Statement of Basis

Permit to Construct No. P-2008.0050
Project ID 62468

High Desert Milk, Inc.
Burley, Idaho

Facility ID 031-00034

Final

March 1, 2021
Morrie Lewis
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.

TABLE OF CONTENTS

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
ASTM	American Society for Testing and Materials
Btu	British thermal units
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	continuous emission monitoring systems
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
CMS	continuous monitoring systems
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
COMS	continuous opacity monitoring systems
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HP	horsepower
hr/yr	hours per consecutive 12-calendar-month period
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pounds per hour
lb/qtr	pound per quarter
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMHC	nonmethane hydrocarbons
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
O_2	oxygen
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
RICE	reciprocating internal combustion engines
Rules	*Rules for the Control of Air Pollution in Idaho*
scf	standard cubic feet
SCL	significant contribution limits

SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO_2	sulfur dioxide
T/yr	tons per consecutive 12 calendar month period
TAP	toxic air pollutants
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compounds
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

The facility processes up to 5 million pounds of raw milk received by tanker truck per day, producing sweet cream, skim milk, and dried milk products. Milk will be processed in the natural gas-fired dryers to prepare dried milk products. Natural gas combustion products are exhausted through the baghouse stacks for Dryer 1, and are exhausted separately for Dryer 2. For each dryer, particulate emissions are split between two cyclone-and-baghouse sets in series (i.e., two sets per dryer) to recover milk powder products (including MPC70, MP80, and MPI). Emissions are recombined and exhausted in a single stack for Dryer 2, and are exhausted in separate stacks for Dryer 1. Product collected in the cyclones and baghouses is diverted to the fluid bed.

In one production line, the dried solids will be cooled in the fluid bed. Exhaust air from the fluid bed will pass through a baghouse (P102) and then be discharged. The powder from the fluid bed cooler will drop through an airlock, through a rotary sifter, and onto a conveyor for transfer to a storage silo. Exhaust from the silos passes through a baghouse (P103B) and then discharge to the atmosphere.

In a second production line, powder is transferred through one of two sifter accumulation hopper vacuum receivers. Powder from the silos is transported with a vacuum dense phase transport system to one sifter accumulation hopper. The sifter accumulation hopper has two vacuum receivers (small baghouses). Both baghouses vent outside the building through a common 6-inch diameter vent. Only one vacuum receiver is running at a given time (cycle back and forth). Only one bin vent is running at a given time.

The operating receiver delivers powder to one of three powder handling silos. Exhaust from the operating silo passes through a baghouse (POWDSILO) and then discharges to the atmosphere.

Milk powder products stored in the silos are packaged and shipped off-site.

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 3, 2008	Permit to Construct No. P-2008.0050 was issued to replace the boilers and emergency generator engine. (S)
November 7, 2007	Permit to Construct No. P-2007.0100 was issued for a new milk processing facility. (S)

Application Scope

This PTC is for a modification at an existing minor facility. Following this modification, the facility will become a Tier I facility.

The applicant has proposed to:

- Install and operate a new dryer and associated heater, powder handling system, and powder storage silos for a new product line to increase dried milk production.

Application Chronology

June 22, 2020	DEQ received an application.
June 25, 2020	DEQ received an application fee.
June 25 – July 10, 2020	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
July 23, 2020	DEQ determined that the application was incomplete.
September 1, 2020	DEQ received supplemental information from the applicant.

October 1, 2020	DEQ determined that the application was incomplete.
October 12, 2020	DEQ received supplemental information from the applicant.
November 10, 2020	DEQ determined that the application was incomplete.
November 16, 2020	DEQ received supplemental information from the applicant.
December 11, 2020	DEQ determined that the application was complete.
February 2, 2021	DEQ made available the draft permit and statement of basis for peer and regional office review.
February 10, 2021	DEQ made available the draft permit and statement of basis for applicant review.
February 18, 2021	DEQ received the permit processing fee.
February 22-23, 2021	DEQ received comments on the facility draft.
March 1, 2021	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	Control Equipment (Emission Point)
Dryer 1 and associated heater Emissions Unit Name: Skim Milk Dryer (P101) Manufacturer: C/E/Rogers Burner: Maxon Model: Crossfire Low NO_x Line Burner Max Capacity: 32.5 MMBtu/hr Operation: 8,760 hr/yr Fuel: natural gas	Dryer 1 Baghouses (P101A & P101B)
Dryer 2 and associated heater Emissions Unit Name: Skim Milk Dryer (DRYER2) Manufacturer: Relco Burner: Maxon (DRYER2HT) Model: Low NO_x Max Capacity: 26.0 MMBtu/hr Operation: 8,760 hr/yr Fuel: natural gas	Dryer 2 Baghouse (DRYER2) None (DRYER2HT)
Boiler 1 Manufacturer: Superior Boiler Works Model: 4000 Maximum capacity: 33.48 MMBtu/hr Operation: 8,760 hr/yr Fuel: natural gas	None (P104)
Boiler 2 Manufacturer: Superior Boiler Works Model: 4000 Maximum capacity: 33.48 MMBtu/hr Operation: 8,760 hr/yr Fuel: natural gas	None (P105)
Fluid Bed Manufacturer: C/E/Rogers Maximum capacity: 9,000 lb/hr	Fluid Bed Baghouse (P102) Manufacturer: C/E/Rogers Control Efficiency: PM/PM_{10}: 99.93%
Powder Silo 1 Manufacturer: C/E/Rogers	Powder Handling Baghouse (P103B) Manufacturer: C/E/Rogers Control Efficiency: 98.4 % for PM/PM_{10}
Powder Silo 2 Manufacturer: Relco Model: Three, operated one at a time	Powder Silo Baghouse (POWDSILO) Manufacturer: Relco Control Efficiency: 99.0 % or better for

Source	Control Equipment (Emission Point)
	PM/PM_{10}
Hopper Vacuum Receivers	Hopper Vacuum Receiver Baghouses (VACRCV) Manufacturer: Relco Control Efficiency: 99.0 % or better for PM/PM_{10}
Emergency Generator Manufacturer: Cummins Model: QST30-G5 Max Capacity: 1490 HP Displacement: 2.55 liters/cylinder Ignition: compression Fuel: diesel	None

Emissions Inventories

Potential to Emit

IDAPA 58.01.01 defines Potential to Emit (PTE) 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 did not count in determining the PTE of a facility or stationary source.

Using this definition of PTE, an emissions inventory was developed for the new dryer and associated heater, powder handling system, and powder storage silos. Emissions were estimated based on performance testing (Dryer 1 and associated heater) and manufacturer's emissions data and control device performance guarantees (Dryer 2 and associated heater, and baghouse control devices) when available or EPA's AP-42[1]; the continuous use of dryer, fluid bed, powder silo, hopper vacuum receiver baghouse control equipment to reduce emissions; and continuous operation of emissions units at maximum fuel input capacity with the exception of only 100 hours of annual operation for the emergency generator engine for the purposes of maintenance checks and readiness testing (there is no time limit on use in emergency situations).

The emissions inventories of criteria pollutant, HAP, and TAP provided in the PTC application and summarized below were reviewed by DEQ and appear to accurately reflect the potential emissions from the facility.

Pre-Project Potential to Emit

The following table presents the pre-project PTE used to establish the change in emissions at a facility as a result of this project.

Table 2 PRE-PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_x		CO		VOC		Pb	
	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/qtr[(c)]	T/yr[(b)]
Dryer 1	10.56	46.22	0.02	0.08	1.46	6.42	11.90	52.20	0.18	0.76	0.01	2E-05
Fluid Bed	1.08	4.73										
Powder Silo 1	0.12	0.50										
Boiler 1	0.25	1.10	0.02	0.09	3.35	14.67	2.81	12.31	0.18	0.79	0.04	8E-05
Boiler 2	0.25	1.10	0.02	0.09	3.35	14.67	2.81	12.31	0.18	0.79	0.04	8E-05
Emergency Generator	0.36	0.09	0.33	0.08	13.30	3.33	1.90	0.48	0.94	0.05	0.00	0.00
Pre-Project Totals	**12.62**	**53.74**	**0.39**	**0.34**	**21.46**	**39.09**	**19.42**	**77.30**	**1.48**	**2.39**	**0.09**	**2E-04**

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.
c) Controlled average emission rate in pounds per quarter is a quarterly average, based on the proposed annual operating schedule and annual limits.

[1] Compilation of Air Pollutant Emission Factors, AP-42, Volume I, Fifth Edition (AP-42), 1.4 –Natural Gas Combustion, 3.4 – Large Stationary Diesel and All Stationary Dual-Fuel Engines, Office of Air Quality Planning and Standards Office of Air and Radiation (OAQPS), EPA, updated as of August 2011.

Post-Project Potential to Emit

The following table presents the post-project PTE 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 PTE includes all permit limits resulting from this project.

Table 3 POST-PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM/PM_{10}/PM_{2.5}$		SO_2		NO_x		CO		VOC		Pb	
	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/qtr[(c)]	T/yr[(b)]
Dryer 1	4.60	20.15	0.02	0.08	1.46	6.42	11.90	52.20	0.18	0.76	0.01	2E-05
Fluid Bed	1.08	4.73										
Powder Silo 1	0.12	0.50										
Boiler 1	0.25	1.10	0.02	0.09	3.35	14.67	2.81	12.31	0.18	0.79	0.04	8E-05
Boiler 2	0.25	1.10	0.02	0.09	3.35	14.67	2.81	12.31	0.18	0.79	0.04	8E-05
Emergency Generator	0.36	0.09	0.33	0.08	13.30	3.33	1.90	0.48	0.94	0.05	0.00	0.00
Dryer 2	8.82	38.63										
Dryer 2 Heater	0.20	0.87	0.02	0.07	1.57	6.88	20.98	91.89	0.14	0.63	0.03	6E-05
Powder Silo 2	0.0036	0.016										
Hopper Vacuum Receiver	0.0036	0.016										
Post-Project Totals	**15.69**	**67.20**	**0.41**	**0.41**	**23.03**	**45.97**	**40.40**	**169.19**	**1.62**	**3.02**	**0.12**	**2E-04**

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.
c) Controlled average emission rate in pounds per quarter is a quarterly average, based on the proposed annual operating schedule and annual limits.
d) The emission rate for SO_x from the emergency generator was calculated using an emission factor from AP-42 chapter 3.4 "Large Stationary Diesel and All Stationary Dual-Fuel Engines" assuming a fuel sulfur content of 500 ppm (0.05%). Emission rates for all other criteria pollutants are based on manufacturer's specifications for QST30-G5 Nonroad 2 engine with nameplate rating of 1490 HP. Emergency generator ton/yr values estimated based on 500 hours of operation.

Change in Potential to Emit

The following table presents the facility-wide change in PTE for criteria pollutants. 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.

Table 4 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM/PM_{10}/PM_{2.5}$		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	12.62	53.74	0.39	0.34	21.46	39.09	19.42	77.30	1.48	2.39
Post-Project Potential to Emit	15.69	67.20	0.41	0.41	23.03	45.97	40.40	169.19	1.62	3.02
Changes in Potential to Emit	**3.07**	**13.46**	**0.02**	**0.07**	**1.57**	**6.88**	**20.98**	**91.89**	**0.14**	**0.63**

TAP Emissions

Table 5 presents the facility-wide change in PTE (emissions increase) for non-carcinogenic TAP. Emissions increases did not exceed any 24-hour average non-carcinogenic screening emission level (EL) identified in IDAPA 58.01.01.585 as a result of this project.

Table 6 presents the facility-wide change in PTE (emissions increase) for carcinogenic TAP. Emissions increases of arsenic, cadmium, formaldehyde, and nickel exceeded annual average carcinogenic EL identified in IDAPA 58.01.01.586 as a result of this project and modeling was required.

Table 5 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR NON-CARCINOGENIC TOXIC AIR POLLUTANTS

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Chromium	1.4E-04	1.74E-04	3.64E-05	3.30E-02	No
Cobalt	8.3E-06	1.05E-05	2.18E-06	3.30E-03	No
Copper	8.4E-05	1.06E-04	2.21E-05	6.70E-02	No
Dichlorobenzene	2.0E-04	2.28E-04	3.12E-05	2.00E+01	No
Hexane	3.0E-01	3.42E-01	4.68E-02	1.20E+01	No
Manganese	4.2E-04	4.27E-04	9.88E-06	6.70E-02	No
Mercury	4.3E-05	4.94E-05	6.76E-06	3.00E-03	No
Naphthalene	6.0E-05	7.59E-05	1.59E-05	3.33E+00	No
Pentane	2.6E-01	3.24E-01	6.76E-02	1.18E+02	No
Phenanathrene	1.7E-06	2.12E-06	4.42E-07	9.1E-05	No
Pyrene	4.9E-07	6.22E-07	1.30E-07	9.1E-05	No
Selenium	2.4E-06	2.99E-06	6.24E-07	1.30E-02	No
Toluene	3.3E-04	4.23E-04	8.84E-05	2.50E+01	No
Vanadium, as V_2O_5	2.3E-04	2.86E-04	5.98E-05	3.00E-03	No
Zinc oxide	2.9E-03	3.61E-03	7.54E-04	6.67E-01	No

Table 6 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR CARCINOGENIC TOXIC AIR POLLUTANTS

Carcinogenic Toxic Air Pollutants	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
2-Methylnaphthalene	2.4E-06	3.0E-06	6.2E-07	9.1E-05	No
3-Methylchloranthene	5.1E-06	5.1E-06	4.7E-08	2.5E-06	No
Acenaphthene	1.8E-07	2.2E-07	4.7E-08	2.5E-06	No
Acenaphthene	1.8E-07	2.2E-07	4.7E-08	9.1E-05	No
Acenaphthylene	1.8E-07	2.2E-07	4.7E-08	9.1E-05	No
Anthracene	2.2E-07	2.8E-07	6.2E-08	9.1E-05	No
Arsenic	2.0E-05	2.5E-05	5.2E-06	1.5E-06	Yes
Benzene	2.1E-04	2.6E-04	5.5E-05	8.0E-04	No
Benzo(a)pyrene	1.2E-07	1.5E-07	3.1E-08	2.0E-06	No
Benzo(g,h,i)perylene	1.2E-07	1.5E-07	3.1E-08	9.1E-05	No
Beryllium	1.2E-06	1.5E-06	3.1E-07	2.8E-05	No
Cadmium	1.1E-04	1.4E-04	2.9E-05	3.7E-06	Yes
Fluoranthene	3.0E-07	3.7E-07	7.8E-08	9.1E-05	No
Fluorene	2.8E-07	3.5E-07	7.3E-08	9.1E-05	No
Formaldehyde	7.4E-03	9.3E-03	2.0E-03	5.1E-04	Yes
Naphthalene	6.0E-05	7.6E-05	1.6E-05	9.1E-05	No
Nickel	2.1E-04	2.6E-04	5.5E-05	2.7E-05	Yes
PAH (max) [a]	6.7E-05	8.5E-05	1.8E-05	9.1E-05	No
Polycyclic Organic Matter 7-PAH [b]	1.1E-06	1.4E-06	3.0E-07	2.0E-06	No

a) Polycyclic aromatic hydrocarbon (PAH). Value is the maximum potential emission rate of all PAH emitted.
b) Polycyclic Organic Matter (POM) is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. The total is compared to benzo(a)pyrene.

Post-Project HAP Emissions

The following table presents the facility-wide change in PTE for HAP.

Table 7 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY

Hazardous Air Pollutants	PTE (T/yr)
2-Methylnaphthalene	1.3E-05
3-Methylchloranthrene	9.8E-07
Acenaphthene	4.6E-07
Acenaphthylene	9.8E-07
Anthracene	1.3E-06
Arsenic	9.7E-05
Barium	2.1E-03
Benzene	1.1E-03
Benzo(a)anthracene	9.8E-07
Benzo(a)pyrene	6.5E-07
Benzo(b)fluoranthene	9.8E-07
Benzo(g,h,i)perylene	6.5E-07
Benzo(k)fluoranthene	9.8E-07
Beryllium	5.8E-06
Cadmium	5.3E-04
Chromium	6.8E-04
Cobalt	4.1E-05
Dibenzo(a,h)anthracene	6.5E-07
Dichlorobenzene	6.5E-04
Fluoranthene	1.6E-06
Fluorene	1.5E-06
Formaldehyde	4.1E-02
Hexane	9.8E-01
Indeno(1,2,3-cd)pyrene	9.8E-07
Lead Compounds	2.2E-04
Manganese	1.8E-04
Mercury Compounds	1.3E-04
Naphthalene	3.3E-04
Nickel	1.0E-03
Phenanthrene	9.3E-06
Pyrene	2.7E-06
Polycyclic Organic Matter	6.2E-06
Selenium	1.2E-05
Toluene	1.9E-03
Maximum Single HAP	***0.98***
Total	***1.03***

Ambient Air Quality Impact Analyses

The estimated emission rates of $PM_{2.5}$, PM_{10}, NO_x, CO, and carcinogenic TAP from this project exceeded applicable screening emission levels (EL) established in IDAPA 58.01.01.585-586 and published DEQ modeling thresholds in the State of Idaho Air Quality Modeling Guideline[2]. Refer to the Emissions Inventories section for additional information concerning the emission inventories.

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).

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 (Appendix B).

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Bingham 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 HAP (Hazardous Air Pollutants) Only:

A = Use when any one HAP has permitted emissions > 10 T/yr or if the aggregate of all HAPS (Total HAPs) has permitted emissions > 25 T/yr.

SM80 = Use if a synthetic minor (uncontrolled HAPs emissions are > 10 T/yr or if the aggregate of all uncontrolled HAPs (Total HAPs) emissions are > 25 T/yr and permitted emissions fall below applicable major source thresholds) and the permit sets limits > 8 T/yr of a single HAP or ≥ 20 T/yr of Total HAPs.

SM = Use if a synthetic minor (uncontrolled HAPs emissions are > 10 T/yr or if the aggregate of all uncontrolled HAPs (Total HAPs) emissions are > 25 T/yr and permitted emissions fall below applicable major source thresholds) and the permit sets limits < 8 T/yr of a single HAP and/or < 20 T/yr of Total HAPs.

B = Use when the potential to emit (i.e. uncontrolled emissions and permitted emissions) are below the 10 and 25 T/yr HAP major source thresholds.

UNK = Class is unknown.

[2] Criteria pollutant thresholds in Table 2, State of Idaho Guideline for Performing Air Quality Impact Analyses, Doc ID AQ-011, September 2013.

For All Other Pollutants:

A = Use when permitted emissions of a pollutant are > 100 T/yr.

SM80 = Use if a synthetic minor for the applicable pollutant (uncontrolled emissions are > 100 T/yr and permitted emissions fall below 100 T/yr) and permitted emissions of the pollutant are ≥ 80 T/yr.

SM = Use if a synthetic minor for the applicable pollutant (uncontrolled emissions are > 100 T/yr and permitted emissions fall below 100 T/yr) and permitted emissions of the pollutant are < 80 T/yr.

B = Use when the potential to emit (i.e. uncontrolled emissions and permitted emissions) are below the 100 T/yr major source threshold.

UNK = Class is unknown.

Table 8 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	83.69	67.20	**100**	B
PM_{10}	83.69	67.20	**100**	B
$PM_{2.5}$	83.69	67.20	**100**	B
SO_2	1.77	0.41	**100**	B
NO_x	79.57	45.97	**100**	B
CO	177.03	169.19	**100**	A
VOC	3.02	3.02	**100**	B
HAP (single)	0.98	0.98	**10**	B
Total HAPs	1.03	1.03	**25**	B

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201..... Permit to Construct Required

The permittee has requested that a PTC be issued to the facility for the new dryer and associated heater, powder handling system, and powder storage silos. 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.

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 will have a potential to emit greater than 100 tons per year for CO as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, this facility is classified as a major facility, as defined in IDAPA 58.01.01.008.10. Therefore, in accordance with IDAPA 58.01.01.313.01.b, the permittee must submit a complete application to DEQ for an initial Tier I operating permit within 12 months of becoming a Tier I source or commencing operation. This requirement is assured by Permit Condition 1.5–1.6.

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. 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)

The permittee has affected sources subject to New Source Performance Standards (NSPS). Although regulatory applicability analyses are summarized below, detailed analyses and explicit incorporation of applicable requirements are left to the required Tier I permit action as discussed in the Title V Classification section.

- Standards of Performance for New Stationary Sources (NSPS) 40 CFR 60, Subpart A – General Provisions. DEQ is delegated this Subpart.
- NSPS 40 CFR 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Each boiler is an affected source (Boiler 1 and Boiler 2).
- NSPS 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. DEQ is delegated this Subpart. The compression ignition internal combustion engine (CI ICE) is an affected source (emergency generator).

NESHAP Applicability (40 CFR 61)

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

MACT/GACT Applicability (40 CFR 63)

The facility has proposed to operate as a minor source of hazardous air pollutant (HAP) emissions, and has affected sources subject to National Emission Standards for Hazardous Air Pollutants (NESHAP). Although regulatory applicability analyses are summarized below, detailed analyses and explicit incorporation of applicable requirements are left to the required Tier I permit action as discussed in the Title V Classification section.

- National Emission Standards for Hazardous Air Pollutants for Source Categories (NESHAP) 40 CFR 63, Subpart A – General Provisions. DEQ is delegated this Subpart for Tier I sources.
- NESHAP 40 CFR 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE). DEQ is delegated this Subpart. The reciprocating internal combustion engine (RICE) is an affected source (emergency generator).

Permit Conditions Review

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

Revised Permit Conditions 1.4, 2.1, 2.2, 3.1, 3.2, 4.2, and 4.3

These permit conditions were updated to include process and control equipment for the proposed production line including a new dryer and associated heater, powder handling system, and powder storage silos. Manufacturer and model information were also included for Boiler 1, Boiler 2, and the emergency generator. The existing baghouse stack P103A was also removed as requested.

Added Permit Conditions 1.5–1.6

These permit conditions were added based on re-classification of the facility as a Tier I source following construction of the Dryer 2 heater. Notification of commencement of operation of the Tier I source and application for a Tier I operating permit are required.

Added Permit Condition 1.7

This permit condition was added based on re-classification of the facility as a Tier I source. Applicable federal NSPS and NESHAP requirements will be explicitly incorporated in the required Tier I operating permit.

Revised Permit Condition 2.3

Dryer emissions limits were updated based on the new and revised emissions estimates and modeling analyses relied upon in this project for the existing and proposed production lines.

Added Permit Condition 2.4

Weight-based PM emissions limits applicable to the existing and proposed production lines were incorporated in accordance with IDAPA 58.01.01.700-703.

Revised Permit Conditions 2.5 and 4.3

Opacity limits applicable to the process dryers, fluid bed, and powder handling were updated to encompass equipment from both the existing and proposed production lines.

Added Permit Condition 2.6

Fuel specifications were included based on the dryer heater fuel assumed in emissions estimates and modeling analyses relied upon in this project for the existing and proposed production lines.

Revised Permit Conditions 2.7 and 4.5

Minimum requirements and the deadline to update the O&M manual to include baghouses were updated for the proposed production line. Minimum requirements for the existing production line baghouses were also updated for consistency.

Revised Permit Conditions 2.8 and 2.10

Baghouse monitoring requirements were updated to encompass equipment from both the existing and proposed production lines.

Revised Permit Conditions 2.9 and 2.11

Throughput monitoring requirements were updated to encompass equipment from both the existing and proposed production lines and to more accurately reflect actual throughput to the dryers.

Revised Permit Conditions 2.12 – 2.14

Testing requirements were updated based on the emissions estimates and modeling analyses relied upon in this project for the existing and proposed production lines. It was recognized that facility-wide “reports and certifications” requirements will be established in the required Tier I operating permit and as such were removed to avoid duplication.

Revised Permit Conditions 3.3 and 3.6

Boiler emissions limits were updated based on the new and revised emissions estimates and modeling analyses relied upon in this project for the existing boilers. Because the updated emissions estimates were based on maximum fuel input capacity to both boilers, fuel usage limits and associated monitoring were removed from the permit.

Added Permit Condition 3.7

Boiler stack height requirements were included. For consistency with the modeling analyses relied upon in this project, each stack will need to be raised to 65 feet above ground level the existing boilers.

Removed the unit-specific opacity limits from the boilers and emergency generator sections of the permit (from Sections 3 and 5). These limits remain applicable in accordance with IDAPA 58.01.01.625 and will be incorporated as facility-wide "visible emissions" permit conditions in the required Tier I operating permit.

Removed the unit-specific fuel-burning equipment PM limit from the boilers section of the permit (from Section 3). This limit remains applicable in accordance with IDAPA 58.01.01.676 and will be incorporated as the facility-wide "Fuel-Burning Equipment" permit condition in the required Tier I operating permit.

Revised Permit Condition 5.3 and removed permit conditions with explicit NSPS and NESHAP requirements for the boilers and emergency generator (from Sections 3 and 5). Applicable federal NSPS and NESHAP requirements will be incorporated in the required Tier I operating permit.

Removed the unit-specific sulfur content limit from the emergency generator section of the permit (from Section 5). This limit remains applicable in accordance with IDAPA 58.01.01.728 and will be incorporated as facility-wide "sulfur content" permit conditions in the required Tier I operating permit.

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. During this time, 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

Tables 4-2a to 4-2c Facility-Wide NSR Restricted Criteria Regulated Pollutant Emissions
High Desert Milk, Burley, Idaho

Table 4-2a: Pre-Project Potential to Emit (based on IDEQ PTC Application Records[1,2,3,4])

Emissions Unit	$PM_{2.5}$	$PM_{2.5}$	PM_{10}	PM_{10}	SO_2	SO_2	NOx	NOx	NO_2[9]	NO_2[9]	CO	CO	VOC	VOC	Lead
	lbs./hr.	tons/yr	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./quarter
Milk Dryer[5]	10.56	46.22	10.56	46.22	0.02	0.08	1.46	6.42	0.73	3.21	11.90	52.20	0.18	0.76	0.01
Fluid Bed	1.08	4.73	1.08	4.73	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00	0.00
Powder Storage	0.12	0.50	0.12	0.50	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00	0.00
Bolier No. 1	0.25	1.10	0.25	1.10	0.02	0.09	3.30	14.67	1.65	7.34	2.81	12.31	0.18	0.79	0.04
Boiler No. 2	0.25	1.10	0.25	1.10	0.02	0.09	3.30	14.67	1.65	7.34	2.81	12.31	0.18	0.79	0.04
Emergency Generator	0.36	0.09	0.36	0.09	0.33	0.08	13.30	3.33			1.90	0.48	0.00	0.00	0.00
Milk Dryer 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00	0.00
Milk Dryer 2 Heater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00	0.00
Powder Silo Baghouse	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00	0.00
Hopper Vacuum Receiver	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00	0.00
Total =		**53.74**		**53.74**		**0.34**		**39.09**		**17.88**		**77.30**		**2.34**	**0.09**

Table 4-2b: Post-Project Potential to Emit (based on requested permit conditions)

Emissions Unit	$PM_{2.5}$	$PM_{2.5}$	PM_{10}	PM_{10}	SO_2	SO_2	NO_x[8]	NO_x[8]	NO_2[8]	NO_2[8]	CO	CO	VOC	VOC	Lead
	lbs./hr.	tons/yr	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./quarter
Milk Dryer[6, 10]	4.60	20.15	4.60	20.15	0.02	0.08	1.46	6.42	0.73	3.21	11.90	52.20	0.18	0.76	0.01
Fluid Bed	1.08	4.73	1.08	4.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Powder Storage	0.12	0.50	0.12	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bolier No. 1	0.25	1.10	0.25	1.10	0.02	0.09	3.30	14.67	1.65	7.34	2.81	12.31	0.18	0.79	0.04
Boiler No. 2	0.25	1.10	0.25	1.10	0.02	0.09	3.30	14.67	1.65	7.34	2.81	12.31	0.18	0.79	0.04
Emergency Generator	0.36	0.09	0.36	0.09	0.33	0.08	13.30	3.33	0.00	0.00	1.90	0.48	0.00	0.00	0.00
Milk Dryer 2[11]	8.82	38.63	8.82	38.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Milk Dryer 2 Heater	0.20	0.87	0.20	0.87	0.02	0.07	1.57	6.88	0.79	3.44	20.98	91.89	0.14	0.63	0.03
Powder Silo Baghouse	0.0036	0.016	0.0036	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hopper Vacuum Receiver	0.0036	0.016	0.0036	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total =	**15.68**	**67.20**	**15.68**	**67.20**		**0.41**		**45.97**		**21.32**		**169.19**		**2.97**	**0.12**

Table 4-2c: Changes in Potential to Emit

Emissions Unit	$PM_{2.5}$	$PM_{2.5}$	PM_{10}	PM_{10}	SO_2	SO_2	NO_x[8]	NO_x[8]	NO_2[8]	NO_2[8]	CO	CO	VOC	VOC	Lead
	lbs./hr.	tons/yr	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./quarter
Milk Dryer	-5.96	-26.07	-5.96	-26.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fluid Bed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Powder Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bolier No. 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Boiler No. 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emergency Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Milk Dryer 2	8.82	38.63	8.82	38.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Milk Dryer 2 Heater	0.20	0.87	0.20	0.87	0.02	0.07	1.57	6.88	0.79	3.44	20.98	91.89	0.14	0.63	0.03
Powder Silo Baghouse	0.0036	0.016	0.0036	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hopper Vacuum Receiver	0.0036	0.016	0.0036	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total =	**3.06**	**13.46**	**3.06**	**13.46**		**0.07**		**6.88**		**3.44**		**91.89**		**0.63**	

Total Increase $PM_{10}+SO_2+NO_2+CO+Lead$ (tons/yr.) 109.48

Total Facility-Wide $PM_{10}+SO_2+NO_2+CO+VOC+Lead$ (tons/yr.) 261.08

Highest Pollutant CO (tons/yr.) 169.19

Notes:

[1] IDEQ, Air Quality Permit Statement of Basis, Permit to Construct No. 2008.0050, Final, High Desert Milk, Inc., High Desert Milk Plant, Burley, Idaho, Facility ID No. 031-0034, June 3, 2008.

[2] Millenium Science and Engineering, Pre-Permit Constuction Approval and Permit to Construct Application, High Desert Milk, Inc., Milk Processing Plant, Burley, Idaho, June 18, 2007.

[3] Letter Correspondence from Karl Nelson, High Desert Milk, to Johnathan Petit, IDEQ, Re: Supplemental Information for Application for Permit to Construct, High Desert Milk Inc., Milk Processing Plant, 1033 Idaho Avenue, Burley, Idaho, August 7, 2007.

[4] Letter Correspondence from Troy Reicke, Millenium Science and Engineering, to Karl Nelson, High Desert Milk, Re: Application to Ammend Permit to Construct P-2007.0100, Issue Date 11/07/07, High Desert Milk Inc., Milk Processing Plant, 1033 Idaho Avenue, Burley, Idaho, March 21, 2008.

[5] Existing Milk Dryer1 with existing 92% control efficiency filter.

[6] Existing Milk Dryer1 with higher efficiency 99.99% filter, 99% applied.

[7] Milk Dryer 2 Heater CO_2e proposed increase.

Table 4-5 Facility-Wide Hazardous Air Pollutant Emission Summary
High Desert Milk, Burley, Idaho

Hazardous Air Polllutant	CAS Number	Pre-Project Emissions	Post-Project HAP Emissions	Emission Increase
		tons/year	tons/year	tons/year
2-Methylnaphthalene	91-57-6	1.0E-05	1.3E-05	2.7E-06
3-Methylchloranthrene	56-49-5	7.8E-07	9.8E-07	2.0E-07
Acenaphthene	83-32-9	2.6E-07	4.6E-07	2.0E-07
Acenaphthylene	208-96-8	7.8E-07	9.8E-07	2.0E-07
Anthracene	120-12-7	1.0E-06	1.3E-06	2.7E-07
Arsenic	7440-38-2	7.3E-05	9.7E-05	2.4E-05
Barium	7440-39-3	1.6E-03	2.1E-03	5.3E-04
Benzene	71-43-2	9.1E-04	1.1E-03	2.4E-04
Benzo(a)anthracene	56-55-3	7.8E-07	9.8E-07	2.0E-07
Benzo(a)pyrene	50-32-8	5.2E-07	6.5E-07	1.4E-07
Benzo(b)fluoranthene	205-99-2	7.8E-07	9.8E-07	2.0E-07
Benzo(g,h,i)perylene	191-24-2	5.2E-07	6.5E-07	1.4E-07
Benzo(k)fluoranthene	207-08-9	7.8E-07	9.8E-07	2.0E-07
Beryllium	7440-41-7	4.4E-06	5.8E-06	1.5E-06
Cadmium	7440-43-9	4.0E-04	5.3E-04	1.3E-04
Chromium	7440-47-3	5.1E-04	6.8E-04	1.7E-04
Cobalt	7440-48-4	3.1E-05	4.1E-05	1.0E-05
Dibenzo(a,h)anthracene	53-73-3	5.2E-07	6.5E-07	1.4E-07
Dichlorobenzene	25321-22-6	5.2E-04	6.5E-04	1.4E-04
Fluoranthene	206-44-0	1.3E-06	1.6E-06	3.4E-07
Fluorene	86-73-7	1.2E-06	1.5E-06	3.2E-07
Formaldehyde	50-00-0	3.2E-02	4.1E-02	8.5E-03
Hexane	110-54-3	7.8E-01	9.8E-01	2.0E-01
Indeno(1,2,3-cd)pyrene	193-39-5	7.8E-07	9.8E-07	2.0E-07
Lead Compounds	7439-92-1	2.2E-04	2.2E-04	0.0E+00
Manganese	7439-96-5	1.4E-04	1.8E-04	4.6E-05
Mercury Compounds	7439-97-6	9.5E-05	1.3E-04	3.2E-05
Naphthalene	91-20-3	2.6E-04	3.3E-04	6.9E-05
Nickel	7440-02-0	7.7E-04	1.0E-03	2.6E-04
Phenanthrene	85-01-8	7.3E-06	9.3E-06	1.9E-06
Pyrene	1290-00-0	2.2E-06	2.7E-06	5.7E-07
Polycyclic Organic Matter	NA	4.9E-06	6.2E-06	1.3E-06
Selenium	7782-49-2	8.7E-06	1.2E-05	2.9E-06
Toluene	108-88-3	1.5E-03	1.9E-03	3.9E-04
Total		8.2E-01	1.0E+00	2.2E-01
		Maximum HAP Emission Hexane (tons/yr.)	9.8E-01	

TORF Environmental Management

Table 4-4 Facility Wide TAP Pollutant Emissions Increase
High Desert Milk, Burley, Idaho

Non-Carcinogenic Toxic Air Pollutant (24 hr Average)	Restricted Controlled Hourly		Controlled Emission Change (lb/hr)	Screening Emission Level (lb/hr)	Controlled Emission Exceeds TAP-EL?	
	Pre-Project (lb/hr)	Post Project (lb/hr)				
Chromium	1.4E-04	1.74E-04	3.64E-05	3.30E-02	No	0.1%
Cobalt	8.3E-06	1.05E-05	2.18E-06	3.30E-03	No	0.1%
Copper	8.4E-05	1.06E-04	2.21E-05	6.70E-02	No	0.0%
Dichlorobenezene	2.0E-04	2.28E-04	3.12E-05	2.00E+01	No	0.0%
hexane	3.0E-01	3.42E-01	4.68E-02	1.20E+01	No	0.4%
Manganese	4.2E-04	4.27E-04	9.88E-06	6.70E-02	No	0.0%
Mercury	4.3E-05	4.94E-05	6.76E-06	3.00E-03	No	0.2%
Naphthalene	6.0E-05	7.59E-05	1.59E-05	3.33E+00	No	0.0%
pentane	2.6E-01	3.24E-01	6.76E-02	1.18E+02	No	0.1%
phenanathrene	1.7E-06	2.12E-06	4.42E-07	9.1E-05	No	0.5%
pyrene	4.9E-07	6.22E-07	1.30E-07	9.1E-05	No	0%
selenium	2.4E-06	2.99E-06	6.24E-07	1.30E-02	No	0%
toluene	3.3E-04	4.23E-04	8.84E-05	2.50E+01	No	0%
vanadium, as V2O5	2.3E-04	2.86E-04	5.98E-05	3.00E-03	No	2%
zinc oxide	2.9E-03	3.61E-03	7.54E-04	6.67E-01	No	0%
Carcinogenic Toxic Air Pollutant (Annual Average)	**Restricted Controlled Hourly**		**Emission Change (lb/hr)**	**Screening Emission Level (lb/hr)**	**Controlled Emission Exceeds TAP-EL?**	
	Pre-Project (lb/hr)	**Post Project (lb/hr)**				
2-Methylnaphthalene	2.4E-06	3.0E-06	6.2E-07	9.1E-05	No	1%
3-Methylchloranthene	5.1E-06	5.1E-06	4.7E-08	2.5E-06	No	2%
Acenaphthene	1.8E-07	2.2E-07	4.7E-08	2.5E-06	No	2%
Acenaphthene	1.8E-07	2.2E-07	4.7E-08	9.1E-05	No	0%
Acenaphthylene	1.8E-07	2.2E-07	4.7E-08	9.1E-05	No	0%
Anthracene	2.2E-07	2.8E-07	6.2E-08	9.1E-05	No	0%
Arsenic	2.0E-05	2.5E-05	5.2E-06	1.5E-06	Yes	347%
Benzene	2.1E-04	2.6E-04	5.5E-05	8.0E-04	No	7%
Benzo(a)pyrene	1.2E-07	1.5E-07	3.1E-08	2.0E-06	No	2%
Benzo(g,h,i)perylene	1.2E-07	1.5E-07	3.1E-08	9.1E-05	No	0%
Beryllium	1.2E-06	1.5E-06	3.1E-07	2.8E-05	No	1%
Cadmium	1.1E-04	1.4E-04	2.9E-05	3.7E-06	Yes	773%
Fluoranthene	3.0E-07	3.7E-07	7.8E-08	9.1E-05	No	0%
Fluorene	2.8E-07	3.5E-07	7.3E-08	9.1E-05	No	0%
Formaldehyde	7.4E-03	9.3E-03	2.0E-03	5.1E-04	Yes	382%
Naphthalene	6.0E-05	7.6E-05	1.6E-05	9.1E-05	No	17%
Nickel	2.1E-04	2.6E-04	5.5E-05	2.7E-05	Yes	202%
Polyaromatic Hydrocarbon (Max)	6.7E-05	8.5E-05	1.8E-05	9.1E-05	No	19%
Polycyclic Organics: 7-PAH Group	1.1E-06	1.4E-06	3.0E-07	2.0E-06	No	15%

Notes

1. Pre-project TAP emission summary from previous 2007 and 2008 PTC Applications.

[A] Millenium Science and Engineering, Pre-Permit Constuction Approval and Permit to Construct Application, High Desert Milk, Inc., Milk Processing Plant, Burley, Idaho, June 18, 2007.

[B] Letter Correspondence from Karl Nelson, High Desert Milk, to Johnathan Petit, IDEQ, Re: Supplemental Information for Application for Permit to Construct, High Desert Milk Inc., Milk Processing Plant, 1033 Idaho Avenue, Burley, Idaho, August 7, 2007.

[C] Letter Correspondence from Troy Reicke, Millenium Science and Engineering, to Karl Nelson, High Desert Milk, Re: Application to Ammend Permit to Construct P-2007.0100, Issue Date 11/07/07,High Desert Milk Inc., Milk Processing Plant, 1033 Idaho Avenue, Burley, Idaho, March 21, 2008.

2. Johnathan Pettit, IDEQ, Air Quality Permitting Statement of Basis, November 7, 2007, Permit to Construct No. P-2007.010, High Desert MilK Inc., Burley, Facility No. 031-00034.

3. Morrie Lewis, IDEQ, Air Quality Permit Statement of Basis, June 3, 2008, Permit to Construct No. P-2008.010, Final, High Desert MilK Inc., Burley, Idaho, Facility ID No. 031-00034.

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES REVIEW MEMORANDUM

M E M O R A N D U M

DATE: February 8, 2021

TO: Morrie Lewis, Permit Writer, Air Program

FROM: Darrin Mehr, Air Quality Dispersion Modeling Analyst, Air Program

PROJECT: P-2008.0050 PROJ 62468, Permit for Modification to the Existing High Desert Milk Facility located in Burley, Idaho

SUBJECT: Demonstration of Compliance with IDAPA 58.01.01.203.02 (NAAQS) and 203.03 (TAPs) Related to Air Quality Impact Analyses

---

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
ASOS	Automated Surface Observing System
bhp	Brake horsepower
BPIP	Building Profile Input Program
BRC	Below Regulatory Concern
CFR	Code of Federal Regulations
CMAQ	Community Multi-Scale Air Quality Modeling System
CO	Carbon Monoxide
DEQ	Idaho Department of Environmental Quality
EL	Emissions Screening Level of a TAP
EPA	United States Environmental Protection Agency
ft	Feet
ft/sec	Feet per second
GEP	Good Engineering Practice
GPS	Global Positioning System
HAP	Hazardous Air Pollutant
HDM	High Desert Milk (permittee)
hr	Hour
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
kW	kiloWatt
lb/hr	Pounds per hour
m	Meters
m/sec	Meters per second
MACT	Maximum Achievable Control Technology
MERPs	Modeled Emission Rates for Precursors
MMBtu	Million British Thermal Units
MMscf/year	Million standard cubic feet per year
NAAQS	National Ambient Air Quality Standards
NCDC	National Climatic Data Center
NED	National Elevation Dataset
NO	Nitrogen Oxide
NO_2	Nitrogen Dioxide
NOx	Oxides of Nitrogen

NSR	New Source Review
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
PSD	Prevention of Significant Deterioration
PTC	Permit to Construct
PTE	Potential to Emit
scfm	Standard cubic feet per minute
SIL	Significant Impact Level
SO_2	Sulfur Dioxide
TAP	Toxic Air Pollutant
tons/year	Tons per year
TORF	TORF Environmental Management (modeling and permitting consultant)
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VOCs	Volatile Organic Compounds
wscf/MMBtu	Wet standard cubic feet per million British thermal unit
WGS	World Geodetic System
^oF	Degrees Fahrenheit
$\mu g/m^3$	Micrograms per cubic meter of air

1.0 Summary

High Desert Milk, Inc. (HDM) submitted a Permit to Construct (PTC) application to modify its existing facility, located in Burley, Idaho, and to modify PTC P-2008.0050, issued on November 7, 2007, and modified on June 3, 2008. HDM processes raw milk into powdered milk products. The modification project consists of the following changes:

- Installation of a new milk dryer. This is a separate stand-alone dryer from existing Dryer 1.
- Increase of the filtration efficiency for the two existing Dryer 1 baghouses.
- Rain caps will be removed from existing Boiler 1 and Boiler 2 stacks and stack release heights will be increased to 65 feet above grade.
- One of the two existing powder handling baghouses will be removed from service and the facility-wide PTC (model ID P103A), and particulate matter emissions will be exhausted by Powder Handling Baghouse P103B.
- Reduction of emission rate limits for existing Skim Milk Dryer 1.

Project-specific air quality analyses involving atmospheric dispersion modeling of estimated emissions associated with the facility were submitted to DEQ to demonstrate that applicable emissions do not result in violation of a National Ambient Air Quality Standard (NAAQS) or Toxic Air Pollutant (TAP) increment as required by the Idaho Administrative Procedures Act 58.01.01.203.02 and 203.03 (Idaho Air Rules Section 203.02 and 203.03). This memorandum provides a summary of the applicability assessment for analyses and air impact analyses used to demonstrate compliance with applicable NAAQS and TAP increments, as required by Idaho Air Rules Section 203.02 and 203.03.

TORF Environmental Consulting (TORF), on behalf of HDM, prepared the PTC application and performed ambient air impact analyses for this project. DEQ review of submitted data and DEQ analyses summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the air impact analyses used to demonstrate that estimated emissions associated with operation of the facility will not cause or significantly contribute to a violation of any applicable air quality standard. This review did not address/evaluate compliance with other rules or analyses not pertaining to the air impact analyses. Evaluation of emission estimates was the responsibility of the DEQ permit writer and is addressed in the main body of the DEQ Statement of Basis, and emission calculation methods were not evaluated in this modeling review memorandum.

Table 1 presents key assumptions and results to be considered in the development of the permit. Idaho Air Rules require air impact analyses be conducted in accordance with methods outlined in 40 CFR 51, Appendix W *Guideline on Air Quality Models* (Appendix W). Appendix W requires that air quality impacts be assessed using atmospheric dispersion models with emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

The submitted information and analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data (review of emission 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 project as modeled were below Significant Impact Levels (SILs) or other applicable regulatory thresholds; or c) that predicted pollutant concentrations from emissions associated with the project, when appropriately combined with co-contributing sources and background concentrations, were below applicable NAAQS at ambient air locations where and when the project has a significant impact; 5) showed that TAP emission

increases associated with the project will not result in increased ambient air impacts exceeding allowable TAP increments. This conclusion assumes that conditions in Table 1 are representative of facility design capacity or operations as limited by a federally enforceable permit condition. The DEQ permit writer should use Table 1 and other information presented in this memorandum to generate appropriate permit provisions/restrictions to assure emissions do not exceed applicable regulatory thresholds requiring further analyses and to assure the requirements of Appendix W are met regarding emissions representative of design capacity or permit allowable rates.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES.

Criteria/Assumption/Result	Explanation/Consideration
General Emission Rates Emission rates used in the air impact analyses, as listed in Table 5 of this memorandum, must represent maximum potential emissions as given by design capacity, inherently limited by the nature of the process or configuration of the facility, or as limited by the issued permit for the specific pollutant and averaging period.	Compliance has not been demonstrated for emission rates greater than those used in the submitted air impact analyses.
Air Impact Analyses for Criteria Pollutant Emissions Short-term and long-term criteria air pollutant emissions increases of Pb[a] and SO_2[b] are below facility-wide BRC thresholds requiring a NAAQS compliance demonstration. Modeling was required for CO[c], NO_2[d], PM_{10}[e] and $PM_{2.5}$[f] emissions.	A NAAQS[g] compliance demonstration is required by Idaho Air Rules Section 203.02 for pollutant increases above BRC[h] thresholds, and project-specific impact analyses are required for pollutants having an emissions increase that is greater than Level I modeling applicability thresholds (where the BRC exclusion cannot be used).
Powder Handling Baghouse Stack P103 Stack P103A has been decommissioned. This stack is listed under Permit Condition 4.2. Stack P103B emissions have been increased to account for decommissioned stack P103A.	Stack P103A was not represented in the cumulative NAAQS analyses and should be removed from the PTC as an emission point.
Changes to Boiler Stacks P104 and P105 Release heights for both boiler stacks will be increased to 65 feet above grade. The existing rain cap on each boiler stack will be removed and replaced with a cap that does not impede vertical flow of the exhaust plume during operation of each boiler. Stack diameter must not exceed the modeled 2.17 feet modeled exit diameter for each stack. These physical changes were used to reduce predicted impacts for the facility-wide NAAQS ambient air impact analyses and are appropriate permit requirements.	Boiler stacks P104 and P105 were modeled with stack release heights of 65 feet above grade with uninterrupted vertical release orientations to enhance dispersion of exhaust plumes and reduce predicted ambient impacts in the compliant facility-wide NAAQS analyses. An increase in stack diameter at the stack termination reduces the exit velocity of the exhaust plume which reduces dispersion and may increase predicted ambient impacts. The two boilers are the primary contributors to the 1-hour NO_2 impacts. The margin of compliance with the 1-hour NO_2 NAAQS is small, with the design value plus ambient background at 98% of the allowable NAAQS.
New Dryer 2 Stack Release Parameters (model ID DRYER2) In addition to the modeled emission rates, release parameters are important in generating the predicted ambient impacts for the project, including: • Stack termination will not impede airflow during source operation. • Release height of 145 feet above grade or greater. • Stack diameter of 7.67 feet or less.	24-hour $PM_{2.5}$ NAAQS compliance was demonstrated using the modeled emission rates listed in Table 5 and these release parameters. Impacts attributed to the Dryer 2 stack are a considerable portion of the modeled cumulative impact. The margin of compliance with the 24-hour $PM_{2.5}$ NAAQS is small (97% of the allowable NAAQS).
Combined Skim Milk Dryer Emission Rate Limit for Dryer 1 Stacks P101A and P101B **PM_{10} and $PM_{2.5}$** NAAQS compliance has been demonstrated for a single $PM_{2.5}$ and PM_{10} emission rate limitation for the Dryer 1 process. TORF modeled three scenarios supporting this request.	The requested single emission limits applied to the Dryer 1 process instead of each individual stack is supported for $PM_{2.5}$ and PM_{10}. DEQ conducted sensitivity analyses with all $PM_{2.5}$ emissions from Stack P101A and none from P101B and confirmed impacts were NAAQS-compliant.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES.	
Criteria/Assumption/Result	**Explanation/Consideration**
1) All PM_{10} and $PM_{2.5}$ emissions from Stack P101B and none from P101A. 2) An emission split matching the distribution from the 2016 $PM_{10}/PM_{2.5}$ performance test results observed during worst-case normal operation. 3) PM_{10} and $PM_{2.5}$ emissions evenly split between the two stacks. **NOx** A single NO_x emission limit for Dryer 1 is approvable. NO_2 impacts were also close to the 1-hour NO_2 NAAQS (98% of NAAQS). TORF modeled NOx emissions split evenly between Stacks P101A and P101B.	Emissions of NO_x are not expected to vary significantly between the two stacks if similar process heater combustion exhaust flow is provided to each of the two separate fluid beds. DEQ conducted a sensitivity run with all Dryer 1 natural gas **c**ombustion emissions emitted from Stack P101A. There was no appreciable increase in the 1-hour NO_2 NAAQS impact compared to TORF's submitted analyses with NOx emissions evenly split between the two Dryer 1 stacks.
Emergency Generator Engine Operation The engine was modeled for ½ hour period during daytime hours on each day of the year. Annual operations represented 183 hours per year.	The daily operating assumption limited emissions and impacts for the 24-hour PM_{10} and $PM_{2.5}$ averaging period NAAQS compliance demonstrations.

[a.] Lead.
[b.] Sulfur dioxide.
[c.] Carbon monoxide.
[d.] Nitrogen oxides.
[e.] Particulate matter with a mean aerodynamic diameter of 10 microns or less.
[f.] Particulate matter with a mean aerodynamic diameter of 2.5 microns or less.
[g.] National Ambient Air Quality Standards.
[h.] Below Regulatory Concern.

Summary of Submittals and Actions

April 2, 2020	Representatives for HDM and DEQ participated in a pre-application meeting.
April 15, 2020	DEQ emailed Shawn Burton, HDM, a copy of the historical modeling files for previous facility-wide ambient impact analyses.
May 13, 2020	TORF submitted a modeling protocol and preliminary model setup to DEQ, via email, on behalf of HDM.
May 28, 2020	TORF submitted emission inventory tables and an electronic emission inventory spreadsheet to DEQ, via email, on behalf of HDM.
May 29, 2020	DEQ issued a conditional modeling protocol approval letter.
June 21, 2020	DEQ received a file sharing link for a permit application and ambient impact analyses files from TORF, on behalf of HDM.
June 26, 2020	Official regulatory start date was established for the application completeness review.
July 23, 2020	DEQ declared the application incomplete.
September 1, 2020	DEQ received a response to the application incompleteness determination from TORF, on behalf of HDM.

October 1, 2020	DEQ declared the application incomplete.
October 12, 2020	DEQ received a response to the incompleteness determination from TORF, on behalf of HDM, including a revised emission inventory and ambient impact analyses.
November 10, 2020	DEQ declared the application incomplete.
November 16, 2020	DEQ received a response to the incompleteness determination from TORF, on behalf of HDM, including a revised emission inventory and ambient impact analyses.
December 11, 2020	DEQ declared the application complete.

2.0 Background Information

This section provides background information applicable to the project and the facility site. It also provides a brief description of the applicable air impact analyses requirements for the project.

2.1 Project Description

HDM's PTC modification project includes the following changes to PTC P-2010.0016 Project 61859, issued on August 10, 2017, and changes to analyses supporting the requested changes:
High Desert Milk, Inc. (facility, located in Burley, Idaho, and PTC P-2008.0050, issued on November 7, 2007, and modified on June 3, 2008. The modification project consists of the following changes:

- Installation of a new milk dryer system, identified as Dryer 2, that includes the following new sources:

    1. A dryer consisting of two fluidized bed dryers with two material handling/sizing cyclones each in series with a fines material separation baghouse. Heat in the exhaust stream from the baghouse is partially recovered in a heat exchanger unit and is then emitted through a single exhaust stack (model ID DRYER2);

    2. A natural gas-fired process heater rated at 26 MMBtu/hr heat input capacity equipped with a low NOx burner for control of NOx emissions with a dedicated exhaust stack (model ID DRY2HT);

    3. Two new vacuum receiver baghouses will be installed on the sifter accumulation hopper. Only one will operate at any time and only one vent was modeled (model ID VACRCV); and,

    4. Three new powder storage silos each equipped with a baghouse will be installed, and only one storage silo baghouse will operate at any time (model ID POWDSILO).

- Filtration efficiency will be increased using different filter media for the two existing Dryer 1 baghouses (model IDs P101A and P101B). The existing PTC PM_{10} emission limit of 10.56 lb/hr

will be reduced to 4.60 lb/hr PM_{10}. Annual and 24-hour $PM_{2.5}$ NAAQS are applicable to this modification project and allowable $PM_{2.5}$ emissions will be identical to allowable PM_{10} emissions.

- Existing Boiler 1 and Boiler 2 stacks will have stack release orientations changed by removing the existing rain caps and replacing them with terminations that will not obstruct uninterrupted vertical release during operation of the boilers. Stack release heights will be increased to a termination height of 65 feet above grade.

- One of the two existing powder handling baghouses will be removed from service and the facility-wide PTC (model ID P103A). PM_{10} and $PM_{2.5}$ emissions formerly exhausted by stack P103A will be exhausted by Powder Handling Baghouse P103B.

2.2 Facility Location and Area Classification

The HDM facility is located in Burley, within Cassia County (Northing: 4,713,340 m; Easting: 269,210 m; UTM Zone 12 or 42.5383° latitude and -113.8105° longitude). This area is designated as an attainment or unclassifiable area for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), lead (Pb), ozone (O_3), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}), and particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers ($PM_{2.5}$). The area is not classified as non-attainment for any criteria pollutants.

2.3 Air Impact Analyses Required for All Permits to Construct

Idaho Air Rules Sections 203.02 and 203.03:

> *No permit to construct shall be granted for a new or modified stationary source unless the applicant shows to the satisfaction of the Department all of the following:*
>
> ***02. NAAQS**. The stationary source or modification would not cause or significantly contribute to a violation of any ambient air quality standard.*
>
> ***03. Toxic Air Pollutants.** 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.*

Atmospheric dispersion modeling, using computerized simulations, is used to demonstrate compliance with both NAAQS and TAPs. Idaho Air Rules Section 202.02 states:

> ***02. Estimates of Ambient Concentrations**. All estimates of ambient concentrations shall be based on the applicable air quality models, data bases, and other requirements specified in 40 CFR 51 Appendix W (Guideline on Air Quality Models).*

2.4 Significant Impact Level and Cumulative NAAQS Impact Analyses

If specific criteria pollutant emission increases associated with the proposed permitting project cannot qualify for a BRC exemption as per Idaho Air Rules Section 221, then the permit cannot be issued unless

the application demonstrates that applicable emission increases will not cause or significantly contribute to a violation of NAAQS, as required by Idaho Air Rules Section 203.02.

The first phase of a NAAQS compliance demonstration is to evaluate whether the proposed facility/project could have a significant impact to ambient air. Section 3.1.1 of this memorandum describes the applicability evaluation of Idaho Air Rules Section 203.02. The Significant Impact Level (SIL) analysis for a new facility or proposed modification to a facility involves modeling estimated criteria air pollutant emissions from the facility or modification to determine the potential impacts to ambient air. Air impact analyses are required by Idaho Air Rules to be conducted in accordance with methods outlined in Appendix W. Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

A facility or modification is considered to have a significant impact on air quality if maximum modeled impacts to ambient air exceed the established SIL listed in 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. Table 2 lists the applicable SILs.

Table 2. APPLICABLE REGULATORY LIMITS.

Pollutant	Averaging Period	Significant Impact Levels[a] ($\mu g/m^3$)[b]	Regulatory Limit[c] ($\mu g/m^3$)	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	0.2	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 $\mu g/m^3$)	75 ppb[p] (196 $\mu g/m^3$)	Mean of maximum 4th highest[q]
	3-hour	25	1,300[m]	Maximum 2nd highest[n]
	24-hour	5	365[m]	Maximum 2nd highest[n]
	Annual	1.0	80[r]	Maximum 1st highest[n]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb (7.5 $\mu g/m^3$)	100 ppb[s] (188 $\mu g/m^3$)	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]	70 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.

If modeled maximum pollutant impacts to ambient air from the emission sources associated with a new facility or modification exceed the SILs, 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 for attainment area pollutants involves assessing ambient impacts (typically the design values consistent with the form of the standard) from potential/allowable emissions resulting from the project and emissions from any nearby co-contributing sources (including existing emissions from the facility that are unrelated to the project), and then adding a DEQ-approved background concentration value 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 2. Table 2 also specifies the modeled design value that must be used for comparison to the NAAQS. NAAQS compliance is evaluated on a receptor-by-receptor basis for the modeling domain.

If the cumulative NAAQS impact analysis indicates an exceedance of NAAQS, a culpability analysis can determine if this exceedance is due to emissions from the proposed project. The permit may not be issued if the proposed project has a significant contribution (exceeding the SIL) to the modeled violation. If project-specific impacts are below the SIL, then the project does not have a significant contribution to the specific violations.

Compliance with Idaho Air Rules Section 203.02 is generally demonstrated if: a) applicable specific criteria pollutant emission increases are at a level defined as 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 all 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 emission 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 emission 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. The DEQ permit writer evaluates the applicability of specific TAPs to the Section 210.20 exclusion.

3.0 Analytical Methods and Data

This section describes the methods and data used in the analyses to demonstrate compliance with applicable air quality impact requirements. The DEQ Statement of Basis provides a discussion of the methods and data used to estimate criteria and TAP emission rates.

3.1 Emission Source Data

Emissions of criteria pollutants and TAPs resulting from operation of the HDM facility were estimated by

TORF for various applicable averaging periods. The calculation of potential emissions is the responsibility of the DEQ permit writer, and the representativeness and accuracy of emission estimates is not addressed in this modeling memorandum. DEQ air impact analysts are responsible for assuring that potential emission rates provided in the emission inventory are properly used in the model. The rates listed must represent the maximum allowable rate as averaged over the specified period.

Emission rates used in the impact modeling applicability analyses and any modeling analyses, as listed in this memorandum, should be reviewed by the DEQ permit writer and compared with those in the final emission inventory. All modeled criteria air pollutant and TAP emission rates must be equal to or greater than the facility's potential emissions calculated in the PTC emission inventory or proposed permit allowable emission rates.

3.1.1 Modeling Protocol

TORF submitted a modeling protocol and an initial dispersion modeling setup to DEQ on May 13, 2020, on behalf of HDM. DEQ issued a conditional modeling protocol approval letter on May 29, 2020. The air impact modeling analyses were generally conducted using data and methods described in the modeling protocol and the *Idaho Air Modeling Guideline.*[2]

3.1.2 Modeling Applicability and Modeled Criteria Pollutant Emission Rates

If project-specific emission increases for criteria pollutants would qualify for a BRC permit exemption as per Idaho Air Rules Section 221 if it were not for potential emissions of one or more pollutants exceeding the BRC threshold of 10 percent of emissions defined by Idaho Air Rules as significant, then a NAAQS compliance demonstration may not be required for those pollutants with emissions below BRC levels. DEQ's regulatory interpretation policy of exemption provisions of Idaho Air Rules 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 potential to emit (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 ton/year, thereby negating the need to maintain calculated uncontrolled PTE under 100 ton/year. The BRC exemption cannot be used to exempt a project from a pollutant-specific NAAQS compliance demonstration in most cases where a PTC is required for the action regardless of emission quantities, such as the modification of an existing emission or throughput limit.

A NAAQS compliance demonstration must be performed for pollutant increases that would not qualify for the BRC exemption from the requirement to demonstrate compliance with NAAQS.

Site-specific air impact modeling analyses may not be necessary for some pollutants, even where such emissions do not qualify for the BRC exemption. DEQ has developed modeling applicability thresholds, below which a site-specific modeling analysis is not required. DEQ generic air impact modeling analyses that were used to develop the modeling thresholds provide a conservative SIL analysis for projects with emissions below identified threshold levels. Project-specific modeling applicability thresholds are provided in the *Idaho Air Modeling Guideline*[2]. These thresholds were based on assuring an ambient impact of less than the established SIL for specific pollutants and averaging periods.

If total project-specific emission rate increases of a pollutant are below Level I Modeling Applicability Thresholds, project-specific air impact analyses are not necessary for permitting. Use of Level II

Modeling Applicability Thresholds is conditional, requiring DEQ approval. DEQ approval is based on dispersion-affecting characteristics of the emission sources such as stack height, stack gas exit velocity, stack gas temperature, distance from sources to ambient air, presence of elevated terrain, and potential exposure to sensitive public receptors. Due to building downwash concerns for the new dryer baghouse and heater stacks exhaust plumes. DEQ applied the Level I modeling thresholds for this project.

The emission rates listed in Table 3 were obtained from TORF's final November 16, 2020, emission inventory. The new sources attributed to the project support proposed Dryer 2. The reduction in permit-allowable PM_{10} and $PM_{2.5}$ emissions for existing Dryer 1 are not included in the project emission increase values listed in Table 3.

Table 3. CRITERIA POLLUTANT MODELING APPLICABILITY

Pollutant	Averaging Period	Initial Exemption Screening			Secondary Exemption Screening			Tertiary Exemption Screening		
		Facility-wide Annual Potential Emissions (T/yr)[a]	BRC[b] Threshold (T/yr)	Exceeds BRC Emission Rate?	Project-specific Increase Emissions (T/yr)	BRC[b] Thresholds (T/yr)	Exceeds BRC Emission Rate?	Project-Specific Emission Rate	Level I Modeling Thresholds	Modeling Required (Yes/No)
PM_{10}[c]	24-hour	67.2	1.5	Yes	39.5	1.5	Yes	9.0 lb/hr[j]	0.22 lb/hr	Yes
$PM_{2.5}$[d]	24-hour	67.2	1.0	Yes	39.5	1.0	Yes	9.0 lb/hr	0.054 lb/hr	Yes
	Annual							39.5 T/yr	0.35 T/yr	Yes
NO_2[e]	1-hour	46.0[f]	4.0[f]	Yes	6.9[f]	4.0[f]	Yes	1.6 lb/hr	0.20 lb/hr	Yes
	Annual							6.9 T/yr	1.2 T/yr	Yes
SO_2[g]	1-hour & 3-hour	0.4	4.0	No	NA	4.0	NA	NA	0.21 lb/hr	No
CO[h]	1-hour & 8-hour	169.2	10.0	Yes	91.9	10.0	Yes	21.0	15 lb/hr	Yes
VOCs[i]	As a precursor to ozone, 8-hour average	3.0[l]	4.0	No[l]	0.6[l]	4.0	No[l]	NA	NA	No[g]
Lead (Pb)	Rolling 3-month average	2.4E-04	0.06	No	NA	0.06	NA	NA	14 lb/month[k]	No

a. Tons/year.
b. Below Regulatory Concern.
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
e. Nitrogen dioxide.
f. Nitrogen oxides (total NOx emissions are used to evaluate modeling applicability).
g. Sulfur dioxide.
h. Carbon monoxide.
i. Volatile organic compounds.
j. Pounds per hour.
k Pounds per month.
l. See section below for a description of ambient impact analyses requirement for secondary formation of ozone due to precursor emissions of VOCs and NOx.

Modeling is not required for 3-month average lead, 1-hour SO_2, and 3-hour SO_2 ambient standards based on facility-wide annual potential emissions that are below BRC thresholds. Modeling was required for 24-

hour PM_{10}, 24-hour $PM_{2.5}$, annual $PM_{2.5}$, 1-hour NO_2, annual NO_2, 1-hour CO, and 8-hour CO ambient standards.

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, NOx, 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. DEQ applies recently-issued EPA final MERPs guidance[3] to establish applicability, and if required, a demonstration using the simplistic analyses methods based on photochemical modeling analyses performed by EPA and others on example cases at numerous locations within the United States. Source-specific photochemical modeling is only considered if the simple MERPs evaluation methods do not readily demonstrate compliance with the SIL, or with the NAAQS if required.

The applicability criteria to perform an 8-hour O_3 SIL, and possibly a cumulative NAAQS demonstration, are based on annual NOx and VOCs precursor emissions. DEQ applies the EPA guidance to minor NSR projects and recommends using applying the Tier 1 MERPs methods to estimate secondary formation of ozone for individual stationary source projects. A demonstration that a project will not exceed the 8-hour O_3 SIL is required if the annual project emission increases of either NOx or VOCs exceeds the significant emission rates (SERs) specified in Section 006.108 of the Idaho *Air Rules* of 40 tons/year. The project's emission increase for NOx was 6.9 tons/year and 0.6 tons/year for VOCs, and which are below the SERs. Secondary O_3 impacts analyses are not required to be evaluated.

Modeled criteria air pollutant emission rates for short-term and annual averaging periods for the SIL analyses are listed in Table 4. TORF did not include the proposed new vacuum receiver baghouse (model ID VACRCV) and storage silo vent (model ID POWDSILO) in the SIL source group, but this did not affect the SIL compliance conclusions because emissions for each source were only 0.0036 lb/hr of PM_{10} and $PM_{2.5}$, 24-hour and annual averaging periods, and impacts exceeded the SILs without inclusion of these sources.

The existing Dryer 1 has two fluid bed dryers and each dryer has an independent exhaust stack. Past source test results provided an uneven distribution of particulate matter emission rates between the two exhaust stacks. TORF evaluated three different emission rates scenarios to support the request for single PM_{10} and $PM_{2.5}$ emission limits for the Dryer 1 process instead of individual emission limits on each stack (model IDs P101A and P101B).

Only one of the three new powder storage silos for Dryer 2 may operate at any time. Impacts from concurrent operation of two or three of these point sources were not assessed. This restriction limits emissions to a single baghouse stack source for the PM_{10} and $PM_{2.5}$ NAAQS analyses. Based on the low 0.0036 lb/hr PM_{10} and $PM_{2.5}$ emission rates for the POWDSILO stack this restriction was not considered appropriate for a recommended operating requirement permit condition.

Table 4. SHORT-TERM AND ANNUAL EMISSION RATES FOR THE SIL[a] ANALYSES					
Emissions Point	**Description**	**24-hour PM_{10}[b] (lb/hr)[c]**	**24-hour and annual $PM_{2.5}$[d] (lb/hr)**	**1-hour and annual NOx[e] (lb/hr)**	**1-hour and 8-hour CO[f] (lb/hr)**
DRYER2	New Dryer 2	8.82	8.82	0	0
DRY2HT	New Dryer 2 Heater	0.24	0.24	1.57	20.98

a. National ambient air quality standards.
b. Particulate matter with a mean aerodynamic diameter of 10 microns or less.
c. Pounds per hour.
d. Particulate matter with a mean aerodynamic diameter of 2.5 microns or less.
e. Nitrogen oxides.
f. Carbon monoxide.

Maximum ambient impacts for 1-hour and 8-hour CO and annual NO_2 were below the SILs and cumulative impact analyses were not required for these NAAQS. Table 5 provides emission rates used in the cumulative impact analyses.

Table 5. SHORT-TERM AND ANNUAL EMISSION RATES FOR THE NAAQS[a] CUMULATIVE IMPACT ANALYSES				
Emissions Point	**Description**	**24-hour PM_{10}[b] (lb/hr)[c]**	**24-hour and Annual $PM_{2.5}$[d] (lb/hr)**	**1-hour NOx[e] (lb/hr)**
P104	Boiler 1	0.25	0.25	3.3
P105	Boiler 2	0.25	0.25	3.3
P103B	Powder Handling Baghouse	0.112	0.112	0
P102	Fluid Bed Baghouse	1.08	1.08	0
P101A	Skim Milk Dryer 1 Baghouse North Stack	2.30	2.30	0.734
P101B	Skim Milk Dryer 1 Baghouse South Stack	2.30	2.30	0.734
DRYER2	New Milk Dryer 2	8.82	8.82	0
DRY2HT	New Dryer 2 Heater	0.2	0.2	1.57
GEN	Emergency Generator	0.365[f]	0.365[f, g]	0[h]
POWDSILO	New Powder Silo Baghouse	0.0036	0.0036	0
VACRCV	New Hopper Vacuum Receiver Baghouse	0.0036	0.0036	0

a. National ambient air quality standards.
b. Particulate matter with a mean aerodynamic diameter of 10 microns or less.
c. Pounds per hour.
d. Particulate matter with a mean aerodynamic diameter of 2.5 microns or less.
e. Nitrogen oxides.
f. The emergency generator engine was limited to 0.5 hours per day. The 0.5 hour operational factor was applied to the emergency engine's maximum hourly emission rate for 24-hour and annual averaging periods.
g. The emergency generator engine was modeled for 183 hours per year using the 0.5 hour per day modeled for 365 days per year.
h. NOx emissions from emergency engines that operate intermittently for testing and maintenance are exempted from 1-hour NO_2 modeling requirements per DEQ policy (DEQ *Modeling Guideline*, Appendix A[2]).\

3.1.3 TAPs Modeling Applicability

Table 6 provides a summary of TAP emissions increases for the project for those TAPs that had an increase exceeding the ELs of Idaho Air Rules Section 585 or 586.

Short-term 24-hour average emission increases of non-carcinogens were below the TAP ELs.

Table 6. TAP EMISSIONS INCREASES THAT TRIGGER MODELING				
Toxic Air Pollutant	**Averaging Period**	**Emissions (lb/hr)[a]**	**Screening Emissions Level (lb/hr)**	**Modeling Required?**
Arsenic	Annual	5.20E-06	1.5E-06	Yes
Cadmium	Annual	2.86E-05	3.7E-06	Yes
Formaldehyde	Annual	1.95E-03	5.1E-04	Yes
Nickel	Annual	5.46E-05	2.7E-05	Yes

a. Pounds per hour.
b. Carcinogenic TAP. ELs are annual maximum emissions expressed as pounds/hour. The emissions rate is the annual emissions divided by 8,760 hours/year.

3.1.4 Emission Release Parameters

Table 7 lists the emission release parameters, including stack height, exhaust temperature, exhaust velocity, and stack diameter for the modeled point sources in metric units first and in English units below in parentheses.

Table 7. POINT SOURCE EMISSION RELEASE PARAMETERS IN METRIC UNITS (ENGLISH UNITS IN PARENTHESES)								
Model ID	**Description**	**UTM[a] Coordinates NAD83 datum, Zone 12**		**Stack Height (m) (ft)[c]**	**Stack Exhaust Temperature (K)[d] (°F)[e]**	**Stack Exhaust Velocity (m/s)[f] (fps)[g]**	**Stack Diameter (m) (ft)**	**Release Orientation[h]**
		Easting-X (m)[b]	**Northing-Y (m)**					
P104	Boiler 1	269,199.0	4,713,401.1	19.8 (65)	449.8 (350)	14.54 (47.7)	0.66 (2.17)	Default
P105	Boiler 2	269,204.5	4,713,402.7	19.8 (65)	449.8 (350)	14.54 (47.7)	0.66 (2.17)	Default
P103B	Powder Handling Baghouse	269,199.5	4,713,321.2	35.7 (117)	293.2 (68)	0.001 (0.003)	0.001 (0.003)	Raincap
P102	Fluid Bed Baghouse	269,202.6	4,713,333.4	37.8 (124)	327.6 (130)	16.79 (55.1)	0.76 (2.50)	Default
P101A	Skim Milk Dryer 1 Baghouse North Stack	269,207.0	4,713,347.5	37.2 (122)	350.9 (172)	15.57 (51.1)	1.32 (4.33)	Default
P101B	Skim Milk Dryer 1 Baghouse South Stack	269,208.8	4,713,339.8	37.2 (122)	354.8 (179)	15.16 (49.7)	1.32 (4.33)	Default
DRYER2	New Milk Dryer 2	269,220.6	4,713,299.9	44.2 (145)	322.0 (120)	11.22 (36.8)	2.34 (7.67)	Default
DRY2HT	New Dryer 2 Heater	269,211.7	4,713,305.0	44.8 (147)	426.5 (308)	8.37 (27.5)	1.00 (3.29)	Default
GEN	Emergency Generator	269,183.5	4,713,327.2	3.0 (10)	533.2 (500)	0.001 (0.003)	0.001 (0.003)	Horizontal
POWDSILO	New Powder Silo Baghouse	269,231.1	4,713,298.1	16.8 (55)	316.5 (110)	1.71 (5.6)	0.15 (0.50)	Default
VACRCV	New Hopper Vacuum Receiver Baghouse	269,238.6	4,713,307.4	13.4 (44)	322.0 (120)	0.001 (0.003)	0.001 (0.003)	Horizontal

a. Universal Transverse Mercator, North American Datum of 1983, Zone 12.
b. Meters.
c. Feet.
d. Kelvin.

e. Degrees Fahrenheit.
f. Meters per second
g. Feet per second.
h. Default is an uninterrupted vertical release orientation.

3.1.5 Emission Release Parameter Justification

Location coordinates for existing emission points were established by on-site GPS measurement by the firm, Streamline Precision, in May 2020. Coordinates were presented in two facility layout diagrams. The coordinates for the proposed Dryer 2 building addition and emission points for the new Dryer 2 process were also included on the facility layout diagrams. Modeled stack elevations were set equal to the building base elevation.

New Dryer 2 Emission Points
Specification documents from the vendor, RELCO, LLC (RELCO), provided maximum design volumetric flow rates and exit temperatures for the new Dryer 2 process unit point sources and material conveyance system point sources.

Dryer 2 (model ID DRYER2)
The new milk dryer will process raw milk into milk protein powders (MPC) that are differentiated by the protein percentage in the powder. The specification sheet dryer unit listed production of 70% and 80% MPC and milk protein isolate (MPI), which has a protein content of 90% or greater. RELCO's documentation indicated maximum capacity is reached while processing MPC70, and the capacity was listed at 3.11 tons/hour. Dryer 2 will consist of a drying chamber and two fluid beds. Dryer chamber exhaust combines with fluid bed exhaust and is split evenly and sent to two separate conveyance lines with a fines separation cyclone followed by a baghouse for each line. The exhaust air from both baghouses will be combined and a heat recovery unit will extract usable heat from the exhaust air before the exhaust is emitted through a single stack. The stack was modeled with an uninterrupted vertical release orientation. Food product manufacturing stacks are often equipped with stack termination caps that open during process unit operation and are closed when not in operation to protect the process equipment from outside contamination.

The specification sheet lists a post-heat recovery unit volumetric flow rate of 101,882 ACFM, a velocity of 2,207 feet/minute, and an exit temperature of 120°F for the Dryer 2 stack. The equivalent stack diameter based on the volumetric flow rate and velocity is 7.67 feet. These values matched the modeled release parameter values.

The stack release height was modeled at 145 feet above grade with an uninterrupted vertical release orientation. The building roof height for the new Building 6 addition where Dryer 2 will be housed will be 138 feet above grade, verified with the plot plan submitted in the June 22, 2020 initial application submittal. The stack will terminate 7 feet above the roof structure. Additional stack release height support documentation was not found in the application materials. The stack height appears reasonable.

Dryer 2 Natural Gas-Fired Burner Stack (model ID DRY2HT)
The natural gas-fired burner exhausts through a separate stack. The RELCO specification sheet listed combustion exhaust air flow volumetric flow rate, temperature, velocity, and stack dimensions. The specification sheet listed the following values:

- Combustion exhaust air flow (also referred to as volumetric flow rate): 13,999 ACFM,
- Temperature: 308 °F,

- Flue gas stack dimensions: 35 inches by 35 inches. The equivalent diameter for these dimensions is 3.29 feet, and
- Exit velocity: 1,645 feet/min.

The modeled flow rate, exit velocity, stack exit diameter, and release temperature matched the specification sheet values.

DEQ used the EPA natural gas combustion F-factor of 10,610 wscf/10^6 Btu to estimate the wet-basis stoichiometric combustion exhaust volumetric flow rate at the 26 MMBtu/hr maximum burner heat input capacity. After correcting the wet-basis (including moisture) standard flow rate to the Burley site atmospheric pressure at 4,163 feet elevation and the elevated 308 °F stack exit temperature, the stoichiometric flow rate was estimated to be 7,768 ACFM. The modeled volumetric flow rate was 13,999 ACFM, which is considerably higher than the stoichiometric flow rate of 7,768 ACFM. Excess air applied to the stoichiometric flow rate appears to be approximately 80%. This is considered a high excess air value for most efficient natural combustion sources. The Dryer 2 heater emits 1.57 lb/hr NO_x based on manufacturer's listed emission rate for a low-NO_x burner design.

The 1-hr NO_2 cumulative NAAQS analysis design value plus ambient background was 98.4% of the allowable NAAQS. DEQ conducted a sensitivity run using a Dryer 2 heater stack flow rate based on a lower excess air percentage of 30%, or 10,098 ACFM, to determine whether the proposed DRY2HT stack flow rate and exit velocity are critical parameters supporting the NAAQS-compliant 1-hour NO_2 ambient impact analyses and a recommendation that this parameter be verified post-construction would be justified. This stack emits 1.57 lb/hr of NOx, which could contribute to an increase in impacts considering the submitted cumulative 1-hr NO_2 NAAQS demonstration was at 98.4% of the NAAQS. DEQ's sensitivity run showed that the 8th high maximum daily 1-hour NO_2 predicted impact for the DRY2HT stack alone would increase by 2.4 µg/m^3, along the ambient air boundary approximately 130 meters west of the facility-wide 1-hour NO_2 NAAQS design receptor location. The sensitivity analysis release parameter change was predicted to increase a negligible amount of 0.012% at the design receptor for the 1-hour NO_2 cumulative NAAQS analysis. Based on the results of the sensitivity analyses DEQ concludes the modeled Dryer 2 heater stack flow rate and exit velocity are satisfactory for this project.

The stack release height was modeled at 147 feet above grade with an uninterrupted vertical release orientation. The building roof height for the new Building 6 addition where Dryer 2 will be housed will be 138 feet above grade. The stack will terminate 9 feet above the roof structure. Additional stack release height support documentation was not found in the application materials. The stack height appears reasonable.

Powder Silo Baghouse (model ID POWDSILO)
Three new powder storage silos will be constructed, and each silo will be equipped with its own baghouse. An operational restriction applies where only one of the three silo baghouses is operational at any time.

The RELCO specification sheet lists a volumetric flow rate of 63 ACFM, a velocity of 334 feet/minute, an exit diameter of 6 inches, and an exit temperature of 110 °F. The modeled release parameters matched the specification sheet values.

The modeled stack release height was 55 feet above grade which matched the value listed on the facility plot plan. The stack was modeled with an uninterrupted vertical release orientation.

Hopper Vacuum Receiver Vents Stack (model ID VACRCV)
This stack projects horizontally through the wall of the Dryer 2 building addition. The single stack exhausts emissions from two vacuum receiver vents. The RELCO specification sheet lists a volumetric flow rate of 140 ACFM, a 4-inch stack exit diameter, a 28.9 feet/sec exit velocity, and a 120 °F exit temperature. TORF modeled the stack using the AERMOD POINTHOR designation for a stack with a horizontal release orientation. An exit diameter of 0.001 meters and exit velocity of 0.001 meters/sec were modeled by TORF in the final modeling setup. The project's June 2020 and September 2020 modeling submittals used the actual 4-inch diameter and a 148 ACFM flow rate which are the appropriate values for the horizontal release. DEQ included the actual release parameters in a sensitivity modeling run and confirmed there was no appreciable effect on the 24-hour $PM_{2.5}$ NAAQS impact. This stack has a very small emission rate which minimized the effect of using different release parameters on the predicted impacts.

The modeled stack release height was 44 feet above grade. This source was not noted on the Streamline Precision facility plot plan. An unscaled 3-dimensional drawing indicated the roof height will be 51 feet above grade. The VACRCV release height of 44 feet appeared a reasonable height based on review of the drawing.

Existing Emission Sources

Boilers 1 and 2 (model IDs P104 and P105)
Each boiler is a natural gas-fired boiler with a rated heat input capacity of 33.5 MMBtu/hr. HDM has proposed removal of the existing rain caps on each stack. Each stack termination height will be increased from the current 34 feet height to 65 feet above grade. The two boilers emit 6.6 lb/hr of NOx and were the primary contribution to the modeled design value. These release parameter changes were critical assumptions for the 1-hour NO_2 NAAQS compliance demonstration and the changes will be recommended to be included as permit condition requirements.

A Superior Boiler Works, Inc. manufacturer's specification sheet for Super Seminole model boilers was submitted as supporting documentation. The modeled stack exit diameters of 2.17 feet matched the exhaust flange diameter for this size of boiler on the specification sheet. HDM staff also confirmed the stack diameters using field survey measurement.

The modeled volumetric flow rate for each stack of 10,552 ACFM matches the estimated flow rate based on the 33.5 MMBtu/hr heat input and EPA's natural gas combustion wet-basis F-Factor of 10,610 wscf/MMBtu, corrected to the atmospheric pressure at 4,163 feet above sea level and exit temperature of 350 °F. This value is considered to be conservative because excess air is not included in the flow rates.

Skim Milk Dryer 1 – North Baghouse Stack (model ID P101A) and South Baghouse Stack (model ID P101B)
TORF modeled stack P101A with a release height of 122 feet above grade, an exit diameter of 4.33 feet, an exit temperature of 172 °F, and volumetric flow rate of 45,134 ACFM. Stack P101B was modeled with a release height of 122 feet above grade, and exit diameter of 4.33 feet, an exit temperature of 179 °F, and a volumetric flow rate of 43,938 ACFM. The stacks were modeled uninterrupted vertical release orientations.

The stack diameters were based by HDM field survey measurement. Volumetric exhaust flow rates and exit temperature were based on October 2016 performance test results. The test report was submitted as substantiation materials. The Streamline Precision facility plot plan stack release heights matched the

modeled release heights, with both stacks terminating 7 feet above the physical roofline height.

Fluid Bed Baghouse (model ID P102)
TORF modeled stack P102 with a release height of 124 feet above grade, an exit diameter of 2.50 feet, an exit temperature of 130 °F, and volumetric flow rate of 16,228 ACFM, and an exit velocity of 55.1 feet/sec (16.79 meters/sec). The stack was modeled as an uninterrupted vertical release orientation.

The exit temperature and exit velocity were based on the value used in the 2008 facility-wide PTC ambient impact analyses. DEQ reviewed the 2008 project's release parameter substantiation materials and noted that the 2008 project used a 1.75 feet exit diameter and 55.1 feet/sec exit velocity. The current project used a field survey measured exit diameter of 2.50 feet and retained the 55.1 feet/sec exit velocity, which resulted in a modeled flow rate of 16, 228 ACFM. The 2008 project release parameter substantiation materials support a volumetric flow rate of 7,950 ACFM. The fan and blower system would have to be altered from the one used in the 2008 era PTC project to validate such a dramatic increase in volumetric flow rate. DEQ evaluated the effect of using the 7,950 ACFM flow rate on this project's ambient impact analyses, as discussed in Section 4.3 of this memorandum.

The stack diameter was based on HDM field survey measurement. The Streamline Precision facility plot plan stack release height matched the modeled release height and the stack terminates at a height of 9 feet above the physical roof height.

Powder Handling Baghouse (model ID P103B)
One of the two powder handling baghouses (model ID P103A) has been removed. Stack P103B exhausts all powder handling emissions. This stack was modeled with a rain-capped release orientation, an exit velocity of 0.0033 feet/sec (0.001 m/sec), a stack diameter of 0.0033 feet (0.001 meters), a release height of 117 feet above grade, and an exit temperature of 68 °F.

The modeled exit diameter and velocity minimize vertical momentum and thermal buoyancy of the exhaust plume and were accepted as conservative values. The exit temperature was supported as an assumed temperature based on internal building temperature. The Streamline Precision facility plot plan stack release height matched the modeled release height, and the stack terminates at a height of 3 feet above the physical roof height.

Emergency Generator (model ID GEN)
The emergency generator engine stack was modeled with a horizontal release orientation using the AERMOD POINTHOR designation. TORF modeled the stack exit diameter as 0.001 meters (0.0033 feet) and exit velocity as 0.001 meters/sec (0.0033 feet/sec). The modeled exit temperature was 500 °F, and stack release height was 10 feet above grade.

The exit velocity and diameter values are conservative values and additional documentation was not required. These values were changed from those used in the September 1, 2020, incompleteness response modeling, where the modeled exit diameter was 1.0 feet and the volumetric exhaust flow rate was 2,971 ACFM, which provided a 63.0 feet/sec (19.2 m/sec) exit velocity. An explanation for the changes was not found in the modeling report and the report indicates the 1.0 feet diameter was based on a field measurement by HDM. A 10 feet release height is a reasonable stack height for a stack on top of a generator engine. The 500 °F exit temperature was based on the facility's 2008 facility-wide PTC modeling analysis release parameter substantiation. Additional substantiation documentation consisting of a Cummins manufacturer specification sheet for a model QST30-G5 NR2 diesel-fired engine producing 1,322 bhp at 100% load on standby service was included in the application. The specification sheet listed the volumetric flow rate at full load at 6,950 ACFM and the exit temperature at 866 °F. The modeled flow

rate and temperature release parameters are regarded as conservative.

DEQ concluded that the release parameters used in the air impact modeling analyses were adequately substantiated and applied appropriately.

3.2 Background Concentrations

The DEQ-recommended ambient backgrounds for the criteria pollutants modeled for this project are listed in Table 8. The background values were obtained from the current Northwest International Air Quality Environmental Science and Technology Consortium (NW AIRQUEST) background lookup tool, which are based on updated 2014-2017 monitoring and photochemical modeling data with refined interpolation methods to establish values for the Pacific Northwest states. The background lookup tool may be accessed at: https://arcg.is/1jXmHH.

Table 8. DEQ-RECOMMENDED CRITERIA POLLUTANT AMBIENT BACKGROUNDS

Pollutant	Averaging Period	Background Concentration ($\mu g/m^3$)[a]
PM_{10}[b]	24-hour	76.6
$PM_{2.5}$[c]	24-hour	11.9
	Annual	5.4
NO_2[d]	1-hour	56.6 (30.1 ppb[e])

a. Micrograms per cubic meter.
b. Particulate matter with mean aerodynamic diameter of 10 microns or less.
c. Particulate matter with a mean aerodynamic diameter of 2.5 microns or less.
d. Nitrogen dioxide.
e. Parts per billion.

3.3 Impact Modeling Methodology

This section describes the modeling methods used by the applicant to demonstrate preconstruction compliance with applicable air quality standards.

3.3.1 General Overview of Impact Analyses

TORF performed the project-specific air pollutant emission inventory and air impact analyses that were submitted with the application. The submitted information/analyses demonstrate 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 9 provides a brief description of parameters used in the modeling analyses.

Table 9. MODELING PARAMETERS.

Parameter	Description/Values	Documentation/Addition Description
General Facility Location	Emmett, Idaho	The area is an attainment or unclassified area for all criteria pollutants.
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 19191.
Meteorological Data	Burley airport surface data with Boise upper air data	This is a five year data set covering 2014-2018. See Section 3.3.4 of this memorandum for additional details of the meteorological data.
Terrain	Considered	1 arc second National Elevation Dataset (NED) files were acquired from the USGS for the surrounding area. AERMAP version 18081 was used to process terrain elevation data for all buildings and receptors. See

Table 9. MODELING PARAMETERS.		
Parameter	**Description/Values**	**Documentation/Addition Description**
		Section 3.3.5 for more details.
Building Downwash	Considered	Plume downwash was considered for the structures associated with the facility. BPIP-PRIME was used to evaluate building dimensions for consideration of downwash effects in AERMOD. See Section 3.3.6.
Receptor Grid	**SILs, NAAQS, and TAPs Analyses**	
	Grid 1	10-meter spacing along the ambient air boundary.
	Grid 2	10-meter spacing of irregularly-placed receptors surrounding the ambient air boundary.
	Grid 3	25-meter spacing in a 600-meter (x) by 625-meter (y) rectangular grid centered on the facility.
	Grid 4	50-meter spacing in a 1,450-meter (x) by 1,450-meter (y) rectangular grid centered on Grid 3.
	Grid 5	100-meter spacing in a 2,500-meter (x) by 2,500-meter (y) rectangular grid centered on Grid 4.
	Grid 6	250-meter spacing in a 6,500-meter (x) by 6,750-meter (y) rectangular grid centered on Grid 5.
	NO_2 Hotspot Receptor Grid Used in Separate Modeling Runs	
	Grid 7	10-meter spacing extending 40 meters from the ambient air boundary along the southwestern region of the facility.

3.3.2 Modeling Methodology

TORF submitted a modeling protocol on May 13, 2020. DEQ issued a conditional modeling protocol approval letter on May 29, 2020. Project-specific modeling and other required impact analyses were generally conducted using data and methods described in the modeling protocol and the *Idaho Air Quality Modeling Guideline*[2].

3.3.3 Model Selection

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in Appendix W. 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 it includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD version 19191 was used by TORF for the modeling analyses to evaluate impacts of the facility. This version was the current version at the time the application was received by DEQ.

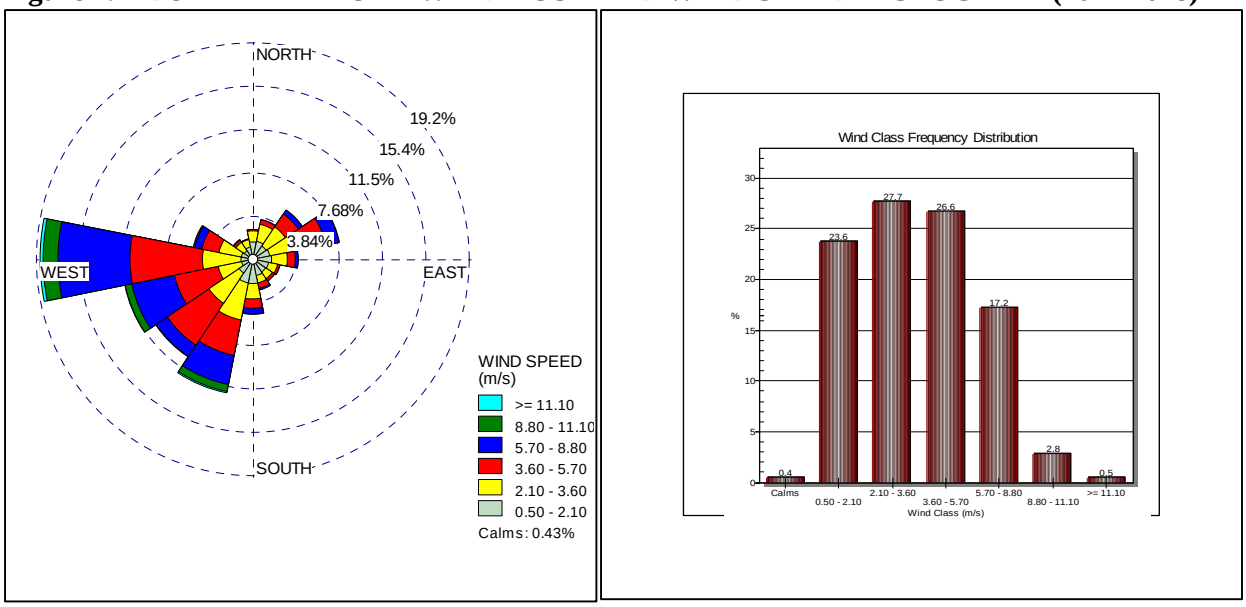
3.3.4 Meteorological Data

DEQ processed a meteorological dataset from data collected at the Burley airport (KBYI) for a five-year data period covering the years 2014-2018. National Weather Service (Station ID 725867-24133) data and one-minute ASOS data from the Burley NCDC site for 2014-2018 was used for surface meteorological data. Upper air soundings required by AERMET were obtained from the Boise airport station (site ID 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 the last thirty years of Burley precipitation data. Conditions were determined to be “wet” for 2014, 2016, and 2017, and “average” for 2015 and 2018. Average moisture content is defined as within a 30 percentile of the 30-year mean of 9.94 inches of precipitation. Continuous snow cover was determined to not exist during 2014-2018. Calms were 0.43% of the data, and less than 1 percent of the data were missing from

the 5-year record. The average wind speed was 3.9 meters/sec.

Figure 1 shows a wind rose and wind speed histogram of the Burley 2014-2018 data. AERMINUTE version 15272 was used to process Automated Surface Observing Systems (ASOS) wind data for use in AERMET. AERMET version 19191 was used to process surface and upper air data and to generate a model-ready meteorological data input file. The "adjust u star" (ADJ_U*) option was applied in AERMET to enhance model performance during low wind speeds under stable conditions. DEQ provided meteorological data to TORF, with and without the ADJ_U* option enabled. Stantec used the meteorological data with the ADJ_U* option enabled. DEQ determined that these data are adequately representative of the meteorology at the HDM facility site in Burley, Idaho, for minor source permitting.

Figure 1. BURLEY AIRPORT WIND ROSE AND WIND SPEED HISTOGRAM (2014-2018)



3.3.5 Effects of Terrain on Modeled Impacts

The ambient air impact analyses used terrain data extracted from two United States Geological Survey (USGS) National Elevation Dataset (NED) 1 arc second files with approximately 30 meter resolution. The terrain preprocessor AERMAP version 18081 was used by TORF 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 emission plume has sufficient energy to travel up and over the terrain or if the plume will travel around the terrain. The terrain in the area the facility is located is relatively flat.

DEQ agrees the treatment of terrain was appropriate for the ambient impact analyses.

3.3.6 Facility Layout and Building Downwash

DEQ verified proper identification of the site location, emission point locations, and the ambient air

boundary by comparing a graphical representation of the modeling input file to plot plan diagrams submitted with the permit application. A GPS field survey established existing building, storage tank, and emission points. The plot plan diagrams provided building and stack coordinates, stack release heights, roof heights, and perimeter wall heights extending above roofline height based on field survey data for the existing sources. The additional height above the roofline height for the perimeter wall was applied to the structure setup as requested by DEQ. The stack locations for the new Dryer 2 process exhaust stacks and the dimensions for the addition to the building that will house the new process were also provided on the plot plan diagram.

Aerial photographic imagery and measurement tools on Google Earth (available at https://www.google.com/earth) were also used to assure that horizontal coordinates were reasonably accurately represented for existing structures dimensions, sources, and ambient air boundary locations.

Figure 2 shows the HDM facility structures and emission sources applied in the modeling analyses. Figures 3 and 4 depict 3-dimensional representations of the modeled structures and sources applied in the model setup. Potential downwash effects on emission plumes were accounted for in the model by using building dimensions and locations. Dimensions and orientation of the structures were used as input to the Building Profile Input Program for the Plume Rise Model Enhancements downwash algorithm (BPIP-PRIME version 04274) to calculate direction-specific dimensions and Good Engineering Practice (GEP) stack height information for input to AERMOD. DEQ determined TORF properly evaluated building downwash effects in the ambient impact analyses.

Figure 2. High Desert Milk Facility Source and Structure Layout

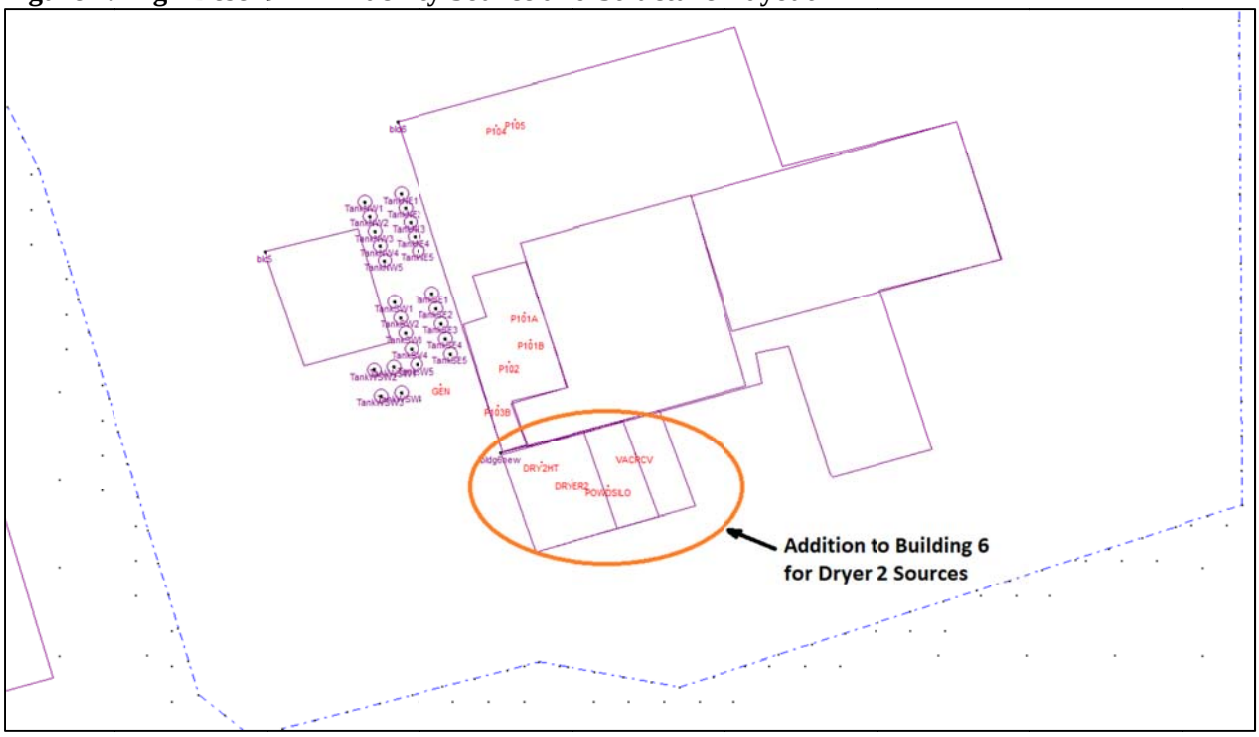


Figure 3 . High Desert Milk 3D View of Structures and Sources from the Southwest

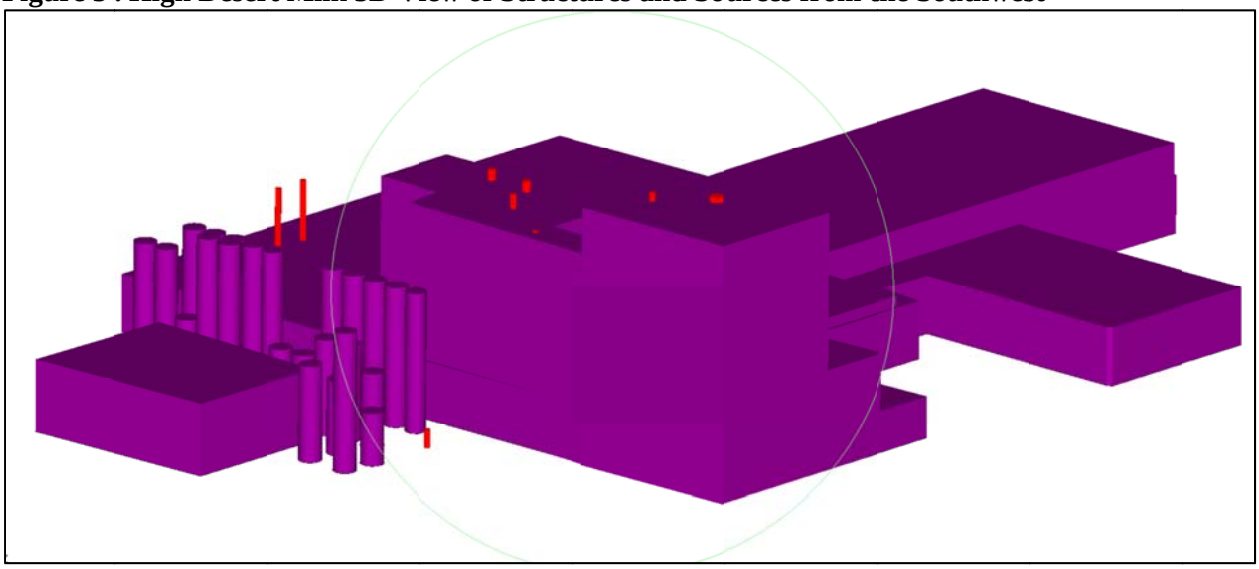
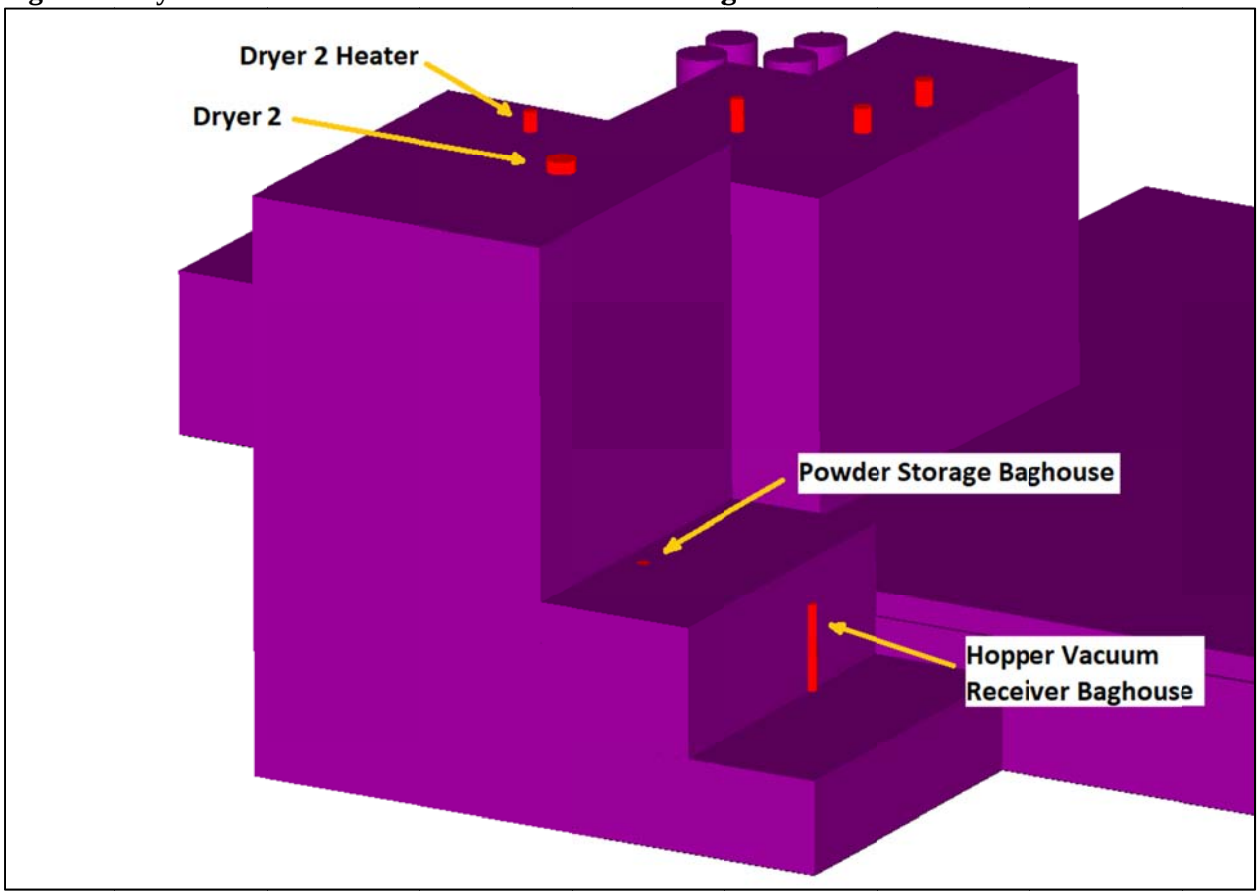


Figure 4. Dryer 2 Sources on the New Addition to Building 6



3.3.7 NOx Chemistry

NO_2 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[4] replaces the previous ARM. EPA guidance[5] on compliance methods for NO_2 states the following for ARM2:

> "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. TORF applied the Tier 2 ARM2 method for these analyses using the default ARM2 minimum value of 0.5 and default ARM2 maximum value of 0.9. DEQ determined the Tier 2 ARM2 method was appropriately applied.

3.3.8 Ambient Air Boundary

Ambient air is defined in Section 006 of the Idaho Air Rules as "that portion of the atmosphere, external to buildings, to which the general public has access." The modeling report described the installation of a new fence line around the HDM property and portions of property HDM leases from the Burley Development Authority. A gate will be installed at the Idaho Avenue entrance to the facility. Design value impacts for the project are located along the southern property boundary where HDM's property borders an active rail line. The ambient air boundary receptors along the southern ambient air boundary agree well with the Cassia County Assessor Office property parcel boundary presented in Appendix B of the permit application. The modeled ambient air boundary exported to Google Earth is shown in Figure 5.

DEQ determined the methods used to preclude public access to the areas not treated as ambient air are acceptable, as per Section 6.5 of the DEQ *Modeling Guideline*[2].

Figure 5. High Desert Milk Ambient Air Boundary

3.3.9 Receptor Network

Table 8 describes the receptor network used in the submitted modeling analyses. Figures 6, 7, and 8 depict the receptor grid applied in the modeling analyses. The receptor grids used met the minimum recommendations specified in the *Idaho Air Quality Modeling Guideline*[2], and when combined with a DEQ sensitivity analysis, was effective in reasonably assuring compliance with applicable air quality standards at all ambient air locations.

Figure 6. High Desert Milk Full Receptor Grid (6.5 km (X) by 6.75 km (Y) Coverage

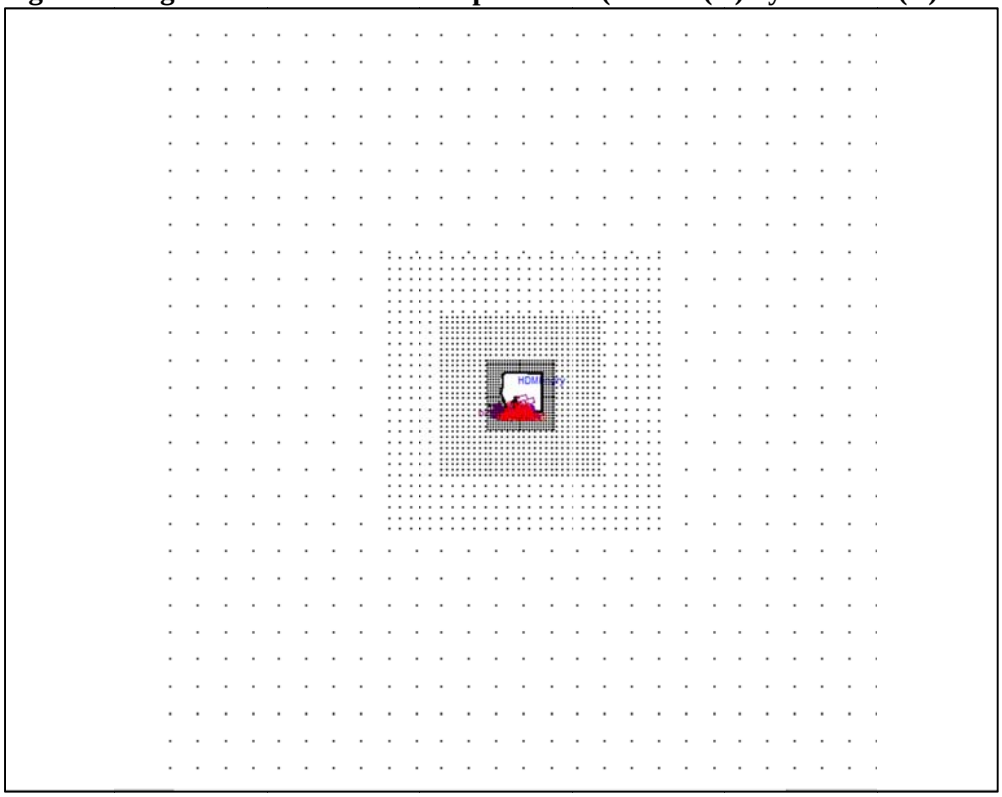
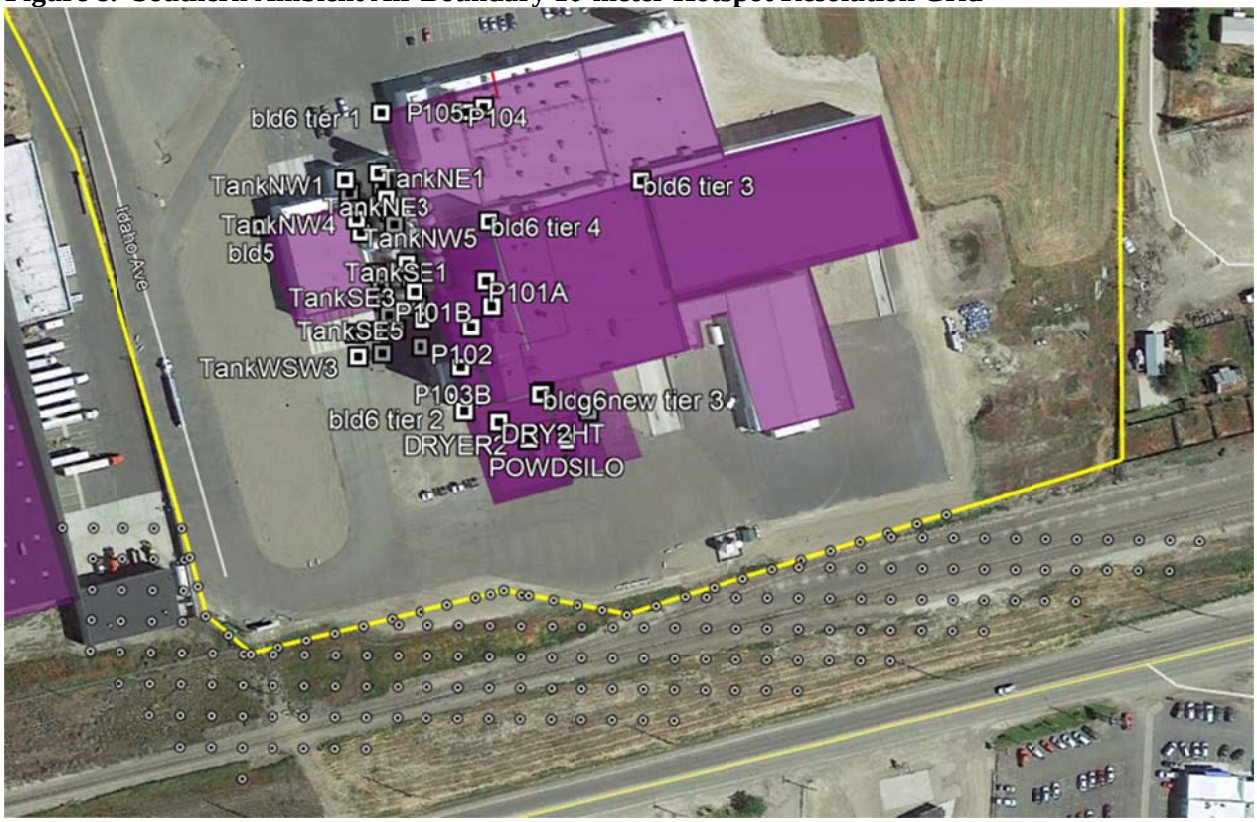


Figure 7. Receptor Grid Resolution Near Ambient Air Boundary for Full Grid

Figure 8. Southern Ambient Air Boundary 10-meter Hotspot Resolution Grid



3.3.10 Good Engineering Practice Stack Height

An allowable good engineering practice (GEP) stack height may be established using the following equation in accordance with Idaho Air Rules Section 512.03.b:

H = S + 1.5L, where:

H = good engineering practice stack height measured from the ground-level elevation at the base of the stack.

S = height of the nearby structure(s) measured from the ground-level elevation at the base of the stack.

L = lesser dimension, height or projected width, of the nearby structure.

All sources modeled at the facility are below GEP stack height. Consideration of downwash caused by nearby buildings was required.

4.0 SIL, NAAQS and TAPs Impact Modeling Results

4.1 Results for NAAQS Analyses

4.1.1 Significant Impact Level Analysis

Results of significant impact level (SIL) analyses were not presented in the modeling report. TORF created a source group that included the new Dryer 2 stack that exhausts emissions from both fluid bed dryers and the cyclone/baghouse controls and the heat exchanger (DRYER2) and the natural gas-fired heating unit stack (DRY2HT) that supplies the heat for the drying process. The new hopper vacuum receiver (VACRV) and new powder silo baghouse vent (POWDSILO) sources were not included, but these two sources emit only very low levels of PM_{10} and $PM_{2.5}$, and the SIL compliance conclusions are not affected. The project's SIL design values and compliance evaluations are listed in Table 10.

Table 10. RESULTS FOR SIGNIFICANT IMPACT ANALYSES

Pollutant	Averaging Period	Modeled Design Value Concentration ($\mu g/m^3$)[a, b]	SIL[c] ($\mu g/m^3$)	Percent of SIL	Cumulative NAAQS Analyses Required?
PM_{10}[d]	24-hour	41.94	5.0	839%	Yes
$PM_{2.5}$[e]	24-hour	31.87	1.2	2,656%	Yes
	Annual	3.11	0.2	1,555%	Yes
NO_2[f]	1-hour	27.64	7.5	369%	Yes
	Annual	0.89	1.0	89%	No
CO[g]	1-hour	456.27	2,000	23%	No
	8-hour	225.77	500	45%	No

a. Micrograms per cubic meter.
b. Maximum 1st highest impact.
c. Significant Impact Level (also referred to as "significant contribution") specified in Section 006.109 of the Idaho *Air Rules*.
d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
f. Nitrogen dioxide.
g. Carbon monoxide.

Maximum impacts for annual NO_2, 1-hour CO, and 8-hour CO were below the SILs. Cumulative impact analyses were not required for these pollutants and averaging periods.

4.1.2 Cumulative NAAQS Impact Analysis

NAAQS analyses were required to be performed for 1-hour NO_2, 24-hour $PM_{2.5}$, annual $PM_{2.5}$, and 24-hour PM_{10}. Table 11 provides results for the cumulative NAAQS impact analyses. For each modeled pollutant, the total impact was calculated by adding the modeled design value for the facility-wide impact to the ambient background value to determine the total impact, which was then compared to the NAAQS.

Table 11. RESULTS FOR CUMULATIVE NAAQS IMPACT ANALYSES							
Pollutant	**Averaging Period**	**Dryer 1 Emission Split Between North (P101A) and South (P101B) Stacks Scenario**	**Modeled Design Value Concentration (µg/m³)[a]**	**Background Concentration (µg/m³)**	**Total Ambient Impact (µg/m³)**	**NAAQS (µg/m³)**	**Percent of NAAQS**
PM_{10}[b]	24-hour	Even Split	50.00[e]	76.6	126.6	150	84%
		100% from South Stack (P101B)	53.38[e]		130.0		87%
		29% from North Stack (P101A) and 71% from South Stack P101B	51.43[e]		128.0		85%
$PM_{2.5}$[c]	24-hour	Even Split	21.84[f]	11.9	33.7	35	96%
		100% from South Stack (P101B)	22.13[f]		34.0		97%
		29% from North Stack (P101A) and 71% from South Stack P101B	21.95[f]		33.9		97%
	Annual	Even Split	5.67[g]	5.4	11.1	12	92%
		100% from South (P101B)	5.67[g]		11.1		92%
		29% from North Stack (P101A) and 71% from South Stack P101B	5.67[g]		11.1		92%
NO_2[d]	1-hour	Even Split	128.46[h]	56.6	185.1	188	98%

a. Micrograms per cubic meter.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
d. Nitrogen dioxide.
e. Design value is the maximum 6th highest 24-hour average impact of a 5-year meteorological dataset. TORF conservatively used the maximum 2nd highest 24-hour average impact of a 5-year meteorological dataset.
f. Design value is the maximum 5-year means of the 8th highest modeled 24-hour concentration for each year of meteorological data using 5 years of meteorological data.
g. Design value is the maximum of 5-year means of annual average concentrations using 5 years of meteorological data.
h. Design value is the maximum 5-year mean of the 8th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled.

Ambient impacts for the facility, when combined with approved ambient backgrounds, were below the 1-hour NO_2, 24-hour $PM_{2.5}$, annual $PM_{2.5}$, and 24-hour PM_{10} NAAQS at all receptors.

4.2 Results for TAPs Impact Analyses

Table 12 provides a summary of TAP impacts for the project for those TAPs with emission increases exceeding the ELs. The proposed Dryer 2 heater was the only source of TAPs emissions subject to impact analyses requirements. Emissions of non-carcinogenic TAPs did not exceed the ELs of Idaho Air Rules Section 585.

Table 12. TAP AIR IMPACT ANALYSIS RESULTS				
TAP	**Averaging Period**	**Maximum Modeled Impact (µg/m³)[a]**	**AACC[b] (µg/m³)**	**Percent of AACC**
Arsenic	Annual	3.3E-06	2.3E-04	1.4%
Cadmium	Annual	2E-05	5.6E-04	3.6%
Formaldehyde	Annual	1.2E-03	7.7E-02	1.6%
Nickel	Annual	3E-05	4.2E-03	0.7%

a. Micrograms per cubic meter.
b. Acceptable ambient concentration for carcinogens. Modeled impact and AACC represent an 8,760-hour averaged concentration.

4.3 DEQ Sensitivity Analyses

Release parameter review for the existing Fluid Bed Dryer Baghouse (model ID P102) indicated that the volumetric exhaust flow rate was greater than supported by the release parameter justification materials. . The application's analyses applied an exit diameter of 2.5 feet, an exit velocity of 16.79 meters/sec, and a volumetric flow rate of 16,228 ACFM.

The modeled stack exit diameter of 2.5 feet is a field survey measured value by TORF and is representative of the diameter at the stack termination. The release parameter justification materials shown in Figure 9 list a volumetric flow rate of 7,950 ACFM, and an exit velocity of 16.78 meters/sec based on stack diameter of 1.75 feet. Volumetric flow rate is not affected unless the fan and/or blower motor is altered from the original design. Changes to the pneumatic system were not described or supported in the permit application and the flow rate of the 7,950 ACFM is assumed to be representative of for this stack. Exit velocity decreases with increased exit diameter, and DEQ applied the supported volumetric exhaust flow rate in the sensitivity analyses. The exit velocity based on a 2.5 feet exit diameter and 7,950 ACFM is 8.23 meters/sec (27.0 feet/sec).

Figure 9. Existing Fluid Bed Baghouse Release Parameter Substantiation Documentation

Criteria Air Pollutant Emissions

Fluid-Bed Baghouse (P102)

Combustion Source Characteristics	
Manufacturer	C/E/Rogers
Model	Fluid-Bed Baghouse
Baghouse Efficiency	99.93%

Stack Data	
Stack ID	P102
Stack Height (ft)	114.0
Stack Diameter (ft)	1.75
Exit Gas Temperature (°F)	130
Wet Actual Flow Rate (acfm)	7,950
Stack Velocity (m/s)	16.78

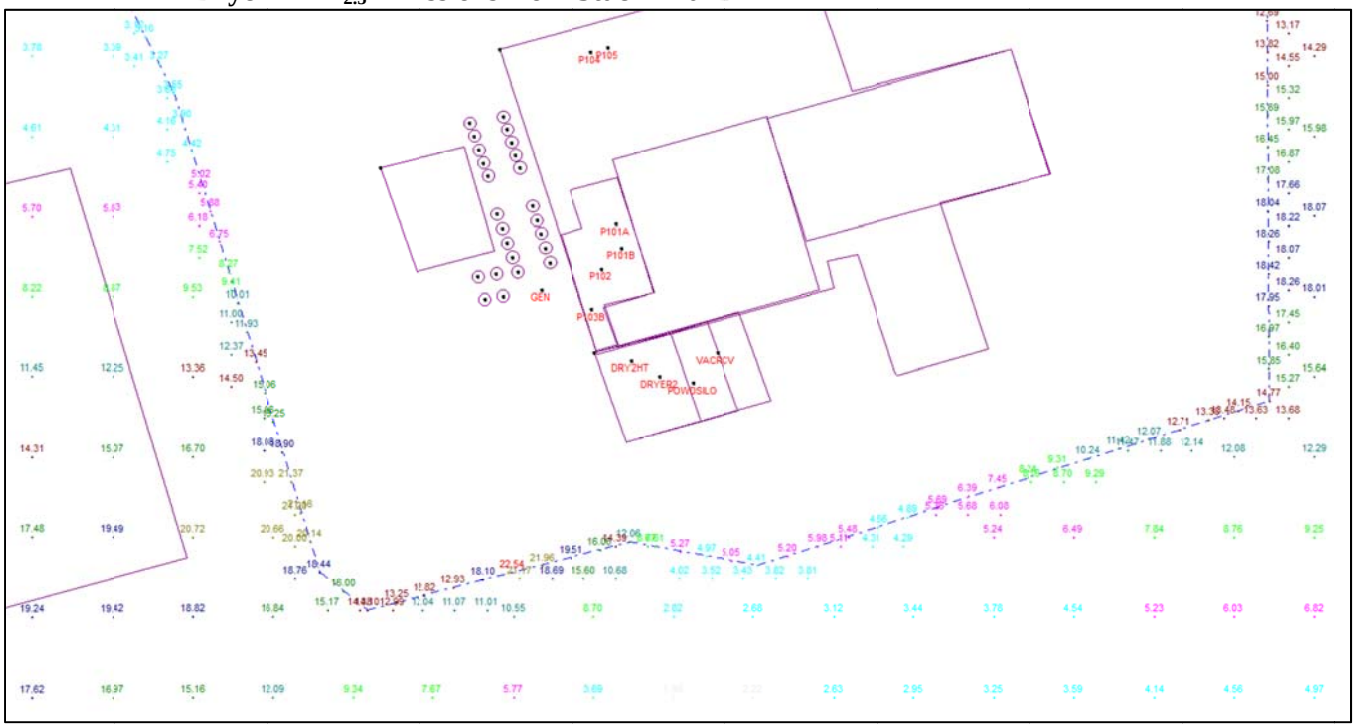
DEQ selected the modeled scenario with the highest predicted ambient impact, where the Dryer 1 $PM_{2.5}$ emission rate split between Stacks P101A and P101B had all emissions from stack P101B for use in this sensitivity analysis. Release parameters used were supported by the application materials. The sensitivity analyses were run using both the standard receptor grid and the southern ambient air boundary 10-meter hotspot receptor grid for 24-hour $PM_{2.5}$ to verify that maximum impacts had been resolved for the project. The sensitivity analysis design value impact for both receptor grids were identical and were predicted to occur at the same receptor for the both sensitivity analyses and the application's ambient impact analyses.

Correction of the stack P102 exhaust flow rate and exit velocity resulted in design values that demonstrated compliance with the 24-hour $PM_{2.5}$ NAAQS as shown in Table 13. The regions of highest 24-hour $PM_{2.5}$ impacts are located along the southeast and southwest regions at the ambient air boundary as shown in Figure 10. Stack P102 only emits PM_{10} and $PM_{2.5}$ and the 1-hour NO_2 NAAQS compliance demonstration is not affected by stack P102 release parameters. DEQ concludes that NAAQS compliance has been adequately demonstrated.

Table 13. RESULTS FOR DEQ SENSITIVITY ANALYSES						
Pollutant	**Averaging Period**	**Modeled Design Value Concentration ($\mu g/m^3$)[a]**	**Background Concentration ($\mu g/m^3$)**	**Total Ambient Impact ($\mu g/m^3$)**	**NAAQS[b] ($\mu g/m^3$)**	**Percent of NAAQS**
$PM_{2.5}$[c]	24-hour	22.54[d]	11.9	34.4	35	98%

a. Micrograms per cubic meter.
b. National Ambient Air Quality Standard.
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
d. Design value is the maximum 5-year means of the 8th highest modeled 24-hour concentration for each year of meteorological data using 5 years of meteorological data.

Figure 10. DEQ 24-hr $PM_{2.5}$ Sensitivity Analysis–Stack P102 at 7,950 ACFM Flow Rate and All Dryer 1 $PM_{2.5}$ Emissions from Stack P101B



5.0 Conclusions

The information submitted with the PTC application, combined with DEQ's sensitivity analyses, demonstrated to DEQ's satisfaction that emissions from the High Desert Milk facility, located in Burley, will not cause or significantly contribute to a violation of any applicable ambient air quality standard or TAP increment.

References

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

2. *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.

3. *Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program.* United States Environmental Protection Agency, Office of Air Quality Planning and Standards. April 30, 2019. EPA-454_R-19-003. Available at https://www3.epa.gov/ttn/scram/guidance/guide/EPA-454_R-19-003.pdf.

4. *User's Guide for the AMS/EPA Regulatory Model (AERMOD)*. Table 3-2. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, EPA-454/B-19-027. August 2019. Available at https://www3.epa.gov/ttn/scram/models/aermod/aermod_userguide.pdf.

APPENDIX C – FACILITY DRAFT COMMENTS

The following comments were received from the facility on February 19, 2021:

Suggested corrections to process descriptions in the permit (Permit Conditions 1.4, 2.1, and 4.1) and statement of basis were submitted and incorporated as follows, and were found to be consistent with the information included in the application and evaluated by DEQ. Although comments as follows were also submitted regarding the throughput limit and associated monitoring (Permit Conditions 2.9 and 2.11), these were subsequently withdrawn, and as such were not addressed.

Morrie,

Shawn has decided to accept the draft permit milk production limit as currently written. We appreciate your discussion of alternatives yesterday.

As you know, High Desert Milk is interested in receiving final permit authorization as soon as possible. Please let me know if you have any questions or would like any additional correspondence.

Regards,

Mark

_____

Mark Torf
TORF Environmental Management
mtorf@torf.us
208-345-7222 office
208-890-4608 mobile

Air Quality

PERMIT TO CONSTRUCT

Permittee	High Desert Milk, Inc.
Permit Number	P-2008.0050
Project ID	62468
Facility ID	031-00034
Facility Location	1033 Idaho Avenue Burley, ID 83318

Permit Authority

This permit (a) is issued according to the "Rules for the Control of Air Pollution in Idaho" (Rules), IDAPA 58.01.01.200–228; (b) pertains only to emissions of air contaminants regulated by the State of Idaho and to the sources specifically allowed to be constructed or modified by this permit; (c) has been granted on the basis of design information presented with the application; (d) does not affect the title of the premises upon which the equipment is to be located; (e) does not release the permittee from any liability for any loss due to damage to person or property caused by, resulting from, or arising out of the design, installation, maintenance, or operation of the proposed equipment; (f) does not release the permittee from compliance with other applicable federal, state, tribal, or local laws, regulations, or ordinances; and (g) in no manner implies or suggests that the Idaho Department of Environmental Quality (DEQ) or its officers, agents, or employees assume any liability, directly or indirectly, for any loss due to damage to person or property caused by, resulting from, or arising out of design, installation, maintenance, or operation of the proposed equipment. Changes in design, equipment, or operations may be considered a modification subject to DEQ review in accordance with IDAPA 58.01.01.200–228.

Date Issued DRAFT February 8, 2021

Morrie Lewis, Permit Writer

Mike Simon, Stationary Source Bureau Chief

Contents

1 Permit Scope

Purpose

1.1 This is a modified permit to construct (PTC) to install and operate an additional production line. Process equipment added includes the Dryer 2 and associated heater, the Powder Silo 2, and the Hopper Vacuum Receiver.

1.2 Those permit conditions that have been modified or revised by this permitting action are identified by the permit issue date citation located directly under the permit condition and on the right-hand margin.

1.3 This PTC replaces Permit to Construct No. P-2008.0050, issued on June 3, 2008.

Regulated Sources

1.4 Table 1.1 lists all sources of regulated emissions in this permit.

Table 1.1 Regulated Sources

Permit Section	Source	Control Equipment (Emission Point)
2	Dryer 1 and associated heater Emissions Unit Name: Skim Milk Dryer (P101) Manufacturer: C/E/Rogers Burner: Maxon Model: Crossfire Low NO_x Line Burner Max Capacity: 32.5 MMBtu/hr Operation: 8,760 hr/yr Fuel: natural gas	Dryer 1 Baghouses (P101A & P101B)
2	Dryer 2 and associated heater Emissions Unit Name: Skim Milk Dryer (DRYER2) Manufacturer: Relco Burner: Maxon (DRYER2HT) Model: Low NO_x Max Capacity: 26.0 MMBtu/hr Operation: 8,760 hr/yr Fuel: natural gas	Dryer 2 Baghouse (DRYER2) None (DRYER2HT)
3	Boiler 1 Manufacturer: Superior Boiler Works Model: 4000 Maximum capacity: 33.48 MMBtu/hr Operation: 8,760 hr/yr Fuel: natural gas	None (P104)
3	Boiler 2 Manufacturer: Superior Boiler Works Model: 4000 Maximum capacity: 33.48 MMBtu/hr Operation: 8,760 hr/yr Fuel: natural gas	None (P105)
4	Fluid Bed Manufacturer: C/E/Rogers Maximum capacity: 9,000 lb/hr	Fluid Bed Baghouse (P102) Manufacturer: C/E/Rogers Control Efficiency: PM/PM10: 99.93%
4	Powder Silo 1 Manufacturer: C/E/Rogers	Powder Handling Baghouse (P103B) Manufacturer: C/E/Rogers Control Efficiency: 98.4 % for PM/PM10
4	Powder Silo 2 Three, operated one at a time Manufacturer: Relco Model: ~~Three in series~~	Powder Silo Baghouse (POWDSILO) Manufacturer: ~~C/E/Rogers~~ Relco Control Efficiency: ~~99.0 % for PM/PM10~~ 99% or better for PM/PM10
4	Hopper Vacuum Receivers	Hopper Vacuum Receiver Baghouses (VACRCV) Manufacturer: Relco Control Efficiency: ~~0.01 gr/dscf~~ 99% or better for PM/PM10

Table 1.1 Regulated Sources

Permit Section	Source	Control Equipment (Emission Point)
5	Emergency Generator Manufacturer: Cummins Model: QST30-G5 Max Capacity: 1490 HP Displacement: 2.55 liters/cylinder Ignition: compression Fuel: diesel	None

[2/08/2021]

Tier I Source

1.5 Commencing Operation Notification

In accordance with IDAPA 58.01.01.314.06, the permittee shall notify DEQ in writing the date upon which the Tier I source (Dryer 2) commences operation. The notification shall be titled, "TIER I SOURCE NOTIFICATION OF COMMENCING OPERATION," and shall include the name of the permittee, the permit and project numbers, the date the permit was issued, and the date the Tier I source commences operation. The notification shall be submitted to DEQ within five (5) days of commencing operation and shall be sent to:

Air Quality Permitting
Idaho Department of Environmental Quality
1410 N. Hilton
Boise, ID 83706-1255

[2/08/2021]

1.6 Tier I Operating Permit

In accordance with IDAPA 58.01.01.313.01.b, the permittee shall submit a complete application to DEQ for an initial Tier I operating permit within 12 months of becoming a Tier I source or commencing operation.

[2/08/2021]

Incorporation of Federal Requirements by Reference

1.7 Unless expressly provided otherwise, any reference in this permit to any document identified in IDAPA 58.01.01.107.03 shall constitute the full incorporation into this permit of that document for the purposes of the reference, including any notes and appendices therein. Documents include, but are not limited to:

- Standards of Performance for New Stationary Sources (NSPS) 40 CFR 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
- NSPS 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

The permittee shall comply with all applicable NSPS and NESHAP requirements. For permit conditions referencing or cited in accordance with any document incorporated by reference (including permit conditions identified as NSPS or NESHAP), should there be any conflict between the requirements of the permit condition and the requirements of the document, the requirements of the document shall govern, including any amendments to that regulation.

[2/08/2021]

2 Dryers

2.1 Process Description

The facility processes up to 5 million pounds of raw milk received by tanker truck per day, producing sweet cream, skim milk, and dried milk products. Milk will be processed in the natural gas-fired dryers to prepare dried milk products. Natural gas combustion products are exhausted through the baghouse stacks for Dryer 1, and are exhausted separately for Dryer 2. For each dryer, particulate emissions are split between two cyclone-and-baghouse sets in series (i.e., two sets per dryer) to recover milk powder products (including MPC70, MP80, and MPI). Emissions are recombined and exhausted in a single stack for Dryer 2, and are exhausted in separate stacks for Dryer 1. Product collected in the cyclones and baghouses is diverted to the fluid bed.

In one production line, the dried solids will be cooled in the fluid bed. Exhaust air from the fluid bed will pass through a baghouse (P102) and then be discharged. The powder from the fluid bed cooler will drop through an airlock, through a rotary sifter, and onto a conveyor for transfer to a storage silo. Exhaust from the silos passes through a baghouse (P103B) and then discharge to the atmosphere.

~~In a second production line, powder is transferred through one of two sifter accumulation hopper vacuum receivers. Powder from the silos is transported with a vacuum dense phase transport system to one sifter accumulation hopper. The sifter accumulation hopper has two vacuum receivers (small baghouses). Both baghouses vent outside the building through a common 6-inch diameter vent. Only one vacuum receiver is running at a given time (cycle back and forth). Only one bin vent is running at a given time~~.

~~The operating receiver delivers powder to one of three powder handling silos. Exhaust from the operating silo passes through a baghouse (POWDSILO) and then discharges to the atmosphere.~~

Milk powder products stored in the silos are packaged and shipped off-site.

[2/08/2021]

2.2 Control Device Descriptions

Table 2.1 Dryer Control Device Descriptions

Emissions Units / Processes	Control Devices	Emission Points
Dryer 1	Dryer 1 Baghouses	Dryer 1 baghouse stacks
Dryer 2	Dryer 2 Baghouse and none (Dryer 2 Heater)	Dryer 2 Baghouse stack Dryer 2 Heater stack

[2/08/2021]

In a second production line, the operating receiver delivers powder via dense phase to one of three powder handling silos (filling one at a time). Exhaust from the operating silo passes through a baghouse (POWDSILO) and then discharges to the atmosphere through common 6-inch diameter vent. Powder from the silos is then transported with a vacuum dense phase transport system to the sifter accumulation hopper. The sifter accumulation hopper has two vacuum receivers. Exhaust from the operating vacuum receiver passes through a baghouse (VACRCV) and then discharges to the atmosphere through the common 6-inch diameter vent. Only one vacuum receiver is running at a given time (cycle back and forth).

Emissions Limits

2.3 Dryer Emissions Limits

The emissions from each dryer stack shall not exceed any corresponding emissions rate limit listed in the following table. All drying process and associated dryer heater emissions shall be ducted to the corresponding dedicated stack(s) at all times.

Table 2.2 Dryer Emission Limits [a]

Source Description	$PM_{2.5}$ [b]		PM_{10} [c]		NO_x		CO	
	lb/hr [d]	T/yr [e]	lb/hr [d]	T/yr [e]	lb/hr [d]	T/yr [e]	lb/hr [d]	T/yr [e]
Dryer 1 and associated heater stacks (P101A & P101B) [f]	4.60	20.15	4.60	20.15	1.46	6.42	11..90	52.20
Dryer 2 stack (DRYER2)	8.82	38.63	8.82	38.63				
Dryer 2 heater stack (DRYER2HT)	0.20	0.87	0.20	0.87	1.57	6.88	20.98	91.89

a) In absence of any other credible evidence, compliance is ensured by complying with permit operating, monitoring, and record keeping requirements.
b) Particulate matter (PM) with an aerodynamic diameter less than or equal to a nominal two point five (2.5) micrometers, including condensable particulate as defined in IDAPA 58.01.01.006.
c) PM with an aerodynamic diameter less than or equal to a nominal ten (10) micrometers, including condensable particulate as defined in IDAPA 58.01.01.006.
d) Pounds per hour, as determined by a test method prescribed by IDAPA 58.01.01.157, EPA reference test method, continuous emission monitoring system (CEMS) data, or DEQ-approved alternative.
e) Tons per any consecutive 12-calendar month period.
f) Each emission limit for Dryer 1 is for the total emissions measured from both stacks (P101Aand P101B, combined.

[2/08/2021]

2.4 Process Weight-Based Particulate Matter Emissions Limits

The permittee shall not emit PM to the atmosphere from any process or process equipment in excess of the amount shown by the equations in IDAPA 58.01.01.700-703.

[2/08/2021]

2.5 Opacity Limit

Emissions from each dryer stack, or any other stack, vent, or functionally equivalent opening associated with a dryer shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required by IDAPA 58.01.01.625. Opacity shall be determined by the procedures contained in IDAPA 58.01.01.625.

[2/08/2021]

Operating Requirements

2.6 Fuel type

The dryer heaters shall be fired on natural gas only.

[2/08/2021]

2.7 O&M Manual

Within 60 days after permit issuance, the permittee shall have developed an Operation and Maintenance (O&M) manual for the baghouses, which describes the procedures that will be followed to comply with control device maintenance and operation requirements (General Provision 6.2) and the manufacturer specifications for the baghouse. This manual shall remain onsite at all times and shall be made available to DEQ representatives upon request. Any changes to the O&M shall be submitted to DEQ for review and comment within 15 days of the change. The permittee shall operate control equipment in accordance with the O&M manual at all times. The requirements in the O&M manual shall be incorporated by reference to this permit and shall be enforceable permit conditions. At a minimum, the O&M manual shall include the following for each baghouse (Table 1.1):

- Minimum pressure drop across each baghouse

[2/08/2021]

2.8 Baghouse Pressure Drop

The permittee shall install, calibrate, operate, and maintain pressure drop monitoring devices to continuously measure the pressure drop across each baghouse listed in the dryer control device descriptions (Table 2.1). The pressure drop across each baghouse shall be maintained within manufacturer's and O&M Manual specifications.

2.9 Throughput limit

The permittee shall not process more than a combined 5.0 million pounds of raw milk per day (2500 T/day) in the dryers. calculated based on a weekly average.

[2/08/2021]

Monitoring and Recordkeeping Requirements

2.10 Baghouse Pressure Drop Monitoring

The permittee shall monitor and record the pressure drop of each baghouse daily and conduct quarterly baghouse inspections. The records shall include at a minimum the date of each inspection, description of the structural integrity of the bags/filters, and a description of any maintenance or corrective action performed. Records of this information shall be maintained in accordance with monitoring and recordkeeping requirements (General Provision 6.10).

[2/08/2021]

2.11 Throughput Monitoring and Record Keeping

and the total weekly average

The permittee shall monitor and record the amount of milk processed by each dryer daily to demonstrate compliance with the throughput limit. The amount of raw milk processed shall be recorded in pounds per day. Each month, the daily amount of milk processed shall be summed over the previous consecutive 12-month period. Records of this information shall be maintained in accordance with general provisions.

[2/08/2021]

Performance Testing Requirements

2.12 Dryer Tests

Within 180 days after dryer startup, the permittee shall conduct a performance test to measure $PM_{2.5}$ and PM_{10} emissions from each dryer stack to demonstrate compliance with the corresponding $PM_{2.5}$ and PM_{10} emission limits in the Dryer Emissions Limits condition (Permit Condition 2.3). The $PM_{2.5}$ and PM_{10} emission tests shall be conducted in accordance with the procedures outlined in 40 CFR 60, Appendix A, Methods 5 and 202, or Methods 201A and 202, or a DEQ-approved alternative. Emissions from dryer stacks P101A and P101B shall be measured concurrently. During each test, the dryer shall be operated at the worst-case normal production rate, in accordance with IDAPA 58.01.01.157 and performance testing requirements (General Provisions 6.7–6.9). A description of how this requirement was met shall be included in each performance test report.

Subsequent testing shall be performed according to the following schedule:

- If the dryer emission rate measured in the most recent test is less than or equal to 75% of the corresponding dryer emission limit (Permit Condition 2.3), the next test shall be conducted within five years of the test date.
- If the dryer emission rate measured during the most recent performance test is greater than 75% but less than or equal to 90% of the corresponding dryer emission limit (Permit Condition 2.3), the next test shall be conducted within two years of the test date.
- If the dryer emission rate measured during the most recent performance test is greater than 90% of the corresponding dryer emission limit (Permit Condition 2.3), the next test shall be conducted within one year of the test date.

[2/08/2021]

2.13 Dryer Tests Monitoring

The permittee shall monitor and record the following during each test:

- The visible emissions observed for the stack tested during each test, using the methods specified in IDAPA 58.01.01.625.
- The pressure drop across the relevant baghouse for the stack tested.
- The input rate of raw milk to the dryer tested in pounds per hour.

[2/08/2021]

Reporting Requirements

2.14 Dryer Test Reporting

Performance test reporting shall be furnished to DEQ in accordance with the performance testing requirements (General Provisions 6.7–6.9).

[2/08/2021]

3 Boilers

3.1 Process Description

The boilers combust natural gas to produce steam for the milk drying processes.

[2/08/2021]

3.2 Control Device Descriptions

Table 3.1 Boiler Control Device Descriptions

Emissions Units / Processes	Control Devices	Emission Points
Boiler 1	None	P104
Boiler 2	None	P105

[2/08/2021]

Emissions Limits

3.3 Emissions Limits

The emissions from each boiler stack shall not exceed any corresponding emission rate limit listed in the following table.

Table 3.2 Boiler Emission Limits [a]

Source Description	$PM_{2.5}$ [b]		PM_{10} [c]		NO_x		CO	
	lb/hr [d]	T/yr [e]	lb/hr [d]	T/yr [e]	lb/hr [d]	T/yr [e]	lb/hr [d]	T/yr [e]
Boiler 1 stack (P104)	0.25	1.09	0.25	1.09	3.29	14.38	2.76	12.08
Boiler 2 stack (P105)	0.25	1.09	0.25	1.09	3.29	14.38	2.76	12.08

a) In absence of any other credible evidence, compliance is ensured by complying with permit operating, monitoring, and record keeping requirements.
b) Particulate matter (PM) with an aerodynamic diameter less than or equal to a nominal two point five (2.5) micrometers, including condensable particulate as defined in IDAPA 58.01.01.006.
c) PM with an aerodynamic diameter less than or equal to a nominal ten (10) micrometers, including condensable particulate as defined in IDAPA 58.01.01.006.
d) Pounds per hour, as determined by a test method prescribed by IDAPA 58.01.01.157, EPA reference test method, continuous emission monitoring system (CEMS) data, or DEQ-approved alternative.
e) Tons per any consecutive 12-calendar month period.

[2/08/2021]

3.4 Particulate Matter Emissions

The permittee shall not discharge to the atmosphere from any fuel-burning equipment PM in excess of 0.015 gr/dcsf of effluent gas corrected to 3% oxygen by volume for gas in accordance with IDAPA 58.01.01.676.

Operating Requirements

3.5 Fuel type

The boilers shall be fired on natural gas only.

3.6 NSPS 40 CFR 60, Subpart Dc

The permittee shall comply with the applicable requirements of 40 CFR 60, Subpart Dc.

[2/08/2021]

3.7 Stack height

The boilers shall have a minimum stack height of 65 feet above ground level, with unimpeded vertical flow. The stack heights shall be increased to this height prior to startup of Dryer 2.

[2/08/2021]

In a second production line, the operating receiver delivers powder via dense phase to one of three powder handling silos (filling one at a time). Exhaust from the operating silo passes through a baghouse (POWDSILO) and then discharges to the atmosphere through common 6-inch diameter vent. Powder from the silos is then transported with a vacuum dense phase transport system to the sifter accumulation hopper. The sifter accumulation hopper has two vacuum receivers. Exhaust from the operating vacuum receiver passes through a baghouse (VACRCV) and then discharges to the atmosphere through the common 6-inch diameter vent. Only one vacuum receiver is running at a given time (cycle back and forth).

4 Fluid Bed and Powder Storage

4.1 Process Description

Dried solids will be cooled in the fluid bed. Exhaust air from the fluid bed will pass through a baghouse (P102) and then be discharged. The powder from the fluid bed cooler will drop through an airlock, through a rotary sifter, and onto a conveyor for transfer to a storage silo. Exhaust from the silos passes through a baghouse (P103B) and then discharge to the atmosphere. ~~In a second production line, powder is transferred through one of two sifter accumulation hopper vacuum receivers. Powder from the silos is transported with a vacuum dense phase transport system to one sifter accumulation hopper. The sifter accumulation hopper has two vacuum receivers (small baghouses). Both baghouses vent outside the building through a common 6-inch diameter vent. Only one vacuum receiver is running at a given time (cycle back and forth). Only one bin vent is running at a given time.~~

~~The operating receiver delivers powder to one of three powder handling silos. Exhaust from the operating silo passes through a baghouse (POWDSILO) and then discharges to the atmosphere.~~ Milk powder products stored in the silos are packaged and shipped off-site.

4.2 Control Device Descriptions

Table 4.1 Fluid Bed and Powder Storage Control Device Descriptions

Emissions Units / Processes	Control Devices	Emission Points
Fluid Bed	Fluid Bed Baghouse	P102
Powder Handling Line 1 (Powder Silo 1)	Powder Handling Baghouse	P103B
Powder Handling Line 2 (Powder Silo 2, Hopper Vacuum Receiver)	Powder Silo Baghouse, and Hopper Vacuum Receiver Baghouses	POWDSILO and VACRCV

[2/08/2021]

Emissions Limits

4.3 Opacity Limit

Emissions from any baghouse stack, or any other stack, vent, or functionally equivalent opening associated with the fluid bed or powder handling shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required by IDAPA 58.01.01.625. Opacity shall be determined by the procedures contained in IDAPA 58.01.01.625.

[2/08/2021]

4.4 Emission Limits

The emissions from each baghouse stack shall not exceed any corresponding emissions rate limit listed in the following table. All fluid bed and powder process emissions shall be ducted to the corresponding dedicated baghouse stack at all times.

Table 4.2 Fluid Bed and Powder Storage Emission Limits [a]

Source Description	$PM_{2.5}$ [b]		PM_{10} [c]	
	lb/hr [d]	T/yr [e]	lb/hr [d]	T/yr [e]
Fluid Bed Baghouse stack (P102)	1.08	4.73	1.08	4.73
Powder Handling Baghouse stack (P103B)	0.12	0.50	0.12	0.50
Powder Silo Baghouse stack (POWDSILO)	0.0036	0.016	0.0036	0.016
Hopper Vacuum Receiver Baghouse stack (VACRCV)	0.0036	0.016	0.0036	0.016

a) In absence of any other credible evidence, compliance is ensured by complying with permit operating, monitoring, and record keeping requirements.
b) Particulate matter (PM) with an aerodynamic diameter less than or equal to a nominal two point five (2.5) micrometers, including condensable particulate as defined in IDAPA 58.01.01.006.
c) PM with an aerodynamic diameter less than or equal to a nominal ten (10) micrometers, including condensable particulate as defined in IDAPA 58.01.01.006.
d) Pounds per hour, as determined by a test method prescribed by IDAPA 58.01.01.157, EPA reference test method, continuous emission monitoring system (CEMS) data, or DEQ-approved alternative.
e) Tons per any consecutive 12-calendar month period.

[2/08/2021]

Operating Requirements

4.5 Operations and Maintenance (O&M) Manual Requirements and Baghouse Pressure Drop

Within 60 days after permit issuance, the permittee shall have developed an O&M manual for the baghouses, which describes the procedures that will be followed to comply with control device maintenance and operation requirements (General Provision 6.2) and the manufacturer specifications for the baghouse. This manual shall remain onsite at all times and shall be made available to DEQ representatives upon request. Any changes to the O&M shall be submitted to DEQ for review and comment within 15 days of the change. The permittee shall operate control equipment in accordance with the O&M manual at all times. The requirements in the O&M manual shall be incorporated by reference to this permit and shall be enforceable permit conditions. At a minimum, the O&M manual shall include the following for each baghouse (Table 1.1):

- Minimum pressure drop across each baghouse

[2/08/2021]

4.6 Baghouse Pressure Drop

The permittee shall install, calibrate, operate, and maintain pressure drop monitoring devices to continuously measure the pressure drop across each baghouse listed in the boiler control device descriptions (Table 4.1). The pressure drop across each baghouse shall be maintained within manufacturer's and O&M manual specifications.

Monitoring and Recordkeeping Requirements

4.7 Baghouse Pressure Drop Monitoring

The permittee shall monitor and record the pressure drop of each baghouse daily and conduct quarterly baghouse inspections. The records shall include at a minimum the date of each inspection, description of the structural integrity of the bags/filters, and a description of any maintenance or corrective action performed. Records of this information shall be maintained in accordance with monitoring and recordkeeping requirements (General Provision 6.10).

[2/08/2021]

5 Emergency Generator

5.1 Process Description

The emergency generator will supply backup power in the event of an electrical interruption in the main power supply.

5.2 Control Device Description

Emissions from the emergency generator are uncontrolled.

Operating Requirements

5.3 Allowable Fuels

The emergency generator shall combust only diesel fuel.

[2/08/2021]

5.4 NSPS 40 CFR 60, Subpart IIII

The permittee shall comply with the applicable requirements of 40 CFR 60, Subpart IIII.

[2/08/2021]

6 General Provisions

General Compliance

6.1 The permittee has a continuing duty to comply with all terms and conditions of this permit. All emissions authorized herein shall be consistent with the terms and conditions of this permit and the "Rules for the Control of Air Pollution in Idaho." The emissions of any pollutant in excess of the limitations specified herein, or noncompliance with any other condition or limitation contained in this permit, shall constitute a violation of this permit, the "Rules for the Control of Air Pollution in Idaho," and the Environmental Protection and Health Act (Idaho Code §39-101, et seq).

[Idaho Code §39-101, et seq.]

6.2 The permittee shall at all times (except as provided in the "Rules for the Control of Air Pollution in Idaho") maintain in good working order and operate as efficiently as practicable all treatment or control facilities or systems installed or used to achieve compliance with the terms and conditions of this permit and other applicable Idaho laws for the control of air pollution.

[IDAPA 58.01.01.211, 5/1/1994]

6.3 Nothing in this permit is intended to relieve or exempt the permittee from the responsibility to comply with all applicable local, state, or federal statutes, rules, and regulations.

[IDAPA 58.01.01.212.01, 5/1/1994]

Inspection and Entry

6.4 Upon presentation of credentials, the permittee shall allow DEQ or an authorized representative of DEQ to do the following:

- Enter upon the permittee's premises where an emissions source is located, emissions-related activity is conducted, or where records are kept under conditions of this permit;
- Have access to and copy, at reasonable times, any records that are kept under the conditions of this permit;
- Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and
- As authorized by the Idaho Environmental Protection and Health Act, sample or monitor, at reasonable times, substances or parameters for the purpose of determining or ensuring compliance with this permit or applicable requirements.

[Idaho Code §39-108]

Construction and Operation Notification

6.5 This permit shall expire if construction has not begun within two years of its issue date, or if construction is suspended for one year.

[IDAPA 58.01.01.211.02, 5/1/1994]

6.6 The permittee shall furnish DEQ written notifications as follows:

- A notification of the date of initiation of construction, within five working days after occurrence; except in the case where pre-permit construction approval has been granted then notification shall be made within five working days after occurrence or within five working days after permit issuance whichever is later;
- A notification of the date of any suspension of construction, if such suspension lasts for one year or more; and
- A notification of the initial date of achieving the maximum production rate, within five working days after occurrence - production rate and date.

[IDAPA 58.01.01.211.01, 5/1/1994]

- A notification of the anticipated date of initial start-up of the stationary source or facility not more than sixty days or less than thirty days prior to such date; and
- A notification of the actual date of initial start-up of the stationary source or facility within fifteen days after such date.

[IDAPA 58.01.01.211.03, 5/1/1994]

Performance Testing

6.7 If performance testing (air emissions source test) is required by this permit, the permittee shall provide notice of intent to test to DEQ at least 15 days prior to the scheduled test date or shorter time period as approved by DEQ. DEQ may, at its option, have an observer present at any emissions tests conducted on a source. DEQ requests that such testing not be performed on weekends or state holidays.

6.8 All performance testing shall be conducted in accordance with the procedures in IDAPA 58.01.01.157. Without prior DEQ approval, any alternative testing is conducted solely at the permittee's risk. If the permittee fails to obtain prior written approval by DEQ for any testing deviations, DEQ may determine that the testing does not satisfy the testing requirements. Therefore, at least 30 days prior to conducting any performance test, the permittee is encouraged to submit a performance test protocol to DEQ for approval. The written protocol shall include a description of the test method(s) to be used, an explanation of any or unusual circumstances regarding the proposed test, and the proposed test schedule for conducting and reporting the test.

6.9 Within 60 days following the date in which a performance test required by this permit is concluded, the permittee shall submit to DEQ a performance test report. The report shall include a description of the process, identification of the test method(s) used, equipment used, all process operating data collected during the test period, and test results, as well as raw test data and associated documentation, including any approved test protocol.

[IDAPA 58.01.01.157, 4/5/2000 and 4/11/2015]

Monitoring and Recordkeeping

6.10 The permittee shall maintain sufficient records to ensure compliance with all of the terms and conditions of this permit. Monitoring records shall include, but not be limited to, the following: (a) the date, place, and times of sampling or measurements; (b) the date analyses were performed; (c) the company or entity that performed the analyses; (d) the analytical techniques or methods used; (e) the results of such analyses; and (f) the operating conditions existing at the time of sampling or measurement. All monitoring records and support information shall be retained for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Supporting information includes, but is not limited to, all calibration and maintenance records, all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. All records required to be maintained by this permit shall be made available in either hard copy or electronic format to DEQ representatives upon request.

[IDAPA 58.01.01.211, 5/1/1994]

Excess Emissions

6.11 The permittee shall comply with the procedures and requirements of IDAPA 58.01.01.130–136 for excess emissions due to start-up, shut-down, scheduled maintenance, safety measures, upsets, and breakdowns.

[IDAPA 58.01.01.130–136, 4/5/2000]

Certification

6.12 All documents submitted to DEQ—including, but not limited to, records, monitoring data, supporting information, requests for confidential treatment, testing reports, or compliance certification—shall contain a certification by a responsible official. The certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document(s) are true, accurate, and complete.

[IDAPA 58.01.01.123, 5/1/1994]

False Statements

6.13 No person shall knowingly make any false statement, representation, or certification in any form, notice, or report required under this permit or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.125, 3/23/1998]

Tampering

6.14 No person shall knowingly render inaccurate any monitoring device or method required under this permit or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.126, 3/23/1998]

Transferability

6.15 This permit is transferable in accordance with procedures listed in IDAPA 58.01.01.209.06.

[IDAPA 58.01.01.209.06, 4/11/2006]

Severability

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

[IDAPA 58.01.01.211, 5/1/1994]

Statement of Basis

Permit to Construct No. P-2008.0050
Project ID 62468

High Desert Milk, Inc.
Burley, Idaho

Facility ID 031-00034

Draft for Facility Review

DRAFT XX, 2021
Morrie Lewis
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.

TABLE OF CONTENTS

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
ASTM	American Society for Testing and Materials
Btu	British thermal units
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	continuous emission monitoring systems
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
CMS	continuous monitoring systems
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
COMS	continuous opacity monitoring systems
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HP	horsepower
hr/yr	hours per consecutive 12-calendar-month period
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pounds per hour
lb/qtr	pound per quarter
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMHC	nonmethane hydrocarbons
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
O_2	oxygen
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
RICE	reciprocating internal combustion engines
Rules	*Rules for the Control of Air Pollution in Idaho*
scf	standard cubic feet
SCL	significant contribution limits

SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO_2	sulfur dioxide
T/yr	tons per consecutive 12 calendar month period
TAP	toxic air pollutants
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compounds
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

In a second production line, the operating receiver delivers powder via dense phase to one of three powder handling silos (filling one at a time). Exhaust from the operating silo passes through a baghouse (POWDSILO) and then discharges to the atmosphere through common 6-inch diameter vent. Powder from the silos is then transported with a vacuum dense phase transport system to the sifter accumulation hopper. The sifter accumulation hopper has two vacuum receivers. Exhaust from the operating vacuum receiver passes through a baghouse (VACRCV) and then discharges to the atmosphere through the common 6-inch diameter vent. Only one vacuum receiver is running at a given time (cycle back and forth).

Description

The facility processes up to 5 million pounds of raw milk received by tanker truck per day, producing sweet cream, skim milk, and dried milk products. Milk will be processed in the natural gas-fired dryers to prepare dried milk products. Natural gas combustion products are exhausted through the baghouse stacks for Dryer 1, and are exhausted separately for Dryer 2. For each dryer, particulate emissions are split between two cyclone-and-baghouse sets in series (i.e., two sets per dryer) to recover milk powder products (including MPC70, MP80, and MPI). Emissions are recombined and exhausted in a single stack for Dryer 2, and are exhausted in separate stacks for Dryer 1. Product collected in the cyclones and baghouses is diverted to the fluid bed.

In one production line, the dried solids will be cooled in the fluid bed. Exhaust air from the fluid bed will pass through a baghouse (P102) and then be discharged. The powder from the fluid bed cooler will drop through an airlock, through a rotary sifter, and onto a conveyor for transfer to a storage silo. Exhaust from the silos passes through a baghouse (P103B) and then discharge to the atmosphere.

~~In a second production line, powder is transferred through one of two sifter accumulation hopper vacuum receivers. Powder from the silos is transported with a vacuum dense phase transport system to one sifter accumulation hopper. The sifter accumulation hopper has two vacuum receivers (small baghouses). Both baghouses vent outside the building through a common 6-inch diameter vent. Only one vacuum receiver is running at a given time (cycle back and forth). Only one bin vent is running at a given time.~~

~~The operating receiver delivers powder to one of three powder handling silos. Exhaust from the operating silo passes through a baghouse (POWDSILO) and then discharges to the atmosphere.~~

Milk powder products stored in the silos are packaged and shipped off-site.

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 3, 2008	Permit to Construct No. P-2008.0050 was issued to replace the boilers and emergency generator engine. (S)
November 7, 2007	Permit to Construct No. P-2007.0100 was issued for a new milk processing facility. (S)

Application Scope

This PTC is for a modification at an existing minor facility. Following this modification, the facility will become a Tier I facility.

The applicant has proposed to:

- Install and operate a new dryer and associated heater, powder handling system, and powder storage silos for a new product line to increase dried milk production.

Application Chronology

June 22, 2020	DEQ received an application.
June 25, 2020	DEQ received an application fee.
June 25 – July 10, 2020	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
July 23, 2020	DEQ determined that the application was incomplete.
September 1, 2020	DEQ received supplemental information from the applicant.

October 1, 2020	DEQ determined that the application was incomplete.
October 12, 2020	DEQ received supplemental information from the applicant.
November 10, 2020	DEQ determined that the application was incomplete.
November 16, 2020	DEQ received supplemental information from the applicant.
December 11, 2020	DEQ determined that the application was complete.
DRAFT XX, 2021	DEQ made available the draft permit and statement of basis for peer and regional office review.
DRAFT XX, 2021	DEQ made available the draft permit and statement of basis for applicant review.
DRAFT XX, 2021	DEQ received the permit processing fee.
DRAFT XX, 2021	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Source	Control Equipment (Emission Point)
Dryer 1 and associated heater Emissions Unit Name: Skim Milk Dryer (P101) Manufacturer: C/E/Rogers Burner: Maxon Model: Crossfire Low NO_x Line Burner Max Capacity: 32.5 MMBtu/hr Operation: 8,760 hr/yr Fuel: natural gas	Dryer 1 Baghouses (P101A & P101B)
Dryer 2 and associated heater Emissions Unit Name: Skim Milk Dryer (DRYER2) Manufacturer: Relco Burner: Maxon (DRYER2HT) Model: Low NO_x Max Capacity: 26.0 MMBtu/hr Operation: 8,760 hr/yr Fuel: natural gas	Dryer 2 Baghouse (DRYER2) None (DRYER2HT)
Boiler 1 Manufacturer: Superior Boiler Works Model: 4000 Maximum capacity: 33.48 MMBtu/hr Operation: 8,760 hr/yr Fuel: natural gas	None (P104)
Boiler 2 Manufacturer: Superior Boiler Works Model: 4000 Maximum capacity: 33.48 MMBtu/hr Operation: 8,760 hr/yr Fuel: natural gas	None (P105)
Fluid Bed Manufacturer: C/E/Rogers Maximum capacity: 9,000 lb/hr	Fluid Bed Baghouse (P102) Manufacturer: C/E/Rogers Control Efficiency: PM/PM10: 99.93%
Powder Silo 1 Manufacturer: C/E/Rogers	Powder Handling Baghouse (P103B) Manufacturer: C/E/Rogers Control Efficiency: 98.4 % for PM/PM10
Powder Silo 2 Manufacturer: Relco Model: ~~Three in series~~ Three..operated one at a time	Powder Silo Baghouse (POWDSILO) Manufacturer: ~~C/E/Rogers~~ Relco Control Efficiency: ~~99.0 % for PM/PM10~~ 99% or better for PM/PM10
Hopper Vacuum Receivers	Hopper Vacuum Receiver Baghouses (VACRCV) Manufacturer: Relco Control Efficiency: ~~0.01 gr/dscf~~ 99% or better for PM/PM10

Source	Control Equipment (Emission Point)
Emergency Generator Manufacturer: Cummins Model: QST30-G5 Max Capacity: 1490 HP Displacement: 2.55 liters/cylinder Ignition: compression Fuel: diesel	None

Emissions Inventories

Potential to Emit

IDAPA 58.01.01 defines Potential to Emit (PTE) 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 did not count in determining the PTE of a facility or stationary source.

Using this definition of PTE, an emissions inventory was developed for the new dryer and associated heater, powder handling system, and powder storage silos. Emissions were estimated based on performance testing (Dryer 1 and associated heater) and manufacturer's emissions data and control device performance guarantees (Dryer 2 and associated heater, and baghouse control devices) when available or EPA's AP-42[1]; the continuous use of dryer, fluid bed, powder silo, hopper vacuum receiver baghouse control equipment to reduce emissions; and continuous operation of emissions units at maximum fuel input capacity with the exception of only 100 hours of annual operation for the emergency generator engine for the purposes of maintenance checks and readiness testing (there is no time limit on use in emergency situations).

The emissions inventories of criteria pollutant, HAP, and TAP provided in the PTC application and summarized below were reviewed by DEQ and appear to accurately reflect the potential emissions from the facility.

Pre-Project Potential to Emit

The following table presents the pre-project PTE used to establish the change in emissions at a facility as a result of this project.

Table 1 PRE-PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_x		CO		VOC		Pb	
	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/qtr[(c)]	T/yr[(b)]
Dryer 1	10.56	46.22	0.02	0.08	1.46	6.42	11.90	52.20	0.18	0.76	0.01	2E-05
Fluid Bed	1.08	4.73										
Powder Silo 1	0.12	0.50										
Boiler 1	0.25	1.10	0.02	0.09	3.35	14.67	2.81	12.31	0.18	0.79	0.04	8E-05
Boiler 2	0.25	1.10	0.02	0.09	3.35	14.67	2.81	12.31	0.18	0.79	0.04	8E-05
Emergency Generator	0.36	0.09	0.33	0.08	13.30	3.33	1.90	0.48	0.94	0.05	0.00	0.00
Pre-Project Totals	**12.62**	**53.74**	**0.39**	**0.34**	**21.46**	**39.09**	**19.42**	**77.30**	**1.48**	**2.39**	**0.09**	**2E-04**

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.
c) Controlled average emission rate in pounds per quarter is a quarterly average, based on the proposed annual operating schedule and annual limits.

[1] Compilation of Air Pollutant Emission Factors, AP-42, Volume I, Fifth Edition (AP-42), 1.4 –Natural Gas Combustion, 3.4 – Large Stationary Diesel and All Stationary Dual-Fuel Engines, Office of Air Quality Planning and Standards Office of Air and Radiation (OAQPS), EPA, updated as of August 2011.

Post-Project Potential to Emit

The following table presents the post-project PTE 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 PTE includes all permit limits resulting from this project.

Table 2 POST-PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM/PM_{10}/PM_{2.5}$		SO_2		NO_x		CO		VOC		Pb	
	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/qtr[(c)]	T/yr[(b)]
Dryer 1	4.60	20.15	0.02	0.08	1.46	6.42	11.90	52.20	0.18	0.76	0.01	2E-05
Fluid Bed	1.08	4.73										
Powder Silo 1	0.12	0.50										
Boiler 1	0.25	1.10	0.02	0.09	3.35	14.67	2.81	12.31	0.18	0.79	0.04	8E-05
Boiler 2	0.25	1.10	0.02	0.09	3.35	14.67	2.81	12.31	0.18	0.79	0.04	8E-05
Emergency Generator	0.36	0.09	0.33	0.08	13.30	3.33	1.90	0.48	0.94	0.05	0.00	0.00
Dryer 2	8.82	38.63										
Dryer 2 Heater	0.20	0.87	0.02	0.07	1.57	6.88	20.98	91.89	0.14	0.63	0.03	6E-05
Powder Silo 2	0.0036	0.016										
Hopper Vacuum Receiver	0.0036	0.016										
Post-Project Totals	**15.69**	**67.20**	**0.41**	**0.41**	**23.03**	**45.97**	**40.40**	**169.19**	**1.62**	**3.02**	**0.12**	**2E-04**

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.
c) Controlled average emission rate in pounds per quarter is a quarterly average, based on the proposed annual operating schedule and annual limits.
d) The emission rate for SO_x from the emergency generator was calculated using an emission factor from AP-42 chapter 3.4 "Large Stationary Diesel and All Stationary Dual-Fuel Engines" assuming a fuel sulfur content of 500 ppm (0.05%). Emission rates for all other criteria pollutants are based on manufacturer's specifications for QST30-G5 Nonroad 2 engine with nameplate rating of 1490 HP. Emergency generator ton/yr values estimated based on 500 hours of operation.

Change in Potential to Emit

The following table presents the facility-wide change in PTE for criteria pollutants. 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.

Table 3 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM/PM_{10}/PM_{2.5}$		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	12.62	53.74	0.39	0.34	21.46	39.09	19.42	77.30	1.48	2.39
Post-Project Potential to Emit	15.69	67.20	0.41	0.41	23.03	45.97	40.40	169.19	1.62	3.02
Changes in Potential to Emit	**3.07**	**13.46**	**0.02**	**0.07**	**1.57**	**6.88**	**20.98**	**91.89**	**0.14**	**0.63**

TAP Emissions

Table 4 presents the facility-wide change in PTE (emissions increase) for non-carcinogenic TAP. Emissions increases did not exceed any 24-hour average non-carcinogenic screening emission level (EL) identified in IDAPA 58.01.01.585 as a result of this project.

Table 5 presents the facility-wide change in PTE (emissions increase) for carcinogenic TAP. Emissions increases of arsenic, cadmium, formaldehyde, and nickel exceeded annual average carcinogenic EL identified in IDAPA 58.01.01.586 as a result of this project and modeling was required.

Table 4 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR NON-CARCINOGENIC TOXIC AIR POLLUTANTS

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Chromium	1.4E-04	1.74E-04	3.64E-05	3.30E-02	No
Cobalt	8.3E-06	1.05E-05	2.18E-06	3.30E-03	No
Copper	8.4E-05	1.06E-04	2.21E-05	6.70E-02	No
Dichlorobenzene	2.0E-04	2.28E-04	3.12E-05	2.00E+01	No
Hexane	3.0E-01	3.42E-01	4.68E-02	1.20E+01	No
Manganese	4.2E-04	4.27E-04	9.88E-06	6.70E-02	No
Mercury	4.3E-05	4.94E-05	6.76E-06	3.00E-03	No
Naphthalene	6.0E-05	7.59E-05	1.59E-05	3.33E+00	No
Pentane	2.6E-01	3.24E-01	6.76E-02	1.18E+02	No
Phenanathrene	1.7E-06	2.12E-06	4.42E-07	9.1E-05	No
Pyrene	4.9E-07	6.22E-07	1.30E-07	9.1E-05	No
Selenium	2.4E-06	2.99E-06	6.24E-07	1.30E-02	No
Toluene	3.3E-04	4.23E-04	8.84E-05	2.50E+01	No
Vanadium, as V_2O_5	2.3E-04	2.86E-04	5.98E-05	3.00E-03	No
Zinc oxide	2.9E-03	3.61E-03	7.54E-04	6.67E-01	No

Table 5 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR CARCINOGENIC TOXIC AIR POLLUTANTS

Carcinogenic Toxic Air Pollutants	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
2-Methylnaphthalene	2.4E-06	3.0E-06	6.2E-07	9.1E-05	No
3-Methylchloranthene	5.1E-06	5.1E-06	4.7E-08	2.5E-06	No
Acenaphthene	1.8E-07	2.2E-07	4.7E-08	2.5E-06	No
Acenaphthene	1.8E-07	2.2E-07	4.7E-08	9.1E-05	No
Acenaphthylene	1.8E-07	2.2E-07	4.7E-08	9.1E-05	No
Anthracene	2.2E-07	2.8E-07	6.2E-08	9.1E-05	No
Arsenic	2.0E-05	2.5E-05	5.2E-06	1.5E-06	Yes
Benzene	2.1E-04	2.6E-04	5.5E-05	8.0E-04	No
Benzo(a)pyrene	1.2E-07	1.5E-07	3.1E-08	2.0E-06	No
Benzo(g,h,i)perylene	1.2E-07	1.5E-07	3.1E-08	9.1E-05	No
Beryllium	1.2E-06	1.5E-06	3.1E-07	2.8E-05	No
Cadmium	1.1E-04	1.4E-04	2.9E-05	3.7E-06	Yes
Fluoranthene	3.0E-07	3.7E-07	7.8E-08	9.1E-05	No
Fluorene	2.8E-07	3.5E-07	7.3E-08	9.1E-05	No
Formaldehyde	7.4E-03	9.3E-03	2.0E-03	5.1E-04	Yes
Naphthalene	6.0E-05	7.6E-05	1.6E-05	9.1E-05	No
Nickel	2.1E-04	2.6E-04	5.5E-05	2.7E-05	Yes
PAH (max) [(a)]	6.7E-05	8.5E-05	1.8E-05	9.1E-05	No
Polycyclic Organic Matter 7-PAH [(b)]	1.1E-06	1.4E-06	3.0E-07	2.0E-06	No

a) Polycyclic aromatic hydrocarbon (PAH). Value is the maximum potential emission rate of all PAH emitted.
b) Polycyclic Organic Matter (POM) is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. The total is compared to benzo(a)pyrene.

Post-Project HAP Emissions

The following table presents the facility-wide change in PTE for HAP.

Table 6 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY

Hazardous Air Pollutants	PTE (T/yr)
2-Methylnaphthalene	1.3E-05
3-Methylchloranthrene	9.8E-07
Acenaphthene	4.6E-07
Acenaphthylene	9.8E-07
Anthracene	1.3E-06
Arsenic	9.7E-05
Barium	2.1E-03
Benzene	1.1E-03
Benzo(a)anthracene	9.8E-07
Benzo(a)pyrene	6.5E-07
Benzo(b)fluoranthene	9.8E-07
Benzo(g,h,i)perylene	6.5E-07
Benzo(k)fluoranthene	9.8E-07
Beryllium	5.8E-06
Cadmium	5.3E-04
Chromium	6.8E-04
Cobalt	4.1E-05
Dibenzo(a,h)anthracene	6.5E-07
Dichlorobenzene	6.5E-04
Fluoranthene	1.6E-06
Fluorene	1.5E-06
Formaldehyde	4.1E-02
Hexane	9.8E-01
Indeno(1,2,3-cd)pyrene	9.8E-07
Lead Compounds	2.2E-04
Manganese	1.8E-04
Mercury Compounds	1.3E-04
Naphthalene	3.3E-04
Nickel	1.0E-03
Phenanthrene	9.3E-06
Pyrene	2.7E-06
Polycyclic Organic Matter	6.2E-06
Selenium	1.2E-05
Toluene	1.9E-03
Maximum Single HAP	***0.98***
Total	***1.03***

Ambient Air Quality Impact Analyses

The estimated emission rates of $PM_{2.5}$, PM_{10}, NO_x, CO, and carcinogenic TAP from this project exceeded applicable screening emission levels (EL) established in IDAPA 58.01.01.585-586 and published DEQ modeling thresholds in the State of Idaho Air Quality Modeling Guideline[2]. Refer to the Emissions Inventories section for additional information concerning the emission inventories.

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).

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 (Appendix B).

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Bingham 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 HAP (Hazardous Air Pollutants) Only:

A = Use when any one HAP has permitted emissions > 10 T/yr or if the aggregate of all HAPS (Total HAPs) has permitted emissions > 25 T/yr.

SM80 = Use if a synthetic minor (uncontrolled HAPs emissions are > 10 T/yr or if the aggregate of all uncontrolled HAPs (Total HAPs) emissions are > 25 T/yr and permitted emissions fall below applicable major source thresholds) and the permit sets limits > 8 T/yr of a single HAP or ≥ 20 T/yr of Total HAPs.

SM = Use if a synthetic minor (uncontrolled HAPs emissions are > 10 T/yr or if the aggregate of all uncontrolled HAPs (Total HAPs) emissions are > 25 T/yr and permitted emissions fall below applicable major source thresholds) and the permit sets limits < 8 T/yr of a single HAP and/or < 20 T/yr of Total HAPs.

B = Use when the potential to emit (i.e. uncontrolled emissions and permitted emissions) are below the 10 and 25 T/yr HAP major source thresholds.

UNK = Class is unknown.

[2] Criteria pollutant thresholds in Table 2, State of Idaho Guideline for Performing Air Quality Impact Analyses, Doc ID AQ-011, September 2013.

For All Other Pollutants:

A = Use when permitted emissions of a pollutant are > 100 T/yr.

SM80 = Use if a synthetic minor for the applicable pollutant (uncontrolled emissions are > 100 T/yr and permitted emissions fall below 100 T/yr) and permitted emissions of the pollutant are ≥ 80 T/yr.

SM = Use if a synthetic minor for the applicable pollutant (uncontrolled emissions are > 100 T/yr and permitted emissions fall below 100 T/yr) and permitted emissions of the pollutant are < 80 T/yr.

B = Use when the potential to emit (i.e. uncontrolled emissions and permitted emissions) are below the 100 T/yr major source threshold.

UNK = Class is unknown.

Table 7 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	67.20	67.20	**100**	SM
PM_{10}	67.20	67.20	**100**	SM
$PM_{2.5}$	67.20	67.20	**100**	SM
SO_2	0.41	0.41	**100**	B
NO_x	45.97	45.97	**100**	B
CO	169.19	169.19	**100**	A
VOC	3.02	3.02	**100**	B
HAP (single)	0.98	0.98	**10**	B
Total HAPs	1.03	1.03	**25**	B

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 ..... Permit to Construct Required

The permittee has requested that a PTC be issued to the facility for the new dryer and associated heater, powder handling system, and powder storage silos. 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.

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 will have a potential to emit greater than 100 tons per year for CO as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, this facility is classified as a major facility, as defined in IDAPA 58.01.01.008.10. Therefore, in accordance with IDAPA 58.01.01.313.01.b, the permittee must submit a complete application to DEQ for an initial Tier I operating permit within 12 months of becoming a Tier I source or commencing operation. This requirement is assured by Permit Condition 1.5–1.6.

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. 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)

The permittee has affected sources subject to New Source Performance Standards (NSPS). Although regulatory applicability analyses are summarized below, detailed analyses and explicit incorporation of applicable requirements are left to the required Tier I permit action as discussed in the Title V Classification section.

- Standards of Performance for New Stationary Sources (NSPS) 40 CFR 60, Subpart A – General Provisions. DEQ is delegated this Subpart.
- NSPS 40 CFR 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Each boiler is an affected source (Boiler 1 and Boiler 2).
- NSPS 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. DEQ is delegated this Subpart. The compression ignition internal combustion engine (CI ICE) is an affected source (emergency generator).

NESHAP Applicability (40 CFR 61)

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

MACT/GACT Applicability (40 CFR 63)

The facility has proposed to operate as a minor source of hazardous air pollutant (HAP) emissions, and has affected sources subject to National Emission Standards for Hazardous Air Pollutants (NESHAP). Although regulatory applicability analyses are summarized below, detailed analyses and explicit incorporation of applicable requirements are left to the required Tier I permit action as discussed in the Title V Classification section.

- National Emission Standards for Hazardous Air Pollutants for Source Categories (NESHAP) 40 CFR 63, Subpart A – General Provisions. DEQ is delegated this Subpart for Tier I sources.
- NESHAP 40 CFR 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE). DEQ is delegated this Subpart. The reciprocating internal combustion engine (RICE) is an affected source (emergency generator).

Permit Conditions Review

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

Revised Permit Conditions 1.4, 2.1, 2.2, 3.1, 3.2, 4.2, and 4.3

These permit conditions were updated to include process and control equipment for the proposed production line including a new dryer and associated heater, powder handling system, and powder storage silos. Manufacturer and model information were also included for Boiler 1, Boiler 2, and the emergency generator. The existing baghouse stack P103A was also removed as requested.

Added Permit Conditions 1.5–1.6

These permit conditions were added based on re-classification of the facility as a Tier I source following construction of the Dryer 2 heater. Notification of commencement of operation of the Tier I source and application for a Tier I operating permit are required.

Added Permit Condition 1.7

This permit condition was added based on re-classification of the facility as a Tier I source. Applicable federal NSPS and NESHAP requirements will be explicitly incorporated in the required Tier I operating permit.

Revised Permit Condition 2.3

Dryer emissions limits were updated based on the new and revised emissions estimates and modeling analyses relied upon in this project for the existing and proposed production lines.

Added Permit Condition 2.4

Weight-based PM emissions limits applicable to the existing and proposed production lines were incorporated in accordance with IDAPA 58.01.01.700-703.

Revised Permit Conditions 2.5 and 4.3

Opacity limits applicable to the process dryers, fluid bed, and powder handling were updated to encompass equipment from both the existing and proposed production lines.

Added Permit Condition 2.6

Fuel specifications were included based on the dryer heater fuel assumed in emissions estimates and modeling analyses relied upon in this project for the existing and proposed production lines.

Revised Permit Conditions 2.7 and 4.5

Minimum requirements and the deadline to update the O&M manual to include baghouses were updated for the proposed production line. Minimum requirements for the existing production line baghouses were also updated for consistency.

Revised Permit Conditions 2.8 and 2.10

Baghouse monitoring requirements were updated to encompass equipment from both the existing and proposed production lines.

Revised Permit Conditions 2.9 and 2.11

Throughput monitoring requirements were updated to encompass equipment from both the existing and proposed production lines~~.~~ and to more accurately reflect actual throughput to the dryers.

Revised Permit Conditions 2.12 – 2.14

Testing requirements were updated based on the emissions estimates and modeling analyses relied upon in this project for the existing and proposed production lines. It was recognized that facility-wide "reports and certifications" requirements will be established in the required Tier I operating permit and as such were removed to avoid duplication.

Revised Permit Conditions 3.3 and 3.6

Boiler emissions limits were updated based on the new and revised emissions estimates and modeling analyses relied upon in this project for the existing boilers. Because the updated emissions estimates were based on maximum fuel input capacity to both boilers, fuel usage limits and associated monitoring were removed from the permit.

Added Permit Condition 3.7

Boiler stack height requirements were included. For consistency with the modeling analyses relied upon in this project, each stack will need to be raised to 65 feet above ground level the existing boilers.

Removed the unit-specific opacity limits from the boilers and emergency generator sections of the permit (from Sections 3 and 5). These limits remain applicable in accordance with IDAPA 58.01.01.625 and will be incorporated as facility-wide "visible emissions" permit conditions in the required Tier I operating permit.

Removed the unit-specific fuel-burning equipment PM limit from the boilers section of the permit (from Section 3). This limit remains applicable in accordance with IDAPA 58.01.01.676 and will be incorporated as the facility-wide "Fuel-Burning Equipment" permit condition in the required Tier I operating permit.

Revised Permit Condition 5.3 and removed permit conditions with explicit NSPS and NESHAP requirements for the boilers and emergency generator (from Sections 3 and 5). Applicable federal NSPS and NESHAP requirements will be incorporated in the required Tier I operating permit.

Removed the unit-specific sulfur content limit from the emergency generator section of the permit (from Section 5). This limit remains applicable in accordance with IDAPA 58.01.01.728 and will be incorporated as facility-wide "sulfur content" permit conditions in the required Tier I operating permit.

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. During this time, 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 D – PROCESSING FEE

PTC Processing Fee Calculation Worksheet

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:	**High Desert Milk, Inc.**
Address:	**1033 Idaho Avenue**
City:	**Burley**
State:	**ID**
Zip Code:	**83318**
Facility Contact:	**Shawn Burton**
Title:	**Chief Operating Officer**
AIRS No.:	**031-00034**

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	6.9	0	6.9
SO_2	0.1	0	0.1
CO	91.9	0	91.9
PM10	39.5	26.07	13.5
VOC	0.6	0	0.6
Total:	0.0	26.07	**112.9**
Fee Due	**$ 7,500.00**		

Comments: