Bldg A – Heater 6	Raincap	503,917	4,857,814.6	693.1	9.75	334.26	35.00	0.102
HEAT09	Bldg G – Heater 1	Horizontal	504,055.1	4,857,807.7	693.2	5.18	334.26	0.001	0.127
HEAT10	Bldg G – Heater 2	Horizontal	504,077.5	4,857,807.7	693.2	5.18	334.26	0.001	0.102
HEAT11	Bldg H – Heater 1	Horizontal	504,053.4	4,857,856	691.2	5.18	334.26	0.001	0.152
HEAT12	Bldg H – Heater 2	Horizontal	504,032.8	4,857,856	691.2	5.18	334.26	0.001	0.102
HEAT13	Bldg K – Heater 1	Horizontal	504,068.34	4,857,855.9	690.8	4.27	334.26	0.001	0.102
HEAT14	Bldg K – Heater 2	Horizontal	504,042.1	4,857,875.9	690.8	7.32	334.26	0.001	0.102
HEAT15	Bldg K – Heater 3	Horizontal	504,022.8	4,857,875.9	690.8	7.32	334.26	0.001	0.102
HEAT16	Bldg K – Heater 4	Horizontal	504,011.2	4,857,906.8	690.8	6.40	334.26	0.001	0.102
HEAT17	Bldg K – Heater 5	Horizontal	504,049.5	4,857,914.2	690.8	6.40	334.26	0.001	0.102
HEAT18	Bldg K – Heater 6	Raincap	504,076.58	4,857,898.62	690.8	5.79	334.26	35.00	0.102
HEAT19	Bldg K – Heater 7	Raincap	504,074.35	4,857,894.81	690.8	5.79	329.26	18.67	0.102
HEAT20	Bldg K – Heater 8	Raincap	504,074.35	4,857,888.85	690.8	5.79	329.26	18.67	0.102
HEAT21	Bldg K – Heater 9	Raincap	504,074.35	4,857,882.1	690.8	5.79	329.26	18.67	0.102
HEAT22	Bldg L – Heater 1	Raincap	504,046.65	4,857,950.59	690.3	8.53	329.26	5.90	0.127
HEAT23	Bldg L – Heater 2	Raincap	504,030.35	4,857,942.61	690.3	8.53	329.26	6.20	0.204
HEAT24	Bldg L – Heater 3	Raincap	504,022.72	4,857,976.05	690.3	8.53	329.26	6.90	0.152
HEAT25	Bldg L – Heater 4	Raincap	504,006.85	4,857,984.17	690.3	8.53	329.26	6.8	0.178
HEAT26	Bldg L – Heater 5	Raincap	504,001.55	4,857,939.04	690.3	8.53	329.26	6.8	0.178
HEAT27	Bldg L – Heater 6	Raincap	503,980.84	4,857,984.24	690.3	8.53	329.26	6.80	0.178
HEAT28	Bldg L – Heater 7	Raincap	504,058.65	4,857,983.61	690.3	8.53	329.26	6.90	0.152
HEAT29	Bldg M – Heater 1	Horizontal	503,943.6	4,857,921.8	690.1	4.42	334.26	0.001	0.127
HEAT30	Bldg M – Heater 2	Horizontal	503,932.95	4,857,921.8	690.1	4.42	334.26	0.001	0.127
HVAC01	Bldg A – HVAC 1	Raincap	503,918.6	4,857,855	693.1	6.71	334.26	21.00	0.102
HVAC02	Bldg A – HVAC 2	Raincap	503,918	4,857,852.5	693.1	6.71	334.26	21.00	0.102
HVAC03	Bldg L – HVAC 1	Raincap	503,988.36	4,857,946.15	690.3	8.53	323.15	28.17	0.051
HVAC04	Bldg L – HVAC 2	Raincap	503,988.32	4,857,947.34	690.3	8.53	323.15	28.17	0.051
HVAC05	Bldg L – HVAC 3	Raincap	503,987.68	4,857,947.38	690.3	8.53	323.15	28.17	0.051
HVAC06	Bldg L – HVAC 4	Raincap	503,987.93	4,857,947.93	690.3	8.53	323.15	28.17	0.051
HVAC07	Bldg M – HVAC 1	Horizontal	503,931.6	4,857,945.5	690.1	5.33	334.26	0.001	0.081
HVAC08	Bldg M - HVAC 2	Horizontal	503,923.9	4,857,945.5	690.1	5.33	334.26	0.001	0.081
HVAC09	Bldg M - HVAC 3	Horizontal	503,923.8	4,857,951.7	690.1	5.33	334.26	0.001	0.081
HVAC10	Bldg M - HVAC 4	Horizontal	503,933.4	4,857,951.7	690.1	5.33	334.26	0.001	0.081
HVAC11	Bldg M - HVAC 5	Raincap	503,919.4	4,857,953.4	690.1	5.33	344.26	1.11	1.000
HVAC12	Bldg P – HVAC 1	Horizontal	504,118.2	4,857,966.9	692.0	11.58	353.71	0.001	0.021
HVAC13	Bldg P – HVAC 2	Horizontal	504,124.4	4,857,944	690.1	10.06	344.26	0.001	0.021
HVAC14	Bldg P – HVAC 3	Horizontal	504,159.8	4,857,940.9	690.1	10.06	344.26	0.001	0.021
HVAC15	Bldg P – HVAC 4	Horizontal	504,127.9	4,857,908.2	690.1	10.06	344.26	0.001	0.021
HVAC16	Bldg P – HVAC 5	Horizontal	504,163.3	4,857,902.4	690.1	10.06	344.26	0.001	0.021
HVAC17	Bldg P – HVAC 6	Horizontal	504,178.9	4,857,916.1	690.1	10.06	323.15	0.001	0.021
HVAC18	Bldg P – HVAC 7	Horizontal	504,179.9	4,857,912.7	690.1	10.06	323.15	0.001	0.021
HVAC19	Bldg P – HVAC 8	Horizontal	504,179.2	4,857,910.4	690.1	10.06	323.15	0.001	0.021
HVAC20	Bldg P – HVAC 9	Horizontal	504,182.1	4,857,905.6	690.1	10.06	323.15	0.001	0.021
HVAC21	Bldg N – HVAC 1	Horizontal	503,705.25	4,858,023	692.1	6.10	339.82	0.001	0.021
HVAC22	Bldg N – HVAC 2	Horizontal	503,711	4,858,010	692.1	6.10	334.26	0.001	0.021
HVAC23	Bldg N – HVAC 3	Horizontal	503,718	4,858,016.3	692.1	6.10	334.26	0.001	0.021
HVAC24	Bldg N – HVAC 4	Horizontal	503,717.6	4,857,997.8	692.1	6.10	339.82	0.001	0.021
HVAC25	Bldg N – HVAC 5	Horizontal	503,727.3	4,85,8007.9	692.1	6.10	334.26	0.001	0.021
HVAC26	Bldg N – HVAC 6	Horizontal	503,731	4,857,996.3	692.1	6.10	334.26	0.001	0.021
HVAC27	Bldg N – HVAC 7	Horizontal	503,733	4,857,998	692.1	6.10	334.26	0.001	0.021
HVAC28	Bldg N – HVAC 8	Horizontal	503,732	4,857,993	692.1	6.10	334.26	0.001	0.021

HVAC29	Bldg N – HVAC 9	Horizontal	503,731.3	4,857,985.4	692.1	6.10	334.26	0.001	0.021
HVAC30	Bldg N – HVAC 10	Horizontal	503,741	4,857,993.42	692.1	6.10	334.26	0.001	0.021
DRYER02	Seed dryer 2– north side of building K	Capped	504,025.55	4,857,913.86	690.84	3.43	310.93	4.47	0.34
DRYER03	Seed dryer 3 – New location is on northwest corner of building Q	Capped	504,105.37	4,857,832.92	694.6	2.74	310.93	0.98	0.49
DRYER4A	Pelleting dryers in Building L (2 dryers)	Default[f]	504,039	4,857,934	690.27	9.1	334.82	32.77	0.46
DRYER4B	Pelleting dryers in Building L (3 dryers)	Default[f]	504,054	4,857,934	690.27	9.1	334.82	49.15	0.46

a. Universal Transverse Mercator
b. Coordinate system located in Zone 11 and based on NAD83 datum.
c. Meters.
d. Temperature in units of Kelvin.
e. Meters per second.
f. Uninterrupted vertical release.

Table 9. VOLUME SOURCE EMISSIONS RELEASE PARAMETERS

Release Point	Description	UTM[a] Coordinates[b]		Source Base Elevation (m)	Release Height (m)	Initial Horizontal Dimension (m)	Initial Vertical Dimension (m)
		Easting (x) (m)	Easting (x) (m)				
HEAT01	Building Q heaters	504,135.5	4,857,833	694.65	3.048	3.76	1.42
HEAT02	Building L heaters	504,047	4,857,932.7	690.97	3.048	2.41	1.42

a. Universal Transverse Mercator
b. Coordinate system located in Zone 11 and based on the NAD83 datum.
c. Meters.

DEQ requires that each permit application have stand-alone documentation to support the exhaust parameters used in the NAAQS and TAPs air impact modeling compliance demonstration. Nunhems was issued the initial facility-wide PTC on June 9, 2016, under Project 61508. Exhaust parameter justification and support documentation for the pervious permit application was submitted by CH2M to DEQ through several email communications regarding the modeling protocol development and the permit application. This material was not included in current application submitted to DEQ for modification of the permit. The previously submitted application materials were used to satisfy the requirement for support documentation/verification of exhaust parameters. The following paragraphs are copied from DEQ's modeling memorandum discussion on exhaust parameter substantiation and justification for the initial PTC Project 61508:

> CH2M supplied support documentation to DEQ prior to submittal of the September 2014 modeling protocol in emails to DEQ modeling staff dated August 7, 2013. This email information listed assumptions for exhaust parameters and listed modeling input stack heights and diameters, location, and exit temperatures, primarily for propane-fired heaters and HVAC units. CH2M indicated that the stack release heights and exit diameters were determined by CH2M and Nunhems with an on-site validation. Field notes were not available for DEQ review to corroborate the tables of information provided in the August 7, 2013 submittals or the final modeling analyses. However, support documentation including vendor data and manufacturer's catalog specifications were included in Appendix C of the permit application.

Generator engines CATGEN, GENGEN, and CUMGEN were each modeled as having a rain cap, which impedes vertical plume rise. The actual stack diameter, flow rate, and exhaust temperature were input in the model for each of the engines as recommended by EPA guidance. Manufacturer's specification sheets, providing exhaust characteristics, were provided in the permit application. Modeled exhaust flow rates for the Generac and Cummins were lower than listed in the manufacturer specification sheets and the Cummins generator exit temperature was modeled with a slightly lower temperature than the supporting documentation provided for a standby generator at full load. The Generac and Caterpillar engines documentation listed an exhaust flange diameter values of 4 inches and 7 inches in diameter, respectively, matching the modeling input. Stack height documentation was limited to the preliminary summary sheet provided by CH2M to DEQ prior to the submittal of the final modeling protocol. These sources were modeled with the Beta algorithm rain cap treatment so exit velocity's effect on momentum buoyancy is minimized by the model and thermal buoyancy is considered for the high temperature exhaust. This approach is conservative for the generator stacks because generator engines are usually equipped with a spring-hinged rain flap that moves out of the way and does not impede the flow of the exhaust stream during operations. When the engine is not in operation the spring-loaded flap protects the engine from rain or pest intrusion. The high exit temperature is the only parameter providing the generator engine exhaust plumes with buoyancy effects. Therefore, the assumptions are determined to be acceptable by DEQ modeling staff as acceptable for these analyses.

All sources modeled as horizontal releases were modeled with an exit velocity of 0.001 meters per second. These sources included all baghouses and fabric filtration systems (DC01 through DC08, FARR01 through FARR06, MRBH, HERD01, and HERD02). This low velocity will minimize any dispersion for these sources and is accepted as a conservative approach for these modeling analyses.

One issue noted for the baghouses was the exit temperature for Dust Collectors #3 and #4 (DC03 and DC04). Each was modeled with an exit temperature of 111 degrees Fahrenheit versus the 73 degree Fahrenheit temperature used for all other baghouses and fabric filter sources. The DC03 and DC04 sources only emit 0.03 lb/hr and 0.01 lb/hr of $PM_{2.5}$, respectively, and 0.10 lb/hr and 0.04 lb/hr of PM_{10}, respectively. They were modeled as horizontal point sources with minimized flow velocity at 0.001 meters per second. These are not NOx emission sources, and the 1-hour NO_2 NAAQS was the only ambient standard with impacts plus background close to the allowable NAAQS. Based on consideration of these points DEQ modeling staff asserts that even if appropriate, the reduction of the exit temperature to 73 degrees Fahrenheit will not affect PM_{10} and $PM_{2.5}$ NAAQS compliance.

Documentation on the heater and HVAC equipment was spot-checked and was supported by manufacturer specification sheet data. CH2M modeled many of these sources as horizontal releases with a very conservative 0.001 meter per second exit velocity so a verified volumetric flow rate or velocity was not pertinent. Actual exit velocity or volumetric flow rate values for those heater and HVAC stacks are negated for those emergency generator, heaters, dryers, and HVAC point source stacks modeled as capped sources, with the exhaust plume momentum being minimized by the Beta algorithms. The exit gas temperature for capped sources is still is an important parameter, as it provides some level of plume buoyancy if the exit temperature is high enough compared to the ambient temperature.

Four volume sources were included in the modeling analyses. DEQ requested justification of why the sources were to be treated as volume sources in the May 22, 2015 incompleteness letter, with the following:

"Please provide a discussion and justification of why Dryer 2, Dryer 3, Heater 1 and Heater 2 were modeled as volume sources instead of point sources. If the sources are equipped with one or more actual exhaust vents with a fan producing consistent airflow these sources should typically be modeled as point sources, even if they have a horizontal release. The use of Beta algorithms for capped and horizontal release point sources is approved for this project and is being used for the majority of sources in the modeling demonstration. "

CH2M and Nunhems submitted support documentation in the September 8, 2015 incompleteness response on the volume sources. The primary reason for modeling the sources as volume sources appears to be they produce "intermittent airflow." The operating schedules for these sources have no bearing on whether they should be modeled as a point source or a volume source. The physical characteristics of how the emissions are exhausted to the air are the points DEQ must consider in evaluating whether a source is a true point source or may be modeled as a volume source.

HEATER01 and HEATER02 (*note that the correct model IDs are HEAT01 and HEAT02*) sources are rectangular vents within a building that exhaust heated air out of the building for periods of time when onion bulbs are heated for processing. Based upon CH2M's description it is assumed that the venting does not occur consistently. CH2M's September 8, 2014 response states that,

> "The onion bulbs are stacked in crates near a plenum wall. Heated air is circulated throughout the building area and may or may not exit the building. However, if heated exhaust does exit the building it is released out the side of the building via large rectangle openings."

The primary basis for DEQ agreeing that these sources are in fact volume sources is that CH2M's documentation for the sources does not indicate that there is any fan-assisted exhaust from these vents. DEQ's incompleteness determination letter specifically addressed that these sources must be treated as point sources if a fan was present. DEQ agrees that treatment of these sources as volume sources venting emissions as passively exhausted sources is acceptable for these modeling analyses.

DEQ concluded, after review of the information submitted in the current application and that submitted for issuance of the previous permit, that these sources were modeled with appropriate release parameters for this project.

The current project addresses changes to the release parameters for the following emission points and volume sources from the initial PTC project:

- DRYER4A,
- DRYER4B,
- FARR03,
- FARR04,
- DRYER02, and
- DRYER03.

DRYER4A, DRYER4B, FARR03, and FARR04

Analyses submitted for the initial PTC project indicated that DRYER4A vented through Dust Collector 3 (DC03) and DRYER4B vented through Dust Collector (DC04). That arrangement has been changed for this project. Also, DEQ's comparison of the model setup between Projects 61805 and 61508 shows that DRYER4A and DRYER4B emissions were not included in the initial PTC project's air impact modeling for NO_2, $PM_{2.5}$, and PM_{10}. This deficiency is corrected in the current project. These sources are not located in Building P, as indicated in pervious analyses. They are located in Building L and actually exhaust through common stacks with cartridge filter vents. The first common stack source combination is FARR03 and DRYER4A, and the second common stack combination is FARR04 and DRYER4B.

Based on review of the current project's documentation and modeling inputs, Dust Collectors 3 and 4 (DC03 and DC04) exit temperatures remained unchanged from the analyses supporting the previous permit at 111 degrees Fahrenheit (°F). Dust Collectors 1, 2, and 5 through 8 were modeled at 73°F. DEQ surmises that the 111°F temperature is a carryover from the previous initial facility-wide PTC project, which is not justified with the absence of the heating effects of DRYER4A and DRYER4B on the DC03 and DC04 exhaust streams. Although the value is not acceptably documented and justified in the application, DEQ determined that the potential effect of a 38°F drop in exhaust temperature for the source would be inconsequential to the NAAQS compliance conclusions of the analyses. The 73°F exit temperature is adequately supported in this project for FARR01 through FARR04 and DC01, DC02, and DC05 through DC08 stacks, based on the assumption that air from the conditioned building space is exhausted through the cartridge filters and dust collectors.

The current project modeled the combined FARR03/DRYER4A and FARR04/DRYER4B stacks as four individual stacks rather than a true common stack, following CH2M's reasoning that the Dryers will not always operate concurrently the FARR cartridge filters. Appendix A to the project's modeling protocol contained a photocopy of a portion of seed dryer schematic drawing's detail indicating two identical burners for DRYER4A and three identical burners for DRYER4B. Exit temperatures were based on the drawing detail listing of a 70°F temperature rise, and, when combined with the assumed building interior temperature of 73°F, provided the modeled 143°F exit temperature for both dryers. Volumetric flow rate was listed at 5,700 cubic feet per minute for each unit, providing the basis for the modeled flow rates for the conditioned spaces. DRYER4A, with two burners, would have a calculated flow rate at maximum capacity of 11,400 ACFM, and DRYER4B, with three burners would have a calculated flow rate at maximum capacity of 17,100 ACFM. These values matched the modeled flow rates. DEQ concludes these parameters are adequately supported. FARR03 and FARR04 release parameters were unchanged from the last project, except for changing the release orientation to uninterrupted vertical from horizontal. The flow rate was minimized with a 0.001 meters per second exit velocity and the exit temperature was set at 73°F. Release heights and exit diameters of these sources were directly measured by CH2M and Nunhems staff. DEQ determined that CH2M modeled these sources using release parameters of adequate accuracy to assure compliance with applicable standards. The change in release orientation from horizontal to vertical and uninterrupted is a key factor in assuring compliance with applicable air quality standards.

DRYER2 and DRYER3 (former model IDs were DRYER02 and DRYER03)

Each of these dryers was represented as a single volume source in the initial PTC analyses. Plume buoyancy cannot be considered for volume sources in the AERMOD model, and such a deficiency can result in substantial overestimation of impacts for sources with a high volume of high-temperature exhaust. To more accurately evaluate the model effects of elevated exhaust temperature of these seed dryers, DEQ suggested that CH2M represent these sources in the model as "pseudo point sources," with release parameters established from the physical design of the units.

Each dryer unit consists of a heater unit with a propane-fired burner and a fan system to control airflow. A low temperature rise and controlled airflow are needed to dry seeds. The heated air is delivered to a plenum with regularly-spaced vents. Figures 4 and 5 of the modeling report submitted with the application show the design of DRYER2 and DRYER3. Crates with damp seeds to be dried are placed along the length of a plenum above the vents supplying the heated air. The heated air flows vertically through the trays of seeds in the drying crates and exits at the top of the crate.

DRYER2 and DRYER3 are covered with a roof, requiring that each dryer pseudo point source be modeled as a capped point source. CH2M developed release parameters based on the altered propane burner and fan systems they will install in each dryer. A single representative point source was modeled for each of the multiple vents in each dryer emission unit. All emissions for each dryer emission unit were assumed to be emitted from the single pseudo point source.

Exit temperature from the dryers was assumed to be 100°F. DEQ determined this was a reasonable estimate, given the manufacturer's specification sheet indicates both burners are capable of producing a variable 25°F to 75°F temperature rise to the airflow temperature. The maximum flow rate listed in the specification sheet for each fan unit was used for the total airflow rate. Exit diameter for each of the single pseudo point sources was calculated for a single vent and was based on the equivalent diameter for the rectangular vents. Individual "stack" flow rates were calculated by dividing the maximum rated fan system airflow equally between the total vents that DRYER2 and DRYER3 is equipped with in the heated air supply plenum. Release heights of the pseudo stacks were assumed to be equal to the base of the roof of each structure. The calculations supplied by CH2M are listed in Attachment 2 of this memorandum. DEQ determined that the methods used to generate the pseudo point source release parameters were appropriate for these ambient impact analyses.

DEQ concluded that all release parameters represented in the ambient impact analyses were appropriate.

4.0 Results for Air Impact Analyses

CH2M submitted ambient impact analyses for two separate scenarios. The first scenario assumed unlimited operations on Seed Dryer 2 (model ID DRYER2), Seed Dryer 3 (model ID DRYER3, and Building Q Heater (model ID HEAT01). The second scenario incorporated the requested revisions to the permit allowable operating restrictions for each of these three emission sources. DEQ's review memorandum focuses only on the second scenario, and this limited operations scenario's ambient impacts are presented in the tables below. Results of the uncontrolled scenario clearly show that without some form of restrictions limiting operations on these sources, facility-wide 1-hour NO_2 NAAQS compliance has not been demonstrated.

4.1 Results for Significant Impact Analyses

Table 9 provides results for the 24-hour and annual $PM_{2.5}$, 24-hour PM_{10}, and annual and 1-hour NO_2 significant impacts level analyses (SIL) analyses.

Emissions increases of other criteria pollutants resulting from the proposed project were below applicable DEQ BRC permitting or DEQ modeling thresholds that trigger site-specific impact analyses. Cumulative NAAQS impact analyses were needed for all pollutants modeled in the SIL analyses because the applicable SILs were exceeded.

Table 9. RESULTS FOR SIGNIFICANT IMPACT ANALYSES892				
Pollutant	Averaging Period	Modeled Design Value Concentration (μg/m³)[a]	SIL[b] (μg/m³)	Percent of SIL
$PM_{2.5}$[c]	24-hour	10.66[f]	1.2	888%
	Annual	2.68[g]	0.3	893%
PM_{10}[d]	24-hour	42.25[h]	5.0	845%
NO_2[e]	1-hour	303.41[i]	7.5	4,045%
	Annual	15.10[j]	1.0	1,510%

a. Micrograms per cubic meter.
b. Significant impact level.
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
e. Nitrogen dioxide.
f. Modeled design value is the maximum 5-year mean of highest 24-hour values from each year of a 5-year meteorological dataset.
g. Modeled design value is the maximum 5-year mean of annual average values from each year of a 5-year meteorological dataset.
h. Modeled design value is the maximum of highest 24-hour values from a 5-year meteorological dataset, or the maximum of 24-hour value from five individual years of meteorological data.
i. Modeled design value is the maximum 5-year mean of maximum 1st highest daily 1-hour maximum impacts for each year of a 5-year meteorological dataset. The SIL compliance design value was calculated assuming complete conversion of total NO_x to NO_2.
j. Modeled design value is the maximum annual impact of the individual years of a 5-year meteorological dataset. Complete conversion of NO_x to NO_2 was assumed.

4.2 Results for Cumulative NAAQS Impact Analyses

The results for the cumulative impact analyses are listed in Table 10. Ambient impacts for the facility were below the applicable NAAQS.

Table 10. RESULTS FOR CUMULATIVE IMPACT ANALYSES						
Pollutant	Averaging Period	Modeled Design Value Concentration (μg/m³)[a]	Background Concentration[k] (μg/m³)	Total Ambient Impact (μg/m³)	NAAQS[b] (μg/m³)	Percent of NAAQS
$PM_{2.5}$[c]	24-hour	7.64[f]	19	26.64	35	76%
	Annual	2.68[g]	7.3	9.98	12	83%
PM_{10}[d]	24-hour	36.4[h]	73	109.4	150	73%
NO_2[e]	1-hour	125.40[i]	49	174.4	188	93%
	Annual	13.59[j]	5.6	19.2	100	19%

a. Micrograms per cubic meter.
b. National ambient air quality standards.
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
e. Nitrogen dioxide.
f. Modeled design value is the maximum 5-year mean of 8th highest 24-hour values from each year of a 5-year meteorological dataset.
g. Modeled design value is the maximum 5-year mean of annual average values from each year of a 5-year meteorological dataset.
h. Modeled design value is the maximum 6th highest 24-hour values from a 5-year meteorological dataset. Nunhems used the 4th highest value of five individual years of meteorological data, which is a conservative approach.
i. Modeled design value is the maximum 5-year mean of 8th highest daily 1-hour maximum impacts for each year of a 5-year meteorological dataset. .
j. Modeled design value is the maximum annual impact of the individual years of a 5-year meteorological dataset.

5.0 Conclusions

The ambient air impact analyses demonstrated to DEQ's satisfaction that emissions from the Nunhems facility will not cause or significantly contribute to a violation of any NAAQS.

References

1. Policy on NAAQS Compliance Determination Requirements. Idaho Department of Environmental Quality Policy Memorandum. July 11, 2014.

2. Letter titled "Modeling Protocol Conditional Approval for Allowable Operating Hours for the Dryer Processes Regulated in the Initial Permit to Construct for the Nunhems USA Facility Located Near Parma, Idaho," by Darrin Mehr, Idaho Department of Environmental Quality, October 12, 2016.

3. *State of Idaho Guideline for Performing Air Quality Impact Analyses.* Idaho Department of Environmental Quality. September 2013. State of Idaho DEQ Air Doc. ID AQ-011. Available at http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf.

4. 40 CFR Part 51, Appendix W, titled "Revisions to the Guideline on Air Quality Models: Enhancements to the AERMOD Dispersion Modeling System and Incorporation of Approaches To Address Ozone and Fine Particulate Matter," Final Rule, Federal Register, Volume 82, Number 10, January 17, 2017.

5. Report titled "Ambient Ratio Method Version 2 (ARM2) for use with AERMOD for1-hr NO_2 Modeling Development and Evaluation Report," Prepared for American Petroleum Institute, 1220 L Street NW, Washington, DC 20005, by M. Podrez, RTP Environmental Associates, Inc., 2031 Broadway, Suite 2, Boulder, Colorado 80302, September 20, 2013.

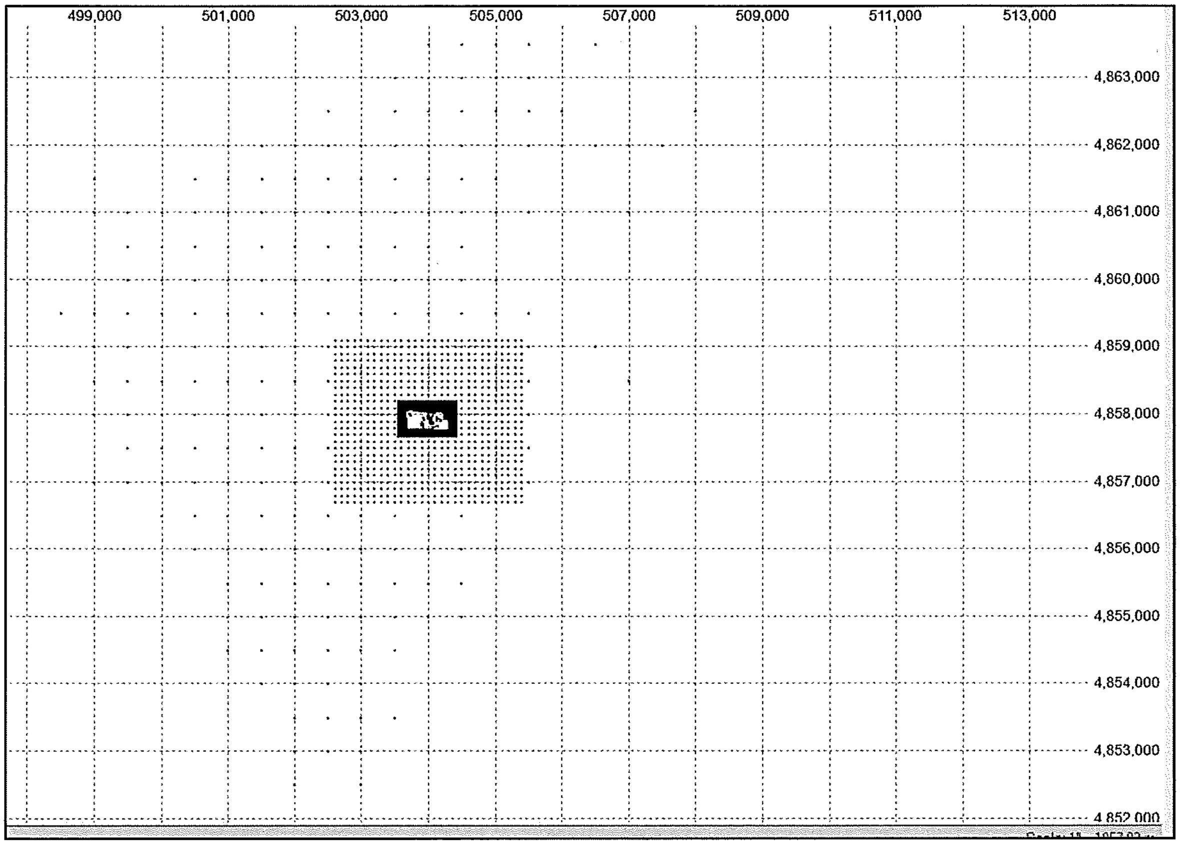
6. Memo titled "Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO_2 National Ambient Air Quality Standard," by R. Chris Owen and Roger Brode, Environmental Protection Agency, September 30, 2014.

Attachment A

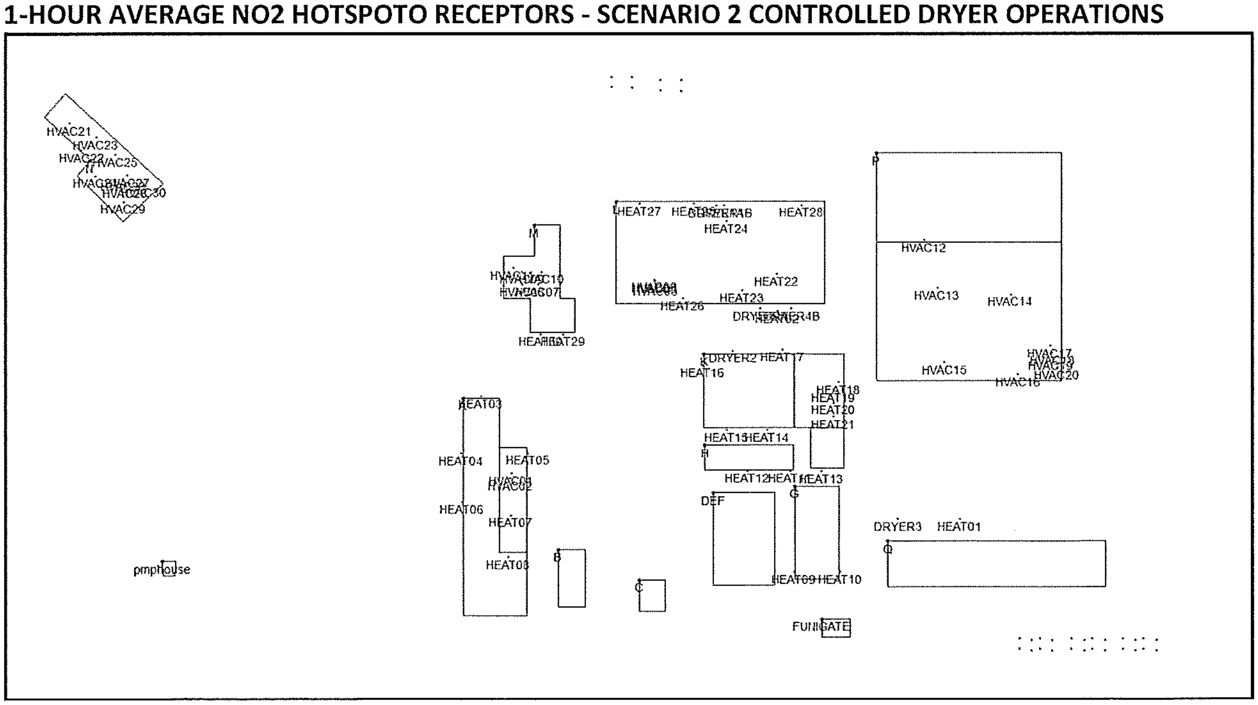
Nunhems USA Project 61805

Graphical Representations of the NAAQS Analyses Receptor Networks

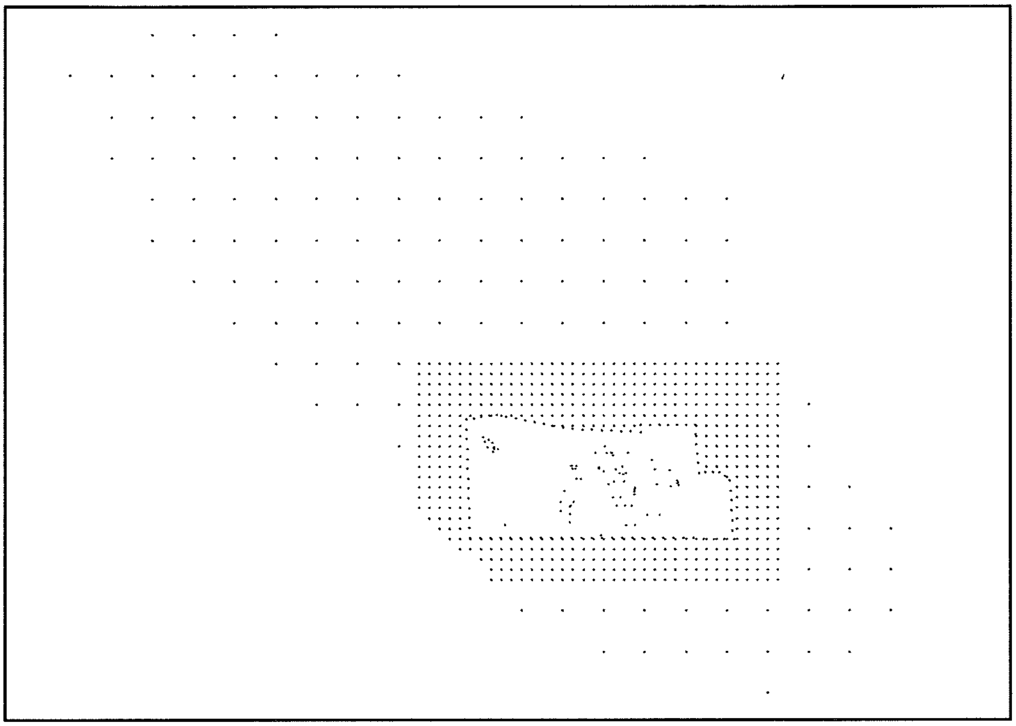
1-HOUR AVERAGE NO2 NAAQS GRID - SCENARIO 2 CONTROLLED DRYER OPERATIONS



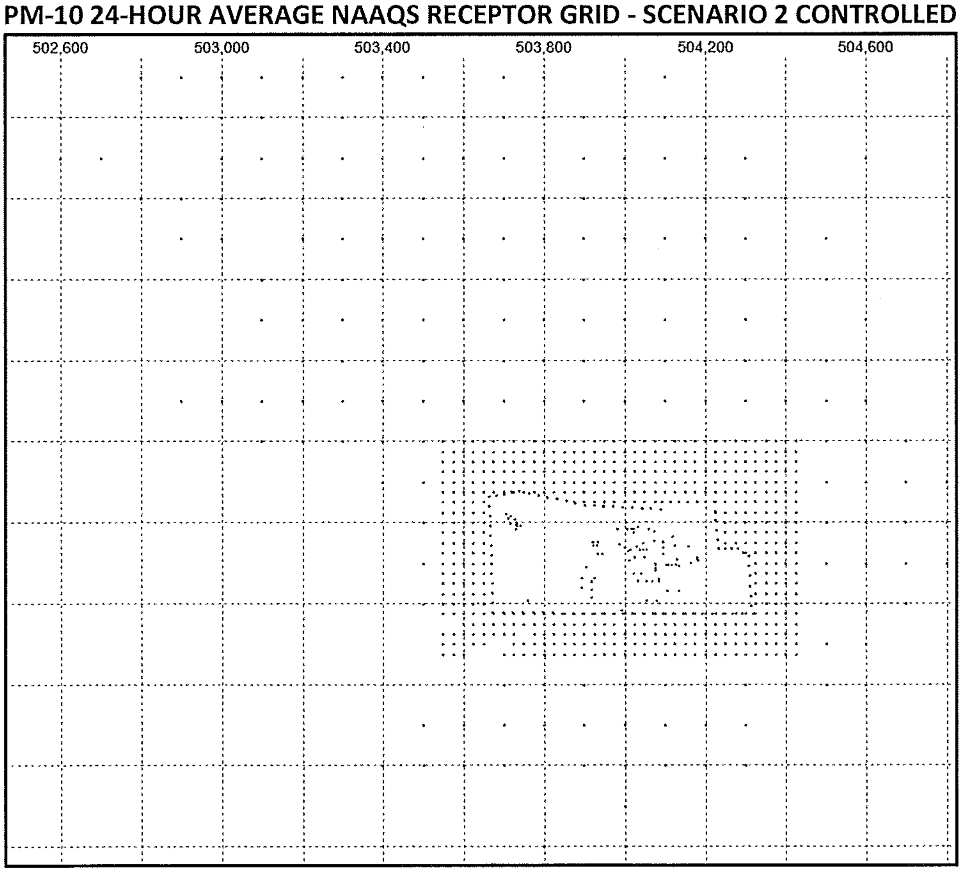
1-HOUR AVERAGE NO2 HOTSPOTO RECEPTORS - SCENARIO 2 CONTROLLED DRYER OPERATIONS



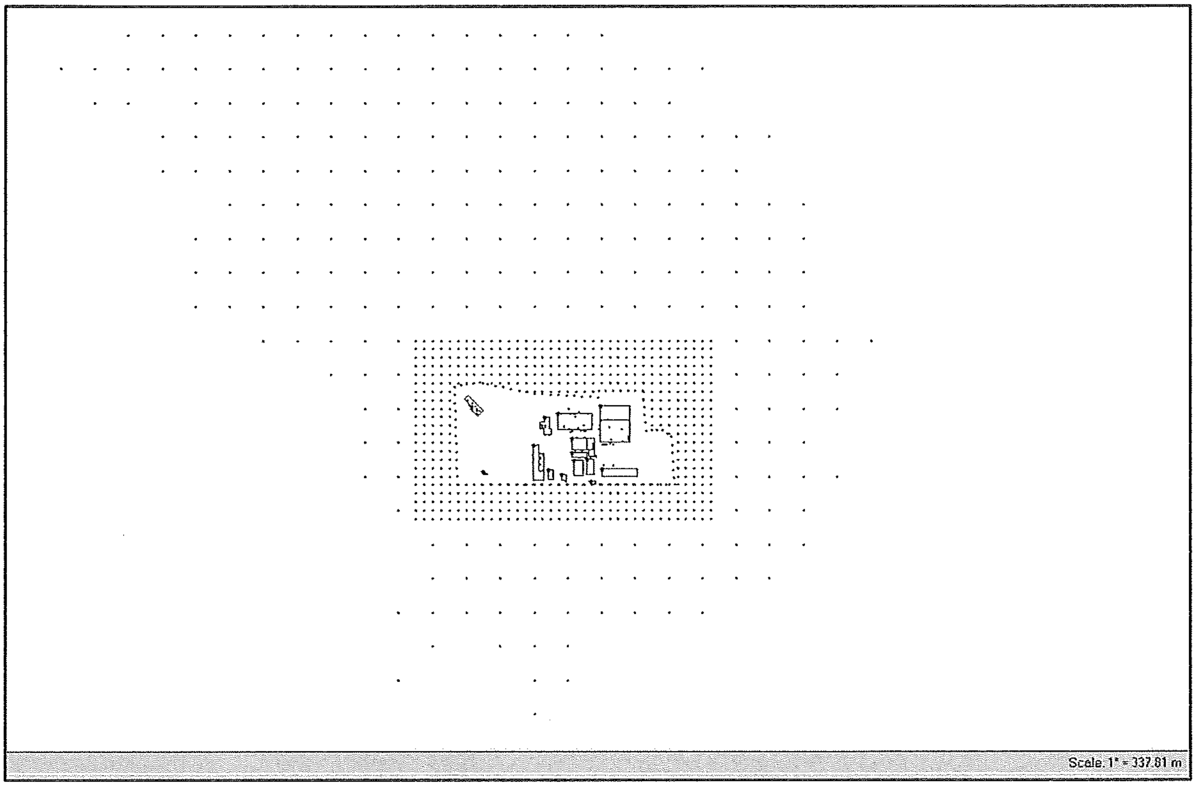
ANNUAL AVG NO2 - RECEPTOR GRID CONTROLLED SCENARIO 2



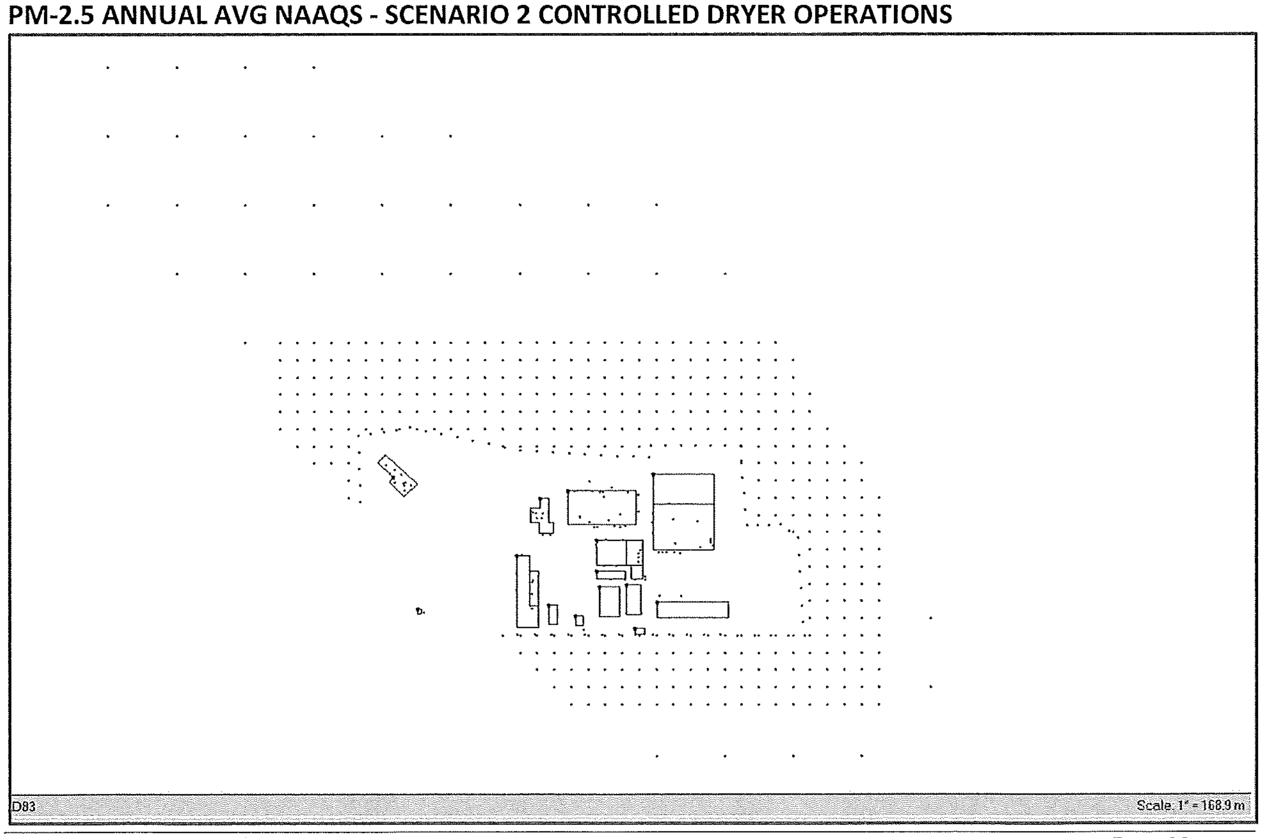
PM-10 24-HOUR AVERAGE NAAQS RECEPTOR GRID - SCENARIO 2 CONTROLLED DRYER OPERATIONS



PM-2.5 24-HOUR AVERAGE NAAQS - SCENARIO 2 CONTROLLED DRYER OPERATIONS



PM-2.5 ANNUAL AVG NAAQS - SCENARIO 2 CONTROLLED DRYER OPERATIONS



Attachment B

Nunhems USA Project 61805

CH2M Calculations – Dryer 2 and Dryer 3 Pseudo Point Source Release Parameters

Taken from the December 7, 2016 Email Submittal:

Nunhems Seed Processing Plans Dryer 2/3 Stack Parameter Calculation Equations

Dryer 2

Specifications

Flow rate = 39,300 cfm

Number of vents = 47

Diameter of vent = 1.1 ft

Calculations

Flow of vent (cfs) = $(39{,}000\ cfm)/(60\ s) = 655\ cfs$

Flow per vent = $(655\ cfs)/(47\ vents) = 13.936\ cfs\ per\ vent$

Area of vent = $\left(\frac{1.1ft}{2}\right)^2 * \pi = .950\ ft^2$

Exhaust velocity of vent = $\frac{13.936\ cfs}{.950 ft^2} = 14.67 \frac{ft}{s} * .3048 \frac{m}{ft} = 4.47 \frac{m}{s}$

Dryer 3

Specifications

Flow rate = 21,750 cfm

Number of vents = 56

Diameter of vent = 1.6 ft

Calculations

Flow of vent (cfs) = $(21{,}750\ cfm)/(60\ s) = 362.5\ cfs$

Flow per vent = $(362.5\ cfs)/(56\ vents) = 6.473\ cfs\ per\ vent$

Area of vent = $(1.6ft/2)^2 * \pi = 2.011\ ft^2$

Exhaust velocity of vent = $\frac{6.473\ cfs}{2.011\ ft^2} = 3.22 \frac{ft}{s} * .3048 \frac{m}{ft} = .981\ m/s$

Taken from Nunhems USA Project 61805 Modeling Report – Attachment A – Dryer Stack Parameter Calculations

Nunhems USA, Inc. | Dryer Stack Properties | 1/12/2017

Parma, ID Facility

Nunhems PTC Mod: Stack Properties for Dryers 2,3, and 4

Dryers 2 and 3 as Pseudo Point Sources

	Dryer 2	Dryer 3	
Horizontal Length (m)	25.3	8.2	estimated from aerial photography
Stack Height (ft)	11.25	9	Stack heights = roof line minus 6 inches (from photos)
Stack Height (m)	3.43	2.74	
Vent lenth (in.)	18	18	field measured
Vent width (in.)	7	8	field measured
Vent area (in.^2)	126	288	area of one vent for Dryer 2 and two parallel vents for Dryer 3
Representative diameter (in)	12.67	19.15	
Representative diameter (ft)	1.1	1.6	
Exit Velocity (m/s)	4.47	0.98	calculated from fan spec sheets, stack diameter, and number of vents
Exit Velocity (ft/s)	14.66	3.22	
Temperature (K)	310.93	310.93	from manufacturer's data
Source Type	RAINCAP	RAINCAP	field-verified
Flow			

APPENDIX C – PROCESSING FEE

PTC Fee Calculation

Instructions:
Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

Company: **Nunhems USA, Inc.**
Address: **1200 Anderson Corner Road**
City: **Parma**
State: **ID**
Zip Code: **83660**
Facility Contact: **Shane Roe**
Title: **Facility and Maintenance Manager**
AIRS No.: **027-00130**

N Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N

Y Did this permit require engineering analysis? Y/N

N Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	0.0	0.0	0.0
SO_2	0.0	0.0	0.0
CO	0.0	0.0	0.0
PM10	0.0	0.0	0.0
VOC	0.0	0.0	0.0
TAPS/HAPS	0.0	0.0	0.0
Total:	0.0	0.0	**0.0**
Fee Due	**$ 1,000.00**		

Comments: