Crossville, Inc.
P1 Facility, Source No. 18-0086
Crossville, TN

Source No. 18-0086-03, Kilns 1 & 2, Uncontrolled Maximum Potential Emissions

The maximum process material input rate is 4,350 pounds per hour for each kiln. This results in a total maximum input of 8,700 pounds per hour for this source.

Hourly and yearly maximum potential emissions of the following pollutants are estimated based on a February 12, 2009 stack test performed on Kiln 1 at Crossville Plant 1. Emissions are scaled to the kiln's maximum tile throughput rates.

PM: (0.173 lb $_{pm}$ / hr) * (4350 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) * 2 kilns = **0.348 lb $_{pm}$ / hr**
(0.3477 lb $_{pm}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.52 tons $_{pm}$ / yr**

SO_2: (1.31 lb $_{SO2}$ / hr) * (4350 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) * 2 kilns = **2.63 lb $_{SO2}$ / hr**
(2.633 lb $_{SO2}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **11.5 tons $_{SO2}$ / yr**

NO_X: (1.21 lb $_{NOX}$ / hr) * (4350 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) * 2 kilns = **2.43 lb $_{NOX}$ / hr**
(2.432 lb $_{NOX}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **10.7 tons $_{NOX}$ / yr**

CO: (2.62 lb $_{CO}$ / hr) * (4350 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) * 2 kilns = **5.27 lb $_{CO}$ / hr**
(5.265 lb $_{CO}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **23.1 tons $_{CO}$ / yr**

HCl: (0.068 lb $_{HCl}$ / hr) * (4350 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) * 2 kilns = **0.137 lb $_{HCl}$ / hr**
(0.1367 lb $_{HCl}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.599 tons $_{HCl}$ / yr**

HF: (0.20 lb $_{HF}$ / hr) * (4350 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) * 2 kilns = **0.40 lb $_{HF}$ / hr**
(0.402 lb $_{HF}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.8 tons $_{HF}$ / yr**

VOC emissions are based on AP-42 section 11.7, Ceramic Products Manufacturing.

VOC: (0.43 lb $_{VOC}$ / ton) * (4350 lb $_{tile\ max}$ / hr) * (1 ton / 2000 lb) * 2 kilns = **1.9 lb $_{VOC}$ / hr**
(1.87 lb $_{VOC}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **8.2 tons $_{VOC}$ / yr**

Source No. 18-0086-04, Spray Dryer #1, Uncontrolled Maximum Potential Emissions

The maximum clay slurry solids throughput rate for Spray Dryer #1 is 17,807 pounds per hour.

Emissions for particulate matter are conservatively estimated based on the permitted maximum rate. This rate is based on an April 1, 2009 stack test performed on Spray Dryer #1 with a 30% safety factor

included. The spray dryer has a wet scrubber installed with attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for the spray dryer are calculated post scrubber.

PM: **2.74 lb $_{PM}$ / hr**

(2.74 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **12.0 tons $_{PM}$ / yr**

Emissions for the following pollutants are estimated using AP-42 factors for natural gas combustion section 1.4.

Btu input = 7,788,000 Btu/hr

Fuel Usage: (7,788,000 Btu / hr) * (1 ft^3 natural gas / 1,020 Btu) = **7,635 ft^3 / hr**

SO_2 (0.6 lb / 1,000,000 ft^3) * (7,635 ft^3 / hr) = **0.0 lb / hr**

(0.00 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.0 ton / yr**

CO: (84 lbs / 1,000,000 ft^3) * (7,635 ft^3 / hr) = **0.64 lb / hr**

(0.641 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **2.8 tons / yr**

VOC: (5.5 lbs / 1,000,000 ft^3) * (7,635 ft^3 / hr) = **0.04 lb / hr**

(0.042 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.18 ton / yr**

NO_X: (100 lbs / 1,000,000 ft^3) * (7,635 ft^3 / hr) = **0.764 lb / hr**

(0.7635 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **3.34 tons / yr**

Source No. 18-0086-05, Natural Gas-Fired Heater, Uncontrolled Maximum Potential Emissions

Emissions for the following pollutants are estimated using AP-42 factors for natural gas combustion section 1.4.

Btu input = 2,190,000 Btu/hr

Fuel Usage: (2,190,000 Btu / hr) * (1 ft^3 natural gas / 1,020 Btu) = **2,147 ft^3 / hr**

PM: (7.6 lb / 1,000,000 ft^3) * (2,147 ft^3 / hr) = **0.02 lb / hr**

(0.016 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.07 ton / yr**

SO_2: (0.6 lb / 1,000,000 ft^3) * (2,147 ft^3 / hr) = **0.0 lb / hr**

(0.00 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.0 ton / yr**

CO: (84 lbs / 1,000,000 ft^3) * (2,147 ft^3 / hr) = **0.18 lb / hr**

(0.180 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.79 tons / yr**

VOC: (5.5 lbs / 1,000,000 ft^3) * (2,147 ft^3 / hr) = **0.01 lb / hr**

(0.012 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.05 ton / yr**

NO_X: (100 lbs / 1,000,000 ft^3) * (2,147 ft^3 / hr) = **0.215 lb / hr**

(0.2147 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.940 tons / yr**

Source No. 18-0086-11, Dust Collection System with Baghouse for Transfer Points from Conveyor to Conveyor and Drop Points into Press Silo, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on the permitted maximum rate. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse.

PM: **3.6 lb $_{PM}$ / hr**

(3.6 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **15.8 tons $_{PM}$ / yr**

Source No. 18-0086-12, Spray Dryer #2, Uncontrolled Maximum Potential Emissions

The maximum clay slurry solids throughput rate for Spray Dryer #1 is 18,000 pounds per hour.

Emissions for particulate matter are conservatively estimated based on the permitted maximum rate. This rate is based on Federal New Source Performance Standards Subpart UUU. The spray dryer has a wet scrubber installed with attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for the spray dryer are calculated post scrubber.

PM: **1.88 lb $_{pm}$ / hr**

(1.88 lb $_{pm}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **8.23 tons $_{pm}$ / yr**

Emissions for the following pollutants are estimated using AP-42 factors for natural gas combustion section 1.4.

Fuel Usage: **7,788 ft^3 / hr**

SO_2 (0.6 lb / 1,000,000 ft^3) * (7,788 ft^3 / hr) = **0.0 lb / hr**
(0.00 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.0 ton / yr**

CO: (84 lbs / 1,000,000 ft^3) * (7,788 ft^3 / hr) = **0.65 lb / hr**
(0.654 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **2.9 tons / yr**

VOC: (5.5 lbs / 1,000,000 ft^3) * (7,788 ft^3 / hr) = **0.04 lb / hr**
(0.043 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.19 ton / yr**

NO_X: (100 lbs / 1,000,000 ft^3) * (7,788 ft^3 / hr) = **0.779 lb / hr**
(0.7788 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **3.41 tons / yr**

Source No. 18-0086-13, Kiln 4, Uncontrolled Maximum Potential Emissions

The maximum process material input rate is 8,200 pounds per hour for this source.

Hourly and yearly maximum potential emissions of the following pollutants are estimated based on an April 1, 2009 stack test performed on Kiln 4 at Crossville Plant 1. Emissions are scaled to the kiln's maximum tile throughput rates.

PM: ($0.268\ lb_{pm}$ / hr) * ($8200\ lb_{tile\ max}$ / hr ÷ $8161\ lb_{tested}$ / hr) = **0.269 lb_{pm} / hr**
($0.2693\ lb_{pm}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.18 tons $_{pm}$ / yr**

SO_2: ($2.28\ lb_{SO2}$ / hr) * ($8200\ lb_{tile\ max}$ / hr ÷ $8161\ lb_{tested}$ / hr) = **2.29 lb_{SO2} / hr**
($2.291\ lb_{SO2}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **10.0 tons $_{SO2}$ / yr**

NO_X: ($1.43\ lb_{NOX}$ / hr) * ($8200\ lb_{tile\ max}$ / hr ÷ $8161\ lb_{tested}$ / hr) = **1.44 lb_{NOX} / hr**
($1.437\ lb_{NOX}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **6.29 tons $_{NOX}$ / yr**

CO: ($3.89\ lb_{CO}$ / hr) * ($8200\ lb_{tile\ max}$ / hr ÷ $8161\ lb_{tested}$ / hr) = **3.91 lb_{CO} / hr**
($3.909\ lb_{CO}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **17.1 tons $_{CO}$ / yr**

HCl: ($0.200\ lb_{HCl}$ / hr) * ($8200\ lb_{tile\ max}$ / hr ÷ $8161\ lb_{tested}$ / hr) = **0.201 lb_{HCl} / hr**
($0.2010\ lb_{HCl}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.880 tons $_{HCl}$ / yr**

HF: ($0.440\ lb_{HF}$ / hr) * ($8200\ lb_{tile\ max}$ / hr ÷ $8161\ lb_{tested}$ / hr) = **0.442 lb_{HF} / hr**

(0.4421 lb $_{HF}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.94 tons $_{HF}$ / yr**

VOC emissions are based on AP-42 section 11.7, Ceramic Products Manufacturing.

VOC: (0.43 lb $_{VOC}$ / ton) * (8200 lb $_{tile\ max}$ / hr) * (1 ton / 2000 lb) = **1.8 lb $_{voc}$ / hr**
(1.76 lb $_{VOC}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **7.7 tons $_{voc}$ / yr**

Source No. 18-0086-14, Natural Gas-Fired Tunnel Dryer No. 1, Uncontrolled Maximum Potential Emissions

Emissions for the following pollutants are estimated using AP-42 factors for natural gas combustion section 1.4.

Btu input = 6,100,000 Btu/hr

Fuel Usage: (6,100,000 Btu / hr) * (1 ft^3 natural gas / 1,020 Btu) = **5,980 ft^3 / hr**

PM: (7.6 lbs / 1,000,000 ft^3) * (5,980 ft^3 / hr) = **0.05 lb / hr**
(0.045 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.20 ton / yr**

SO_2: (0.6 lb / 1,000,000 ft^3) * (5,980 ft^3 / hr) = **0.0 lb / hr**
(0.00 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.0 ton / yr**

CO: (84 lbs / 1,000,000 ft^3) * (5,980 ft^3 / hr) = **0.50 lb / hr**
(0.502 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **2.2 tons / yr**

VOC: (5.5 lbs / 1,000,000 ft^3) * (5,980 ft^3 / hr) = **0.03 lb / hr**
(0.033 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.14 ton / yr**

NO_X: (100 lbs / 1,000,000 ft^3) * (5,980 ft^3 / hr) = **0.598 lb / hr**
(0.5980 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **2.62 tons / yr**

Source No. 18-0086-15, Natural Gas-Fired Tunnel Dryer No. 2, Uncontrolled Maximum Potential Emissions

Emissions for the following pollutants are estimated using AP-42 factors for natural gas combustion section 1.4.

Btu input = 6,100,000 Btu/hr

Fuel Usage: (6,100,000 Btu / hr) * (1 ft^3 natural gas / 1,020 Btu) = **5,980 ft^3 / hr**

PM: (7.6 lbs / 1,000,000 ft^3) * (5,980 ft^3 / hr) = **0.05 lb / hr**
(0.045 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.20 ton / yr**

SO_2: (0.6 lb / 1,000,000 ft^3) * (5,980 ft^3 / hr) = **0.0 lb / hr**
(0.00 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.0 ton / yr**

CO: (84 lbs / 1,000,000 ft^3) * (5,980 ft^3 / hr) = **0.50 lb / hr**
(0.502 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **2.2 tons / yr**

VOC: (5.5 lbs / 1,000,000 ft^3) * (5,980 ft^3 / hr) = **0.03 lb / hr**
(0.033 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.14 ton / yr**

NO_X: (100 lbs / 1,000,000 ft^3) * (5,980 ft^3 / hr) = **0.598 lb / hr**
(0.5980 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **2.62 tons / yr**

Source No. 18-0086-16, Vertical talc silo with fabric filter bin vent, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on the permitted maximum rate. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse.

PM: **1.5 lb $_{PM}$ / hr**
(1.5 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **6.6 tons $_{PM}$ / yr**

Source No. 18-0086-17, Natural Gas-Fired Dryer for Press #5, Uncontrolled Maximum Potential Emissions

Emissions for the following pollutants are estimated using AP-42 factors for natural gas combustion section 1.4.

Btu input = 3,930,000 Btu/hr

Fuel Usage: (3,930,000 Btu / hr) * (1 ft^3 natural gas / 1,020 Btu) = **3,853 ft^3 / hr**

PM: (7.6 lbs / 1,000,000 ft^3) * (3,853 ft^3 / hr) = **0.03 lb / hr**
(0.029 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.13 ton / yr**

SO_2: (0.6 lb / 1,000,000 ft^3) * (3,853 ft^3 / hr) = **0.0 lb / hr**
(0.00 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.0 ton / yr**

CO: (84 lbs / 1,000,000 ft^3) * (3,853 ft^3 / hr) = **0.32 lb / hr**
(0.324 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.4 tons / yr**

VOC: (5.5 lbs / 1,000,000 ft^3) * (3,853 ft^3 / hr) = **0.02 lb / hr**
(0.021 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.09 ton / yr**

NO_X: (100 lbs / 1,000,000 ft^3) * (3,853 ft^3 / hr) = **0.385 lb / hr**
(0.3853 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.69 tons / yr**

Source No. 18-0086-18, Natural Gas-Fired Dryer, Uncontrolled Maximum Potential Emissions

Emissions for the following pollutants are estimated using AP-42 factors for natural gas combustion section 1.4.

Btu input = 3,930,000 Btu/hr

Fuel Usage: (3,930,000 Btu / hr) * (1 ft^3 natural gas / 1,020 Btu) = **3,853 ft^3 / hr**

PM: (7.6 lbs / 1,000,000 ft^3) * (3,853 ft^3 / hr) = **0.03 lb / hr**
(0.029 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.13 ton / yr**

SO_2: (0.6 lb / 1,000,000 ft^3) * (3,853 ft^3 / hr) = **0.0 lb / hr**
(0.00 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.0 ton / yr**

CO: (84 lbs / 1,000,000 ft^3) * (3,853 ft^3 / hr) = **0.32 lb / hr**
(0.324 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.4 tons / yr**

VOC: (5.5 lbs / 1,000,000 ft^3) * (3,853 ft^3 / hr) = **0.02 lb / hr**
(0.021 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.09 ton / yr**

NO_X: (100 lbs / 1,000,000 ft^3) * (3,853 ft^3 / hr) = **0.385 lb / hr**
(0.3853 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.69 tons / yr**

Source No. 18-0086-19, Natural Gas-Fired Dryer, Uncontrolled Maximum Potential Emissions

Emissions for the following pollutants are estimated using AP-42 factors for natural gas combustion section 1.4.

Btu input = 3,930,000 Btu/hr

Fuel Usage: (3,930,000 Btu / hr) * (1 ft^3 natural gas / 1,020 Btu) = **3,853 ft^3 / hr**

PM: (7.6 lbs / 1,000,000 ft^3) * (3,853 ft^3 / hr) = **0.03 lb / hr**
(0.029 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.13 ton / yr**

SO_2: (0.6 lb / 1,000,000 ft^3) * (3,853 ft^3 / hr) = **0.0 lb / hr**
(0.00 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.0 ton / yr**

CO: (84 lbs / 1,000,000 ft^3) * (3,853 ft^3 / hr) = **0.32 lb / hr**
(0.324 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.4 tons / yr**

VOC: (5.5 lbs / 1,000,000 ft^3) * (3,853 ft^3 / hr) = **0.02 lb / hr**
(0.021 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.09 ton / yr**

NO_X: (100 lbs / 1,000,000 ft^3) * (3,853 ft^3 / hr) = **0.385 lb / hr**
(0.3853 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.69 tons / yr**

Source No. 18-0086-23, Mori Kiln, Uncontrolled Maximum Potential Emissions

The maximum process material input rate is 850 pounds per hour.

Hourly and yearly maximum potential emissions of the following pollutants are estimated based on a February 12, 2009 stack test performed on Kiln 1 at Crossville Plant 1. Emissions are scaled to the kiln's maximum tile input rate.

PM: (0.173 lb $_{pm}$ / hr) * (850 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) = **0.034 lb $_{pm}$ / hr**
(0.0340 lb $_{pm}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.149 tons $_{pm}$ / yr**

SO_2: (1.31 lb $_{SO2}$ / hr) * (850 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) = **0.257 lb $_{SO2}$ / hr**
(0.2572 lb $_{SO2}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.13 tons $_{SO2}$ / yr**

NO_X: (1.21 lb $_{NOX}$ / hr) * (850 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) = **0.238 lb $_{NOX}$ / hr**
(0.2376 lb $_{NOX}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.04 tons $_{NOX}$ / yr**

CO: (2.62 lb $_{CO}$ / hr) * (850 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) = **0.514 lb $_{CO}$ / hr**
(0.5144 lb $_{CO}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **2.25 tons $_{CO}$ / yr**

HCl: (0.068 lb $_{HCl}$ / hr) * (850 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) = **0.013 lb $_{HCl}$ / hr**
(0.0134 lb $_{HCl}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.058 tons $_{HCl}$ / yr**

HF: (0.20 lb $_{HF}$ / hr) * (850 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) = **0.04 lb $_{HF}$ / hr**
(0.039 lb $_{HF}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.17 tons $_{HF}$ / yr**

VOC emissions are based on AP-42 section 11.7, Ceramic Products Manufacturing.

VOC: (0.43 lb $_{VOC}$ / ton) * (850 lb $_{tile\ max}$ / hr) * (1 ton / 2000 lb) = **0.18 lb $_{VOC}$ / hr**
(0.183 lb $_{VOC}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.80 tons $_{VOC}$ / yr**

Source No. 18-0086-24, Mosaics Siti Kiln, Uncontrolled Maximum Potential Emissions

The maximum process material input rate is 2,500 pounds per hour.

Hourly and yearly maximum potential emissions of the following pollutants are estimated based on a February 12, 2009 stack test performed on Kiln 1 at Crossville Plant 1. Emissions are scaled to the kiln's maximum tile input rate.

PM: (0.173 lb $_{pm}$ / hr) * (2500 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) = **0.100 lb $_{pm}$ / hr**
(0.1000 lb $_{pm}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.438 tons $_{pm}$ / yr**

SO_2: (1.31 lb $_{SO2}$ / hr) * (2500 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) = **0.757 lb $_{SO2}$ / hr**

(0.7565 lb $_{SO2}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **3.31 tons $_{SO2}$ / yr**

NO_X: (1.21 lb $_{NOX}$ / hr) * (2500 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) = **0.699 lb $_{NOX}$ / hr**
(0.6988 lb $_{NOX}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **3.06 tons $_{NOX}$ / yr**

CO: (2.62 lb $_{CO}$ / hr) * (2500 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) = **1.51 lb $_{CO}$ / hr**
(1.513 lb $_{CO}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **6.63 tons $_{CO}$ / yr**

HCl: (0.068 lb $_{HCl}$ / hr) * (2500 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) = **0.039 lb $_{HCl}$ / hr**
(0.0393 lb $_{HCl}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.172 tons $_{HCl}$ / yr**

HF: (0.20 lb $_{HF}$ / hr) * (2500 lb $_{tile\ max}$ / hr ÷ 4329 lb $_{tested}$ / hr) = **0.12 lb $_{HF}$ / hr**
(0.116 lb $_{HF}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.51 tons $_{HF}$ / yr**

VOC emissions are based on AP-42 section 11.7, Ceramic Products Manufacturing.

VOC: (0.43 lb $_{VOC}$ / ton) * (2500 lb $_{tile\ max}$ / hr) * (1 ton / 2000 lb) = **0.54 lb $_{VOC}$ / hr**
(0.538 lb $_{VOC}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **2.4 tons $_{VOC}$ / yr**

Source No. 18-0086-25, Two Natural Gas-Fired Dryers, Uncontrolled Maximum Potential Emissions

Emissions for the following pollutants are estimated using AP-42 factors for natural gas combustion section 1.4.

Btu input = 4,000,000 Btu/hr

Fuel Usage: (4,000,000 Btu / hr) * (1 ft^3 natural gas / 1,020 Btu) = **3,922 ft^3 / hr**

PM: (7.6 lbs / 1,000,000 ft^3) * (3,922 ft^3 / hr) = **0.03 lb / hr**
(0.030 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.13 ton / yr**

SO_2: (0.6 lb / 1,000,000 ft^3) * (3,922 ft^3 / hr) = **0.0 lb / hr**
(0.00 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.0 ton / yr**

CO: (84 lbs / 1,000,000 ft^3) * (3,922 ft^3 / hr) = **0.33 lb / hr**
(0.329 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.4 tons / yr**

VOC: (5.5 lbs / 1,000,000 ft^3) * (3,922 ft^3 / hr) = **0.02 lb / hr**

(0.022 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.09 ton / yr**

NO_X: (100 lbs / 1,000,000 ft^3) * (3,922 ft^3 / hr) = **0.392 lb / hr**

(0.3922 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.72 tons / yr**

Source No. 18-0086-26, Three tile presses and two tile glazing lines with baghouse control, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on the permitted maximum rate. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse.

PM: **0.5 lb $_{PM}$ / hr**

(0.5 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **2.2 tons $_{PM}$ / yr**

Source No. 18-0086-27, Natural Gas-Fired Tile Mounting Machine, Uncontrolled Maximum Potential Emissions

Emissions for the following pollutants are estimated using AP-42 factors for natural gas combustion section 1.4.

Btu input = 2,000,000 Btu/hr

Fuel Usage: (2,000,000 Btu / hr) * (1 ft^3 natural gas / 1,020 Btu) = **1,961 ft^3 / hr**

PM: (7.6 lbs / 1,000,000 ft^3) * (1,961 ft^3 / hr) = **0.01 lb / hr**

(0.015 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.07 ton / yr**

SO_2: (0.6 lb / 1,000,000 ft^3) * (1,961 ft^3 / hr) = **0.0 lb / hr**

(0.00 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.0 ton / yr**

CO: (84 lbs / 1,000,000 ft^3) * (1,961 ft^3 / hr) = **0.16 lb / hr**

(0.165 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.72 tons / yr**

VOC: (5.5 lbs / 1,000,000 ft^3) * (1,961 ft^3 / hr) = **0.01 lb / hr**

(0.011 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.05 ton / yr**

NO_X: (100 lbs / 1,000,000 ft^3) * (1,961 ft^3 / hr) = **0.196 lb / hr**

(0.1961 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.859 tons / yr**

Source No. 18-0086-28, Four tile glazing lines with four baghouses, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on the permitted maximum rate. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse.

PM: **0.46 lb $_{PM}$ / hr**

(0.46 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **2.0 tons $_{PM}$ / yr**

Source No. 18-0086-29, Kiln 4 loading operation, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on the permitted maximum rate. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse.

PM: **0.063 lb $_{PM}$ / hr**

(0.063 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.276 tons $_{PM}$ / yr**

Source No. 18-0086-30, Stain milling operation, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on the permitted maximum rate. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse.

PM: **0.063 lb $_{PM}$ / hr**

(0.063 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.276 tons $_{PM}$ / yr**

Source No. 18-0086-32, Diesel-fired Emergency Generator, Uncontrolled Maximum Potential Emissions

Emissions for the following pollutants are estimated using emission factors from AP-42, section 3.3, Table 3.3-1.

Because this is an emergency generator, potential emissions will be based on an annual operating time of 500 hours, based on the memorandum from John Seitz, Director of the Office of Air Quality Planning and Standards, dated September 6, 1995.

Generator HP = 380

PM: (0.0022 lb / HP- hr) * (380 HP) = **0.84 lb / hr**
(0.836 lb / hr) * (500 hrs / yr) * (1 ton / 2000 lbs) = **0.21 ton / yr**

SO_2: (0.00205 lb / HP - hr) * (380 HP) = **0.78 lb / hr**
(0.779 lb / hr) * (500 hrs / yr) * (1 ton / 2000 lbs) = **0.19 ton / yr**

CO: (0.00668 lb / HP - hr) * (380 HP) = **2.5 lb / hr**
(2.54 lb / hr) * (500 hrs / yr) * (1 ton / 2000 lbs) = **0.63 tons / yr**

TOC: (0.00247 lb / HP - hr) * (380 HP) = **0.94 lb / hr**
(0.939 lb / hr) * (500 hrs / yr) * (1 ton / 2000 lbs) = **0.23 ton / yr**

NO_X: (0.031 lb / HP - hr) * (380 HP) = **11.8 lb / hr**
(11.78 lb / hr) * (500 hrs / yr) * (1 ton / 2000 lbs) = **2.9 tons / yr**

Source No. 18-0086-34, Diesel-fired Emergency Generator, Uncontrolled Maximum Potential Emissions

Emissions for the following pollutants are estimated using emission factors from AP-42, section 3.3, Table 3.3-1.

Because this is an emergency generator, potential emissions will be based on an annual operating time of 500 hours, based on the memorandum from John Seitz, Director of the Office of Air Quality Planning and Standards, dated September 6, 1995.

Generator HP = 355

PM: (0.0022 lb / HP- hr) * (355 HP) = **0.78 lb / hr**
(0.781 lb / hr) * (500 hrs / yr) * (1 ton / 2000 lbs) = **0.20 ton / yr**

SO_2: (0.00205 lb / HP - hr) * (355 HP) = **0.73 lb / hr**

(0.728 lb / hr) * (500 hrs / yr) * (1 ton / 2000 lbs) = **0.18 ton / yr**

CO: (0.00668 lb / HP - hr) * (355 HP) = **2.4 lb / hr**

(2.37 lb / hr) * (500 hrs / yr) * (1 ton / 2000 lbs) = **0.59 tons / yr**

TOC: (0.00247 lb / HP - hr) * (355 HP) = **0.88 lb / hr**

(0.877 lb / hr) * (500 hrs / yr) * (1 ton / 2000 lbs) = **0.22 ton / yr**

NO_X: (0.031 lb / HP - hr) * (355 HP) = **11.0 lb / hr**

(11.01 lb / hr) * (500 hrs / yr) * (1 ton / 2000 lbs) = **2.8 tons / yr**

Source No. Not Assigned, Mingle Silos Serviced by Baghouse F-1, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on emissions information provided by the filter supplier. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse. This source exhausts outside the facility.

PM: ($13{,}863\ ft^3$ / min) * (0.002 gr / dscf) * (60 min / hr) * (1 lb / 7000 gr) = **0.238 lb $_{PM}$ / hr**

($0.2377\ lb_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.04 tons $_{PM}$ / yr**

Source No. Not Assigned, Color Room Mezzanine Serviced by Baghouse F-2, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on emissions information provided by the filter supplier. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse. This source exhausts inside the facility. The facility is considered a 50% effective settling chamber per previous agreement with TDAPC.

PM: ($1{,}400\ ft^3$ / min) * (0.002 gr / dscf) * (60 min / hr) * (1 lb / 7000 gr) * (0.5 internal exhaust factor) = **0.012 lb $_{PM}$ / hr**

($0.0120\ lb_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.053 tons $_{PM}$ / yr**

Source No. Not Assigned, Housekeeping vacuum F-5, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on emissions information provided by the filter supplier. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse. This source exhausts outside the facility.

PM: (1,020 ft^3 / min) * (0.0000068 gr / dscf) * (60 min / hr) * (1 lb / 7000 gr) = **0.00 lb $_{PM}$ / hr**

(0.000 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.00 tons $_{PM}$ / yr**

Source No. Not Assigned, Raw Materials Bay Weigh Box Service by Baghouse F-7, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on emissions information provided by the filter supplier. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse. This source exhausts outside the facility.

PM: (10,319 ft^3 / min) * (0.003 gr / dscf) * (60 min / hr) * (1 lb / 7000 gr) = **0.265 lb $_{PM}$ / hr**

(0.2653 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.16 tons $_{PM}$ / yr**

Source No. Not Assigned, Ball Mill Loading Operation Serviced by Baghouse F-8, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on emissions information provided by the filter supplier. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse. This source exhausts outside the facility.

PM: (24,540 ft^3 / min) * (0.002 gr / dscf) * (60 min / hr) * (1 lb / 7000 gr) = **0.421 lb $_{PM}$ / hr**

(0.4207 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.84 tons $_{PM}$ / yr**

Source No. Not Assigned, Engobe Mixing Serviced by Baghouse F-10, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on emissions information provided by the filter supplier. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse. This source exhausts inside the facility. The facility is considered a 50% effective settling chamber per previous agreement with TDAPC.

PM: (790 ft^3 / min) * (0.01 gr / dscf) * (60 min / hr) * (1 lb / 7000 gr) * (0.5 internal exhaust factor) = **0.03 lb $_{PM}$ / hr**

(0.034 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.15 tons $_{PM}$ / yr**

Source No. Not Assigned, Press 6 Serviced by Baghouse F-11, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on emissions information provided by the filter supplier. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse. This source exhausts outside the facility.

PM: (15,000 ft^3 / min) * (0.002 gr / dscf) * (60 min / hr) * (1 lb / 7000 gr) = **0.257 lb $_{PM}$ / hr**

(0.2571 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **1.13 tons $_{PM}$ / yr**

Source No. Not Assigned, Housekeeping Vacuum Serviced by Baghouse F-12, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on emissions information provided by the filter supplier. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse. This source exhausts inside the facility. The facility is considered a 50% effective settling chamber per previous agreement with TDAPC.

PM: (532 ft^3 / min) * (0.02 gr / dscf) * (60 min / hr) * (1 lb / 7000 gr) * (0.5 internal exhaust factor) = **0.05 lb $_{PM}$ / hr**

(0.046 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.20 tons $_{PM}$ / yr**

Source No. Not Assigned, Tile Pressing Serviced by Baghouse F-17, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on emissions information provided by the filter supplier. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse. This source exhausts outside the facility.

PM: (50,000 ft^3 / min) * (0.002 gr / dscf) * (60 min / hr) * (1 lb / 7000 gr) = **0.857 lb $_{PM}$ / hr**

(0.8571 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **3.75 tons $_{PM}$ / yr**

Source No. Not Assigned, Equipment Cleaning Room Serviced by Baghouse F-20, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on emissions information provided by the filter supplier. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse. This source exhausts inside the facility. The facility is considered a 50% effective settling chamber per previous agreement with TDAPC.

PM: (10,000 ft^3 / min) * (0.002 gr / dscf) * (60 min / hr) * (1 lb / 7000 gr) * (0.5 internal exhaust factor) = **0.086 lb $_{PM}$ / hr**

(0.0857 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.375 tons $_{PM}$ / yr**

Source No. Not Assigned, Maintenance Welding Shop Serviced by Baghouse, Uncontrolled Maximum Potential Emissions

Emissions for particulate matter are conservatively estimated based on emissions information provided by the filter supplier. This dust collection system has attributes that allow us to define it as inherent process equipment. Thus, potential particulate matter emissions for this source are calculated post baghouse. This source exhausts inside the facility. The facility is considered a 50% effective settling chamber per previous agreement with TDAPC.

PM: (1,780 ft^3 / min) * (0.01 gr / dscf) * (60 min / hr) * (1 lb / 7000 gr) * (0.5 internal exhaust factor) = **0.08 lb $_{PM}$ / hr**

(0.076 lb $_{PM}$ / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.33 tons $_{PM}$ / yr**

Source No. Not Assigned, Natural Gas-Fired Trim Tile Dryer, Uncontrolled Maximum Potential Emissions

Emissions for the following pollutants are estimated using AP-42 factors for natural gas combustion section 1.4.

Btu input = 6,690,000 Btu/hr

Fuel Usage: (6,690,000 Btu / hr) * (1 ft^3 natural gas / 1,020 Btu) = **6,559 ft^3 / hr**

PM: (7.6 lbs / 1,000,000 ft^3) * (6,559 ft^3 / hr) = **0.05 lb / hr**

(0.050 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.22 ton / yr**

SO_2: (0.6 lb / 1,000,000 ft^3) * (6,559 ft^3 / hr) = **0.0 lb / hr**

(0.00 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.0 ton / yr**

CO: (84 lbs / 1,000,000 ft^3) * (6,559 ft^3 / hr) = **0.55 lb / hr**

(0.551 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **2.4 tons / yr**

VOC: (5.5 lbs / 1,000,000 ft^3) * (6,559 ft^3 / hr) = **0.04 lb / hr**

(0.036 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **0.16 ton / yr**

NO_X: (100 lbs / 1,000,000 ft^3) * (6,559 ft^3 / hr) = **0.656 lb / hr**

(0.6559 lb / hr) * (8760 hrs / yr) * (1 ton / 2000 lbs) = **2.87 tons / yr**