



STATEMENT OF BASIS

**Minor Air Quality Permit
Renewal**

**Associated Milk Producers
Freeman, South Dakota**

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1.0 Background

Associated Milk Producers' Inc. (Associated Milk) in Freeman, SD manufactures non-fat dry milk for human consumption. The facility receives raw cow's milk and processes it into creams and dries the skim milk and bags it for shipping. The Standard Industrial Classification Code (SIC code) for this facility is 2020, Dairy Products.

On January 15, 2015, Associated Milk submitted an application to renew its minor air quality operating permit number #28.0301-37, which expired April 29, 2015. The application was considered complete on August 28, 2015.

1.1 Existing Operations

Table 1-1 provides a description at Associated Milk's facility in Freeman, South Dakota as permitted in the minor air quality permit as issued April 29, 2010.

Table 1-1 – Description of Permitted Units, Operations, and Processes

Unit	Description	Maximum Operating Rate	Control Device
#1	Boiler NR1 – 1961 Johnson steam boiler, model 7233, fired with natural gas and propane	25.1 million Btus per hour heat output	Not applicable
#2	Boiler NR2 – 1961 Johnson steam boiler, model 341, fired with natural gas and propane	20.9 million Btus per hour heat output	Not applicable
#3	1965 C.E. Rogers, Inc. four head spray dryer equipped with a 1965 C.E. Rogers baghouse to collect product. The burner for the dryer is fired with natural gas and propane.	5,283 pounds of 'wet' milk per hour 9.0 million Btus per hour heat input	Not applicable

2.0 New Source Performance Standards

DENR reviewed the following new source performance standards (NSPS) to determine if Associated Milk is applicable to the following NSPS at this time.

2.1 Standards Applicable to Boilers – Subparts D/Db/Dc

There are three New Source Performance Standards for fossil fuel-fired steam boilers. The three standards are applicable to the following steam boilers:

1. 40 CFR Part 60, Subpart D: applicable to a steam generator with a maximum operating rate of 250 million Btus per hour or more and commenced construction after August 17, 1971;

2. 40 CFR Part 60, Subpart Db: applicable to a steam generator with a maximum operating rate of 100 million Btus per hour or more and commenced construction after June 19, 1984; and
3. 40 CFR Part 60, Subpart Dc: applicable to a steam generator with a minimum design heat input capacity equal to or greater than 10 million Btus per hour but less than or equal to 100 million Btus per hour and commenced construction after June 9, 1989.

Units #1 and #2 were constructed prior to June 9, 1989 and have a heat input less than 100 million Btus. Therefore neither Units #1 nor #2 are applicable to Subparts D, Db, and Dc.

2.2 Other Applicable New Source Performance Standards

DENR reviewed the other New Source Performance Standards and determined there are no other standards applicable to Associated Milk.

3.0 New Source Review

ARSD 74:36:10:01 states that New Source Review (NSR) regulations apply to areas of the state which are designated as nonattainment pursuant to the Clean Air Act for any pollutant regulated under the Clean Air Act. Associated Milk is located in Freeman, South Dakota, which is in attainment or unclassifiable for all the pollutants regulated under the Clean Air Act. Therefore, Associated Milk is not subject to NSR review.

4.0 Prevention of Significant Deterioration (PSD)

Any stationary source which emits or has the potential to emit 250 tons per year or more of any air pollutant is considered a major source and is subject to prevention of significant deterioration (PSD) requirements (ARSD 74:36:09 – 40 CFR. Part 52.21(b)(1)). Any stationary source which emits or has the potential to emit 100 tons per year or more of any air pollutant and is one of the 28 named PSD source categories is subject to PSD requirements (ARSD 74:36:09 – 40 CFR. Part 52.21(b)(1)). The following is a list of regulated pollutants under the PSD program:

1. Total suspended particulate (PM);
2. Particulate with a diameter less than or equal to 10 microns (PM10);
3. Particulate with a diameter less than or equal to 2.5 microns (PM2.5);
4. Sulfur dioxide (SO₂);
5. Nitrogen oxides (NO_x);
6. Carbon monoxide (CO);
7. Ozone – measured as volatile organic compounds (VOCs);
8. Lead;
9. Fluorides
10. Sulfuric acid mist;
11. Hydrogen sulfide;

12. Reduced sulfur compounds;
13. Total reduced sulfur; and
14. Greenhouse gases (carbon dioxide, methane, nitrous oxide, etc.).

If the source is considered one of the 28 named PSD source categories listed in Section 169 of the federal Clean Air Act, the major source threshold is 100 tons per year of any regulated air pollutant, except for greenhouse gases. The major source threshold for all other sources is 250 tons per year of any regulated air pollutant, except for greenhouse gases. Associated Milk is not one of the 28 named PSD source categories; therefore, its PSD threshold for pollutants is 250 tons per year, except for greenhouse gas emissions.

According to the Clean Air Act, once a pollutant is regulated under any part of the Act, (as was the case with greenhouse gas emissions after the motor vehicle regulations were finalized in March 2010) major new sources or major modifications are subject to the PSD program and Title V air quality operating permit program. Under the Clean Air Act, PSD and Title V air quality operating permits are required for all sources that emit a regulated air pollutant above 100 or 250 tons per year, depending on the source. This threshold, if applied to greenhouse gases, would greatly increase the number of facilities requiring a PSD review or Title V air quality operating permit. Based on administrative necessity, EPA increased these thresholds through the “Tailoring Rule.”

On May 13, 2010, EPA issued the final version of the “Tailoring Rule” for greenhouse gas emissions. The major source threshold for greenhouse gases is listed below:

1. New PSD source because of a criteria air pollutant, the major source threshold for greenhouse gases is 75,000 tons per year of carbon dioxide equivalent or more;
2. New PSD source if greenhouse gas emissions are 100,000 tons per year of carbon dioxide equivalent or more;
3. For an existing PSD source because of a criteria air pollutant, a major modification for greenhouse gases is an increase of 75,000 tons per year of carbon dioxide equivalent or more;
4. For an existing non-PSD source that has the potential to emit 100,000 tons per year of carbon dioxide equivalent emissions or more, a major modification for greenhouse gases is an increase of 75,000 tons per year of carbon dioxide equivalent or more; and
5. In addition to subsection (2) and (4), a specific greenhouse gas, without calculating the carbon dioxide equivalent, also needs to emit greater than 100 or 250 tons per year, whichever is applicable, to be regulated.

The US Supreme Court heard challenges to EPA’s “Tailoring Rule”. On June 24, 2014, the Supreme Court decided greenhouse gases may not be regulated under the PSD program unless the facility requires a PSD permit for the other regulated air pollutants.

4.1 Potential Emissions

The Department uses stack test results to determine air emissions whenever stack test data is available from the source or a similar source. When stack test results are not available, the

Department relies on manufacturing data, material balance, EPA’s Compilation of Air Pollutant Emission Factors (AP-42, Fifth Edition, Volume 1) document, the applicant’s application, or other methods to determine potential air emissions.

Potential emissions for each applicable pollutant are calculated from the maximum design capacity listed in the application and assuming the unit operates every hour of every day of the year, while using the fuel that will emit the greatest emissions. Potential emissions are not realistic of the actual emissions and are used only to identify which air quality permit and requirements are applicable.

4.2 Boiler – Criteria Air Pollutant Emissions

The air pollutant emission factors for boilers are derived from EPA’s AP-42 – Fifth Edition. Boilers are classified according to their design capacity. AP-42 states that small boilers are defined as those that have a heat input capacity less than 100 million Btus per hour. Based on the boiler’s heat input capacity listed in the application, the boilers are classified as small boilers. Emission factors for natural gas were derived from Chapter 1, Section 1.4 and 1.5, Tables 1.4-1, 1.4-2, 1.4-3, and 1.5-1. The boilers in operation at Associated Milk use natural gas as the primary fuel source and propane as a secondary fuel. The emission factors for both fuel sources for the boilers are summarized in Table 4-1.

Table 4-1 – Uncontrolled Emission Factors for Boilers

	Pollutant						
	TSP	PM ₁₀	PM _{2.5}	SO ₂ ¹	NO _x	CO	VOCs
Natural Gas (lbs/MMcf)²	0.007	0.007	0.007	0.0006	0.1	0.08	0.005
Propane (lbs/10³ gallons)³	0.008	0.008	0.008	0.0002	0.14	0.08	0.009

¹ – The average sulfur content of propane gas is assumed to be similar to the sulfur content of natural gas and butane gas. Natural gas has an average sulfur content of 0.2 grains per 100 cubic feet and butane has an average sulfur content of 0.18 grains per 100 cubic feet. The higher value was used in the determination of the emission factor.

² – To convert from pounds per million standard cubic feet to pounds per million Btus, divide the emission factor by 1,020 Btus per standard cubic foot; and

³ – To convert from pounds per 1,000 gallons to pounds per million Btus, divide by 91.5.

Using equation 4.1, the appropriate emission factor from Table 4-1, and heat input were used to calculate the potential emissions from the boilers fired by natural gas and propane for all pollutants.

Equation 4-1 – Uncontrolled Emission Calculations

$$\text{Uncontrolled Emissions} \left(\frac{\text{tons}}{\text{year}} \right) = \frac{\text{Emission Factor} \left(\frac{\text{pounds}}{\text{MMBtu}} \right) \times 8,760 \left(\frac{\text{hours}}{\text{year}} \right) \times \text{Heat Input} \left(\frac{\text{MMBtu}}{\text{hour}} \right)}{2,000 \left(\frac{\text{pounds}}{\text{year}} \right)}$$

Table 4-2 summarizes the uncontrolled emissions from Units #1 and #2 fired by natural gas and propane.

Table 4-2 – Total Uncontrolled Emissions from Boilers (tons per year)

	TSP	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	VOCs
Natural Gas							
Unit #1	0.8	0.8	0.8	0.1	11.0	8.8	0.5
Unit #2	0.6	0.6	0.6	0.05	9.2	7.3	0.5
Total	1	1	1	0	20	16	1
Propane							
Unit #1	0.9	0.9	0.9	0.02	15.4	8.8	1.0
Unit #2	0.7	0.7	0.7	0.02	12.8	7.3	0.8
Total	2	2	2	0	28	16	2

4.3 Dryer – Criteria Air Pollutant Emissions

4.3.1 Potential Dryer Emissions – Fuel Burning

A boiler fired with propane and a gross heat input rating less than 10 million British thermal units per hour (MMBtus/hr) is considered a commercial boiler. Therefore, the dryer is classified as a commercial boiler. The following emission factors for firing the dryer with propane are from *AP-42 Air Pollutant Emission Factors* (Table 1.5-1, 07/08) and can be seen in Table 4-3.

A boiler fired with natural gas and a gross heat input rating less than 100 million British thermal units per hour (MMBtus/hr) is considered a small boiler. Therefore, the dryer is classified as a small boiler. The following emission factors for firing the dryer with natural gas are from *AP-42 Air Pollutant Emission Factors* (Table 1.4-1, 07/08) and can be seen in Table 4-3.

Table 4-3 – Uncontrolled Emission Factors for dryers

	Pollutant						
	TSP	PM ₁₀	PM _{2.5}	SO ₂ ¹	NO _x	CO	VOC
Propane (lbs/10³ gallons)²	0.7	0.7	0.7	0.018	13	7.5	0.84
Propane (lbs/MMBtus)	0.008	0.008	0.008	0.0002	0.14	0.08	0.009
Natural Gas (lbs/ MMcf)³	7.6	7.6	7.6	0.6	100	84	5.5
Natural Gas (lbs/MM Btus)	0.007	0.007	0.007	0.0006	0.1	0.08	0.005

¹ – The average sulfur content of propane gas is assumed to be similar to the sulfur content of natural gas and butane gas. Natural gas has an average sulfur content of 0.2 grains per 100 cubic feet and butane has an average sulfur content of 0.18 grains per 100 cubic feet. The higher value was used in the determination of the emission factor.

² – To convert from pounds per 1,000 gallons to pounds per MM Btu, divide emission factor by 91.5 MMBtus per 1,000 gallons.

³ – To convert from pounds per MMcf to pounds per MM Btu, divide by 1,020 MMBtus per MMcf.

Equation 4-2 – Uncontrolled Emission Calculations

$$\text{Uncontrolled Emissions} \left(\frac{\text{tons}}{\text{year}} \right) = \frac{\text{Emission Factor} \left(\frac{\text{pounds}}{\text{MMBtu}} \right) \times 8,760 \left(\frac{\text{hours}}{\text{year}} \right) \times \text{Heat Input} \left(\frac{\text{MMBtus}}{\text{hour}} \right)}{2,000 \left(\frac{\text{pounds}}{\text{ton}} \right)}$$

The results from the emission calculations can be seen in Table 4-4.

Table 4-4 – Total Uncontrolled Emissions from Dryer for Fuel burning (tons per year)

	TSP	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	VOCs
Propane							
Unit #3	0.3	0.3	0.3	0.007	5.5	3.2	0.35
Natural Gas							
Unit #3	0.3	0.3	0.3	0.02	3.9	3.2	0.2

4.3.2 Potential Dryer Emissions – Process Emissions

Associated Milk operates one cheese dryer, Unit #3. Emissions from the dryer come from the process itself and from fuel burning to operate the dryer. Since Unit #3 has potential emissions from processing, the process rate from Table 1-1, Equation 4-3, annual operation, emission factor from Table 4-2, and a conversion factor of 2,000 pounds per ton were used to calculate potential emissions. The emission factors for whey drying were derived from EPA’s Compilation of Air Pollutant Emission Factors, also known as AP-42, Fifth Edition, Table 9.6.1-2 (7/97), which is 1.55 pounds of particulate per ton of whey processed. According to the application, Associated Milk can process 2.91 tons of cheese per hour. DENR calculated the uncontrolled potential emissions from the dryer which is seen in Table 4-5.

Equation 4-3 – Potential Uncontrolled Particulate Emissions (ton/year)

$$\text{Potential Emissions} \left(\frac{\text{tons}}{\text{year}} \right) = \frac{\text{Emission Factor} \left(\frac{\text{pounds}}{\text{ton}} \right) \times \text{Process Rate} \left(\frac{\text{tons}}{\text{hour}} \right) \times 8,760 \left(\frac{\text{hours}}{\text{year}} \right)}{2,000 \left(\frac{\text{pounds}}{\text{ton}} \right)}$$

Table 4-5 – Total Uncontrolled Emissions from Dryer for Process (tons per year)

	TSP	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	VOCs
Unit #3	19.8	19.8	19.8	-	-	-	-

4.3.3 Combined Dryer Emissions

The total emissions for the drying process and the fuel burning can be seen in Table 4-6.

Table 4-6 – Total Uncontrolled Emissions from Dryer (tons per year)

Unit #3	TSP	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	VOCs
Propane							
Fuel Burning	0.3	0.3	0.3	0.007	5.5	3.2	0.35
Drying Process	19.8	19.8	19.8	-	-	-	-
Total	20	20	20	0	6	3	0
Natural Gas							
Fuel Burning	0.3	0.3	0.3	0.02	3.9	3.2	0.2
Drying Process	19.8	19.8	19.8	-	-	-	-
Total	20	20	20	0	4	3	0

4.4 Facility Potential Emissions

Table 4-7 summarizes Associated Milk’s potential uncontrolled emissions from their operations.

Table 4-7– Facility Potential Uncontrolled Emissions (tons per year) ¹

	TSP	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	VOCs
Propane							
Unit #1	0.9	0.9	0.9	0.02	15.4	8.8	1.0
Unit #2	0.7	0.7	0.7	0.02	12.8	7.3	0.8
Unit #3	20	20	20	0.0	6.0	3.0	0.0
Total	22	22	22	0	34	19	2

¹ – Facility Totals were calculated using the worst case scenario, which is propane.

4.5 PSD Summary

Associated Milk’s potential criteria pollutant emissions are less than 250 tons per year. Therefore, Associated Milk is considered a minor source and is not applicable to the PSD program. Based on the US Supreme Court’s decision and because Associated Milk’s is not applicable to the PSD program, a review for greenhouse gas emissions is not warranted or required.

5.0 National Emission Standards for Hazardous Air Pollutants

The Department reviewed the national emission standards for hazardous standards and determined Associated Milk is not applicable to any standards under 40 CFR Part 61.

6.0 Maximum Achievable Control Technology Standards

The federal Maximum Achievable Control Technology Standards are applicable to both major and area sources of hazardous air pollutants. A major source of hazardous air pollutants is defined as having the potential to emit 10 tons or more per year of a single hazardous air

pollutant or 25 tons per year or more of a combination of hazardous air pollutants. An area source is a source that is not a major source of hazardous air pollutants.

DENR reviewed the Maximum Achievable Control Technology Standards under 40 CFR Part 63 and determined the following may be applicable to Associated Milk.

6.1 Potential HAP Emissions

The Department uses stack test results to determine air emissions whenever stack test data is available from the source or a similar source. When stack test results are not available, DENR relies on manufacturing data, material balance, EPA's Compilation of Air Pollutant Emission Factors (AP-42, Fifth Edition, Volume 1) document, the applicant's application, or other methods to determine potential air emissions.

6.1.1 Potential HAP Emissions – Boiler

The boilers are fired on natural gas and propane. The hazardous air pollutant emission factor for firing the boilers burning natural gas is derived from AP-42, Table 1.4-3, 7/98 and is 1.88 pounds per million cubic foot. There is not a hazardous air pollutant factor for propane listed in AP-42; therefore, potential propane HAPs emissions will be considered to be negligible for the purposes of this report.

In order to obtain the uncontrolled potential emissions in units of tons per year it is necessary to convert the emission factor from a volume basis to an energy basis. A factor of 1,020 million Btus per million cubic foot will be used. The emission factor for HAPs is 0.0018 pounds per million Btus.

Equation 6-1, the identified emission factor and heat input were used to calculate the potential emissions from the boilers fired by natural gas.

Equation 6-1 Uncontrolled Emission Calculations for Natural Gas

$$\text{Uncontrolled Emissions} \left(\frac{\text{pounds}}{\text{year}} \right) = \frac{\text{Emission Factor} \left(\frac{\text{pounds}}{\text{MMBtu}} \right) \times 8,760 \left(\frac{\text{hours}}{\text{year}} \right) \times \text{Heat Input} \left(\frac{\text{MMBtu}}{\text{hour}} \right)}{2,000 \left(\frac{\text{pounds}}{\text{ton}} \right)}$$

Table 6-1 summarizes the uncontrolled emissions from the boilers, fired on natural gas, and operating 8,760 hours per year.

Table 6-1 Potential HAP Emissions (tons per year)

Natural Gas	HAPs
Unit #1	0.2
Unit #2	0.2
Total	0

6.1.2 Potential HAPS Emission - Dryer

The dryer is fired on natural gas and propane. The hazardous air pollutant emission factor for firing the dryer burning natural gas is derived from AP-42, Table 1.4-3, 7/98 and is 1.88 pounds per million cubic foot. There is not a hazardous air pollutant factor for propane listed in AP-42; therefore, potential propane HAPs emissions will be considered to be negligible for the purposes of this report.

In order to obtain the uncontrolled potential emissions in units of tons per year it is necessary to convert the emission factor from a volume basis to an energy basis. A factor of 1,020 million Btus per million cubic foot will be used. The emission factor for HAPs is 0.0018 pounds per million Btus.

Equation 6-1, the identified emission factor and heat input were used to calculate the potential emissions from the dryer fired by natural gas.

Table 6-2 Potential HAP Emissions (tons per year)

Natural Gas	HAPs
Unit #3	0.07
Total	0

6.1.3 Summary of Potential HAP Emissions

Table 6-3 Potential HAP Emissions (tons per year)

Natural Gas	HAPs
Boilers	0
Dryers	0
Total	0

Based on Table 6-3, Associated Milk is considered an area source of hazardous air pollutants.

6.2 MACT Standards

DENR reviewed the Maximum Achievable Control Technology (MACT) standards under 40 CFR Part 63 and determined the following need to be reviewed further to determine if they are applicable.

6.2.1 Standards Applicable to Boilers – Subpart JJJJJ

Subpart JJJJJ is applicable to any new or existing industrial, commercial and institutional boiler located at an area source of hazardous air pollutants. A new boiler is defined as a boiler where construction was commenced after June 4, 2010 and the boiler meets the applicability criteria at the time construction was commenced. An existing boiler is defined as a boiler where construction or reconstruction occurred prior to June 4, 2010. The subpart excludes boilers that are residential boilers according to the definition.

Each boiler is considered an industrial boiler as defined by Subpart JJJJJ in 40 CFR 63.11195(i) and were constructed before June 4, 2010. Therefore, Unit #1 and Unit #2 are applicable to Subpart JJJJJ.

6.2.2 Standards Applicable to Boilers – Subpart DDDDD

The National Emission standards for Industrial/Commercial/Institutional boilers and process heaters is applicable to you if you own or operate an industrial, commercial, or institutional boiler or process heater as defined in §63.7575 that is located at, or is part of, a major source of HAP as defined in §63.2; a major source means any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants. The affected sources under this subpart are:

1. This subpart applies to new, reconstructed, or existing affected sources as described in paragraphs (a) and (b) of this section.
 - a. The affected source of this subpart is the collection of all existing industrial, commercial, and institutional boilers and process heaters within a subcategory located at a major source as defined in §63.7575.
 - b. The affected source of this subpart is each new or reconstructed industrial, commercial, or institutional boiler or process heater located at a major source as defined in §63.7575.
2. A boiler or process heater is new if you commence construction of the boiler or process heater after January 13, 2003, and you meet the applicability criteria at the time you commence construction.
3. A boiler or process heater is reconstructed if you meet the reconstruction criteria as defined in §63.2, you commence reconstruction after January 13, 2003, and you meet the applicability criteria at the time you commence reconstruction.
4. A boiler or process heater is existing if it is not new or reconstructed.

Based on the potential emissions calculations, Associated Milk Producers would not be applicable to this MACT standard because it would not be considered a major source for hazardous air pollutants.

6.3 Other MACT Standards

DENR reviewed the Maximum Air Control Technology Standards and determined no other standards are applicable.

7.0 State Requirements

7.1 Permit Type

According to ARSD 74:36:05:03, a facility is required to obtain a Title V air quality permit if the source has the potential to emit more than 100 tons of a criteria pollutant (nitrogen oxide, volatile organic compounds, PM10, carbon monoxide, lead and ozone), has the potential to emit more than 10 tons of a single hazardous air pollutant, and has the potential to emit more than 25 tons of any combination of a hazardous air pollutants, or is applicable to a New Source Performance Standard or a MACT standard. Associated Milk's emissions of the criteria pollutants are less than 100 tons per year, and hazardous air pollutant emissions are less than 10 tons per year for a single hazardous air pollutant and 25 tons per year of any combination of hazardous air pollutant. Therefore, a Title V air quality permit is not required due to the criteria pollutant emissions.

The New Source Performance Standard applicable to the facility was promulgated under section 111 of the Clean Air Act. However, 40 CFR § 60.4200(c), an area source (minor) is not required to obtain a Title V permit if the only reason for the Title V permit is the requirement of Subpart JJJJJ. Therefore, a Title V air quality permit is not required due to a federal standard.

Any source operating in South Dakota that meets the definition of a minor source under the ARSD 74:36:04:02 are required to obtain a minor air quality permit. In accordance with ARSD 74:36:04:02.01, a minor source is exempt from obtaining a minor source operating permit if the source has the potential to emit 25 tons per year or less of any criteria pollutant, except lead, before the application of control equipment. Associated Milk does have the potential to emit criteria pollutants greater than 25 tons per year. Therefore, Associated Milk is required to have a minor air quality permit for the operations at this facility.

7.2 State Emission Limits

Visible emissions are applicable to any unit that discharges to the ambient air. In accordance with ARSD 74:36:12, a facility may not discharge into the ambient air more than 20 percent opacity for all units. Associated Milk must control the opacity at less than 20 percent for each unit.

7.2.1 State Particulate Emission Limits

Particulate matter emission limits for fuel burning units are derived from ARSD 74:36:06:02. ARSD 74:36:06:02(1)(a), notes a fuel burning unit with heat input less than 10 million Btus per hour may not exceed 0.6 pounds of particulate matter per million Btus of heat input. In accordance with ARSD 74:36:06:02(1)(b), a fuel burning unit may not exceed the particulate emissions rate determined by Equation 7-1.

Equation 7-1 – State Total Suspended Particulate Emission Limit

$$E = 0.811H^{-0.131}$$

Where:

E = the allowable particulate emissions rate in pounds per million Btus of heat input; and
H = heat input in millions of Btus per hour.

Table 7-1 compares the applicable state total suspended particulate limit with the potential total suspended particulate emission rate.

Table 7-1 - Total Suspended Particulate Limit Comparison

Unit	Total Suspended Particulate (lbs/MMBtus)	
	Potential Emission Rate	Emission Limit
#1	0.008	0.53
#2	0.008	0.53
#3	0.008	0.6

7.2.2 State Sulfur Dioxide Emission Limits

In accordance with ARSD 74:36:06:02(2), the sulfur dioxide emission limit for a fuel burning unit is 3.0 pounds per million Btus heat input. Therefore the sulfur dioxide emission limit for each unit will be 3.0 pounds per million Btus heat input.

Table 7-2 compares the applicable state sulfur dioxide limit with the potential sulfur dioxide emission rate.

Table 7-2 - Sulfur Dioxide Limit Comparison

Unit	Sulfur Dioxide (lbs/MMBtus)	
	Potential Emission Rate	Emission Limit
#1	0.0002	3.0
#2	0.0002	3.0
#3	0.0002	3.0

7.2.3 Summary of State Emission Limits

Based on the comparison, Associated Milk is capable of operating each unit in compliance with the state air emission limits.

8.0 Recommendation

Associated Milk will be required to operate within the requirements stipulated in the following regulations under the minor air quality permit program:

- ARSD 74:36:04 – Operating Permits for Minor Sources;

- ARSD 74:36:06 – Regulated Air Pollutant Emissions;
- ARSD 74:36:07 – New Source Performance Standards;
- ARSD 74:36:08 – National Emission Standards for Hazardous Air Pollutants; and
- ARSD 74:36:12 – Control of Visible Emissions.

Based on the information submitted in the air quality operating permit application, the department recommends that Associated Milk's existing minor permit be renewed. Any questions on this review should be directed to Samantha Elliott, Engineer I, Department of Environment and Natural Resources.