TECHNICAL REVIEW DOCUMENT
for
OPERATING PERMIT 04OPPB278
to be issued to:

Summit Pressed Brick & Tile Co.

Pueblo County
Source ID 1010005

Prepared by Matthew S. Burgett
March 2008

I. Purpose:

This document establishes the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered within the Operating Permit proposed for this site. It is designed for reference during review of the proposed permit by the EPA, the Public and other interested parties. Conclusions made in this report are based on information provided by the applicant in the Title V application received January 3, 2005, subsequent additional information submittals, and review of Division files. This narrative is intended only as an adjunct for the reviewer and has no legal standing. Please note that copies of the Technical Review Document (TRD) may be found in the Division files as well as on the Division website at http://www.cdphe.state.co.us/ap/Titlev.html.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised Construction Permit.

II. Source Description:

Summit Pressed Brick and Tile Co. produces bricks using the stiff mud extrusion process. Clay is delivered to the facility in trucks and unloaded into outdoor stockpiles. Recycled clay and recycled brick are also stored in outdoor stockpiles. The raw materials are transferred using a front end loader from the stockpiles to a hopper inside the processing building. From there they are crushed, ground and screened. The processed materials are mixed with water in a pug mill and the material is extruded and cut to form bricks. The bricks are loaded on cars and transferred into the dryer. The heat source for the dryer is

excess heat from the kiln. After drying, the bricks are fired in the natural gas-fired kiln. The finished bricks are loaded and packaged for storage and shipment. Emission sources include the kiln and dryer, clay handling and processing equipment, and yard activities.

The plant is located at 13th Street and Erie Avenue in Pueblo, Pueblo County, Colorado. The area in which the plant operates is designated as attainment for all criteria pollutants.

There are no affected states within 50 miles of the facility. The Great Sand Dunes National Monument is a Federal Class I designated area within 100 kilometers of the facility. Florissant Fossil Beds National Monument is a Federal land area within 100 kilometers of the facility. Florissant Fossil Beds National Monument has been designated by the State to have the same sulfur dioxide increment as a Federal Class I area.

Summit Pressed Brick & Tile Co. is required to obtain a Title V Operating Permit since it is a major source of Hazardous Air Pollutants (HAPs).

Emissions are as follows:

Pollutant	Potential to Emit (tpy)	Actual Emissions (tpy)
TSP	44.5	38.1
PM_{10}	35.0	29.5
NO_X	10.34	8.9
SO_2	19.80	17.0
VOC	1.60	1.4
CO	35.47	30.4
Fluorides	17.44	14.9
HF	10.94	9.4
HCl	5.02	4.3
Total HAPs	16.14	13.8

The potential to emit is based on permitted emission limits. Actual emissions are based on the most recently submitted APENs.

III. Emission Sources:

The following sources are specifically regulated under terms and conditions of the Operating Permit for this Site:

Kiln and Dryer: 34.946 mmBtu/hr natural gas-fired Harrop Tunnel Kiln. Dryer uses waste heat from kiln. Reported design rating = 7.55 tons per hour of fired brick.

1. **Applicable Requirements –** Prior to Title V application submittal, Colorado Construction Permit 02PB0472 defined applicable requirements for the kiln & dryer. The requirements of this Construction Permit have been added to the Operating Permit. These requirements include:

   - Brick production limit.
   - Emission limits for TSP, PM10, NOX, SO2, VOC, CO & Fluorides.
   - Opacity limit from Regulation No. 1.
   - Standards of Performance for New Manufacturing Processes from Regulation No. 6, Part B.

2. **Emission Factors-** Emissions are produced from the combustion of natural gas to fuel the kiln, and the release of compounds from the raw material. Emissions are emitted uncontrolled. Emissions are estimated using the emission factors outlined in EPA's AP-42 Chapter 11.3. The appropriate emission factors have been listed in the permit table.

3. **Monitoring Plan-** The source shall be required to monitor compliance with the emission limits by monitoring brick production and using the listed emission factors. Brick production records and criteria emission calculations shall be conducted on a monthly basis.

   A non-Method 9 opacity observation shall be conducted (on each stack) on a weekly basis. These observations shall be conducted for a minimum of 2 minutes each. If any emissions are visible, a Method 9 opacity observation shall be conducted. At least one Method 9 observation shall be conducted on an annual basis on each stack.

4. **Compliance Status-** The permittee indicated in their application that they are in compliance with all applicable requirements.

5. **Additional Information from the Construction Permit Preliminary Analysis –** Summit Pressed Brick submitted an APEN for the kiln in 1979 that indicated a design capacity of 3000 brick per hour. This was translated on the APEN to equate to 7.5 tons per hour of fired brick. There is no indication on the 1979 APEN how this 7.5 tph design rate was determined. The most recent application indicates a ratio between brick production in tons and number of bricks that equals 1.84 tons fired brick per 1,000 brick equivalents. Using this ratio and the original APEN information of 3,000 bricks per hour, I

determined a design rate of 5.52 tons of fired brick per hour. This is in line with what the source indicates as the existing kiln design rate, 5.86 tons of fired brick per hour.

If we accept the kiln to have an existing design rate of 5.86 tons of fired brick per hour and use the most recent AP42 emission factors, this point is considered an existing true minor source [for criteria pollutants]. Through the latest application paperwork, SPB requests to obtain a Title V Operating Permit for the operation of the modified Harrop Tunnel kiln and waste heat dryer. This modification means the kiln is no longer grand fathered from Regulation 3, Part B permit requirements. The request results from the operator's intention to increase the Potential-to-Emit from the tunnel kiln. The application indicates the source is considering several process modifications that will increase the capacity of the kiln from 5.88 tons of fired brick per hour produced to 7.55 tons of fired brick per hour produced. Based on the Budgetary Cost Analysis supplied by SPB on August 22, 2003 the modifications will include:

- Fabrication of additional kilns cars
- Dryer upgrades
- Installation of higher horsepower and/or higher pressure combustion air blower for the kiln
- Improve control system for kiln and dryer
- Use installed kiln burners currently not in use
- Upgrade existing burners and add new burners
- Modification of cooling zone of kiln

In addition to these kiln related modifications, the source may need to modify the packaging system, modify the brick-setting machine, add an additional clay storage tank and install additional screening capacity.

Raw Material Handling and Processing –
Equipment includes one hopper & apron feeder, one crusher, one grinder, three screens, conveyors, 24 transfer points, and two silos.

1. **Applicable Requirements –** Prior to Title V application submittal, Colorado Construction Permit 02PB0472 defined applicable requirements for the raw material handling and processing equipment. The requirements of this Construction Permit have been added to the Operating Permit. These requirements include:

   - Raw material processing & handling limit.
   - Emission limits for TSP & PM10.
   - Opacity limit from Regulation No. 1.
   - New Source Performance Standards for Nonmetallic Mineral Processing Plants (NSPS OOO).
   - Standards of Performance for New Manufacturing Processes from Regulation No. 6, Part B.

2. **Emission Factors-** Particulate emissions are produced from the various material handling and processing activities. Emissions are estimated using the emission factors outlined in EPA's AP-42 Chapter 11.3 & 11.19. The Division approved the use of a 95% control efficiency on this equipment due to the use of moist material in an enclosed building. The appropriate emission factors have been listed in the permit. These emission factors are the emission factors after taking credit for the 95% control.

3. **Monitoring Plan -** The source shall be required to monitor compliance with the emission limits by monitoring raw material throughput and using the listed emission factors. Raw material throughput records and emission calculations shall be conducted on a monthly basis.

4. **Compliance Status-** The permittee indicated in their application that they are in compliance with all applicable requirements.

5. **Additional Information from the Construction Permit Preliminary Analysis –**

   The emission factors used by the applicant are from appropriate sources obtained from AP42 Tables 11.3-1 and 11.3-2. Although this source has one grinder and three screens, the AP42 emission factor for "Grinding and Screening" does not define how many emission units are in the spread. However, the uncontrolled emission factors for PM and PM10 are considerably higher than similar factors used for sand and gravel processing. This supports the theory that the "Grinding and Screening" factor covers multiple units. Therefore I will not calculate separate emission rates for each of the screens and the grinder. These units are grouped as one process emission source for emission estimate purposes. The applicant calculated emissions based on the assumption the materials processed are dry. Using these factors, I calculated a PTE for TSP that exceeds 250 tpy. This would indicate SPB is subject to PSD review for all criteria pollutants emitted in significant quantities. The material processed by the grinder and screens is in fact wet. I spoke with Ed Henne on Monday May 5, 2003 and he indicated the raw material has average moisture content of 8% when processed by the grinder and screens. I think this is inherent to the process, since the source requires 15% moisture prior to processing the raw clay in the pug mill. As such, I feel we should use a more appropriate factor for uncontrolled PM emissions from grinding and screening. I extrapolated available AP42 data to determine an appropriate emission factor based on moisture content of 8%. Using this more reasonable factor, I demonstrated the processing equipment covered under Point 003 is a true minor source of emissions [vis-à-vis PSD]. The crusher emissions are calculated separately. The conveyor transfer point emissions are estimated based on factors from AP42 Section 11.19.2. An emission factor for PM_{10} is available, but not one for TSP. I will assume all TSP emissions are PM_{10}. No emissions where estimated for the clay load-out from the storage silos, these emissions are presumed to be insignificant. The emissions from Apron Hopper loading are covered by point 005 raw material loading emissions.

The applicant did not calculate PTE from the processing equipment operations, but rather calculated requested limits based on a limited process throughput. In essence, since the processing equipment could operate at a higher throughput, the applicant's calculations represent synthetic minor limits based on limited production. I determined the crusher, grinder, screens and conveyors have the potential to emit (PTE) of 6.1 tons of PM_{10} and 73.4 tons of TSP per year excluding controls (Building enclosure).

Most of the equipment covered under this point was installed in 1974. Four pieces of equipment were installed in October 2000. These include three conveyors and the primary crusher. The new crusher was installed under the replacement provisions of NSPS OOO for Non-Metallic Mineral Processing. Therefore, the new crusher is solely subject to NSPS OOO reporting provisions contained in 40 CFR Part 60.676 (a). Since the conveyors are new sources they are subject to the particulate matter standards found in 60.672 and test methods per 60.675. The new conveyors and the remainder of the processing equipment are enclosed in a building. The building does not have a "vent" as defined under 60.671, therefore the conveyors must comply with either 60.672 (b) or 60.672 (e) (1) standards. These conveyors have been in operation for several years. The operator should be required to complete a compliance test prior to final approval of the construction permit.

The applicant claims the building enclosure will achieve 95% control of emissions from the sources covered under this point. John Clouse referenced "Air Pollution Engineering Manual" 2nd Edition, Page 687 as documentation for this control efficiency. There is no test data provided by this reference that supports this efficiency. However, I agree the source can achieve this efficiency considering the building enclosure is coupled with the fact the raw material processed generally contains a high moisture content (8-15%).

Yard Activities –
Activities include raw material transport on unpaved haul roads, clay loading and unloading operations and wind erosion to clay stockpiles.

1. **Applicable Requirements –** Prior to Title V application submittal, Colorado Construction Permit 02PB0472 defined applicable requirements for the yard activities. The requirements of this Construction Permit have been added to the Operating Permit. These requirements include:

   - Emission limits for fugitive TSP & PM10.
   - Particulate emissions control plan.

2. **Emission Factors-** Fugitive particulate emissions are produced from the various activities. Emissions are estimated using the emission factors outlined in EPA's AP-42 Chapter 13.2 & 8.19. The Division approved the use of a 50% control efficiency with unpaved haul roads and stockpiles based on

the use of watering. Compliance with the emission limits is determined based on raw material throughput and compliance with the particulate emissions control plan.

3. **Monitoring Plan -** The source shall be required to conduct a weekly check of the yard activities to determine if the control practices are being used and effective. Any opacity and off-property transport shall be observed during these weekly checks and corrective action conducted if warranted.

4. **Compliance Status-** The permittee indicated in their application that they are in compliance with all applicable requirements.

5. **Additional Information from the Construction Permit Preliminary Analysis –**

   The hard copy of the application contains estimates of fugitive particulate matter emissions from several segments on-site. These include: unpaved haul road emissions from raw material delivery to site, unloading to stockpiles, load out from storage piles and wind erosion to exposed surface area stockpiles. The uncontrolled emission rate of fugitive PM emissions from these segments exceeds the APEN reporting threshold of 2 tons per year for an attainment area. These emissions should not be grouped with either of the activities covered under Point 001 or 003. *I will request the source to submit a separate APEN from the fugitive emissions and they will be placed under point 005 at the facility*. A control plan will be placed in the permit as required by Regulation 1. Although the source assumed no control of unpaved haul road and stockpile emissions in their emission estimates. I think it is appropriate to provide them with credit for control based on watering. This will be included in the control plan in the permit. 50% control was applied to the uncontrolled emission rates from both the stockpiles and the unpaved haul roads.

IV. Compliance Assurance Monitoring (CAM) Requirements

The following emission points at this facility use a control device to achieve compliance with an emission limitation or standard to which they are subject and have pre-control emissions that exceed or are equivalent to the major source threshold. They are therefore subject to the provisions of the CAM program as set forth in 40 CFR Part 64 as adopted by reference into Colorado Regulation No. 3, Part C, Section XIV:

None

V. National Emission Standards of Hazardous Air Pollutants

Subpart JJJJJ—National Emission Standards for Hazardous Air Pollutants for Brick and Structural Clay Products Manufacturing:
EPA had promulgated a MACT rule covering the source category of Brick Production, with a compliance date in May 2006. This rule covered brick kilns that were a major source of HAP emissions. This rule was challenged in court and vacated on 6/18/2007.

This rule will not be included in the Title V Operating Permit. However, the vacatur triggers the applicability of 112(j) "MACT Hammer" to the Brick Production source category. The kiln owned by Summit Pressed Brick & Tile Co. was not subject to the requirements of subpart JJJJJ because it is considered an existing small tunnel kiln (design rate less than 10 tph of fired brick). However, the 112(j) rules have no such exemption and it is likely this kiln will be required to conduct a case-by-case MACT analysis and install MACT control equipment since it is considered a major source of HAP emissions.

The requirement to submit a Part 1 application associated with 112(j) will be triggered when the brick kiln operators are officially notified that 112(j) applies. Sources will have 30 days to submit the Part 1 application, then 60 days to submit the Part 2 application. The States (including Colorado) are waiting for guidance from EPA before sending this official notification.

VI. Accidental Release Program - 112(r)

Section 112(r) of the Clean Air Act mandates a new federal focus on the prevention of chemical accidents. Sources subject to these provisions must develop and implement risk management programs that include hazard assessment, a prevention program, and an emergency response program. They must prepare and implement a Risk Management Plan (RMP) as specified in the Rule.

Based on the information provided by the applicant, this facility is not subject to the provisions of the Accidental Release Prevention Program (Section 112(r) of the Federal Clean Air Act).

VII. Emission Factor Changes

From time to time published emission factors and/or other emission estimating methods are changed based on new or improved data. A logical concern is what happens if the use of the new factors/methods in a calculation results in a source being out of compliance with a permit limit. Except as noted below, the emission factors, equations, and/or other emission estimating methods included in the permit are considered to be fixed until changed by the permit. Obviously, emission factors dependent of the fuel sulfur content or heat content of the fuel can not be fixed and will vary with the test results. The method for determining the emissions is, however, fixed. It is the responsibility of the permittee to be

aware of changes in the emission factors, etc. and to notify the Division in writing of impacts on the permit requirements when there is a change. Upon notification, the Division will work with the permittee to address the situation. In addition, the Division will review the factors, etc. as appropriate during permit modifications and renewals.

The exception to the above is that emission factors and/or other emission estimating methods used only to comply with the reporting requirements of Regulation No. 3, Part A, Section II can be updated and modified without a permit modification, although the resulting emission estimate may trigger permitting activities.