Statement of Basis

Permit to Construct No. P-2009.0023
Project ID 62490

Sorrento Lactalis, Inc., Nampa Site
Nampa, Idaho

Facility ID 027-00071

Final

January 8, 2021
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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.

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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
BACT	Best Available Control Technology
BMP	best management practices
Btu	British thermal units
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CAS No.	Chemical Abstracts Service registry number
CBP	concrete batch plant
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
FEC	Facility Emissions Cap
GHG	greenhouse gases
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HHV	higher heating value
HMA	hot mix asphalt
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
iwg	inches of water gauge
km	kilometers
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
mg/dscm	milligrams per dry standard cubic meter
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards

O&M	operation and maintenance
O_2	oxygen
PAH	polyaromatic hydrocarbons
PC	permit condition
PCB	polychlorinated biphenyl
PERF	Portable Equipment Relocation Form
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
POM	polycyclic organic matter
ppm	parts per million
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
PW	process weight rate
RAP	recycled asphalt pavement
RFO	reprocessed fuel oil
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
SO_x	sulfur oxides
Sorrento	Sorrento Lactalis, Inc., Nampa Site
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
TEQ	toxicity equivalent
T-RACT	Toxic Air Pollutant Reasonably Available Control Technology
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compounds
yd^3	cubic yards
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

The Sorrento Lactalis Inc., Nampa Site (Sorrento) produces natural cheese, dry whey products, and cultured cream cheese. Sorrento is located at 4912 E. Franklin Road in Nampa, Idaho. The Sorrento Lactalis facility consists of the following plants: Cheese Plant, Whey Plant, Wastewater Treatment Plant, and a Fresh Mozzarella Plant. The facility also includes auxiliary buildings such as the fire pump house used to pressurize and provide water to the fire sprinkler systems in each of the plants.

In the cheese plant pasteurized milk is fermented to form curd and whey. The product mixture of whey and curd is transported via pipeline and separated. The curd is piped to cookers and molds. The curds or cheese is then released from the molds into a brine flume. The brine cools the cheese and the salt adds flavor and stops the fermentation process, preserving the cheese. After brining, the cheese product is packaged, boxed, and stored in a refrigerated warehouse until it is shipped. The facility produces mozzarella cheese, a variety of string cheese and mascarpone. In addition, Sorrento receives other types of cheeses from other manufacturers and slices or shreds them, mixing them with Sorrento Lactalis cheese in some cases. Shredded and sliced cheese are packaged, boxed, and stored in a refrigerated warehouse until it is shipped.

Whey is received from the cheese plant with a solids content of about 62 percent. This is filtered and the sugar (or lactose) and protein solids are separated from the remaining liquid. The solids are then dried in either of two whey driers, bagged, stacked, transported to an off-site warehouse and stored until shipped to customers or one of the other Lactalis facilities.

Non-hazardous process wastewater flows from each production facility to the wastewater treatment plant via gravity sewers to a lift station. During normal operation conditions, process water is pumped from the lift station to the equalization tank. All of the wastewater treatment plant tanks are open-topped and do not contain hazardous materials. A secondary 215,000 gallon diversion tank is used to store high strength wastewater which can then be blended with other influent wastewater prior to discharging to downstream treatment units. Process wastewater can also be transferred from the lift station directly to one of two sequencing batch reactors units, to truck load out, or to be land applied.

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).

December 8, 2016	P-2009.0023, PTC revision to include and address the requirements in Consent Order Case Nos. E-2014.0007 and E-2015.0003. Cumulative modeling analyses were performed for PM_{10}, $PM_{2.5}$, NO_2, and CO (A, but will become S upon issuance of this permit)
May 1, 2015	P-2009.0023, typographical error correction of the Hurst Boiler heat input rating, Permit status (S)
March 13, 2014	P-2009.0023, Incorporation of a new limit for the Meyer-Sterner whey dryer, Permit status (S)
August 28, 2009	P-2009.0023, PTC modification to include existing boilers and permit an additional boiler and whey dryer operation, Permit status (S)
July 20, 2001	027-00071, Initial permitting action for a whey dryer, Permit status (S)

Application Scope

This PTC is for a minor modification at an existing minor facility.

The applicant has proposed to:

- Increase the production limit from 17.95 tons per day (T/day) to 27.60 T/day of dried whey powder for the Meyer-Sterner Whey Dryer
- Update the performance test date for Meyer-Sterner Whey Dryer.
- Include permit conditions that were based on the 2016 ambient impact analyses and that were unintentionally missed in the 2016 permit; specifically, they are listed in the following:

  Meyer-Sterner Whey Dryer Stack and TetraPak Whey Dreyer Scrubber Stack

  - Add $PM_{2.5}$ emissions limits
  - Replace "PM_{10}" with "$PM_{2.5}/PM_{10}$"
  - Change the PM_{10} emissions limits to be the same as the $PM_{2.5}$ emissions limits to reflect the assumption used in the 2016 ambient impact analyses that the emissions rates of $PM_{2.5}$ were the same as the emissions rates of PM_{10}.
  - Add "The scrubbing media flow rate and the pressure drop across the whey dryer scrubber shall be monitored and recorded during each whey dryer scrubber test." to Permit Condition 3.13.2. (Note: this was identified by DEQ staff during peer review.)

  Four Full-Time Natural Gas-Fired Boilers

  - Add the boiler stack height requirement to the four natural-gas fired boilers section for compliance with 1-hr NO_2 NAAQS.

  Emergency IC Engine

  - Add one hour per day operating limit for emergency engine routine testing and maintenance and the corresponding monitoring requirement.

Application Chronology

August 12, 2020	DEQ received an application.
August 14, 2020	DEQ received an application fee.
August 25 – September 9, 2020	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
September 10, 2020	DEQ determined that the application was incomplete.
October 5, 2020	DEQ received a revised application from the applicant.
October 30, 2020	DEQ received an updated application with additional information from the applicant.
November 2, 2020	DEQ determined that the application was complete.
December 22, 2020	DEQ made available the draft permit and statement of basis for peer and regional office review.
December 28, 2020	DEQ made available the draft permit and statement of basis for applicant review.
January 4, 2021	DEQ received the permit processing fee.
January 8, 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 ID No.	Sources	Control Equipment	Emission Point ID No.
P1	Meyer-Sterner Whey Dryer: Manufacturer: Meyer-Sterner Model: N/A Construction Date: 2001 Heat Input Rating: 6.0 MMBtu/hr Production Limit: 2,300 lb/hr, 24-hour average or 27.60 T/day Fuel: Natural Gas	Whey Dreyer Baghouse: Manufacturer: Meyer-Sterner PM_{10} control efficiency: 98.0%	Exit height: 80.61 ft (24.57 m) Exit diameter: 3.23 ft (0.984 m) Exit flow rate: 26,943 acfm Exit temperature: 115.4°F (46.33ºC)
P2	TetraPak Whey Dryer Burner No. 1: Manufacturer: TetraPak Burner Model: Eclipse Winnox 1000 Construction Date: April 1, 2009 Heat Input Rating: 12.5 MMBtu/hr Fuel: Natural Gas	None	Exit height: 136 ft (41.5 m) Exit diameter: 1.51 ft (0.46 m) Exit flow rate: 6,161 acfm Exit temperature: 241 °F (116 ºC)
P3	TetraPak Whey Dryer Burner No. 2: Manufacturer: TetraPak Burner Model: Eclipse Winnox 1000 Construction Date: April 1, 2009 Heat Input Rating: 12.5 MMBtu/hr Fuel: Natural Gas	None	Exit height: 136 ft (41.5 m) Exit diameter: 1.51 ft (0.46 m) Exit flow rate: 6,161 acfm Exit temperature: 241 °F (116 ºC)
P4	TetraPak Drying Chamber: Manufacturer: TetraPak Construction Date: April 1, 2009 Max. Production: 16,667 lb/hr	Whey Dryer Scrubber: Manufacturer: Fister Klosterman Inc Model: MS-1200 Scrubber SS316 Flow Rate: 599 gpm Pressure Drop: 5.25 in. w.g. PM/PM_{10} Efficiency: 99%	Exit height: 136 ft (41.5 m) Exit diameter: 5.18 ft (1.58 m) Exit flow rate: 73,358 acfm Exit temperature: 104 °F (40 ºC)
P5	TetraPak Shaking Bed: Manufacturer: TetraPak	Shaking Bed Baghouse: Manufacturer: TetraPak CPS Model: 13-243-14 Type: Reverse Air Jet Number of bags: 243 Air to Cloth ratio: 7.48 to 1 PM_{10} control efficiency: 99.9%	Exit height: 136 ft (41.5 m) Exit diameter: 3.67 ft (1.12 m) Exit flow rate: 38,171 acfm Exit temperature: 126 °F (52 ºC)
P6	Cleaver-Brooks Boiler: Manufacturer: Cleaver-Brooks Model: CBL-700-1200-150 Install Date: 2009 Heat Input Rating: 48.99 MMBtu/hr Fuel: Natural Gas	None	Exit height: 50.8 ft (15.5 m) Exit diameter: 2.99 ft (0.91 m) Exit flow rate: 14,062 acfm Exit temperature: 325 °F (163 ºC)
P7	Superior Boiler: Manufacturer: Superior Model: 4-5-3004 Install Date: 2001 Boiler Heat Input Rating: 31.5 MMBtu/hr the boiler was de-rated to 24.8 MMBtu/hr De-rating Date: 2014 Fuel: Natural Gas	None	Exit height: 50.8 ft (15.5 m) Exit diameter: 2.17 ft (0.66 m) Exit temperature: 275 °F (135 ºC)
P8	Cleaver Brooks Boiler: Manufacturer: Cleaver-Brooks Model: CBLE 700-600 Install Date: 2001 Heat Input Rating: 24.5 MMBtu/hr Fuel: Natural Gas	None	Exit height: 50.8 ft (15.5 m) Exit diameter: 2.00 ft (0.61 m) Exit temperature: 275 °F (135 ºC)

Source ID No.	Sources	Control Equipment	Emission Point ID No.
P9	Hurst Boiler: Manufacturer: Hurst Model: 54000-150-26 Install Date: 2007 Heat Input Rating: 33.6 MMBtu/hr Fuel: Natural Gas	None	Exit height: 50.8 ft (15.5 m) Exit diameter: 2.49 ft (0.76 m) Exit temperature: 275 °F (135 ºC)
P10	Cheese Plant AC 02: Manufacturer: Carrier Model: 48TME004-A-501 Manufacture Date: 2007 Heat Input Rating: 0.074 MMBtu/hr Fuel: Natural Gas	None	Exit height: 25.5 ft (7.77 m) Exit diameter: 0.23 ft (0.07 m) Exit flow rate: 18.4 acfm Exit temperature: 185 °F (85 ºC)
P11	Cheese Plant AC 03: Manufacturer: Carrier Model: 48TNE008-A-501 Manufacture Date: 2004 Heat Input Rating: 0.180 MMBtu/hr Fuel: Natural Gas	None	Exit height: 25.5 ft (7.77 m) Exit diameter: 0.23 ft (0.07 m) Exit flow rate: 44.6 acfm Exit temperature: 185 °F (85 ºC)
P12	Cheese Plant AC 04: Manufacturer: Carrier Model: 48TFE007----521 Manufacture Date: 2004 Heat Input Rating: 0.115 MMBtu/hr Fuel: Natural Gas	None	Exit height: 25.5 ft (7.77 m) Exit diameter: 0.23 ft (0.07 m) Exit flow rate: 28.5 acfm Exit temperature: 185 °F (85 ºC)
P13	Cheese Plant AC 05: Manufacturer: Carrier Model: 48TJE007---521 Manufacture Date: 2004 Heat Input Rating: 0.115 MMBtu/hr Fuel: Natural Gas	None	Exit height: 25.5 ft (7.77 m) Exit diameter: 0.23 ft (0.07 m) Exit flow rate: 28.5 acfm Exit temperature: 185 °F (85 ºC)
P14	Cheese Plant AC 15: Manufacturer: Carrier Model: 48HJE006---351 Manufacture Date: 2004 Heat Input Rating: 0.115 MMBtu/hr Fuel: Natural Gas	None	Exit height: 36.5 ft (11.12 m) Exit diameter: 0.23 ft (0.07 m) Exit flow rate: 28.5 acfm Exit temperature: 185 °F (85 ºC)
P15	Cheese Plant AC 16: Manufacturer: Carrier Model: 48TJE005---611GA Manufacture Date: 2000 Heat Input Rating: 0.115 MMBtu/hr Fuel: Natural Gas	None	Exit height: 36.5 ft (11.12 m) Exit diameter: 0.23 ft (0.07 m) Exit flow rate: 28.5 acfm Exit temperature: 185 °F (85 ºC)
P16	Cheese Plant AC 17: Manufacturer: Carrier Model: 48TFD009---611 Manufacture Date: 2008 Heat Input Rating: 0.125 MMBtu/hr Fuel: Natural Gas	None	Exit height: 36.5 ft (11.12 m) Exit diameter: 0.23 ft (0.07 m) Exit flow rate: 31.0 acfm Exit temperature: 185 °F (85 ºC)
P17	Cheese Plant AC 24: Manufacturer: Carrier Model: 48TCEA04A2A5A0A0A0 Manufacture Date: 2008 Heat Input Rating: 0.115 MMBtu/hr Fuel: Natural Gas	None	Exit height: 32.5 ft (9.91 m) Exit diameter: 0.23 ft (0.07 m) Exit flow rate: 28.5 acfm Exit temperature: 185 °F (85 ºC)
P18	Whey Plant MA 1: Manufacturer: York/Johnson Controls Model: DF-200GMFH-LH-B200R10LGGAA Manufacture Date: 2010 Heat Input Rating: 2.5 MMBtu/hr Fuel: Natural Gas	None	Exit height: 49.75 ft (15.16 m) Exit diameter: 0.5 ft (0.15 m) Exit flow rate: 620 acfm Exit temperature: 185 °F (85 ºC)

Source ID No.	Sources	Control Equipment	Emission Point ID No.
P19	Whey Plant MA 2: Manufacturer: York/Johnson Controls Model: DF-175-GMFH-LH-B175R10LGGAA Manufacture Date: 2010 Heat Input Rating: 2.187 MMBtu/hr Fuel: Natural Gas	None	Exit height: 46.75 ft (14.25 m) Exit diameter: 0.5 ft (0.15 m) Exit flow rate: 542 acfm Exit temperature: 185 °F (85 ºC)
P20	Whey Plant MA 3: Manufacturer: York/Johnson Controls Model: DF-175-GMFH-LH-175R10LGGAA Manufacture Date: 2010 Heat Input Rating: 2.187 MMBtu/hr Fuel: Natural Gas	None	Exit height: 139.75 ft (42.59 m) Exit diameter: 0.5 ft (0.15 m) Exit flow rate: 542 acfm Exit temperature: 185 °F (85 ºC)
P21	Whey Plant MA 6: Manufacturer: York/Johnson Controls Model: DF-200-GMFH-LH-B200R10LGGAA Manufacture Date: 2010 Heat Input Rating: 2.5 MMBtu/hr Fuel: Natural Gas	None	Exit height: 47.42 ft (14.54 m) Exit diameter: 0.5 ft (0.15 m) Exit flow rate: 620 acfm Exit temperature: 185 °F (85 ºC)
P22	Whey Plant MA 7: Manufacturer: York/Johnson Controls Model: DF-150-GMFH-LH-B150R10LGGAA Manufacture Date: 2010 Heat Input Rating: 1.875 MMBtu/hr Fuel: Natural Gas	None	Exit height: 128.75 ft (39.24 m) Exit diameter: 0.5 ft (0.15 m) Exit flow rate: 465 acfm Exit temperature: 185 °F (85 ºC)
P23	Whey Plant AC-1: Manufacturer: York/Johnson Controls Model: OEA700030101 Manufacture Date: 2010 Heat Input Rating: 0.375 MMBtu/hr Fuel: Natural Gas	None	Exit height: 42 ft (12.80 m) Exit diameter: 4.67 ft (1.42m) Exit flow rate: 93 acfm Exit temperature: 185 °F (85 ºC)
P24	Whey Plant AC-2: Manufacturer: York/Johnson Controls Model: DF-40-GMFH-RH-B040R10RGGAA Manufacture Date: 2010 Heat Input Rating: 0.500 MMBtu/hr Fuel: Natural Gas	None	Exit height: 109 ft (33.22 m) Exit diameter: 0.5 ft (0.15 m) Exit flow rate: 124 acfm Exit temperature: 185 °F (85 ºC)
P25	Whey Plant AC-3: Manufacturer: York/Johnson Controls Model: DF-75-GMFH-RH-B075R10RGGAA Manufacture Date: 2010 Heat Input Rating: 0.937 MMBtu/hr Fuel: Natural Gas	None	Exit height: 71 ft (21.64 m) Exit diameter: 0.5 ft (0.15 m) Exit flow rate: 232 acfm Exit temperature: 185 °F (85 ºC)
P26	Whey Plant AC-4: Manufacturer: York/Johnson Controls Model: DF-100-GMFH-LH-G100R10LGAA Manufacture Date: 2010 Heat Input Rating: 1.25 MMBtu/hr Fuel: Natural Gas	None	Exit height: 47.42 ft (14.54 m) Exit diameter: 0.5 ft (0.15 m) Exit flow rate: 310 acfm Exit temperature: 185 °F (85 ºC)
P27	Whey Plant AC-9: Manufacturer: Carrier Model: D1NA048N09025C Manufacture Date: Unknown Heat Input Rating: 0.108 MMBtu/hr Fuel: Natural Gas	None	Exit height: 22 ft (6.71 m) Exit diameter: 0.22 ft (0.07 m) Exit flow rate: 26.8 acfm Exit temperature: 185 °F (85 ºC)

Source ID No.	Sources	Control Equipment	Emission Point ID No.
P28	Whey Plant AC-11: Manufacturer: Carrier Model: J06ZHN10P4AZZ50005A Manufacture Date: 2010 Heat Input Rating: 0.120 MMBtu/hr Fuel: Natural Gas	None	Exit height: 20.58 ft (6.27 m) Exit diameter: 1.0 ft (0.30 m) Exit flow rate: 29.8 acfm Exit temperature: 185 °F (85 ºC)
P29	Whey Plant AC-12: Manufacturer: Carrier Model: 48TFD009---611 Manufacture Date: 2000 Heat Input Rating: 0.125 MMBtu/hr Fuel: Natural Gas	None	Exit height: 22 ft (6.71 m) Exit diameter: 0.38 ft (0.12 m) Exit flow rate: 31.0 acfm Exit temperature: 185 °F (85 ºC)
P30	Whey Plant MA 4: Manufacturer: Greenheck Model: PVF350H Manufacture Date: 2010 Heat Input Rating: 0.70 MMBtu/hr Fuel: Natural Gas	None	Exit height: 40 ft (12.19 m) Exit diameter: 0.46 ft (0.14 m) Exit flow rate: 173.6 acfm Exit temperature: 185 °F (85 ºC)
P31	Fresh Mozz AC 01: Manufacturer: Carrier Model: 48TCEA07A2A6A0A0A0 Manufacture Date: 2013 Heat Input Rating: 0.115 MMBtu/hr Fuel: Natural Gas	None	Exit height: 38.5 ft (11.73 m) Exit diameter: 0.22 ft (0.07 m) Exit flow rate: 28.5 acfm Exit temperature: 185 °F (85 ºC)
P32	Fresh Mozz AC 02: Manufacturer: Carrier Model: 48TCEA07A2A6A0A0A0 Manufacture Date: 2013 Heat Input Rating: 0.115 MMBtu/hr Fuel: Natural Gas	None	Exit height: 38.5 ft (11.73 m) Exit diameter: 0.22 ft (0.07 m) Exit flow rate: 28.5 acfm Exit temperature: 185 °F (85 ºC)
P34	Fire Pump: Manufacturer: Peerless Model: JD/RG6081H133189 Install Date: 2001 Max Horsepower: 235.9 hp/rpm Max. rpm: 2100 rpm Fuel: Distillate Fuel Oil	None	Exit height: 8.33 ft (2.54 m) Exit diameter: 0.33 ft (0.10 m) Exit temperature: 850 °F (454 ºC)
P35	Cheese Plant AC 01: Manufacturer: Carrier Model: 48SS-03006031AA Manufacture Date: 2000 Heat Input Rating: 0.0568 MMBtu/hr Fuel: Natural Gas	None	Exit height: 25.5 ft (7.77 m) Exit diameter: 0.23 ft (0.07 m) Exit flow rate: 12.5 acfm Exit temperature: 185 °F (85ºC)
P37	Cheese Plant AC 14: Manufacturer: BDP Model: 580DJV060115AAAA Manufacture Date: 2000 Heat Input Rating: 0.115 MMBtu/hr Fuel: Natural Gas	None	Exit height: 40 ft (12.19 m) Exit diameter: 0.23 ft (0.07 m) Exit flow rate: 28.5 acfm Exit temperature: 185 °F (85 ºC)
P40	Cheese Plant Donaldson Dust Collection Unit:	Donaldson Baghouse: Manufacturer: Donaldson Model: Torit Dalmatic DLMC PM Control Efficiency: 99.97%	Exit height: 46 ft (14.02 m) Exit diameter: 1.42 ft (0.43 m) Exit flow rate: 8000 cfm Exit temperature: 70 °F (21 ºC)

Emissions Inventories

Potential to Emit

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

Using this definition of Potential to Emit an emission inventory was developed for the cheese and whey production operations at the facility (see Appendix A). Emissions estimates of criteria pollutant and HAP PTE were based on emission factors from AP-42, operation of 8,760 hours per year, source test data, and process information specific to the facility for this proposed project.

Pre-Project Potential to Emit

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

The following table presents the pre-project potential to emit for all criteria pollutants from all emissions units at the facility as submitted by the Applicant and only $PM_{2.5}/PM_{10}$ emissions from Meyer-Sterner Whey Dryer and TetraPak Whey Dreyer Scrubber that are affected by this project are verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

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

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC
	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	T/yr[(b)]
Meyer-Sterner Whey Dryer, using 2013 EF x 120% for PM	0.323	1.42	3.54E-03	1.55E-02	0.27	1.20	2.24	9.81	1.42E-01
Superior Boiler (P-7)	0.19	0.81	0.015	0.06	2.44	10.67	2.05	8.96	0.59
Cleaver Brooks 600 HP Boiler	0.18	0.80	0.014	0.06	1.20	5.27	2.02	8.85	0.58
Hurst Boiler (P-9)	0.25	1.10	0.020	0.09	3.30	14.46	2.77	12.15	0.80
Cleaver Brooks 1200 HP Boiler	0.37	1.60	0.029	0.13	2.41	10.54	4.04	17.71	1.16
TetraPak Whey Dryer Burner 1	0.093	0.41	0.007	0.03	0.499	2.19	3.89	17.05	0.30
TetraPak Whey Dryer Burner 2	0.093	0.41	0.007	0.03	0.499	2.19	3.89	17.05	0.30
Natural Gas-Fired Heaters	0.20	0.29	0.016	0.02	2.68	3.87	2.26	3.25	0.21
IC Engine	0.51	0.13	0.0856	0.02	7.28	1.82	1.57	0.39	0.15
TetraPak Wet Scrubber	1.90	8.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TetraPak Shaker Bed Baghouse	3.32	14.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Donaldson Dust Baghouse	3.82E-05	0.335	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Project Totals	7.43	30.16	0.20	0.46	20.58	52.21	24.73	95.22	4.23

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.

Post Project Potential to Emit

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

The following table presents the post project Potential to Emit for criteria pollutants from all emissions units at the facility as submitted by the Applicant, and only $PM_{2.5}/PM_{10}$ emissions from Meyer-Sterner Whey Dryer and TetraPak Whey Dreyer Scrubber that are affected by this project are verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 3 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC
	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	T/yr[(b)]
Meyer-Sterner Whey Dryer, using 2013 EF X120%	0.497	2.18	3.54E-03	1.55E-02	0.27	1.20	2.24	9.81	1.42E-01
Superior Boiler (P-7)	0.19	0.81	0.015	0.06	2.44	10.67	2.05	8.96	0.59
Cleaver Brooks 600 HP Boiler	0.18	0.80	0.014	0.06	1.20	5.27	2.02	8.85	0.58
Hurst Boiler (P-9)	0.25	1.10	0.020	0.09	3.30	14.46	2.77	12.15	0.80
Cleaver Brooks 1200 HP Boiler	0.37	1.60	0.029	0.13	2.41	10.54	4.04	17.71	1.16
TetraPak Whey Dryer Burner 1	0.093	0.41	0.007	0.03	0.499	2.19	3.89	17.05	0.30
TetraPak Whey Dryer Burner 2	0.093	0.41	0.007	0.03	0.499	2.19	3.89	17.05	0.30
Natural Gas-Fired Heaters	0.20	0.29	0.016	0.02	2.68	3.87	2.26	3.25	0.21
IC Engine	0.51	0.13	0.0856	0.02	7.28	1.82	1.57	0.39	0.15
TetraPak Wet Scrubber	1.90	8.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TetraPak Shaker Bed Baghouse	3.32	14.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Donaldson Dust Baghouse	3.82E-05	0.335	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Post Project Totals	7.60	30.93	0.20	0.46	20.58	52.21	24.73	95.22	4.23

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

Change in Potential to Emit

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

Table 4 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	T/yr
Pre-Project Potential to Emit	7.43	30.16	0.20	0.46	20.58	52.21	24.73	95.22	4.23
Post Project Potential to Emit	7.60	30.93	0.20	0.46	20.58	52.21	24.73	95.22	4.23
Changes in Potential to Emit	**0.17**	**0.76**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

TAP Emissions

This permitting action does not change TAP PTE. TAP increment is zero, therefore, no TAP analysis is required.

HAP Emissions

This permitting action does not change HAP PTE.

Ambient Air Quality Impact Analyses

As presented in the Modeling Memo in Appendix B, the estimated emission increase of $PM_{2.5}$ from this project exceeded the published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline[1]. 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.

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

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

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

Facility Classification

The AIRS/AFS facility classification codes are as follows:

For THAPs (Total Hazardous Air Pollutants) Only:

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

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

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

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

UNK = Class is unknown.

For All Other Pollutants:

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

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

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

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

UNK = Class is unknown.

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

Uncontrolled potential to emit for criteria pollutants was not provided with the application since this is an existing source. There are no changes in Facility Classification from the previous permitting action.

Table 5 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	>100[a]	<100	**100**	SM
PM_{10}	>100 [a]	<100	**100**	SM
$PM_{2.5}$	>100 [a]	<100	**100**	SM
SO_2	<100	<100	**100**	B
NO_X	<100	<100	**100**	B
CO	<100	<100	**100**	B
VOC	<100	<100	**100**	B
HAP (single)	<10	<10	**10**	B
Total HAPs	<25	<25	**25**	B

a) Uncontrolled $PM_{10}/PM_{2.5}$ emissions from Meyer-Sterner Whey Dryer = $PM_{10}/PM_{2.5}$ PTE of 2.18 T/yr / (1-98%, the dryer's baghouse control efficiency) = 109 T/yr > 100 T/yr

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 modified emissions source. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401..... Tier II Operating Permit

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

Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.625..... Visible Emissions

The sources of PM_{10} emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Conditions 2.4, 3.4, and 4.3.

Standards for New Sources (IDAPA 58.01.01.676)

IDAPA 58.01.01.676..... Standards for New Sources

The fuel burning equipment located at this facility, with a maximum rated input of ten (10) million BTU per hour or more, are subject to a particulate matter limitation of 0.015 gr/dscf of effluent gas corrected to 3% oxygen by volume when combusting gaseous fuels. Fuel-Burning Equipment is defined as any furnace, boiler, apparatus, stack and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer. This requirement is assured by Permit Conditions 3.5 and 4.4.

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

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

Post project facility-wide emissions from this facility do not have a potential to emit greater than 100 tons per year for $PM_{2.5}$, PM_{10}, SO_2, NO_X, CO, and VOC or 10 tons per year for any one HAP or 25 tons per year for all HAP combined as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, the facility is not a Tier I source in accordance with IDAPA 58.01.01.006 and the requirements of IDAPA 58.01.01.301 do not apply.

PSD Classification (40 CFR 52.21)

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

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

NSPS Applicability (40 CFR 60)

This permitting action does not affect the NSPS applicability and the NSPS requirements in the permit. Refer to the SOB for the 2016 permit for detailed regulatory analysis.

NESHAP Applicability (40 CFR 61)

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

GACT/MACT Applicability (40 CFR 63)

This permitting action does not affect the GACT/MACT applicability and the GACT/MACT requirements in the permit. Refer to the SOB for the 2016 permit for detailed regulatory analysis.

Permit Conditions Review

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

Permit Condition 1.1 states the purpose of this permitting action.

Permit Condition 1.3 states this permit replaces Permit to Construct No. P-2009.0023, issued on December 8, 2016.

Revised Table 1.1

The production rate of Meyer-Sterner Whey Dryer is changed from 1,496 lb/hr to 2,300 lb/hr, on a 24-hr averaging period, “or 27.60 T/day” is added to the table. “Permitted production” has replaced “Production” in the table.

Revised Permit Condition 2.1

Permit Condition 2.1 is updated using the process description provided in this application.

Revised Table 2.1

The production rate is changed from 2,000 lb/hr to 2,300 lb/hr, based on 24-hr averaging period. “or 27.60 T/day” is added to the table.

Revised Permit Condition 2.3

According to the modeling memo for the 2016 permit, cumulative NAAQS impact analyses were performed for

PM_{10}, $PM_{2.5}$, NO_2, and CO. The modeled rates were 1.66 lb/hr for PM_{10} 24-hour NAAQS and 0.6 lb/hr for $PM_{2.5}$ 24-hr and annual NAAQS. The annual modeled rates were based on the assumption that the dryer would operate 8,760 hr/year at the modeled hourly rate. The ambient impacts were 63% of 24-hr NAAQS for PM_{10}, 99.7% of 24-hour NAAQS for $PM_{2.5}$, and 95% of annual NAAQS for $PM_{2.5}$.

In this application (2020 application), the applicant has requested to limit the $PM_{2.5}/PM_{10}$ emissions to 11.94 lbs per calendar day, which is equivalent to 0.4973 lb/hr based on 24-hr averaging period.

The emissions limit of 11.94 lbs per calendar day or 0.4973 lb/hr based on a 24-hr averaging period was developed based on the Feb 18, 2013 source test data with the 1.2 safety factor and the proposed daily dryer throughput. This rate has been used for this application to show that the PM_{10} emissions increase due to this project (using the updated emission factor for both pre- and post-project emissions) was below DEQ's Level I modeling threshold. Modeling conducted using emissions rate of 0.4973 lb/hr also demonstrated that the ambient impacts associated with the emissions increase in $PM_{2.5}$ were below significant for both the 24-hour and annual averaging periods.

The applicant has requested to remove the annual emissions limit because it is inherently limited by the hourly emissions rate. The annual limit is removed from permit condition (PC) 2.3.

Revised Permit Condition 2.5

The throughput increases from 17.95 T/day to 27.60 T/day as a result of this permitting action. The throughput limit is to ensure compliance with the daily emissions limit, ultimately to ensure compliance with the 24-hour standards for PM_{10} and $PM_{2.5}$. To avoid confusion, the applicant has requested to only keep the daily throughput limit and remove the hourly limit expressed as lb/hr, based on 24-hr averaging period. The request is granted.

Revised Permit Condition 2.8

As a result of the change in PC 2.5 and as requested by the applicant, "lb/hr" is removed from PC 2.8.

Revised Permit Condition 2.10

Source test date is updated to "Within 180 days of the permit issuance" rather than using "February 1, 2023" source test date; this source test date is established after taking into account the input from DEQ's compliance group and after considering that the dryer was tested at 1,664 lb/hr in 2018, now the dryer production has increased to 2,300 lb/hr, and for verifying whether the same baghouse can do the job with production increase.

"PM_{10}" is replaced with "$PM_{2.5}/PM_{10}$" as requested by the applicant. The applicant has assumed PM_{10} emissions = $PM_{2.5}$ emissions.

Revised Permit Condition 3.3 and Table 3.2

"PM_{10}" is replaced with "$PM_{2.5}/PM_{10}$."

According to the 2016 modeling memo, cumulative NAAQS impact analyses were performed for PM_{10}, $PM_{2.5}$, NO_2, and CO. The modeled rates were 5.66 lb/hr for PM_{10} and 1.9 lb/hr for $PM_{2.5}$ from TetraPak Whey Dreyer scrubber. The annual modeled rates were based on the assumption that the dryer would operate 8,760 hr/year at the modeled hourly rates. The ambient impacts were 63% of 24-hr NAAQS for PM_{10}, 99.7% of 24-hour NAAQS for $PM_{2.5}$, and 95% of annual NAAQS for $PM_{2.5}$.

Based on 2016 modeling results, the applicant requested to replace the PM_{10} limit of 5.66 lb/hr in the existing permit with the limit of 1.9 lb/hr, based on a 24-hr averaging period to ensure compliance with the NAAQS for $PM_{2.5}$ and PM_{10}. The limit of 1.9 lb/hr was the modeled emissions rate in the 2016 modeling. The change is made in PC 3.3, Table 3.2. The change also reflects the more realistic emissions of the dryer as the 2018 source test showed that the emissions from TetraPak Whey Dreyer Scrubber was 1.54 lb/hr which is 81% of the modeled hourly rate of 1.9 lb/hr. The annual emissions limit is changed from 24.79 T/yr to 8.32 T/yr as a result of the hourly limit change.

Table 3.2 column title "PM_{10}" is replaced with "$PM_{2.5}/PM_{10}$". The change reflects the assumption used in the 2016 ambient impact analysis that the emissions rates of $PM_{2.5}$ were the same as the emissions rates of PM_{10}.

Revised Permit Condition 3.13

As requested by the applicant, "PM_{10}" is replaced with "$PM_{2.5}/PM_{10}$." The change reflects the assumption used in the 2016 ambient impact analysis that the emissions rates of $PM_{2.5}$ were the same as the emissions rates of $PM_{10.}$ The source test date is updated to September 22, 2020 that was specified in the DEQ's source test letter.

Revised Permit Condition 3.13

"… The scrubbing media flow rate and the pressure drop across the whey dryer scrubber shall be monitored and recorded during each whey dryer scrubber test." is added to PC 3.13.2. That was missed in the 2016 permit. "PM_{10}" is replaced with "$PM_{2.5}/PM_{10}$." Permit Condition 3.13.3 is revised for clarification purpose.

New Permit Condition 4.6

New PC 4.6 is added as "The stack height of the four boilers each shall not be less than 50.8 feet above ground level." As explained in the application, in the 2016 modeling analyses, compliance with 1-hr NO_2 NAAQS depended on increasing the stack heights for the four boilers each to 50.8 feet above ground level.

New Permit Conditions 5.5 and 5.6

Requested by the applicant, new PC 5.5 is added as "The permittee shall not operate the emergency generator for routine testing and maintenance more than one hour per day." As explained in the application, modeling conducted in support of the 2016 permit presumed operation of the emergency fire pump engine for a maximum of one hour per day for routine testing and maintenance.

New Permit Condition 5.6 requires the permittee to monitor the operating hour of the emergency engine when performing routine testing and maintenance.

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

1 Heat Content of Gas Delivered to Consumers (Btu/scf)

State	2009	2010	2011	2012	2013	2014	Average
Alaska	1,005	1,005	1,013	1,012	1,002	1,001	**1,006**
California	1,027	1,023	1,020	1,022	1,028	1,030	**1,025**
Idaho	1,022	1,021	1,017	1,015	1,015	1,017	**1,018**
Montana	1,011	1,012	1,016	1,025	1,028	1,025	**1,020**
Oregon	1,024	1,015	1,021	1,022	1,015	1,029	**1,021**
Utah	1,044	1,045	1,038	1,043	1,047	1,040	**1,043**
Washingto	1,030	1,032	1,029	1,028	1,030	1,044	**1,032**
Wyoming	1,031	1,031	1,034	1,034	1,041	1,040	**1,035**

U.S. Energy Information Administration (EIA), Heat Content of Natural Gas Consumed
http://www.eia.gov/dnav/ng/ng_cons_heat_a_epg0_vgth_btucf_a.htm

2 Natural Gas Combustion in Space Heaters

3 Greenhouse Gas Global Warming Potential (GWP)

GHG	GWP (100-yr)	
	4th	5th
CO2 (carbon dioxide)	1	1
N2O (nitrous oxide)	298	265
CH4 (methane)	25	28

4th = IPCC Fourth Assessment Report, 2007 (AR4), Section 2.10.2, Direct Global Warming Potentials,
accessed July 7, 2015 at https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html
5th = IPCC Fifth Assessment Report, 2014 (AR5),
adapted GWP values taken from http://ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values.pdf

Plant Altitude	767	m	
Barometric Pressure		mm Hg	
Natural Gas Heating Value	1018	MMBtu/MMscf	*This was set to 1000 in 2009*

Addressed in PTC	Emissions	Stack ID	Unit ID	Description	Mfr/Make	Model	Mfr/ Install Year	Input Heat Capacity (Btu/hr)	Input Heat Capacity (MMBtu/hr)	Max Hrly Fuel Use (MMscf/ hr)	Operating Hrs/Day	Operating Hr/Yr
7/20/2001	PM	P-01	WHDRYBH	Meyers-Sterner Whey Dryer w/BH	Meyers-Sterner	**Production rate = 1496 lb/day**	2001		**6.0**	0.0059	24	8760
8/28/2009	PM	P-04	WHTETRSC	TetraPak Whey Dryer Scrubber	Fisher Klosterman, Inc.	MS-1200 Scrubber, SS316 **16,667 lb/hr**	4/1/2009					
8/28/2009	PM	P-05	WHTETRBH	TetraPak Whey Dryer Baghouse	TetraPak	13-243-14; **16,667 lb/hr**	4/1/2009					
2016	PM	P-40	CH-DONBH	Cheese Plant Donaldson Dust Collection Unit	Donaldson	DLMC , SN 2034355, PM2.5 99.999%, 5000 cfm	2005					

Addressed in PTC	Emissions	Stack ID	Unit ID	Description	Mfr/Make	Model	Mfr/ Install Year	Input Heat Capacity (Btu/hr)	Input Heat Capacity (MMBtu/hr)	Max Hrly Fuel Use (MMscf/ hr)	Operating Hrs/Day	Operating Hr/Yr
8/28/2009	NG Combustion Products	P-02	WHDRY01	TetraPak Whey Dryer - Burner 1	Eclipse, Inc.	Winnox WX1000	4/1/2009		12.5	0.0123	24	8760
8/28/2009	"	P-03	WHDRY02	TetraPak Whey Dryer - Burner 2	Eclipse, Inc.	Winnox WX1000	4/1/2009		12.5	0.0123	24	8760
8/28/2009	NG Combustion Products	P-06	BLR4	Boiler 4, Low NOx (FGR)	Cleaver Brooks 1200 HP	CBL-700-1200-150 150SC	4/1/2009		49	0.0481	24	8760
7/20/2001	"	P-07	BLR2	Boiler 2, new 800 burner & downrated in 2014	Superior 800 HP	4-05-3005	2001		24.8	0.0244	24	8760
7/20/2001	"	P-08	BLR1	Boiler 1, Low NOx (FGR)	Cleaver Brooks 600 HP	CBLE 700-600	2001		24.49	0.0241	24	8760
8/28/2009	"	P-09	BLR3	Boiler 3, exempt from PTC action when installed in 2007	Hurst 800 HP	54000-150-26	2007		33.6	0.0330	24	8760
2016	"	P-35	CH-AC01	Cheese Plant, Engineering	Carrier	48SS-03006031AA	2000	**50,400**	0.0504	4.95E-05	**24**	**8760**
2016	"	P-10	CH-AC02	Cheese Plant, Main Conf. Rm	Carrier	48TME004-A-501	2007	74,000	0.074	7.27E-05	24	8760
2016	"	P-11	CH-AC03	Cheese Plant, Main Breakroom	Carrier	48TM3008-A-501	2004	180,000	0.180	1.77E-04	24	8760
2016	"	P-12	CH-AC04	Cheese Plant, Office, East side	Carrier	448TFE007-511	2004	115,000	0.115	1.13E-04	24	8760
2016	"	P-13	CH-AC05	Cheese Plant, Office, West side	Carrier	48TJE007---521--	2004	115,000	0.115	1.13E-04	24	8760
2016	"	P-38	CH-AC06					0	0.000	0.00E+00	24	8760
2016	"	P-14	CH-AC15	Cheese Plant, Micro Lab	Carrier	48HJE006-351	2004	115,000	0.115	1.13E-04	24	8760
2016	"	P-15	CH-AC16	Cheese Plant, Intake Breakroom	Carrier	48TJE005-611GA	2000	115,000	0.115	1.13E-04	24	8760
2016	"	P-16	CH-AC17	Cheese Plant, Main Lab	Carrier	48TFD009-611	2008	125,000	0.125	1.23E-04	24	8760
2016	"	P-17	CH-AC24	Cheese Plant, Warehouse	Carrier	48TCEA04A2A5A0A0A0	2008	115,000	0.115	1.13E-04	24	8760
2016	"	CH_AHU09	CH-AHU09	Cheese Plant, Mascarpone	Reyco[1]		1999	3,000,000	3.00	2.95E-03	24	8760
2016	"	CH_AHU07	CH-AHU07	Cheese Plant, Shred	Reyco[1]		1999	3,000,000	3.00	2.95E-03	24	8760
2016	"	CH_AHU08	CH-AHU08	Cheese Plant, Mozzarella	Reyco[1]		1999	2,500,000	2.50	2.46E-03	24	8760
2016	"	P-37	CH-AC14	Cheese Plant, QA Offices	BDP	580DJV060115AAAA	2000	115,000	0.115	1.13E-04	24	8760
2016	"	P-18	WH-MA01	Whey Plant, Crystallizer room	York/Johnson Controls	DF-200-GMFH-LH-B200R10LGGAA	2010	2,500,000	2.500	2.46E-03	24	8760
2016	"	P-19	WH-MA02	Whey Plant, HTST room	York/Johnson Controls	DF-175-GMFH-LH-B175R10LGGAA	2010	2,187,000	2.187	2.15E-03	24	8760
2016	"	P-20	WH-MA03	Whey Plant, Permeate dryer burner room	York/Johnson Controls	DF-175-GMFH-LH-B175R10LGGAA	2010	2,187,000	2.187	2.15E-03	24	8760
2016		P-30	WH-MA04	Whey Plant	Greenheck	PVF350H	2010	700,000	0.700	6.88E-04	24	8760
2016	"	P-21	WH-MA06	Whey Plant, Permeate dryer cyclone room	York/Johnson Controls	DF-200-GMFH-LH-B200R10LGGAA	2010	2,500,000	2.500	2.46E-03	24	8760
2016	"	P-22	WH-MA07	Whey Plant, Dungeon room	York/Johnson Controls	DF-150-GMFH-LH-B150R10LGGAA	2010	1,875,000	1.875	1.84E-03	24	8760
2016	"	P-23	WH-AC01	Whey Plant, Packaging blower room	York/Johnson Controls	0EA700030101	2010	375,000	0.375	3.68E-04	24	8760
2016	"	P-24	WH-AC02	Whey Plant, Powder silo room	York/Johnson Controls	DF-40-GMFH-LH-B40R10LGGAA	2010	500,000	0.500	4.91E-04	24	8760
2016	"	P-25	WH-AC03	Whey Plant, Packaging bag room	York/Johnson Controls	DF-75-GMFH-LH-B75R10LGGAA	2010	937,000	0.937	9.21E-04	24	8760
2016	"	P-26	WH-AC04	Whey Plant, Packaging bulk room	York/Johnson Controls	DF-100-GMFH-LH-B100R10LGGAA	2010	1,250,000	1.250	1.23E-03	24	8760
2016	"	P-27	WH-AC09	Whey Plant, Offices	Carrier	D1NA048N090253	unknown	108,000	0.108	1.06E-04	24	8760
2016	"	P-28	WH-AC11	Whey Plant, Lab	Carrier	J06ZHN10P4AZZ50005A	2010	120,000	0.120	1.18E-04	24	8760
2016	"	P-29	WH-AC12	Whey Plant, Breakroom	Carrier	48TFD009-611	2000	125,000	0.125	1.23E-04	24	8760
2016	"	WH_AHU10	WH-AHU10	Whey Plant, Membrane room	Industrial Commercial Equipment	DMA125X	2000	2,112,000	2.112	2.07E-03	24	8760
2016	"	P-31	FM-AC01	Fresh Mozzarella Plant, 1st floor	Carrier	48TCEA07A2A5A0A0A0	2013	115,000	0.115	1.13E-04	24	8760
2016	"	P-32	FM-AC02	Fresh Mozzarella Plant, 2nd floor	Carrier	48TCEA07A2A5A0A0A0	2013	115,000	0.115	1.13E-04	24	8760
								TOTAL, NG Heaters	**27.33**			

Addressed in PTC	Emissions	Stack ID	Unit ID	Description	Mfr/Make	Model	Mfr/ Install Year	Engine Rating (bhp)	Fuel Sulfur Content (%)	Annual Flow Test (hrs)	Weekly Test (Hrs)	Operating Hr/Yr
2016	ULSD Combustion Products	P-34	FPUMP	Diesel Fire Pump	Peerless	Model # JD/RG6081H132189 (horizontal)	2001	235.9	0.0015	2	1	500

Pre-Project Emissions

Source	PM2.5		SO2		NOx		CO		VOC	CO2e
	(lb/hr)	T/yr	(lb/hr)	T/yr	(lb/hr)	T/yr	(lb/hr)	T/yr	T/yr	T/yr
Meyers-Sterner Whey Dryer	1.66	7.30	0.0035	0.02	0.27	1.2	2.24	9.81	0.14	3,115
Meyers-Sterner Whey Dryer, using 2013 EF x 120%	0.323	1.42	3.54E-03	1.55E-02	0.27	1.20	2.24	9.81	1.42E-01	3,115
Superior Boiler (P-7)	0.19	0.81	0.015	0.06	2.44	10.67	2.05	8.96	0.59	12,876
Cleaver Brooks 600 HP Boiler	0.18	0.80	0.014	0.06	1.20	5.27	2.02	8.85	0.58	12,715
Hurst Boiler (P-9)	0.25	1.10	0.020	0.09	3.30	14.46	2.77	12.15	0.80	17,444
Cleaver Brooks 1200 HP Boiler	0.37	1.60	0.029	0.13	2.41	10.54	4.04	17.71	1.16	25,440
TetraPak Whey Dryer Burner 1	0.093	0.41	0.007	0.03	0.499	2.19	3.89	17.05	0.30	6,467
TetraPak Whey Dryer Burner 2	0.093	0.41	0.007	0.03	0.499	2.19	3.89	17.05	0.30	6,467
Natural Gas-Fired Heaters	0.20	0.29	0.016	0.02	2.68	3.87	2.26	3.25	0.21	14,187
IC Engine	0.51	0.13	0.0856	0.02	7.28	1.82	1.57	0.39	0.15	67.70
TetraPak Wet Scrubber	1.90	8.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TetraPak Shaker Bed Baghouse	3.32	14.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Donaldson Dust Baghouse	3.82E-05	0.335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016 SOB Totals	8.77	36.05	**0.20**	**0.46**	**20.58**	**52.21**	**24.73**	**95.22**	**4.23**	**98,779**
Pre-Project Totals	7.43	30.16	**0.20**	**0.46**	**20.58**	**52.21**	**24.73**	**95.22**	**4.23**	**98,779**

(Table 4, 2016 PTC Statement of Basis, except for Meyers-Sterner Whey Dryer and corrected emission rate for TetraPak Whey Dryer Scrubber)

24.7908 8.322

Post-Project Emissions

Source	PM2.5		SO2		NOx		CO		VOC	CO2e
	(lb/hr)	T/yr	(lb/hr)	T/yr	(lb/hr)	T/yr	(lb/hr)	T/yr	T/yr	T/yr
Meyers-Sterner Whey Dryer, using 2013 EF X120%	0.497	2.18	3.54E-03	1.55E-02	0.27	1.20	2.24	9.81	1.42E-01	3,115
Superior Boiler (P-7)	0.19	0.81	0.015	0.06	2.44	10.67	2.05	8.96	0.59	12,876
Cleaver Brooks 600 HP Boiler	0.18	0.80	0.014	0.06	1.20	5.27	2.02	8.85	0.58	12,715
Hurst Boiler (P-9)	0.25	1.10	0.020	0.09	3.30	14.46	2.77	12.15	0.80	17,444
Cleaver Brooks 1200 HP Boiler	0.37	1.60	0.029	0.13	2.41	10.54	4.04	17.71	1.16	25,440
TetraPak Whey Dryer Burner 1	0.093	0.41	0.007	0.03	0.499	2.19	3.89	17.05	0.30	6,467
TetraPak Whey Dryer Burner 2	0.093	0.41	0.007	0.03	0.499	2.19	3.89	17.05	0.30	6,467
Natural Gas-Fired Heaters	0.20	0.29	0.016	0.02	2.68	3.87	2.26	3.25	0.21	14,187
IC Engine	0.51	0.13	0.0856	0.02	7.28	1.82	1.57	0.39	0.15	67.70
TetraPak Wet Scrubber	1.90	8.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TetraPak Shaker Bed Baghouse	3.32	14.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Donaldson Dust Baghouse	3.82E-05	0.335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Post Project Totals	7.60	30.93	**0.20**	**0.46**	**20.58**	**52.21**	**24.73**	**95.22**	**4.23**	**98,779**

(Table 4, 2016 PTC Statement of Basis, except for Meyers-Sterner Whey Dryer and corrected emission rate for TetraPak Whey Dryer Scrubber)

Change in Permitted Emissions	**0.17**	**0.76**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Total Increase in Emissions =

Uncontrolled Emissions	PM2.5			
	T/yr			
Meyers-Sterner Whey Dryer, using 2013 EF X120%	109			
Meyers-Sterner Whey Dryer Baghouse control efficiency from PTC:				98%

2016 PTC Statement of Basis

Post Project Potential to Emit

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

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

Table 4 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	CO_2e
	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	T/yr[b]	T/yr[b]
Meyer-Sterner Whey Dryer	1.66	7.30	0.0035	0.02	0.27	1.20	2.24	9.81	0.14	3115
Superior Boiler (P-7)	0.19	0.81	0.015	0.66	2.44	10.67	2.05	8.96	0.59	12876
Cleaver Brooks 600 HP Boiler	0.18	0.80	0.014	0.66	1.20	5.27	2.02	8.85	0.58	12715
Hurst Boiler (P-9)	0.25	1.10	0.020	0.09	3.30	14.46	2.77	12.15	0.80	17444
Cleaver Brooks 1200 HP Boiler	0.37	1.60	0.029	0.13	2.41	10.54	4.04	17.71	1.16	25440
TetraPak Whey Dryer Burner 1	0.093	0.41	0.007	0.03	0.499	2.19	3.89	17.05	0.30	6467
TetraPak Whey Dryer Burner 2	0.093	0.41	0.007	0.03	0.499	2.19	3.89	17.05	0.30	6467
Natural Gas-Fired Heaters	0.20	0.29	0.016	0.02	2.68	3.87	2.26	3.25	0.21	14187
IC Engine	0.51	0.13	0.0856	0.02	7.28	1.82	1.57	0.39	0.15	67.70
TetraPak Wet Scrubber	5.66	24.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TetraPak Baghouse	3.32	14.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Donaldson Dust Baghouse	0.0000 382	0.335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Post Project Totals	**12.53**	**52.52**	**0.20**	**0.46**	**20.58**	**52.21**	**24.73**	**95.22**	**4.23**	**98778.70**

[a] Controlled average emission rate in pounds per hour (e.g. daily average, based on the proposed daily operating schedule and daily limits).

FACILITY CLASSIFICATION

TOTAL HAPs and MERCURY EMISSIONS (Tons per Year) @8760 @500 hr/yr

	Meyers-Sterner Whey Dryer w/BH	TetraPak Whey Dryer - Burner 1	TetraPak Whey Dryer - Burner 2	Cleaver Brooks 600 HP	Superior 800 HP	Hurst 800 HP	Cleaver Brooks 1200 HP	Natural Gas-Fired Heaters	Fire Pump Engine	TOTAL
MMscf/yr	51.64	107.58	107.58	210.77	213.44	289.18	421.72	235.18		1,637.1
MMBtu/yr									825.7	825.7
Mercury, lb/MMscf:	2.60E-04	2.60E-04	2.60E-04	2.60E-04	2.60E-04	2.60E-04	2.60E-04	2.60E-04		
Total HAPs, lb/MMscf:	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92		
Total HAPs, lb/MMBtu:									3.87E-03	
Mercury, lbs/yr	1.34E-02	2.80E-02	2.80E-02	5.48E-02	5.55E-02	7.52E-02	1.10E-01	6.11E-02		0.43
HAPs, lbs/yr	99.38	207.04	207.04	405.63	410.77	556.52	811.60	452.60	3.20	3,154
HAPs, Tons/yr	**4.97E-02**	**1.04E-01**	**1.04E-01**	**2.03E-01**	**2.05E-01**	**2.78E-01**	**4.06E-01**	**2.26E-01**	**1.60E-03**	**1.58**

NOT a major facility: *Does not emit or have the potential to emit > 10 TPY of any HAP*
Does not emit or have the potential to emit > 25 TPY of all HAPs, combined
Does not emit or have the potential to emit > 25 lbs/yr of Mercury

TOTAL GHG EMISSIONS (Tons per Year) @8760 @500 hr/yr

	Meyers-Sterner Whey Dryer w/BH	TetraPak Whey Dryer - Burner 1	TetraPak Whey Dryer - Burner 2	Cleaver Brooks 600 HP	Superior 800 HP	Hurst 800 HP	Cleaver Brooks 1200 HP	Natural Gas-Fired Heaters	Fire Pump Engine	TOTAL	TOTAL (Metric Tonnes)
CO2, Tons/yr	3,098	6,455	6,455	12,646	12,806	17,351	25,303	14,111	67.70	**98,293**	**89,170**
CO2e, Tons/yr	3,115	6,467	6,467	12,715	12,876	17,444	25,440	14,187	67.70	**98,779**	**89,611**

Not subject to EPA's Mandatory GHG Reporting Rule (40 CFR 98), the facility is not included in the list of regulated source types for this rule

2020 Post-Project Emissions **Plant Components operating at Max Capacity, 8760 hr/yr**

Source	PM10		PM2.5		SO2		NOx		CO		VOC	CO2e
	(lb/hr)	T/yr	(lb/hr)	T/yr	(lb/hr)	T/yr	(lb/hr)	T/yr	(lb/hr)	T/yr	T/yr	T/yr
Meyers-Sterner Whey Dryer, using 2013 EF X120%	0.497	2.18	0.497	**2.18**	**0.0035**	**0.02**	0.27	1.20	2.24	9.81	0.14	3,115
Superior Boiler (P-7)	0.19	0.81	0.19	0.81	0.015	0.06	2.44	10.67	2.05	8.96	0.59	12,876
Cleaver Brooks 600 HP Boiler	0.18	0.8	0.18	0.8	0.014	0.06	1.2	5.27	2.02	8.85	0.58	12,715
Hurst Boiler (P-9)	0.25	1.1	2.50E-01	1.1	0.02	0.09	3.3	14.46	2.77	12.15	0.80	17,444
Cleaver Brooks 1200 HP Boiler	0.37	1.6	0.37	1.6	0.029	0.13	2.41	10.54	4.04	17.71	1.16	25,440
TetraPak Whey Dryer Burner 1	0.093	0.41	9.30E-02	0.41	0.007	0.03	0.499	2.19	3.89	17.05	0.30	6,467
TetraPak Whey Dryer Burner 2	0.093	0.41	0.093	0.41	0.007	0.03	0.499	2.19	3.89	17.05	0.30	6,467
Natural Gas-Fired Heaters	0.20	0.29	2.00E-01	0.29	0.016	0.02	2.68	3.87	2.26	3.25	0.21	14,187
IC Engine	0.51	0.13	0.51	0.13	0.0856	0.02	7.28	1.82	1.57	0.39	0.15	67.70
TetraPak Wet Scrubber	1.90	8.322	1.9	8.322	0	0	0	0	0	0	0	0
TetraPak Shaker Bed Baghouse	3.32	14.54	3.32	14.54	0	0	0	0	0	0	0	0
Donaldson Dust Baghouse	0.0000382	0.335	0.0000382	0.335	0	0	0	0	0	0	0	0
Post Project Totals	**7.60**	**30.93**	**7.60**	**30.93**	**0.20**	**0.46**	**20.58**	**52.21**	**24.73**	**95.22**	**4.23**	**98,779**

Model: **Meyers-Sterner Whey Dryer wBH**

NATURAL GAS COMBUSTION, AP-42 SECTION 1.4 (7/98)

6.00 MMBtu/hr / **1,018** MMBtu/MMscf = 5.89E-03 MMscf/hr

Operating Assumptions: **24** hr/day

8,760 hr/yr

Fuel Use:
0.141 MMscf/day
51.639 MMscf/year

Criteria Air Pollutants	Emission Factor	Emissions		
	lb/MMscf	lb/hr	TPY	lb/mo
PM10 24-hour	7.6	**0.497**	2.18	
PM2.5 24-hour	7.6	**0.497**		
PM2.5 annual	7.6	0.497	2.18	
CO 2-hr, lb/hr	84	2.24	0.62	
NOx 1-hr	100	0.27		
NOx annual	100		1.20	
SO2 1hr	0.6	3.54E-03		
SO2 annual	0.6	3.54E-03	1.55E-02	
VOC	5.5	3.24E-02	1.42E-01	
Lead rolling 3-month	0.0005	2.95E-06	1.29E-05	6.45E-09

PM/PM10 = 1.6 lb/hr (7.01 TPY), CO, and NOx emissions from the 2009 application, which cited the 2001 application (whey dryer installation). These emission rates include process emissions.

2016 Permit Limits 1.60 **lb/hr, and 7.3 TPY PM10**
1.60 **lb/hr dried whey product**

Combustion Emissions

AP-42 Factors	% of Total
(lb/hr)	
0.0440	9%
0.0440	9%
0.0440	9%
0.495	22%

2020 Proposed Permit Limits:

Production 27.60 T/day
PM10PM2.5 11.50 lb/day

Feb 18, 2013 Source Test

Method 5	0.00	lb/hr
Method 202	0.42	lb/hr
Prod. Rate:	1,051	lb whey/hr
	1.802E-04	lb PM/lb dry whey produced

Prod Rate (lb/hr) 1,400 2,300
Process Weight Limit (lb/hr) 3.62 4.68

Feb 1, 2013 Source Test

Method 5/202 0.42 Not recommended for emission factors (some results are below detection limits)
Prod Rate 1051 lb dried whey/hr
EF 1.402E-04 lb PM per lb dry whey produced

Greenhouse Gases (GHGs)	lb/MMscf	MMscf/hr			
Total Natural Gas Combustion		51.64	TPY	GWP	CO2e (TPY)
CO2	120,000	51.64	3,098	1	**3,098**
N2O - uncontrolled	2.2	51.64	0.057	298	16
N2O - controlled, low NOx burner	0.64	51.64		298	0.0
Methane, CH4	2.3	51.64	0.06	28	1.7
					3,115

Hazardous Air Pollutants (HAPs) and Toxic Air Pollutants (TAPs)				Exceeds ELV Modeling?
	lb/MMscf	lb/hr	ELL (lb/hr)	
PAH HAPs				
2-Methylnaphthalene	2.40E-05	**1.41E-07**	9.10E-05	No
3-Methylchloranthrene	1.80E-06	**1.06E-08**	2.50E-06	No
Acenaphthene	1.80E-06	**1.06E-08**	9.10E-05	No
Acenaphthylene	1.80E-06	**1.06E-08**	9.10E-05	No
Anthracene	2.40E-06	**1.41E-08**	9.10E-05	No
Benzo(a)anthracene	1.80E-06	**1.06E-08**	9.10E-05	Use PCM
Benzene(a)pyrene	1.20E-06	**7.07E-09**	2.50E-06	Use PCM
Benzo(b)fluoranthene	1.80E-06	**1.06E-08**		Use PCM
Benzo(b,k,)perylene	1.20E-06	**7.07E-09**	9.10E-05	No
Benzo(k)fluoranthene	1.80E-06	**1.06E-08**		Use PCM
Chrysene	1.80E-06	**1.06E-08**		Use PCM
Dibenz(a,h)anthracene	1.20E-06	**7.07E-09**		Use PCM
Dichlorobenzene	1.20E-03	**7.07E-06**	9.10E-05	No
Fluoranthene	3.00E-06	**1.77E-08**	9.10E-05	No
Fluorene	2.80E-06	**1.65E-08**	9.10E-05	No
Indeno(1,2,3-cd)pyrene	1.80E-06	**1.06E-08**		Use PCM
Naphthalene	6.10E-04	**3.60E-06**	9.10E-05	No
Naphthalene (as carcinogen)	6.10E-04	**3.60E-06**	9.10E-05	No
Phenanathrene	1.70E-05	**1.00E-07**	9.10E-05	No
Pyrene	5.00E-06	**2.95E-08**	9.10E-05	No
Polycyclic Organic Matter (POM) 7-PAH Group		**5.72E-08**	2.00E-06	No
Non-PAH HAPs				
Benzene	2.10E-03	**1.24E-05**	8.80E-04	No
Formaldehyde	7.50E-02	**4.42E-04**	5.10E-04	No
Hexane	1.80E+00	1.06E-02	12	No
Toluene	3.40E-03	2.00E-05	25	No
Non-HAP Organic Compounds				
2,12-dimethylbenz(a)anthracene	1.60E-05	9.43E-08		
Butane	2.10E+00	1.24E-02		
Ethane	3.10E+00	1.83E-02		
Pentane	2.60E+00	1.53E-02	118	No
Propane	1.60E+00	9.43E-03		
Metals (HAPs)				
Arsenic	2.00E-04	**1.18E-06**	1.50E-06	No
Barium	4.40E-03	**2.59E-05**	9.00E-03	No
Beryllium	1.20E-05	**7.07E-08**	2.80E-05	No
Chromium	1.40E-03	8.25E-06	0.023	No
Cobalt	8.40E-05	4.95E-07	0.0010	No
Copper	8.50E-04	5.01E-06	0.013	No
Manganese	3.80E-04	2.24E-06	0.067	No
Mercury	2.60E-04	1.53E-06	0.001	No
Molybdenum	1.10E-03	6.48E-06	0.333	No
Nickel	2.10E-03	**1.24E-05**	2.70E-05	No
Selenium	2.40E-05	1.41E-07	0.013	No
Vanadium	2.30E-03	1.36E-05	0.007	No
Zinc	2.90E-02	1.71E-04	0.667	No

Total HAPS = 1.92 lb/MMscf

NOTE: TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.

Meyer-Sterner Whey Dryer Emissions at Actual Production Rates (EF from 2013 Source Test)

Date	Daily Tons Produced	Daily Pounds Produced	Current Daily Limit in Pounds	Percent of Permit Limit	Emissions $PM_{10}PM_{2.5}$ (lb/hr)	Percent of 1.60 lb/hr PM_{10} Permit Limit	Percent of Max Proposed PM_{10} Limit
9/1/2020	17.747	35,494	35,904	98.9%	0.320	19%	53%
9/2/2020	17.664	35,328	35,904	98.3%	0.319	19%	53%
9/3/2020	17.603	35,206	35,904	98.0%	0.323	19%	54%
9/4/2020	20.005	40,010	35,904	111.4%	0.362	22%	60%
9/5/2020	20.087	40,173	35,904	111.9%	0.362	22%	60%
9/6/2020	20.139	40,281	35,904	112.2%	0.363	23%	60%
9/7/2020	20.101	40,201	35,904	112.0%	0.362	22%	60%

Meyer-Sterner Whey Dryer Emissions at Actual Production Rates (EF from 2013 Source Test)

Date	Daily Tons Produced	Daily Pounds Produced	$PM_{10}PM_{2.5}$ (lb/hr)	Percent of PM10 Limit	Percent of Proposed PM10PM2.5 Limit
9/1/2020	17.747	35,494	0.320	19%	53%
9/2/2020	17.664	35,328	0.319	19%	53%
9/3/2020	17.603	35,206	0.323	19%	54%
9/4/2020	20.005	40,010	0.362	22%	60%
9/5/2020	20.087	40,173	0.362	22%	60%
9/6/2020	20.139	40,281	0.363	23%	60%
9/7/2020	20.101	40,201	0.362	22%	60%

Dispersion Modeling: Change in Emissions using 2013 EF x Safety Factor for both Pre- and Post Project Emissions

	Daily Tons Produced	Daily Pounds Produced	PM_{10} Emissions			$PM_{2.5}$ Emissions		
			(lb/hr, 24-hr average)	(lb/hr, annual average)	(T/yr)	(lb/hr, 24-hr average)	(lb/hr, annual average)	(T/yr)
Proposed	27.60	55,200	0.497	0.497	2.18	0.497	0.497	2.18
Permitted	17.96	35,904	0.322	0.322	1.42	0.322	0.322	1.42
Increase:	9.65	19,296	**0.174**	0.174	**0.76**	**0.174**	0.174	**0.76**
Level I Threshold			0.23			0.052		0.23
Modeling Required?			**No**			**Yes**		**Yes**

Request Level II Modeling Threshold? NO

	Stack Height (m)	Exit Temp (F)	Stack Dia (m)	Exit Velocity (mps)	Distance to Ambient Air (m)	Building
Level II Accumulation	15	350	1	20	150	5 x 10m x 5.5 high
Whey Dryer Stack	22.8	112.03	0.91	16.12	21.39	See Photo

Stack Height = 22.5 m = 73.81627ft + 6.75 ft = 80.57 ft

February 1, 2018 Stack Test

Run	1	2	3	Average
Avg Stack Temp (F)	114.2	116.2	115.5	**115.3**
Stack Flow Rate (acfm)	**26,883**	27,037	26,959	**26,959**
Stack Flow Rate (acfm)	26,883	27,037	26,959	26,959
Stack Area (ft2)	8.1856	8.1856	8.1856	8.1856
Exit Velocity (fpm)	54,738	55,050	54,889	54,892
Exit Velocity (mph)	10.68	10.79	10.73	**10.73**
Stack Dia (in)	38.74	38.74	38.74	38.74

Corrected:

February 13, 2013 Stack Test

Run	1	2	3	Average
Avg Stack Temp (F)	113.2	113.9	113.5	113.53
Stack Flow Rate (acfm)	19,322	19,378	19,411	19,370
Stack Dia (in)	35.75	35.75	35.75	35.75
Exit Area (ft2)	6.97	6.97	6.97	6.97
Exit Velocity (mph)	10.08	10.12	10.15	10.12

3.26083 lb/hr



	easting	Northing
Cal. PLAN VIEW 2020		
SW Corner	548600.76	4636112.76
NE Corner	548692.67	4636175.30

Sorrento Lactalis - Nampa **AP-42 Table 3.3, Engine < 600 bhp**

Fuel Type Toggle =	1	(1= diesel)	**235.9** bhp	User Input Weight % Sulfur =	**0.0015**	%	
Fuel Consumption Rate	12.05	gal/hr		Max Daily Operation	**1**	hr/day	
Calculated MMBtu/hr	1.651	MMBtu/hr		Max Annual Operation	500	hrs/yr	**2016 Permit condition 5.5 limits operation for routine testing and maintenance to 100 hr/yr**
				1 hp = 0.7456999 kW	0.7457		
				Avg brake-specific fuel consumption (BSFC) =	7,000	Btu/hp-hr	
			Note: AP-42 Tables 3.3-x,3.4-x avg. diesel heating value is based on 19,300 Btu/lb with density equal 7.1 lb/gal=>		137,030	Btu/gal	

Pollutant	Emission Factor[a] (lb/MMBtu)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PM (total) [b]	0.31	0.512	1.28E-01	
PM-10 (total) [b]	0.31	0.512	1.28E-01	
PM-2.5	0.31	0.512	1.28E-01	
CO [b]	0.95	1.569	3.92E-01	
NOx[b]	4.41	7.282	1.82E+00	
SO_2 [b] (total SOx presumed SO2)	1.55E-03	2.57E-03	6.42E-04	
VOC [b] (total TOC--> VOCs)	0.36	0.594	1.49E-01	
Lead				
CO2	164	270.813	67.70	
PAH HAPs				
2-Methylnaphthalene				
3-Methylchloranthrene[e]				
Acenaphthene[c]	1.42E-06	2.34E-06	5.86E-07	**1.34E-07**
Acenaphthylene[c]	5.06E-06	8.36E-06	2.09E-06	**4.77E-07**
Anthracene[c]	1.87E-06	3.09E-06	7.72E-07	**1.76E-07**
Benzo(a)anthracene[c]	1.68E-06	2.77E-06	6.94E-07	**1.58E-07**
Benzo(a)pyrene[c,e]	1.88E-07	3.10E-07	7.76E-08	**1.77E-08**
Benzo(b)fluoranthene[c]	9.91E-08	1.64E-07	4.09E-08	**9.34E-09**
Benzo(e)pyrene				
Benzo(g,h,I)perylene[c]	4.89E-07	8.07E-07	2.02E-07	**4.61E-08**
Benzo(k)fluoranthene[c]	1.55E-07	2.56E-07	6.40E-08	**1.46E-08**
Chrysene[c]	3.53E-07	5.83E-07	1.46E-07	**3.33E-08**
Dibenzo(a,h)anthracene[c]	5.83E-07	9.63E-07	2.41E-07	**5.49E-08**
Dichlorobenzene				
Fluoranthene[c]	7.61E-06	1.26E-05	3.14E-06	**7.17E-07**
Fluorene[c]	2.92E-05	4.82E-05	1.21E-05	**2.75E-06**
Indeno(1,2,3-cd)pyrene[c]	3.75E-07	6.19E-07	1.55E-07	**3.53E-08**
Naphthalene[c,e]	8.48E-05	1.40E-04	3.50E-05	**7.99E-06**
Perylene				
Phenanthrene[c]	2.94E-05	4.85E-05	1.21E-05	**2.77E-06**
Pyrene[c]	4.78E-06	7.89E-06	1.97E-06	**4.51E-07**
Non-PAH HAPs				
Acetaldehyde[c]	7.67E-04	1.27E-03	3.17E-04	**7.23E-05**
Acrolein[c]	9.25E-05	1.53E-04	3.82E-05	6.36E-06
Benzene[c,e]	9.33E-04	1.54E-03	3.85E-04	**8.79E-05**
1,3-Butadiene[c,e]	3.91E-05	6.46E-05	1.61E-05	**3.69E-06**
Ethylbenzene[e]				
Formaldehyde[c,e]	1.18E-03	1.95E-03	4.87E-04	**1.11E-04**
Toluene[c,e]	4.09E-04	6.75E-04	1.69E-04	2.81E-05
Xylene[c,e]	2.85E-04	4.71E-04	1.18E-04	1.96E-05
POM (7-PAH Group)		0.00E+00		**3.24E-07**

	lb/MMBtu	
TOTAL HAPs	3.87E-03	**Used for 2020 FACILITY CLASSIFICATION**

a) Emission factors are from AP-42

b) AP-42, Table 3.3-1, Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines, 10/96

c) AP-42, Table 3.3-2, Speciated Organic Compound Emission Factors for Uncontrolled Diesel Engine, **Emission Factor Rating E**, 10/96

d) (reserved)

e) IDAPA Toxic Air Pollutant

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

M E M O R A N D U M

DATE: December 21, 2020

TO: Shawnee Chen, Permit Writer, Air Program

FROM: Pao Baylon, Modeling Review Analyst, Air Program

PROJECT: P-2009.0023 PROJ 62490, Permit Revision to Increase the Whey Dryer Production Limit for a Cheese Plant Located in Nampa, Idaho.

SUBJECT: Demonstration of Compliance with IDAPA 58.01.01.203.02 (NAAQS) and 203.03 (TAPs) as it relates to air quality impact analyses.

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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
AERSCREEN	An EPA-recommended screening model based on AERMOD
Appendix W	40 CFR 51, Appendix W – Guideline on Air Quality Models
ASOS	Automated Surface Observing System
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
GEP	Good Engineering Practice
hr	Hours
Idaho Air Rules	Rules for the Control of Air Pollution in Idaho, located in the Idaho Administrative Procedures Act 58.01.01
ISCST3	Industrial Source Complex Short Term 3 dispersion model
K	Kelvin
km	Kilometers
lb	Pounds
lb/hr	Pounds per hour
m	Meters
m/sec	Meters per second
NAAQS	National Ambient Air Quality Standards
NED	National Elevation Dataset
NO	Nitrogen Oxide
NO_2	Nitrogen Dioxide
NOx	Oxides of Nitrogen
NW AIRQUEST	Northwest International Air Quality Environmental Science and Technology Consortium
O_3	Ozone
Pb	Lead
PM	Particulate matter
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
REC	Robinson Environmental Consulting, LLC (permittee's permitting and modeling consultant)
SIL	Significant Impact Level
SO_2	Sulfur Dioxide
Sorrento	Sorrento Lactalis, Inc. (permittee)
T/day	Tons per day
TAP	Toxic Air Pollutant
tpy	Tons per year
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compounds
WWTP	Wastewater Treatment Plant
^{o}	Degrees Latitude or Longitude
^{o}F	Degrees Fahrenheit
µg/m^3	Micrograms per cubic meter of air

1.0 Summary

The Sorrento Lactalis, Inc. (Sorrento) Nampa Cheese Plant is an existing facility producing natural cheese, dry whey products, and cultured cream cheese. The proposed changes to the current permit are limited to changes for the Meyer-Sterner Whey Dryer stack: (1) incorporating an updated emission factor for particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers ($PM_{2.5}$) and particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}); (2) increasing the production limit from 17.95 tons per day (T/day) of dried whey powder to 27.60 T/day; (3) reducing the PM_{10} emission limit; and (4) adding a $PM_{2.5}$ emission limit. The scope of this project that affects dispersion modeling is limited to increasing the permitted production limit for the Meyer-Sterner whey dryer from 17.95 T/day to 27.60 T/day. Project-specific air quality analyses involving atmospheric dispersion modeling of estimated emissions associated with the facility were submitted to the Idaho Department of Environmental Quality (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.

Robinson Environmental Consulting, LLC (REC), on behalf of Sorrento, 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 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 air impact analyses.
Air Impact Analyses for Criteria Pollutant Emissions. Short-term and long-term project emission increase of $PM_{2.5}$[a] are greater than DEQ Level I modeling thresholds. Therefore, $PM_{2.5}$ (24-hour and annual) was subject to NAAQS Compliance Demonstration requirements.	Project-specific air impact analyses demonstrating compliance with NAAQS, as required by Idaho Air Rules Section 203.02, are required for pollutant increases above BRC thresholds, or for pollutants having an emission increase that is greater than Level I modeling applicability thresholds (where the BRC exclusion cannot be used).
Air Impact Analyses for TAP Emissions. Modeling was not performed for toxic air pollutants (TAPs) as the project does not result in an increase of TAP emissions compared to the previous modeling analysis.	A TAP increment compliance demonstration, as required by Idaho Air Rules Section 203.03, would be required for any TAPs with emission increases above ELs.
Modeled $PM_{2.5}$ Emission Rates. All emitted particulates from the Meyer-Sterner Whey Dryer stack were assumed to be less than 2.5 microns in diameter.	There are no data available that would suggest how to determine PM_{10}[b] and $PM_{2.5}$ fractions in the total particulates emitted from the Meyer-Sterner Whey Dryer stack. Therefore, it was assumed that measured particulate matter equals PM_{10} equals $PM_{2.5}$. This is a very conservative assumption for $PM_{2.5}$.
Release Parameters for Emission Points. Stack heights are no shorter than what is indicated in this memorandum. Stack diameters are no larger than what is indicated in this memorandum. Exhaust flow rates and temperatures at the point of release are not less than the values indicated in this memorandum.	Compliance with applicable air quality standards is not assured if release parameters vary substantially from what was used in impact analyses.

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

Summary of Submittals and Actions

August 12, 2020	Application received by DEQ.
August 15, 2020	Regulatory start date.
September 10, 2010	Application determined incomplete by DEQ.
October 6, 2020	Revised application received by DEQ.
October 30, 2020	Supplemental information received by DEQ.
November 3, 2020	Application determined complete by DEQ.

2.0 Background Information

This section provides background information applicable to the project and the site proposed for the

facility. It also provides a brief description of the applicable air impact analyses requirements for the project.

2.1 Project Description

The Sorrento Nampa Cheese Plant produces natural cheese, dry whey products, and cultured cream cheese. The plant receives cow's milk daily from local dairies, which is pasteurized prior to processing into cheese products. The Nampa Plant consists of the following plants: Cheese Plant and Fresh Mozzarella Plant, Whey Plant, and Wastewater Treatment Plant (WWTP). The facility also includes auxiliary buildings such as the fire pump house, which houses a diesel fire pump used to pressurize and provide water to the fire sprinkler systems in each of the plants.

The scope of this project that affects dispersion modeling is limited to increasing the permitted production limit for the Meyer-Sterner whey dryer from 17.95 T/day to 27.60 T/day.

The PTC addresses all air pollutant-emitting activities associated with the project.

2.2 Facility Location and Area Classification

The Sorrento Nampa facility is located at 4912 E. Franklin Road just east of Nampa, Canyon County, Idaho (Northing: 4,828.3 kilometers (km); Easting: 541.0 km; UTM Zone 11). Canyon County is designated as an attainment area for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), lead (Pb), ozone (O_3), PM_{10}, and $PM_{2.5}$. The area is not classified as non-attainment for any criteria pollutants. Adjacent land uses currently are primarily agricultural and light industrial, with residential uses located about 0.5 km north of the main plant buildings. Rural dispersion coefficients were used in the modeling analyses.

2.3 Air Impact Analyses Required for All Permits to Construct

Idaho Air Rules Sections 203.02 and 203.03 state:

> *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] (µg/m^3)[b]	Regulatory Limit[c] (µg/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 µg/m^3)	75 ppb[p] (196 µg/m^3)	Mean of maximum 4th highest[q]
	3-hour	25	1,300[m]	Maximum 2nd highest[n]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb (7.5 µg/m^3)	100 ppb[s] (188 µg/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 Sorrento Nampa facility were estimated by REC 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 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, then 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.

Table 3 provides a comparison between project-specific emission increases and modeling applicability thresholds. The change in emissions compared with modeling thresholds for particulate matter (PM) was

calculated using the updated emission factor for $PM_{10}/PM_{2.5}$ of 1.802E-04 pounds (lb) PM per lb of dried whey product for both pre- and post-project emissions from the Meyer-Sterner whey dryer.

Table 3. SITE-SPECIFIC CRITERIA POLLUTANT MODELING APPLICABILITY.

Pollutant	Averaging Period	Emission Increase	Level I Modeling Thresholds	Level II Modeling Thresholds[a]	Site-Specific Modeling Required?
PM_{10}[b]	24-hour	0.174 lb/hr[c]	0.22	2.6	No
$PM_{2.5}$[d]	24-hour	0.174 lb/hr	0.054	0.63	Yes
	Annual	0.760 tpy[e]	0.35	4.1	Yes
Carbon Monoxide (CO)	1-hour, 8-hour	0 lb/hr	15	175	No
Sulfur Dioxide (SO_2)	1-hour, 3-hour	0 lb/hr	0.21	2.5	No
Nitrogen Oxides (NOx)	1-hour	0 lb/hr	0.20	2.4	No
	Annual	0 tpy	1.2	14	No

a. Level II modeling thresholds were neither evaluated nor approved for use with this project.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
c. Pounds per hour.
d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
e. Tons per year.

As shown in Table 3, the increase in emissions of PM_{10} on a 24-hour average is less than DEQ's Level I modeling threshold. Dispersion modeling was required for $PM_{2.5}$ on a 24-hour and annual basis since the emission increase exceeded Level I thresholds. The application did not evaluate the appropriateness of using Level II thresholds for the project.

Table 4 lists criteria pollutant emission rates used in the SIL analyses. A cumulative NAAQS impact analysis was not required for this project because results from the SIL analyses were below applicable SILs.

Table 4. MODELED EMISSION RATES FOR SIL ANALYSIS.

Type of Source	Source ID	Description	24-hr $PM_{2.5}$[a] (lb/hr)[b]	Annual $PM_{2.5}$ (tpy)[c]
Point Source	P1	Meyer-Sterner Whey Dryer	0.174	0.760

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
b. Pounds per hour.
c. Tons per year.

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.

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

. . . footnote 1 to sections 51.166(I)(5)(I) of the EPA's regulations says the following: "No de minimis air quality level is provided for ozone. However, any net emission increase of 100 tons per year or more of volatile organic compounds or nitrogen oxides subject to PSD would be required to perform an ambient impact analysis, including the gathering of air quality data."

The EPA believes it unlikely a source emitting below these levels would contribute to such a violation of the 8-hour ozone NAAQS, but consultation with an EPA Regional Office should still be conducted in accordance with section 5.2.1.c. of Appendix W when reviewing an application for sources with emissions of these ozone precursors below 100 TPY."

DEQ determined it was not appropriate or necessary to require a quantitative source-specific O_3 impact analysis because allowable emission estimates of VOCs and NOx are below the 100 tons/year threshold.

3.1.2 TAPs Modeling Applicability

The project does not result in an increase of TAP emissions compared to the 2016 modeling analysis. Therefore, no TAPs were modeled for this project.

3.1.3 Emission Release Parameters

Table 5 lists the emission release parameters, including stack height, exhaust temperature, exhaust velocity, and stack diameter for the Meyer-Sterner Whey Dryer in metric units (English units are in parentheses). Emission point release parameters were based on information provided in the application. Justification for emission release parameters is summarized in the next section.

Table 5. POINT SOURCE EMISSION RELEASE PARAMETERS IN METRIC UNITS (ENGLISH UNITS IN PARENTHESES).

Release Point	Description	UTM[a] Coordinates		Stack Height in m (ft)[c]	Stack Exhaust Temp. in K (°F)[d]	Stack Exhaust Velocity in m/sec (fps)[e]	Stack Diameter in m (ft)	Orient. Of Release[f]
		Easting-X in m[b]	Northing-Y in m					
P1	Meyer-Sterner Whey Dryer	541,062.1	4,828,195.21	24.6 (80.6)	319 (115)	16.7 (54.9)	0.98 (3.23)	D

a. Universal Transverse Mercator.
b. m: meters.
c. ft: feet.
d. K: Kelvin; °F: degrees Fahrenheit.
e. m/sec: meters per second; fps: feet per second.
f. Orientation of release: D (default, vertical, uninterrupted release); H (horizontal release); R (rain-capped release).

3.1.4 Emission Release Parameter Justification

Meyer-Sterner Whey Dryer

Model ID: P1

Stack diameter (3.23 feet), exhaust temperature (115°F), and exhaust flow rate (26,959 actual cubic feet per minute [acfm]) for the Meyer-Sterner Whey Dryer were taken from the results of a February 1, 2018 $PM_{10}/PM_{2.5}$ source test on this stack. The corresponding modeled exit velocity is 16.7 meter/second.

$$P1\ exit\ velocity = 26{,}959 \frac{\cancel{feet^3}}{\cancel{minute}} \times \frac{4}{\pi(3.23\ \cancel{feet})^2} \times \frac{1\ \cancel{minute}}{60\ seconds} \times \frac{1\ meter}{3.28\ \cancel{feet}} = 16.7 \frac{meter}{second}$$

The stack height above the 22.5-meter (73.8-foot) roof height was estimated using a photo of the Meyer-Sterner whey dryer stack that was provided in the application (which shows the location of one of the sample ports) and the distances to disturbances in the stack noted in the test report for the February 1, 2018 source test (12 inches and 69.5 inches) for a total height above ground level of 80.6 feet. P1 was modeled with vertical, uninterrupted release. In an e-mail to DEQ dated September 17, 2020, REC noted that the stack for the Meyer-Sterner Whey Dryer has a "rain cap of sorts." From the photo provided in the application, it appears that the airflow for this type of stack is still mostly vertical. Considering conservative aspects of the analyses (assuming all emitted PM is $PM_{2.5}$), modeling P1 as vertical, uninterrupted release is appropriate and more representative of actual conditions than modeling it as horizontal release (which could be overly conservative).

Release parameters for the Meyer-Sterner Whey Dryer were appropriately documented and justified.

3.2 Background Concentrations

Cumulative NAAQS impact analyses were not required for this project. Therefore, background concentrations were not needed.

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

REC performed the project-specific air pollutant emission inventory and air impact analyses that were submitted with the application. The submitted information/analyses, in combination with results from DEQ's air impact 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 6 provides a brief description of parameters used in the modeling analyses.

Table 6. MODELING PARAMETERS.

Parameter	Description/Values	Documentation/Addition Description
General Facility Location	Canyon County, 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	KBOI surface station; KBOI upper air station	The meteorological model input files for this project were developed by DEQ. The data were processed using the latest version of AERMET (version 19191) and the "ADJ_U*" option. See Section 3.3.5 of this memorandum for additional details of the meteorological data.
Terrain	Considered	1/3 arc second National Elevation Dataset (NED) was acquired from the USGS for the surrounding area. AERMAP version 18081 was used to process terrain elevation data for all buildings and receptors. See Section 3.3.6 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 3.3.7 for more details.

NOx Chemistry	None	Modeling for NOx was not conducted.
Receptor Grid	**SIL Analysis (Full Grid)** The selection of receptors (full grid) for use in the SIL analysis is as follows (see Section 3.3.9 for more details):	
	Grid 1	2.5-meter spacing along the ambient air boundary (fence line).
	Grid 2	25-meter spacing from the fence line to a distance of 50 meters.
	Grid 3	50-meter spacing from 50 to 200 meters.
	Grid 4	100-meter spacing from 200 to 500 meters.
	Grid 5	250-meter spacing from 500 to 1,000 meters.
	Grid 6	1,000-meter spacing from 1,000 to 10,000 meters.
	SIL Analysis (Dense Grid) The selection of receptors (dense grid) for use in the SIL analysis is as follows (see Section 3.3.9 for more details):	
	Grid 1	2.5-meter spacing along the ambient air boundary (fence line).
	Grid 2	2.5-meter spacing from the fence line to a distance of 10 meters.
	Grid 3	5-meter spacing from 10 to 25 meters.
	Cumulative NAAQS Impact Analysis A cumulative NAAQS impact analysis was not required for this project.	
	TAPs Analysis A TAPs impact analysis was not required for this project.	

3.3.2 Modeling Protocol

A modeling protocol was not submitted for this project.

3.3.3 Modeling Methodology

Project-specific modeling and other required impact analyses were generally conducted using data and methods described in the *Idaho Air Quality Modeling Guideline.*[2]

3.3.4 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 REC 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.

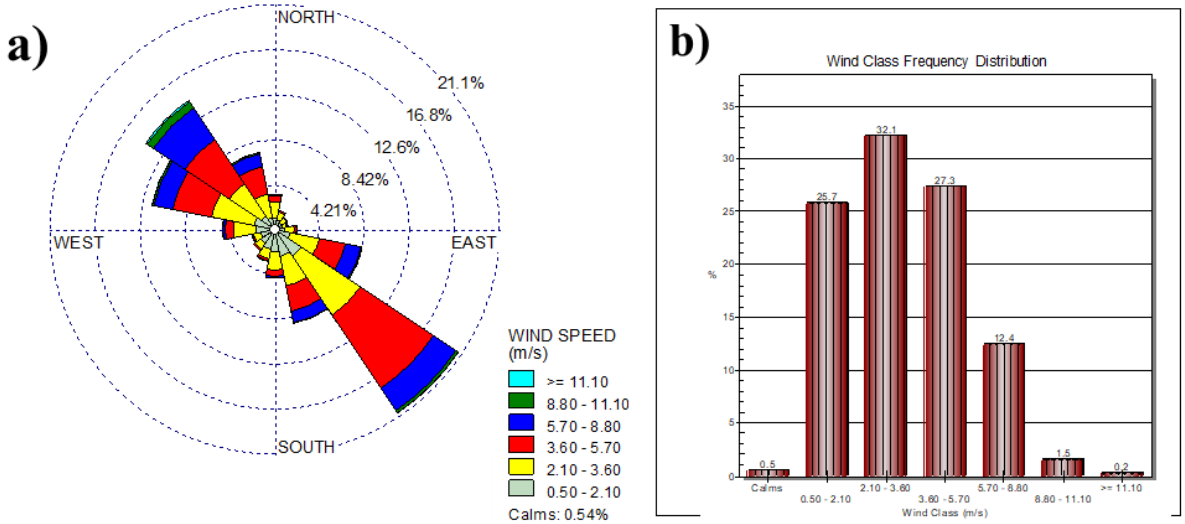
3.3.5 Meteorological Data

DEQ processed a meteorological dataset from Boise, Idaho (KBOI; station ID 726810-24131) covering the years 2014-2018. The 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 thirty years of Boise airport precipitation data. Conditions were determined to be “wet” for 2014 and 2017, and “average” for 2015, 2016, and 2018. Average moisture content is defined as within a 30 percentile of the 30-year mean of 11.3 inches.

Figure 1 shows a wind rose and wind speed histogram at Boise Airport. On average, winds are dominated by southeasterlies with magnitudes of between 2.10 and 3.60 m/sec. Calms were relatively low at 0.54%,

and less than one percent of the data were missing from the five-year record.

Figure 1. (a) WIND ROSE AND (b) WIND SPEED HISTOGRAM AT BOISE AIRPORT IN IDAHO (2014-2018).

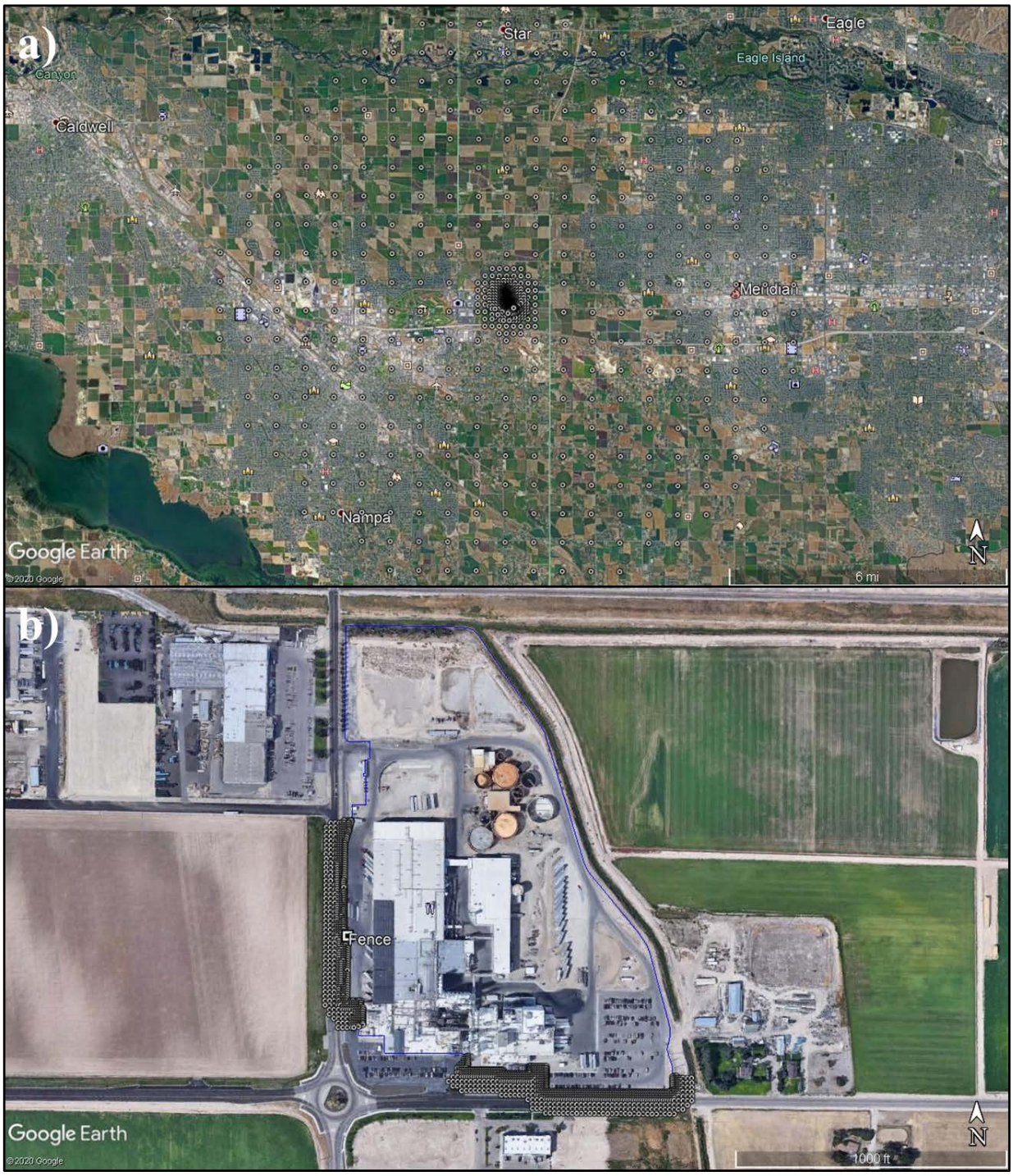


AERMINUTE version 15272 was used to process Automated Surface Observing Systems (ASOS) wind data for use in AERMET. AERMET version 19191 was used to process surface and upper air data and to generate a model-ready meteorological data input file. The "adjust u star" (ADJ_U*) option was applied in AERMET to enhance model performance during low wind speeds under stable conditions. The modeling analyses used the met data set processed with the U* option.

3.3.6 Effects of Terrain on Modeled Impacts

Submitted ambient air impact analyses used terrain data extracted from United States Geological Survey (USGS) National Elevation Dataset (NED) 1/3 arc second TIFF files. The terrain preprocessor AERMAP version 18081 was used by REC to extract the elevations from the NED files (for the quadrangle between 43.500° and 43.750° latitude north and 116.250° and 116.750° longitude west) 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. Figures 2a and 2b depict the full and the dense receptor grids, respectively, used in the analyses, overlaid on a terrain image from Google Earth.

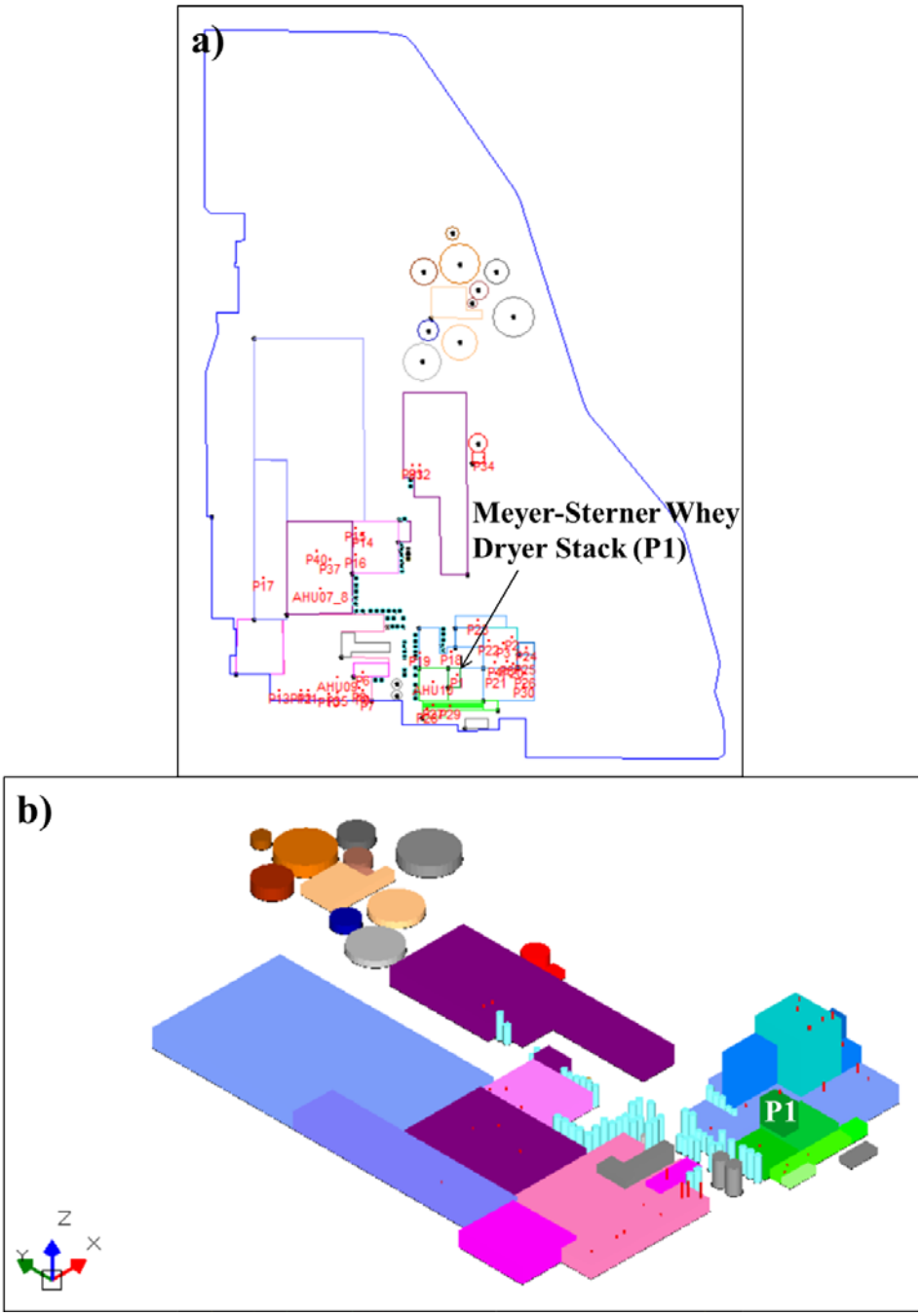
Figure 2. THE FULL (a) AND THE DENSE (b) RECEPTOR GRIDS CENTERED AT THE SORRENTO LACTALIS FACILITY IN NAMPA, IDAHO.



3.3.7 Facility Layout and Downwash

Figure 3a shows the facility's model setup. Figure 3b illustrates a three-dimensional view of the facility as viewed from the southwest.

Figure 3. (a) SORRENTO LACTALIS FACILITY'S MODEL SETUP SHOWING STRUCTURES AND EMISSION SOURCES, AND (b) THREE-DIMENSIONAL VIEW OF THE FACILITY AS VIEWED FROM THE SOUTHWEST.



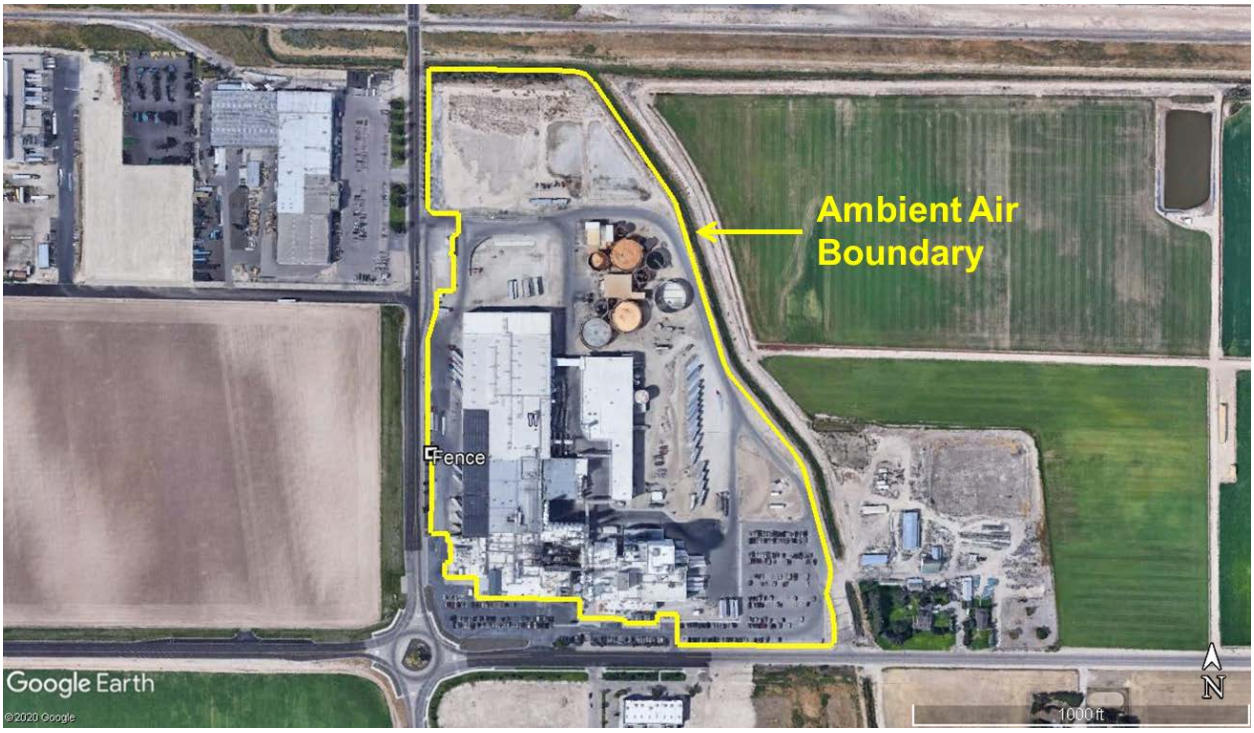
DEQ verified proper identification of the site location, equipment locations, and the ambient air boundary by comparing a graphical representation of the modeling input file to plot plans submitted in the application. Aerial photographs on Google Earth (available at https://www.google.com/earth) were also used to assure that horizontal coordinates were accurate as described in the application.

Potential downwash effects on emission plumes were accounted for in the model by using building dimensions and locations (locations of building corners, base elevation, and building heights). Dimensions and orientation of proposed buildings 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.

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." Public access to the Sorrento Nampa facility is precluded by a fence and posted signage on the west, north, and east boundaries and on a part of the southern property boundary. Buildings with secure entrances preclude unexpected access by members of the public along the remainder of the south side of the facility. Publicly accessible parking areas on the south side of the facility were considered ambient air. There are no streams or right-of-way easements through the Sorrento property. The ambient boundary is illustrated in Figure 4. The ambient air boundary for this project is identical to the ambient air boundary that was approved by DEQ in 2016. DEQ determined that the facility is adequately able to preclude public access to areas excluded from the air impact assessment.

Figure 4. SORRENTO LACTALIS NAMPA FACILITY'S AMBIENT AIR BOUNDARY.



3.3.9 Receptor Network

Table 6 describes the receptor network used in the submitted modeling analyses. Modeling using the full 10-kilometer grid demonstrated that the maximum ambient impacts occurred on or very near the fence

line. The full grid, along with the fenceline receptors, includes a total of 1,500 receptors and is illustrated in Figure 2a.

Final significant impact analyses were run using the non-partitioned denser grid to ensure that maximum impacts had been fully resolved. The dense grid, along with the fenceline receptors, includes a total of 1,474 receptors and is illustrated in Figure 2b. DEQ determined that the receptor grid used in the submitted modeling analyses was adequate to resolve maximum modeled impacts.

The receptor grid used in the submitted modeling analyses met the minimum recommendations specified in the *Idaho Air Quality Modeling Guideline*[2], and DEQ determined that the receptor network was effective in reasonably assuring compliance with applicable air quality standards at all ambient air locations.

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.

Sources from the Sorrento Nampa facility are below GEP stack height. Therefore, consideration of downwash caused by nearby buildings was required.

4.0 NAAQS and TAPs Impact Modeling Results

4.1 Results for NAAQS Analyses

4.1.1 Significant Impact Level Analysis

A SIL analysis was conducted for the increase in emissions of $PM_{2.5}$ from the Meyer- Sterner Whey Dryer stack on a 24-hour and an annual basis. As shown in Table 7, maximum ambient impacts are below SILs for both averaging periods. Therefore, a cumulative NAAQS impact analysis was not required for the project.

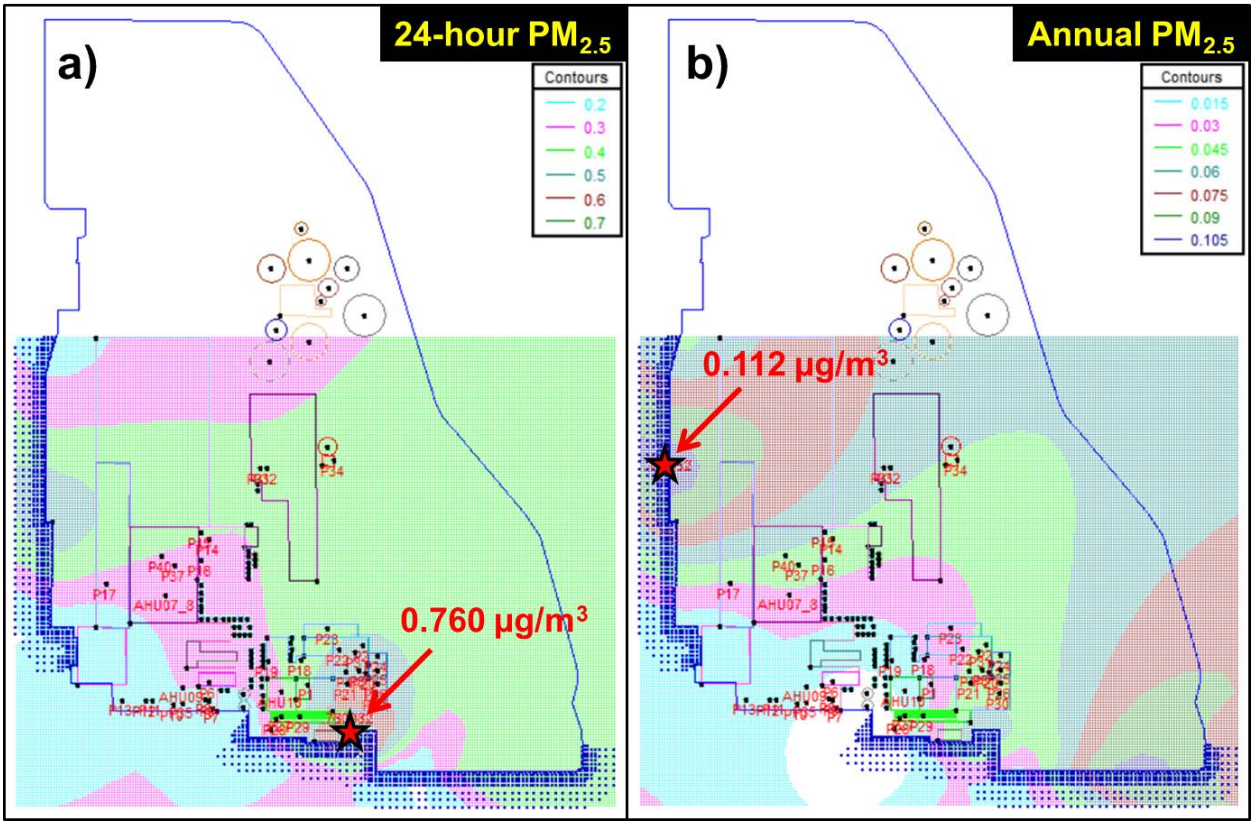
Table 7. RESULTS FOR SIGNIFICANT IMPACT LEVEL ANALYSIS.

Pollutant	Averaging Period	Maximum Modeled Impact ($\mu g/m^3$)[a]	Significant Impact Level (SIL) ($\mu g/m^3$)	Percent of SIL	Cumulative NAAQS Impact Analysis Required?
$PM_{2.5}$[b]	24-hour	0.760	1.2	63.3%	No
	Annual	0.112	0.2	56.0%	No

a. Micrograms per cubic meter.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

Figure 5 illustrates the maximum modeled impacts for 24-hour and annual $PM_{2.5}$. Locations of maximum impacts are indicated by the red star. High concentrations occur at or near the facility fenceline and are adequately resolved by the dense receptor network.

Figure 5. MAXIMUM MODELED IMPACTS IN µg/m^3 FOR SIGNIFICANT IMPACT LEVEL ANALYSIS.



4.1.2 Cumulative NAAQS Impact Analysis

A cumulative NAAQS impact analysis was not required for this project.

4.2 Results for TAPs Impact Analyses

TAPs were not modeled for this project.

5.0 Conclusions

The information submitted with the PTC application, combined with DEQ's air impact analyses, demonstrated to DEQ's satisfaction that emissions from the Sorrento Lactalis Cheese Plant project in Nampa, Idaho 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.

APPENDIX C – FACILITY DRAFT COMMENTS

The following comments were received from the facility on December 30, 2020:

Facility Comment: Please update the permittee name to Sorrento Lactalis, Inc., Nampa Site.

DEQ Response: the requested change is made.

Facility Comment: Replace Meyers-Sterner with Meyer-Sterner.

DEQ Response: the requested change is made in the permit and SOB.

Facility Comment: (response to DEQ's question on PC 2.1) Figure 3-1 in the October 2020 PTC application was developed in 2015 by Wendy York, the environmental manager at that time. The flow diagram shows that the cyclone is still part of the process, and that the exhaust from the Meyer-Sterner whey dryer baghouse and the small baghouse serving the sifter are routed to the whey dryer stack (P1).

Replace "Exhaust air from the smaller baghouse unit is routed to the Donaldson Dust Collector baghouse and exhausted through the Donaldson baghouse stack." in PC 2.1 with "Exhaust air from the smaller baghouse unit is routed to the Meyer-Sterner whey dryer baghouse and exhausted through the whey dryer stack (P1)."

DEQ Response: The requested change is made.

Facility Comment: (Permit Condition 2.3) Lactalis requested that only a daily limit be included. **0.4973** lb/hr x 24 hr = 11.935 (11.94) lb/calendar day. Please adjust the hourly limit so it is consistent with the 24-hr avg lb/hr limit.

DEQ Response: After having discussed with DEQ's compliance group, the hourly limit is removed, and the following permit condition is added to Performance Test permit condition (PC 2.10):

"2.10.3 Compliance with the lb/day emission limit for Meyer-Sterner whey dryer baghouse stack shall be determined by multiplying the test average hourly emission rate by 24."

PC 2.10.4 is revised. "the permitted $PM_{2.5}/PM_{10}$ lb/hr emissions limit in this permit" is replace with "the $PM_{2.5}/PM_{10}$ lb/hr emissions rate calculated by dividing the daily emissions limit in this permit by 24"

Facility Comment: (Table 3.2) The emissions inventory is based on **0.093 lb/hr**, on a 24-hr basis, which results in annual emissions of 0.407 T/yr. Please adjust the hourly limit to match the emissions inventory.

DEQ Response: replaced "0.09" with "0.093" for $PM_{2.5}/PM_{10}$ emissions limits for the dryer burner #1 and #2 in Table 3.2 of the permit.

Facility Comment: add "two point five (2.5)" to footnote b of Table 3.2 of the permit.

DEQ Response: added.

Facility Comment: Add Consent Order Case Nos. E-2014.0007 and E-2015.0003 to Permitting history in the SOB.

DEQ Response: Added.

Facility Comment: Update stack parameters for Meyer-Sterner Whey dryer baghouse stack in Table 1 of the SOB. Exit height and flow rate are based on July 2020 site info.; Temperature are from the Feb 1, 2018 source test on this stack.

DEQ Response: updated.

Facility Comment: replace "Meyer-Sterner Whey Dryer, using 2013 EF x 120%" with "Meyers-Sterner Whey Dryer, using 2013 EF x 120% for PM" in Table 2 of the SOB because the 20% buffer is added only to the PM emission factors.

DEQ Response: the requested change is made.

Facility Comment: Change 0.77 to 0.76 T/yr in Table 4 of the SOB to match the number in EI spreadsheet.

DEQ Response: the requested change is made.

Facility Comment: Change 0.479 to to **0.4793** lb/hr under Permit Conditions Review section of the SOB.

DEQ Response: The requested change is made.

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:	**Sorrento Lactalis Inc. - Swiss Village Plt. Nampa, Idaho**
Address:	**4912 E. Franklin Road**
City:	**Nampa**
State:	**ID**
Zip Code:	**83687**
Facility Contact:	**Ezzahra Dhifallah Colivet**
Title:	**Whey Plant Director**
AIRS No.:	**027-00071**

N	Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N
Y	Did this permit require engineering analysis? Y/N
N	Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	0.0	0	0.0
SO_2	0.0	0	0.0
CO	0.0	0	0.0
PM10	0.8	0	0.8
VOC	0.0	0	0.0
Total:	0.0	0	**0.8**
Fee Due	**$ 1,000.00**		

Comments: