



Public Health Department

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**DEPARTMENT OF AIR QUALITY
AIR EMISSION SOURCE
PREVENTION OF SIGNIFICANT DETERIORATION (PSD)
CONSTRUCTION PERMIT**

Source ID No.: 2090001

Effective Date: November 15, 2005

Source Name: CertainTeed Corporation

NAICS Code: 327993 – Mineral Wool Manufacturing

SIC Code: 3296 – Mineral Wool Manufacturing

Source Location: 103 Funston Road, Kansas City, Kansas 66115

Mailing Address: P.O. Box 15080, Kansas City, Kansas 66115

Contact Person: Jim Eason - Senior Project Engineer.
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This permit is jointly issued by the Department of Air Quality (DAQ) of the Wyandotte County/Kansas City, Kansas Health Department pursuant to Sec. 3-13 and on behalf of the Bureau of Air and Radiation of the Kansas Department of Health and Environment (KDHE) pursuant to K.S.A. 65-3008 as amended.

Description of Activity Subject to Air Pollution Control Regulations:

CertainTeed is proposing to modify an existing K-12 manufacturing line, which produces unbonded wool fiberglass insulation, at its Kansas City, Kansas facility. CertainTeed plans to increase the capacity of the K-12 manufacturing line from 108 MTD (119 US tons/day) to 120 MTD (132 US tons/day). The existing K-1 glass melt furnace provides glass to both the K-11 and K-12 manufacturing lines and will not be modified to accommodate the increase in production for the K-12 manufacturing line. The K-1 furnace and the material handling sources will have associated emissions increases from the increase in production of the K-12 manufacturing line. The K-12 manufacturing line project will be independent of the existing

K-11, K-21 and K-22 lines; therefore, no associated emissions increase will occur from these existing manufacturing lines.

All manufacturing equipment to accommodate the K-12 manufacturing line increase is existing and will not be modified. However, a new combined stack will be built to accommodate the K-12 production increase.

The K-12 manufacturing line utilizes three (3) wet scrubbers (wet scrubbers ID: K-12-Y-1) as control for PM/PM₁₀ emissions. The K-12 wash water system was modified in 2000 to upgrade the water treatment system to remove solids from the water prior to use so that build up and clogging of the spray nozzles is minimized.

CertainTeed Corporation is an industry included in the 28 Major Facility Categories listed under 40 CFR 52.21, as adopted by K.A.R. 28-19-350. The facility is a “major facility” with respect to K.A.R. 28-19-350, *Prevention of Significant Deterioration (PSD) of air quality*. Therefore, each modification to this facility resulting in emissions increases greater than the Significant Emissions Rates listed under 40 CFR 52.21 as adopted under K.A.R. 28-19-350 also requires a PSD review and Best Available Control Technology (BACT) determination.

Emissions of particulate matter with a diameter of 10 micrometers or less (PM₁₀), oxides of nitrogen (NO_x), sulfur dioxide (SO₂), carbon monoxide (CO), lead and volatile organic compounds (VOCs) were evaluated as part of the permit review. Based upon the information submitted to the DAQ by CertainTeed, the facility is subject to the provisions of K.A.R. 28-19-300, *Construction permits and approvals; applicability*, because the potential-to-emit (PTE) of PM₁₀ exceeds 15 US tons per year.

An air dispersion modeling impact analysis, an additional impact analysis, and a Best Available Control Technology (BACT) determination were conducted as a part of the construction permit application process.

Significant Applicable Air Pollution Control Regulations:

The K-12 manufacturing line increase in capacity and the associated equipment to accommodate this increase, as proposed, are subject to Kansas Administrative Regulations and Kansas City, Kansas regulations relating to air pollution control. The following air quality regulations were determined to be applicable:

1. K.A.R. 28-19-20. Particulate matter emission limitations.
2. K.A.R. 28-19-350 et seq. Prevention of significant deterioration of air quality.
3. K.A.R. 28-19-650(b). Opacity requirements.
4. K.A.R. 28-19-720. New source performance standards. This regulation adopts by reference 40 CFR Part 60, which includes Subpart CC, *Standard of Performance for Glass Manufacturing Plants*, and Subpart PPP, *Standard of Performance for Wool Fiberglass Insulation Manufacturing Plants*.

- 40 CFR 63.Subpart NNN *National Emission Standards for Hazardous Air Pollutants for Wool Fiberglass Manufacturing* (K-1 furnace only).

Air Emission Unit Technical Specifications:

The following modifications are approved:

- The existing K-12 manufacturing line will increase its capacity from 108 MTD (119 US tons/day) to 120 MTD (132 US tons/day). The K-12 manufacturing line project will be independent of the existing K-11, K-21 and K-22 manufacturing lines; therefore, no associated emissions increases will occur from these existing manufacturing lines.
- The existing K-1 furnace will increase its capacity from 235 MTD (259 US tons/day) to 247 MTD (272 US tons/day) to accommodate the increase in production of the K-12 manufacturing line. The existing K-1 furnace will not be modified to accommodate the increase in production. It is currently controlled by a dry electrostatic precipitator (DESP).
- Existing raw material storage silos with associated conveying equipment will have associated emission increases from the increase in production of the K-12 manufacturing line.
- One (1) K-12 packaging baghouse (baghouse ID: K-12-D-1) is used to control PM/PM₁₀ emissions on the packaging. Alternatively, the packaging emissions may be rerouted back into the K-12 forming section.

Air Emissions Estimates from the Proposed Activity:

POLLUTANT TYPE	POST PERMIT POTENTIAL-TO-EMIT ¹ (US Tons Per Year)
Nitrogen Oxides (NO _x)	150.30
Sulfur Dioxide (SO ₂)	27.66
Carbon Monoxide (CO)	22.95
Volatile Organic Compounds (VOC)	19.01
Particulate Matter (PM)	310.99
Particulate Matter with a diameter of 10 micrometers or less (PM ₁₀)	81.79

¹ Potential-to-emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on the 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 federally enforceable. Potential-to-emit emission estimates are based on 8760 hours/yr of operation and the information provided by the source.

Net Emission Increases

	NOx (tpy)	VOC (tpy)	PM₁₀ (tpy)	CO (tpy)	SO₂ (tpy)	Lead (tpy)
<i>Proposed or Associated Emission Units</i>						
K-12 Manufacturing Line (Modified)	0.43	1.06	31.94	5.21	-	-
K-1 Furnace (Unmodified)	13.09	-	13.53	0.004	2.85	0.003
Labeling Operations (Unmodified)	-	1.70*	-	-	-	-
Packaging (Unmodified)	-	-	0.14	-	-	-
Raw Materials Handling (Unmodified)	-	-	0.16	-	-	-
Total from Proposed Project:	13.52	2.76	45.77	5.21	2.85	0.003
PSD Significance Level:	40	40	15	100	40	0.6
PSD Triggered?:	No	No	Yes	No	No	No

*Labeling emissions from packaging.

Air Emission Limitations:

On and after the date of the initial compliance testing required by this permit, the owner/operator of the units/processes approved herein shall not cause to be released into the atmosphere any gases which exceed the following emissions limitations:

1. The K-1 furnace is limited to a PM emission rate of 0.50 lb/US ton of glass pulled (5.67 lb/hr) [40 CFR Part 60, Subpart CC (§60.292(a))]. Compliance with this limitation shall constitute compliance with K.A.R. 28-19-20(a) and 40 CFR Part 63, Subpart NNN.
2. The K-1 furnace shall be limited to a PM₁₀ emission rate of 0.36 lb/US ton of glass pulled (4.08 lb/hr).
3. The K-12 manufacturing line shall be limited to a PM emission rate of 2.34 lb/US ton of glass pulled (12.85 lb/hr) [Front half portion of the PM collected using 40 CFR Part 60, Appendix A, Method 5]. Compliance with this limitation shall constitute compliance with K.A.R. 28-19-20(a).

4. The BACT limit for PM₁₀ emissions from the K-12 manufacturing line shall be 2.4 lb/US ton of glass pulled (13.2 lb/hr).
5. K.A.R. 28-19-650(b) limits the opacity of visible emissions from the furnace, manufacturing lines and associated processes to 20 percent.
6. 40 CFR Part 60, Subpart PPP (§60.682) limits the PM emission rate from the K-12 manufacturing line to 11.0 lb/US ton of glass pulled (60.5 lb/hr).

Performance Testing and Compliance:

Within 60 days after achieving the maximum production rate at which the furnace and manufacturing line will operate, but not later than 180 days after the production increase, CertainTeed shall conduct the performance tests listed in this section and furnish the Department of Air Quality with written reports of such performance tests. The owner or operator shall notify in writing their intention to conduct a performance test and submit a test protocol to the DAQ and KDHE at least 30 calendar days before the performance test is scheduled to begin. Request for an alternative test method should be submitted with the test protocol, if applicable. The Department(s) may elect to have an observer(s) present at CertainTeed Corporation during all performance testing required by this permit.

1. Compliance with Air Emissions Limitation #1 shall be demonstrated through performance testing conducted in accordance with the methodologies specified in 40 CFR Part 60, Subpart CC (§60.296). [40 CFR Part 60, Appendix A, Method 5, Front Half].
2. Compliance with Air Emissions Limitation #2 shall be demonstrated through performance testing conducted in accordance with 40 CFR Part 60, Appendix M, Method 201 or 201a, Front Half and 40 CFR Part 51, Appendix M, Method 202, Back Half or other method(s) approved under K.A.R. 28-19-212.
3. Compliance with Air Emissions Limitation #3 shall be demonstrated through performance testing conducted in accordance with 40 CFR Part 60, Appendix A, Method 5]. If CertainTeed decides to reroute the packaging emissions from the K-12 manufacturing line [Permit Condition 6(b)] after the initial compliance test, CertainTeed must retest within 60 days while operating at a level of 100 percent reroute with the stated performance testing above (Performance Testing and Compliance #3).
4. Compliance with Air Emissions Limitation #4 shall be demonstrated through performance testing conducted in accordance with 40 CFR Part 60, Appendix A, Method 5, Front Half and 40 CFR Part 51, Appendix M, Method 202, Back Half or other method(s) approved under K.A.R. 28-19-212. If CertainTeed decides to reroute the packaging emissions from the K-12 manufacturing line [Permit Condition 6(b)] after the initial compliance test, CertainTeed must retest within 60 days while

operating at a level of 100 percent reroute with the stated performance testing above (Performance Testing and Compliance #4).

5. Compliance with Air Emissions Limitation #5 shall be demonstrated in accordance with 40 CFR Part 60, Appendix A, Method 9. If CertainTeed decides to reroute the packaging emissions from the K-12 manufacturing line [Permit Condition 6(b)] after the initial compliance test, CertainTeed must retest only the K-12 manufacturing line within 60 days while operating at a level of 100 percent reroute with the stated performance testing above (Performance Testing and Compliance #5).
6. Compliance with Air Emissions Limitation #6 shall be demonstrated through performance testing conducted in accordance with the methodologies specified in 40 CFR Part 60, Subpart PPP (§60.685). [40 CFR Part 60, Appendix A, Method 5E].

Permit Conditions:

1. The glass pull rate of the K-12 manufacturing line shall not exceed 120 MTD (132 US Tons/day).
2. The glass pull rate of the K-1 furnace shall not exceed 247 MTD (272 US tons/day).
3. The K-1 furnace shall not operate unless the K-1 dry electrostatic precipitator (CE-K1DRYESP) is operating according to the manufacturer's specifications.
4. All the K-12 forming operations shall not operate unless the 3 wet scrubbers (K-12-Y-1) are operating according to the manufacturer's specifications.
5. All particulate matter emissions from the K-12 forming section conveyor shall be captured and/or vented to the 3 wet scrubbers (K-12-Y-1). The forming section conveyor shall be kept under negative pressure at all times while the manufacturing line is in operation.
6. (a.) The K-12 packaging operations shall not operate unless the K-12 packaging baghouse (K-12-D-1) is operating according to the manufacturer's specifications. All particulate emissions from the K-12 packaging operations shall be captured and controlled by the K-12 packaging baghouse (K-12-D-1).

Or

- (b.) CertainTeed may reroute a portion of the captured K-12 packaging particulate emissions to the K-12 forming section (EU-K12FORM). The portion diverted may be up to 100 percent.

7. Raw materials shall not be transferred to or from any of the storage silos unless the associated air pollution control equipment is operating according to the manufacturer's specifications.
8. CertainTeed shall keep on-site maintenance procedures, which set forth the proper operation and maintenance of the air pollution control equipment required in Permit Conditions #1, #2, #3 and #4 above.
9. The K-1 furnace shall only burn a mixture of oxygen and natural gas fuel.
10. CertainTeed shall notify the Department of Air Quality or KDHE in writing of any proposed changes to the operation or method of operation of the K-12 manufacturing lines or the K-1 furnace, which have the potential to increase emission rates above those emission rates measured during a successful performance test. Such changes to the operation or method of operation shall not be initiated until approval has been received from the Department of Air Quality.

Monitoring Requirements:

1. The owner or operator shall conduct daily visual inspections of all equipment associated with the particulate matter capture and control system for the K-1 furnace and the K-12 manufacturing line and associated packaging system to verify that this equipment is operating according to manufacturer's specifications.
2. The owner or operator shall monitor the water spray header pressure at the forming section of the K-12 line on a daily basis to ensure continuous operation of the wash-water system.
3. The owner or operator shall calibrate, maintain, and operate monitoring devices that measure the pressure drop across each scrubber and the scrubbing liquid flow rate to each scrubber. The pressure drop monitor shall be certified by its manufacturer to be accurate within 250 Pascal's (1 inch water gauge) over its operating range, and the flow rate monitor will be certified by its manufacturer to be accurate within 5 percent over its operating range. [40CFR60.683(a)] All monitoring devices used for this standard shall be recalibrated quarterly in accordance with procedures under 40 CFR 60.13(b). [40CFR60.683(c)]
4. The owner or operator shall monitor the pressure drop (DP) across each scrubber and the scrubbing liquid flow rate to each scrubber at least once every 4-hours, unless the line did not operate during the 4-hour period. [40 CFR 60.684(a)]

Recordkeeping Requirements:

The following records are to be kept for a minimum of five years from the date of record:

1. The owner or operator shall keep a log of all maintenance and repairs done on each control device used on the K-1 furnace, raw material storage silos, and K-12 manufacturing line. This log may be in the form of written or computer records and shall include the date, duration, and a brief description of each maintenance or repair activity performed.
2. As required by 40 CFR 60.7, the owner or operator shall keep records of the occurrence and duration of each startup, shutdown, and malfunction in the operation of the furnace.
3. The owner or operator shall keep a log of the visual verifications mentioned under Monitoring Requirements above.
4. The main spray header water pressure in the K-12 manufacturing line shall be recorded at least once per day and shall remain above a minimum threshold value of 40 psi.
5. The owner or operator shall keep records of the glass pull rate of the K-12 manufacturing line at least once during each 8 hour work shift.
6. The owner or operator shall keep records of the glass pull rate of the K-1 furnace at least once during each 8 hour work shift.
7. The owner or operator shall keep records of the pressure drop (DP) across each scrubber and the scrubbing liquid flow rate to each scrubber at the frequency described under Monitoring Requirements #4. [40 CFR 60.684(a)]
8. The owner or operator shall keep quarterly recalibration records of all monitoring devices required for compliance with 40 CFR Part 60, Subpart PPP (40 CFR 60.684(d)).

Notification:

1. The following written notifications are to be submitted in accordance with 40 CFR 60.7(a)1 for facilities subject to NSPS. The purpose of this notification is also to verify the contemporaneous period used in the emissions netting analysis:
 - a) The date the construction (or modification as defined under 40 CFR Part 60, Subpart A (§60.14)) of an affected facility is commenced postmarked no later than 30 days after such date:

- b) the actual date of initial startup of the affected facility, postmarked within 15 days after that date;
- c) the date when initial performance testing is to commence, postmarked not later than 30 days prior to that date.

General Provisions:

1. Per K.A.R. 28-19-16l, this document shall become void if the construction or alteration has not commenced within 18 months of the effective date, or if the activity required to complete the construction or alteration has been discontinued for 18 months, or more. The project shall be completed in a reasonable period of time as required by 40 CFR 52.21(r)(2).
2. A construction permit or approval must be issued by the DAQ prior to commencing any construction or modification of equipment or processes which result in an increase in the PTE equal to or greater than the thresholds specified in K.A.R. 28-19-300.
3. Upon presentation of credentials and other documents as may be required by law, representatives of the DAQ or KDHE (including authorized contractors of KDHE) shall be allowed by the permittee to:
 - a. enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under conditions of this document;
 - b. have access to and copy, at reasonable times, any records that must be kept under conditions of this document;
 - c. inspect at reasonable times, any facilities, equipment (including monitoring and control equipment) practices or operations regulated or required under the document; and
 - d. sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Secretary of the KDHE, any substances or parameters at any location.
4. The emissions unit or stationary source which is the subject of this document shall be operated in compliance with all applicable requirements of the Kansas Air Quality Act and the Federal Clean Air Act.
5. This document may be subject to periodic review and amending as deemed necessary to fulfill the intent and purpose of the Kansas Air Statutes and Regulations and rules promulgated in accordance therewith.
6. This document does not relieve the permittee of the obligation to obtain other approvals, permits, licenses, or documents of sanction which may be required by other federal, state or local government agencies.

7. Issuance of this document does not relieve the owner or operator of any requirements to obtain an air quality operating permit under any applicable provision of K.A.R. 28-19-500.

Permit Engineer

William P. Stevenson
Environmental/Project Engineer
Department of Air Quality
Public Health Department
Unified Government of WyCo/KCK

Date Signed

Reviewed by

Dana Morris, P.E.
Air Operating, Construction & Compliance
Section
Bureau of Air and Radiation
Kansas Department of Health and Environment

Date Signed

c: KDHE, Bureau of Air and Radiation
Bruce Andersen, Director, Department of Air Quality

C - 5934

PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

PERMIT SUMMARY SHEET

This document is intended to aid those reviewing the draft permit that are not familiar with air quality regulations and permitting. In many instances, complex details, which were not critical to the permit review process or irrelevant to the draft permit were left out of this summary. In order to prevent redundancy, the reader is referred to the permit for more detailed descriptions of some of the topics discussed in this summary. Readers of this summary are encouraged to contact William P. Stevenson of the Wyandotte County Department of Air Quality at (913) 573-6700 if further explanation of the draft permit and applicable regulations are desired.

Tracking # : C # 5934

Source ID # : 209-0001

Source Name: CertainTeed Corporation (CertainTeed)

Source Address: 103 Funston Road, Kansas City, Kansas 66115

Area Designation

K.A.R. 28-19-17, et seq., *Prevention of Significant Deterioration of Air Quality (PSD)*, affects new major stationary sources and major modifications of stationary sources in areas designated as "attainment" or "unclassifiable" under section 107 of the Clean Air Act (CAA) for any of the six criteria pollutants. Criteria pollutants are those pollutants for which the federal government has established National Ambient Air Quality Standards (NAAQS) to protect public health. The six criteria pollutants are nitrogen oxides (also referred as NO_x), sulfur dioxide (SO₂), ozone (controlled by regulating volatile organic compounds (VOCs)), particulate matter with a diameter of 10 microns or less (PM₁₀), carbon monoxide (CO), and lead. The State of Kansas, including Kansas City, is currently classified as "attainment" for each of the six NAAQS.

Project Description

CertainTeed is proposing to modify an existing K-12 manufacturing line, which produces unbonded wool fiberglass insulation, at its existing Kansas City, Kansas facility.

CertainTeed plans to increase the capacity of the K-12 manufacturing line from 108 MTD (119 US tons/day) to 120 MTD (132 US tons/day). The existing K-1 glass furnace will increase its production from 235 MTD (259 US tons/day) to 247 MTD (272 US tons/day) to accommodate the increase in capacity of the K-12 manufacturing line. Existing raw material storage silos with associated conveying equipment will have

associated emission increases from the increase in capacity of the K-12 manufacturing line. The K-12 packaging baghouse is used to control PM/PM₁₀ emissions on the packaging. Alternatively, the packaging emissions may be rerouted back into the K-12 forming section for control.

All manufacturing equipment to accommodate the K-12 manufacturing line increase is existing and will not be modified. However, a new combined stack will be built to accommodate the K-12 production increase.

Additional information on the K-12 production increase and the proposed air pollution control technology can be found in the PSD permit application.

A basic description of the manufacturing process of wool fiberglass insulation is as follows: sand and other raw materials are melted in a furnace to produce molten glass. Molten glass flows from the furnace into the forehearth where it is fed to the fiber-making portion of the production line, called the forming section. In the forming section, molten glass flows vertically entering the fiberizers. As the fiberizers spin at high speed, molten glass is centrifugally forced through the holes, forming the fibers.

During the manufacturing process of **bonded fiberglass insulation**, as the fibers fall, they begin to cool while being sprayed with a resinous binder solution. The binder is water-soluble thermosetting phenol-formaldehyde resin. After being coated with binder, the glass fibers are pulled together in such a way that a fiberglass mat is formed. Once the mat is formed, it is sent to a curing oven. In the curing oven, the phenol-formaldehyde resin polymerizes, thus binding the fibers together. After the mat leaves the curing oven, it is cooled and trimmed. The cutting/slitting operation trims the mat and prepares it for packaging.

During the manufacturing process of **unbonded fiberglass insulation**, no binder is applied to the glass fibers. After being formed and cooled, the fibers are sent for packaging.

Significant Applicable Air Emission Regulations

The increase in production of the furnace, manufacturing lines, and associated processes, as proposed, are subject to Kansas Administrative Regulations and Kansas City, Kansas regulations relating to air pollution control. The following air quality regulations were determined to be applicable:

- I. K.A.R. 28-19-20. *Particulate matter emission limitations.*
- II. K.A.R. 28-19-74. *Wool fiberglass manufacturing.*

- III. K.A.R. 28-19-300. Construction Permits and Approvals. Requires “Any person who proposes to construct or modify a stationary source or emissions unit shall obtain a construction permit before commencing such construction or modification.”
- IV. K.A.R. 28-19-350. Prevention of significant deterioration of air quality. “The requirements of this regulation shall apply to the construction of major stationary sources and major modifications of stationary sources as defined in 40 C.F.R. 52.21 in areas of the state designated as attainment areas or unclassified areas for any pollutant under the procedures prescribed by section 107(d) of the federal clean air act, 42 U.S.C. 7407(d).”
- V. K.A.R. 28-19-650. *Emission opacity limits (b)*. Special opacity limits. Air emissions within Wyandotte county from any processing of materials or other uses of the premises within the county shall not exceed 20 percent opacity.
- VI. K.A.R. 28-19-720. New source performance standards. This regulation adopts by reference 40 CFR Part 60, which includes Subpart CC, *Standard of Performance for Glass Manufacturing Plants*, and Subpart PPP, *Standard of Performance for Wool Fiberglass Insulation Manufacturing Plants*.
- VII. 40 CFR 63.Subpart NNN National Emission Standards for Hazardous Air Pollutants for Wool Fiberglass Manufacturing (K-1 furnace).

Definitions

"Major stationary source" means any of the stationary sources of air pollutants, listed in 40 CFR 52.21, which emits or has the potential to emit of 100 tons per year or more of any pollutant subject to regulation under the federal Clean Air Act, or any other source type which emits, or has the potential to emit 250 tons per year or more of any air pollutant subject to regulations under the federal Clean Air Act.

"Major modification" means any physical change or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the federal Clean Air Act.

"Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restriction on hours of operation, or on the type or amount of material combusted, stored, or processed, shall be treated as a part of its design, if the limitations, or the effect it

would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

Air Emissions Estimates

Air pollutant emissions from the K-12 production increase include the K-12 manufacturing line, K-1 glass furnace, packaging, labeling operations, and raw materials handling. The air pollutant emissions were estimated using emission factors published in the U.S. Environmental Protection Agency document AP-42, "Compilation of Air Pollutant Emission Factors", 5th Edition, January 1995, and emission factors generated by CertainTeed through emissions testing conducted on existing processes. For some processes, federally enforceable emission limitations contained in applicable regulations were used to estimate emissions since those limitations represented the highest amount of emissions allowed by law for those processes.

The table on page 4 of the permit shows the results of the emission calculations performed to estimate the "Net Emission Increases" from the K-12 manufacturing line increase in capacity, the K-1 glass furnace increase in capacity, the existing raw material storage silos with associated conveying equipment emission increases, the packaging emission increases, and labeling operations' emission increases. The table on page 3 of the permit shows the "POST PERMIT" potential emissions are estimated after taking into account the emission limitations and other conditions contained in the permit. Since CertainTeed is required to operate each process only when its respective air pollution control device is operating, the "POST PERMIT" potential emissions calculations take into account the use of air pollution control equipment, which lower emissions to the air. Estimated operating emissions prior to permit limitations were not calculated and included in the calculations because CertainTeed believes it will be operating full time at maximum capacity once the K-12 production increase is approved. For a detailed, process-by-process estimation of air emissions, see the Appendix B of the permit application.

Best Available Control Technology (BACT)

BACT is generally defined as "... an emission limitation based on the maximum degree of reduction for each pollutant subject to regulation under the Clean Air Act, which would be emitted from any ... source ... which on a case-by-case basis is determined to be achievable taking into account energy, environmental and economic impacts and other costs." In other words, since the increase in capacity of the K-12 manufacturing line expansion will result in a significant increase in PM₁₀ emissions, CertainTeed must apply BACT to all new air emission sources, which will emit those pollutants. BACT may be met by the use of add-on air pollution control devices or process modifications, which lead to less air emissions. Air pollution control devices and process modifications are ranked according to their effectiveness. Those control processes, which are technically

infeasible, may be eliminated. Others may be eliminated on the basis that their capital and operating costs are demonstrated to be excessive, or that their implementation will create unreasonable adverse environmental impacts. The highest ranked form of air emission control technology remaining becomes BACT. At a minimum, BACT must be at least as stringent as any applicable federal or state emission standard.

The Department of Air Quality, in its review of the permit application, has concurred with the air emission control devices, process modifications, and emission limitations selected as BACT. In summary, the BACT determinations are as follows:

K-12

Mfg. Line: The air pollution control system for the K-12 manufacturing line will consist of a partial enclosure with negative pressure and FlexKleen (or equivalent) water scrubbers to remove the particulate matter from the air stream exiting the forming section. Water from the water spraying system will be recycled after passing through a solids filtering system. The selection of partial enclosure and scrubbers represented the highest ranking technology available to control PM/PM₁₀.

Packaging

Operations: A 99% efficient baghouse will be used to control PM/PM₁₀ emissions from the packaging operations. The selection of a baghouse represented the highest ranking technology available to control PM/PM₁₀. Alternatively, the packaging emissions may be routed back into the forming section for equally efficient control.

Raw Matls.

Handling: A 99% efficient baghouses will be used to control PM/PM₁₀ emissions from the four raw material storage silos and conveying processes. The selection of baghouses represented the highest ranking technology available to control PM/ PM₁₀ emissions from this process.

For a more detailed listing of the air emission control technologies evaluated, the reader is directed to Section 3 of the permit application (Control Device Review).

Ambient Air Impact Analysis

K.A.R. 28-19-350 requires the owner or operator of a proposed source or modification to demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reductions, will not cause or contribute to a violation of any national ambient air quality standard or PSD increment. As will be shown, an analysis to determine that the available PSD increment

was not exceeded was not necessary in this case. Therefore, an explanation of the complicated PSD increment analysis process will not be included in this summary.

Trinity Consultants, on behalf of CertainTeed, used EPA approved computer modeling procedures to predict the ambient air impacts of the emissions increases in PM₁₀.

A preliminary analysis (also called a screening analysis) was performed using the latest version 01228 of the Industrial Source Complex Short Term PRIME (ISCST3 PRIME) Model, computer model, to estimate maximum ground-level concentrations. Appropriate averaging periods based on federal and state ambient air quality standards were considered in the analysis. The purpose of the screening analysis was to determine if more extensive modeling was necessary. Five years of Kansas City meteorological data (1999-2003), various building and stack parameters, and the net emissions increase of the pollutant PM₁₀ were entered into the model and the maximum ground-level concentrations of those pollutants were calculated. These concentrations were then compared to the "Modeling Significance Levels" as shown in Table 2 below.

Table 2. Maximum modeled concentrations due to the net emissions increase

Pollutant	Averaging Period	Modeled Maximum Concentration	Modeling Significance Level
PM ₁₀	Annual	0.52	1
	24-hour	4.83	5

Since the modeled concentrations of PM₁₀ were below the "Modeling Significance Levels" no additional air dispersion modeling was necessary and it may be assumed that the added emissions from this new project will NOT lead to a violation of any national ambient air quality standard.

For a more detailed explanation of the modeling performed, the reader is referred to Section 4 of the permit application (Criteria Pollutant Air Quality).

Additional Impacts Analysis

In accordance with 40 CFR 52.21(o) [K.A.R. 28-19-17 l] CertainTeed shall analyze the effects of the project on visibility, endangered species, soils, and vegetation in the surrounding area and any affected Class I areas. CertainTeed must also evaluate the effects of commercial, residential, industrial, and other growth associated with the new source or modification.

A visibility impairment analysis is required to demonstrate that emissions from the proposed modifications will not have an adverse impact on visibility in the vicinity of the plant. VISCREEN was used to do two levels of visibility impact screening. The two locations used in VISCREEN modeling were the Kansas City International Airport and

the Worlds of Fun/Oceans of Fun Amusement Park. The VISCREEN modeling results showed that CertainTeed facility will not have any adverse impacts on visibility at the Kansas City International Airport and the Worlds of Fun/Oceans of Fun Amusement Park.

Soil and vegetation impacts were considered for the project. The results of the air quality analysis presented in Section 4 of the permit application demonstrate that CertainTeed will be in compliance with all MSLs. In addition, the PM₁₀ emissions from CertainTeed will not cause injury to vegetation.

As for endangered species impacts, the project expected no impact on the Pallid Sturgeon fish, the only endangered species present in the CertainTeed project area. In addition, growth impacts were considered. CertainTeed will not require any additional employees after the proposed project. As a result, no increase in residential growth or in commuting-related mobile source emissions is expected to occur. The proposed project is not expected to lead to industrial growth in the area.

For a more detailed explanation of the additional impact analysis, the reader is referred to Section 5 of the permit application (Additional Impacts).