



State of Idaho
Department of Environmental Quality
Air Quality Division

**AIR QUALITY PERMIT
STATEMENT OF BASIS**

Tier II Operating Permit and Permit to Construct No. T2-2008.0145

FINAL

Basic American Foods

Shelley, Idaho

Facility ID No. 011-00020

June 4, 2009 *ZK*

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Permit Writer

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

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Acronyms, Units, and Chemical Nomenclature

| | |
|--------------------------|--|
| acfm | actual cubic feet per minute |
| AFS | AIRS Facility Subsystem |
| AIRS | Aerometric Information Retrieval System |
| AQCR | Air Quality Control Region |
| ASTM | American Society for Testing and Materials |
| BACT | Best Available Control Technology |
| Btu | British thermal unit |
| CAA | Clean Air Act |
| CFR | Code of Federal Regulations |
| CO | carbon monoxide |
| DEQ | Department of Environmental Quality |
| gr | grain (1 lb = 7,000 grains) |
| dscf | dry standard cubic feet |
| EPA | U.S. Environmental Protection Agency |
| FEC | Facility Emissions Cap |
| gpm | gallons per minute |
| HAP | Hazardous Air Pollutant |
| IDAPA | a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act |
| lb/hr | pounds per hour |
| m | meter(s) |
| MACT | Maximum Achievable Control Technology |
| $\mu\text{g}/\text{m}^3$ | micrograms per cubic meter |
| MMBtu | million British thermal units |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| NO ₂ | nitrogen dioxide |
| NO _x | nitrogen oxides |
| NSPS | New Source Performance Standards |
| PC | permit condition |
| PM | particulate matter |
| PM ₁₀ | particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers |
| ppm | parts per million |
| PSD | Prevention of Significant Deterioration |
| PTC | permit to construct |
| PTE | potential to emit |
| Rules | Rules for the Control of Air Pollution in Idaho |
| scf | standard cubic feet |
| SIC | Standard Industrial Classification |
| SIP | State Implementation Plan |
| SM | Synthetic Minor |
| SO ₂ | sulfur dioxide |
| SO _x | sulfur oxides |
| TAP | Toxic Air Pollutant |
| T2 | Tier II operating permit |
| T2/PTC | Tier II operating permit and permit to construct |
| T/yr | tons per year |
| UTM | Universal Transverse Mercator |
| VOC | volatile organic compound |

1. FACILITY INFORMATION

1.1 Facility Description

The Shelley facility of Basic American Foods (BAF) is a food drying and dehydration plant located at the intersection of Emerson and Fir streets in Shelley, Idaho. Process diagrams that show the general movement of materials through the facility are included in Appendix B. The Shelley facility produces the following products.

Dehydrated potato granules

Potato granules are individual potato cells prepared from raw potatoes by cooking followed by gentle drying. Granules typically range from 50 to 120 microns in size. Granules produced at the Shelley facility are used at the Shelley facility, packaged for sale, or shipped to other BAF facilities for use in products produced at those plants.

Dehydrated potato flakes

Potato flakes are small flakes made of dehydrated, cooked potatoes. Flakes are typically 1/8 inch to 1/4 inch in diameter.

Dehydrated piece food products

BAF prepares dehydrated piece food products by dehydrating cooked and/or blanched foods. These foods can be either whole vegetables or vegetable pieces. Piece products range up to several inches in diameter.

Food processing byproducts

Sellable food fractions and off-specification materials that are not suitable for use in other products are produced as by-products of plant processes. BAF uses various materials classification processes to segregate, collect, and transport these byproducts. Food byproducts are transferred directly to load-out operations after collection without further processing beyond collection.

The Shelley facility uses a variety of drying and dehydration processes. Potato granules and dehydrated piece products are dried by contact with heated air. Drying air is heated either by direct-firing with natural gas or indirectly using steam heat exchangers. Air suspension unit processes are also used to classify materials and to remove unsuitable fractions from the production stream.

Potato flakes are produced by drying a thin film of cooked potatoes directly on a steam-heated drum. The heat from the drum evaporates the moisture from the flakes, producing a thin sheet of dried potatoes. This sheet is then broken and crushed to produce flake products.

Food processing by-products are produced from food fractions that are not suitable for sale as primary products.

BAF operates packaging equipment to fill product containers with bulk product. Spices and flavoring may be added to the bulk product during the packaging process. Dust pickups located within the packaging area exhaust to the atmosphere through baghouses.

Materials transport occurs both internally within a processing activity and externally to transfer materials between processes, to place them into or take them out of bulk storage, or to transport them to packaging and load out facilities. BAF uses air suspension systems (pneumatic transfer) to transport various products and materials. Materials recovery units (primarily cyclones and baghouses) are integral to the operation of all unit processes in which granules or formulated products are suspended in air.

1.2 Permitting Action and Facility Permitting History

Tier II Operating Permit and Permit to Construct

This permit is the initial T2 for this existing facility and establishes a FEC. 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).

| | |
|--------------------|---|
| November 20, 1986 | PTC No. 0140-0020 issued to Pillsbury Company, Boilers No. 1 and 3 conversions to fuel oil. Permit Status (S) |
| March 20, 1990 | PTC No. 0140-0040 issued to Pillsbury Company, Plant expansion (Cleaver-Brooks boiler No. 4 and flake lines no. 2, 3, and 4). Permit Status (S) |
| September 10, 2001 | PTC No. 011-00020, Ownership transfer from Pillsbury to Basic American Foods (boilers No. 1, 3, and 4 and flake lines No. 2, 3, and 4), BAF permitted for exclusive use of natural gas in boilers No. 1, 3, and 4. BAF appealed this permit and it was subsequently replaced by the February 11, 2003 permit. Permit Status (S) |
| December 11, 2002 | Tier I No. 011-00020, Initial Tier I operating permit. Permit Status (S) |
| February 11, 2003 | PTC No. 011-00020, revised permit for ownership transfer from Pillsbury to Basic American Foods (determined PTC No. 0140-0020 was never implemented and therefore expired after two years). Permit Status (S) |

2. APPLICATION SCOPE AND APPLICATION CHRONOLOGY

2.1 Application Scope

This project is for issuance of a facility-wide Tier II operating permit and permit to construct. The initial Tier I Operating Permit No. 011-00020, issued December 11, 2002, contained a compliance schedule that required BAF to submit a facility-wide permit application to address compliance issues related to obtaining appropriate permit to construct review for prior projects. In addition, BAF requested that the permit include facility emission cap limits.

2.2 Application Chronology

| | |
|-------------------|--|
| May 28, 2003 | BAF submitted a facility-wide Tier II operating permit application. |
| August 8, 2003 | DEQ determined the Tier II application complete. |
| May 7, 2004 | All confidential business information materials were removed from the application and returned to BAF with the understanding that the application would need to be updated to include non-CBI information. |
| 2004- 2007 | DEQ did not actively work on the project and put it on backlog due to resource constraints. |
| 2007 | DEQ and BAF decided to issue Tier II permit for the Rexburg facility first, and then use that permit as a template for the Shelley and Blackfoot facilities. |
| June 10, 2008 | DEQ issued the Tier II permit for BAF-Rexburg facility. |
| June 20, 2008 | DEQ reactivated the Shelley Tier II project and determined the application still needed to be updated because the CBI portions had been returned to BAF in 2004. |
| July 16, 2008 | BAF submitted a new modeling protocol through its consultant, Coal Creek Environmental. |
| September 9, 2008 | DEQ received a new Tier II permit application from BAF for the Shelley facility. |
| October 10, 2008 | DEQ received an addition to the Tier II permit application that identified applicability of federal and state requirements. |
| October 10, 2008 | DEQ determined the application complete. |
| January 6, 2009 | DEQ issued a draft permit and statement of basis for BAF's review and comment. |
| January 26, 2009 | BAF submitted comments regarding the draft permit and statement of basis. |
| February 5, 2009 | DEQ and BAF discussed the comments via conference call and agreed that BAF would submit revised emission factor spreadsheets that identified emission factors in the same units as the required permit monitoring. |
| February 25, 2009 | BAF submitted the revised emission factor spreadsheets to DEQ. |
| March 16, 2009 | The draft T1-2007.0104 and draft T2-2008.0145 permit packages were made available for public comment under Docket No. AQ-0904. |
| April 15, 2009 | The public comment period closed with no comments received. |

3. TECHNICAL ANALYSIS
3.1 Emission Unit and Control Device

The emissions units at the BAF Shelley facility are identified in Table 3.1, along with corresponding control devices (if any) and emissions point identifications. Additional emission units may be installed if the facility complies with the FEC requirements of the permit. All boilers use only natural gas as fuel.

Table 3.1 EMISSION UNIT AND CONTROL DEVICE INFORMATION

| Emission Unit /ID No. | Emissions Unit Description | Control Device Description | Emissions Discharge Point |
|-----------------------|---|----------------------------|---------------------------|
| Boiler 1 | Cleaver-Brooks, 42.9 MMBtu/hr | None | Boiler 1 stack |
| Boiler 3 | Keeler, 28.6 MMBtu/hr | None | Boiler 3 stack |
| Boiler 4 | Cleaver Brooks, 72.1 MMBtu/hr | None | Boiler 4 stack |
| Boiler 5 | Cleaver Brooks, 24.5 MMBtu/hr | None | Boiler 5 stack |
| Process A | | | |
| P1-1* | Dryer, 20 MMBtu/hr, natural gas-fired* | None | P1-1 |
| P1-2* | Dryer, 0.5 MMBtu/hr, natural gas-fired* | None | P1-2 |
| P1-3* | Material recovery unit * | None | P1-3 |
| P2-1* | Dryer, 20 MMBtu/hr, natural gas-fired* | None | P2-1 |
| P2-2* | Dryer, 0.5 MMBtu/hr, natural gas-fired* | None | P2-2 |
| P2-3* | Material recovery unit* | None | P2-3 |
| HR1-2** | Dryer, 40 MMBtu/hr, natural gas-fired** | None | HR1-2 |
| HR3-4** | Dryer, 40 MMBtu/hr, natural gas-fired** | None | HR3-4 |
| P3-1 | Dryer, 20 MMBtu/hr, natural gas-fired | None | P3-1 |
| P3-2 | Dryer, 0.5 MMBtu/hr, natural gas-fired | None | P3-2 |
| P3-3 | Material recovery unit | None | P3-3 |
| P4-1 | Dryer, 20 MMBtu/hr, natural gas-fired | None | P4-1 |
| P4-2 | Dryer, 0.5 MMBtu/hr, natural gas-fired | None | P4-2 |
| P4-3 | Material recovery unit | None | P4-3 |
| P5-1 | Purifier | None | P5-1 |
| P5-2 | Purifier | None | P5-2 |
| Process B | | | |
| P6-1 | Dryer, 41 MMBtu/hr, natural gas-fired | None | P6-1 |
| P6-2 | Cooler | None | P6-2 |
| P8-1* | Dryer, steam-heated* | None | P8-1A, P8-1S, P8-1N |
| P8-2* | Dryer, steam-heated* | None | P8-2A, P8-2S, P8-2N |
| P8-VE* | Material recovery unit* | None | P8-VE |
| P8-VW* | Material recovery unit* | None | P8-VW |
| P9-1 | Dryer, steam heated | None | P9-1 |
| P10-1 | Dryer, steam heated | None | P10-1 |
| P11-1 | Dryer, steam heated | None | P11-1 |
| PKG-1 | Material recovery unit on packaging line | None | PKG-1 |
| PKG-2 | Material recovery unit on packaging line | None | PKG-2 |
| MT-2 | Material recovery unit to animal feed storage | None | MT-2 |
| MT-3 | Material recovery unit to bulk storage | None | MT-3 |
| Space Heaters | | | |
| Total space heaters | 59.5 MMBtu/hr, natural gas | None | |

* These emission units are not currently operating. They are considered as potential plant expansion under the FEC. (See application, page 4-5).

** Units HR1-2 and HR3-4 were not included in the modeling analysis so they were not included as permitted sources (See comment in application at top of Page 4-7).

3.2 Emissions Inventory

Table 3.2 contains current potential emissions of criteria pollutants. These are the emissions that were included in the modeling analysis under the FEC scenario.

The plant heater potential emissions are based on the rated capacity of total plant heaters (59.5 MMBtu/hr natural gas). Annual emissions assume plant heaters operate half of the year.

Table 3.2 CONTROLLED EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS

| Emissions Unit | PM ₁₀ | | SO ₂ | | NO _x | | CO | | VOC | | LEAD |
|-----------------------------|------------------|-------------|-----------------|-------------|-----------------|------------|-------|--------------|-------|-------------|---------------|
| | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | T/yr |
| Point Sources | | | | | | | | | | | |
| Boiler 1 | 0.29 | 1.3 | 0.02 | 0.09 | 3.87 | 16.95 | 3.25 | 14.2 | 0.21 | 0.92 | 9.2E-5 |
| Boiler 3 | 0.22 | 1.0 | 0.02 | 0.09 | 2.83 | 12.4 | 2.38 | 10.4 | 0.16 | 0.7 | 6.1E-5 |
| Boiler 4 | 0.55 | 2.4 | 0.13 | 0.74 | 10.16 | 44.4 | 11.26 | 49.2 | 1.28 | 5.6 | 1.5E-4 |
| Boiler 5 | 0.17 | 0.8 | 0.06 | 0.26 | 1.76 | 7.7 | 3.55 | 15.6 | 0.49 | 2.15 | 5.3E-5 |
| P1-1 | 2.6 | 11.4 | 0.25 | 1.09 | 1.22 | 5.3 | 5.2 | 22.8 | 0.11 | 0.47 | 4.3E-5 |
| P1-2 | 0.08 | 0.4 | 0.01 | 0.05 | 0.03 | 0.1 | 0.13 | 0.6 | 0 | 0.01 | 1.1E-6 |
| P1-3 | 0.01 | 0 | | | | | | | | | |
| P2-1 | 2.6 | 11.4 | 0.25 | 1.09 | 1.22 | 5.3 | 5.2 | 22.8 | 0.11 | 0.47 | 4.3E-5 |
| P2-2 | 0.08 | 0.4 | 0.01 | 0.05 | 0.03 | 0.1 | 0.13 | 0.6 | 0 | 0.01 | 1.1E-6 |
| P2-3 | 0.01 | 0 | | | | | | | | | |
| HR1-2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| P3-1 | 3.12 | 13.7 | 0.29 | 1.26 | 1.22 | 5.3 | 5.2 | 22.8 | 0.11 | 0.47 | 4.3E-5 |
| P3-2 | 0.1 | 0.4 | 0.01 | 0.06 | 0.03 | 0.1 | 0.13 | 0.6 | 0 | 0.01 | 1.1E-6 |
| P3-3 | 0.01 | 0 | | | | | | | | | |
| P4-1 | 3.12 | 13.7 | 0.29 | 1.26 | 1.22 | 5.3 | 5.2 | 22.8 | 0.11 | 0.47 | 4.3E-5 |
| P4-2 | 0.1 | 0.4 | 0.01 | 0.06 | 0.03 | 0.1 | 0.13 | 0.6 | 0 | 0.01 | 1.1E-6 |
| P4-3 | 0.01 | 0 | | | | | | | | | |
| HR3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| P5-1 | 0.02 | 0.1 | | | | | | | | | |
| P5-2 | 0.02 | 0.1 | | | | | | | | | |
| P6-1 | 1.3 | 5.7 | 0.3 | 1.31 | 2.50 | 11.0 | 10.66 | 46.7 | 0.22 | 0.97 | 8.8e-5 |
| P6-2 | 0.65 | 2.9 | 0.1 | 0.44 | | | | | | | |
| P8-1N | 0.15 | 0.7 | 0.04 | 0.18 | | | | | | | |
| P8-1S | 0.15 | 0.7 | 0.04 | 0.18 | | | | | | | |
| P8-1A | 0.03 | 0.1 | | | | | | | | | |
| P8-2N | 0.15 | 0.7 | 0.04 | 0.18 | | | | | | | |
| P8-2S | 0.15 | 0.7 | 0.04 | 0.18 | | | | | | | |
| P8-2A | 0.03 | 0.1 | | | | | | | | | |
| P8-VE | 0.07 | 0.3 | | | | | | | | | |
| P8-VW | 0.07 | 0.3 | | | | | | | | | |
| P9-1 | 1.65 | 7.23 | 0.17 | 0.73 | | | | | | | |
| P10-1 | 1.65 | 7.23 | 0.17 | 0.73 | | | | | | | |
| P11-1 | 1.65 | 7.23 | 0.17 | 0.73 | | | | | | | |
| Pkg-1 | 0 | 0 | | | | | | | | | |
| Pkg-2 | 0.1 | 0.4 | | | | | | | | | |
| MT-2 | 0.07 | 0 | | | | | | | | | |
| MT-3 | 0.02 | 0.1 | | | | | | | | | |
| Heaters | 0.44 | 1.0 | 0.14 | 0.31 | 5.83 | 12.8 | 4.9 | 10.7 | 0.32 | 0.7 | 1.3E-4 |
| Total, Point Sources | | 92.9 | | 11.1 | | 127 | | 240.4 | | 13.0 | 7.5E-4 |

Criteria Pollutant and HAP Emissions

As part of the Tier II permit BAF requested a facility emissions cap (FEC) on criteria and hazardous air pollutant emissions. The proposed FEC emissions limits are provided in Table 3.3.

Table 3.3. CRITERIA POLLUTANT PROPOSED FEC*

| | NOx (T/yr) | CO (T/yr) | SO2 (T/yr) | VOC (T/yr) | PM₁₀ (T/yr) |
|-----------------------------------|-----------------------|----------------------|-----------------------|-----------------------|-----------------------------------|
| Baseline Actual Emissions | 39.5 | 69.3 | 5.4 | 4.2 | 25 |
| Operational Variability Component | 39 | 99 | 39 | 8.8 | 15 |
| Proposed Growth Component | 161.6 | 71.9 | -33.3 | 0 | 52.7 |
| Total Proposed FEC | 240.1 | 240.2 | 11.1 | 13 | 92.7 |

*The baseline actual and potential future emission estimates are found in the application, Tables 5-1 and 5-3.

Combustion emissions result from operation of natural gas-fired boilers, dryers, and plant space heaters. The source of toxic and hazardous air pollutants is also the natural gas combustion. BAF provided emission estimates in the application (See Tables 5-3, 5-4, 5-5, and 5-6). DEQ verified that available toxic air pollutant emissions factors from AP-42 were used, and that they are the correct emissions factors. DEQ also reviewed barium, copper, and zinc which have AP-42 emission factors and also are TAPs. TAP emission modeling is discussed in Appendix C of this statement of basis as part of DEQ's modeling review.

The only emission units that must comply with DEQ's toxic air pollutant increments are those that are new or modified after July 1, 1995. The only source of toxic air pollutants that fits this criterion is Boiler 5. Other emission units were either installed prior to 1995 or are not potential sources of toxic air pollutants. Boiler 5 does not need to meet the toxic air pollutant increment either because it is a categorically exempt source under IDAPA 58.01.01.222.02.c, "Fuel burning equipment for indirect heating and for heating and reheating furnaces using natural gas, propane gas, ...exclusively with a capacity of less than 50 million Btu's per hour input."

Estimated total HAPs (as defined by Clean Air Act section 112(b)) from natural gas combustion are approximately 2.6 T/yr. This is well below the 25 T/yr HAP emission threshold that would make the facility a major source of HAPs. For HAP emissions by combustion source see Table 5-6 in the application. Because estimated facility-wide HAP emissions are only $1/10$ of the major source threshold the FEC limit does not include HAPs. The single largest potential HAP is hexane, which accounts for over 95% of potential HAP emissions on a mass emissions basis.

3.3 Ambient Air Quality Impact Analysis

The modeling review is contained in Appendix C of this statement of basis. A summary of the full impacts analysis of criteria pollutants is provided in Table 3.4

Table 3.4 FULL IMPACT ANALYSIS RESULTS FOR CRITERIA POLLUTANT(S)

| Pollutant | Averaging Period | Maximum Modeled Concentration ^a (µg/m ³) ^b | Background Concentration (µg/m ³) | Total Ambient Impact (µg/m ³) | NAAQS ^c (µg/m ³) | Percent of NAAQS |
|-------------------------------------|----------------------|--|---|---|---|------------------|
| PM ₁₀ ^d | 24-hour | 69.8 | 73 | 143 | 150 | 95 |
| | Annual ^e | 20.1 | 26 | 46 | 50 | 92 |
| Carbon monoxide (CO) | 1-hour ^f | 730 | 3,600 | 4,330 | 40,000 | 11 |
| | 8-hour ^g | 341 | 2,300 | 2,641 | 10,000 | 26 |
| Sulfur dioxide (SO ₂) | 3-hour ^g | 18.7 | 34 | 53 | 1,300 | 4 |
| | 24-hour ^g | 10.4 | 26 | 36 | 365 | 10 |
| | Annual ^h | 2.6 | 8 | 11 | 80 | 13 |
| Nitrogen dioxide (NO ₂) | Annual ^h | 71.5 | 17 | 88.5 | 100 | 88 |

^aValues in parentheses were obtained through DEQ verification modeling

^bMicrograms per cubic meter.

^cNational ambient air quality standards

^dParticulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

^eModeled design values are the maximum 6th highest modeled value from a 5-year meteorological data set

^fModeled design values are the maximum 2nd highest modeled value from a 5-year meteorological data set

^gModeled design values are the maximum 1st highest modeled value from a 5-year meteorological data set

As part of the air quality impacts modeling assessment, BAF assumed some of the stacks at the facility would be modified as follows to reduce ambient air quality impacts.

BAF will modify specified stacks as follows:

| | | |
|-------------|---|--|
| Stack P6-1 | Minimum height – 40 feet above ground level | Vertical discharge, 27 inch diameter (max) |
| Stack P6-2 | Minimum height – 41 feet above ground level | Vertical discharge, 16 inch diameter (max) |
| Stack P9-1 | Minimum height – 59 feet above ground level | |
| Stack P10-1 | Minimum height – 59 feet above ground level | |
| Stack P11-1 | Minimum height – 59 feet above ground level | |

Prior to returning Process P1 or P2 to operation, BAF will comply with the requirements of Section 3.6 of the permit and modify the associated stacks to comply with FEC regulations. Prior to returning process P8 to operation, BAF will modify the associated stacks as follows:

| | |
|--------------|---|
| Stacks P8-1A | Minimum height – 65 feet above ground level |
| Stack P8-1S | 67 feet above ground level |
| Stack P8-1N | 65 feet above ground level |
| Stacks P8-2A | Minimum height – 65 feet above ground level |
| Stack P8-2S | 61 feet above ground level |
| Stack P8-2N | 60 feet above ground level |
| Stack P8-VE | Minimum height – 63 feet above ground level |
| Stack P8-VW | Minimum height – 63 feet above ground level |

Units HR1-2 and HR3-4 are units that are no longer operating. They were not included in the modeling analysis, so they were not listed in the permit as permitted sources.

4.0 REGULATORY REVIEW

4.1 Attainment Designation (40 CFR 81.313)

The facility is located in Bingham County, which is designated as attainment or unclassifiable for PM₁₀, PM_{2.5}, CO, NO₂, SO_x, and Ozone. Reference 40 CFR 81.313.

4.2 Permit to Construct (IDAPA 58.01.01.201)

This Tier II Operating Permit and Permit to Construct incorporates the PTC requirements of PTC No.

011-00020. This permitting action also reviews PTC requirements for emission units at the facility that were installed previously without proper new source review. The compliance schedule in Tier I Operating Permit No. 011-00020, issued December 11, 2002, requires BAF to obtain a facility-wide Tier II and PTC to come into compliance with applicable PTC requirements.

The application identifies six space heaters (all less than 8 MMBtu/hr), Dryer P6, and material transport system MT-2 as sources that potentially required a permit to construct (see Section 7 of the application). Based on potential emissions of the sources, the space heaters and material transport system were exempt sources. Dryer P6, a 41 MMBtu/hr natural gas dryer with associated stacks P6-1 and P6-2, does not meet the exemption criteria and BAF requested a PTC for the emissions unit as part of the application.

4.3 Tier II Operating Permit (IDAPA 58.01.01.401)

The permit is being issued as a facility-wide Tier II Operating Permit and Permit to Construct that will incorporate requirements for all emissions units at the facility. The permit application was required by the compliance schedule in Tier I Operating Permit No. 011-00020, issued December 11, 2002.

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

The Shelley facility is a major facility for purposes of the Title V program as defined under IDAPA 58.01.01.008.10 because the potential emissions of criteria pollutants (NO_x and CO) exceed 100 tons per year. The AIRS classification is "A."

4.5 PSD Classification (40 CFR 52.21)

The Shelley facility is not a major facility for purposes of the PSD/NSR program as defined under IDAPA 58.01.01.205.01 (40 CFR 52.21(b)(1)) because it does not have the potential to emit a regulated criteria air pollutant in amounts greater than or equal to 250 tons per year.

The facility is not a "designated facility" according to the definitions in IDAPA 58.01.01.006.30. The Shelley facility does contain fossil-fuel boilers, but the total potential fossil-fuel Btu input is less than 250 MMBtu per hour. The four natural gas boilers have a total heat input capacity of 168 MMBtu/hr.

4.6 NSPS Applicability (40 CFR 60)

40 CFR 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

This subpart applies to each steam generating unit for which construction commenced after June 9, 1989, and has a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than 10 MMBtu/hr. Boilers 4 and 5 are subject to Subpart Dc. BAF has elected to record fuel use on a calendar month basis in accordance with the alternative fuel monitoring requirement in 40 CFR 60.48c(g)(2).

60.40c Applicability and delegation of authority.

(a) Except as provided in paragraph (d) of this section, the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr).

The application (Appendix B, Section 2) identifies the size and construction date of each boiler. Boilers 1 and 3 are not affected units because they were installed in 1973 and 1958, respectively, which is prior to the applicability date of the Subpart. Boiler 4 is a 72 MMBtu/hr natural gas fired boiler and was installed in 1989, but the application does not identify the exact date of construction, that is, before or after the NSPS applicability date of June 9, 1989. BAF submitted an addendum to the application dated

October 8, 2008, which identifies Subpart Dc as being applicable to boilers 4 and 5, so it is assumed boiler 4 was installed after June 9, 1989. Boiler 5 is a 24.5 MMBtu/hr natural gas fired boiler that was installed in 2000.

60.42c Standard for sulfur dioxide.

The sulfur dioxide standards do not apply because the boilers combust only natural gas.

60.43c Standard for particulate matter.

The particulate matter standards do not apply because the boilers combust only natural gas.

60.44c Compliance and performance test methods and procedures for sulfur dioxide.

The sulfur dioxide standards do not apply because the boilers combust only natural gas.

60.45c Compliance and performance test methods and procedures for particulate matter.

The particulate matter standards do not apply because the boilers combust only natural gas.

60.46c Emission monitoring for sulfur dioxide.

The sulfur dioxide standards do not apply because the boilers combust only natural gas.

60.47c Emission monitoring for particulate matter.

The particulate matter standards do not apply because the boilers combust only natural gas.

60.48c Reporting and recordkeeping requirements.

(g)(1) Except as provided under paragraphs (g)(2) and (g)(3) of this section, the owner or operator of each affected facility shall record and maintain records of the amount of each fuel combusted during each operating day.

(2) As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility that combusts only natural gas, wood, fuels using fuel certification in §60.48c(f) to demonstrate compliance with the SO₂ standard, fuels not subject to an emissions standard (excluding opacity), or a mixture of these fuels may elect to record and maintain records of the amount of each fuel combusted during each calendar month.

(3) As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility or multiple affected facilities located on a contiguous property unit where the only fuels combusted in any steam generating unit (including steam generating units not subject to this subpart) at that property are natural gas, wood, distillate oil meeting the most current requirements in §60.42c to use fuel certification to demonstrate compliance with the SO₂ standard, and/or fuels, excluding coal and residual oil, not subject to an emissions standard (excluding opacity) may elect to record and maintain records of the total amount of each steam generating unit fuel delivered to that property during each calendar month.

BAF is recording fuel usage for Boilers 4 and 5 on a monthly basis in accordance with 60.48c(g)(2).

(i) All records required under this section shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record.

Because BAF is a Title V facility, BAF is already required to maintain records for at least five years in accordance with the Standard Contents of Tier I Operating Permits at IDAPA 58.01.01.322.07.c. Therefore, this condition was not included in the permit because it would conflict with the requirements of the Tier I operating permit. Records are also required to be kept for five years in order to demonstrate compliance with the facility emissions cap (IDAPA 58.01.01.178.03.b).

4.7 NESHAP Applicability (40 CFR 61)

Provisions of 40 CFR 61 – National Emissions Standards for Hazardous Air Pollutants do not apply to emissions units at the BAF Shelley facility. Some generally applicable standards, such as 40 CFR 61

Subpart M – National Emission Standards for Asbestos may apply to the facility for renovation and demolition activities. These generally applicable standards are addressed in the Tier I permit, so they are not included in the Tier II permit.

4.8 MACT Applicability (40 CFR 63)

None of the standards in 40 CFR 63 – National Emission Standards for Hazardous Air Pollutants apply to operations at the BAF Shelley facility. The Shelley facility is not a major source of hazardous air pollutants.

4.9 CAM Applicability (40 CFR 64)

The Compliance Assurance Monitoring (CAM) rule does not apply to any emission units at the BAF Shelley facility because the facility does not have any emission units that use a control device to achieve compliance with emission standards.

4.10 Permit Conditions Review

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

Many of the existing emissions limits and associated monitoring and recordkeeping requirements from PTCs 0140-0020 and 011-00020 were eliminated or significantly revised during this permit development. This was done because the application included an analysis of all emissions from the facility which demonstrated compliance with the NAAQS for criteria air pollutants, rather than looking at individual emissions units as had been the case with previous permits to construct. In addition, BAF requested FEC limits and proposed new monitoring and recordkeeping requirements to demonstrate compliance with FEC limits. The FEC limits made other existing limits redundant or unnecessary.

Facility-wide Conditions

Facility-wide conditions are contained in the Shelley facility's Tier I operating permit. The facility-wide conditions were not included in the Tier II operating permit to avoid duplication.

FEC Compliance

Permit Condition 3.2

The permit includes FEC limits for PM₁₀, SO₂, NO_x, VOC, and CO. Limits for lead and total HAPs were not included as FEC limits because estimated emissions are far below any threshold that would trigger additional permitting requirements. Since the FEC must be renewed in five years, the value of lead and HAP limits will be reevaluated at that time.

BAF Shelley proposed to operate the facility under a FEC and to determine compliance on a rolling 12-month basis in accordance with the FEC rules. Permit Condition 3.3 requires monitoring and recordkeeping of plant production data and natural gas usage data, which will be retrieved from facility records and entered into electronic data storage (such as a spreadsheet similar to the one used to create the emission inventory for the application) (See the application, Appendices C, D, and E). Emission factors will be used to calculate emissions on a monthly basis. At the end of each month, the emissions from the previous 12-month period must be summed to demonstrate compliance with the FEC limits. BAF will record the following data to calculate plant emissions:

- Total production from operating process emission units. (Currently P3, P4, P6, P9, P10, and P11)
- Total natural gas usage for: the entire facility, for each boiler, and sum of process dryer burners.

- Gas combusted in plant space heaters will be calculated as the difference from total facility gas usage less gas combusted in the boilers and dryer burners.

Permit Condition 3.3

Permit Condition 3.3 explains how to calculate emissions to demonstrate compliance with the FEC limits. The emissions calculation is based on monitoring fuel use for combustion emissions and monitoring production for product related emissions. PM10 emissions should be calculated every month for each source that has an associated PM10 emissions factor in the permit appendix. In addition, any new sources that BAF may install under the FEC must be included in the monthly emissions calculation. BAF and DEQ determined that BAF should monitor and record the weight of total product packaged to determine emissions from the packaging and material transport sources (PKG-1, PKG-2, and MT-3). Emission point MT-2 is associated with a vacuum (baghouse) used for plant housekeeping, so a conservative estimate of material through the vacuum is 1% of the production from new inputs.

Permit Condition 3.4

Permit Condition 3.4 requires BAF to maintain documentation of compliance with the toxic air pollutant rules in IDAPA 58.01.01.210 for modifications made to the facility under the facility emissions cap. For example, if BAF were to install a new dryer line fueled by natural gas combustion that was not included in this permit application, BAF would need to review the project for preconstruction compliance with the toxic air pollutant standards and maintain documentation for DEQ review.

Permit Condition 3.5

In accordance with IDAPA 58.01.01.178.04, BAF is required to submit an annual report that demonstrates compliance with the FEC limits.

General FEC Conditions

Permit Conditions 3.6-3.8 contain conditions relating to FEC compliance. Permit Condition 3.6 addresses air modeling requirements to maintain compliance with the FEC for any modifications made to the facility. Permit Condition 3.7 addresses permit renewal requirements. Permit Condition 3.8 requires BAF to maintain a list of equipment at the facility that is operating under the FEC. The purpose of the list is to help BAF and DEQ keep track of the emissions units that are, or were, operating at the facility to determine when their associated emissions are included as part of the FEC compliance demonstration.

Boilers

The Boiler 4 criteria pollutant emission limits from PTC No. 011-00020, issued February 11, 2003, were not included in this permit because boiler 4 emissions are now part of the FEC. BAF will determine emissions from all boilers by monitoring the amount of natural gas used and calculating emissions using the emissions factors contained in the permit appendices. For this reason, the natural gas fuel usage limit specific to Boiler 4 from PTC No. 011-00020 was also not carried forward into this permit.

Permit Condition 4.5

The Shelley facility is not PSD major because the FEC limits emissions of criteria pollutants to 240 T/yr or less. Therefore, emission limits specific to each boiler are not required to avoid triggering PSD. The permit includes a new permit condition limiting the total boiler capacity to less than 249 million Btu's per hour heat input to avoid becoming a "designated source" in accordance with the definition at IDAPA 58.01.01.006.30.v. – "Fossil-fuel boilers (or combination thereof) of more than 250 million Btu's per hour heat input." This limit is put in place because the FEC permit option is not available to

sources that are PSD major in accordance with Section 176 and 205 of the Rules for the Control of Air Pollution in Idaho.

Permit Condition 4.6

This permit condition regarding annual boiler inspection and tuning was essentially carried forward from PTC No. 011-00020, which applied to Boiler 4, and to maintain consistency with the operating requirements for natural gas boilers at the Rexburg facility, which has a similar permit requirement.

Permit Conditions 4.7 and 4.8

BAF is required to monitor and record the amount of natural gas combusted in each boiler on a monthly basis. The fuel usage data will be used to calculate monthly emissions using the emission factors in the appendices of the permit. Emissions from the boilers will be added to emissions from other emission units at the facility to demonstrate compliance with the FEC limits. Boilers 4 and 5 are NSPS Subpart Dc affected units and must maintain fuel usage records as required by the Subpart. BAF could modify Boilers 1 and 3, or install new boilers under the FEC limits, that may also be NSPS affected units.

Permit Condition 4.9

The permit requires emission testing of Boiler 1, Boiler 3, or Boiler 4 if total plant emissions exceed 200 T/yr of NO_x or CO. The testing is required to determine site specific NO_x and CO emission factors for natural gas fired boilers. The permit currently contains AP-42 emission factors for Boilers 1, 3, and 4. The Boiler 5 emissions factors are already specific to the boiler, as provided by the manufacturer. The test is required to verify that the facility does not exceed 250 T/yr of NO_x or CO emissions, which would make the facility a PSD major source, because the FEC permit option is not available to sources that are PSD major in accordance with Section 176 and 205 of the Rules for the Control of Air Pollution in Idaho.

Permit Condition 4.10

BAF may install additional natural gas boilers under this permit. If that occurs, BAF must submit the appropriate notifications required by the New Source Performance Standards.

Process A

Process A did not have any previously existing emissions limits, other than the generally applicable process weight rate.

Permit Condition 5.2

BAF will now monitor production data (Permit Condition 5.8) and use that information to calculate emissions to demonstrate compliance with the FEC limits using the emissions factors provided in the permit appendices. In addition, natural gas usage for the dryers will be monitored (Permit Condition 5.9) and the associated emissions will be included in the FEC compliance demonstration. BAF does not need to monitor natural gas usage in individual dryers because the natural gas combustion emission factors are the same for all dryers. Therefore, monitoring the total natural gas combustion to all dryers and calculating emissions from the total dryer gas usage is sufficient.

Permit Condition 5.3- Process Weight Rate

The existing equipment process weight limitations from IDAPA 58.01.01.702 apply to Process A as it currently exists because the application states that equipment was installed in 1958, which was prior to the new equipment applicability date of October 1, 1979. At the estimated maximum process weight input of 66,000 pounds per hour (See Tier II application regulatory analysis dated October 8, 2008, page 5) the allowable emission rate from Process A is 22.4 pounds per hour. The total hourly suspended particulate emissions from all of the Process A emissions units are 15.8 pounds per hour using the emissions factors in Table E-9 of the application (Future Alternative Scenario PM emissions). The total hourly PM₁₀ emissions from Process A emissions units are 11.9 pounds per hour using the emissions factors in Appendix A of the permit. The process weight rate limit is based on the feed material weight

because the definition of “process weight” states, “Water which occurs naturally in the feed material shall be considered part of the process weight.” Therefore, no additional monitoring or recordkeeping is required to demonstrate compliance with the process weight rate.

Permit Condition 5.4 – Throughput Limits

BAF provided the estimated maximum production rate through the process and that rate (144,000 pounds per day) was included as a production limit in the permit. The production limit was included in the permit to prevent the facility from exceeding the PM₁₀ emission rates used in modeling analysis. The maximum production rate through Process A can increase to 11,000 lbs/hr (264,000 lbs/24-hr day) so long as BAF satisfies the requirements of Condition 3.6 of the Tier II permit. The production limits are based on aggregated “Production from new inputs” for all process emissions units, which is the amount of actual product produced. The production should not be based on the amount of “released” product that BAF records because those numbers may not be representative of actual production. For example, the “released” product may not include off-spec material that was recycled or sold as animal feed because the “released” product only includes on-spec saleable product.

Permit Condition 5.6-Process Identification

BAF is required to post identification of the equipment within the plant so that an inspector can match the equipment in the plant with the associated process identification code (such as P1-1). This is a requirement so that an inspector can identify if any emission unit changes have occurred. BAF did not want the emission units identified by specific product (for example – carrot slice dryer) so the alternative emission unit coding was used.

The PM₁₀ emission rates BAF used in the modeling analysis were consistent with source test data DEQ has seen from other potato processing facilities. For example, most source test data from dryers tested within Idaho have PM emission rates between 0.5 and 3.5 pounds per hour. BAF used emission rates of 3.1 lb/hr PM₁₀ from dryer stacks P3-1 and P4-1. Because the emission data appears to be relatively conservative, and is based on tests conducted on sources at the facility and on similar sources at other BAF plants, DEQ is not requiring emission tests to verify the emission rates and emission factors BAF provided as the basis for the permit.

BAF provided the following explanation for the PM₁₀ emission factor data.

Applicable Stacks (Cooler/Dryer Types F and P)

P1-1; P1-2; P2-1; P2-2; P3-1; P3-2; P4-1; P4-2

Emissions factors for these stacks assume that 58.1% of the filterable PM is PM-10. This fraction is derived from source emission measurements conducted on stack DUT at the BAF Blackfoot plant in December 1997. The testing was conducted with separate Method 5 and Method 201A sample trains in stack DUT simultaneously. The Method 201A test also included recovery of filterable PM from the nozzle and the sizing cyclone, enabling direct determination of the fraction of filterable PM in this stack that was PM-10. These emission measurements yielded a filterable PM-10 fraction was 58.1% of the total filterable PM.

The product handled in the DUT stack is the same product that is handled Cooler/Dryer Types F and P and the associated dryer processes are similar. Accordingly we believe that it is reasonable to apply the 58.1% ratio of filterable PM-10 to filterable PM to the Shelley Process A stacks.

Documentation of this source testing was included with BAF's submittal to DEQ of February 9, 2004, Emissions Unit Identification and Emission Factor Documentation, Basic American Foods Blackfoot, Shelley and Rexburg Plants.

Applicable Stacks (Cooler/Dryer Types O and Q)

P6-1; P6-2; P8-1N; P8-1S; P8-1A; P8-2N; P8-2S; P8-2A; P9-1; P10-1; P11-1

BAF does not have simultaneous Method 5 and Method 201 emissions measurement data for stacks similar to those associated with Cooler/Dryer Types O and Q.

Permit Condition 5.7 – Stack Height Modifications

BAF is required to modify the stack heights as provided in the tables in Permit Condition 5.7 to match the stack parameters used in the modeling analysis. Because processes P1 and P2 are not currently in operation the stacks do not need to be modified until just prior to returning the processes to operation. Stacks P1-1 and P2-1 were modeled with a stack height of 62 feet above ground level. The permit condition allows for alternate stack heights to be established in accordance with FEC ambient analysis provisions.

Permit Condition 5.8 – Throughput Monitoring

BAF will monitor and record the production (based on Production from New Inputs) from each Process A emissions unit on a daily basis.

Process B

The previously existing PM₁₀ emission limit for Process B was not included in this permit. The existing limit stated “The PM₁₀ emissions emanating from each stack of Process B shall not exceed 0.2 gr/dscf in the stack gas, in accordance with IDAPA 58.01.01.710.08(b).” DEQ found the origin of the limit in the technical analysis for PTC No. 011-00020, issued September 10, 2001, which says the limit is from IDAPA 58.01.01.710 – Process Equipment Limitations on or after July 1, 2000.

“Flake lines No. 2, 3, and 4 are process equipment and are therefore subject to IDAPA 58.01.01.710; however, IDAPA 58.01.01.710.04 states that Subsection 710.08 shall not apply to process equipment at Tier I sources until Section 710 is State Implementation Plan-approved by the EPA. Although Section 710 has not currently been approved by the EPA, the facility is a Tier I source; however, in anticipation of future EPA approval, it was determined that this requirement should be addressed.”

The rule no longer exists in the Rules for the Control of Air Pollution in Idaho so it was removed from the permit.

The pound per hour emission rate limits for Process B stacks P9-1, P10-1, and P11-1 were not carried forward into this permit along with the associated throughput limits. Emissions from Process B will be part of the FEC and will be determined by monitoring the throughput and multiplying the throughput rates by the emissions factors provided in the application.

Permit Condition 6.2 – FEC Emission Limits

BAF will now monitor process production data (Permit Condition 6.8) and use that information to calculate emissions to demonstrate compliance with the FEC limits using the emissions factors provided in the permit appendices. In addition, natural gas usage for the dryers will be monitored (Permit Condition 6.9) and the associated emissions will be included in the FEC compliance demonstration. BAF does not need to monitor natural gas usage in individual dryers because the natural gas combustion emission factors are the same for all dryers. Therefore, monitoring the total natural gas combustion to all dryers and calculating emissions from the total dryer gas usage is sufficient.

Permit Condition 6.3- Process Weight Rate

The new equipment process weight limitations from IDAPA 58.01.01.701 apply to Process B emissions units. BAF agreed to meet the more restrictive new equipment process weight limitation for all of process B to simplify the compliance demonstration, even though some emissions units were installed prior to the October 1, 1979, applicability date. This allows BAF to treat the sum of the emissions units associated with Process B as one process. The application (page 4-8) states emissions units P10 and P11 were installed in 1990. Emissions units P6 (P6-1 and P62), P8 (P8-1N, P8-1S, P8-1A, P8-2N, P8-2S, P8-2A, P8-VE, P8-VW), and P9 were installed prior to the new equipment applicability date. At the estimated maximum process input rate of 99,000 pounds per hour (See Tier II application regulatory analysis dated October 8, 2008, page 5) the allowable emission rate from Process B is 25.0

pounds per hour. The total hourly suspended particulate emissions from the sum of the Process B emissions units are 8.5 pounds per hour using the emissions factors in Table E-9 of the application. The process weight rate limit is based on the feed material weight because the definition of “process weight” states, “Water which occurs naturally in the feed material shall be considered part of the process weight.” Therefore, no additional monitoring or recordkeeping is required to demonstrate compliance with the process weight rate.

Permit Condition 6.4 – Throughput limits

BAF provided the estimated maximum production rate through the process and that rate (218,400 pounds per day) was included as a production limit in the permit. The production limit was included in the permit to prevent the facility from exceeding the PM₁₀ emission rates used in modeling analysis. The maximum production rate through Process B can increase to 11,700 lbs/hr (280,800 lbs/24-hr day) so long as BAF satisfies the requirements of Condition 3.6 of the Tier II permit. The production limits are based on “Production from New Inputs” which is the amount of actual product produced by the process. The production should not be based on the amount of “released” product that BAF records because those numbers may not be representative of actual production. For example, the “released” product may not include off-spec material that was recycled or sold as animal feed because the “released” product only includes on-spec saleable product.

Permit Condition 6.6-Process Identification

BAF is required to post identification of the equipment within the plant so that an inspector can match the equipment in the plant with the associated process identification code (such as P1-1). This is a requirement so that an inspector can identify if any emission unit changes have occurred. BAF did not want the emission units identified by specific product (for example – potato slice dryer) so the alternative emission unit coding was used.

Permit Condition 6.7 – Stack Height Modifications

BAF is required to modify the stack heights as provided in the tables in Permit Condition 6.7 to match the stack parameters used in the modeling analysis. Because process P8 is not currently in operation the stacks do not need to be modified until just prior to returning the process to operation. If any of the stack heights listed in the tables in Permit Condition 6.7 are not modified as required, BAF will be required to shut down the processes associated with those stacks.

Permit Condition 6.8 – Throughput Monitoring

BAF will monitor and record the production (based on Production from New Inputs) from each Process B emissions unit on a daily basis.

Plant Space Heaters

There are numerous natural gas-fired plant space heaters at the facility. Emissions from the space heaters will be accounted for by determining the total natural gas usage of the space heaters and using the heater emission factors provided in the appendices of the permit. The natural gas usage to the space heaters will be determined by subtracting the monthly boiler and process dryer natural gas usage from the total natural gas usage of the plant. The total natural gas usage of the plant will likely be monitored by BAF using utility billing statements. The difference between the utility billing statement and the amounts used in the boilers and process dryers is the amount of natural gas used by the space heaters.

Appendices – Emission Factors

The PM₁₀, SO₂, NO_x, VOC, and CO emission factors provided in permit appendices A, B, C, D, and E, respectively, are from the spreadsheet titled *Shelley Future Alternatives – rev 1.xls* as provided on February 25, 2009. The updated spreadsheet was provided to reflect emission factors that are all in the units that match the data monitored in the permit, which is “pounds of production from new inputs” for throughput monitoring and “pounds per million Btu” for natural gas usage.

5. PERMIT FEES

Table 5.1 lists the processing fee associated with this permitting action. The facility is subject to a processing fee of \$10,000.00 because permitted emissions are greater than 100 tons per year, in accordance with IDAPA 58.01.01.407.

Table 5.1 PROCESSING FEE TABLE

| Pollutant | Annual Emissions (T/yr) |
|------------------|--------------------------------|
| NO _x | 240 |
| SO ₂ | 11 |
| CO | 240 |
| PM ₁₀ | 93 |
| VOC | 13 |
| HAPS | 2.6 |
| Total: | 599.6 |
| Fee Due | \$ 10,000.00 |

6. PUBLIC COMMENT

The draft permit, statement of basis, and application were made available to the public for a 30-day comment period from March 16, 2009, to April 15, 2009 under Docket No. AQ-0904. During this time no comments were submitted in response to DEQ's proposed action.

Appendix A – AIRS Information

AIRS/AFS Facility-wide Classification Form

Facility Name: Basic American Foods
Facility Location: Shelley
Facility ID: 011-00020 **Date:** 11/20/2008
Project/Permit No.: T2-2008.0145 **Completed By:** Zach Klotovich

- Check if there are no changes to the facility-wide classification resulting from this action. (compare to form with last permit)
- Yes, this facility is an SM80 source.

Identify the facility's area classification as A (attainment), N (nonattainment), or U (unclassified) for the following pollutants:

| | SO2 | PM10 | VOC | |
|----------------------|-----|------|-----|------------------------|
| Area Classification: | U | U | U | DO NOT LEAVE ANY BLANK |

Check one of the following:

- SIP [0]** - Yes, this facility is subject to SIP requirements. (do not use if facility is Title V)
- OR
- Title V [V]** - Yes, this facility is subject to Title V requirements. (If yes, do not also use SIP listed above.)

For SIP or TV, identify the classification (A, SM, B, C, or ND) for the pollutants listed below. Leave box blank if pollutant is not applicable to facility.

| | SO2 | NOx | CO | PM10 | PT (PM) | VOC | THAP |
|-----------------|-----|-----|----|------|---------|-----|------|
| Classification: | B | A | A | B | A | B | B |

- PSD [6]** - Yes, this facility has a PSD permit.

If yes, identify the pollutant(s) listed below that apply to PSD. Leave box blank if pollutant does not apply to PSD.

| | SO2 | NOx | CO | PM10 | PT (PM) | VOC | THAP |
|-----------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Classification: | <input type="checkbox"/> |

- NSR - NAA [7]** - Yes, this facility is subject to NSR nonattainment area (IDAPA 58.01.01.204) requirements.

Note: As of 9/12/08, Idaho has no facility in this category.

If yes, identify the pollutant(s) listed below that apply to NSR-NAA. Leave box blank if pollutant does not apply to NSR - NAA.

| | SO2 | NOx | CO | PM10 | PT (PM) | VOC | THAP |
|-----------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Classification: | <input type="checkbox"/> |

- NESHAP [8]** - Yes, this facility is subject to NESHAP (Part 61) requirements. (THAP only)

If yes, what CFR Subpart(s) is applicable?

NSPS [9] - Yes, this facility is subject to NSPS (Part 60) requirements.

If yes, what CFR Subpart(s) is applicable?

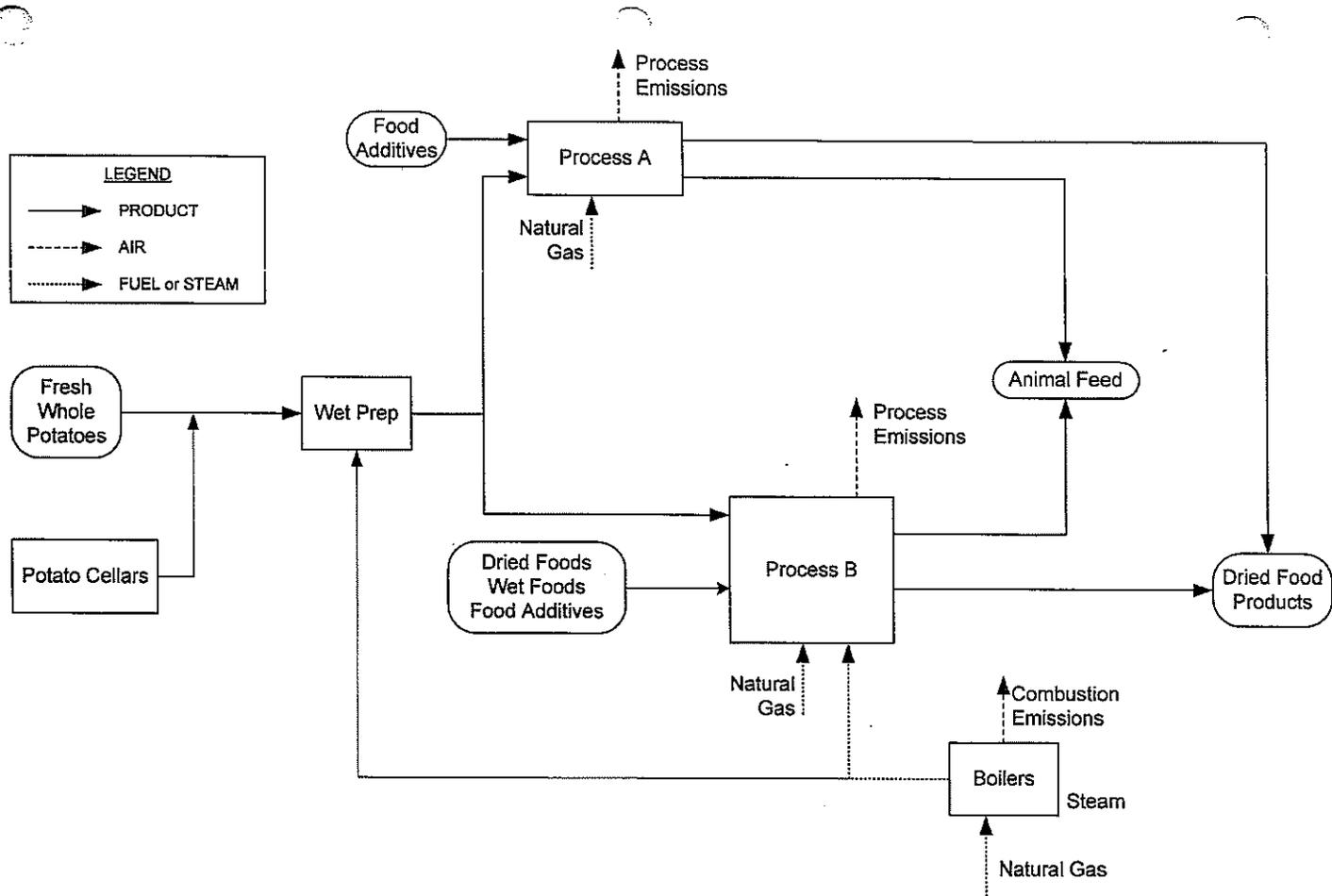
If yes, identify the pollutant(s) regulated by the subpart(s) listed above. Leave box blank if pollutant does not apply to the NSPS.

| | | | | | | | |
|-----------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Classification: | SO2 | NOx | CO | PM10 | PT (PM) | VOC | THAP |
| | <input type="checkbox"/> |

MACT [M] - Yes, this facility is subject to MACT (Part 63) requirements. (THAP only)

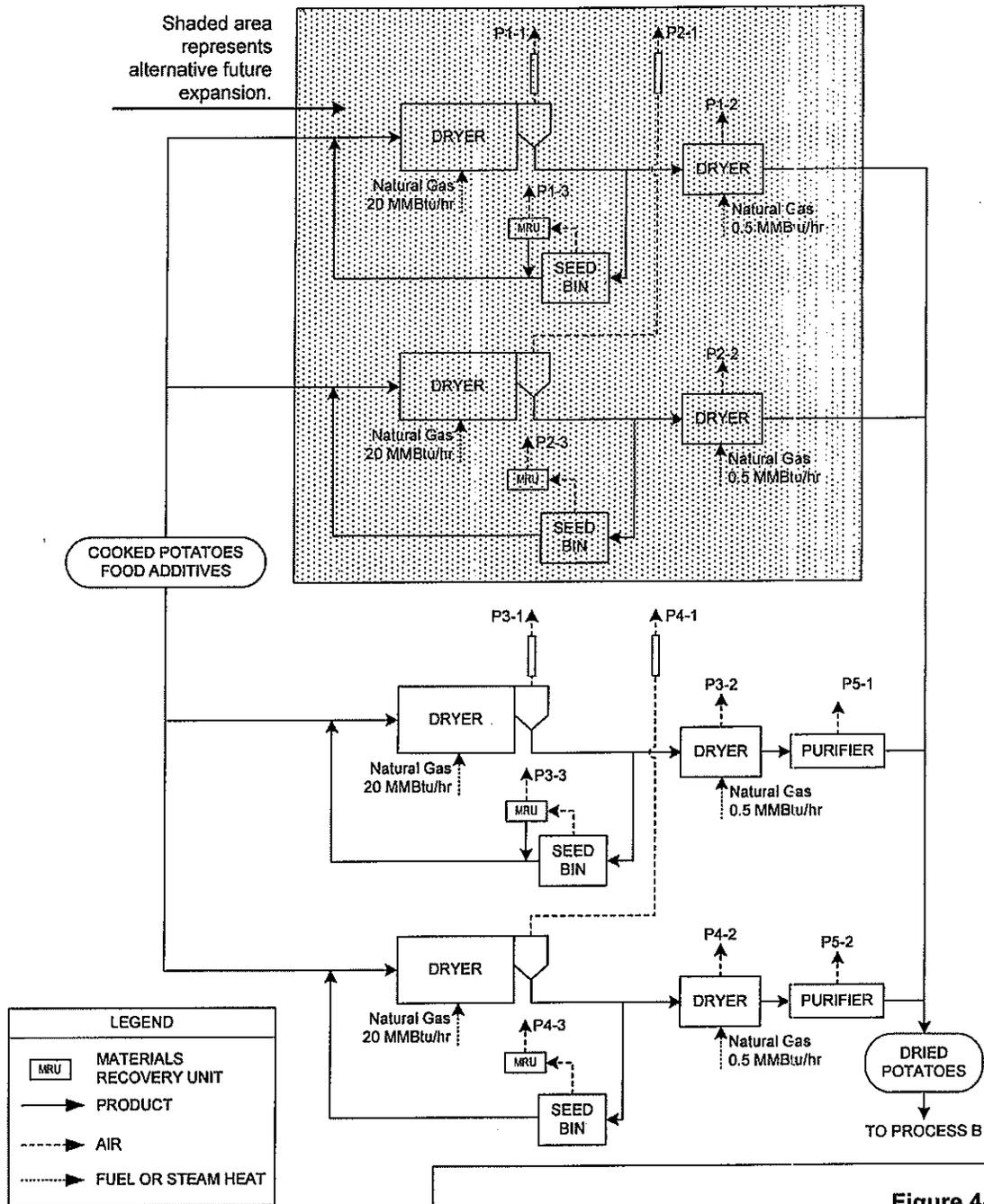
If yes, what CFR Subpart(s) is applicable?

Appendix B – Process Diagrams



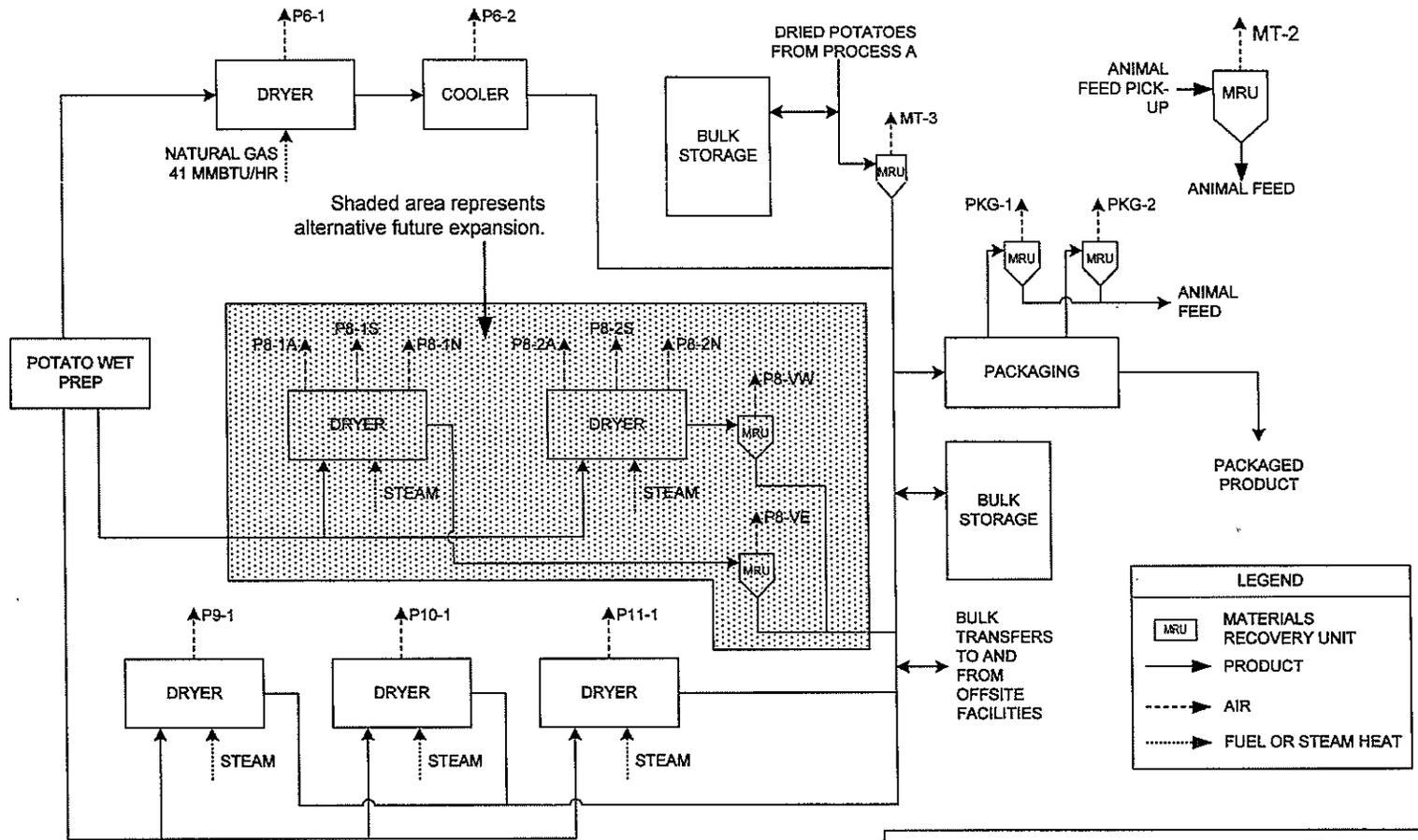
LEGEND
 —▶ PRODUCT
 - - -▶ AIR
 ·····▶ FUEL or STEAM

Figure 4-1
Plantwide Process Schematic
 REVISED APPLICATION FOR TIER II AIR OPERATING PERMIT AND REQUEST FOR ISSUANCE OF A FACILITY EMISSIONS CAP
 BASIC AMERICAN FOODS - SHELLEY, ID
 Coal Creek Environmental Associates, LLC
 Project 080101.71 September 2008



**Figure 4-3
Process Schematic - Process A**

**REVISED APPLICATION FOR TIER II AIR OPERATING
PERMIT AND REQUEST FOR ISSUANCE OF A FACILITY
EMISSIONS CAP
BASIC AMERICAN FOODS - SHELLEY, ID**



**Figure 4-4
Process Schematic - Process B**

**REVISED APPLICATION FOR TIER II AIR OPERATING
PERMIT AND REQUEST FOR ISSUANCE OF A
FACILITY EMISSIONS CAP
BASIC AMERICAN FOODS - SHELLEY, ID**

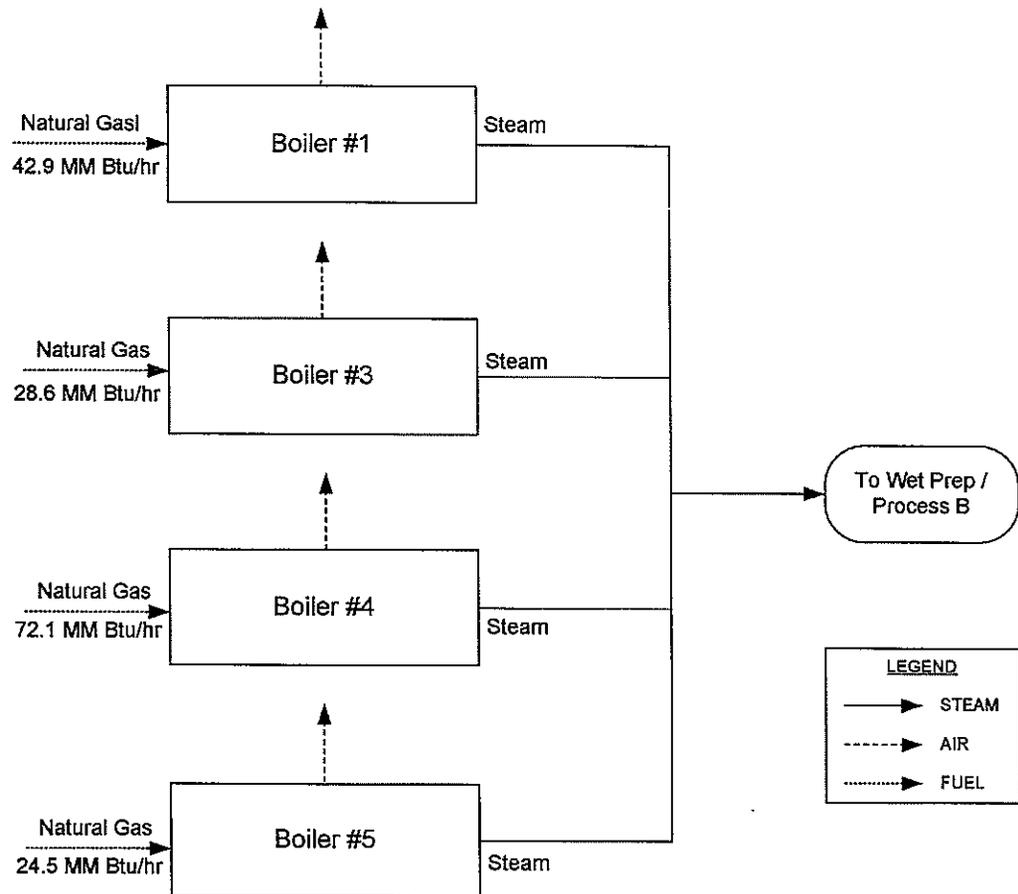


Figure 4-2
Process Schematic - Boilers

REVISED APPLICATION FOR TIER II AIR OPERATING PERMIT AND REQUEST FOR ISSUANCE OF A FACILITY EMISSIONS CAP
BASIC AMERICAN FOODS - SHELLEY, ID

Coal Creek Environmental Associates, LLC
 Project 080101.71 September 2008

Appendix C – Ambient Air Quality Impact Analysis

MEMORANDUM DRAFT

DATE: December 17, 2008
TO: Zach Klotovich, Environmental Engineer, Technical Services
FROM: Kevin Schilling, Stationary Source Modeling Coordinator, Air Program
PROJECT NUMBER: P-2008.0145
SUBJECT: Modeling Review for the Basic American Foods, Tier II Operating Permit Application for their Plant in Shelley, Idaho

1.0 SUMMARY

The Shelley Facility of Basic American Foods (BAF) submitted a Tier II Operating Permit application for their food drying and dehydrating plant located in Shelley, Idaho. Air quality analyses involving atmospheric dispersion modeling of emissions associated with potential normal operations of the facility were performed to demonstrate the facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.403.02 [Idaho Air Rules Section 403.02]). Coal Creek Environmental Associates, LLC (Coal Creek), BAF's consultant, performed the site-specific ambient air quality impact analyses.

A technical review of the submitted analyses was conducted by DEQ. The submitted information, in combination with DEQ's verification analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that predicted pollutant concentrations from emissions associated with the proposed facility were below significant contribution levels (SCLs) or other applicable regulatory thresholds; or b) that predicted pollutant concentrations from emissions associated with the facility and any potentially co-contributing sources, when appropriately combined with background concentrations, were below applicable air quality standards at all locations outside of the facility's property boundary. Table 1 presents key assumptions and results that should be considered in the development of the permit.

| Criteria/Assumption/Result | Explanation/Consideration |
|--|---|
| Compliance with applicable air quality standards was only demonstrated after raising stacks of a number of sources | It is important that stack heights are raised for those sources specified in the application. |
| Analyses assumed boilers were fueled by natural gas only. | Compliance with air quality standards was not assured if alternative fuels are used in boilers. |

2.0 BACKGROUND INFORMATION

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance.

2.1.1 Area Classification

The BAF facility is located in Shelley, Idaho. The area is designated as attainment or unclassifiable for all criteria pollutants.

2.1.2 Significant and Cumulative NAAQS Impact Analyses

If estimated maximum pollutant impacts to ambient air from the emissions sources associated with the facility

exceed the significant contribution levels (SCLs) of Idaho Air Rules Section 006.102, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with National Ambient Air Quality Standards (NAAQS) and Idaho Air Rules Section 403.02. A cumulative NAAQS impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions, and emissions from any nearby co-contributing sources, to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The resulting maximum pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also lists SCLs and specifies the modeled value that must be used for comparison to the NAAQS.

| TABLE 2. APPLICABLE REGULATORY LIMITS | | | | |
|--|-------------------------|--|---|--|
| POLLUTANT | Averaging Period | Significant Contribution Levels^a ($\mu\text{g}/\text{m}^3$)^b | Regulatory Limit^c ($\mu\text{g}/\text{m}^3$) | Modeled Value Used^d |
| PM ₁₀ ^e | Annual ^f | 1.0 | 50 ^g | Maximum 1 st highest ^h |
| | 24-hour | 5.0 | 150 ⁱ | Maximum 6 th highest ^j |
| PM _{2.5} ^k | Annual | Not established | 15 | Use PM ₁₀ as surrogate |
| | 24-hour | Not established | 35 | Use PM ₁₀ as surrogate |
| Carbon monoxide (CO) | 8-hour | 500 | 10,000 ^l | Maximum 2 nd highest ^h |
| | 1-hour | 2,000 | 40,000 ^l | Maximum 2 nd highest ^h |
| Sulfur Dioxide (SO ₂) | Annual | 1.0 | 80 ^g | Maximum 1 st highest ^h |
| | 24-hour | 5 | 365 ⁱ | Maximum 2 nd highest ^h |
| | 3-hour | 25 | 1,300 ⁱ | Maximum 2 nd highest ^h |
| Nitrogen Dioxide (NO ₂) | Annual | 1.0 | 100 ^g | Maximum 1 st highest ^h |
| Lead (Pb) | Quarterly | NA | 1.5 ⁱ | Maximum 1 st highest ^h |

^aIdaho Air Rules Section 006.102

^bMicrograms per cubic meter

^cIdaho Air Rules Section 577 for criteria pollutants

^dThe maximum 1st highest modeled value is always used for the significant impact analysis

^eParticulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers

^fThe annual PM₁₀ standard was revoked in 2006. The standard is still listed because compliance with the annual PM_{2.5} standard is demonstrated by a PM₁₀ analysis that demonstrates compliance with the revoked PM₁₀ standard.

^gNever expected to be exceeded in any calendar year

^hConcentration at any modeled receptor

ⁱNever expected to be exceeded more than once in any calendar year

^jConcentration at any modeled receptor when using five years of meteorological data

^kParticulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers

^lNot to be exceeded more than once per year

New source review requirements for assuring compliance with PM_{2.5} standards have not yet been completed and promulgated into regulation. EPA has asserted through a policy memorandum that compliance with PM_{2.5} standards will be assured through an air quality analysis for the corresponding PM₁₀ standard. Although the PM₁₀ annual standard was revoked in 2006, compliance with the revoked PM₁₀ annual standard must be demonstrated as a surrogate to the annual PM_{2.5} standard.

2.1.3 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.

Permit requirements for toxic air pollutants 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 emissions increase associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Idaho Air Rules Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Idaho Air Rules Section 586, then compliance with TAP requirements has been demonstrated. If DEQ determines T-RACT is used to control emissions of carcinogenic TAPs, then modeled concentrations of 10 times the AACC are considered acceptable, as per Idaho Air Rules Section 210.12.

2.2 Background Concentrations

Background concentrations are used in the cumulative NAAQS impact analyses to account for impacts from sources not explicitly modeled. Table 3 lists appropriate background concentrations for the Shelley, Idaho area.

Background concentrations were revised for all areas of Idaho by DEQ in March 2003¹. Background concentrations in areas where no monitoring data are available were based on monitoring data from areas with similar population density, meteorology, and emissions sources. Background concentrations in these analyses were based on DEQ default values for rural/agricultural areas.

| POLLUTANT | Averaging Period | Background Concentration (µg/m ³) ^a |
|-------------------------------------|------------------|--|
| PM ₁₀ ^b | 24-hour | 73 |
| | Annual | 26 |
| Carbon monoxide (CO) | 1-hour | 3,600 |
| | 8-hour | 2,300 |
| Sulfur dioxide (SO ₂) | 3-hour | 34 |
| | 24-hour | 26 |
| | Annual | 8 |
| Nitrogen dioxide (NO ₂) | Annual | 17 |
| Lead (Pb) | Quarterly | 0.03 |

^a Micrograms per cubic meter

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

3.0 MODELING IMPACT ASSESSMENT

3.1 Modeling Methodology

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

3.1.1 Overview of Analyses

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

| Parameter | Description/Values | Documentation/Addition Description ^a |
|-----------|--------------------|---|
|-----------|--------------------|---|

¹ Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

| | | |
|---------------------------|----------------|--|
| General facility location | Shelley, Idaho | |
| Model | AERMOD | AERMOD with the PRIME downwash algorithm, version 07026 |
| Meteorological data | Idaho Falls | Data provided by DEQ |
| Terrain | Considered | Receptor, building, and emissions source elevations were determined using Digital Elevation Model (DEM) files |
| Building downwash | Considered | Buildings present on the site that could reasonably cause plume downwash were included in the analyses through the use of the BPIP-PRIME program |
| Receptor Grid | Grid 1 | 25-meter spacing along the property boundary out 100 meters |
| | Grid 2 | 100-meter spacing out to 1,000 meters |

3.1.2 Modeling protocol and Methodology

Refined air impact analyses were performed by Coal Creek. A modeling protocol was submitted to DEQ prior to the application and DEQ provided conditional approval of the protocol to Coal Creek. Modeling was generally conducted using data and methods described in the protocol and/or in the *State of Idaho Air Quality Modeling Guideline*.

3.1.3 Model Selection

Idaho Air Rules Section 402.03 require that estimates of ambient concentrations be based on air quality models specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models). The refined, steady state, multiple source, Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. EPA provided a 1-year transition period during which either ISCST3 or AERMOD could be used at the discretion of the permitting agency. AERMOD must be used for all air impact analyses, performed in support of air quality permitting, conducted after November 2006.

AERMOD retains the single straight line trajectory of ISCST3, but includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD offers the following improvements over ISCST3:

- Improved dispersion in the convective boundary layer and the stable boundary layer
- Improved plume rise and buoyancy calculations
- Improved treatment of terrain affects on dispersion
- New vertical profiles of wind, turbulence, and temperature

AERMOD was used in the submitted analyses and DEQ verification analyses.

3.1.4 Meteorological Data

Five years of hourly meteorological data collected from a NOAA tower near the Idaho Falls Airport were used in the modeling analyses. These data were preprocessed by Geomatrix Consultants, were reviewed by DEQ, and were provided to Coal Creek from DEQ in model-ready format. DEQ has determined these data are reasonably representative meteorological data for use in dispersion modeling analyses for the Shelley area.

3.1.5 Terrain Effects

Terrain effects on dispersion were considered in the analyses. Receptor elevations and hill heights were obtained by Coal Creek using AERMAP and Digital Elevation Model (DEM) 7.5-minute files.

3.1.6 Building Downwash

Downwash effects potentially caused by structures at the facility were accounted for in the dispersion modeling analyses. The Building Profile Input Program for the PRIME downwash algorithm (BPIP-PRIME) was used to calculate direction-specific building dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and emissions release parameters for AERMOD.

3.1.7 Ambient Air Boundary

Coal Creek used the facility's fenceline as the ambient air boundary for much of the site. In areas where there was no fence, the exterior walls of buildings were used as the ambient air boundary. DEQ assumed reasonable measures will be taken by the facility to preclude public access to the property.

3.1.8 Receptor Network

Table 4 describes the receptor grid used in the submitted analyses. The receptor grid met the minimum recommendations specified in the *State of Idaho Air Quality Modeling Guideline*. DEQ determined this grid assured maximum impacts were reasonably resolved by the model.

3.2 Emission Rates

Emissions rates used in the modeling analyses for the proposed project were equal to those presented in other sections of the permit application or the DEQ Statement of Basis.

3.2.1 Criteria Pollutant Emissions Rates

The BAF application is for a facility-wide emissions cap (FEC) Tier II Operating Permit. These permits involve a baseline emissions inventory, a current potential to emit (PTE) inventory, and a full PTE under future alternative operational scenarios. Table 5 provides criteria pollutant emissions rates used in the modeling analyses for both the current and future PTE long-term and short-term averaging periods. Detailed process descriptions of specific emissions points were not provided in the submitted application.

Where a single value is listed for a pollutant emissions rate of a specific point, that rate was used for both short-term and long-term averaging periods. Where only an emissions rate for the future alternative operational scenario is listed, the current emissions rate is 0.0 pounds per hour.

3.2.2 TAP Emissions Rates

TAP emissions regulations under Idaho Air Rules Section 220 are only applicable for new or modified sources constructed before July 1, 1995. The submitted application specified those sources subject to TAPs review and these were verified by the DEQ permit writer. Since all sources of TAPs emissions are combustion of natural gas, Coal Creek only modeled the TAPs having the highest ratio of emissions to the screening emissions level (EL) of Idaho Air Rules Section 585 and 586. These TAPs were nitrous oxide for TAPs in Idaho Air Rules Section 585 (24-hour averaged limits) and cadmium for TAPs in Idaho Air Rules Section 586 (annual averaged limits). Table 6 provides nitrous oxide and cadmium emissions associated with the current PTE and the PTE for future operational scenarios.

3.3 Emission Release Parameters

Table 7 provides emissions release parameters used in the modeling analyses, including stack height, stack diameter, exhaust temperature, and exhaust velocity. All parameters appear to be within reasonably expected ranges, considering the type of sources. Heaters were modeled as an elevated area source rather than a volume source, which DEQ typically requests for most point sources located on building roofs. This approach was approved by DEQ because heater exhaust will experience plume rise from thermal buoyancy. Thermal

buoyancy of the emitted plume will offset downwash effects caused by the buildings. Modeling the emissions as an area source best represents a source that would not be substantially affected by downwash.

| Emissions Point | Emissions Rates (lb/hr) | | | |
|-----------------|---|---|-------------------|---------------------|
| | PM ₁₀ ^a | Sulfur Dioxide | Carbon Monoxide | Oxides of Nitrogen |
| Boiler 1 | 0.2945 | 0.02055 | 3.25 | 3.870 |
| Boiler 3 | 0.2192 | 0.02055 | 2.38 | 2.831 |
| Boiler 4 | 0.5479 | 0.1690 | 11.26 | 10.13 |
| Boiler 5 | 0.1740 | 0.0588 | 3.553 | 1.764 |
| P1-1 | 2.6 ^b | 0.248 ^b | 5.2 ^b | 1.22 ^b |
| P1-2 | 0.0825 ^b | 0.0112 ^b | 0.13 ^b | 0.0305 ^b |
| P1-3 | 0.005 ^b | 0 ^b | 0 ^b | 0 ^b |
| P2-1 | 2.6 ^b | 0.248 ^b | 5.2 ^b | 1.22 ^b |
| P2-2 | 0.0825 ^b | 0.0112 ^b | 0.13 ^b | 0.0305 ^b |
| P2-3 | 0.005 ^b | 0 ^b | 0 ^b | 0 ^b |
| P3-1 | 3.12 | 0.288 | 5.2 | 1.22 |
| P3-2 | 0.099 | 0.0132 | 0.13 | 0.0305 |
| P3-3 | 0.006 | 0 | 0 | 0 |
| P4-1 | 3.12 | 0.288 | 5.2 | 1.22 |
| P4-2 | 0.099 | 0.0132 | 0.13 | 0.0305 |
| P4-3 | 0.006 | 0 | 0 | 0 |
| P5-1 | 0.015 | 0 | 0 | 0 |
| P5-2 | 0.018 | 0 | 0 | 0 |
| P6-1 | 1.303 | 0.2984 | 10.66 | 2.501 |
| P6-2 | 0.6517 | 0.1 | 0 | 0 |
| P8-1N | 0.1485 ^b | 0.0418 ^b | 0 ^b | 0 ^b |
| P8-1S | 0.1485 ^b | 0.0418 ^b | 0 ^b | 0 ^b |
| P8-1A | 0.033 ^b | 0 ^b | 0 ^b | 0 ^b |
| P8-2N | 0.1485 ^b | 0.0418 ^b | 0 ^b | 0 ^b |
| P8-2S | 0.1485 ^b | 0.0418 ^b | 0 ^b | 0 ^b |
| P8-2A | 0.033 ^b | 0 ^b | 0 ^b | 0 ^b |
| P8-VE | 0.07392 ^b | 0 ^b | 0 ^b | 0 ^b |
| P8-VW | 0.07392 ^b | 0 ^b | 0 ^b | 0 ^b |
| P9-1 | 1.65 | 0.1672 | 0 | 0 |
| P10-1 | 1.65 | 0.1672 | 0 | 0 |
| P11-1 | 1.65 | 0.1672 | 0 | 0 |
| PKG-1 | 0.000755; 0.001115 ^b | 0 | 0 | 0 |
| PKG-2 | 0.054; 0.099 ^b | 0 | 0 | 0 |
| MT-2 | 0.000836 | 0 | 0 | 0 |
| MT-3 | 0.012; 0.022 ^b | 0 | 0 | 0 |
| Heaters | 0.4433 ^c ; 0.2217 ^d | 0.1428 ^c 0.0714 ^d | 4.9 | 2.45 |

^aParticulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers

^bEmissions unit, emissions, and/or release parameters for future operational scenario

^cShort term emissions rate (<24 hr)

^dAnnual average emissions rate

| Emissions Source | Emissions Rates (lb/hr) | |
|------------------|-------------------------|---------|
| | Nitrous Oxide | Cadmium |
| P6-1 | 0.0884 | 4.43E-5 |
| P1-1 | 0.0431 | 2.16E-5 |
| P1-2 | 0.00108 | 5.40E-7 |
| P2-1 | 0.0431 | 2.16E-5 |
| P2-2 | 0.00108 | 5.40E-7 |
| HEATERS | 0.128 | 6.43E-5 |

Table 7. EMISSIONS RELEASE PARAMETERS

| Point Sources | | | | | |
|------------------------------------|--------------------|-------------------------------------|-----------------------------|--|---|
| <i>Release Point /Location</i> | Source Type | Stack Height (m)^a | Modeled Diameter (m) | Stack Gas Temp. (K)^b | Stack Gas Flow Velocity (m/sec)^c |
| Boiler 1 | vertical | 10.29 | 0.76 | 472 | 12.42 |
| Boiler 3 | vertical | 10.16 | 0.76 | 433 | 7.76 |
| Boiler 4 | vertical | 11.73 | 1.22 | 322 | 9.07 |
| Boiler 5 | vertical | 12.85 | 0.61 | 422 | 13.37 |
| P1-1 ^d | vertical | 18.75 | 1.36 | 346 | 17.02 |
| P1-2 ^d | vertical | 10.84 | 0.72 | 308 | 3.90 |
| P1-3 ^d | vertical | 7.95 | 0.46 | 309 | 6.66 |
| P2-1 ^d | vertical | 18.75 | 1.36 | 346 | 17.02 |
| P2-2 ^d | vertical | 10.82 | 0.59 | 308 | 5.76 |
| P2-3 ^d | vertical | 8.86 | 0.46 | 309 | 6.66 |
| P3-1 | vertical | 20.27 | 1.36 | 346 | 17.02 |
| P3-2 | vertical | 8.18 | 0.37 | 308 | 14.71 |
| P3-3 | horizontal | 10.39 | 0.41 | 309 | 8.16 |
| P4-1 | vertical | 20.27 | 1.36 | 346 | 17.02 |
| P4-2 | vertical | 8.33 | 0.38 | 312 | 13.66 |
| P4-3 | horizontal | 8.66 | 0.45 | 318 | 7.09 |
| P5-1 | horizontal | 7.44 | 0.10 | 303 | 15.72 |
| P5-2 | horizontal | 8.35 | 0.10 | 303 | 15.72 |
| P6-1 | vertical | 12.04 13.56 ^d | 0.69 | 326 | 30.94 |
| P6-2 | vertical | 12.34 13.87 ^d | 0.41 | 311 | 34.27 |
| P8-1N ^d | vertical | 19.94 | 0.61 | 318 | 11.52 |
| P8-1S ^d | vertical | 20.32 | 0.61 | 318 | 13.50 |
| P8-1A ^d | vertical | 19.84 | 0.25 | 305 | 16.01 |
| P8-2N ^d | vertical | 18.39 | 0.61 | 318 | 11.52 |
| P8-2S ^d | vertical | 18.50 | 0.61 | 318 | 13.50 |
| P8-2A ^d | vertical | 19.86 | 0.25 | 305 | 16.01 |
| P8-VE ^d | vertical | 19.28 | 0.15 | 303 | 15.52 |
| P8-VW ^d | vertical | 19.28 | 0.15 | 303 | 15.52 |
| P9-1 | vertical | 17.98 | 1.22 | 312 | 12.69 |
| P10-1 | vertical | 17.98 | 1.22 | 312 | 12.69 |
| P11-1 | vertical | 17.98 | 1.22 | 312 | 12.69 |
| Pkg-1 | vertical | 9.47 | 0.30 | 300 | 15.22 |
| PKG-2 | vertical | 9.47 | 0.25 | 300 | 13.37 |
| MT-2 | vertical | 10.26 | 0.20 | 300 | 15.28 |
| MT-3 | horizontal | 15.26 | 0.10 | 300 | 15.72 |
| Area Sources | | | | | |
| <i>Release Point /Location</i> | Source Type | Release Height (m) | Easterly Length (m) | Northerly Length (m) | Initial Vertical Dispersion Coefficient σ_{z0} (m) |
| HEATERS | area | 9.14 | 136.6 | 108.5 | 0.0 |

^a Meters

^b Kelvin

^c Meters per second

^d Future operational scenario

3.4 Results for Full NAAQS Impact Analyses

Coal Creek performed a refined cumulative NAAQS impact analyses to evaluate compliance with applicable standards. Results of the cumulative NAAQS impact analyses are provided in Table 8.

The submitted analyses used the maximum 6th highest modeled 24-hour PM₁₀ concentration as the design value, as allowed when using five years of representative meteorological data.

Table 8. RESULTS FOR CUMULATIVE IMPACT ANALYSES

| Pollutant | Averaging Period | Maximum Modeled Concentration ^a (µg/m ³) ^b | Background Concentration (µg/m ³) | Total Ambient Impact (µg/m ³) | NAAQS ^c (µg/m ³) | Percent of NAAQS |
|-------------------------------------|----------------------|--|---|---|---|------------------|
| PM ₁₀ ^d | 24-hour | 69.8 | 73 | 143 | 150 | 95 |
| | Annual ^e | 20.1 | 26 | 46 | 50 | 92 |
| Carbon monoxide (CO) | 1-hour ^f | 730 | 3,600 | 4,330 | 40,000 | 11 |
| | 8-hour ^f | 341 | 2,300 | 2,641 | 10,000 | 26 |
| Sulfur dioxide (SO ₂) | 3-hour ^f | 18.7 | 34 | 53 | 1,300 | 4 |
| | 24-hour ^f | 10.4 | 26 | 36 | 365 | 10 |
| | Annual ^f | 2.6 | 8 | 11 | 80 | 13 |
| Nitrogen dioxide (NO ₂) | Annual ^f | 71.5 | 17 | 88.5 | 100 | 88 |

^aValues in parentheses were obtained through DEQ verification modeling

^bMicrograms per cubic meter.

^cNational ambient air quality standards

^dParticulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

^eModeled design values are the maximum 6th highest modeled value from a 5-year meteorological data set

^fModeled design values are the maximum 2nd highest modeled value from a 5-year meteorological data set

^gModeled design values are the maximum 1st highest modeled value from a 5-year meteorological data set

3.5 Results for TAPs Analyses

Coal Creek performed TAPs impact analyses for cadmium and nitrous oxide to evaluate compliance with applicable increments for those TAPs having emissions above screening levels of Idaho Air Rules Section 585 and 586. Since all TAP sources involve combustion of natural gas, the same emissions factors are used for all sources; and since ambient impacts are directly proportional to emissions, compliance with all TAPs can be assured by modeling the TAP having the highest emissions-to-emissions screening level (EL) ratio for both non-carcinogenic TAPs evaluated by maximum 24-hour averaged concentrations (Idaho Air Rules Section 585) and carcinogenic TAPs evaluated by annual averaged concentrations (Idaho Air Rules Section 586).

Coal Creek presented TAPs modeling results for each specific emissions source rather than the entire group of sources determined to be subject to TAPs assessment as per Idaho Air Rules Section 220 and 223. TAPs impacts are assessed on a project-by-project basis rather than a source-by-source basis. Since it was not clear from the application that each applicable source would be a separate project, DEQ assessed the TAP impact of all applicable sources grouped together. Results of the TAPs impact analyses are provided in Table 9. Increases in TAPs emissions will not cause concentrations in excess of any TAP increments.

Table 9. RESULTS FOR TAP IMPACT ANALYSES

| Pollutant | Averaging Period | Modeled Impact (µg/m ³) ^a | AAC/AACC ^b (µg/m ³) |
|---------------|------------------|--|--|
| Nitrous Oxide | 24-hour | 4.66 | 4500 |
| Cadmium | Annual | 3.71E-4 | 5.6E-4 |

^aMicrograms per cubic meter.

^bDefined in Idaho Air Rules Section 585 and 586

4.0 CONCLUSIONS

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