# Statement of Basis

**Permit to Construct No. P-2016.0042**
**Project ID 61755**

**Fabri-Kal**
**Burley, Idaho**

**Facility ID 031-00057**

**Final**

**January 26, 2017**
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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

| | |
|---|---|
| AAC | acceptable ambient concentrations |
| AACC | acceptable ambient concentrations for carcinogens |
| acfm | actual cubic feet per minute |
| ASTM | American Society for Testing and Materials |
| Btu | British thermal units |
| CAA | Clean Air Act |
| cfm | cubic feet per minute |
| CFR | Code of Federal Regulations |
| CO | carbon monoxide |
| $CO_2$ | carbon dioxide |
| $CO_2e$ | $CO_2$ equivalent emissions |
| DEQ | Department of Environmental Quality |
| dscf | dry standard cubic feet |
| EL | screening emission levels |
| EPA | U.S. Environmental Protection Agency |
| GHG | greenhouse gases |
| gr | grains (1 lb = 7,000 grains) |
| HAP | hazardous air pollutants |
| hp | horsepower |
| hr/yr | hours per consecutive 12 calendar month period |
| ICE | internal combustion engines |
| IDAPA | a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act |
| km | kilometers |
| lb/hr | pounds per hour |
| m | meters |
| MACT | Maximum Achievable Control Technology |
| MMBtu | million British thermal units |
| MMscf | million standard cubic feet |
| NAAQS | National Ambient Air Quality Standard |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| $NO_2$ | nitrogen dioxide |
| $NO_X$ | nitrogen oxides |
| NSPS | New Source Performance Standards |
| $O_2$ | oxygen |
| PAH | polyaromatic hydrocarbons |
| PM | particulate matter |
| $PM_{2.5}$ | particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers |
| $PM_{10}$ | particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers |
| POM | polycyclic organic matter |
| ppm | parts per million |
| PSD | Prevention of Significant Deterioration |
| PTC | permit to construct |
| PTC/T2 | permit to construct and Tier II operating permit |
| PTE | potential to emit |
| PW | process weight rate |
| RICE | reciprocating internal combustion engines |
| *Rules* | *Rules for the Control of Air Pollution in Idaho* |
| scf | standard cubic feet |
| SCL | significant contribution limits |
| SM | synthetic minor |

| | |
|---|---|
| SM80 | synthetic minor facility with emissions greater than or equal to 80% of a major source threshold |
| $SO_2$ | sulfur dioxide |
| $SO_x$ | sulfur oxides |
| T/day | tons per calendar day |
| T/hr | tons per hour |
| T/yr | tons per consecutive 12 calendar month period |
| T2 | Tier II operating permit |
| TAP | toxic air pollutants |
| ULSD | ultra-low sulfur diesel |
| U.S.C. | United States Code |
| VOC | volatile organic compounds |
| $\mu g/m^3$ | micrograms per cubic meter |

## FACILITY INFORMATION

### *Description*

Fabri-Kal is proposing a new agricultural based plastic packaging manufacturing facility in Burley Idaho. The facility will process wheat straw, soy straw, sodium hydroxide, and polypropylene pellets as the raw materials. Natural gas boilers will provide steam for material preparation and thermoforming. Raw agricultural fiber will be received by truck or railcar in the form of wheat or soy straw bales. The material is ground and added with hot water and sodium hydroxide in a cooking tank. The pulp slurry is pressed to remove the cooking liquid. It is then rehydrated to achieve the desired fiber length and consistency. The finished pulp is then placed in a storage tank that feeds into the thermoforming process. Polypropylene pellets are received via truck or railcar and stored in a silo. The pellets are fed into an extruder that uses heat and pressure to form a thin plastic sheet. The plastic sheet and finished pulp are then fed into the thermoforming machines where a vacuum forms the product shape. The finished product is cooled with water, dried, and trimmed before being stacked and packed. The trimmed material is reground and fed back into the production line.

### *Permitting History*

This is the initial PTC for a new facility thus there is no permitting history.

### *Application Scope*

This permit is the initial PTC for this facility.

### *Application Chronology*

| | |
|---|---|
| July 13, 2016 | DEQ received an application and an application fee. |
| July 20 – August 4, 2016 | DEQ provided an opportunity to request a public comment period on the application and proposed permitting action. |
| August 10, 2016 | DEQ determined that the application was incomplete. |
| September 1, 2016 | DEQ received supplemental information from the applicant. |
| September 19, 2016 | DEQ determined that the application was complete. |
| October 31, 2016 | DEQ made available the draft permit and statement of basis for peer and regional office review. |
| November 8, 2016 | DEQ made available the draft permit and statement of basis for applicant review. |
| Nov. 30 – Dec. 30, 2016 | DEQ provided a public comment period on the proposed action. |
| November 14, 2016 | DEQ received the permit processing fee. |
| January 26, 2017 | DEQ issued the final permit and statement of basis. |

## TECHNICAL ANALYSIS

### *Emissions Units and Control Equipment*

**Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION**

| Source ID No. | Sources | Control Equipment | Emission Point ID No. |
|---|---|---|---|
| B.1 | Boiler B.1:<br>Manufacturer: Hurst<br>Model: S-4-G-150-15ST<br>Construction Date: 2015<br>Heat input rating: 6.3 MMBtu/hr<br>Fuel: natural gas | None | Exit height: 36.4 ft (11.1 m)<br>Exit diameter: 1.3 ft (0.41 m)<br>Exit temperature: 422.0 °F (216.65 °C) |
| B.2 | Boiler B.2:<br>Manufacturer: Hurst<br>Model: S-4-G-150-15ST<br>Construction Date: 2017<br>Heat input rating: 6.3 MMBtu/hr<br>Fuel: natural gas | None | Exit height: 36.4 ft (11.1 m)<br>Exit diameter: 1.3 ft (0.41 m)<br>Exit temperature: 422.0 °F (219.65 °C) |
| B.3 | Boiler B.3:<br>Manufacturer: Columbia<br>Model: MPH-80<br>Construction Date: 2017<br>Heat input rating: 3.4 MMBtu/hr<br>Fuel: natural gas | None | Exit height: 36.4 ft (11.1 m)<br>Exit diameter: 1.0 ft (0.30 m)<br>Exit temperature: 400.0 °F (204.45 °C) |
| FA-1 | Furnace:<br>Manufacturer: Carrier<br>Model: 4ATTR6042(A1)<br>Manufacture Date: 2015<br>Heat input rating: 0.06 MMBtu/hr<br>Fuel: natural gas | None | Exit height: 30.2 ft (9.2 m)<br>Exit diameter: 0.3 ft (0.08 m)<br>Exit temperature: 150.0 °F (65.55 °C) |
| FA-2 | Furnace:<br>Manufacturer: Carrier<br>Model: 4ATTR6024(A2)<br>Manufacture Date: 2015<br>Heat input rating: 0.06 MMBtu/hr<br>Fuel: natural gas | None | Exit height: 30.2 ft (9.2 m)<br>Exit diameter: 0.3 ft (0.08 m)<br>Exit temperature: 150.0 °F (65.55 °C) |
| FA-3 | Furnace:<br>Manufacturer: Trane<br>Model: ATTR6036<br>Manufacture Date: 2015<br>Heat input rating: 0.04 MMBtu/hr<br>Fuel: natural gas | None | Exit height: 30.2 ft (9.2 m)<br>Exit diameter: 0.3 ft (0.08 m)<br>Exit temperature: 150.0 °F (65.55 °C) |
| FA-4 | Furnace:<br>Manufacturer: Carrier<br>Model: 4ATTR6030(A4)<br>Manufacture Date: 2015<br>Heat input rating: 0.06 MMBtu/hr<br>Fuel: natural gas | None | Exit height: 30.2 ft (9.2 m)<br>Exit diameter: 0.3 ft (0.08 m)<br>Exit temperature: 150.0 °F (65.55 °C) |
| IRH-B1<br>IRH-B2 | Infrared Heaters (2 Identical Units):<br>Manufacturer: Re-Verber-Ray<br>Model: DET3-60-200<br>Construction Date: 2015<br>Heat Capacity: 200 scf/hr<br>Fuel: natural gas | None | Exit height: 30.2 ft (9.2 m)<br>Exit diameter: 0.5 ft (0.15 m)<br>Exit temperature: 425.0 °F (218.35 °C) |
| MAU-A1<br>MAU-D1 | Make Up Air Unit (2 Identical Units):<br>Manufacturer: Rapid Engineering<br>Model: 4060AM<br>Construction Date: 2015<br>Heat input rating: 4.3 MMBtu/hr<br>Fuel: natural gas | Low $NO_x$ Burners | Exit height: 30.2 ft (9.2 m)<br>Exit diameter: 0.4 ft (0.13 m)<br>Exit temperature: 72.0 °F (22.25 °C) |

| Source ID No. | Sources | Control Equipment | Emission Point ID No. |
|---|---|---|---|
| MAU-F1<br>MAU-F2 | Make Up Air Unit (2 Identical Units):<br>Manufacturer: Rapid Engineering<br>Model: 4060AM<br>Construction Date: 2017<br>Heat input rating: 4.3 MMBtu/hr<br>Fuel: natural gas | Low $NO_x$ Burners | Exit height: 30.2 ft (9.2 m)<br>Exit diameter: 0.4 ft (0.13 m)<br>Exit temperature: 72.0 °F (22.25 °C) |
| UH-B1<br>UH-C1<br>UH-C2<br>UH-C3<br>UH-D1<br>UH-D2 | Emergency Shutdown Heaters (6 Identical Units):<br>Manufacturer: Modine<br>Model: PDP-150<br>Construction Date: 2015<br>Heat input rating: 150 Btu/hr<br>Fuel: natural gas | None | Exit height: 30.2 ft (9.2 m)<br>Exit diameter: 0.4 ft (0.13 m)<br>Exit temperature: 375.0 °F (190.55 °C) |
| UH-F1<br>UH-F2<br>UH-F3 | Emergency Shutdown Heaters (3 Identical Units):<br>Manufacturer: Modine<br>Model: PDP-150<br>Construction Date: 2017<br>Heat input rating: 150 Btu/hr<br>Fuel: natural gas | None | Exit height: 30.2 ft (9.2 m)<br>Exit diameter: 0.4 ft (0.13 m)<br>Exit temperature: 375.0 °F (190.55 °C) |
| GRINDER | Grinder:<br>Manufacturer: Warren and Baerg Manufacturing<br>Model: G254-26 GRINDER<br>Manufacture Date: 2015<br>Max. production: 43,000 lb/day | Cyclone[a] | Cyclone exhaust |
| SILO | Silo:<br>Manufacturer: CST Storage<br>Manufacture Date: 2015<br>Max. Capacity: 8,083 $ft^3$ | None | Silos are located outside of the building. Emissions pass through silo vents. |
| EXTRUDER | Extruder:<br>Manufacturer: Polytype OMV<br>Model: D140/E76 Extrusion/Thermoforming In-Line System<br>Construction Date: 2015<br>Max. Capacity: 2,500 lb/hr | None | Vent inside building |
| EMGEN | SI Emergency Engine:<br>Manufacturer: Olympian<br>Model: G80LG4-80<br>Construction Date: 2015<br>Maximum Horsepower: 127 bhp<br>Displacement: 0.99 L/cylinder<br>Fuel: natural gas | None | Exit height: 3.9 ft (1.2 m)<br>Exit diameter: 0.2 ft (0.06 m)<br>Exit flow rate: 636 cfm<br>Exit temperature: 1100.0 °F (593.35 °C) |

a) A cyclone is included in the schematic of the grinder, however the applicant did not take any credit for emission reductions associated with the cyclone.

## *Emissions Inventories*

**Potential to Emit**

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

Using this definition of Potential to Emit an emission inventory was developed for the food container manufacturing operations at the facility (see Appendix A) associated with this proposed project. Emissions estimates of criteria pollutant, GHG, HAP PTE were based on emission factors from AP-42, operation of 8,760 hours per year, and 500 hours per year for emergency equipment, and process information specific to the facility for this proposed project.

**Uncontrolled Potential to Emit**

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

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

The following table presents the uncontrolled Potential to Emit for regulated air pollutants as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. For this food container manufacturing operation uncontrolled Potential to Emit is based upon a worst-case for operation of the facility of 8,760 hr/yr (24 hr/day x 365 day/yr) and 500 hr/yr for emergency equipment.

**Table 2 UNCONTROLLED POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS**

| Source | $PM_{10}/PM_{2.5}$ | $SO_2$ | $NO_X$ | CO | VOC | $CO_2e$ |
|---|---|---|---|---|---|---|
| | T/yr | T/yr | T/yr | T/yr | T/yr | T/yr |
| **Point Sources** | | | | | | |
| Grinder | 0.118 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Silos | 0.00 | 0.00 | 0.00 | 0.00 | 0.219 | 0.00 |
| Extruder | 0.00 | 0.00 | 0.00 | 0.00 | 1.445 | 0.00 |
| Boiler B.1 | 0.206 | 0.016 | 2.428 | 2.272 | 0.149 | 3246.4 |
| Boiler B.2 | 0.206 | 0.016 | 2.428 | 2.272 | 0.149 | 3246.4 |
| Boiler B.3 | 0.110 | 0.009 | 1.443 | 1.212 | 0.079 | 1731.4 |
| Furnace FA1 | 0.002 | 0.0002 | 0.026 | 0.022 | 0.001 | 30.9 |
| Furnace FA2 | 0.002 | 0.0002 | 0.026 | 0.022 | 0.001 | 30.9 |
| Furnace FA3 | 0.001 | 0.0001 | 0.017 | 0.014 | 0.001 | 20.6 |
| Furnace FA4 | 0.002 | 0.0002 | 0.026 | 0.022 | 0.001 | 30.9 |
| Infrared Heater IRH.B1 | 0.007 | 0.001 | 0.086 | 0.072 | 0.005 | 103.1 |
| Infrared Heater IRH.B2 | 0.007 | 0.001 | 0.086 | 0.072 | 0.005 | 103.1 |
| Makeup Air Unit A1 | 0.140 | 0.011 | 0.923 | 1.551 | 0.102 | 2216.0 |
| Makeup Air Unit D1 | 0.140 | 0.011 | 0.923 | 1.551 | 0.102 | 2216.0 |
| Makeup Air Unit F1 | 0.140 | 0.011 | 0.923 | 1.551 | 0.102 | 2216.0 |
| Makeup Air Unit F2 | 0.140 | 0.011 | 0.923 | 1.551 | 0.102 | 2216.0 |
| Emergency Heater B1 | 0.0003 | 0.00002 | 0.004 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater C1 | 0.0003 | 0.00002 | 0.004 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater C2 | 0.0003 | 0.00002 | 0.004 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater C3 | 0.0003 | 0.00002 | 0.004 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater D1 | 0.0003 | 0.00002 | 0.004 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater D2 | 0.0003 | 0.00002 | 0.004 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater F1 | 0.0003 | 0.00002 | 0.004 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater F2 | 0.0003 | 0.00002 | 0.004 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater F3 | 0.0003 | 0.00002 | 0.004 | 0.003 | 0.0002 | 4.4 |
| IC Engine | 0.0026 | 0.00016 | 0.611 | 1.001 | 0.008 | 29.6 |
| **Total, Point Sources** | **1.23** | **0.09** | **10.91** | **13.21** | **2.47** | **17476.90** |

The following table presents the uncontrolled Potential to Emit for HAP pollutants as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. For this food container manufacturing operation uncontrolled Potential to Emit is based upon a worst-case for operation of the facility of 8,760 hr/yr (24 hr/day x 365 day/yr) and 500 hr/yr for emergency equipment. Then, the worst-case maximum HAP Potential to Emit was determined for this food container manufacturing operation.

Table 3 UNCONTROLLED POTENTIAL TO EMIT FOR HAZARDOUS AIR POLLUTANTS

| Hazardous Air Pollutants | PTE (T/yr) |
|---|---|
| Acrolein | 7.08E-04 |
| Chlorobenzene | 3.47E-06 |
| Chromium | 2.04E-04 |
| Cobalt | 1.22E-05 |
| 1,4-dichlorobenzene | 1.74E-04 |
| 1,2-dichloropropane | 3.50E-06 |
| Ethyl Benzene | 6.67E-06 |
| Hexane | 2.62E-01 |
| Manganese | 5.52E-05 |
| Methanol | 8.23E-04 |
| Naphthalene | 1.15E-04 |
| Selenium | 3.49E-06 |
| Styrene | 3.20E-06 |
| Toluene | 6.44E-04 |
| Xylene | 5.25E-05 |
| Acetaldehyde | 7.51E-04 |
| Arsenic | 2.91E-05 |
| Benzene | 7.30E-04 |
| Beryllium | 1.74E-06 |
| 1,3-Butadiene | 1.78E-04 |
| Cadmium | 1.60E-04 |
| Carbon Tetrachloride | 4.76E-06 |
| Chloroform | 3.69E-06 |
| 1,1-Dichloroethane | 3.04E-06 |
| 1,2-Dichloroethane | 3.04E-06 |
| 1,3-Dichloropropene | 3.42E-06 |
| Ethylene Dibromide | 5.73E-06 |
| Formaldehyde | 1.64E-02 |
| Methylene Chloride | 1.11E-05 |
| Nickel | 3.05E-04 |
| PAH | 4.91E-05 |
| POM | 3.96E-05 |
| 1,1,2,2-tetrachloroethane | 6.81E-06 |
| 1,1,2-trichloroethane | 4.12E-06 |
| Vinyl Chloride | 1.93E-06 |
| **Total** | **0.28** |

## Pre-Project Potential to Emit

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

This is a new facility. Therefore, pre-project emissions are set to zero for all criteria pollutants.

## Post Project Potential to Emit

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

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

**Table 4 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS**

| Source | $PM_{10}/PM_{2.5}$ | | $SO_2$ | | $NO_X$ | | CO | | VOC | $CO_2e$ |
|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr[(a)] | T/yr[(b)] | lb/hr[(a)] | T/yr[(b)] | lb/hr[(a)] | T/yr[(b)] | lb/hr[(a)] | T/yr[(b)] | T/yr[(b)] | T/yr[(b)] |
| Grinder | 0.027 | 0.118 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Silos | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.219 | 0.00 |
| Extruder | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.445 | 0.00 |
| Boiler B.1 | 0.047 | 0.206 | 0.004 | 0.016 | 0.554 | 2.428 | 0.519 | 2.272 | 0.149 | 3246.4 |
| Boiler B.2 | 0.047 | 0.206 | 0.004 | 0.016 | 0.554 | 2.428 | 0.519 | 2.272 | 0.149 | 3246.4 |
| Boiler B.3 | 0.025 | 0.110 | 0.002 | 0.009 | 0.329 | 1.443 | 0.277 | 1.212 | 0.079 | 1731.4 |
| Furnace FA1 | 0.0004 | 0.002 | 0.000 | 0.0002 | 0.006 | 0.026 | 0.005 | 0.022 | 0.001 | 30.9 |
| Furnace FA2 | 0.0004 | 0.002 | 0.000 | 0.0002 | 0.006 | 0.026 | 0.005 | 0.022 | 0.001 | 30.9 |
| Furnace FA3 | 0.0003 | 0.001 | 0.000 | 0.0001 | 0.004 | 0.017 | 0.003 | 0.014 | 0.001 | 20.6 |
| Furnace FA4 | 0.0004 | 0.002 | 0.000 | 0.0002 | 0.006 | 0.026 | 0.005 | 0.022 | 0.001 | 30.9 |
| Infrared Heater IRH.B1 | 0.0015 | 0.007 | 0.0001 | 0.001 | 0.020 | 0.086 | 0.016 | 0.072 | 0.005 | 103.1 |
| Infrared Heater IRH.B2 | 0.0015 | 0.007 | 0.0001 | 0.001 | 0.020 | 0.086 | 0.016 | 0.072 | 0.005 | 103.1 |
| Makeup Air Unit A1 | 0.032 | 0.140 | 0.003 | 0.011 | 0.211 | 0.923 | 0.354 | 1.551 | 0.102 | 2216.0 |
| Makeup Air Unit D1 | 0.032 | 0.140 | 0.003 | 0.011 | 0.211 | 0.923 | 0.354 | 1.551 | 0.102 | 2216.0 |
| Makeup Air Unit F1 | 0.032 | 0.140 | 0.003 | 0.011 | 0.211 | 0.923 | 0.354 | 1.551 | 0.102 | 2216.0 |
| Makeup Air Unit F2 | 0.032 | 0.140 | 0.003 | 0.011 | 0.211 | 0.923 | 0.354 | 1.551 | 0.102 | 2216.0 |
| Emergency Heater B1 | 0.0011 | 0.0003 | 0.0001 | 0.000 | 0.015 | 0.004 | 0.012 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater C1 | 0.0011 | 0.0003 | 0.0001 | 0.000 | 0.015 | 0.004 | 0.012 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater C2 | 0.0011 | 0.0003 | 0.0001 | 0.000 | 0.015 | 0.004 | 0.012 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater C3 | 0.0011 | 0.0003 | 0.0001 | 0.000 | 0.015 | 0.004 | 0.012 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater D1 | 0.0011 | 0.0003 | 0.0001 | 0.000 | 0.015 | 0.004 | 0.012 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater D2 | 0.0011 | 0.0003 | 0.0001 | 0.000 | 0.015 | 0.004 | 0.012 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater F1 | 0.0011 | 0.0003 | 0.0001 | 0.000 | 0.015 | 0.004 | 0.012 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater F2 | 0.0011 | 0.0003 | 0.0001 | 0.000 | 0.015 | 0.004 | 0.012 | 0.003 | 0.0002 | 4.4 |
| Emergency Heater F3 | 0.0011 | 0.0003 | 0.0001 | 0.000 | 0.015 | 0.004 | 0.012 | 0.003 | 0.0002 | 4.4 |
| IC Engine | 0.010 | 0.0005 | 0.0006 | 0.000 | | 0.122 | 4.003 | 0.200 | 0.002 | 5.9 |
| **Post Project Totals** | **0.30** | **1.22** | **0.02** | **0.09** | **2.48** | **10.42** | **6.89** | **12.41** | **2.47** | **17,453** |

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

## Change in Potential to Emit

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

**Table 5 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS**

| Source | $PM_{10}/PM_{2.5}$ | | $SO_2$ | | $NO_X$ | | CO | | VOC | $CO_2e$ |
|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | T/yr | T/yr |
| Pre-Project Potential to Emit | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Post Project Potential to Emit | 0.30 | 1.22 | 0.02 | 0.09 | 2.48 | 10.42 | 6.89 | 12.41 | 2.47 | 17453 |
| **Changes in Potential to Emit** | **0.30** | **1.22** | **0.02** | **0.09** | **2.48** | **10.42** | **6.89** | **12.41** | **2.47** | **17,453** |

## Non-Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of non-carcinogenic toxic air pollutants (TAP) is provided in the following table. Pre- and post-project, as well as the change in, non-carcinogenic TAP emissions are presented in the following table:

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

| Non-Carcinogenic Toxic Air Pollutants | Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr) | Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr) | Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr) | Non-Carcinogenic Screening Emission Level (lb/hr) | Exceeds Screening Level? (Y/N) |
|---|---|---|---|---|---|
| Barium | 0.00E-03 | 1.52E-04 | 0.0002 | 0.033 | No |
| Chromium | 0.00E-03 | 4.82E-05 | 0.0000 | 0.033 | No |
| Cobalt | 0.00E-03 | 2.89E-06 | 0.0000 | 0.0033 | No |
| Copper | 0.00E-03 | 2.93E-05 | 0.0000 | 0.013 | No |
| 1,4-Dichlorobenzene | 0.00E-03 | 4.13E-05 | 0.0000 | 30 | No |
| Hexane | 0.00E-03 | 6.20E-02 | 0.0620 | 12 | No |
| Manganese | 0.00E-03 | 1.31E-05 | 0.0000 | 0.067 | No |
| Molybdenum | 0.00E-03 | 3.79E-05 | 0.0000 | 0.333 | No |
| Naphthalene | 0.00E-03 | 2.10E-05 | 0.0000 | 3.33 | No |
| Pentane | 0.00E-03 | 8.96E-02 | 0.0896 | 118 | No |
| Selenium | 0.00E-03 | 8.27E-07 | 0.0000 | 0.013 | No |
| Toluene | 0.00E-03 | 1.17E-04 | 0.0001 | 25 | No |
| Vanadium | 0.00E-03 | 7.92E-05 | 0.0001 | 0.003 | No |
| Zinc | 0.00E-03 | 9.99E-04 | 0.0010 | 0.667 | No |

None of the PTEs for non-carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any non-carcinogenic TAP because none of the 24-hour average carcinogenic screening ELs identified in IDAPA 58.01.01.585 were exceeded.

## Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of carcinogenic toxic air pollutants (TAP) is provided in the following table. Pre- and post-project, as well as the change in, carcinogenic TAP emissions are presented in the following table:

**Table 7 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR CARCINOGENIC TOXIC AIR POLLUTANTS**

| Carcinogenic Toxic Air Pollutants | Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr) | Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr) | Change in Annual Average Emissions Rates for Units at the Facility (lb/hr) | Carcinogenic Screening Emission Level (lb/hr) | Exceeds Screening Level? (Y/N) |
|---|---|---|---|---|---|
| **Arsenic** | **0.00E-03** | **6.64E-06** | **0.0000** | **1.50E-06** | **Yes** |
| Benzene | 0.00E-03 | 6.97E-05 | 0.0001 | 8.00E-04 | No |
| Benzo(a)pyrene | 0.00E-03 | 3.98E-08 | 0.0000 | 2.00E-06 | No |
| Beryllium | 0.00E-03 | 3.98E-07 | 0.0000 | 2.80E-05 | No |
| **Cadmium** | **0.00E-03** | **3.65E-05** | **0.0000** | **3.70E-06** | **Yes** |
| **Formaldehyde** | **0.00E-03** | **2.49E-03** | **0.0025** | **5.10E-04** | **Yes** |
| 3-Methylchloranthrene | 0.00E-03 | 5.98E-08 | 0.0000 | 2.50E-06 | No |
| **Nickel** | **0.00E-03** | **6.97E-05** | **0.0001** | **2.70E-05** | **Yes** |
| PAH | 0.00E-03 | 2.55E-06 | 0.0000 | 9.10E-05 | No |
| POM | 0.00E-03 | 3.78E-07 | 0.0000 | 2.00E-06 | No |

a) Polycyclic Organic Matter (POM) is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. The total is compared to benzo(a)pyrene.

Some of the PTEs for carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is required for arsenic, cadmium, formaldehyde, and nickel because the annual average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

**Post Project HAP Emissions**

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

**Table 8 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY**

| Hazardous Air Pollutants | PTE (T/yr) |
|---|---|
| Acrolein | 1.42E-04 |
| Chlorobenzene | 6.94E-07 |
| Chromium | 2.04E-04 |
| Cobalt | 1.22E-05 |
| 1,4-dichlorobenzene | 1.74E-04 |
| 1,2-dichloropropane | 6.99E-07 |
| Ethyl Benzene | 1.33E-06 |
| Hexane | 2.62E-01 |
| Manganese | 5.52E-05 |
| Methanol | 1.65E-04 |
| Naphthalene | 9.39E-05 |
| Selenium | 3.49E-06 |
| Styrene | 6.40E-07 |
| Toluene | 5.24E-04 |
| Xylene | 1.05E-05 |
| Acetaldehyde | 1.50E-04 |
| Arsenic | 2.91E-05 |
| Benzene | 3.90E-04 |
| Beryllium | 1.74E-06 |
| 1,3-Butadiene | 3.57E-05 |
| Cadmium | 1.60E-04 |
| Carbon Tetrachloride | 9.52E-07 |
| Chloroform | 7.37E-07 |
| 1,1-Dichloroethane | 6.08E-07 |
| 1,2-Dichloroethane | 6.08E-07 |
| 1,3-Dichloropropene | 6.83E-07 |
| Ethylene Dibromide | 1.15E-06 |
| Formaldehyde | 1.20E-02 |
| Methylene Chloride | 2.22E-06 |
| Nickel | 3.05E-04 |
| PAH | 1.88E-05 |
| POM | 9.24E-06 |
| 1,1,2,2-tetrachloroethane | 1.36E-06 |
| 1,1,2-trichloroethane | 8.23E-07 |
| Vinyl Chloride | 3.86E-07 |
| **Totals** | **0.28** |

### *Ambient Air Quality Impact Analyses*

As presented in the Modeling Memo in Appendix B, the estimated emission rates of $PM_{10}$, $PM_{2.5}$, $NO_X$, and TAP from this project were exceeded applicable screening emission levels (EL) and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline[1]. Refer to the Emissions Inventories section for additional information concerning the emission inventories.

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

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

## REGULATORY ANALYSIS

### *Attainment Designation (40 CFR 81.313)*

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

### *Facility Classification*

The AIRS/AFS facility classification codes are as follows:

For THAPs (Total Hazardous Air Pollutants) Only:

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

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

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

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

UNK = Class is unknown

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

For All Other Pollutants:

A = Actual or potential emissions of a pollutant are ≥ 100 T/yr.

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

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

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

UNK = Class is unknown.

**Table 9 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION**

| Pollutant | Uncontrolled PTE (T/yr) | Permitted PTE (T/yr) | Major Source Thresholds (T/yr) | AIRS/AFS Classification |
|---|---|---|---|---|
| PM | 1.23 | 1.22 | **100** | B |
| $PM_{10}/PM_{2.5}$ | 1.23 | 1.22 | **100** | B |
| $SO_2$ | 0.09 | 0.09 | **100** | B |
| $NO_X$ | 10.91 | 10.42 | **100** | B |
| CO | 13.21 | 12.41 | **100** | B |
| VOC | 2.47 | 2.47 | **100** | B |
| HAP (single) | 0.26 | 0.26 | **10** | B |
| HAP (Total) | 0.28 | 0.28 | **25** | B |

## *Permit to Construct (IDAPA 58.01.01.201)*

IDAPA 58.01.01.201 ..... Permit to Construct Required

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

## *Tier II Operating Permit (IDAPA 58.01.01.401)*

IDAPA 58.01.01.401 ..... Tier II Operating Permit

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

## *Visible Emissions (IDAPA 58.01.01.625)*

IDAPA 58.01.01.625 ..... Visible Emissions

The sources of PM emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Conditions 2.3, 3.4, and 4.3.

## *Rules for Control of Fugitive Dust Emissions (IDAPA 58.01.01.650-651)*

IDAPA 58.01.01.650-651 ..... Rules for Control of Fugitive Dust

All Sources of fugitive dust emissions at the facility are subject to the State of Idaho rules for controlling fugitive dust. Reasonable precautions shall be taken to prevent particulate matter from becoming airborne. This requirement is assured by Permit Conditions 3.5, 3.10 and 3.11.

### *Standards for Minor and Existing Sources (IDAPA 58.01.01.677)*

IDAPA 58.01.01.677 ..... Standards for Minor and Existing Sources

The fuel burning equipment located at this facility, with a maximum rated input of less than ten (10) million BTU per hour, are subject to a particulate matter limitation of 0.015 gr/dscf of effluent gas corrected to 3% oxygen by volume when combusting gaseous fuels. Fuel-Burning Equipment is defined as any furnace, boiler, apparatus, stack and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer. This requirement is assured by Permit Conditions 2.4.

### *Particulate Matter – New Equipment Process Weight Limitations (IDAPA 58.01.01.701)*

IDAPA 58.01.01.701 ..... Particulate Matter – New Equipment Process Weight Limitations

IDAPA 58.01.01.700 through 703 set PM emission limits for process equipment based on when the piece of equipment commenced operation and the piece of equipment's process weight (PW) in pounds per hour (lb/hr). IDAPA 58.01.01.701 and IDAPA 58.01.01.702 establish PM emission limits for equipment that commenced operation on or after October 1, 1979 and for equipment operating prior to October 1, 1979, respectively.

For equipment that commenced operation on or after October 1, 1979, the PM allowable emission rate (E) is based on one of the following four equations:

IDAPA 58.01.01.701.01.a: If PW is $< 9{,}250$ lb/hr; $E = 0.045\ (PW)^{0.60}$

IDAPA 58.01.01.701.01.b: If PW is $\geq 9{,}250$ lb/hr; $E = 1.10\ (PW)^{0.25}$

For equipment that commenced prior to October 1, 1979, the PM allowable emission rate is based on one of the following equations:

IDAPA 58.01.01.702.01.a: If PW is $< 17{,}000$ lb/hr; $E = 0.045\ (PW)^{0.60}$

IDAPA 58.01.01.702.01.b: If PW is $\geq 17{,}000$ lb/hr; $E = 1.12\ (PW)^{0.27}$

For the new grinder emissions unit proposed to be installed as a result of this project with a proposed throughput of 43,000 lb/day, E is calculated as follows:

Proposed throughput = 43,000 lb/day x 1 day/24 hr = 1,791.67 lb/hr

Therefore, E is calculated as:

$E = 0.045 \times PW^{0.60} = 0.045 \times (1{,}791.67)^{0.60} = 4.03$ lb-PM/hr

As presented previously in the Emissions Inventories Section of this evaluation the post project PTE for this emissions unit is 0.027 lb-$PM_{10}$/hr. Assuming PM is 50% $PM_{10}$ means that PM emissions will be 0.054 lb-PM/hr (0.027 lb-$PM_{10}$/hr ÷ 0.5 lb-$PM_{10}$/lb-PM). Therefore, compliance with this requirement has been demonstrated.

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

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

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

### *PSD Classification (40 CFR 52.21)*

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

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

### *NSPS Applicability (40 CFR 60)*

Because the facility operates one spark-ignited IC engine the following NSPS requirements may apply to this facility:

- 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. DEQ is delegated this Subpart.

The applicable sections are highlighted.

§ 60.4230 ..... Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (6) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

(1) Manufacturers of stationary SI ICE with a maximum engine power less than or equal to 19 kilowatt (KW) (25 horsepower (HP)) that are manufactured on or after July 1, 2008.

(2) Manufacturers of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are gasoline fueled or that are rich burn engines fueled by liquefied petroleum gas (LPG), where the date of manufacture is:

(i) On or after July 1, 2008; or

(ii) On or after January 1, 2009, for emergency engines.

(3) Manufacturers of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are not gasoline fueled and are not rich burn engines fueled by LPG, where the manufacturer participates in the voluntary manufacturer certification program described in this subpart and where the date of manufacture is:

(i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

(ii) On or after January 1, 2008, for lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP;

(iii) On or after July 1, 2008, for engines with a maximum engine power less than 500 HP; or

(iv) On or after January 1, 2009, for emergency engines.

(4) Owners and operators of stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE are manufactured:

(i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

(ii) on or after January 1, 2008, for lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP;

(iii) on or after July 1, 2008, for engines with a maximum engine power less than 500 HP; or

(iv) on or after January 1, 2009, for emergency engines with a maximum engine power greater than 19 KW (25 HP).

*Fabri-Kal owns and operates an emergency SI internal combustion engine with a site rating of 127 brake horsepower that commenced construction after June 12, 2006 and was manufactured after January 1, 2009.*

(5) Owners and operators of stationary SI ICE that are modified or reconstructed after June 12, 2006, and any person that modifies or reconstructs any stationary SI ICE after June 12, 2006.

(6) The provisions of §60.4236 of this subpart are applicable to all owners and operators of stationary SI ICE that commence construction after June 12, 2006.

(b) The provisions of this subpart are not applicable to stationary SI ICE being tested at an engine test cell/stand.

(c) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable.

(d) For the purposes of this subpart, stationary SI ICE using alcohol-based fuels are considered gasoline engines.

(e) Stationary SI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR parts 90 and 1048, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security.

(f) Owners and operators of facilities with internal combustion engines that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines.

§ 60.4231 ..... What emission standards must I meet if I am a manufacturer of stationary SI internal combustion engines or equipment containing such engines?

*Fabri-Kal is not a manufacturer of stationary SI internal combustion engines or equipment containing such engines. Therefore, this section does not apply.*

§ 60.4232 ..... How long must my engines meet the emission standards if I am a manufacturer of stationary SI internal combustion engines?

*Fabri-Kal is not a manufacturer of stationary SI internal combustion engines. Therefore, this section does not apply.*

§ 60.4233 ..... What emission standards must I meet if I am an owner or operator of a stationary SI internal combustion engine?

(a) Owners and operators of stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP) manufactured on or after July 1, 2008, must comply with the emission standards in §60.4231(a) for their stationary SI ICE.

(b) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) manufactured on or after the applicable date in §60.4230(a)(4) that use gasoline must comply with the emission standards in §60.4231(b) for their stationary SI ICE.

(c) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) manufactured on or after the applicable date in §60.4230(a)(4) that are rich burn engines that use LPG must comply with the emission standards in §60.4231(c) for their stationary SI ICE.

(d) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards for field testing in 40 CFR 1048.101(c) for their non-emergency stationary SI ICE and with the emission standards in Table 1 to this subpart for their emergency stationary SI ICE. Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) manufactured prior to January 1, 2011, that were certified to the standards in Table 1 to this subpart applicable to engines with a maximum engine power greater than or equal to 100 HP and less than 500 HP, may optionally choose to meet those standards.

(e) Owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards in Table 1 to this subpart for their stationary SI ICE. For owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 100 HP (except gasoline and rich burn engines that use LPG) manufactured prior to January 1, 2011 that were certified to the certification emission standards in 40 CFR part 1048 applicable to engines that are not severe duty engines, if such stationary SI ICE was certified to a carbon monoxide (CO) standard above the standard in Table 1 to this subpart, then the owners and operators may meet the CO certification (not field testing) standard for which the engine was certified.

**Summary of Table 1 to Subpart JJJJ of Part 60—$NO_X$, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP**

| Engine type and fuel | Maximum engine power | Manufacture date | Emission standards[a] | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | g/HP-hr | | | ppmvd at 15% $O_2$ | | |
| | | | $NO_X$ | CO | VOC[d] | $NO_X$ | CO | VOC[d] |
| Emergency | 25<HP<130 | 1/1/2009 | [c]10 | 387 | N/A | N/A | N/A | N/A |

[a]Owners and operators of stationary non-certified SI engines may choose to comply with the emission standards in units of either g/HP-hr or ppmvd at 15 percent $O_2$.

[b]Owners and operators of new or reconstructed non-emergency lean burn SI stationary engines with a site rating of greater than or equal to 250 brake HP located at a major source that are meeting the requirements of 40 CFR part 63, subpart ZZZZ, Table 2a do not have to comply with the CO emission standards of Table 1 of this subpart.

[c]The emission standards applicable to emergency engines between 25 HP and 130 HP are in terms of $NO_X$ + HC.

[d]For purposes of this subpart, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

*Fabri-Kal owns and operates a stationary SI internal combustion engine with a maximum engine power of greater than 100 horsepower and must comply with the emissions standards in Table 1. This is assured by Permit Condition 5.1.*

(f) Owners and operators of any modified or reconstructed stationary SI ICE subject to this subpart must meet the requirements as specified in paragraphs (f)(1) through (5) of this section.

(1) Owners and operators of stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with emission standards in §60.4231(a) for their stationary SI ICE. Engines with a date of manufacture prior to July 1, 2008 must comply with the emission standards specified in §60.4231(a) applicable to engines manufactured on July 1, 2008.

(2) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are gasoline engines and are modified or reconstructed after June 12, 2006, must comply with the emission standards in §60.4231(b) for their stationary SI ICE. Engines with a date of manufacture prior to July 1, 2008 (or January 1, 2009 for emergency engines) must comply with the emission standards specified in §60.4231(b) applicable to engines manufactured on July 1, 2008 (or January 1, 2009 for emergency engines).

(3) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are rich burn engines that use LPG, that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in §60.4231(c). Engines with a date of manufacture prior to July 1, 2008 (or January 1, 2009 for emergency engines) must comply with the emission standards specified in §60.4231(c) applicable to engines manufactured on July 1, 2008 (or January 1, 2009 for emergency engines).

(4) Owners and operators of stationary SI natural gas and lean burn LPG engines with a maximum engine power greater than 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in paragraph (d) or (e) of this section, except that such owners and operators of non-emergency engines and emergency engines greater than or equal to 130 HP must meet a nitrogen oxides (NOX) emission standard of 3.0 grams per HP-hour (g/HP-hr), a CO emission standard of 4.0 g/HP-hr (5.0 g/HP-hr for non-emergency engines less than 100 HP), and a volatile organic compounds (VOC) emission standard of 1.0 g/HP-hr, or a NOX emission standard of 250 ppmvd at 15 percent oxygen (O2), a CO emission standard 540 ppmvd at 15 percent O2 (675 ppmvd at 15 percent O2 for non-emergency engines less than 100 HP), and a VOC emission standard of 86 ppmvd at 15 percent O2, where the date of manufacture of the engine is:

(i) Prior to July 1, 2007, for non-emergency engines with a maximum engine power greater than or equal to 500 HP (except lean burn natural gas engines and LPG engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

(ii) Prior to July 1, 2008, for non-emergency engines with a maximum engine power less than 500 HP;

(iii) Prior to January 1, 2009, for emergency engines;

(iv) Prior to January 1, 2008, for non-emergency lean burn natural gas engines and LPG engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP.

(5) Owners and operators of stationary SI landfill/digester gas ICE engines with a maximum engine power greater than 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in paragraph (e) of this section for stationary landfill/digester gas engines. Engines with maximum engine power less than 500 HP and a date of manufacture prior to July 1, 2008 must comply with the emission standards specified in paragraph (e) of this section for stationary landfill/digester gas ICE with a maximum engine power less than 500 HP manufactured on July 1, 2008. Engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines greater than or equal to 500 HP and less than 1,350 HP) and a date of manufacture prior to July 1, 2007 must comply with the emission standards specified in paragraph (e) of this section for stationary landfill/digester gas ICE with a maximum engine power greater than or equal to 500 HP (except lean burn engines greater than or equal to 500 HP and less than 1,350 HP) manufactured on July 1, 2007. Lean burn engines greater than or equal to 500 HP and less than 1,350 HP with a date of manufacture prior to January 1, 2008 must comply with the emission standards specified in paragraph (e) of this section for stationary landfill/digester gas ICE that are lean burn engines greater than or equal to 500 HP and less than 1,350 HP and manufactured on January 1, 2008.

(g) Owners and operators of stationary SI wellhead gas ICE engines may petition the Administrator for approval on a case-by-case basis to meet emission standards no less stringent than the emission standards that apply to stationary emergency SI engines greater than 25 HP and less than 130 HP due to the presence of high sulfur levels in the fuel, as specified in Table 1 to this subpart. The request must, at a minimum, demonstrate that the fuel has high sulfur levels that prevent the use of aftertreatment controls and also that the owner has reasonably made all attempts possible to obtain an engine that will meet the standards without the use of aftertreatment controls. The petition must request the most stringent standards reasonably applicable to the engine using the fuel.

(h) Owners and operators of stationary SI ICE that are required to meet standards that reference 40 CFR 1048.101 must, if testing their engines in use, meet the standards in that section applicable to field testing, except as indicated in paragraph (e) of this section.

*Fabri-Kal must meet the standards in Table 1 of Subpart JJJJ and are not required to conduct performance tests to meet the standards.*

§ 60.4234 ..... How long must I meet the emission standards if I am an owner or operator of a stationary SI internal combustion engine?

Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in §60.4233 over the entire life of the engine.

*Fabri-Kal is an owner and operator of stationary SI internal combustion subject to requirements in §60.4233 and is required to comply with this section. This is assured by Permit Condition 5.2.*

§ 60.4235 ..... What fuel requirements must I meet if I am an owner or operator of a stationary SI gasoline fired internal combustion engine subject to this subpart?

Owners and operators of stationary SI ICE subject to this subpart that use gasoline must use gasoline that meets the per gallon sulfur limit in 40 CFR 80.195.

§ 60.4236 ..... What is the deadline for importing or installing stationary SI ICE produced in previous model years?

(a) After July 1, 2010, owners and operators may not install stationary SI ICE with a maximum engine power of less than 500 HP that do not meet the applicable requirements in §60.4233.

(b) After July 1, 2009, owners and operators may not install stationary SI ICE with a maximum engine power of greater than or equal to 500 HP that do not meet the applicable requirements in §60.4233, except that lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP that do not meet the applicable requirements in §60.4233 may not be installed after January 1, 2010.

(c) For emergency stationary SI ICE with a maximum engine power of greater than 19 KW (25 HP), owners and operators may not install engines that do not meet the applicable requirements in §60.4233 after January 1, 2011.

*Fabri-Kal owns and operates a stationary SI internal combustion engine with a maximum engine power of greater than 25 horsepower that will be installed after January 1, 2011. This is assured by Permit Condition 5.4.*

(d) In addition to the requirements specified in §§60.4231 and 60.4233, it is prohibited to import stationary SI ICE less than or equal to 19 KW (25 HP), stationary rich burn LPG SI ICE, and stationary gasoline SI ICE that do not meet the applicable requirements specified in paragraphs (a), (b), and (c) of this section, after the date specified in paragraph (a), (b), and (c) of this section.

(e) The requirements of this section do not apply to owners and operators of stationary SI ICE that have been modified or reconstructed, and they do not apply to engines that were removed from one existing location and reinstalled at a new location.

§ 60.4237 ..... What are the monitoring requirements if I am an owner or operator of an emergency stationary SI internal combustion engine?

(a) Starting on July 1, 2010, if the emergency stationary SI internal combustion engine that is greater than or equal to 500 HP that was built on or after July 1, 2010, does not meet the standards applicable to non-emergency engines, the owner or operator must install a non-resettable hour meter.

(b) Starting on January 1, 2011, if the emergency stationary SI internal combustion engine that is greater than or equal to 130 HP and less than 500 HP that was built on or after January 1, 2011, does not meet the standards applicable to non-emergency engines, the owner or operator must install a non-resettable hour meter.

(c) If you are an owner or operator of an emergency stationary SI internal combustion engine that is less than 130 HP, was built on or after July 1, 2008, and does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter upon startup of your emergency engine.

*Fabri-Kal owns and operates an emergency stationary SI internal combustion engine that is less than 130 horsepower, was built after July 1, 2008 and does not meet the standards for non-emergency engines. Therefore this section is applicable and is assured by Permit Condition 5.3.*

§ 60.4238 ..... What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines ≤19 KW (25 HP) or a manufacturer of equipment containing such engines?

*Fabri-Kal is not a manufacturer of stationary SI internal combustion engines or equipment containing such engines. Therefore, this section does not apply.*

§ 60.4239 ..... What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines >19 KW (25 HP) that use gasoline or a manufacturer of equipment containing such engines?

*Fabri-Kal is not a manufacturer of stationary SI internal combustion engines or equipment containing such engines. Therefore, this section does not apply.*

§ 60.4240 ..... What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines >19 KW (25 HP) that are rich burn engines that use LPG or a manufacturer of equipment containing such engines?

*Fabri-Kal is not a manufacturer of stationary SI internal combustion engines or equipment containing such engines. Therefore, this section does not apply.*

§ 60.4241 ..... What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines participating in the voluntary certification program or a manufacturer of equipment containing such engines?

*Fabri-Kal is not a manufacturer of stationary SI internal combustion engines or equipment containing such engines. Therefore, this section does not apply.*

§ 60.4242 ..... What other requirements must I meet if I am a manufacturer of stationary SI internal combustion engines or equipment containing stationary SI internal combustion engines or a manufacturer of equipment containing such engines?

*Fabri-Kal is not a manufacturer of stationary SI internal combustion engines or equipment containing such engines. Therefore, this section does not apply.*

§ 60.4243 ..... What are my compliance requirements if I am an owner or operator of a stationary SI internal combustion engine?

(a) If you are an owner or operator of a stationary SI internal combustion engine that is manufactured after July 1, 2008, and must comply with the emission standards specified in §60.4233(a) through (c), you must comply by purchasing an engine certified to the emission standards in §60.4231(a) through (c), as applicable, for the same engine class and maximum engine power. In addition, you must meet one of the requirements specified in (a)(1) and (2) of this section.

(1) If you operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, you must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required if you are an owner or operator. You must also meet the requirements as specified in 40 CFR part 1068, subparts A through D, as they apply to you. If you adjust engine settings according to and consistent with the manufacturer's instructions, your stationary SI internal combustion engine will not be considered out of compliance.

(2) If you do not operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, your engine will be considered a non-certified engine, and you must demonstrate compliance according to (a)(2)(i) through (iii) of this section, as appropriate.

(i) If you are an owner or operator of a stationary SI internal combustion engine less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions, but no performance testing is required if you are an owner or operator.

(ii) If you are an owner or operator of a stationary SI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test within 1 year of engine startup to demonstrate compliance.

(iii) If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test within 1 year of engine startup and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

(b) If you are an owner or operator of a stationary SI internal combustion engine and must comply with the emission standards specified in §60.4233(d) or (e), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) and (2) of this section.

(1) Purchasing an engine certified according to procedures specified in this subpart, for the same model year and demonstrating compliance according to one of the methods specified in paragraph (a) of this section.

*Fabri-Kal is an owner and operator of a stationary SI internal combustion engine and has purchased an engine complying with the requirements of this section and paragraph (a)(1) as referenced in (b)(1). This is assured by permit condition 5.4.*

(2) Purchasing a non-certified engine and demonstrating compliance with the emission standards specified in §60.4233(d) or (e) and according to the requirements specified in §60.4244, as applicable, and according to paragraphs (b)(2)(i) and (ii) of this section.

(i) If you are an owner or operator of a stationary SI internal combustion engine greater than 25 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance.

(ii) If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

(c) If you are an owner or operator of a stationary SI internal combustion engine that must comply with the emission standards specified in §60.4233(f), you must demonstrate compliance according paragraph (b)(2)(i) or (ii) of this section, except that if you comply according to paragraph (b)(2)(i) of this section, you demonstrate that your non-certified engine complies with the emission standards specified in §60.4233(f).

(d) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (d)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (d)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (d)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.

(2) You may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (d)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (d)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (d)(2).

(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.

(ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (d)(2) of this section. Except as provided in paragraph (d)(3)(i) of this section, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

(ii) [Reserved]

(e) Owners and operators of stationary SI natural gas fired engines may operate their engines using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but must keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, the owners and operators are required to conduct a performance test to demonstrate compliance with the emission standards of §60.4233.

*Fabri-Kal owns and operates an emergency SI internal combustion engine and is subject to the above requirements to be considered an emergency engine. This is assured by Permit Condition 5.5.*

(f) If you are an owner or operator of a stationary SI internal combustion engine that is less than or equal to 500 HP and you purchase a non-certified engine or you do not operate and maintain your certified stationary SI internal combustion engine and control device according to the manufacturer's written emission-related instructions, you are required to perform initial performance testing as indicated in this section, but you are not required to conduct subsequent performance testing unless the stationary engine is rebuilt or undergoes major repair or maintenance. A rebuilt stationary SI ICE means an engine that has been rebuilt as that term is defined in 40 CFR 94.11(a).

(g) It is expected that air-to-fuel ratio controllers will be used with the operation of three-way catalysts/non-selective catalytic reduction. The AFR controller must be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.

(h) If you are an owner/operator of an stationary SI internal combustion engine with maximum engine power greater than or equal to 500 HP that is manufactured after July 1, 2007 and before July 1, 2008, and must comply with the emission standards specified in sections 60.4233(b) or (c), you must comply by one of the methods specified in paragraphs (h)(1) through (h)(4) of this section.

(1) Purchasing an engine certified according to 40 CFR part 1048. The engine must be installed and configured according to the manufacturer's specifications.

(2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

(3) Keeping records of engine manufacturer data indicating compliance with the standards.

(4) Keeping records of control device vendor data indicating compliance with the standards.

(i) If you are an owner or operator of a modified or reconstructed stationary SI internal combustion engine and must comply with the emission standards specified in §60.4233(f), you must demonstrate compliance according to one of the methods specified in paragraphs (i)(1) or (2) of this section.

(1) Purchasing, or otherwise owning or operating, an engine certified to the emission standards in §60.4233(f), as applicable.

(2) Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in §60.4244. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction.

§ 60.4244 ..... What test methods and other procedures must I use if I am an owner or operator of a stationary SI internal combustion engine?

Owners and operators of stationary SI ICE who conduct performance tests must follow the procedures in paragraphs (a) through (f) of this section.

*Fabri-Kal owns and operates an emergency SI internal combustion engine that is not directly subject to performance testing requirements. If a performance test does become required the facility must conduct it in accordance with this Subpart.*

(a) Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in §60.8 and under the specific conditions that are specified by Table 2 to this subpart.

(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §60.8(c). If your stationary SI internal combustion engine is non-operational, you do not need to startup the engine solely to conduct a performance test; however, you must conduct the performance test immediately upon startup of the engine.

(c) You must conduct three separate test runs for each performance test required in this section, as specified in §60.8(f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour.

(d) To determine compliance with the NOX mass per unit output emission limitation, convert the concentration of NOX in the engine exhaust using Equation 1 of this section:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{HP - hr} \qquad \text{(Eq. 1)}$$

Where:

ER = Emission rate of NOX in g/HP-hr.

Cd = Measured NOX concentration in parts per million by volume (ppmv).

1.912 × 10−3 = Conversion constant for ppm NOX to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, horsepower-hour (HP-hr).

(e) To determine compliance with the CO mass per unit output emission limitation, convert the concentration of CO in the engine exhaust using Equation 2 of this section:

$$ER = \frac{C_d \times 1.164 \times 10^{-3} \times Q \times T}{HP - hr} \quad \text{(Eq. 2)}$$

Where:

ER = Emission rate of CO in g/HP-hr.

Cd = Measured CO concentration in ppmv.

1.164 × 10−3 = Conversion constant for ppm CO to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

(f) For purposes of this subpart, when calculating emissions of VOC, emissions of formaldehyde should not be included. To determine compliance with the VOC mass per unit output emission limitation, convert the concentration of VOC in the engine exhaust using Equation 3 of this section:

$$ER = \frac{C_d \times 1.833 \times 10^{-3} \times Q \times T}{HP - hr} \quad \text{(Eq. 3)}$$

Where:

ER = Emission rate of VOC in g/HP-hr.

Cd = VOC concentration measured as propane in ppmv.

1.833 × 10−3 = Conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

(g) If the owner/operator chooses to measure VOC emissions using either Method 18 of 40 CFR part 60, appendix A, or Method 320 of 40 CFR part 63, appendix A, then it has the option of correcting the measured VOC emissions to account for the potential differences in measured values between these methods and Method 25A. The results from Method 18 and Method 320 can be corrected for response factor differences using Equations 4 and 5 of this section. The corrected VOC concentration can then be placed on a propane basis using Equation 6 of this section.

$$RF_i = \frac{C_{Mi}}{C_{Ai}} \quad \text{(Eq. 4)}$$

Where:

RFi = Response factor of compound i when measured with EPA Method 25A.

CMi = Measured concentration of compound i in ppmv as carbon.

CAi = True concentration of compound i in ppmv as carbon.

$$C_{imc} = RF_i \times C_{imw} \quad \text{(Eq. 5)}$$

Where:

Cicorr = Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

Cimeas = Concentration of compound i measured by EPA Method 320, ppmv as carbon.

$C_{Peq} = 0.6098 \times C_{icorr}$ (Eq. 6)

Where:

CPeq = Concentration of compound i in mg of propane equivalent per DSCM.

§ 60.4245 ..... What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary SI internal combustion engine?

Owners or operators of stationary SI ICE must meet the following notification, reporting and recordkeeping requirements.

(a) Owners and operators of all stationary SI ICE must keep records of the information in paragraphs (a)(1) through (4) of this section.

(1) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(2) Maintenance conducted on the engine.

(3) If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 90, 1048, 1054, and 1060, as applicable.

(4) If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to §60.4243(a)(2), documentation that the engine meets the emission standards.

*Fabri-Kal is subject to this Subpart and is required to maintain records as outlined above. This is assured by Permit Condition 5.6.*

(b) For all stationary SI emergency ICE greater than or equal to 500 HP manufactured on or after July 1, 2010, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than or equal to 130 HP and less than 500 HP manufactured on or after July 1, 2011 that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than 25 HP and less than 130 HP manufactured on or after July 1, 2008, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

*Fabri-Kal owns and operates a stationary SI internal combustion engine with a rating of 127 horsepower manufactured after July 1, 2008 and does not meet the standards for non-emergency engines. The facility is required to keep records of hours of operation assured by Permit Condition 5.6.*

(c) Owners and operators of stationary SI ICE greater than or equal to 500 HP that have not been certified by an engine manufacturer to meet the emission standards in §60.4231 must submit an initial notification as required in §60.7(a)(1). The notification must include the information in paragraphs (c)(1) through (5) of this section.

(1) Name and address of the owner or operator;

(2) The address of the affected source;

(3) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(4) Emission control equipment; and

(5) Fuel used.

(d) Owners and operators of stationary SI ICE that are subject to performance testing must submit a copy of each performance test as conducted in §60.4244 within 60 days after the test has been completed.

(e) If you own or operate an emergency stationary SI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §60.4243(d)(2)(ii) and (iii) or that operates for the purposes specified in §60.4243(d)(3)(i), you must submit an annual report according to the requirements in paragraphs (e)(1) through (3) of this section.

(1) The report must contain the following information:

(i) Company name and address where the engine is located.

(ii) Date of the report and beginning and ending dates of the reporting period.

(iii) Engine site rating and model year.

(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(v) Hours operated for the purposes specified in §60.4243(d)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in §60.4243(d)(2)(ii) and (iii).

(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in §60.4243(d)(2)(ii) and (iii).

(vii) Hours spent for operation for the purposes specified in §60.4243(d)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in §60.4243(d)(3)(i). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in §60.4.

§ 60.4246 ..... What parts of the General Provisions apply to me?

Table 3 to this subpart shows which parts of the General Provisions in §§60.1 through 60.19 apply to you.

**Table 3 to Subpart JJJJ of Part 60—Applicability of General Provisions to Subpart JJJJ**

| General provisions citation | Subject of citation | Applies to subpart | Explanation |
|---|---|---|---|
| §60.1 | General applicability of the General Provisions | Yes | |
| §60.2 | Definitions | Yes | Additional terms defined in §60.4248. |
| §60.3 | Units and abbreviations | Yes | |

| | | | |
|---|---|---|---|
| §60.4 | Address | Yes | |
| §60.5 | Determination of construction or modification | Yes | |
| §60.6 | Review of plans | Yes | |
| §60.7 | Notification and Recordkeeping | Yes | Except that §60.7 only applies as specified in §60.4245. |
| §60.8 | Performance tests | Yes | Except that §60.8 only applies to owners and operators who are subject to performance testing in subpart JJJJ. |
| §60.9 | Availability of information | Yes | |
| §60.10 | State Authority | Yes | |
| §60.11 | Compliance with standards and maintenance requirements | Yes | Requirements are specified in subpart JJJJ. |
| §60.12 | Circumvention | Yes | |
| §60.13 | Monitoring requirements | No | |
| §60.14 | Modification | Yes | |
| §60.15 | Reconstruction | Yes | |
| §60.16 | Priority list | Yes | |
| §60.17 | Incorporations by reference | Yes | |
| §60.18 | General control device requirements | No | |
| §60.19 | General notification and reporting requirements | | |

*The General Provisions the emergency engine operated by Fabri-Kal is subject to are assured by Permit Condition 5.7.*

§ 60.4247 ..... What parts of the mobile source provisions apply to me if I am a manufacturer of stationary SI internal combustion engines or a manufacturer of equipment containing such engines?

*Fabri-Kal is not a manufacturer of stationary SI internal combustion engines or equipment containing such engines. Therefore, this section does not apply.*

§ 60.4248 ..... What definitions apply to this subpart?

*The definitions of this Subpart apply and no further discussion is required.*

### *NESHAP Applicability (40 CFR 61)*

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

### *MACT Applicability (40 CFR 63)*

Because the facility operates one spark-ignited IC engine the following NESHAP requirements may apply to this facility:

- 40 CFR 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants. DEQ is delegated this Subpart.

The applicable sections are highlighted.

§ 63.6580 ..... What is the purpose of this subpart?

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

§ 63.6585 ..... Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

*Fabri-Kal owns and operates a stationary RICE located at an area source of HAP emissions. Therefore this Subpart is applicable.*

(a) A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

(b) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.

(c) An area source of HAP emissions is a source that is not a major source.

(d) If you are an owner or operator of an area source subject to this subpart, your status as an entity subject to a standard or other requirements under this subpart does not subject you to the obligation to obtain a permit under 40 CFR part 70 or 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable.

(e) If you are an owner or operator of a stationary RICE used for national security purposes, you may be eligible to request an exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C.

(f) The emergency stationary RICE listed in paragraphs (f)(1) through (3) of this section are not subject to this subpart. The stationary RICE must meet the definition of an emergency stationary RICE in §63.6675, which includes operating according to the provisions specified in §63.6640(f).

(1) Existing residential emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(2) Existing commercial emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(3) Existing institutional emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

§ 63.6590 ..... Am I subject to this subpart?

This subpart applies to each affected source.

(a) Affected source. An affected source is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.

(1) Existing stationary RICE.

(i) For stationary RICE with a site rating of more than 500 brake horsepower (HP) located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before December 19, 2002.

(ii) For stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iii) For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iv) A change in ownership of an existing stationary RICE does not make that stationary RICE a new or reconstructed stationary RICE.

(2) New stationary RICE.

(i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

*The emergency SI internal combustion engine operated by Fabri-Kal was constructed after June 12, 2006 and is an affected source under this Subpart.*

(3) Reconstructed stationary RICE.

(i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(b) Stationary RICE subject to limited requirements.

(1) An affected source which meets either of the criteria in paragraphs (b)(1)(i) through (ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(f).

(i) The stationary RICE is a new or reconstructed emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(ii) The stationary RICE is a new or reconstructed limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(2) A new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis must meet the initial notification requirements of §63.6645(f) and the requirements of §§63.6625(c), 63.6650(g), and 63.6655(c). These stationary RICE do not have to meet the emission limitations and operating limitations of this subpart.

(3) The following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements:

(i) Existing spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(ii) Existing spark ignition 4 stroke lean burn (4SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(iii) Existing emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(iv) Existing limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(v) Existing stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(c) Stationary RICE subject to Regulations under 40 CFR Part 60. An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

(1) A new or reconstructed stationary RICE located at an area source;

(2) A new or reconstructed 2SLB stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(3) A new or reconstructed 4SLB stationary RICE with a site rating of less than 250 brake HP located at a major source of HAP emissions;

(4) A new or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(5) A new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(6) A new or reconstructed emergency or limited use stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(7) A new or reconstructed compression ignition (CI) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

*Fabri-Kal owns and operates an emergency stationary SI internal combustion engine located at an area source of HAP emissions. Therefore compliance with 40 CFR 63 Subpart ZZZZ is shown by complying with the requirements of 40 CFR 60 Subpart JJJJ and no further requirements apply for the engine under this Subpart*

### *Permit Conditions Review*

This section describes the permit conditions for this initial permit.

Initial Permit Condition 1.1

This Permit Condition identifies the scope of this permitting action.

Initial Permit Condition Table 1.1

This table identifies all of the regulated sources located at the facility covered by this permitting action and establishes fuel requirements for units not addressed in the permit to be protective of the $NO_2$ 1-hour NAAQS limit.

Initial Permit Condition 2.1

A process description of the boilers is outlined in this condition.

Initial Permit Condition 2.2

This initial permit condition outlines the control equipment associated with boilers and identifies their corresponding emission points.

Initial Permit Condition 2.3

The permittee shall not emit from any other stack, vent, or functionally equivalent opening associated with the boilers, emissions in excess of 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period. This condition is established in accordance with IDAPA 58.01.01.625.

Initial Permit Condition 2.4

The two Hurst Boilers and Columbia boiler are subject to particulate matter standards in accordance with IDAPA 58.01.01.677. This rule establishes limits in gr/dscf corrected to 3% oxygen for fuel burning equipment with a maximum heat input rating of less than 10 MMBtu/hr.

Initial Permit Condition 2.5

The two Hurst Boilers and Columbia boiler are limited to natural gas as a fuel. The permittee applied for the permit assuming 8760 hours of operation per year combusting natural gas. There are no emission limits or fuel usage limits aside from type of fuel combusted. Because all modeled parameters shown in this Statement of Basis and the modeling memo include the fulltime operation of these boilers emission limits would be redundant.

Initial Permit Condition 3.1

A process description of the grinder, extruder, and storage silos is included in this condition.

Initial Permit Condition 3.2

This initial permit condition outlines the control equipment associated with the material processing equipment.

Initial Permit Condition 3.3

The permittee is limited to the emission limits shown in this condition. The particulate matter limits established for the grinder were used in the modeling assessment and were based on throughput limitations. VOC emissions from the extruder and silo were not modeled however these limits are based on the certain polypropylene pellet that was used in the application. Establishing these limits allows the permittee the flexibility to choose different polypropylene pellets and still maintain compliance.

Initial Permit Condition 3.4

The permittee shall not emit from any other stack, vent, or functionally equivalent opening associated with the material processing equipment, emissions in excess of 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period. This condition is established in accordance with IDAPA 58.01.01.625.

Initial Permit Condition 3.5

The permittee is required to take all reasonable precautions to prevent particulate matter from becoming airborne in accordance with IDAPA 58.01.01.650-651. This condition was established as it was requested in the state regulatory review. The grinding operation has the potential to be a dusty source and so does the polypropylene handling units.

Initial Permit Condition 3.6

The permittee is limited to a throughput of 43,800 T/yr for the silo and 43,800 T/yr for the extruder. This condition was established to ensure the VOC limits would not be exceeded.

Initial Permit Condition 3.7

The permittee is limited to a throughput of 43,000 lbs/day and 15,695,000 T/yr of agricultural material in the grinder. This condition was established to ensure compliance with the particulate matter emissions limits.

Initial Permit Condition 3.8

The permittee is required to monitor the polypropylene pellet throughput in tons per month to demonstrate compliance with the polypropylene throughput limits.

Initial Permit Condition 3.9

The permittee is required to monitor daily and monthly agricultural throughput material in the grinder to show compliance with the agricultural material throughput limits condition. The permittee is required to keep a rolling 12 month average of the total throughput through the grinder to demonstrate compliance with the throughput limits permit condition.

Initial Permit Condition 3.10

This permit condition was established to show compliance with the reasonable control of fugitive emission permit condition. It establishes monthly recording requirements because the facility is not a considerably dusty source.

Initial Permit Condition 3.11

Fugitive dust monitoring conditions were established to be protective of IDAPA 58.01.01.650-651 and establish minimum requirements for the frequency of monitoring and recordkeeping requirements.

Initial Permit Condition 4.1

A process description of the emergency shutdown heaters is established with the condition.

Initial Permit Condition 4.2

This initial permit condition outlines the control equipment associated with the emergency shutdown heaters.

Initial Permit Condition 4.3

The permittee shall not emit from any other stack, vent, or functionally equivalent opening associated with the emergency shutdown heaters, emissions in excess of 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period. This condition is established in accordance with IDAPA 58.01.01.625.

Initial Permit Condition 4.4

The permittee is required to combust natural gas exclusively in the emergency shutdown heaters. This condition was established to be protective of the 1-hour $NO_2$ NAAQS limit.

Initial Permit Condition 4.5

In emergency situations there is no time limit on the use of the emergency shutdown heaters. This was established based on guidance set forth by EPA regarding emergency engines. Air quality permits seek to regulate normal operation and an emergency does not fall under normal operation. This gives the facility the flexibility necessary to operate the emergency heaters in emergency situations.

Initial Permit Condition 5.1

This condition establishes emission limits for the emergency SI internal combustion engine in accordance with 40 CFR 60.4233(e).

Initial Permit Condition 5.2

The permittee is required to meet the emission standards as of 40 CFR 60.4233 over the entire life of the engine in accordance with 40 CFR 6234.

Initial Permit Condition 5.3

The permittee must install a non-resettable hour meter in accordance with 40 CFR 60.4237(c).

Initial Permit Condition 5.4

The permittee is required to purchase a certified engine. The engine shall be operated and maintained according to manufacturer specifications. The permittee shall keep record of maintenance performed in accordance with 40 CFR 60.4243(a)(1) and 40 CFR 60.4243(b)(1).

Initial Permit Condition 5.5

This permit conditions establishes operating requirements for the engine to be considered an emergency engine in accordance with 40 CFR 60.4243(d) and 40 CFR 60.4243(e).

Initial Permit Condition 5.6

The permittee is required to keep certain records as established by 40 CFR 60.4245(a) and 40 CFR 60.4245(b).

Initial Permit Condition 5.7

The permittee is subject to certain general provisions outlined by this permit condition in accordance with 40 CFR 60.4246.

Initial Permit Condition 6.1

The duty to comply general compliance provision requires that the permittee comply with all of the permit terms and conditions pursuant to Idaho Code §39-101.

Initial Permit Condition 6.2

The maintenance and operation general compliance provision requires that the permittee maintain and operate all treatment and control facilities at the facility in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 6.3

The obligation to comply general compliance provision specifies that no permit condition is intended to relieve or exempt the permittee from compliance with applicable state and federal requirements, in accordance with IDAPA 58.01.01.212.01.

Initial Permit Condition 6.4

The inspection and entry provision requires that the permittee allow DEQ inspection and entry pursuant to Idaho Code §39-108.

Initial Permit Condition 6.5

The permit expiration construction and operation provision specifies that the permit expires if construction has not begun within two years of permit issuance or if construction has been suspended for a year in accordance with IDAPA 58.01.01.211.02.

Initial Permit Condition 6.6

The notification of construction and operation provision requires that the permittee notify DEQ of the dates of construction and operation, in accordance with IDAPA 58.01.01.211.03.

Initial Permit Condition 6.7

The performance testing notification of intent provision requires that the permittee notify DEQ at least 15 days prior to any performance test to provide DEQ the option to have an observer present, in accordance with IDAPA 58.01.01.157.03.

Initial Permit Condition 6.8

The performance test protocol provision requires that any performance testing be conducted in accordance with the procedures of IDAPA 58.01.01.157, and encourages the permittee to submit a protocol to DEQ for approval prior to testing.

Initial Permit Condition 6.9

The performance test report provision requires that the permittee report any performance test results to DEQ within 60 days of completion, in accordance with IDAPA 58.01.01.157.04-05.

Initial Permit Condition 6.10

The monitoring and recordkeeping provision requires that the permittee maintain sufficient records to ensure compliance with permit conditions, in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 6.11

The excess emissions provision requires that the permittee follow the procedures required for excess emissions events, in accordance with IDAPA 58.01.01.130-136.

Initial Permit Condition 6.12

The certification provision requires that a responsible official certify all documents submitted to DEQ, in accordance with IDAPA 58.01.01.123.

Initial Permit Condition 6.13

The false statement provision requires that no person make false statements, representations, or certifications, in accordance with IDAPA 58.01.01.125.

Initial Permit Condition 6.14

The tampering provision requires that no person render inaccurate any required monitoring device or method, in accordance with IDAPA 58.01.01.126.

Initial Permit Condition 6.15

The transferability provision specifies that this permit to construct is transferable, in accordance with the procedures of IDAPA 58.01.01.209.06.

Initial Permit Condition 6.16

The severability provision specifies that permit conditions are severable, in accordance with IDAPA 58.01.01.211.

## PUBLIC REVIEW

### *Public Comment Opportunity*

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c or IDAPA 58.01.01.404.01.c. During this time, there were comments on the application and there was a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

### *Public Comment Period*

A public comment period was made available to the public in accordance with IDAPA 58.01.01.209.01.c. During this time, comments were submitted in response to DEQ's proposed action. Refer to the chronology for public comment period dates.

A response to public comments document has been crafted by DEQ based on comments submitted during the public comment period. That document is part of the final permit package for this permitting action.

# APPENDIX A – EMISSIONS INVENTORIES

## Table B-1. Emission Sources

| Dispersion Modeling Source ID | Dispersion Modeling Source Type | Building Location | Source Description | Facility Equipment ID | Manufacturer | Model | Control Equipment | Throughput Material | Maximum [A] Usage Rate | Anticipated Operation hr/dy | Anticipated Operation mo/yr | Anticipated Operation hr/yr | PTE Operation hr/yr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GRINDER | Volume | Adjacent to Bldg 1 | Grinding System (Grinder, Bale Feed Conveyor, Conveyor) | - | n/a | n/a | n/a | Straw | 43,000 lb/day | 24 | 12 | 8,760 | 8,760 |
| - | - | Adjacent to Bldg 1 | Storge Silos | - | - | - | None | Polypropylene Pellets | 10,000 lb/hr | 24 | 12 | 8,760 | 8,760 |
| - | - | Bldg 1 | Cooking Tank | - | - | - | None | NaOH and Straw | - lb/hr | 24 | 12 | 8,760 | 8,760 |
| - | - | Bldg 1 | Extruders | - | Synopex | Green Techs | None | Polypropylene Pellets | 10,000 lb/hr | 24 | 12 | 8,760 | 8,760 |
| B.1 | Point | Bldg 1 | Boiler 1 | B-1 | Hurst | S-4-G-150-15ST | None | Natural Gas | 6,300,000 Btu/hr | 22 | 12 | 8,030 | 8,760 |
| B.2 | Point | Bldg 2 | Boiler 2 | B-2 Future | Hurst | S-4-G-150-15ST | None | Natural Gas | 6,300,000 Btu/hr | 22 | 12 | 8,030 | 8,760 |
| B.3 | Point | Bldg 1 | Boiler 3 | B-3 | Columbia | MPH-80 | None | Natural Gas | 3,360,000 Btu/hr | 12 | 12 | 4,380 | 8,760 |
| F.A1 | Point | Bldg 1 | Furnace 1 | F-A1 | Trane | 23 62 13 | None | Natural Gas | 60,000 Btu/hr | 12 | 6 | 2,190 | 8,760 |
| F.A2 | Point | | Furnace 2 | F-A2 | Trane | 23 62 13 | None | Natural Gas | 60,000 Btu/hr | 12 | 6 | 2,190 | 8,760 |
| F.A3 | Point | | Furnace 3 | F-A3 | Trane | 23 54 00 | None | Natural Gas | 40,000 Btu/hr | 12 | 6 | 2,190 | 8,760 |
| F.A4 | Point | | Furnace 4 | F-A4 | Trane | 23 62 13 | None | Natural Gas | 60,000 Btu/hr | 12 | 6 | 2,190 | 8,760 |
| IRH.B1 | Point | Bldg 1 | Infrared Heater 1 | IRH-B1 | Re-Verber-Ray | DET3-60-200 | None | Natural Gas | 200,000 Btu/hr | 12 | 6 | 2,190 | 8,760 |
| IRH.B2 | Point | | Infrared Heater 2 | IRH-B2 | Re-Verber-Ray | DET3-60-200 | None | Natural Gas | 200,000 Btu/hr | 12 | 6 | 2,190 | 8,760 |
| MAU.A1 | Point | Bldg 1 | MAU Unit 1 | MAU-A1 | Rapid Engineering | 4060 | None | Natural Gas | 4,300,452 Btu/hr | 12 | 4 | 1,460 | 8,760 |
| MAU.D1 | Point | | MAU Unit 3 | MAU-D1 | Rapid Engineering | 4060 | None | Natural Gas | 4,300,452 Btu/hr | 12 | 4 | 1,460 | 8,760 |
| MAU.F1 | Point | Bldg 2 | MAU Unit 4 | MAU-Future | Rapid Engineering | 4060 | None | Natural Gas | 4,300,452 Btu/hr | 12 | 4 | 1,460 | 8,760 |
| MAU.F2 | Point | | MAU Unit 5 | MAU-Future | Rapid Engineering | 4060 | None | Natural Gas | 4,300,452 Btu/hr | 12 | 4 | 1,460 | 8,760 |
| UH.B1 | Point | Bldg 1 | Emergency Shutdown Heater 1 | UH-B1 | Modine | PDP-150 | None | Natural Gas | 150,000 Btu/hr | For Emergency - as needed | | | 500 |
| UH.C1 | Point | | Emergency Shutdown Heater 2 | UH-C1 | Modine | PDP-150 | None | Natural Gas | 150,000 Btu/hr | | | | 500 |
| UH.C2 | Point | | Emergency Shutdown Heater 3 | UH-C2 | Modine | PDP-150 | None | Natural Gas | 150,000 Btu/hr | | | | 500 |
| UH.C3 | Point | | Emergency Shutdown Heater 4 | UH-C3 | Modine | PDP-150 | None | Natural Gas | 150,000 Btu/hr | | | | 500 |
| UH.D1 | Point | | Emergency Shutdown Heater 5 | UH-D1 | Modine | PDP-150 | None | Natural Gas | 150,000 Btu/hr | | | | 500 |
| UH.D2 | Point | | Emergency Shutdown Heater 6 | UH-D2 | Modine | PDP-150 | None | Natural Gas | 150,000 Btu/hr | | | | 500 |
| UH.F1 | Point | Bldg 2 | Emergency Shutdown Heater 7 | UH-Future | Modine | PDP-150 | None | Natural Gas | 150,000 Btu/hr | For Emergency - as needed | | | 500 |
| UH.F2 | Point | | Emergency Shutdown Heater 8 | UH-Future | Modine | PDP-150 | None | Natural Gas | 150,000 Btu/hr | | | | 500 |
| UH.F3 | Point | | Emergency Shutdown Heater 9 | UH-Future | Modine | PDP-150 | None | Natural Gas | 150,000 Btu/hr | | | | 500 |
| EMGEN | Point | Adjacent to Bldg 1 | Emergency Generator | Generator | Olympian | G80LG4 80 kW | None | Natural Gas | 1,055 cu ft/hr | 15 minute/week for maintenance & testing | | | 100 |

*(A) - Fuel Usage for heat-generating units is based on vendor specifications for the listed equipment model numbers.*

*(B) - Natural Gas heat content =* 1,020 *Btu/cu ft based on AP-42 reference in emission factor tables for average natural gas higher heating value.*

*This value is supported by the U.S Energy Information Administration natural gas heat content delivered to consumers in Idaho*

*(Reference: https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm)*

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | Average |
|---|---|---|---|---|---|---|---|
| Idaho | 1,021 | 1,017 | 1,015 | 1,015 | 1,025 | 1,029 | 1,020.3 |

**Table B-2. PTE Emissions Summary (ton/yr)**

| Regulated [W] Pollutant | CAS No. | EPA HAP | Grinding System | Silos | Cooking Tank | Extruders | Boilers | | | Furnaces | | | | Infared Heaters | | Makeup Air Units | | | | Emergency Shutdown Heaters | | | | | | | | | Emergency Generator | Facility Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | GRINDER | - | - | - | B.1 | B.2 | B.3 | F.A1 | F.A2 | F.A3 | F.A4 | IRH.B1 | IRH.B2 | MAU.A1 | MAU.D1 | MAU.F1 | MAU.F2 | UH.B1 | UH.C1 | UH.C2 | UH.C3 | UH.D1 | UH.D2 | UH.F1 | UH.F2 | UH.F3 | EMGEN | |
| **Criteria Pollutants** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO | - | - | - | - | - | - | 2.272 | 2.272 | 1.212 | 0.022 | 0.022 | 0.014 | 0.022 | 0.072 | 0.072 | 1.551 | 1.551 | 1.551 | 1.551 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.200 | 12.41 |
| NOx | - | - | - | - | - | - | 2.428 | 2.428 | 1.443 | 0.026 | 0.026 | 0.017 | 0.026 | 0.086 | 0.086 | 0.923 | 0.923 | 0.923 | 0.923 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.122 | 10.41 |
| PM10 | - | - | 0.118 | - | - | - | 0.206 | 0.206 | 0.110 | 0.002 | 0.002 | 0.001 | 0.002 | 0.007 | 0.007 | 0.140 | 0.140 | 0.140 | 0.140 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0005 | 1.22 |
| PM2.5 | - | - | 0.118 | - | - | - | 0.206 | 0.206 | 0.110 | 0.002 | 0.002 | 0.001 | 0.002 | 0.007 | 0.007 | 0.140 | 0.140 | 0.140 | 0.140 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0005 | 1.22 |
| SO2 | - | - | - | - | - | - | 0.016 | 0.016 | 0.009 | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.001 | 0.001 | 0.011 | 0.011 | 0.011 | 0.011 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00003 | 0.09 |
| VOC | - | - | - | 0.219 | - | 1.445 | 0.149 | 0.149 | 0.079 | 0.001 | 0.001 | 0.001 | 0.001 | 0.005 | 0.005 | 0.102 | 0.102 | 0.102 | 0.102 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.002 | 2.47 |
| Lead | - | - | - | - | - | - | 1.35E-05 | 1.35E-05 | 7.21E-06 | 1.29E-07 | 1.29E-07 | 8.59E-08 | 1.29E-07 | 4.29E-07 | 4.29E-07 | 9.23E-06 | 9.23E-06 | 9.23E-06 | 9.23E-06 | 1.84E-08 | 1.84E-08 | 1.84E-08 | 1.84E-08 | 1.84E-08 | 1.84E-08 | 1.84E-08 | 1.84E-08 | 1.84E-08 | - | 7.27E-05 |
| **Idaho TAPs - Noncarcinogenic** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acrolein | 107-02-8 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.42E-04 | 1.42E-04 |
| Barium | 7440-39-3 | - | - | - | - | - | 1.19E-04 | 1.19E-04 | 6.35E-05 | 1.13E-06 | 1.13E-06 | 7.56E-07 | 1.13E-06 | 3.78E-06 | 3.78E-06 | 8.13E-05 | 8.13E-05 | 8.13E-05 | 8.13E-05 | 1.62E-07 | 1.62E-07 | 1.62E-07 | 1.62E-07 | 1.62E-07 | 1.62E-07 | 1.62E-07 | 1.62E-07 | 1.62E-07 | - | 6.40E-04 |
| Chlorobenzene | 108-90-7 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.94E-07 | 6.94E-07 |
| Chromium | 7440-47-3 | HAP | - | - | - | - | 3.79E-05 | 3.79E-05 | 2.02E-05 | 3.61E-07 | 3.61E-07 | 2.40E-07 | 3.61E-07 | 1.20E-06 | 1.20E-06 | 2.59E-05 | 2.59E-05 | 2.59E-05 | 2.59E-05 | 5.15E-08 | 5.15E-08 | 5.15E-08 | 5.15E-08 | 5.15E-08 | 5.15E-08 | 5.15E-08 | 5.15E-08 | 5.15E-08 | - | 2.04E-04 |
| Cobalt | 7440-48-4 | HAP | - | - | - | - | 2.27E-06 | 2.27E-06 | 1.21E-06 | 2.16E-08 | 2.16E-08 | 1.44E-08 | 2.16E-08 | 7.21E-08 | 7.21E-08 | 1.55E-06 | 1.55E-06 | 1.55E-06 | 1.55E-06 | 3.09E-09 | 3.09E-09 | 3.09E-09 | 3.09E-09 | 3.09E-09 | 3.09E-09 | 3.09E-09 | 3.09E-09 | 3.09E-09 | - | 1.22E-05 |
| Copper | 7440-50-8 | - | - | - | - | - | 2.30E-05 | 2.30E-05 | 1.23E-05 | 2.19E-07 | 2.19E-07 | 1.46E-07 | 2.19E-07 | 7.30E-07 | 7.30E-07 | 1.57E-05 | 1.57E-05 | 1.57E-05 | 1.57E-05 | 3.13E-08 | 3.13E-08 | 3.13E-08 | 3.13E-08 | 3.13E-08 | 3.13E-08 | 3.13E-08 | 3.13E-08 | 3.13E-08 | - | 1.24E-04 |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | - | - | - | - | 3.25E-05 | 3.25E-05 | 1.73E-05 | 3.09E-07 | 3.09E-07 | 2.06E-07 | 3.09E-07 | 1.03E-06 | 1.03E-06 | 2.22E-05 | 2.22E-05 | 2.22E-05 | 2.22E-05 | 4.41E-08 | 4.41E-08 | 4.41E-08 | 4.41E-08 | 4.41E-08 | 4.41E-08 | 4.41E-08 | 4.41E-08 | 4.41E-08 | - | 1.74E-04 |
| 1,2-Dichloropropane | 78-87-5 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.99E-07 | 6.99E-07 |
| Ethyl Benzene | 100-41-4 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.33E-06 | 1.33E-06 |
| Hexane | 110-54-3 | HAP | - | - | - | - | 4.87E-02 | 4.87E-02 | 2.60E-02 | 4.64E-04 | 4.64E-04 | 3.09E-04 | 4.64E-04 | 1.55E-03 | 1.55E-03 | 3.32E-02 | 3.32E-02 | 3.32E-02 | 3.32E-02 | 6.62E-05 | 6.62E-05 | 6.62E-05 | 6.62E-05 | 6.62E-05 | 6.62E-05 | 6.62E-05 | 6.62E-05 | 6.62E-05 | - | 2.62E-01 |
| Manganese | 7439-96-5 | HAP | - | - | - | - | 1.03E-05 | 1.03E-05 | 5.48E-06 | 9.79E-08 | 9.79E-08 | 6.53E-08 | 9.79E-08 | 3.26E-07 | 3.26E-07 | 7.02E-06 | 7.02E-06 | 7.02E-06 | 7.02E-06 | 1.40E-08 | 1.40E-08 | 1.40E-08 | 1.40E-08 | 1.40E-08 | 1.40E-08 | 1.40E-08 | 1.40E-08 | 1.40E-08 | - | 5.52E-05 |
| Methanol | 67-56-1 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.65E-04 | 1.65E-04 |
| Molybdenum | 7439-98-7 | - | - | - | - | - | 2.98E-05 | 2.98E-05 | 1.59E-05 | 2.83E-07 | 2.83E-07 | 1.89E-07 | 2.83E-07 | 9.45E-07 | 9.45E-07 | 2.03E-05 | 2.03E-05 | 2.03E-05 | 2.03E-05 | 4.04E-08 | 4.04E-08 | 4.04E-08 | 4.04E-08 | 4.04E-08 | 4.04E-08 | 4.04E-08 | 4.04E-08 | 4.04E-08 | - | 1.60E-04 |
| Naphthalene | 91-20-3 | HAP | - | - | - | - | 1.65E-05 | 1.65E-05 | 8.80E-06 | 1.57E-07 | 1.57E-07 | 1.05E-07 | 1.57E-07 | 5.24E-07 | 5.24E-07 | 1.13E-05 | 1.13E-05 | 1.13E-05 | 1.13E-05 | 2.24E-08 | 2.24E-08 | 2.24E-08 | 2.24E-08 | 2.24E-08 | 2.24E-08 | 2.24E-08 | 2.24E-08 | 2.24E-08 | 5.22E-06 | 9.39E-05 |
| Pentane | 109-66-0 | - | - | - | - | - | 7.03E-02 | 7.03E-02 | 3.75E-02 | 6.70E-04 | 6.70E-04 | 4.47E-04 | 6.70E-04 | 2.23E-03 | 2.23E-03 | 4.80E-02 | 4.80E-02 | 4.80E-02 | 4.80E-02 | 9.56E-05 | 9.56E-05 | 9.56E-05 | 9.56E-05 | 9.56E-05 | 9.56E-05 | 9.56E-05 | 9.56E-05 | 9.56E-05 | - | 3.78E-01 |
| Selenium | 7782-49-2 | HAP | - | - | - | - | 6.49E-07 | 6.49E-07 | 3.46E-07 | 6.18E-09 | 6.18E-09 | 4.12E-09 | 6.18E-09 | 2.06E-08 | 2.06E-08 | 4.43E-07 | 4.43E-07 | 4.43E-07 | 4.43E-07 | 8.82E-10 | 8.82E-10 | 8.82E-10 | 8.82E-10 | 8.82E-10 | 8.82E-10 | 8.82E-10 | 8.82E-10 | 8.82E-10 | - | 3.49E-06 |
| Styrene | 100-42-5 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.40E-07 | 6.40E-07 |
| Toluene | 108-88-3 | HAP | - | - | - | - | 9.20E-05 | 9.20E-05 | 4.91E-05 | 8.76E-07 | 8.76E-07 | 5.84E-07 | 8.76E-07 | 2.92E-06 | 2.92E-06 | 6.28E-05 | 6.28E-05 | 6.28E-05 | 6.28E-05 | 1.25E-07 | 1.25E-07 | 1.25E-07 | 1.25E-07 | 1.25E-07 | 1.25E-07 | 1.25E-07 | 1.25E-07 | 1.25E-07 | 3.00E-05 | 5.24E-04 |
| Vanadium | 7440-62-2 | - | - | - | - | - | 6.22E-05 | 6.22E-05 | 3.32E-05 | 5.93E-07 | 5.93E-07 | 3.95E-07 | 5.93E-07 | 1.98E-06 | 1.98E-06 | 4.25E-05 | 4.25E-05 | 4.25E-05 | 4.25E-05 | 8.46E-08 | 8.46E-08 | 8.46E-08 | 8.46E-08 | 8.46E-08 | 8.46E-08 | 8.46E-08 | 8.46E-08 | 8.46E-08 | - | 3.34E-04 |
| Xylene | 1330-20-7 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.05E-05 | 1.05E-05 |
| Zinc | 7440-66-6 | - | - | - | - | - | 7.85E-04 | 7.85E-04 | 4.18E-04 | 7.47E-06 | 7.47E-06 | 4.98E-06 | 7.47E-06 | 2.49E-05 | 2.49E-05 | 5.36E-04 | 5.36E-04 | 5.36E-04 | 5.36E-04 | 1.07E-06 | 1.07E-06 | 1.07E-06 | 1.07E-06 | 1.07E-06 | 1.07E-06 | 1.07E-06 | 1.07E-06 | 1.07E-06 | - | 4.22E-03 |
| **Idaho TAPs - Carcinogenic** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acetaldehyde | 75-07-0 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.50E-04 | 1.50E-04 |
| Arsenic | 7440-38-2 | HAP | - | - | - | - | 5.41E-06 | 5.41E-06 | 2.89E-06 | 5.15E-08 | 5.15E-08 | 3.44E-08 | 5.15E-08 | 1.72E-07 | 1.72E-07 | 3.69E-06 | 3.69E-06 | 3.69E-06 | 3.69E-06 | 7.35E-09 | 7.35E-09 | 7.35E-09 | 7.35E-09 | 7.35E-09 | 7.35E-09 | 7.35E-09 | 7.35E-09 | 7.35E-09 | - | 2.91E-05 |
| Benzene | 71-43-2 | HAP | - | - | - | - | 5.68E-05 | 5.68E-05 | 3.03E-05 | 5.41E-07 | 5.41E-07 | 3.61E-07 | 5.41E-07 | 1.80E-06 | 1.80E-06 | 3.88E-05 | 3.88E-05 | 3.88E-05 | 3.88E-05 | 7.72E-08 | 7.72E-08 | 7.72E-08 | 7.72E-08 | 7.72E-08 | 7.72E-08 | 7.72E-08 | 7.72E-08 | 7.72E-08 | 8.50E-05 | 3.90E-04 |
| Benzo(a)pyrene | 50-32-8 | - | - | - | - | - | 3.25E-08 | 3.25E-08 | 1.73E-08 | 3.09E-10 | 3.09E-10 | 2.06E-10 | 3.09E-10 | 1.03E-09 | 1.03E-09 | 2.22E-08 | 2.22E-08 | 2.22E-08 | 2.22E-08 | 4.41E-11 | 4.41E-11 | 4.41E-11 | 4.41E-11 | 4.41E-11 | 4.41E-11 | 4.41E-11 | 4.41E-11 | 4.41E-11 | - | 1.74E-07 |
| Beryllium | 7440-41-7 | HAP | - | - | - | - | 3.25E-07 | 3.25E-07 | 1.73E-07 | 3.09E-09 | 3.09E-09 | 2.06E-09 | 3.09E-09 | 1.03E-08 | 1.03E-08 | 2.22E-07 | 2.22E-07 | 2.22E-07 | 2.22E-07 | 4.41E-10 | 4.41E-10 | 4.41E-10 | 4.41E-10 | 4.41E-10 | 4.41E-10 | 4.41E-10 | 4.41E-10 | 4.41E-10 | - | 1.74E-06 |
| 1,3-Butadiene | 106-99-0 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.57E-05 | 3.57E-05 |
| Cadmium | 7440-43-9 | HAP | - | - | - | - | 2.98E-05 | 2.98E-05 | 1.59E-05 | 2.83E-07 | 2.83E-07 | 1.89E-07 | 2.83E-07 | 9.45E-07 | 9.45E-07 | 2.03E-05 | 2.03E-05 | 2.03E-05 | 2.03E-05 | 4.04E-08 | 4.04E-08 | 4.04E-08 | 4.04E-08 | 4.04E-08 | 4.04E-08 | 4.04E-08 | 4.04E-08 | 4.04E-08 | - | 1.60E-04 |
| Carbon Tetrachloride | 56-23-5 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 9.52E-07 | 9.52E-07 |
| Chloroform | 67-66-3 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.37E-07 | 7.37E-07 |
| 1,1-Dichloroethane | 75-34-3 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.08E-07 | 6.08E-07 |
| 1,2-Dichloroethane | 107-06-2 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.08E-07 | 6.08E-07 |
| 1,3-Dichloropropene | 542-75-6 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.83E-07 | 6.83E-07 |
| Ethylene Dibromide | 106-93-4 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.15E-06 | 1.15E-06 |
| Formaldehyde | 50-00-0 | HAP | - | - | - | - | 2.03E-03 | 2.03E-03 | 1.08E-03 | 1.93E-05 | 1.93E-05 | 1.29E-05 | 1.93E-05 | 6.44E-05 | 6.44E-05 | 1.38E-03 | 1.38E-03 | 1.38E-03 | 1.38E-03 | 2.76E-06 | 2.76E-06 | 2.76E-06 | 2.76E-06 | 2.76E-06 | 2.76E-06 | 2.76E-06 | 2.76E-06 | 2.76E-06 | 1.10E-03 | 1.20E-02 |
| 3-Methylchloranthrene | 56-49-5 | - | - | - | - | - | 4.87E-08 | 4.87E-08 | 2.60E-08 | 4.64E-10 | 4.64E-10 | 3.09E-10 | 4.64E-10 | 1.55E-09 | 1.55E-09 | 3.32E-08 | 3.32E-08 | 3.32E-08 | 3.32E-08 | 6.62E-11 | 6.62E-11 | 6.62E-11 | 6.62E-11 | 6.62E-11 | 6.62E-11 | 6.62E-11 | 6.62E-11 | 6.62E-11 | - | 2.62E-07 |
| Methylene Chloride | 74-87-3 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2.22E-06 | 2.22E-06 |
| Nickel | 7440-02-0 | HAP | - | - | - | - | 5.68E-05 | 5.68E-05 | 3.03E-05 | 5.41E-07 | 5.41E-07 | 3.61E-07 | 5.41E-07 | 1.80E-06 | 1.80E-06 | 3.88E-05 | 3.88E-05 | 3.88E-05 | 3.88E-05 | 7.72E-08 | 7.72E-08 | 7.72E-08 | 7.72E-08 | 7.72E-08 | 7.72E-08 | 7.72E-08 | 7.72E-08 | 7.72E-08 | - | 3.05E-04 |
| PAH (except 7-PAH group): | - | HAP | - | - | - | - | 2.08E-06 | 2.08E-06 | 1.11E-06 | 1.98E-08 | 1.98E-08 | 1.32E-08 | 1.98E-08 | 6.60E-08 | 6.60E-08 | 1.42E-06 | 1.42E-06 | 1.42E-06 | 1.42E-06 | 2.82E-09 | 2.82E-09 | 2.82E-09 | 2.82E-09 | 2.82E-09 | 2.82E-09 | 2.82E-09 | 2.82E-09 | 2.82E-09 | 7.59E-06 | 1.88E-05 |
| POM (7-PAH group) per IDE | - | HAP | - | - | - | - | 3.08E-07 | 3.08E-07 | 1.64E-07 | 2.94E-09 | 2.94E-09 | 1.96E-09 | 2.94E-09 | 9.79E-09 | 9.79E-09 | 2.11E-07 | 2.11E-07 | 2.11E-07 | 2.11E-07 | 4.19E-10 | 4.19E-10 | 4.19E-10 | 4.19E-10 | 4.19E-10 | 4.19E-10 | 4.19E-10 | 4.19E-10 | 4.19E-10 | 7.59E-06 | 9.24E-06 |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.36E-06 | 1.36E-06 |
| 1,1,2-Trichloroethane | 79-00-5 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.23E-07 | 8.23E-07 |
| Vinyl Chloride | 75-01-4 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.86E-07 | 3.86E-07 |
| **Other EPA Pollutants of Concern** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | - | - | - | - | 3,246.4 | 3,246.4 | 1,731.4 | 30.9 | 30.9 | 20.6 | 30.9 | 103.1 | 103.1 | 2,216.0 | 2,216.0 | 2,216.0 | 2,216.0 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 5.9 | 17,453 |
| Mercury | 7439-97-6 | HAP | - | - | - | - | 7.03E-06 | 7.03E-06 | 3.75E-06 | 6.70E-08 | 6.70E-08 | 4.47E-08 | 6.70E-08 | 2.23E-07 | 2.23E-07 | 4.80E-06 | 4.80E-06 | 4.80E-06 | 4.80E-06 | 9.56E-09 | 9.56E-09 | 9.56E-09 | 9.56E-09 | 9.56E-09 | 9.56E-09 | 9.56E-09 | 9.56E-09 | 9.56E-09 | - | 3.78E-05 |
| Total HAPs | - | HAP | - | - | - | - | 5.11E-02 | 5.11E-02 | 2.72E-02 | 4.86E-04 | 4.86E-04 | 3.24E-04 | 4.86E-04 | 1.62E-03 | 1.62E-03 | 3.49E-02 | 3.49E-02 | 3.49E-02 | 3.49E-02 | 6.94E-05 | 6.94E-05 | 6.94E-05 | 6.94E-05 | 6.94E-05 | 6.94E-05 | 6.94E-05 | 6.94E-05 | 6.94E-05 | 1.75E-03 | 0.276 |

*(A) - Annual PTE emissions are based on hourly design capacity for this process equipment and permitted annual hours of operation. Details of the emission calculations are presented in subsequent tables.*

**Table B-3. Dispersion Modeling - Maximum Hourly Emission Rates (lb/hr)** **(For comparison to Short-Term Air Quality Standards)**

| Regulated [A] Pollutant | CAS No. | EPA HAP | Grinding System | Silos | Cooking Tank | Extruders | Boilers | | | Furnaces | | | | Infared Heaters | | Makeup Air Units | | | | Emergency Shutdown Heaters | | | | | | | | | | Emergency Generator [B], [C] | Facility Total (lb/hr) | ID DEQ Threshold Screening Level | Air Dispersion Modeling Required |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | GRINDER | - | - | - | B.1 | B.2 | B.3 | F.A1 | F.A2 | F.A3 | F.A4 | IRH.B1 | IRH.B2 | MAU.A1 | MAU.D1 | MAU.F1 | MAU.F2 | UH.B1 | UH.C1 | UH.C2 | UH.C3 | UH.D1 | UH.D2 | UH.F1 | UH.F2 | UH.F3 | EMGEN | | | |
| **Criteria Pollutants** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO | - | - | - | - | - | - | 0.519 | 0.519 | 0.277 | 0.005 | 0.005 | 0.003 | 0.005 | 0.016 | 0.016 | 0.354 | 0.354 | 0.354 | 0.354 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 4.003 | **6.896** | 15 | - |
| NOx | - | - | - | - | - | - | 0.554 | 0.554 | 0.329 | 0.006 | 0.006 | 0.004 | 0.006 | 0.020 | 0.020 | 0.211 | 0.211 | 0.211 | 0.211 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | (exempt) | **2.475** | 0.20 | YES |
| PM10 | - | - | 0.027 | - | - | - | 0.047 | 0.047 | 0.025 | 0.0004 | 0.0004 | 0.0003 | 0.0004 | 0.0015 | 0.0015 | 0.032 | 0.032 | 0.032 | 0.032 | 0.0011 | 0.0011 | 0.0011 | 0.0011 | 0.0011 | 0.0011 | 0.0011 | 0.0011 | 0.0011 | 0.010 | **0.299** | 0.22 | YES |
| PM2.5 | - | - | 0.027 | - | - | - | 0.047 | 0.047 | 0.025 | 0.0004 | 0.0004 | 0.0003 | 0.0004 | 0.0015 | 0.0015 | 0.032 | 0.032 | 0.032 | 0.032 | 0.0011 | 0.0011 | 0.0011 | 0.0011 | 0.0011 | 0.0011 | 0.0011 | 0.0011 | 0.0011 | 0.010 | **0.299** | 0.054 | YES |
| SO2 | - | - | - | - | - | - | 0.004 | 0.004 | 0.002 | 0.00004 | 0.00004 | 0.00002 | 0.00004 | 0.00012 | 0.00012 | 0.003 | 0.003 | 0.003 | 0.003 | 0.00009 | 0.00009 | 0.00009 | 0.00009 | 0.00009 | 0.00009 | 0.00009 | 0.00009 | 0.00009 | 0.0006 | **0.021** | 0.21 | - |
| VOC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | No Standards | |
| Lead | - | - | - | - | - | - | 3.09E-06 | 3.09E-06 | 1.65E-06 | 2.94E-08 | 2.94E-08 | 1.96E-08 | 2.94E-08 | 9.80E-08 | 9.80E-08 | 2.11E-06 | 2.11E-06 | 2.11E-06 | 2.11E-06 | 7.35E-08 | 7.35E-08 | 7.35E-08 | 7.35E-08 | 7.35E-08 | 7.35E-08 | 7.35E-08 | 7.35E-08 | 7.35E-08 | - | **1.72E-05** | 0.019 | - |
| **Idaho TAPs - Noncarcinogenic** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acrolein | 107-02-8 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 0.017 | - |
| Barium | 7440-39-3 | - | - | - | - | - | 2.72E-05 | 2.72E-05 | 1.45E-05 | 2.59E-07 | 2.59E-07 | 1.73E-07 | 2.59E-07 | 8.63E-07 | 8.63E-07 | 1.86E-05 | 1.86E-05 | 1.86E-05 | 1.86E-05 | 6.47E-07 | 6.47E-07 | 6.47E-07 | 6.47E-07 | 6.47E-07 | 6.47E-07 | 6.47E-07 | 6.47E-07 | 6.47E-07 | - | **1.52E-04** | 0.033 | - |
| Chlorobenzene | 108-90-7 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 23.3 | - |
| Chromium | 7440-47-3 | HAP | - | - | - | - | 8.65E-06 | 8.65E-06 | 4.61E-06 | 8.24E-08 | 8.24E-08 | 5.49E-08 | 8.24E-08 | 2.75E-07 | 2.75E-07 | 5.90E-06 | 5.90E-06 | 5.90E-06 | 5.90E-06 | 2.06E-07 | 2.06E-07 | 2.06E-07 | 2.06E-07 | 2.06E-07 | 2.06E-07 | 2.06E-07 | 2.06E-07 | 2.06E-07 | - | **4.82E-05** | 0.033 | - |
| Cobalt | 7440-48-4 | HAP | - | - | - | - | 5.19E-07 | 5.19E-07 | 2.77E-07 | 4.94E-09 | 4.94E-09 | 3.29E-09 | 4.94E-09 | 1.65E-08 | 1.65E-08 | 3.54E-07 | 3.54E-07 | 3.54E-07 | 3.54E-07 | 1.24E-08 | 1.24E-08 | 1.24E-08 | 1.24E-08 | 1.24E-08 | 1.24E-08 | 1.24E-08 | 1.24E-08 | 1.24E-08 | - | **2.89E-06** | 0.0033 | - |
| Copper | 7440-50-8 | - | - | - | - | - | 5.25E-06 | 5.25E-06 | 2.80E-06 | 5.00E-08 | 5.00E-08 | 3.33E-08 | 5.00E-08 | 1.67E-07 | 1.67E-07 | 3.58E-06 | 3.58E-06 | 3.58E-06 | 3.58E-06 | 1.25E-07 | 1.25E-07 | 1.25E-07 | 1.25E-07 | 1.25E-07 | 1.25E-07 | 1.25E-07 | 1.25E-07 | 1.25E-07 | - | **2.93E-05** | 0.013 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | - | - | - | - | 7.41E-06 | 7.41E-06 | 3.95E-06 | 7.06E-08 | 7.06E-08 | 4.71E-08 | 7.06E-08 | 2.35E-07 | 2.35E-07 | 5.06E-06 | 5.06E-06 | 5.06E-06 | 5.06E-06 | 1.76E-07 | 1.76E-07 | 1.76E-07 | 1.76E-07 | 1.76E-07 | 1.76E-07 | 1.76E-07 | 1.76E-07 | 1.76E-07 | - | **4.13E-05** | 30 | - |
| 1,2-Dichloropropane | 78-87-5 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 23.133 | - |
| Ethyl Benzene | 100-41-4 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 29 | - |
| Hexane | 110-54-3 | HAP | - | - | - | - | 1.11E-02 | 1.11E-02 | 5.93E-03 | 1.06E-04 | 1.06E-04 | 7.06E-05 | 1.06E-04 | 3.53E-04 | 3.53E-04 | 7.59E-03 | 7.59E-03 | 7.59E-03 | 7.59E-03 | 2.65E-04 | 2.65E-04 | 2.65E-04 | 2.65E-04 | 2.65E-04 | 2.65E-04 | 2.65E-04 | 2.65E-04 | 2.65E-04 | - | **6.20E-02** | 12 | - |
| Manganese | 7439-96-5 | HAP | - | - | - | - | 2.35E-06 | 2.35E-06 | 1.25E-06 | 2.24E-08 | 2.24E-08 | 1.49E-08 | 2.24E-08 | 7.45E-08 | 7.45E-08 | 1.60E-06 | 1.60E-06 | 1.60E-06 | 1.60E-06 | 5.59E-08 | 5.59E-08 | 5.59E-08 | 5.59E-08 | 5.59E-08 | 5.59E-08 | 5.59E-08 | 5.59E-08 | 5.59E-08 | - | **1.31E-05** | 0.067 | - |
| Methanol | 67-56-1 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 17.3 | - |
| Molybdenum | 7439-98-7 | - | - | - | - | - | 6.79E-06 | 6.79E-06 | 3.62E-06 | 6.47E-08 | 6.47E-08 | 4.31E-08 | 6.47E-08 | 2.16E-07 | 2.16E-07 | 4.64E-06 | 4.64E-06 | 4.64E-06 | 4.64E-06 | 1.62E-07 | 1.62E-07 | 1.62E-07 | 1.62E-07 | 1.62E-07 | 1.62E-07 | 1.62E-07 | 1.62E-07 | 1.62E-07 | - | **3.79E-05** | 0.333 | - |
| Naphthalene | 91-20-3 | HAP | - | - | - | - | 3.77E-06 | 3.77E-06 | 2.01E-06 | 3.59E-08 | 3.59E-08 | 2.39E-08 | 3.59E-08 | 1.20E-07 | 1.20E-07 | 2.57E-06 | 2.57E-06 | 2.57E-06 | 2.57E-06 | 8.97E-08 | 8.97E-08 | 8.97E-08 | 8.97E-08 | 8.97E-08 | 8.97E-08 | 8.97E-08 | 8.97E-08 | 8.97E-08 | (exempt) | **2.10E-05** | 3.33 | - |
| Pentane | 109-66-0 | - | - | - | - | - | 1.61E-02 | 1.61E-02 | 8.56E-03 | 1.53E-04 | 1.53E-04 | 1.02E-04 | 1.53E-04 | 5.10E-04 | 5.10E-04 | 1.10E-02 | 1.10E-02 | 1.10E-02 | 1.10E-02 | 3.82E-04 | 3.82E-04 | 3.82E-04 | 3.82E-04 | 3.82E-04 | 3.82E-04 | 3.82E-04 | 3.82E-04 | 3.82E-04 | - | **8.96E-02** | 118 | - |
| Selenium | 7782-49-2 | HAP | - | - | - | - | 1.48E-07 | 1.48E-07 | 7.91E-08 | 1.41E-09 | 1.41E-09 | 9.41E-10 | 1.41E-09 | 4.71E-09 | 4.71E-09 | 1.01E-07 | 1.01E-07 | 1.01E-07 | 1.01E-07 | 3.53E-09 | 3.53E-09 | 3.53E-09 | 3.53E-09 | 3.53E-09 | 3.53E-09 | 3.53E-09 | 3.53E-09 | 3.53E-09 | - | **8.27E-07** | 0.013 | - |
| Styrene | 100-42-5 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 6.67 | - |
| Toluene | 108-88-3 | HAP | - | - | - | - | 2.10E-05 | 2.10E-05 | 1.12E-05 | 2.00E-07 | 2.00E-07 | 1.33E-07 | 2.00E-07 | 6.67E-07 | 6.67E-07 | 1.43E-05 | 1.43E-05 | 1.43E-05 | 1.43E-05 | 5.00E-07 | 5.00E-07 | 5.00E-07 | 5.00E-07 | 5.00E-07 | 5.00E-07 | 5.00E-07 | 5.00E-07 | 5.00E-07 | - | **1.17E-04** | 25 | - |
| Vanadium | 7440-62-2 | - | - | - | - | - | 1.42E-05 | 1.42E-05 | 7.58E-06 | 1.35E-07 | 1.35E-07 | 9.02E-08 | 1.35E-07 | 4.51E-07 | 4.51E-07 | 9.70E-06 | 9.70E-06 | 9.70E-06 | 9.70E-06 | 3.38E-07 | 3.38E-07 | 3.38E-07 | 3.38E-07 | 3.38E-07 | 3.38E-07 | 3.38E-07 | 3.38E-07 | 3.38E-07 | - | **7.92E-05** | 0.003 | - |
| Xylene | 1330-20-7 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 29 | - |
| Zinc | 7440-66-6 | - | - | - | - | - | 1.79E-04 | 1.79E-04 | 9.55E-05 | 1.71E-06 | 1.71E-06 | 1.14E-06 | 1.71E-06 | 5.69E-06 | 5.69E-06 | 1.22E-04 | 1.22E-04 | 1.22E-04 | 1.22E-04 | 4.26E-06 | 4.26E-06 | 4.26E-06 | 4.26E-06 | 4.26E-06 | 4.26E-06 | 4.26E-06 | 4.26E-06 | 4.26E-06 | - | **9.99E-04** | 0.667 | - |
| **Idaho TAPs - Carcinogenic** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acetaldehyde | 75-07-0 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | For Carcinogenic TAPs --- Screening Emission Levels are applicable only to Annual Average Hourly Emission Rates --- (see Table 4) | |
| Arsenic | 7440-38-2 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzo(a)pyrene | 50-32-8 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Beryllium | 7440-41-7 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,3-Butadiene | 106-99-0 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cadmium | 7440-43-9 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon Tetrachloride | 56-23-5 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloroform | 67-66-3 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Dichloroethane | 75-34-3 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichloroethane | 107-06-2 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,3-Dichloropropene | 542-75-6 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene Dibromide | 106-93-4 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Formaldehyde | 50-00-0 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3-Methylchloranthrene | 56-49-5 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Methylene Chloride | 74-87-3 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nickel | 7440-02-0 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PAH (except 7-PAH group): | - | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| POM (7-PAH group) per IDE | - | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | 79-00-5 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vinyl Chloride | 75-01-4 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Other EPA Pollutants of Concern** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | No Short-Term Standards | |
| Mercury | 7439-97-6 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total HAPs | - | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

*(A) - Maximum hourly emission rates are based on design capacity for this process equipment. Details of the emission calculations are presented in subsequent tables.*
*(B) - Per Idaho DEQ guidance, since this source is used for emergency power generation and is limited to 100 hr/yr operation, NOx is exempt from the 1-hour NO2 NAAQS modeling.*
*(C) - Per Idaho DEQ guidance, since this source is subject to an EPA NESHAP, the Hazardous/Toxic Air Pollutants emitted from this source are exempt from modeling.*

**Table B-4. Dispersion Modeling - Average Hourly Emission Rates (lb/hr)** **(For comparison to Annual Air Quality Standards)**

| Regulated [A] Pollutant | CAS No. | EPA HAP | Grinding System | Silos | Cooking Tank | Extruders | Boilers | | | Furnaces | | | | Infared Heaters | | Makeup Air Units | | | | Emergency Shutdown Heaters | | | | | | | | | Emergency Generator [B] | Facility Total (lb/hr) | ID DEQ Screening Level (lb/hr) | Air Dispersion Modeling Required |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | GRINDER | - | - | - | B.1 | B.2 | B.3 | F.A1 | F.A2 | F.A3 | F.A4 | IRH.B1 | IRH.B2 | MAU.A1 | MAU.D1 | MAU.F1 | MAU.F2 | UH.B1 | UH.C1 | UH.C2 | UH.C3 | UH.D1 | UH.D2 | UH.F1 | UH.F2 | UH.F3 | EMGEN | | | |
| **Criteria Pollutants** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | No Annual Standards | |
| NOx | - | - | - | - | - | - | 0.554 | 0.554 | 0.329 | 0.006 | 0.006 | 0.004 | 0.006 | 0.020 | 0.020 | 0.211 | 0.211 | 0.211 | 0.211 | 0.0008 | 0.0008 | 0.0008 | 0.0008 | 0.0008 | 0.0008 | 0.0008 | 0.0008 | 0.0008 | 0.028 | 2.378 | 0.20 | YES |
| PM10 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | No Annual Standards | |
| PM2.5 | - | - | 0.027 | - | - | - | 0.047 | 0.047 | 0.025 | 0.0004 | 0.0004 | 0.0003 | 0.0004 | 0.0015 | 0.0015 | 0.032 | 0.032 | 0.032 | 0.032 | 0.00006 | 0.00006 | 0.00006 | 0.00006 | 0.00006 | 0.00006 | 0.00006 | 0.00006 | 0.00006 | 0.00012 | 0.279 | 0.054 | YES |
| SO2 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | No Annual Standards | |
| VOC | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lead | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Idaho TAPs - Noncarcinogenic** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acrolein | 107-02-8 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | For Noncarcinogenic TAPs --- Screening Emission Levels are applicable only to Maximum Hourly Emission Rates --- (see Table 3) | |
| Barium | 7440-39-3 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chlorobenzene | 108-90-7 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chromium | 7440-47-3 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cobalt | 7440-48-4 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Copper | 7440-50-8 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichloropropane | 78-87-5 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ethyl Benzene | 100-41-4 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hexane | 110-54-3 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Manganese | 7439-96-5 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Methanol | 67-56-1 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Molybdenum | 7439-98-7 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Naphthalene | 91-20-3 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pentane | 109-66-0 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Selenium | 7782-49-2 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Styrene | 100-42-5 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Toluene | 108-88-3 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vanadium | 7440-62-2 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Xylene | 1330-20-7 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Zinc | 7440-66-6 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Idaho TAPs - Carcinogenic** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acetaldehyde | 75-07-0 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 3.00E-03 | - |
| Arsenic | 7440-38-2 | HAP | - | - | - | - | 1.24E-06 | 1.24E-06 | 6.59E-07 | 1.18E-08 | 1.18E-08 | 7.84E-09 | 1.18E-08 | 3.92E-08 | 3.92E-08 | 8.43E-07 | 8.43E-07 | 8.43E-07 | 8.43E-07 | 1.68E-09 | 1.68E-09 | 1.68E-09 | 1.68E-09 | 1.68E-09 | 1.68E-09 | 1.68E-09 | 1.68E-09 | 1.68E-09 | - | 6.64E-06 | 1.50E-06 | YES |
| Benzene | 71-43-2 | HAP | - | - | - | - | 1.30E-05 | 1.30E-05 | 6.92E-06 | 1.24E-07 | 1.24E-07 | 8.24E-08 | 1.24E-07 | 4.12E-07 | 4.12E-07 | 8.85E-06 | 8.85E-06 | 8.85E-06 | 8.85E-06 | 1.76E-08 | 1.76E-08 | 1.76E-08 | 1.76E-08 | 1.76E-08 | 1.76E-08 | 1.76E-08 | 1.76E-08 | 1.76E-08 | (exempt) | 6.97E-05 | 8.00E-04 | - |
| Benzo(a)pyrene | 50-32-8 | - | - | - | - | - | 7.41E-09 | 7.41E-09 | 3.95E-09 | 7.06E-11 | 7.06E-11 | 4.71E-11 | 7.06E-11 | 2.35E-10 | 2.35E-10 | 5.06E-09 | 5.06E-09 | 5.06E-09 | 5.06E-09 | 1.01E-11 | 1.01E-11 | 1.01E-11 | 1.01E-11 | 1.01E-11 | 1.01E-11 | 1.01E-11 | 1.01E-11 | 1.01E-11 | - | 3.98E-08 | 2.00E-06 | - |
| Beryllium | 7440-41-7 | HAP | - | - | - | - | 7.41E-08 | 7.41E-08 | 3.95E-08 | 7.06E-10 | 7.06E-10 | 4.71E-10 | 7.06E-10 | 2.35E-09 | 2.35E-09 | 5.06E-08 | 5.06E-08 | 5.06E-08 | 5.06E-08 | 1.01E-10 | 1.01E-10 | 1.01E-10 | 1.01E-10 | 1.01E-10 | 1.01E-10 | 1.01E-10 | 1.01E-10 | 1.01E-10 | - | 3.98E-07 | 2.80E-05 | - |
| 1,3-Butadiene | 106-99-0 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 2.40E-05 | - |
| Cadmium | 7440-43-9 | HAP | - | - | - | - | 6.79E-06 | 6.79E-06 | 3.62E-06 | 6.47E-08 | 6.47E-08 | 4.31E-08 | 6.47E-08 | 2.16E-07 | 2.16E-07 | 4.64E-06 | 4.64E-06 | 4.64E-06 | 4.64E-06 | 9.23E-09 | 9.23E-09 | 9.23E-09 | 9.23E-09 | 9.23E-09 | 9.23E-09 | 9.23E-09 | 9.23E-09 | 9.23E-09 | - | 3.65E-05 | 3.70E-06 | YES |
| Carbon Tetrachloride | 56-23-5 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 4.40E-04 | - |
| Chloroform | 67-66-3 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 2.80E-04 | - |
| 1,1-Dichloroethane | 75-34-3 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 2.50E-04 | - |
| 1,2-Dichloroethane | 107-06-2 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 2.50E-04 | - |
| 1,3-Dichloropropene | 542-75-6 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 1.90E-07 | - |
| Ethylene Dibromide | 106-93-4 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 3.00E-05 | - |
| Formaldehyde | 50-00-0 | HAP | - | - | - | - | 4.63E-04 | 4.63E-04 | 2.47E-04 | 4.41E-06 | 4.41E-06 | 2.94E-06 | 4.41E-06 | 1.47E-05 | 1.47E-05 | 3.16E-04 | 3.16E-04 | 3.16E-04 | 3.16E-04 | 6.30E-07 | 6.30E-07 | 6.30E-07 | 6.30E-07 | 6.30E-07 | 6.30E-07 | 6.30E-07 | 6.30E-07 | 6.30E-07 | (exempt) | 2.49E-03 | 5.10E-04 | YES |
| 3-Methylchloranthrene | 56-49-5 | - | - | - | - | - | 1.11E-08 | 1.11E-08 | 5.93E-09 | 1.06E-10 | 1.06E-10 | 7.06E-11 | 1.06E-10 | 3.53E-10 | 3.53E-10 | 7.59E-09 | 7.59E-09 | 7.59E-09 | 7.59E-09 | 1.51E-11 | 1.51E-11 | 1.51E-11 | 1.51E-11 | 1.51E-11 | 1.51E-11 | 1.51E-11 | 1.51E-11 | 1.51E-11 | - | 5.98E-08 | 2.50E-06 | - |
| Methylene Chloride | 74-87-3 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 1.60E-03 | - |
| Nickel | 7440-02-0 | HAP | - | - | - | - | 1.30E-05 | 1.30E-05 | 6.92E-06 | 1.24E-07 | 1.24E-07 | 8.24E-08 | 1.24E-07 | 4.12E-07 | 4.12E-07 | 8.85E-06 | 8.85E-06 | 8.85E-06 | 8.85E-06 | 1.76E-08 | 1.76E-08 | 1.76E-08 | 1.76E-08 | 1.76E-08 | 1.76E-08 | 1.76E-08 | 1.76E-08 | 1.76E-08 | - | 6.97E-05 | 2.70E-05 | YES |
| PAH (except 7-PAH group): | - | HAP | - | - | - | - | 4.74E-07 | 4.74E-07 | 2.53E-07 | 4.52E-09 | 4.52E-09 | 3.01E-09 | 4.52E-09 | 1.51E-08 | 1.51E-08 | 3.24E-07 | 3.24E-07 | 3.24E-07 | 3.24E-07 | 6.45E-10 | 6.45E-10 | 6.45E-10 | 6.45E-10 | 6.45E-10 | 6.45E-10 | 6.45E-10 | 6.45E-10 | 6.45E-10 | (exempt) | 2.55E-06 | 9.10E-05 | - |
| POM (7-PAH group) per ID: | - | HAP | - | - | - | - | 7.04E-08 | 7.04E-08 | 3.76E-08 | 6.71E-10 | 6.71E-10 | 4.47E-10 | 6.71E-10 | 2.24E-09 | 2.24E-09 | 4.81E-08 | 4.81E-08 | 4.81E-08 | 4.81E-08 | 9.57E-11 | 9.57E-11 | 9.57E-11 | 9.57E-11 | 9.57E-11 | 9.57E-11 | 9.57E-11 | 9.57E-11 | 9.57E-11 | (exempt) | 3.78E-07 | 2.00E-06 | - |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 1.10E-05 | - |
| 1,1,2-Trichloroethane | 79-00-5 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 4.20E-04 | - |
| Vinyl Chloride | 75-01-4 | HAP | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | (exempt) | - | 9.40E-04 | - |
| **Other EPA HAPs** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | No Annual Standards | |
| Mercury | 7439-97-6 | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total HAPs | - | HAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

*(A) - Average hourly emission rates are based on calculated annual PTE emissions (including any requested permit limits on annual operating hours) divided by 8,760 hours per year. Details of the emission calculations are presented in subsequent tables.*

*(B) - Per Idaho DEQ guidance, since this source is subject to an EPA NESHAP, the Hazardous/Toxic Air Pollutants emitted from this source are exempt from modeling.*

# Table B-5. PTE Emissions - Grinder

| | |
|---|---|
| Emision Unit Information | Grinding System |
| Dispersion Modeling ID (AERMOD limits source IDs to 8 characters in length) | **GRINDER** |
| Material Processed | Straw Bales |
| Emission Concern | PM10 / PM2.5 |
| Maximum Annual Operation | 8,760 hr/yr |

| | |
|---|---|
| Maximum Hay Processing Rate<br>(at final facility buildout) | 43,000 lb/day<br>1,792 lb/hr<br>15,695,000 ton/yr |

| | |
|---|---|
| Emission Factor References from AP-42 Section 9.3.2, USDA 1/13/13 Idaho Crop Production News | |
| • PM10/2.5 Emission Factor for wheat harvest machine [(A)] | 0.027 lb/hr |
| • Harvet Machine Speed - Average | 3.36 m/s |
| • Combine Swath Width | 6.07 m |
| • Grinding Rate = Speed × Swath Width | 20.4 m2/s |
| • 1 acre | 4,047 m2 |
| • bushels/acre | 78.2 |
| • 1 bushel | 60 lb |
| • Harvesting rate = Grind Rate × Bushel/Acre × Bushel Weight × Square Meter/Acre | 85,125 lb/hr |

| | | |
|---|---|---|
| Emission Factor - Based on EPA Harvesting Rate | PM10/PM2.5 ---> | 0.027 lb/hr |
| Emission Factor - Adjusted for Fabri-Kal Maximum Harvesting Rate | | |
| • Fabri-Kal Maximum Hay Processing Rate (lb/hr) | | 1,792 lb/hr |
| • EPA AP-42 Hay Harvesting Rate (lb/hr) | | 85,125 lb/hr |
| • Correction Factor = Hay Processing Rate (lb/hr) / Harvesting Rate (lb/hr) | | 0.0210 |
| • PM10/2.5 Emission Factor (adjusted) = EPA Emission Factor × Correction Factor | PM10/PM2.5 ---> | 0.0006 lb/hr |

| | | |
|---|---|---|
| Potential Emissions - Worst-Case [(B), (C)] | PM10/PM2.5 | 0.027 lb/hr<br>8,760 hr/yr<br>237 lb/yr<br>0.118 ton/yr |

*(A) - AP-42 emission factor is for PM < 7 µm aerodynamic diameter.*

*(B) - Worst Case emissions based on the larger of the EPA Emission Factor and the Fabri-Kal Adjusted Emission Factor.*

*(C) - PTE Emission Rate (lb/hr) = Maximum of EPA Emission Rate (lb/hr) and Emission Rate adjusted for the Project (lb/hr)*
*PTE Emission Rate (ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operation (hr/yr) / 2000 lb/ton*

## Table B-6. PTE Emissions - Silos

| | |
|---|---|
| Emision Unit Information | Silo Storage |
| Dispersion Modeling ID | **(not applicable)** |
| Material Stored | Polypropylene Pellets |
| Emission Concern | VOCs |
| Maximum Annual Operation | 8,760 hr/yr |

| | |
|---|---|
| Maximum Hourly Throughput<br>(at final facility buildout) | 10,000 lb/hr<br>5.00 ton/hr |
| Maximum Annual Throughput<br>(at final facility buildout) | 87,600,000 lb/yr<br>43,800 ton/yr |

| | | |
|---|---|---|
| Emission Factor - Storage uncontrolled (SCC30101811)<br>• *VOCs from Pellets stored in Silo*<br>• *Emission Factor from WebFIRE 30101811* | VOCs | 0.01 lb/ton |

| | | |
|---|---|---|
| Potential Emissions - Uncontrolled [(A)] | VOCs | 0.050 lb/hr<br>438.000 lb/yr<br>0.219 ton/yr |

*(A) - PTE Emission Rate (lb/hr) = Maximum Hourly Throughput (ton/hr) × Emission Factor (lb/ton)*
*PTE Emission Rate (ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operation (hr/yr) / 2000 lb/ton*

## Table B-7. PTE Emissions - Cooking Tank

| | |
|---|---|
| Emision Unit Information | Cooking Tank, Steam Vented |
| Dispersion Modeling ID | **(not applicable)** |
| Material Processed | Mixture of NaOH and straw, heated to approximately 200°F. |
| Boiling Point of NaOH | 2,530 °F |

| | | |
|---|---|---|
| Potential Emissions (at final facility buildout) | NaOH | Based on Boiling Point, NaOH will not be emitted |

## Table B-8. PTE Emissions - Extruders

| | |
|---|---|
| Emision Unit Information | Extruders |
| Dispersion Modeling ID | **(not applicable)** |
| Material Processed | Polypropylene Pellets |
| Emission Concern | VOCs |
| Maximum Annual Operation | 8,760 hr/yr |

| | |
|---|---|
| Maximum Hourly Throughput<br>(at final facility buildout) | 10,000 lb/hr<br>5.00 ton/hr |
| Maximum Annual Throughput<br>(at final facility buildout) | 87,600,000 lb/yr<br>43,800 ton/yr |

| Regulated Pollutant | Maximum Hourly Throughput lb/hr | Maximum Annual Operation hr/yr | Volatile Component as VOC | Weight Percent wt % | POTENTIAL EMISSIONS TOTAL lb/hr | ton/yr |
|---|---|---|---|---|---|---|
| VOC | 10,000 | 8,760 | Copolymer | 0.07% | | |
| | | | Reactor Homopolymer | 0.26% | | |
| | | | VOC TOTAL | 0.33% | 0.330 | 1.445 |

*(A) - PTE Emission Rate (lb/hr) = Maximum Hourly Throughput (lb/hr) × Pollutant Weight Percent / 100%*
*PTE Emission Rate (ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operation (hr/yr) / 2000 lb/ton*

# Table B-9. PTE Emissions - Boiler #1

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | B.1 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | (Natural Gas) | | | | | (Natural Gas) | | 6,300,000 Btu/hr<br>1,020 Btu/cu ft<br>6,176 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (No Permit Limit) | | 8,760 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/10$^6$ scf | TOTAL Fuel Input Capacity 10$^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.006176 | 8,760 | 0.519 | 2.272 | 0.519 | - |
| $NO_x$ (Vendor Specs) | - | - | 89.76 (C) | | | 0.554 | 2.428 | 0.554 | 0.554 |
| PM10 | - | - | 7.6 | | | 0.047 | 0.206 | 0.047 | - |
| PM2.5 | - | - | 7.6 | | | 0.047 | 0.206 | 0.047 | 0.047 |
| $SO_2$ | - | - | 0.6 | | | 0.004 | 0.016 | 0.004 | - |
| VOC | - | - | 5.5 | | | 0.034 | 0.149 | - | - |
| Lead | - | - | 0.0005 | | | 3.09E-06 | 1.35E-05 | 3.09E-06 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 2.72E-05 | 1.19E-04 | 2.72E-05 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 8.65E-06 | 3.79E-05 | 8.65E-06 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 5.19E-07 | 2.27E-06 | 5.19E-07 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 5.25E-06 | 2.30E-05 | 5.25E-06 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 7.41E-06 | 3.25E-05 | 7.41E-06 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 1.11E-02 | 4.87E-02 | 1.11E-02 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 2.35E-06 | 1.03E-05 | 2.35E-06 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 6.79E-06 | 2.98E-05 | 6.79E-06 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 3.77E-06 | 1.65E-05 | 3.77E-06 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 1.61E-02 | 7.03E-02 | 1.61E-02 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 1.48E-07 | 6.49E-07 | 1.48E-07 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 2.10E-05 | 9.20E-05 | 2.10E-05 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 1.42E-05 | 6.22E-05 | 1.42E-05 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 1.79E-04 | 7.85E-04 | 1.79E-04 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 1.24E-06 | 5.41E-06 | - | 1.24E-06 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 1.30E-05 | 5.68E-05 | - | 1.30E-05 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 7.41E-09 | 3.25E-08 | - | 7.41E-09 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 7.41E-08 | 3.25E-07 | - | 7.41E-08 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 6.79E-06 | 2.98E-05 | - | 6.79E-06 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 4.63E-04 | 2.03E-03 | - | 4.63E-04 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 1.11E-08 | 4.87E-08 | - | 1.11E-08 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 1.30E-05 | 5.68E-05 | - | 1.30E-05 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 4.74E-07 | 2.08E-06 | - | 4.74E-07 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 7.04E-08 | 3.08E-07 | - | 7.04E-08 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 741.18 | 3,246.35 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 1.61E-06 | 7.03E-06 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

*(C) - NOx Emission Factor from vendor (Power Flame Incorporated) specification sheet for Standard C, J Burners - 0.88 lb NOx per MMBtu input. Based on 1020 Btu/cu ft heat content of natural gas, this equates to an emission factor of 89.76 lb/MM cu ft.*

# Table B-10. PTE Emissions - Boiler #2

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | B.2 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | (Natural Gas) | | | | | (Natural Gas) | | 6,300,000 Btu/hr<br>1,020 But/cu ft<br>6,176 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (No Permit Limit) | | 8,760 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor **AP-42 Section 1.4** lb/$10^6$ scf | TOTAL Fuel Input Capacity $10^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.006176 | 8,760 | 0.519 | 2.272 | 0.519 | - |
| $NO_x$ (Vendor Specs) | - | - | 89.76 (C) | | | 0.554 | 2.428 | 0.554 | 0.554 |
| PM10 | - | - | 7.6 | | | 0.047 | 0.206 | 0.047 | - |
| PM2.5 | - | - | 7.6 | | | 0.047 | 0.206 | 0.047 | 0.047 |
| $SO_2$ | - | - | 0.6 | | | 0.004 | 0.016 | 0.004 | - |
| VOC | - | - | 5.5 | | | 0.034 | 0.149 | - | - |
| Lead | - | - | 0.0005 | | | 3.09E-06 | 1.35E-05 | 3.09E-06 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 2.72E-05 | 1.19E-04 | 2.72E-05 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 8.65E-06 | 3.79E-05 | 8.65E-06 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 5.19E-07 | 2.27E-06 | 5.19E-07 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 5.25E-06 | 2.30E-05 | 5.25E-06 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 7.41E-06 | 3.25E-05 | 7.41E-06 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 1.11E-02 | 4.87E-02 | 1.11E-02 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 2.35E-06 | 1.03E-05 | 2.35E-06 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 6.79E-06 | 2.98E-05 | 6.79E-06 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 3.77E-06 | 1.65E-05 | 3.77E-06 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 1.61E-02 | 7.03E-02 | 1.61E-02 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 1.48E-07 | 6.49E-07 | 1.48E-07 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 2.10E-05 | 9.20E-05 | 2.10E-05 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 1.42E-05 | 6.22E-05 | 1.42E-05 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 1.79E-04 | 7.85E-04 | 1.79E-04 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 1.24E-06 | 5.41E-06 | - | 1.24E-06 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 1.30E-05 | 5.68E-05 | - | 1.30E-05 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 7.41E-09 | 3.25E-08 | - | 7.41E-09 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 7.41E-08 | 3.25E-07 | - | 7.41E-08 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 6.79E-06 | 2.98E-05 | - | 6.79E-06 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 4.63E-04 | 2.03E-03 | - | 4.63E-04 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 1.11E-08 | 4.87E-08 | - | 1.11E-08 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 1.30E-05 | 5.68E-05 | - | 1.30E-05 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 4.74E-07 | 2.08E-06 | - | 4.74E-07 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 7.04E-08 | 3.08E-07 | - | 7.04E-08 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 741.18 | 3,246.35 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 1.61E-06 | 7.03E-06 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

*(C) - NOx Emission Factor from vendor (Power Flame Incorporated) specification sheet for Standard C, J Burners - 0.88 lb NOx per MMBth input.*
*Based on 1020 Btu/cu ft heat content of natural gas, this equates to an emission factor of 89.76 lb/MM cu ft.*

# Table B-11. PTE Emissions - Boiler #3

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | B.3 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | (Natural Gas) | | | | | (Natural Gas) | | 3,360,000 Btu/hr<br>1,020 But/cu ft<br>3,294 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (No Permit Limit) | | 8,760 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor **AP-42 Section 1.4** lb/$10^6$ scf | TOTAL Fuel Input Capacity $10^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | Avg Hour lb/hr |
| Criteria Pollutants | | **(Units < 100 MMBtu/hr)** | | | | | | | |
| CO | - | - | 84 | 0.003294 | 8,760 | 0.277 | 1.212 | 0.277 | - |
| $NO_x$ | - | - | 100 | | | 0.329 | 1.443 | 0.329 | 0.329 |
| PM10 | - | - | 7.6 | | | 0.025 | 0.110 | 0.025 | - |
| PM2.5 | - | - | 7.6 | | | 0.025 | 0.110 | 0.025 | 0.025 |
| $SO_2$ | - | - | 0.6 | | | 0.002 | 0.009 | 0.002 | - |
| VOC | - | - | 5.5 | | | 0.018 | 0.079 | - | - |
| Lead | - | - | 0.0005 | | | 1.65E-06 | 7.21E-06 | 1.65E-06 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 1.45E-05 | 6.35E-05 | 1.45E-05 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 4.61E-06 | 2.02E-05 | 4.61E-06 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 2.77E-07 | 1.21E-06 | 2.77E-07 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 2.80E-06 | 1.23E-05 | 2.80E-06 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 3.95E-06 | 1.73E-05 | 3.95E-06 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 5.93E-03 | 2.60E-02 | 5.93E-03 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 1.25E-06 | 5.48E-06 | 1.25E-06 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 3.62E-06 | 1.59E-05 | 3.62E-06 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 2.01E-06 | 8.80E-06 | 2.01E-06 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 8.56E-03 | 3.75E-02 | 8.56E-03 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 7.91E-08 | 3.46E-07 | 7.91E-08 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 1.12E-05 | 4.91E-05 | 1.12E-05 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 7.58E-06 | 3.32E-05 | 7.58E-06 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 9.55E-05 | 4.18E-04 | 9.55E-05 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 6.59E-07 | 2.89E-06 | - | 6.59E-07 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 6.92E-06 | 3.03E-05 | - | 6.92E-06 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 3.95E-09 | 1.73E-08 | - | 3.95E-09 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 3.95E-08 | 1.73E-07 | - | 3.95E-08 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 3.62E-06 | 1.59E-05 | - | 3.62E-06 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 2.47E-04 | 1.08E-03 | - | 2.47E-04 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 5.93E-09 | 2.60E-08 | - | 5.93E-09 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 6.92E-06 | 3.03E-05 | - | 6.92E-06 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 2.53E-07 | 1.11E-06 | - | 2.53E-07 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 3.76E-08 | 1.64E-07 | - | 3.76E-08 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 395.29 | 1,731.39 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 8.56E-07 | 3.75E-06 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-12. PTE Emissions - Furnace A-1

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | F.A1 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | (Natural Gas) | | | | | (Natural Gas) | | 60,000 Btu/hr<br>1,020 But/cu ft<br>59 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (No Permit Limit) | | 8,760 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/10$^6$ scf | TOTAL Fuel Input Capacity 10$^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL (A) EMISSIONS lb/hr | POTENITIAL (A) EMISSIONS ton/yr | MODELING EMISSION (B) RATES Max Hour lb/hr | MODELING EMISSION (B) RATES Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.000059 | 8,760 | 0.005 | 0.022 | 0.005 | - |
| $NO_x$ | - | - | 100 | | | 0.006 | 0.026 | 0.006 | 0.006 |
| PM10 | - | - | 7.6 | | | 0.0004 | 0.002 | 0.0004 | - |
| PM2.5 | - | - | 7.6 | | | 0.0004 | 0.002 | 0.0004 | 0.0004 |
| $SO_2$ | - | - | 0.6 | | | 0.00004 | 0.0002 | 0.00004 | - |
| VOC | - | - | 5.5 | | | 0.0003 | 0.0014 | - | - |
| Lead | - | - | 0.0005 | | | 2.94E-08 | 1.29E-07 | 2.94E-08 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 2.59E-07 | 1.13E-06 | 2.59E-07 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 8.24E-08 | 3.61E-07 | 8.24E-08 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 4.94E-09 | 2.16E-08 | 4.94E-09 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 5.00E-08 | 2.19E-07 | 5.00E-08 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 7.06E-08 | 3.09E-07 | 7.06E-08 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 1.06E-04 | 4.64E-04 | 1.06E-04 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 2.24E-08 | 9.79E-08 | 2.24E-08 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 6.47E-08 | 2.83E-07 | 6.47E-08 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 3.59E-08 | 1.57E-07 | 3.59E-08 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 1.53E-04 | 6.70E-04 | 1.53E-04 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 1.41E-09 | 6.18E-09 | 1.41E-09 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 2.00E-07 | 8.76E-07 | 2.00E-07 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 1.35E-07 | 5.93E-07 | 1.35E-07 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 1.71E-06 | 7.47E-06 | 1.71E-06 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 1.18E-08 | 5.15E-08 | - | 1.18E-08 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 1.24E-07 | 5.41E-07 | - | 1.24E-07 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 7.06E-11 | 3.09E-10 | - | 7.06E-11 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 7.06E-10 | 3.09E-09 | - | 7.06E-10 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 6.47E-08 | 2.83E-07 | - | 6.47E-08 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 4.41E-06 | 1.93E-05 | - | 4.41E-06 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 1.06E-10 | 4.64E-10 | - | 1.06E-10 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 1.24E-07 | 5.41E-07 | - | 1.24E-07 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 4.52E-09 | 1.98E-08 | - | 4.52E-09 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 6.71E-10 | 2.94E-09 | - | 6.71E-10 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 7.06 | 30.92 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 1.53E-08 | 6.70E-08 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-13. PTE Emissions - Furnace A-2

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | F.A2 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | (Natural Gas) | | | | | (Natural Gas) | | 60,000 Btu/hr<br>1,020 But/cu ft<br>59 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (No Permit Limit) | | 8,760 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor **AP-42 Section 1.4** lb/10$^6$ scf | TOTAL Fuel Input Capacity 10$^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.000059 | 8,760 | 0.005 | 0.022 | 0.005 | - |
| $NO_x$ | - | - | 100 | | | 0.006 | 0.026 | 0.006 | 0.006 |
| PM10 | - | - | 7.6 | | | 0.0004 | 0.0020 | 0.0004 | - |
| PM2.5 | - | - | 7.6 | | | 0.0004 | 0.0020 | 0.0004 | 0.0004 |
| $SO_2$ | - | - | 0.6 | | | 0.00004 | 0.00015 | 0.00004 | - |
| VOC | - | - | 5.5 | | | 0.0003 | 0.0014 | - | - |
| Lead | - | - | 0.0005 | | | 2.94E-08 | 1.29E-07 | 2.94E-08 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 2.59E-07 | 1.13E-06 | 2.59E-07 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 8.24E-08 | 3.61E-07 | 8.24E-08 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 4.94E-09 | 2.16E-08 | 4.94E-09 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 5.00E-08 | 2.19E-07 | 5.00E-08 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 7.06E-08 | 3.09E-07 | 7.06E-08 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 1.06E-04 | 4.64E-04 | 1.06E-04 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 2.24E-08 | 9.79E-08 | 2.24E-08 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 6.47E-08 | 2.83E-07 | 6.47E-08 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 3.59E-08 | 1.57E-07 | 3.59E-08 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 1.53E-04 | 6.70E-04 | 1.53E-04 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 1.41E-09 | 6.18E-09 | 1.41E-09 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 2.00E-07 | 8.76E-07 | 2.00E-07 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 1.35E-07 | 5.93E-07 | 1.35E-07 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 1.71E-06 | 7.47E-06 | 1.71E-06 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 1.18E-08 | 5.15E-08 | - | 1.18E-08 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 1.24E-07 | 5.41E-07 | - | 1.24E-07 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 7.06E-11 | 3.09E-10 | - | 7.06E-11 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 7.06E-10 | 3.09E-09 | - | 7.06E-10 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 6.47E-08 | 2.83E-07 | - | 6.47E-08 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 4.41E-06 | 1.93E-05 | - | 4.41E-06 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 1.06E-10 | 4.64E-10 | - | 1.06E-10 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 1.24E-07 | 5.41E-07 | - | 1.24E-07 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 4.52E-09 | 1.98E-08 | - | 4.52E-09 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 6.71E-10 | 2.94E-09 | - | 6.71E-10 |
| • Benzo(a)anthracene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 7.06 | 30.92 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 1.53E-08 | 6.70E-08 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-14. PTE Emissions - Furnace A-3

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | F.A3 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | (Natural Gas) | | | | | (Natural Gas) | | 40,000 Btu/hr<br>1,020 But/cu ft<br>39 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (No Permit Limit) | | 8,760 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/10$^6$ scf | TOTAL Fuel Input Capacity 10$^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.000039 | 8,760 | 0.003 | 0.014 | 0.003 | - |
| $NO_x$ | - | - | 100 | | | 0.004 | 0.017 | 0.004 | 0.004 |
| PM10 | - | - | 7.6 | | | 0.0003 | 0.0013 | 0.0003 | - |
| PM2.5 | - | - | 7.6 | | | 0.0003 | 0.0013 | 0.0003 | 0.0003 |
| $SO_2$ | - | - | 0.6 | | | 0.00002 | 0.00010 | 0.00002 | - |
| VOC | - | - | 5.5 | | | 0.0002 | 0.0009 | - | - |
| Lead | - | - | 0.0005 | | | 1.96E-08 | 8.59E-08 | 1.96E-08 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 1.73E-07 | 7.56E-07 | 1.73E-07 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 5.49E-08 | 2.40E-07 | 5.49E-08 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 3.29E-09 | 1.44E-08 | 3.29E-09 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 3.33E-08 | 1.46E-07 | 3.33E-08 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 4.71E-08 | 2.06E-07 | 4.71E-08 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 7.06E-05 | 3.09E-04 | 7.06E-05 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 1.49E-08 | 6.53E-08 | 1.49E-08 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 4.31E-08 | 1.89E-07 | 4.31E-08 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 2.39E-08 | 1.05E-07 | 2.39E-08 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 1.02E-04 | 4.47E-04 | 1.02E-04 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 9.41E-10 | 4.12E-09 | 9.41E-10 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 1.33E-07 | 5.84E-07 | 1.33E-07 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 9.02E-08 | 3.95E-07 | 9.02E-08 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 1.14E-06 | 4.98E-06 | 1.14E-06 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 7.84E-09 | 3.44E-08 | - | 7.84E-09 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 8.24E-08 | 3.61E-07 | - | 8.24E-08 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 4.71E-11 | 2.06E-10 | - | 4.71E-11 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 4.71E-10 | 2.06E-09 | - | 4.71E-10 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 4.31E-08 | 1.89E-07 | - | 4.31E-08 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 2.94E-06 | 1.29E-05 | - | 2.94E-06 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 7.06E-11 | 3.09E-10 | - | 7.06E-11 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 8.24E-08 | 3.61E-07 | - | 8.24E-08 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 3.01E-09 | 1.32E-08 | - | 3.01E-09 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 4.47E-10 | 1.96E-09 | - | 4.47E-10 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 4.71 | 20.61 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 1.02E-08 | 4.47E-08 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-15. PTE Emissions - Furnace A-4

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | F.A4 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | (Natural Gas) | | | | | (Natural Gas) | | 60,000 Btu/hr<br>1,020 But/cu ft<br>59 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (No Permit Limit) | | 8,760 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/10$^6$ scf | TOTAL Fuel Input Capacity 10$^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.000059 | 8,760 | 0.005 | 0.022 | 0.005 | - |
| $NO_x$ | - | - | 100 | | | 0.006 | 0.026 | 0.006 | 0.006 |
| PM10 | - | - | 7.6 | | | 0.0004 | 0.0020 | 0.0004 | - |
| PM2.5 | - | - | 7.6 | | | 0.0004 | 0.0020 | 0.0004 | 0.0004 |
| $SO_2$ | - | - | 0.6 | | | 0.00004 | 0.00015 | 0.00004 | - |
| VOC | - | - | 5.5 | | | 0.0003 | 0.0014 | - | - |
| Lead | - | - | 0.0005 | | | 2.94E-08 | 1.29E-07 | 2.94E-08 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 2.59E-07 | 1.13E-06 | 2.59E-07 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 8.24E-08 | 3.61E-07 | 8.24E-08 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 4.94E-09 | 2.16E-08 | 4.94E-09 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 5.00E-08 | 2.19E-07 | 5.00E-08 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 7.06E-08 | 3.09E-07 | 7.06E-08 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 1.06E-04 | 4.64E-04 | 1.06E-04 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 2.24E-08 | 9.79E-08 | 2.24E-08 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 6.47E-08 | 2.83E-07 | 6.47E-08 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 3.59E-08 | 1.57E-07 | 3.59E-08 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 1.53E-04 | 6.70E-04 | 1.53E-04 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 1.41E-09 | 6.18E-09 | 1.41E-09 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 2.00E-07 | 8.76E-07 | 2.00E-07 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 1.35E-07 | 5.93E-07 | 1.35E-07 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 1.71E-06 | 7.47E-06 | 1.71E-06 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 1.18E-08 | 5.15E-08 | - | 1.18E-08 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 1.24E-07 | 5.41E-07 | - | 1.24E-07 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 7.06E-11 | 3.09E-10 | - | 7.06E-11 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 7.06E-10 | 3.09E-09 | - | 7.06E-10 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 6.47E-08 | 2.83E-07 | - | 6.47E-08 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 4.41E-06 | 1.93E-05 | - | 4.41E-06 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 1.06E-10 | 4.64E-10 | - | 1.06E-10 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 1.24E-07 | 5.41E-07 | - | 1.24E-07 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 4.52E-09 | 1.98E-08 | - | 4.52E-09 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 6.71E-10 | 2.94E-09 | - | 6.71E-10 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 7.06 | 30.92 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 1.53E-08 | 6.70E-08 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-16. PTE Emissions - Infrared Heater B1

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | IRH.B1 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | (Natural Gas) | | | | | (Natural Gas) | | 200,000 Btu/hr<br>1,020 But/cu ft<br>196 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (No Permit Limit) | | 8,760 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/10$^6$ scf | TOTAL Fuel Input Capacity 10$^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.000196 | 8,760 | 0.016 | 0.072 | 0.016 | - |
| $NO_x$ | - | - | 100 | | | 0.020 | 0.086 | 0.020 | 0.020 |
| PM10 | - | - | 7.6 | | | 0.0015 | 0.007 | 0.0015 | - |
| PM2.5 | - | - | 7.6 | | | 0.0015 | 0.007 | 0.0015 | 0.0015 |
| $SO_2$ | - | - | 0.6 | | | 0.00012 | 0.0005 | 0.00012 | - |
| VOC | - | - | 5.5 | | | 0.0011 | 0.005 | - | - |
| Lead | - | - | 0.0005 | | | 9.80E-08 | 4.29E-07 | 9.80E-08 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 8.63E-07 | 3.78E-06 | 8.63E-07 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 2.75E-07 | 1.20E-06 | 2.75E-07 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 1.65E-08 | 7.21E-08 | 1.65E-08 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 1.67E-07 | 7.30E-07 | 1.67E-07 | - |
| Dichlorobenzene | 106-46-7 | HAP | 1.20E-03 | | | 2.35E-07 | 1.03E-06 | 2.35E-07 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 3.53E-04 | 1.55E-03 | 3.53E-04 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 7.45E-08 | 3.26E-07 | 7.45E-08 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 2.16E-07 | 9.45E-07 | 2.16E-07 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 1.20E-07 | 5.24E-07 | 1.20E-07 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 5.10E-04 | 2.23E-03 | 5.10E-04 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 4.71E-09 | 2.06E-08 | 4.71E-09 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 6.67E-07 | 2.92E-06 | 6.67E-07 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 4.51E-07 | 1.98E-06 | 4.51E-07 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 5.69E-06 | 2.49E-05 | 5.69E-06 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 3.92E-08 | 1.72E-07 | - | 3.92E-08 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 4.12E-07 | 1.80E-06 | - | 4.12E-07 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 2.35E-10 | 1.03E-09 | - | 2.35E-10 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 2.35E-09 | 1.03E-08 | - | 2.35E-09 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 2.16E-07 | 9.45E-07 | - | 2.16E-07 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 1.47E-05 | 6.44E-05 | - | 1.47E-05 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 3.53E-10 | 1.55E-09 | - | 3.53E-10 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 4.12E-07 | 1.80E-06 | - | 4.12E-07 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 1.51E-08 | 6.60E-08 | - | 1.51E-08 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 2.24E-09 | 9.79E-09 | - | 2.24E-09 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 23.53 | 103.06 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 5.10E-08 | 2.23E-07 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-17. PTE Emissions - Infrared Heater B2

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | IRH.B2 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | (Natural Gas) | | | | | (Natural Gas) | | 200,000 Btu/hr<br>1,020 But/cu ft<br>196 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (No Permit Limit) | | 8,760 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/10$^6$ scf | TOTAL Fuel Input Capacity 10$^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | POTENITIAL [A] EMISSIONS ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | MODELING EMISSION [B] RATES Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.000196 | 8,760 | 0.016 | 0.072 | 0.016 | - |
| $NO_x$ | - | - | 100 | | | 0.020 | 0.086 | 0.020 | 0.020 |
| PM10 | - | - | 7.6 | | | 0.0015 | 0.007 | 0.0015 | - |
| PM2.5 | - | - | 7.6 | | | 0.0015 | 0.007 | 0.0015 | 0.0015 |
| $SO_2$ | - | - | 0.6 | | | 0.00012 | 0.0005 | 0.00012 | - |
| VOC | - | - | 5.5 | | | 0.0011 | 0.005 | - | - |
| Lead | - | - | 0.0005 | | | 9.80E-08 | 4.29E-07 | 9.80E-08 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 8.63E-07 | 3.78E-06 | 8.63E-07 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 2.75E-07 | 1.20E-06 | 2.75E-07 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 1.65E-08 | 7.21E-08 | 1.65E-08 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 1.67E-07 | 7.30E-07 | 1.67E-07 | - |
| Dichlorobenzene | 106-46-7 | HAP | 1.20E-03 | | | 2.35E-07 | 1.03E-06 | 2.35E-07 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 3.53E-04 | 1.55E-03 | 3.53E-04 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 7.45E-08 | 3.26E-07 | 7.45E-08 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 2.16E-07 | 9.45E-07 | 2.16E-07 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 1.20E-07 | 5.24E-07 | 1.20E-07 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 5.10E-04 | 2.23E-03 | 5.10E-04 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 4.71E-09 | 2.06E-08 | 4.71E-09 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 6.67E-07 | 2.92E-06 | 6.67E-07 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 4.51E-07 | 1.98E-06 | 4.51E-07 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 5.69E-06 | 2.49E-05 | 5.69E-06 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 3.92E-08 | 1.72E-07 | - | 3.92E-08 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 4.12E-07 | 1.80E-06 | - | 4.12E-07 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 2.35E-10 | 1.03E-09 | - | 2.35E-10 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 2.35E-09 | 1.03E-08 | - | 2.35E-09 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 2.16E-07 | 9.45E-07 | - | 2.16E-07 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 1.47E-05 | 6.44E-05 | - | 1.47E-05 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 3.53E-10 | 1.55E-09 | - | 3.53E-10 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 4.12E-07 | 1.80E-06 | - | 4.12E-07 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 1.51E-08 | 6.60E-08 | - | 1.51E-08 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 2.24E-09 | 9.79E-09 | - | 2.24E-09 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 23.53 | 103.06 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 5.10E-08 | 2.23E-07 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-18. PTE Emissions - Makeup Air Unit A-1

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | MAU.A1 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | (Natural Gas) | | | | | (Natural Gas) | | 4,300,452 Btu/hr<br>1,020 But/cu ft<br>4,216 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (No Permit Limit) | | 8,760 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/10$^6$ scf | TOTAL Fuel Input Capacity 10$^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.004216 | 8,760 | 0.354 | 1.551 | 0.354 | - |
| $NO_x$ (Staged low-NOx burners) | - | - | 50 (C) | | | 0.211 | 0.923 | 0.211 | 0.211 |
| PM10 | - | - | 7.6 | | | 0.032 | 0.140 | 0.032 | - |
| PM2.5 | - | - | 7.6 | | | 0.032 | 0.140 | 0.032 | 0.032 |
| $SO_2$ | - | - | 0.6 | | | 0.003 | 0.011 | 0.003 | - |
| VOC | - | - | 5.5 | | | 0.023 | 0.102 | - | - |
| Lead | - | - | 0.0005 | | | 2.11E-06 | 9.23E-06 | 2.11E-06 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 1.86E-05 | 8.13E-05 | 1.86E-05 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 5.90E-06 | 2.59E-05 | 5.90E-06 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 3.54E-07 | 1.55E-06 | 3.54E-07 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 3.58E-06 | 1.57E-05 | 3.58E-06 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 5.06E-06 | 2.22E-05 | 5.06E-06 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 7.59E-03 | 3.32E-02 | 7.59E-03 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 1.60E-06 | 7.02E-06 | 1.60E-06 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 4.64E-06 | 2.03E-05 | 4.64E-06 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 2.57E-06 | 1.13E-05 | 2.57E-06 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 1.10E-02 | 4.80E-02 | 1.10E-02 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 1.01E-07 | 4.43E-07 | 1.01E-07 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 1.43E-05 | 6.28E-05 | 1.43E-05 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 9.70E-06 | 4.25E-05 | 9.70E-06 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 1.22E-04 | 5.36E-04 | 1.22E-04 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 8.43E-07 | 3.69E-06 | - | 8.43E-07 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 8.85E-06 | 3.88E-05 | - | 8.85E-06 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 5.06E-09 | 2.22E-08 | - | 5.06E-09 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 5.06E-08 | 2.22E-07 | - | 5.06E-08 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 4.64E-06 | 2.03E-05 | - | 4.64E-06 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 3.16E-04 | 1.38E-03 | - | 3.16E-04 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 7.59E-09 | 3.32E-08 | - | 7.59E-09 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 8.85E-06 | 3.88E-05 | - | 8.85E-06 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 3.24E-07 | 1.42E-06 | - | 3.24E-07 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 4.81E-08 | 2.11E-07 | - | 4.81E-08 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 505.94 | 2,216.00 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 1.10E-06 | 4.80E-06 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

*(C) - AP-42 Low NOx Emission Factor is used. The MAU are equipped with stage burners, consistent with the AP-42 definition of a low NOx burner.*

# Table B-19. PTE Emissions - Makeup Air Unit D-1

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | MAU.D1 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | (Natural Gas) | | | | | (Natural Gas) | | 4,300,452 Btu/hr<br>1,020 But/cu ft<br>4,216 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (No Permit Limit) | | 8,760 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor **AP-42 Section 1.4** lb/$10^6$ scf | TOTAL Fuel Input Capacity $10^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | Avg Hour lb/hr |
| Criteria Pollutants | | **(Units < 100 MMBtu/hr)** | | | | | | | |
| CO | - | - | 84 | 0.004216 | 8,760 | 0.354 | 1.551 | 0.354 | - |
| $NO_x$ (Staged low-NOx burners) | - | - | 50 (C) | | | 0.211 | 0.923 | 0.211 | 0.211 |
| PM10 | - | - | 7.6 | | | 0.032 | 0.140 | 0.032 | - |
| PM2.5 | - | - | 7.6 | | | 0.032 | 0.140 | 0.032 | 0.032 |
| $SO_2$ | - | - | 0.6 | | | 0.003 | 0.011 | 0.003 | - |
| VOC | - | - | 5.5 | | | 0.023 | 0.102 | - | - |
| Lead | - | - | 0.0005 | | | 2.11E-06 | 9.23E-06 | 2.11E-06 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 1.86E-05 | 8.13E-05 | 1.86E-05 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 5.90E-06 | 2.59E-05 | 5.90E-06 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 3.54E-07 | 1.55E-06 | 3.54E-07 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 3.58E-06 | 1.57E-05 | 3.58E-06 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 5.06E-06 | 2.22E-05 | 5.06E-06 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 7.59E-03 | 3.32E-02 | 7.59E-03 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 1.60E-06 | 7.02E-06 | 1.60E-06 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 4.64E-06 | 2.03E-05 | 4.64E-06 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 2.57E-06 | 1.13E-05 | 2.57E-06 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 1.10E-02 | 4.80E-02 | 1.10E-02 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 1.01E-07 | 4.43E-07 | 1.01E-07 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 1.43E-05 | 6.28E-05 | 1.43E-05 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 9.70E-06 | 4.25E-05 | 9.70E-06 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 1.22E-04 | 5.36E-04 | 1.22E-04 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 8.43E-07 | 3.69E-06 | - | 8.43E-07 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 8.85E-06 | 3.88E-05 | - | 8.85E-06 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 5.06E-09 | 2.22E-08 | - | 5.06E-09 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 5.06E-08 | 2.22E-07 | - | 5.06E-08 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 4.64E-06 | 2.03E-05 | - | 4.64E-06 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 3.16E-04 | 1.38E-03 | - | 3.16E-04 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 7.59E-09 | 3.32E-08 | - | 7.59E-09 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 8.85E-06 | 3.88E-05 | - | 8.85E-06 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 3.24E-07 | 1.42E-06 | - | 3.24E-07 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 4.81E-08 | 2.11E-07 | - | 4.81E-08 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 505.94 | 2,216.00 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 1.10E-06 | 4.80E-06 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

*(C) - AP-42 Low NOx Emission Factor is used. The MAU are equipped with stage burners, consistent with the AP-42 definition of a low NOx burner.*

# Table B-20. PTE Emissions - Makeup Air Unit F-1

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | MAU.F1 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | (Natural Gas) | | | | | (Natural Gas) | | 4,300,452 Btu/hr<br>1,020 But/cu ft<br>4,216 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (No Permit Limit) | | 8,760 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/10$^6$ scf | TOTAL Fuel Input Capacity 10$^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.004216 | 8,760 | 0.354 | 1.551 | 0.354 | - |
| $NO_x$ (Staged low-NOx burners) | - | - | 50 (C) | | | 0.211 | 0.923 | 0.211 | 0.211 |
| PM10 | - | - | 7.6 | | | 0.032 | 0.140 | 0.032 | - |
| PM2.5 | - | - | 7.6 | | | 0.032 | 0.140 | 0.032 | 0.032 |
| $SO_2$ | - | - | 0.6 | | | 0.003 | 0.011 | 0.003 | - |
| VOC | - | - | 5.5 | | | 0.023 | 0.102 | - | - |
| Lead | - | - | 0.0005 | | | 2.11E-06 | 9.23E-06 | 2.11E-06 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 1.86E-05 | 8.13E-05 | 1.86E-05 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 5.90E-06 | 2.59E-05 | 5.90E-06 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 3.54E-07 | 1.55E-06 | 3.54E-07 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 3.58E-06 | 1.57E-05 | 3.58E-06 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 5.06E-06 | 2.22E-05 | 5.06E-06 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 7.59E-03 | 3.32E-02 | 7.59E-03 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 1.60E-06 | 7.02E-06 | 1.60E-06 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 4.64E-06 | 2.03E-05 | 4.64E-06 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 2.57E-06 | 1.13E-05 | 2.57E-06 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 1.10E-02 | 4.80E-02 | 1.10E-02 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 1.01E-07 | 4.43E-07 | 1.01E-07 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 1.43E-05 | 6.28E-05 | 1.43E-05 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 9.70E-06 | 4.25E-05 | 9.70E-06 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 1.22E-04 | 5.36E-04 | 1.22E-04 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 8.43E-07 | 3.69E-06 | - | 8.43E-07 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 8.85E-06 | 3.88E-05 | - | 8.85E-06 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 5.06E-09 | 2.22E-08 | - | 5.06E-09 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 5.06E-08 | 2.22E-07 | - | 5.06E-08 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 4.64E-06 | 2.03E-05 | - | 4.64E-06 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 3.16E-04 | 1.38E-03 | - | 3.16E-04 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 7.59E-09 | 3.32E-08 | - | 7.59E-09 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 8.85E-06 | 3.88E-05 | - | 8.85E-06 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 3.24E-07 | 1.42E-06 | - | 3.24E-07 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 4.81E-08 | 2.11E-07 | - | 4.81E-08 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 505.94 | 2,216.00 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 1.10E-06 | 4.80E-06 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

*(C) - AP-42 Low NOx Emission Factor is used. The MAU are equipped with stage burners, consistent with the AP-42 definition of a low NOx burner.*

# Table B-21. PTE Emissions - Makeup Air Unit F-2

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | MAU.F2 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | (Natural Gas) | | | | | (Natural Gas) | | 4,300,452 Btu/hr<br>1,020 But/cu ft<br>4,216 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (No Permit Limit) | | 8,760 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/10$^6$ scf | TOTAL Fuel Input Capacity 10$^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | POTENITIAL [A] EMISSIONS ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | MODELING EMISSION [B] RATES Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.004216 | 8,760 | 0.354 | 1.551 | 0.354 | - |
| $NO_x$ (Staged low-NOx burners) | - | - | 50 (C) | | | 0.211 | 0.923 | 0.211 | 0.211 |
| PM10 | - | - | 7.6 | | | 0.032 | 0.140 | 0.032 | - |
| PM2.5 | - | - | 7.6 | | | 0.032 | 0.140 | 0.032 | 0.032 |
| $SO_2$ | - | - | 0.6 | | | 0.003 | 0.011 | 0.003 | - |
| VOC | - | - | 5.5 | | | 0.023 | 0.102 | - | - |
| Lead | - | - | 0.0005 | | | 2.11E-06 | 9.23E-06 | 2.11E-06 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 1.86E-05 | 8.13E-05 | 1.86E-05 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 5.90E-06 | 2.59E-05 | 5.90E-06 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 3.54E-07 | 1.55E-06 | 3.54E-07 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 3.58E-06 | 1.57E-05 | 3.58E-06 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 5.06E-06 | 2.22E-05 | 5.06E-06 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 7.59E-03 | 3.32E-02 | 7.59E-03 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 1.60E-06 | 7.02E-06 | 1.60E-06 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 4.64E-06 | 2.03E-05 | 4.64E-06 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 2.57E-06 | 1.13E-05 | 2.57E-06 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 1.10E-02 | 4.80E-02 | 1.10E-02 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 1.01E-07 | 4.43E-07 | 1.01E-07 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 1.43E-05 | 6.28E-05 | 1.43E-05 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 9.70E-06 | 4.25E-05 | 9.70E-06 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 1.22E-04 | 5.36E-04 | 1.22E-04 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 8.43E-07 | 3.69E-06 | - | 8.43E-07 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 8.85E-06 | 3.88E-05 | - | 8.85E-06 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 5.06E-09 | 2.22E-08 | - | 5.06E-09 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 5.06E-08 | 2.22E-07 | - | 5.06E-08 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 4.64E-06 | 2.03E-05 | - | 4.64E-06 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 3.16E-04 | 1.38E-03 | - | 3.16E-04 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 7.59E-09 | 3.32E-08 | - | 7.59E-09 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 8.85E-06 | 3.88E-05 | - | 8.85E-06 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 3.24E-07 | 1.42E-06 | - | 3.24E-07 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 4.81E-08 | 2.11E-07 | - | 4.81E-08 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 505.94 | 2,216.00 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 1.10E-06 | 4.80E-06 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

*(C) - AP-42 Low NOx Emission Factor is used. The MAU are equipped with stage burners, consistent with the AP-42 definition of a low NOx burner.*

# Table B-22. PTE Emissions - Emergency Shutdown Heater B-1

| Emission Unit Information | | | | | Dispersion Modeling ID ---> | | UH.B1 | |
|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | | | | | (Natural Gas) | | 150,000 Btu/hr<br>1,020 But/cu ft<br>147 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | (Permit Limit - Annual) | | 500 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/$10^6$ scf | TOTAL Fuel Input Capacity $10^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | POTENITIAL [A] EMISSIONS ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | MODELING EMISSION [B] RATES Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.000147 | 500 | 0.012 | 0.003 | 0.012 | - |
| $NO_x$ | - | - | 100 | | | 0.015 | 0.004 | 0.015 | 0.0008 |
| PM10 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | - |
| PM2.5 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | 0.00006 |
| $SO_2$ | - | - | 0.6 | | | 0.00009 | 0.00002 | 0.00009 | - |
| VOC | - | - | 5.5 | | | 0.0008 | 0.0002 | - | - |
| Lead | - | - | 0.0005 | | | 7.35E-08 | 1.84E-08 | 7.35E-08 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 6.47E-07 | 1.62E-07 | 6.47E-07 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 2.06E-07 | 5.15E-08 | 2.06E-07 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 1.24E-08 | 3.09E-09 | 1.24E-08 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 1.25E-07 | 3.13E-08 | 1.25E-07 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 1.76E-07 | 4.41E-08 | 1.76E-07 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 2.65E-04 | 6.62E-05 | 2.65E-04 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 5.59E-08 | 1.40E-08 | 5.59E-08 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | 1.62E-07 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 8.97E-08 | 2.24E-08 | 8.97E-08 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 3.82E-04 | 9.56E-05 | 3.82E-04 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 3.53E-09 | 8.82E-10 | 3.53E-09 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 5.00E-07 | 1.25E-07 | 5.00E-07 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 3.38E-07 | 8.46E-08 | 3.38E-07 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 4.26E-06 | 1.07E-06 | 4.26E-06 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 2.94E-08 | 7.35E-09 | - | 1.68E-09 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 1.76E-10 | 4.41E-11 | - | 1.01E-11 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 1.76E-09 | 4.41E-10 | - | 1.01E-10 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | - | 9.23E-09 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 1.10E-05 | 2.76E-06 | - | 6.30E-07 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 2.65E-10 | 6.62E-11 | - | 1.51E-11 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 1.13E-08 | 2.82E-09 | - | 6.45E-10 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 1.68E-09 | 4.19E-10 | - | 9.57E-11 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 17.65 | 4.41 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 3.82E-08 | 9.56E-09 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-23. PTE Emissions - Emergency Shutdown Heater C-1

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | UH.C1 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | | | | | | (Natural Gas) | | 150,000 Btu/hr<br>1,020 But/cu ft<br>147 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (Permit Limit - Annual) | | 500 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/10$^6$ scf | TOTAL Fuel Input Capacity 10$^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | POTENITIAL [A] EMISSIONS ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | MODELING EMISSION [B] RATES Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.000147 | 500 | 0.012 | 0.003 | 0.012 | - |
| $NO_x$ | - | - | 100 | | | 0.015 | 0.004 | 0.015 | 0.0008 |
| PM10 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | - |
| PM2.5 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | 0.00006 |
| $SO_2$ | - | - | 0.6 | | | 0.00009 | 0.00002 | 0.00009 | - |
| VOC | - | - | 5.5 | | | 0.0008 | 0.0002 | - | - |
| Lead | - | - | 0.0005 | | | 7.35E-08 | 1.84E-08 | 7.35E-08 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 6.47E-07 | 1.62E-07 | 6.47E-07 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 2.06E-07 | 5.15E-08 | 2.06E-07 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 1.24E-08 | 3.09E-09 | 1.24E-08 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 1.25E-07 | 3.13E-08 | 1.25E-07 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 1.76E-07 | 4.41E-08 | 1.76E-07 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 2.65E-04 | 6.62E-05 | 2.65E-04 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 5.59E-08 | 1.40E-08 | 5.59E-08 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | 1.62E-07 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 8.97E-08 | 2.24E-08 | 8.97E-08 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 3.82E-04 | 9.56E-05 | 3.82E-04 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 3.53E-09 | 8.82E-10 | 3.53E-09 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 5.00E-07 | 1.25E-07 | 5.00E-07 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 3.38E-07 | 8.46E-08 | 3.38E-07 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 4.26E-06 | 1.07E-06 | 4.26E-06 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 2.94E-08 | 7.35E-09 | - | 1.68E-09 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 1.76E-10 | 4.41E-11 | - | 1.01E-11 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 1.76E-09 | 4.41E-10 | - | 1.01E-10 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | - | 9.23E-09 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 1.10E-05 | 2.76E-06 | - | 6.30E-07 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 2.65E-10 | 6.62E-11 | - | 1.51E-11 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 1.13E-08 | 2.82E-09 | - | 6.45E-10 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 1.68E-09 | 4.19E-10 | - | 9.57E-11 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 17.65 | 4.41 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 3.82E-08 | 9.56E-09 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-24. PTE Emissions - Emergency Shutdown Heater C-2

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | UH.C2 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | | | | | | (Natural Gas) | | 150,000 Btu/hr<br>1,020 But/cu ft<br>147 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (Permit Limit - Annual) | | 500 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/10$^6$ scf | TOTAL Fuel Input Capacity 10$^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.000147 | 500 | 0.012 | 0.003 | 0.012 | - |
| $NO_x$ | - | - | 100 | | | 0.015 | 0.004 | 0.015 | 0.0008 |
| PM10 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | - |
| PM2.5 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | 0.00006 |
| $SO_2$ | - | - | 0.6 | | | 0.00009 | 0.00002 | 0.00009 | - |
| VOC | - | - | 5.5 | | | 0.0008 | 0.0002 | - | - |
| Lead | - | - | 0.0005 | | | 7.35E-08 | 1.84E-08 | 7.35E-08 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 6.47E-07 | 1.62E-07 | 6.47E-07 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 2.06E-07 | 5.15E-08 | 2.06E-07 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 1.24E-08 | 3.09E-09 | 1.24E-08 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 1.25E-07 | 3.13E-08 | 1.25E-07 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 1.76E-07 | 4.41E-08 | 1.76E-07 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 2.65E-04 | 6.62E-05 | 2.65E-04 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 5.59E-08 | 1.40E-08 | 5.59E-08 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | 1.62E-07 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 8.97E-08 | 2.24E-08 | 8.97E-08 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 3.82E-04 | 9.56E-05 | 3.82E-04 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 3.53E-09 | 8.82E-10 | 3.53E-09 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 5.00E-07 | 1.25E-07 | 5.00E-07 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 3.38E-07 | 8.46E-08 | 3.38E-07 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 4.26E-06 | 1.07E-06 | 4.26E-06 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 2.94E-08 | 7.35E-09 | - | 1.68E-09 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 1.76E-10 | 4.41E-11 | - | 1.01E-11 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 1.76E-09 | 4.41E-10 | - | 1.01E-10 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | - | 9.23E-09 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 1.10E-05 | 2.76E-06 | - | 6.30E-07 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 2.65E-10 | 6.62E-11 | - | 1.51E-11 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 1.13E-08 | 2.82E-09 | - | 6.45E-10 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 1.68E-09 | 4.19E-10 | - | 9.57E-11 |
| • Benzo(a)anthracene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 17.65 | 4.41 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 3.82E-08 | 9.56E-09 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-25. PTE Emissions - Emergency Shutdown Heater C-3

| Emission Unit Information | | | | | Dispersion Modeling ID ---> | | | UH.C3 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | | | | | (Natural Gas) | | | 150,000 Btu/hr<br>1,020 But/cu ft<br>147 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | (Permit Limit - Annual) | | | 500 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/10$^6$ scf | TOTAL Fuel Input Capacity 10$^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | POTENITIAL [A] EMISSIONS ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | MODELING EMISSION [B] RATES Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.000147 | 500 | 0.012 | 0.003 | 0.012 | - |
| $NO_x$ | - | - | 100 | | | 0.015 | 0.004 | 0.015 | 0.0008 |
| PM10 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | - |
| PM2.5 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | 0.00006 |
| $SO_2$ | - | - | 0.6 | | | 0.00009 | 0.00002 | 0.00009 | - |
| VOC | - | - | 5.5 | | | 0.0008 | 0.0002 | - | - |
| Lead | - | - | 0.0005 | | | 7.35E-08 | 1.84E-08 | 7.35E-08 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 6.47E-07 | 1.62E-07 | 6.47E-07 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 2.06E-07 | 5.15E-08 | 2.06E-07 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 1.24E-08 | 3.09E-09 | 1.24E-08 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 1.25E-07 | 3.13E-08 | 1.25E-07 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 1.76E-07 | 4.41E-08 | 1.76E-07 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 2.65E-04 | 6.62E-05 | 2.65E-04 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 5.59E-08 | 1.40E-08 | 5.59E-08 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | 1.62E-07 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 8.97E-08 | 2.24E-08 | 8.97E-08 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 3.82E-04 | 9.56E-05 | 3.82E-04 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 3.53E-09 | 8.82E-10 | 3.53E-09 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 5.00E-07 | 1.25E-07 | 5.00E-07 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 3.38E-07 | 8.46E-08 | 3.38E-07 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 4.26E-06 | 1.07E-06 | 4.26E-06 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 2.94E-08 | 7.35E-09 | - | 1.68E-09 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 1.76E-10 | 4.41E-11 | - | 1.01E-11 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 1.76E-09 | 4.41E-10 | - | 1.01E-10 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | - | 9.23E-09 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 1.10E-05 | 2.76E-06 | - | 6.30E-07 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 2.65E-10 | 6.62E-11 | - | 1.51E-11 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 1.13E-08 | 2.82E-09 | - | 6.45E-10 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 1.68E-09 | 4.19E-10 | - | 9.57E-11 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 17.65 | 4.41 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 3.82E-08 | 9.56E-09 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-26. PTE Emissions - Emergency Shutdown Heater D-1

| Emission Unit Information | | | | | Dispersion Modeling ID ---> | | | UH.D1 |
|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | | | | | (Natural Gas) | | | 150,000 Btu/hr<br>1,020 But/cu ft<br>147 cu ft/hr |
| Maximum Annual Operating Hours | | | | | (Permit Limit - Annual) | | | 500 hr/yr |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/$10^6$ scf | TOTAL Fuel Input Capacity $10^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL (A) EMISSIONS lb/hr | POTENITIAL (A) EMISSIONS ton/yr | MODELING EMISSION (B) RATES Max Hour lb/hr | MODELING EMISSION (B) RATES Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.000147 | 500 | 0.012 | 0.003 | 0.012 | - |
| $NO_x$ | - | - | 100 | | | 0.015 | 0.004 | 0.015 | 0.0008 |
| PM10 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | - |
| PM2.5 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | 0.00006 |
| $SO_2$ | - | - | 0.6 | | | 0.00009 | 0.00002 | 0.00009 | - |
| VOC | - | - | 5.5 | | | 0.0008 | 0.0002 | - | - |
| Lead | - | - | 0.0005 | | | 7.35E-08 | 1.84E-08 | 7.35E-08 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 6.47E-07 | 1.62E-07 | 6.47E-07 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 2.06E-07 | 5.15E-08 | 2.06E-07 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 1.24E-08 | 3.09E-09 | 1.24E-08 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 1.25E-07 | 3.13E-08 | 1.25E-07 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 1.76E-07 | 4.41E-08 | 1.76E-07 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 2.65E-04 | 6.62E-05 | 2.65E-04 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 5.59E-08 | 1.40E-08 | 5.59E-08 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | 1.62E-07 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 8.97E-08 | 2.24E-08 | 8.97E-08 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 3.82E-04 | 9.56E-05 | 3.82E-04 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 3.53E-09 | 8.82E-10 | 3.53E-09 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 5.00E-07 | 1.25E-07 | 5.00E-07 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 3.38E-07 | 8.46E-08 | 3.38E-07 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 4.26E-06 | 1.07E-06 | 4.26E-06 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 2.94E-08 | 7.35E-09 | - | 1.68E-09 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 1.76E-10 | 4.41E-11 | - | 1.01E-11 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 1.76E-09 | 4.41E-10 | - | 1.01E-10 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | - | 9.23E-09 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 1.10E-05 | 2.76E-06 | - | 6.30E-07 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 2.65E-10 | 6.62E-11 | - | 1.51E-11 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 1.13E-08 | 2.82E-09 | - | 6.45E-10 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 1.68E-09 | 4.19E-10 | - | 9.57E-11 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 17.65 | 4.41 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 3.82E-08 | 9.56E-09 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-27. PTE Emissions - Emergency Shutdown Heater D-2

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | UH.D2 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | | | | | | (Natural Gas) | | 150,000 Btu/hr<br>1,020 But/cu ft<br>147 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (Permit Limit - Annual) | | 500 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/$10^6$ scf | TOTAL Fuel Input Capacity $10^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.000147 | 500 | 0.012 | 0.003 | 0.012 | - |
| $NO_x$ | - | - | 100 | | | 0.015 | 0.004 | 0.015 | 0.0008 |
| PM10 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | - |
| PM2.5 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | 0.00006 |
| $SO_2$ | - | - | 0.6 | | | 0.00009 | 0.00002 | 0.00009 | - |
| VOC | - | - | 5.5 | | | 0.0008 | 0.0002 | - | - |
| Lead | - | - | 0.0005 | | | 7.35E-08 | 1.84E-08 | 7.35E-08 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 6.47E-07 | 1.62E-07 | 6.47E-07 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 2.06E-07 | 5.15E-08 | 2.06E-07 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 1.24E-08 | 3.09E-09 | 1.24E-08 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 1.25E-07 | 3.13E-08 | 1.25E-07 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 1.76E-07 | 4.41E-08 | 1.76E-07 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 2.65E-04 | 6.62E-05 | 2.65E-04 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 5.59E-08 | 1.40E-08 | 5.59E-08 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | 1.62E-07 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 8.97E-08 | 2.24E-08 | 8.97E-08 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 3.82E-04 | 9.56E-05 | 3.82E-04 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 3.53E-09 | 8.82E-10 | 3.53E-09 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 5.00E-07 | 1.25E-07 | 5.00E-07 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 3.38E-07 | 8.46E-08 | 3.38E-07 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 4.26E-06 | 1.07E-06 | 4.26E-06 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 2.94E-08 | 7.35E-09 | - | 1.68E-09 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 1.76E-10 | 4.41E-11 | - | 1.01E-11 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 1.76E-09 | 4.41E-10 | - | 1.01E-10 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | - | 9.23E-09 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 1.10E-05 | 2.76E-06 | - | 6.30E-07 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 2.65E-10 | 6.62E-11 | - | 1.51E-11 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 1.13E-08 | 2.82E-09 | - | 6.45E-10 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 1.68E-09 | 4.19E-10 | - | 9.57E-11 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 17.65 | 4.41 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 3.82E-08 | 9.56E-09 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-28. PTE Emissions - Emergency Shutdown Heater F-1

| Emission Unit Information | | | | | Dispersion Modeling ID ---> | | | UH.F1 |
|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | | | | | (Natural Gas) | | | 150,000 Btu/hr<br>1,020 But/cu ft<br>147 cu ft/hr |
| Maximum Annual Operating Hours | | | | | (Permit Limit - Annual) | | | 500 hr/yr |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/$10^6$ scf | TOTAL Fuel Input Capacity $10^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | POTENITIAL [A] EMISSIONS ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | MODELING EMISSION [B] RATES Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.000147 | 500 | 0.012 | 0.003 | 0.012 | - |
| $NO_x$ | - | - | 100 | | | 0.015 | 0.004 | 0.015 | 0.0008 |
| PM10 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | - |
| PM2.5 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | 0.00006 |
| $SO_2$ | - | - | 0.6 | | | 0.00009 | 0.00002 | 0.00009 | - |
| VOC | - | - | 5.5 | | | 0.0008 | 0.0002 | - | - |
| Lead | - | - | 0.0005 | | | 7.35E-08 | 1.84E-08 | 7.35E-08 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 6.47E-07 | 1.62E-07 | 6.47E-07 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 2.06E-07 | 5.15E-08 | 2.06E-07 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 1.24E-08 | 3.09E-09 | 1.24E-08 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 1.25E-07 | 3.13E-08 | 1.25E-07 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 1.76E-07 | 4.41E-08 | 1.76E-07 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 2.65E-04 | 6.62E-05 | 2.65E-04 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 5.59E-08 | 1.40E-08 | 5.59E-08 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | 1.62E-07 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 8.97E-08 | 2.24E-08 | 8.97E-08 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 3.82E-04 | 9.56E-05 | 3.82E-04 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 3.53E-09 | 8.82E-10 | 3.53E-09 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 5.00E-07 | 1.25E-07 | 5.00E-07 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 3.38E-07 | 8.46E-08 | 3.38E-07 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 4.26E-06 | 1.07E-06 | 4.26E-06 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 2.94E-08 | 7.35E-09 | - | 1.68E-09 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 1.76E-10 | 4.41E-11 | - | 1.01E-11 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 1.76E-09 | 4.41E-10 | - | 1.01E-10 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | - | 9.23E-09 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 1.10E-05 | 2.76E-06 | - | 6.30E-07 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 2.65E-10 | 6.62E-11 | - | 1.51E-11 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 1.13E-08 | 2.82E-09 | - | 6.45E-10 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 1.68E-09 | 4.19E-10 | - | 9.57E-11 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 17.65 | 4.41 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 3.82E-08 | 9.56E-09 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-29. PTE Emissions - Emergency Shutdown Heater F-2

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | UH.F2 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | | | | | | (Natural Gas) | | 150,000 Btu/hr<br>1,020 But/cu ft<br>147 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (Permit Limit - Annual) | | 500 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/10$^6$ scf | TOTAL Fuel Input Capacity 10$^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.000147 | 500 | 0.012 | 0.003 | 0.012 | - |
| $NO_x$ | - | - | 100 | | | 0.015 | 0.004 | 0.015 | 0.0008 |
| PM10 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | - |
| PM2.5 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | 0.00006 |
| $SO_2$ | - | - | 0.6 | | | 0.00009 | 0.00002 | 0.00009 | - |
| VOC | - | - | 5.5 | | | 0.0008 | 0.0002 | - | - |
| Lead | - | - | 0.0005 | | | 7.35E-08 | 1.84E-08 | 7.35E-08 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 6.47E-07 | 1.62E-07 | 6.47E-07 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 2.06E-07 | 5.15E-08 | 2.06E-07 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 1.24E-08 | 3.09E-09 | 1.24E-08 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 1.25E-07 | 3.13E-08 | 1.25E-07 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 1.76E-07 | 4.41E-08 | 1.76E-07 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 2.65E-04 | 6.62E-05 | 2.65E-04 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 5.59E-08 | 1.40E-08 | 5.59E-08 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | 1.62E-07 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 8.97E-08 | 2.24E-08 | 8.97E-08 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 3.82E-04 | 9.56E-05 | 3.82E-04 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 3.53E-09 | 8.82E-10 | 3.53E-09 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 5.00E-07 | 1.25E-07 | 5.00E-07 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 3.38E-07 | 8.46E-08 | 3.38E-07 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 4.26E-06 | 1.07E-06 | 4.26E-06 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 2.94E-08 | 7.35E-09 | - | 1.68E-09 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 1.76E-10 | 4.41E-11 | - | 1.01E-11 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 1.76E-09 | 4.41E-10 | - | 1.01E-10 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | - | 9.23E-09 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 1.10E-05 | 2.76E-06 | - | 6.30E-07 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 2.65E-10 | 6.62E-11 | - | 1.51E-11 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 1.13E-08 | 2.82E-09 | - | 6.45E-10 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 1.68E-09 | 4.19E-10 | - | 9.57E-11 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 17.65 | 4.41 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 3.82E-08 | 9.56E-09 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-30. PTE Emissions - Emergency Shutdown Heater F-3

| Emission Unit Information | | | | | | Dispersion Modeling ID ---> | | UH.F3 | |
|---|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | | | | | | (Natural Gas) | | 150,000 Btu/hr<br>1,020 But/cu ft<br>147 cu ft/hr | |
| Maximum Annual Operating Hours | | | | | | (Permit Limit - Annual) | | 500 hr/yr | |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Section 1.4 lb/$10^6$ scf | TOTAL Fuel Input Capacity $10^6$scf/hr | Maximum Operating Hours hr/yr | POTENITIAL [A] EMISSIONS lb/hr | ton/yr | MODELING EMISSION [B] RATES Max Hour lb/hr | Avg Hour lb/hr |
| Criteria Pollutants | | (Units < 100 MMBtu/hr) | | | | | | | |
| CO | - | - | 84 | 0.000147 | 500 | 0.012 | 0.003 | 0.012 | - |
| $NO_x$ | - | - | 100 | | | 0.015 | 0.004 | 0.015 | 0.0008 |
| PM10 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | - |
| PM2.5 | - | - | 7.6 | | | 0.0011 | 0.0003 | 0.0011 | 0.00006 |
| $SO_2$ | - | - | 0.6 | | | 0.00009 | 0.00002 | 0.00009 | - |
| VOC | - | - | 5.5 | | | 0.0008 | 0.0002 | - | - |
| Lead | - | - | 0.0005 | | | 7.35E-08 | 1.84E-08 | 7.35E-08 | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | | |
| Barium | 7440-39-3 | - | 4.40E-03 | | | 6.47E-07 | 1.62E-07 | 6.47E-07 | - |
| Chromium | 7440-47-3 | HAP | 1.40E-03 | | | 2.06E-07 | 5.15E-08 | 2.06E-07 | - |
| Cobalt | 7440-48-4 | HAP | 8.40E-05 | | | 1.24E-08 | 3.09E-09 | 1.24E-08 | - |
| Copper | 7440-50-8 | - | 8.50E-04 | | | 1.25E-07 | 3.13E-08 | 1.25E-07 | - |
| Dichlorobenzene (as 1,4-) | 106-46-7 | HAP | 1.20E-03 | | | 1.76E-07 | 4.41E-08 | 1.76E-07 | - |
| Hexane | 110-54-3 | HAP | 1.8 | | | 2.65E-04 | 6.62E-05 | 2.65E-04 | - |
| Manganese | 7439-96-5 | HAP | 3.80E-04 | | | 5.59E-08 | 1.40E-08 | 5.59E-08 | - |
| Molybdenum | 7439-98-7 | - | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | 1.62E-07 | - |
| Naphthalene | 91-20-3 | HAP | 6.10E-04 | | | 8.97E-08 | 2.24E-08 | 8.97E-08 | - |
| Pentane | 109-66-0 | - | 2.6 | | | 3.82E-04 | 9.56E-05 | 3.82E-04 | - |
| Selenium | 7782-49-2 | HAP | 2.40E-05 | | | 3.53E-09 | 8.82E-10 | 3.53E-09 | - |
| Toluene | 108-88-3 | HAP | 3.40E-03 | | | 5.00E-07 | 1.25E-07 | 5.00E-07 | - |
| Vanadium | 7440-62-2 | - | 2.30E-03 | | | 3.38E-07 | 8.46E-08 | 3.38E-07 | - |
| Zinc | 7440-66-6 | - | 2.90E-02 | | | 4.26E-06 | 1.07E-06 | 4.26E-06 | - |
| Idaho TAPs - Carcinogenic | | | | | | | | | |
| Arsenic | 7440-38-2 | HAP | 2.00E-04 | | | 2.94E-08 | 7.35E-09 | - | 1.68E-09 |
| Benzene | 71-43-2 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| Benzo(a)pyrene | 50-32-8 | - | 1.20E-06 | | | 1.76E-10 | 4.41E-11 | - | 1.01E-11 |
| Beryllium | 7440-41-7 | HAP | 1.20E-05 | | | 1.76E-09 | 4.41E-10 | - | 1.01E-10 |
| Cadmium | 7440-43-9 | HAP | 1.10E-03 | | | 1.62E-07 | 4.04E-08 | - | 9.23E-09 |
| Formaldehyde | 50-00-0 | HAP | 7.50E-02 | | | 1.10E-05 | 2.76E-06 | - | 6.30E-07 |
| 3-Methylchloranthrene | 56-49-5 | - | 1.80E-06 | | | 2.65E-10 | 6.62E-11 | - | 1.51E-11 |
| Nickel | 7440-02-0 | HAP | 2.10E-03 | | | 3.09E-07 | 7.72E-08 | - | 1.76E-08 |
| PAH (except 7-PAH Group): | - | HAP | 7.68E-05 | <---TOTAL | | 1.13E-08 | 2.82E-09 | - | 6.45E-10 |
| • 2-Methylnaphthalene | 91-57-6 | | 2.40E-05 | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | 1.80E-06 | | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | 1.60E-05 | | | | | | |
| • Acenaphthene | 83-32-9 | | 1.80E-06 | | | | | | |
| • Acenaphthylene | 203-96-8 | | 1.80E-06 | | | | | | |
| • Anthracene | 120-12-7 | | 2.40E-06 | | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | 1.20E-06 | | | | | | |
| • Fluoranthene | 206-44-0 | | 3.00E-06 | | | | | | |
| • Fluorene | 86-73-7 | | 2.80E-06 | | | | | | |
| • Phenanathrene | 85-01-8 | | 1.70E-05 | | | | | | |
| • Pyrene | 129-00-0 | | 5.00E-06 | | | | | | |
| POM (7-PAH group) per ID: | - | HAP | 1.14E-05 | <---TOTAL | | 1.68E-09 | 4.19E-10 | - | 9.57E-11 |
| • Benzo(a)anthacene | 56-55-3 | | 1.80E-06 | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | 1.20E-06 | | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | 1.80E-06 | | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | 1.80E-06 | | | | | | |
| • Chrysene | 218-01-9 | | 1.80E-06 | | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | 1.20E-06 | | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | 1.80E-06 | | | | | | |
| Other EPA Pollutants of Concern | | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 120,000 | | | 17.65 | 4.41 | - | - |
| Mercury | 7439-97-6 | HAP | 2.60E-04 | | | 3.82E-08 | 9.56E-09 | - | - |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr*

# Table B-31. PTE Emissions - Emergency Generator (Natural Gas)

| Emission Unit Information | | | | Dispersion Modeling ID--> | | GENERATOR | | |
|---|---|---|---|---|---|---|---|---|
| Fuel Input Capacity | | | | Fuel Input Capacity | | 1,055 | | cu ft/hr |
| | | | | Heat Content | | 1,020 | | Btu/cu ft |
| | | | | Fuel Input Capacity | | 1.076 | | MMBtu/hr |
| Maximum Annual Operating Hours | | | | PTE Operation | | 100 | | hr/yr |
| | | | | Maintenance & Testing | | 15 | | min/day |
| Regulated Pollutant | CAS No | EPA HAP | Emission Factor AP-42 Table 3.2-3 lb/MMBtu | TOTAL Fuel Input Capacity MMBtu/hr | Maximum Operating Hours hr/yr | POTENITIAL (A) EMISSIONS lb/hr | ton/yr | ton/yr |
| Criteria Pollutants | | 4-Stoke Rich Burn Engine | | | | | Uncontorlled | Controlled |
| CO | - | - | 3.72 (C) | 1.0761 | 100 | 4.003 | 1.001 | 0.200 |
| $NO_x$ (Four Stoke Rich Burn Engine) | - | - | 2.27 (C) | | 500 | 2.443 | 0.611 | 0.122 |
| PM10 | - | - | 9.50E-03 | | | 0.010 | 0.003 | 0.0005 |
| PM2.5 | - | - | 9.50E-03 | | | 0.010 | 0.003 | 0.0005 |
| $SO_2$ | - | - | 5.88E-04 | | | 0.0006 | 0.0002 | 0.00003 |
| VOC | - | - | 2.96E-02 | | | 0.032 | 0.008 | 0.0016 |
| Lead | - | - | - | | | - | | - |
| Idaho TAPs - Noncarcinogenic | | | | | | | | |
| Acrolein | 107-02-8 | HAP | 2.63E-03 | | | 2.83E-03 | 7.08E-04 | 1.42E-04 |
| Chlorobenzene | 108-90-7 | HAP | 1.29E-05 | | | 1.39E-05 | 3.47E-06 | 6.94E-07 |
| 1,2-Dichloropropane | 78-87-5 | HAP | 1.30E-05 | | | 1.40E-05 | 3.50E-06 | 6.99E-07 |
| Ethyl Benzene | 100-41-4 | HAP | 2.48E-05 | | | 2.67E-05 | 6.67E-06 | 1.33E-06 |
| Methanol | 67-56-1 | HAP | 3.06E-03 | | | 3.29E-03 | 8.23E-04 | 1.65E-04 |
| Naphthalene | 91-20-3 | HAP | 9.71E-05 | | | 1.04E-04 | 2.61E-05 | 5.22E-06 |
| Styrene | 100-42-5 | HAP | 1.19E-05 | | | 1.28E-05 | 3.20E-06 | 6.40E-07 |
| Toluene | 108-88-3 | HAP | 5.58E-04 | | | 6.00E-04 | 1.50E-04 | 3.00E-05 |
| Xylene | 1330-20-7 | HAP | 1.95E-04 | | | 2.10E-04 | 5.25E-05 | 1.05E-05 |
| Idaho TAPs - Carcinogenic | | | | | | | | |
| Acetaldehyde | 75-07-0 | HAP | 2.79E-03 | | | 3.00E-03 | 7.51E-04 | 1.50E-04 |
| Benzene | 71-43-2 | HAP | 1.58E-03 | | | 1.70E-03 | 4.25E-04 | 8.50E-05 |
| 1,3-Butadiene | 106-99-0 | HAP | 6.63E-04 | | | 7.13E-04 | 1.78E-04 | 3.57E-05 |
| Carbon Tetrachloride | 56-23-5 | HAP | 1.77E-05 | | | 1.90E-05 | 4.76E-06 | 9.52E-07 |
| Chloroform | 67-66-3 | HAP | 1.37E-05 | | | 1.47E-05 | 3.69E-06 | 7.37E-07 |
| 1,1-Dichloroethane | 75-34-3 | HAP | 1.13E-05 | | | 1.22E-05 | 3.04E-06 | 6.08E-07 |
| 1,2-Dichloroethane | 107-06-2 | HAP | 1.13E-05 | | | 1.22E-05 | 3.04E-06 | 6.08E-07 |
| 1,3-Dichloropropene | 542-75-6 | HAP | 1.27E-05 | | | 1.37E-05 | 3.42E-06 | 6.83E-07 |
| Ethylene Dibromide | 106-93-4 | HAP | 2.13E-05 | | | 2.29E-05 | 5.73E-06 | 1.15E-06 |
| Formaldehyde | 50-00-0 | HAP | 2.05E-02 | | | 2.21E-02 | 5.52E-03 | 1.10E-03 |
| Methylene Chloride | 74-87-3 | HAP | 4.12E-05 | | | 4.43E-05 | 1.11E-05 | 2.22E-06 |
| PAH (except 7-PAH group): | - | HAP | 1.41E-04 | <---TOTAL | | 1.52E-04 | 3.79E-05 | 7.59E-06 |
| • 2-Methylnaphthalene | 91-57-6 | | | | | | | |
| • 3-Methylchloranthrene | 56-49-5 | | Individual | | | | | |
| • 7,12-Dimethylbenz(a)anthracene | 54-49-5 | | components | | | | | |
| • Acenaphthene | 83-32-9 | | not listed in | | | | | |
| • Acenaphthylene | 203-96-8 | | AP-42 | | | | | |
| • Anthracene | 120-12-7 | | Section 3.2 | | | | | |
| • Benzo(g,h,i)perylene | 191-24-2 | | | | | | | |
| • Fluoranthene | 206-44-0 | | | | | | | |
| • Fluorene | 86-73-7 | | | | | | | |
| • Phenanathrene | 85-01-8 | | | | | | | |
| • Pyrene | 129-00-0 | | | | | | | |
| POM (7-PAH group) per IDEQ: | - | HAP | 1.41E-04 | <---TOTAL | | 1.52E-04 | 3.79E-05 | 7.59E-06 |
| • Benzo(a)anthacene | 56-55-3 | | | | | | | |
| • Benzo(a)pyrene | 50-32-8 | | Individual | | | | | |
| • Benzo(b)fluoranthene | 205-99-2 | | components | | | | | |
| • Benzo(k)fluoranthene | 53-70-3 | | not listed in | | | | | |
| • Chrysene | 218-01-9 | | AP-42 | | | | | |
| • Dibenzo(a,h)anthracene | 53-70-3 | | Section 3.2 | | | | | |
| • Indenol(1,2,3-cd)pyrene | 193-39-5 | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | HAP | 2.53E-05 | | | 2.72E-05 | 6.81E-06 | 1.36E-06 |
| 1,1,2-Trichloroethane | 79-00-5 | HAP | 1.53E-05 | | | 1.65E-05 | 4.12E-06 | 8.23E-07 |
| Vinyl Chloride | 75-01-4 | HAP | 7.18E-06 | | | 7.73E-06 | 1.93E-06 | 3.86E-07 |
| Other EPA Pollutants of Concern | | | | | | | | |
| Carbon Dioxide (CO2) | - | - | 1.10E+02 | | | 118.37 | 29.59 | 5.92 |

*(A) - PTE Emission Rate:* *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
*(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton*

*(B) - Modeling Emission Rate:* *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
*Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/*

*(C) - AP-42 emission factor for 4-stroke rich burn engine. The value selected is the higher of the <90% load and 90-105% load emission factors.*

| | | |
|---|---|---|
| | | |
| (Natural Gas) | | |
| | | |
| (Permt Limit - Annual) | | |
| | MODELING EMISSION [B] RATES | |
| | Max Hour lb/hr | Avg Hour lb/hr |
| | | |
| | 4.003 | - |
| | 2.443 | 0.028 |
| | 0.010 | - |
| | 0.010 | 0.00012 |
| | 0.0006 | - |
| | - | - |
| | - | - |
| | | |
| | (exempt) | EPA HAPs are exempt from modeling since generator is subject to NESHAP ZZZZ |
| | (exempt) | |
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| EPA HAPs are exempt from modeling since generator is subject to NESHAP ZZZZ | (exempt) | |
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# APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

*MEMORANDUM*

**DATE:** **October 5**, 2016

**TO:** **Craig Woodruff**, Permit Writer, Air Program

**FROM:** Thomas Swain, Air Quality Modeler, Analyst 3, Air Program

**PROJECT:** Fabri-Kal facility, in Burley, Idaho, Permit to Construct (PTC), Project 61755, Facility ID No. 031-00057

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

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## 1.0 Summary

Fabri-Kal submitted an application for a Permit to Construct (PTC) on September 1, 2016 for a new facility located in Burley, Idaho.

Fabri-Kal proposes to construct a manufacturing facility that will fabricate ag-based and plastic packaging solutions for various markets, including foodservice, consumers, and retail. The facility will be located at 2457 Washington Avenue in Burley, Idaho. Final products are derived from a variety of raw materials, including wheat straw, soy straw, sodium hydroxide, and polypropylene pellets. The processes include storage silos, grinders, a cooking tank, process boilers, extruder, process heaters, air handling units (AHU), and emergency heaters and a generator.

The entire process is discussed in detail in the main body of the DEQ Statement of Basis supporting the issued proposed PTC. This modeling review memorandum provides a summary and approval of the ambient air impact analyses submitted with the permit application. It also describes DEQ's review of those analyses, DEQ's verification analyses, additional clarifications, and conclusions.

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

North Wind Resource Consulting (NWRC) performed the ambient air impact analyses for this project on behalf of Fabri-Kal. The analyses were performed to demonstrate compliance with air quality standards. The DEQ review summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the air impact analyses used to demonstrate that the estimated emissions increases at the facility associated with the proposed project will not cause or significantly contribute to a violation of any applicable air quality standard. This review did not evaluate compliance with other rules or analyses that do not pertain to the air impact analyses. Evaluation of emissions estimates is the responsibility of the permit writer and is addressed in the main body of the Statement of Basis. The accuracy of emissions estimates were not evaluated as part of DEQ's review of the air impact analyses and described in this modeling review memorandum.

A modeling protocol was first submitted for this project on November 11, 2015. After a series of modifications, an updated protocol was submitted on November 23, 2015. The protocol was approved with conditions on December 18, 2016. An initial application was submitted on July 13, 2016. DEQ responded with a letter of incompleteness on August 10, 2016. This was due to required updates to TAPS emissions, revisions to PM emission factors, and questions about the orientation of the plant buildings and ambient air boundary. NWRC responded with a resubmitted application on September 1, 2016. DEQ determined the application complete on September 14, 2016.

The final submitted air quality impact analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data (review of emissions estimates was addressed by the DEQ permit writer); 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that estimated potential/allowable emissions are at a level defined as below regulatory concern (BRC) and do not require a NAAQS compliance demonstration; b) that predicted pollutant concentrations from emissions associated with the project as modeled were below Significant Impact Levels (SILs) or other applicable regulatory thresholds; or c) that predicted pollutant concentrations from emissions associated with the project as modeled, when appropriately combined with co-contributing sources and background concentrations, were below applicable National Ambient Air

Quality Standards (NAAQS) at ambient air locations where and when the project has a significant impact; 5) showed that Toxic Air Pollutant (TAP) emissions increases associated with the project will not result in increased ambient air impacts exceeding allowable TAP increments.

Table 1 presents key assumptions and results to be considered in the development of the permit.

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

**Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES**

| Criteria/Assumption/Result | Explanation/Consideration |
|---|---|
| **General Emissions Rates.** Emissions rates used in the modeling analyses, as listed in this memorandum, represent maximum potential emissions as given by design capacity or as limited by the issued permit for the specific pollutant and averaging period. | Compliance has not been demonstrated for emissions rates greater than those used in the modeling analyses. |
| **Modeling Thresholds for Criteria Pollutant Emissions.** Maximum short-term and long-term emissions of $PM_{10}$, $PM_{2.5}$, and oxides of nitrogen (NOx) associated with the proposed project are above the Level 1 threshold for each pollutant. Therefore a demonstration of compliance with NAAQS was done for these pollutants and averaging times. | Project-specific air impact analyses demonstrating compliance with NAAQS, as required by Idaho Air Rules Section 203.02, are required for pollutants having an emissions increase that is greater than Level I level modeling applicability thresholds, or for pollutant increases above BRC thresholds. Compliance with NAAQS has not been demonstrated for emissions that exceed the emission estimates presented in the application. |
| **TAPS Modeling.** Emission rates of TAPS per Idaho Air Rules Sections 585 and 586 for Arsenic, Cadmium, Formaldehyde, and nickel exceeded Emissions Screening Level (EL) rates. | Air impact analyses demonstrating compliance with TAPS, as required by Idaho Air Rules Section 203.03, is required for pollutants having an emissions rate greater than ELs. Therefore, a demonstration of compliance with TAPs AAC and AACC was required. |

## 2.0 Background Information

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

### *2.1 Project Description*

Fabri-Kal will be a new facility that will manufacture packaging solutions from ag-based and plastic materials for foodservice, consumer, and retail markets. Fabri-Kal's air impact analyses, as part of the permit application, was submitted to show that facility-wide emissions do not cause or contribute to an exceedance of any NAAQS or TAPS AAC or AACC. A detailed description of the facility is listed in Section 1 of the application.

### *2.2 Proposed Location and Area Classification*

Fabri-Kal is located in Burley, Idaho, at 2457 Washington Avenue. This area is designated as an attainment or unclassifiable area for sulfur dioxide ($SO_2$), nitrogen dioxide ($NO_2$), carbon monoxide (CO), lead (Pb),

ozone ($O_3$), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers ($PM_{10}$), and particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers ($PM_{2.5}$). The area is not classified as non-attainment for any criteria pollutants.

## 2.3 Air Impact Analyses Required for All Permits to Construct

Criteria Pollutant and TAP Impact Analyses for a PTC are addressed in Idaho Air Rules Sections 203.02 and 203.03:

> *No permit to construct shall be granted for a new or modified stationary source unless the applicant shows to the satisfaction of the Department all of the following:*
>
> ***02. NAAQS.*** *The stationary source or modification would not cause or significantly contribute to a violation of any ambient air quality standard.*
>
> ***03. Toxic Air Pollutants.*** *Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

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

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

## 2.4 Significant Impact Level and Cumulative NAAQS Impact Analyses

The Significant Impact Level (SIL) analysis for a new facility or proposed modification to a facility involves modeling estimated criteria air pollutant emissions from the facility or modification to determine the potential impacts to ambient air. Air impact analyses are required by Idaho Air Rules to be conducted according to methods outlined in 40 CFR 51, Appendix W (Guideline on Air Quality Models). Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

A facility or modification is considered to have a significant impact on air quality if maximum modeled impacts to ambient air exceed the established SIL listed in Idaho Air Rules Section 006 (referred to as a significant contribution in Idaho Air Rules) or as incorporated by reference as per Idaho Air Rules Section 107.03.b. Table 2 lists the applicable SILs.

If modeled maximum pollutant impacts to ambient air from the emissions sources associated with a new facility or modification exceed the SILs, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with NAAQS and Idaho Air Rules Section 203.02.

DEQ has developed modeling applicability thresholds that effectively assure that project-related emissions increases below stated values will result in ambient air impacts below the applicable SILs. The threshold

levels and dispersion modeling analyses supporting those levels are presented in the *State of Idaho Guideline for Performing Air Quality Impact Analyses*[l] (*Idaho Air Modeling Guideline*). Use of a modeling threshold represents the use of conservative modeling, performed in support of the threshold, as a project SIL analysis. Project-specific modeling applicability for this project is addressed in Section 3.1.1 of this memorandum.

A cumulative NAAQS impact analysis for attainment area pollutants involves assessing ambient impacts (typically the design values consistent with the form of the standard) from facility-wide emissions, and emissions from any nearby co-contributing sources, and then adding a DEQ-approved background concentration value to the modeled result that is appropriate for the criteria pollutant/averaging-period at the facility location and the area of significant impact. The resulting pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also lists SILs and specifies the modeled design value that must be used for comparison to the NAAQS. NAAQS compliance is evaluated on a receptor-by-receptor basis for the modeling domain.

If the cumulative NAAQS impact analysis indicates a violation of the standard, the permit may not be issued if the proposed project has a significant contribution (exceeding the SIL) to the modeled violation. This evaluation is made specific to both time and space. If the SIL analysis indicates the facility/modification has an impact exceeding the SIL, the facility might not have a significant contribution to a violation if impacts are below the SIL at the specific receptor showing the violation during the time periods when a modeled violation occurred.

**Table 2. APPLICABLE REGULATORY LIMITS**

| Pollutant | Averaging Period | Significant Impact Levels[a] ($\mu g/m^3$)[b] | Regulatory Limit[c] ($\mu g/m^3$) | Modeled Design Value Used[d] |
|---|---|---|---|---|
| $PM_{10}$[e] | 24-hour | 5.0 | 150[f] | Maximum 6th highest[g] |
| $PM_{2.5}$[h] | 24-hour | 1.2 | 35[i] | Mean of maximum 8th highest[j] |
| | Annual | 0.3 | 12[k] | Mean of maximum 1st highest[l] |
| Carbon monoxide (CO) | 1-hour | 2,000 | 40,000[m] | Maximum 2nd highest[n] |
| | 8-hour | 500 | 10,000[m] | Maximum 2nd highest[n] |
| Sulfur Dioxide ($SO_2$) | 1-hour | 3 ppb[o] (7.8 $\mu g/m^3$) | 75 ppb[p] (196 $\mu g/m^3$) | Mean of maximum 4th highest[q] |
| | 3-hour | 25 | 1,300[m] | Maximum 2nd highest[n] |
| | 24-hour | 5 | 365[m] | Maximum 2nd highest[n] |
| | Annual | 1.0 | 80[r] | Maximum 1st highest[n] |
| Nitrogen Dioxide ($NO_2$) | 1-hour | 4 ppb (7.5 $\mu g/m^3$) | 100 ppb[s] (188 $\mu g/m^3$) | Mean of maximum 8th highest[t] |
| | Annual | 1.0 | 100[r] | Maximum 1st highest[n] |
| Lead (Pb) | 3-month[u] | NA | 0.15[r] | Maximum 1st highest[n] |
| | Quarterly | NA | 1.5[r] | Maximum 1st highest[n] |
| Ozone ($O_3$) | 8-hour | 40 TPY VOC[v] | 75 ppb[w] | Not typically modeled |

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

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

## 2.5 Toxic Air Pollutant Analyses

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

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

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

DEQ the following:

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

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

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

## 3.0 Analytical Methods and Data

This section describes the methods and data used in analyses to demonstrate compliance with applicable air quality impact requirements.

### *3.1 Emission Source Data*

Emissions rates of criteria pollutants and TAPs for the project were provided by the applicant for various applicable averaging periods. Review and approval of estimated emissions was the responsibility of the DEQ permit writer, and is not addressed in this modeling memorandum. DEQ modeling review included verification that the application's potential emissions rates were properly used in the model. The rates listed must represent the maximum allowable rate as averaged over the specified period.

Emissions rates used in the dispersion modeling analyses submitted by NWRC should be reviewed by the DEQ permit writer against those in the emissions inventory of the permit application. All modeled criteria air pollutant and TAP emissions rates should be equal to or greater than the facility's emissions calculated in other sections of the PTC application or requested permit allowable emission rates.

#### *3.1.1 Criteria Pollutant Emissions Rates and Modeling Applicability*

If facility-wide potential to emit (PTE) values for a specific criteria pollutants would qualify for a below regulatory concern (BRC) permit exemption as per Idaho Air Rules Section 221 if it were not for some pollutants exceeding BRC thresholds, then an air impact analysis for that pollutant may not be required for permit issuance. DEQ's regulatory interpretation policy of exemption provisions of Idaho Air Rules (Policy on NAAQS Compliance Demonstration Requirements, DEQ policy memorandum, July 11, 2014) is that: "A DEQ NAAQS compliance assertion will not be made by the DEQ modeling group for specific criteria pollutants having a project emissions increase below BRC levels, provided the proposed project would have qualified for a Category I Exemption for BRC emissions quantities except for the emissions of another criteria pollutant." The interpretation policy also states that the exemption criteria of uncontrolled PTE not

to exceed 100 ton/year (Idaho Air Rules Section 220.01.a.i) is not applicable when evaluating whether a NAAQS impact analyses is required. A permit will be issued limiting PTE below 100 ton/year, thereby negating the need to maintain calculated uncontrolled PTE under 100 ton/year.

DEQ has generated non-site-specific project modeling thresholds for those projects that cannot use the BRC exemption from an impact analysis (if there are specific permitted emissions limits that require changing, etc.). Modeling applicability thresholds are provided in the *Idaho Air Modeling Guideline*. These thresholds were based on assuring an ambient impact of less than established SIL for that specific pollutant and averaging period.

If project-specific total emissions rates are below Level I Modeling Thresholds, project-specific air impact analyses are not necessary for permitting. Use of level II modeling thresholds are conditional, requiring DEQ approval. Table 3 provides the emissions-based modeling applicability summary. As mentioned, NWRC compared emission estimates with Level I Modeling Thresholds, and determined that modeling is necessary for the criteria pollutants listed in Table 3. Emissions as modeled per source are listed in Table 4.

An impact analysis must be performed for pollutant increases that would not qualify for the BRC exemption from an impact analysis. Emissions of $PM_{2.5}$ and NOx from the proposed project exceeded BRC thresholds, thereby requiring a NAAQS compliance demonstration for permit issuance. NWRC compared project emissions with Level 1 modeling thresholds for all criteria pollutants. Utilizing annual operating factors as contained in the permit, the emissions for $PM_{2.5}$, $PM_{10}$, and $NO_x$ are above the Level 1 modeling thresholds, and so modeling was therefore required for these pollutants. $PM_{10}$ emissions were modeled to evaluate NAAQS compliance even though annual emissions levels were slightly below the $PM_{10}$ BRC level.

**Table 3. MODELING APPLICABILITY ANALYSIS RESULTS**

| Pollutant | Averaging Period | Emissions | BRC Threshold (ton/year) | Level I Modeling Thresholds (lb/hour or ton/year) | Level II Modeling Thresholds (lb/hour or ton/year) | Modeling Required |
|---|---|---|---|---|---|---|
| $PM_{2.5}$ | Annual | 1.22 ton/yr | 1 | 0.350 | 4.1 | Yes |
| | 24-hour | 0.299 lb/hr | | 0.054 | 0.63 | Yes |
| $PM_{10}$ | 24-hour | 0.299 lb/hr | 1.5 (0.34 lb/hr) | 0.22 | 2.6 | Yes |
| NOx | Annual | 10.41 ton/yr | 4 | 1.2 | 14 | Yes |
| | 1-hour | 2.475 lb/hr | | 0.2 | 2.4 | Yes |
| $SO_2$ | Annual | 0.09 ton/yr | 4 | 1.2 | 14 | No |
| | 1-hour | 0.021 lb/hr | | 0.21 | 2.5 | No |
| CO | Annual | 12.41 ton/yr | 10 | 15 | 175 | No |

Ozone ($O_3$) differs from other criteria pollutants in that it is not typically emitted directly into the atmosphere. $O_3$ is formed in the atmosphere through reactions of VOCs, NOx, and sunlight. Atmospheric dispersion models used in stationary source air permitting analyses (see Section 3.3.3) cannot be used to estimate $O_3$ impacts resulting from VOC and NOx emissions from an industrial facility. $O_3$ concentrations

resulting from area-wide emissions are predicted by using more complex airshed models such as the Community Multi-Scale Air Quality (CMAQ) modeling system. Use of the CMAQ model is very resource intensive and DEQ asserts that performing a CMAQ analysis for a particular permit application is not typically a reasonable or necessary requirement for air quality permitting.

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

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

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

**Table 4. MODELED EMISSION RATES FOR CRITERIA POLLUTANTS**

| Source ID | Source Description | $PM_{10}$ (lb/hr)[a] | $PM_{2.5}$ (lb/hr)[a] | $PM_{2.5}$ANN (tpy)[b] | $NO_2$ (lb/hr)[a] | $NO_2$ANN (tpy)[b] |
|---|---|---|---|---|---|---|
| B.1 | Boiler 1 | 0.0470 | 0.0470 | 0.2058 | 0.554 | 2.426 |
| B.2 | Boiler 2 | 0.0470 | 0.0470 | 0.2058 | 0.554 | 2.426 |
| B.3 | Boiler 3 | 0.0250 | 0.0250 | 0.1095 | 0.329 | 1.443 |
| F.A1 | Furnace 1 | 0.0004 | 0.0004 | 0.0018 | 0.006 | 0.026 |
| F.A2 | Furnace 2 | 0.0004 | 0.0004 | 0.0018 | 0.006 | 0.026 |
| F.A3 | Furnace 3 | 0.0003 | 0.0003 | 0.0013 | 0.004 | 0.018 |
| F.A4 | Furnace 4 | 0.0004 | 0.0004 | 0.0018 | 0.006 | 0.026 |
| IRH.B1 | Infrared Heater 1 | 0.0015 | 0.0015 | 0.0066 | 0.020 | 0.088 |
| IRH.B2 | Infrared Heater 2 | 0.0015 | 0.0015 | 0.0066 | 0.020 | 0.088 |
| MAU.A1 | Make-Up Air (MAU) Unit 1 | 0.0320 | 0.0320 | 0.1401 | 0.211 | 0.925 |
| MAU.D1 | Make-Up Air (MAU) Unit 3 | 0.0320 | 0.0320 | 0.1401 | 0.211 | 0.925 |
| MAU.F1 | Make-Up Air (MAU) Unit 4 | 0.0320 | 0.0320 | 0.1401 | 0.211 | 0.925 |
| MAU.F2 | Make-Up Air (MAU) Unit 5 | 0.0320 | 0.0320 | 0.1401 | 0.211 | 0.925 |
| UH.B1 | Emergency Shutdown Heater 1 | 0.0011 | 0.0011 | 0.0003 | 0.015 | 0.004 |
| UH.C1 | Emergency Shutdown Heater 2 | 0.0011 | 0.0011 | 0.0003 | 0.015 | 0.004 |
| UH.C2 | Emergency Shutdown Heater 3 | 0.0011 | 0.0011 | 0.0003 | 0.015 | 0.004 |
| UH.C3 | Emergency Shutdown Heater 4 | 0.0011 | 0.0011 | 0.0003 | 0.015 | 0.004 |
| UH.D1 | Emergency Shutdown Heater 5 | 0.0011 | 0.0011 | 0.0003 | 0.015 | 0.004 |

| | | | | | | |
|---|---|---|---|---|---|---|
| UH.D2 | Emergency Shutdown Heater 6 | 0.0011 | 0.0011 | 0.0003 | 0.015 | 0.004 |
| UH.F1 | Emergency Shutdown Heater 7 | 0.0011 | 0.0011 | 0.0003 | 0.015 | 0.004 |
| UH.F2 | Emergency Shutdown Heater 8 | 0.0011 | 0.0011 | 0.0003 | 0.015 | 0.004 |
| UH.F3 | Emergency Shutdown Heater 9 | 0.0011 | 0.0011 | 0.0003 | 0.015 | 0.004 |
| EMGEN | Emergency Generator | 0.0100 | 0.0100 | 0.0005 | | 0.123 |
| Grinder | | 0.0270 | 0.0270 | 0.1182 | | |

[a] pounds/hour
[b] tons/year

**Secondary Particulate Formation**

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

### *3.1.2 Toxic Air Pollutant Emissions Rates*

TAP emissions regulations under Idaho Air Rules Section 220 are only applicable for new or modified sources constructed after July 1, 1995. The submitted emissions inventory in the application identified four TAPS having potential increases of the Idaho Air Rules Section 586 TAPs could exceed screening emissions levels (ELs). Potential increases in emissions of other TAPs were all less than applicable ELs. Table 5 lists emission increases for theses TAPs and compares them to the EL.

**Table 5. MODELED TAP EMISSIONS RATES**

| Pollutant | CAS No. | Total Emissions Increase (lbs/hr) | EL (lbs/hr) |
|---|---|---|---|
| Arsenic | 7440-38-2 | 2.91E-05 | 1.50E-06 |
| Cadmium | 7440-43-9 | 1.60E-04 | 3.70E-06 |
| Formaldehyde | 50-00-0 | 1.20E-02 | 5.10E-04 |
| Nickel | 7440-02-0 | 3.3E-05 | 2.70E-05 |

Table 6 provides source-specific TAP emission rates used in the air impact analyses.

**Table 6. TAPS EMISSIONS AS MODELED BY SOURCE**

| Source ID | Source Description | ARSENIC (lb/hr)[a] | CADMIUM (lb/hr)[a] | FORMALDE (lb/hr)[a] | NICKEL (lb/hr)[a] |
|---|---|---|---|---|---|
| B.1 | Boiler 1 | 1.24E-06 | 6.79E-06 | 4.63E-04 | 1.30E-05 |
| B.2 | Boiler 2 | 1.24E-06 | 6.79E-06 | 4.63E-04 | 1.30E-05 |
| B.3 | Boiler 3 | 6.59E-07 | 3.62E-06 | 2.47E-04 | 6.92E-06 |
| F.A1 | Furnace 1 | 1.18E-08 | 6.47E-08 | 4.41E-06 | 1.24E-07 |
| F.A2 | Furnace 2 | 1.18E-08 | 6.47E-08 | 4.41E-06 | 1.24E-07 |

| | | | | | |
|---|---|---|---|---|---|
| F.A3 | Furnace 3 | 7.84E-09 | 4.31E-08 | 2.94E-06 | 8.25E-08 |
| F.A4 | Furnace 4 | 1.18E-08 | 6.47E-08 | 4.41E-06 | 1.24E-07 |
| IRH.B1 | Infrared Heater 1 | 3.92E-08 | 2.16E-07 | 1.47E-05 | 4.12E-07 |
| IRH.B2 | Infrared Heater 2 | 3.92E-08 | 2.16E-07 | 1.47E-05 | 4.12E-07 |
| MAU.A1 | Make-Up Air (MAU) Unit 1 | 8.41E-07 | 4.64E-06 | 3.16E-04 | 8.89E-06 |
| MAU.D1 | Make-Up Air (MAU) Unit 3 | 8.41E-07 | 4.64E-06 | 3.16E-04 | 8.89E-06 |
| MAU.F1 | Make-Up Air (MAU) Unit 4 | 8.41E-07 | 4.64E-06 | 3.16E-04 | 8.89E-06 |
| MAU.F2 | Make-Up Air (MAU) Unit 5 | 8.41E-07 | 4.64E-06 | 3.16E-04 | 8.89E-06 |
| UH.B1 | Emergency Shutdown Heater 1 | 1.68E-09 | 9.21E-09 | 6.30E-07 | 1.76E-08 |
| UH.C1 | Emergency Shutdown Heater 2 | 1.68E-09 | 9.21E-09 | 6.30E-07 | 1.76E-08 |
| UH.C2 | Emergency Shutdown Heater 3 | 1.68E-09 | 9.21E-09 | 6.30E-07 | 1.76E-08 |
| UH.C3 | Emergency Shutdown Heater 4 | 1.68E-09 | 9.21E-09 | 6.30E-07 | 1.76E-08 |
| UH.D1 | Emergency Shutdown Heater 5 | 1.68E-09 | 9.21E-09 | 6.30E-07 | 1.76E-08 |
| UH.D2 | Emergency Shutdown Heater 6 | 1.68E-09 | 9.21E-09 | 6.30E-07 | 1.76E-08 |
| UH.F1 | Emergency Shutdown Heater 7 | 1.68E-09 | 9.21E-09 | 6.30E-07 | 1.76E-08 |
| UH.F2 | Emergency Shutdown Heater 8 | 1.68E-09 | 9.21E-09 | 6.30E-07 | 1.76E-08 |
| UH.F3 | Emergency Shutdown Heater 9 | 1.68E-09 | 9.21E-09 | 6.30E-07 | 1.76E-08 |

[a] pounds/hour

### *3.1.3 Emission Release Parameters*

Table 7 provides emissions release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity for facility sources as used in the final modeling assessment.

Stack parameters used in the modeling analyses were largely documented/justified adequately in the application. Some parameters were given conservative values in lieu of data not provided by project engineers (ie, stack temperature for the MAU units). Sources with capped or horizontal flows were assigned an exit velocity of 0.001 m/s.

**Table 7. MODELING PARAMETERS**

**Point Sources**

| Source ID | Source Description | Easting[a] (X) (m) | Northing[b] (Y) (m) | Stack Height (ft)[c] | Temp. (°F)[d] | Exit Velocity (fps)[e] | Stack Diameter (ft) |
|---|---|---|---|---|---|---|---|
| B.1 | Boiler 1 | 268972 | 4712104 | 36.42 | 422.0 | 14.839 | 1.35 |
| B.2 | Boiler 2 | 268977 | 4712239 | 36.42 | 422.0 | 14.839 | 1.35 |
| B.3 | Boiler 3 | 268972 | 4712094 | 36.42 | 400.0 | 13.264 | 0.98 |
| F.A1 | Furnace 1 | 268971 | 4712154 | 30.18 | 150.0 | 3.281 | 0.26 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| F.A2 | Furnace 2 | 268971 | 4712144 | 30.18 | 150.0 | 3.281 | 0.26 |
| F.A3 | Furnace 3 | 268971 | 4712135 | 30.18 | 150.0 | 3.281 | 0.26 |
| F.A4 | Furnace 4 | 268970 | 4712116 | 30.18 | 150.0 | 3.281 | 0.26 |
| IRH.B1 | Infrared Heater 1 | 269037 | 4712147 | 30.18 | 425.0 | 0.003 | 0.49 |
| IRH.B2 | Infrared Heater 2 | 269037 | 4712127 | 30.18 | 425.0 | 0.003 | 0.49 |
| MAU.A1 | Make-Up Air (MAU) Unit 1 | 268994 | 4712155 | 30.18 | 72.1 | 0.003 | 0.43 |
| MAU.D1 | Make-Up Air (MAU) Unit 3 | 269025 | 4712102 | 30.18 | 72.1 | 0.003 | 0.43 |
| MAU.F1 | Make-Up Air (MAU) Unit 4 | 268998 | 4712291 | 30.18 | 72.1 | 0.003 | 0.43 |
| MAU.F2 | Make-Up Air (MAU) Unit 5 | 269030 | 4712237 | 30.18 | 72.1 | 0.003 | 0.43 |
| UH.B1 | Emergency Shutdown Heater 1 | 269024 | 4712166 | 30.18 | 375.0 | 0.003 | 0.43 |
| UH.C1 | Emergency Shutdown Heater 2 | 268973 | 4712068 | 30.18 | 375.0 | 0.003 | 0.43 |
| UH.C2 | Emergency Shutdown Heater 3 | 268974 | 4712085 | 30.18 | 375.0 | 0.003 | 0.43 |
| UH.C3 | Emergency Shutdown Heater 4 | 268973 | 4712054 | 30.18 | 375.0 | 0.003 | 0.43 |
| UH.D1 | Emergency Shutdown Heater 5 | 269037 | 4712061 | 30.18 | 375.0 | 0.003 | 0.43 |
| UH.D2 | Emergency Shutdown Heater 6 | 269038 | 4712086 | 30.18 | 375.0 | 0.003 | 0.43 |
| UH.F1 | Emergency Shutdown Heater 7 | 268979 | 4712224 | 30.18 | 375.0 | 0.003 | 0.43 |
| UH.F2 | Emergency Shutdown Heater 8 | 268978 | 4712203 | 30.18 | 375.0 | 0.003 | 0.43 |
| UH.F3 | Emergency Shutdown Heater 9 | 268977 | 4712189 | 30.18 | 375.0 | 0.003 | 0.43 |
| EMGEN | Emergency Generator | 268963 | 4712104 | 3.94 | 1100.0 | 0.003 | 0.20 |
| **Volume Sources** | | | | | | | |
| **Source ID** | **Source Description** | **Easting (X) (m)** | **Northing (Y) (m)** | **Release Height (ft)** | **Init. Horizontal Dimension (ft)** | **Init. Vertical Dimension (ft)** | |
| Grinder | Grinding Emissions | 268977 | 4712036 | 14.1 | 18.7 | 13.1 | |

a. Universal Transverse Mercator coordinates in meters in the east/west direction.
b. Universal Transverse Mercator coordinates in meters in the north/south direction.
c. Feet.
d. Degrees Fahrenheit.
e. Feet per second.

## 3.2 Background Concentrations

Background concentrations were provided by DEQ from the Northwest International Air Quality Environmental Science and Technology Consortium (NW AIRQUEST) *Lookup 2009-2011 Design Values of Criteria Pollutants*[2]. These design value air pollutant levels are based on regional scale air pollution modeling of Washington, Oregon, and Idaho, with values influenced by monitoring data as a function of distance from the monitor. DEQ has determined that the NW AIRQUEST background values are reasonably representative of the facility locale. NW AIRQUEST background concentration values are listed in a column of Table 9, Cumulative NAAQS Impact Analyses Results for Criteria Pollutants.

## 3.3 Impact Modeling Methodology

This section describes the modeling methods used by the applicant to demonstrate preconstruction

compliance with applicable air quality standards.

### *3.3.1 General Overview of Analyses*

NWRC performed project-specific air impact analyses that were determined by DEQ to be reasonably representative of the proposed facility as described in the application. Results of the submitted analyses demonstrate compliance with applicable air quality standards to DEQ's satisfaction, provided the facility is operated as described in the submitted application and in this memorandum.

Table 8 provides a brief description of parameters used in the modeling analyses.

**Table 8. MODELING PARAMETERS**

| Parameter | Description/Values | Documentation/Addition Description |
|---|---|---|
| General Facility Location | Burley, Idaho | The facility is located in an area that is attainment or unclassified for all criteria air pollutants |
| Model | AERMOD | AERMOD with the PRIME downwash algorithm, version 15181. |
| Meteorological Data | 2008-2012 Burley, Idaho NWS , and upper air data from Boise, ID | The meteorological model input files for this project were provided by and recommended as most representative for this project by IDEQ, as described in the IDEQ modeling protocol and verified by IDEQ's approval of that protocol. |
| Terrain | Considered | See section 5.3 below |
| Building Downwash | Considered | Because there are significant buildings in the vicinity of Fabri-Kal, BPIP-PRIME was used to evaluate building dimensions for consideration of downwash effects in AERMOD. |
| Receptor Grid | Grid 1 | 25-meter spacing along the ambient air boundary and out to distances of 50 from the boundary |
| | Grid 2 | 50-meter spacing out to distances of 500 meters with respect to the facility |
| | Grid 3 | 50-meter spacing out to approximately 2000 meters |
| | Grid 4 | 250-meter spacing for distances out to 5000 meters from facility |

### *3.3.2 Modeling protocol and Methodology*

A final modeling protocol was submitted for this project on November 23, 2015. The protocol was approved (with conditions) on December 18, 2016. An application was submitted on July 13, 2016. DEQ responded with a letter notifying Fabri-Kal that the application was determined incomplete on August 10, 2016. This was due to required updates to TAPS emissions, revisions to PM emission factors, and questions about the orientation of the plant buildings and ambient air boundary. NWRC resubmitted a revised application on September 1, 2016. DEQ determined the application complete on September 14, 2016.

Project-specific modeling and other required impact analyses were generally conducted using data and methods discussed in pre-application correspondence and in the *Idaho Air Quality Modeling Guideline*[1].

### *3.3.3 Model Selection*

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models). The refined, steady state, multiple source Gaussian dispersion model AERMOD was promulgated as the replacement model for

ISCST3 in December 2005. AERMOD retains the single straight line trajectory of ISCST3, but includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD version 15181 was used by the applicant for the air impact modeling analyses to evaluate impacts of the facility. This version is the current version at the time the application was received by DEQ.

### *3.3.4 Meteorological Data*

NWRC used meteorological data collected at the Burley airport for the period 2008-2012. Upper air data was taken from the Boise, Idaho airport. The data as used is deemed representative for modeling in the locale of Fabri-Kal.

### *3.3.5 Effects of Terrain on Modeled Impacts*

Terrain data were extracted from United States Geological Survey (USGS) National Elevation Dataset (NED) files in the WGS84 datum (approximately equal to the NAD83 datum). NWRC used 1 Arc Second resolution data, which is adequate for this analysis.

The terrain preprocessor AERMAP Version 11103 was used to extract the elevations from the NED files and assign them to receptors in the modeling domain in a format usable by AERMOD. AERMAP also determined the hill-height scale for each receptor. The hill-height scale is an elevation value based on the surrounding terrain which has the greatest effect on that individual receptor. AERMOD uses those heights to evaluate whether the emissions plume has sufficient energy to travel up and over the terrain or if the plume will travel around the terrain.

DEQ reviewed the area surrounding the facility by using the web-based mapping program Google Earth, which uses the WGS84 datum. DEQ also overlaid modeling files with a digital photograph background images acquired from the 2013 ARCGIS NAIP (National Agriculture Imagery Program) data base. The immediate area is effectively flat with regard to dispersion modeling affects. Elevations in the modeling domain matched those indicated by the background images

### *3.3.6 Facility Layout*

DEQ compared site locations to those in aerial photographs on Google Earth. The modeled location matched well with aerial photographs in Google Earth as well as from those in the ARCGIS 2013 NAIP database.

### *3.3.7 Effects of Building Downwash on Modeled Impacts*

Potential downwash effects on emissions plumes are usually accounted for in the model by using building dimensions and locations (locations of building corners, base elevation, and building heights). Dimensions and orientation of proposed buildings were needed as input to the Building Profile Input Program for the Plume Rise Model Enhancements downwash algorithm (BPIP-PRIME) because there are existing structures affecting the emissions plumes at the facility.

### *3.3.8 Ambient Air Boundary*

Ambient air is defined in Section 006 of the Idaho Air Rules as "that portion of the atmosphere, external to buildings, to which the general public has access." Public access to the Fabri-Kal facility is precluded by a

fence, no trespassing signs, and site personnel. NWRC adjusted the ambient boundary and overall plant layout to reflect true north in the final application, as suggested by DEQ.

### *3.3.9 Receptor Network*

Table 8 describes the receptor grid used in the submitted analyses. The receptor grid met the minimum recommendations specified in the *Idaho Air Quality Modeling Guideline*[1]. DEQ determined this grid assured maximum impacts were reasonably resolved by the model considering: 1) types of sources modeled; 2) modeled impacts and the modeled concentration gradient; 3) conservatism of the methods and data used as inputs to the analyses; 4) potential for continual exposures or exposure to sensitive receptors. Additionally, DEQ performed sensitivity analyses using a finer grid spaced receptor network to assure that maximum concentrations were below all applicable standards.

### *3.3.10 Good Engineering Practice Stack Height*

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

H = S + 1.5L, where:

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

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

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

Buildings exist in the vicinity for all point sources modeled. Therefore, consideration of downwash caused by nearby buildings was required.

## 4.0 Impact Modeling Results

### *4.1 Results for NAAQS Significant Impact Level Analyses*

NWRC performed air quality modeling for those criteria pollutants having emissions exceeding Level I modeling thresholds ($PM_{10}$, $PM_{2.5}$, and $NO_2$). The results from the cumulative NAAQS impact analyses with all sources for these pollutants are listed in Table 9 and show compliance with all NAAQS.

**Table 9. CUMULATIVE NAAQS IMPACT ANALYSES RESULTS FOR CRITERIA**

| POLLUTANTS | | | | | |
|---|---|---|---|---|---|
| **Pollutant** | **Averaging Period** | **Maximum Modeled Concentration ($ug/m^3$)[a]** | **Background Concentration ($ug/m^3$)[a]** | **Total Impact ($ug/m^3$)[a]** | **NAAQS[b] ($ug/m^3$)[a]** |
| $PM_{10}$ | 24-hour | 7.15 | 73.0 | 80.15 | 150.0 |
| $PM_{2.5}$ | 24-hour | 5.75 | 13.0 | 18.75 | 35.0 |
| | Annual | 1.40 | 4.3 | 5.70 | 12.0 |
| $NO_2$ | 1-hour | 139.9[c] | 31.96 | 171.81 | 188.0 |
| | Annual | 10.05[c] | 5.83 | 15.88 | 100.0 |

a. Micrograms per cubic meter.
b. National Ambient Air Quality Standard.
c. Factored by Tier 2 $NO_2/NOx$ ratios of 0.8 for 1-hour and 0.75 for annual concentrations

### *4.2 Results for TAPs Impact Analyses*

Dispersion modeling is required to demonstrate compliance with TAP increments specified by Idaho Air Rules Section 585 and 586 for those TAPs with project-specific emission increases exceeding emissions screening levels (ELs). Because there are several TAPs emissions that exceeds the ELs, modeling analyses were needed to demonstrate compliance with all AAC and AAAC. Results are listed in Table 10 and show compliance with all AAC and AAAC.

| Table 10. TAP MODELING RESULTS | | | | | |
|---|---|---|---|---|---|
| **Pollutant** | **CAS No.** | **Average** | **Modeled Conc. ($\mu g/m^3$)[a]** | **AAC/AAAC[b] ($\mu g/m^3$)** | **%AAC/AAAC** |
| Arsenic | 7440-38-2 | Annual | 3.0E-05[c] | 2.30E-04 | 13% |
| Cadmium | 7440-43-9 | Annual | 1.9E-04[c] | 5.60E-04 | 34% |
| Formaldehyde | 50-00-0 | Annual | 1.3E-02[c] | 7.70E-02 | 17% |
| Nickel | 7440-02-0 | Annual | 3.7E-04[c] | 4.20E-03 | 9% |

a. Micrograms per cubic meter.
b. Acceptable Ambient Concentration or Acceptable Ambient Concentration of a Carcinogen.
c. Maximum average concentration for five-year period 2008-2012.

## 5.0 Conclusions

The ambient air impact analyses and other air quality analyses submitted with the PTC application demonstrated to DEQ's satisfaction that emissions from the Fabri-Kal project will not cause or significantly contribute to a violation of any ambient air quality standard.

**References:**


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

2. Air Quality Environmental Science and Technology Consortium (NW AIRQUEST). *Lookup 2009-2011 Design Values of Criteria Pollutants.* Available at: http://lar.wsu.edu/nw-

airquest/lookup.html.

# APPENDIX C – FACILITY DRAFT COMMENTS

**The facility did not have any comments on the permit package.**

# APPENDIX D – PROCESSING FEE

# PTC Processing Fee Calculation Worksheet

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

**Company:** Fabri-Kal
**Address:** 2457 Washington Avenue
**City:** Burley
**State:** Idaho
**Zip Code:** 88318
**Facility Contact:** Kevin Rewa
**Title:** Facility Permitting Contact
**AIRS No.:** 031-00057

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

| Emissions Inventory | | | |
|---|---|---|---|
| Pollutant | Annual Emissions Increase (T/yr) | Annual Emissions Reduction (T/yr) | Annual Emissions Change (T/yr) |
| $NO_X$ | 10.4 | 0 | 10.4 |
| $SO_2$ | 0.1 | 0 | 0.1 |
| CO | 12.4 | 0 | 12.4 |
| PM10 | 1.2 | 0 | 1.2 |
| VOC | 2.5 | 0 | 2.5 |
| TAPS/HAPS | 0.0 | 0 | 0.0 |
| Total: | 0.0 | 0 | **26.6** |
| | | | |
| Fee Due | $ 5,000.00 | | |

Comments: