



## DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

## PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **07 2015 - 014** Project Number: 2013-07-059

Installation Number: 139-0052

Parent Company: Saint-Gobain North America

Parent Company Address: P.O. Box 860, Valley Forge, PA 19482

Installation Name: CertainTeed Corporation

Installation Address: 100 CertainTeed Drive, Jonesburg, MO 63351

Location Information: Montgomery County, S8 & 17, T47N, R3W

Application for Authority to Construct was made for:

New asphalt roofing manufacturing installation. This review was conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

JUL 23 2015

EFFECTIVE DATE

  
\_\_\_\_\_  
DIRECTOR OR DESIGNEE  
DEPARTMENT OF NATURAL RESOURCES

## STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Department's Air Pollution Control Program of the anticipated date of start up of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources' regional office responsible for the area within which you are located within 15 days after the actual start up of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

*The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."*

CertainTeed Corporation  
Montgomery County, S8 & 17, T47N, R3W

1. Truck Receiving/Shipping Limits
  - A. CertainTeed Corporation shall not exceed the limitations in Table 1 by truck.

Table 1: Material Throughput Limits (trucks per day)

Activity	Limit
Combined glass mat, polymer, release tape, ink, and paint receiving	1
Pneumatic limestone receiving	1
Pneumatic sand receiving	1
Combined gravity receiving of sand, colored, headlap, and backsurface granules; asphalt flux receiving, AC-20 receiving, and oxidized asphalt shipping	1
Combined asphalt flux receiving, AC-20 receiving, and oxidized asphalt shipping	1 <sup>1</sup>
Combined shrink wrap and empty pallet receiving	1
Combined ferric chloride solution receiving and plant waste shipping	1
Warehouse insulation, drywall, etc shipping	1
Shingle shipping	1

<sup>1</sup> AC-20 trucks are included in this limit, however AC-20 receiving tonnage is limited in Table 2. i.e. 1 AC-20 trucks cannot be received in a day.

- B. CertainTeed Corporation shall keep daily records that demonstrate compliance with Special Condition 1.A. The records shall include at a minimum the following information:
      - 1) Installation name
      - 2) Permit number
      - 3) Day, month, year
      - 4) Activity
      - 5) Daily trucks per activity
      - 6) Indication of compliance status

2. Operational Limits

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- A.
- 1) CertainTeed Corporation shall not exceed the limitations in Table 2.

**Table 2: Operational Limits**

Activity	Limit
Railcar vents open at same time	█
Railcar vent maximum opening height	Minimum amount but no more than ½ of fully open
Combined asphalt flux receiving, oxidized asphalt receiving, and oxidized asphalt shipping	█ tpd corrected to 150°F density
AC-20 receiving	█ tpd
Combined oxidized asphalt from blow still 1 (R-0610) and blow still 2 (R-0620)	█ tpd corrected to █°F density
Ferric chloride solution usage	As established in emission test report
Recycled oil usage	█% by wt. of flux asphalt usage per day
Combined gravity receiving of sand, colored, headlap, and backsurface granules	█ tpd
Oxidized asphalt throughput at coater (excluding limestone mass)	█ tpd

- 2) CertainTeed Corporation shall not receive flux and oxidized asphalt at the same time. The blow stills shall not be operating when oxidized asphalt is being received.
- 3) CertainTeed Corporation shall not have more than one blow still in the oxidation phase at the same time. Each blow still shall be equipped with a visual indicator showing the oxidation phase is occurring or not (e.g. blower motor is on or off). The indicators shall be located such that Department of Natural Resources' employees may easily observe them.

- B. CertainTeed Corporation shall keep daily records that demonstrate compliance with Special Condition 2.A. The records shall include at a minimum the following information, and shall be recorded in the same units of measure as stated in Table 2:

- 1) Installation name
- 2) Permit number
- 3) Day, month, year
- 4) Activity
- 5) Daily throughput of each activity listed in Table 2
- 6) Number of railcar vents open at any one time and the degree of openness

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- 7) Combined flux asphalt received by rail and truck, corrected using ASTM D4311 or equivalent method.
- 8) Combined AC-20 received by rail and truck
- 9) Combined oxidized asphalt production rate, corrected using ASTM D4311 or equivalent method.
- 10) Time of oxidation phase startup and shutdown for each blow still
- 11) Ferric chloride solution limit and actual usage
- 12) Flux asphalt and recycled oil usage. Calculated recycled oil daily limit.
- 13) Combined gravity sand, headlap, backsurface, granule receipt by rail and truck
- 14) Oxidized asphalt throughput at the coater. As transfer efficiency may not be 100%, the throughput may be more than the mass retained on the fiberglass web.
- 15) Indication of compliance status

**3. Fuel Requirement**

- A. CertainTeed Corporation shall combust exclusively pipeline grade natural gas in the emission units in Table 3.

**Table 3: Natural Gas Fired Emission Units**

Emission Unit	Description
F-3201	Steam boiler 1
F-8001	Steam boiler 2
F-0313	Asphalt heater at tank TK-0310
F-0323	Asphalt heater at tank TK-0320
F-0807	Asphalt heater at tank TK-0810
F-3800	Thermal fluid heater 1
F-4200	Thermal fluid heater 2
H-4	Mat preheater
H-31	Office HVAC
H-32	Office hood
H-33	Office lab gas
H-39 to H-44	Office air handling
H-46	Front office water heater
H-35, H-45	Manufacturing make-up air
H-36	Maintenance water heater
H-37	Boiler room HVAC
H-38	Boiler room laboratory gas
F-3711	Blow stills thermal oxidizer CTRL-7
B-6005	Regenerative thermal oxidizer RTO CTRL-12

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#### SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- B. CertainTeed Corporation shall keep fuel usage and supplier certification records from each billing cycle. If a supplier invoice is used it shall show fuel usage and declare the fuel as pipeline grade natural gas.
4. Fire Pump Engine
  - A. CertainTeed Corporation shall combust exclusively ultra low sulfur diesel (ULSD) i.e. maximum of 15 ppm mass sulfur, in the fire pump engine (P-2510).
  - B. CertainTeed Corporation shall obtain the sulfur content for each delivery from the vendor or conduct their own fuel analysis to evaluate the sulfur content weight percent of the fuel. If a supplier invoice is used it shall show fuel usage and declare the fuel as ULSD.
5. Capture Device – Fiberglass Mat Hood
  - A. CertainTeed Corporation shall capture emissions from fiberglass mat unwinding and splicing (U-8601), looping (U-8602), and preheating (H-4) using a hood located at looping and preheating. All captured emissions shall be routed to control device CTRL-8. This hood does not obtain 100% capture efficiency from all sources.
  - B. Negative pressure shall be demonstrated and recorded at least once every 24 hours using visual indication such as streamers, powder puff, smoke, or other method preapproved by the Air Pollution Control Program. The visual indication shall be placed at the point of emission generation for looping and preheating furthest away from the duct inlet. Alternatively, CertainTeed Corporation shall submit a proposed demonstration method, location, and frequency to the Air Pollution Control Program at least 60 days prior to startup.
6. Capture Device – Windseal and Laminate Manifold
  - A. CertainTeed Corporation shall capture emissions from windseal application (U-8803) and laminate application (U-8903 and U-8901) using respective tank enclosure routed to manifolds. The processes and points of emission generation shall be enclosed to the most practical extent. All captured emissions shall be routed to control devices.
  - B. Negative pressure shall be demonstrated and recorded at least once every 24 hours using visual indication such as streamers, powder puff,

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The permittee is authorized to construct and operate subject to the following special conditions:

smoke, or other method preapproved by the Air Pollution Control Program. The visual indication shall show airflow into the tank/manifold.

- C. Air velocity shall be demonstrated and recorded at least once quarterly using an anemometer. The anemometer shall be located at each airflow opening into the tank. Average velocity at each windseal and laminate application shall be greater than or equal to 200 fpm. Due to safety reasons, the demonstration may be conducted without the manufacturing line operating. Alternatively, CertainTeed Corporation shall submit a proposed demonstration method, location, and frequency to the Air Pollution Control Program at least 60 days prior to startup.

**7. Capture Device – Raw Materials**

- A. CertainTeed Corporation shall capture emissions from the emission units in Table 4 using sealed enclosure. All emissions shall be routed to respective control devices.

**Table 4: Raw Material Enclosure**

Emission Unit	Description
TK-1510	Pneumatic limestone receiving and silo 1
TK-1520	Pneumatic limestone receiving and silo 2
TK-1610	Limestone cold filler bin
U-1605	Limestone fluidized bed heater
TK-1602	Limestone hot filler bin
TK-1710	Pneumatic sand receiving and silo
U-1309	Polymer supersack receiving 1, for laminate
U-1109	Polymer supersack receiving 2, for windseal
HLS-1, GS-1	Transfer from Conveyor 2 and Conveyor 3 to day bins
TK-1810	Day bins
FDR-2360	Rotary turret
FDR-2450	Reclaim screw/elevator

- B. CertainTeed Corporation shall maintain an operating and maintenance log for the enclosures which shall include the following:
  - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
  - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc, and
  - 3) Dates of all above schedules, incidents, activities, and actions.

**8. Capture Device – Tanks**

CertainTeed Corporation shall capture emissions from the emission units in

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The permittee is authorized to construct and operate subject to the following special conditions:

Table 5 using enclosed tanks. All emissions shall be directly routed to respective control devices, or indirectly routed through subsequent enclosed tanks, except as noted in Table 5.

**Table 5: Tank Enclosure**

Emission Unit	Description
TK-0310	Flux asphalt tank █ gal
TK-0320	Flux asphalt tank █ gal
TK-0410	Recycled oil tank █ gal
TK-0510	Mix tank █ gal
TK-0520	Mix tank █ gal
TK-9420	Flux mist eliminator condensate tank
R-0610	Blowing still 1
R-0620	Blowing still 2
TK-3610	<sup>1</sup> Blow still 1 knockout tank
TK-3620	<sup>1</sup> Blow still 2 knockout tank
TK-3640	<sup>1</sup> Blow still 1 drying tank
TK-3650	<sup>1</sup> Blow still 2 drying tank
TK-3670	<sup>2</sup> Blow stills condensate tank █ gal
TK-0810	Oxidized asphalt tank █ gal
TK-8420	Oxidized asphalt tank █ gal
TK-8430	Oxidized asphalt tank █ gal
TK-3710	<sup>2</sup> Hot Oil catch tank 1
TK-3815	<sup>2</sup> Hot Oil catch tank 2
TK-4215	<sup>2</sup> Hot Oil catch tank 3
TK-3700	<sup>2</sup> Hot Oil expansion tank 1
TK-3810	<sup>2</sup> Hot Oil expansion tank 2
TK-4210	<sup>2</sup> Hot Oil expansion tank 3
A-0905	Horizontal coating mixer
TK-0920	Vertical surge tank (contains a mixer)
TK-1010	█ gal AC-20 asphalt tank
TK-1210	Windseal day/mix tank █ gal
TK-1110	Windseal batch/mix tank █ gal
TK-1220	Windseal use/mix tank █ gal
TK-1410	Laminate day/mix tank
TK-1310	Laminate batch/mix tank █ gal
TK-1420	Laminate use/mix tank
TK-6010	Manufacturing line mist eliminator condensate tank
TK-0420	<sup>2</sup> Ferric chloride solution tank
N/A	Paint – storage emissions are not routed to a control device

N/A = Not applicable

<sup>1</sup> These tanks are indirectly routed by their material transfer to control device

<sup>2</sup> These tanks are not routed to a control device.

**9. Capture Device – Manufacturing Line**

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- A. CertainTeed Corporation shall capture emissions from the emission units in Table 6, effective as 100% capture. All emissions shall be routed to respective control devices, except hot oil catch and expansion tanks.

**Table 6: Manufacturing Line Emission Units with 100% Capture**

Emission Unit	Description
U-8710	Coater
FLT-5870	Surfacing

- B. CertainTeed Corporation shall capture emissions from the cooling section (U-8751) using a partial enclosure hood routed out of the building roof. Capture efficiency may not be 100%.
- C. The coater and surfacing shall be enclosed to the most practical extent, with minimal openings for the entrance of raw materials and exit of coated web/surfaced web.
- D. Coater, surfacing, and cooling section negative pressure shall be demonstrated and recorded at least once every 24 hours using visual indication such as streamers, powder puff, smoke, or other method preapproved by the Air Pollution Control Program. Coater and surfacing visual indication shall be placed at each opening. Cooling section visual indication shall be placed at the cooling drum/roller furthest from the roof fans. Alternatively, CertainTeed Corporation may submit a proposed demonstration method, location, and frequency to the Air Pollution Control Program at least 60 days prior to startup.
- E. Coater and surfacing air velocity shall be demonstrated and recorded at least once annually using an anemometer. If there is any change to the enclosure design then air velocity shall be determined and recorded within 48 hours of the change. The anemometer shall be located at each opening. Average velocity at each the coater and surfacing shall be greater than or equal to 200 fpm. Alternatively, CertainTeed Corporation shall submit a proposed demonstration method, location, and frequency to the Air Pollution Control Program at least 60 days prior to startup.
- F. CertainTeed Corporation shall maintain an operating and maintenance log for the capture devices which shall include the following:
  - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc, and
- 3) Dates of all above schedules, incidents, activities, and actions.

**10. Control Device – Receiving Pit**

- A. The flow of all materials received at gravity pits (UL-1 and UL-2) shall be restricted at the drop point (DP-1) from the pits to conveyor 1.
- B. CertainTeed Corporation shall verify flow restriction at least once every 24 hours unless nothing has been received for the entire 24 hour period. This non-operational period shall be indicated. The visual presence of material rising within the pit while receiving indicates flow restriction at DP-1.
- C. The drop point (DP-1) from the pits to conveyor 1 shall be completely enclosed.

**11. Control Device - Baghouse**

- A. CertainTeed Corporation shall control emissions from the emission units in Table 7 using baghouses equipped with bags or cartridge filters.

**Table 7: Baghouse Controlled Emission Units**

Emission Unit	Emission Point	Control Device	Description
U-8601	S-15	CTRL-8	<sup>1</sup> Fiberglass mat unwinding and splicing
U-8602			<sup>1</sup> Mat looping
H-4			<sup>1</sup> Mat preheating
TK-1510, TK-1520	S-04	CTRL-2	Pneumatic limestone receiving and two silos
TK-1610	S-13	CTRL-4	Limestone cold filler bin
U-1605	S-14	CTRL-3	Limestone fluidized bed heater
TK-1602			Limestone hot filler bin
TK-1710	S-01	CTRL-1	Pneumatic sand receiving and silo
U-1309	S-10	CTRL-14	Polymer supersack receiving 1, for laminate
U-1109	S-11	CTRL-15	Polymer supersack receiving 2, for windseal
HLS-1, GS-1	S-34	CTRL-6	Transfer from Conveyor 2 and Conveyor 3 to day bins
TK-1810			Day bins
FDR-2360			Rotary turret
FDR-2450			Reclaim screw/elevator

<sup>1</sup> The emission units may not have 100% capture, therefore all emissions may not be routed to the control device, see Special Condition 5.

- B. The baghouses shall be operated and maintained in accordance with the manufacturer's specifications. Each baghouse, except CTRL-14 and

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#### SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

CTRL-15, shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that Department of Natural Resources' employees may easily observe them.

- C. Replacement filters for the baghouses shall be kept on hand at all times. The bags/filters shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
- D. CertainTeed Corporation shall monitor and record the operating pressure drop across each baghouse, except CTRL-14 and CTRL-15, at least once every 24 hours unless all sources controlled are not in operation for the entire 24 hour period. This non-operational period shall be indicated. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty. Baghouse CTRL-6 pressure drop shall also be maintained within the ranges established in the emission test report from Special Condition 18.I. The established ranges shall be kept on site.
- E. CertainTeed Corporation shall monitor and record the visible emissions from the control devices at least once every 24 hours. Method 22 or Method 22-like procedures shall be used. Zero opacity shall be maintained.
- F. CertainTeed Corporation shall maintain a copy of the baghouse and bag/filter manufacturer's performance warranty on site.
- G. CertainTeed Corporation shall maintain an operating and maintenance log for the baghouses which shall include the following:
  - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
  - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc, and
  - 3) Dates of all above schedules, incidents, activities, and actions.

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

**12. Control device – Mist Eliminators**

**A.**

- 1) CertainTeed Corporation shall control emissions from the emission units in Table 8 using mist eliminators.

**Table 8: Mist Eliminator Controlled Emission Units**

Emission Unit	Emission Point	Control Device	Description
TK-0310	S-02	CTRL-5	Flux asphalt tank █ gal
TK-0320			Flux asphalt tank █ gal
TK-0410			Recycled oil tank █ gal
TK-0510			Mix tank █ gal
TK-0520			Mix tank █ gal
TK-9420			Flux mist eliminator condensate tank
TK-1010	S-21	CTRL-11	█ gal AC-20 asphalt tank
TK-0810			Oxidized asphalt tank █ gal
TK-8420			Oxidized asphalt tank █ gal
TK-8430			Oxidized asphalt tank █ gal
U-8710			Coater
TK-6010			<sup>1</sup> Manufacturing line mist eliminator condensate tank
FLT-5870	S-30	<sup>2</sup> CTRL-9 and CTRL-10	Surfacing
TK-1210	S-29	CTRL-13	Windseal day/mix tank █ gal
TK-1110			Windseal batch/mix tank █ gal
TK-1220			Windseal use/mix tank █ gal
U-8803			Windseal applicator
TK-1410			Laminate day/mix tank
TK-1310			Laminate batch/mix tank █ gal
TK-1420			Laminate use/mix tank
U-8903			Laminate applicator 1
U-8901			Laminate applicator 2

<sup>1</sup> Is indirectly controlled by the mist eliminator

<sup>2</sup> CTRL-9 is a prefilter that shall be operating in series prior to CTRL-10 mist eliminator.

- 2) When the coater is operating emissions from mist eliminator CTRL-11 shall subsequently be routed to RTO CTRL-12.
- 3) When the coater is operating emissions from CTRL-13 shall subsequently be routed to CTRL-11 then RTO CTRL-12. CTRL-13 is always routed to CTRL-11.

- B.** The mist eliminators shall be operated and maintained in accordance with the manufacturer's specifications. Each mist eliminator shall be equipped with a gauge or meter, which indicates the pressure drop across the

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#### SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

control device. For those control devices subject to MACT LLLLL, per Table 17, each shall also be equipped with an inlet temperature gauge. These gauges or meters shall be located such that Department of Natural Resources' employees may easily observe them.

- C. Replacement mesh/pads/filters for the mist eliminators shall be kept on hand at all times. The media shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
- D. CertainTeed Corporation shall monitor and record the operating pressure drop across each mist eliminator at least once every 24 hours unless all sources controlled are not in operation for the entire 24 hour period. This non-operational period shall be indicated. For those control devices subject to MACT LLLLL, per Table 17, the operating pressure drop and inlet temperature shall be monitored and recorded according to the MACT. The operating pressure drop and inlet temperature (if an applicable requirement) shall be maintained within the design conditions specified by the manufacturer's performance warranty. Mist eliminators CTRL-5, CTRL-10, and CTRL-13 pressure drop and inlet temperature (if an applicable requirement) shall also be maintained within the ranges established in the emission test report from Special Condition 18.I. The established ranges shall be kept on site.
- E. CertainTeed Corporation shall monitor and record the visible emissions from the control devices at least once every 24 hours. Method 22 or Method 22-like procedures shall be used. Zero opacity shall be maintained.
- F. CertainTeed Corporation shall maintain a copy of each mist eliminator manufacturer's performance warranty on site.
- G. CertainTeed Corporation shall maintain an operating and maintenance log for each mist eliminator which shall include the following:
  - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
  - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc, and
  - 3) Dates of all above schedules, incidents, activities, and actions.

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

**13. Control Device – Thermal Oxidation**

- A. CertainTeed Corporation shall control emissions from the emission units in Table 9 using thermal oxidation.

**Table 9: Thermal Oxidizer Controlled Emission Units**

Emission Unit	Emission Point	Control Device	Description
R-0610	S-03	CTRL-7	Blowing still 1
R-0620			Blowing still 2
TK-3610			<sup>†</sup> Blow still 1 knockout tank
TK-3620			<sup>†</sup> Blow still 2 knockout tank
TK-3640			<sup>†</sup> Blow still 1 drying tank
TK-3650			<sup>†</sup> Blow still 2 drying tank

<sup>†</sup> These tanks are indirectly routed by material transfer to the control device.

- B. The thermal oxidizer shall be operated and maintained in accordance with the manufacturer's specifications. The thermal oxidizer shall be equipped with a gauge or meter, which indicates the combustion zone temperature. These gauges or meters shall be located such that Department of Natural Resources' employees may easily observe them.
- C. CertainTeed Corporation shall monitor and record the combustion zone temperature according to MACT LLLLL, unless all sources controlled are not in operation (i.e. blowing stills are not operating) for an entire 24 hour period. This non-operational period shall be indicated. The combustion zone temperature shall be maintained within the design conditions specified by the manufacturer's performance warranty and within the ranges established in the emission test report from Special Condition 18.I. The established ranges shall be kept on site.
- D. CertainTeed Corporation shall conduct quarterly burner maintenance per manufacturer recommendations. Carbon monoxide exhaust concentration shall be monitored and recorded at least once quarterly. The concentration shall be kept within manufacturer's specifications and be kept on site.
- E. CertainTeed Corporation shall monitor and record the visible emissions from the control device at least once every 24 hours. Method 22 or Method 22-like procedures shall be used. Zero opacity shall be maintained.

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The permittee is authorized to construct and operate subject to the following special conditions:

- F. CertainTeed Corporation shall maintain a copy of the thermal oxidizer manufacturer's performance warranty on site.
  - G. CertainTeed Corporation shall maintain an operating and maintenance log for the thermal oxidizer which shall include the following:
    - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
    - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc, and
    - 3) Dates of all above schedules, incidents, activities, and actions.
14. Control Device – Regenerative Thermal Oxidizer (RTO)
- A.
    - 1) CertainTeed Corporation shall control emissions from the emission units in Table 10 using an RTO.

**Table 10: RTO Controlled Emission Units**

Emission Unit	Emission Point	Control Device	Description
TK-1010	S-21	CTRL-12	█ gal AC-20 asphalt tank
TK-0810			Oxidized asphalt tank █ gal
TK-8420			Oxidized asphalt tank █ gal
TK-8430			Oxidized asphalt tank █ gal
U-8710			Coater
TK-6010			<sup>2</sup> Manufacturing line condensate tank
A-0905			Horizontal coating mixer
TK-0920			Vertical surge tank (contains a mixer)
TK-1210			CTRL-12
TK-1110		Windseal batch/mix tank █ gal	
TK-1220		Windseal use/mix tank █ gal	
U-8803		Windseal applicator	
TK-1410		Laminate day/mix tank	
TK-1310		Laminate batch/mix tank █ gal	
TK-1420		Laminate use/mix tank	
U-8903		Laminate applicator 1	
U-8901		Laminate applicator 2	

<sup>1</sup> Is indirectly controlled by the RTO

- 2) When the coater is not operating the emission units shall exhaust to mist eliminator CTRL-11, or to CTRL-11 then to RTO CTRL-12. If CTRL-11 is shutdown for maintenance then the coater shall not operate and emissions shall be controlled by CTRL-12.
- 3) When the coater is not operating the emission units shall exhaust to mist eliminator CTRL-13 then to CTRL-11, or to CTRL-13 then to

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The permittee is authorized to construct and operate subject to the following special conditions:

CTRL-11 then to CTRL-12. If CTRL-13 is shutdown for maintenance then the coater shall not operate and emissions shall be controlled by CTRL-12.

- B. The RTO shall be operated and maintained in accordance with the manufacturer's specifications. The RTO shall be equipped with a gauge or meter which indicates the combustion zone temperature. These gauges or meters shall be located such that Department of Natural Resources' employees may easily observe them.
- C. CertainTeed Corporation shall monitor and record the combustion zone temperature according to MACT LLLLL, unless all sources controlled are not in operation (i.e. manufacturing line is not operating) for an entire 24 hour period, or the RTO is bypassed according to Special Condition 12.A. or 14.A. This non-operational period shall be indicated. The combustion zone temperature shall be maintained within the design conditions specified by the manufacturer's performance warranty and within the ranges established in the emission test report from Special Condition 18.I. The established ranges shall be kept on site.
- D. CertainTeed Corporation shall conduct quarterly burner/media bed maintenance per manufacturer recommendations. Carbon monoxide exhaust concentration shall be monitored and recorded at least once quarterly. The concentration shall be kept within manufacturer's specifications and be kept on site.
- E. CertainTeed Corporation shall monitor and record the visible emissions from the control device at least once every 24 hours. Method 22 or Method 22-like procedures shall be used. Zero opacity shall be maintained.
- F. CertainTeed Corporation shall maintain a copy of the RTO manufacturer's performance warranty on site.
- G. Emissions shall not be routed to the RTO until the combustion zone temperature has reached the minimum temperature established in Special Condition 18.I.
- H. CertainTeed Corporation shall maintain an operating and maintenance log for the thermal oxidizer which shall include the following:

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### SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
  - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc., and
  - 3) Dates of all above schedules, incidents, activities, and actions.
15. Haul Roads
- A. CertainTeed Corporation shall pave all haul roads with materials such as asphalt, concrete, or other materials subject to approval by the Air Pollution Control Program.
  - B. Maintenance and/or repair of the road surface shall be conducted as necessary to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from these areas while the plant is operating.
  - C. Cleaning method and frequency shall be established according to Special Condition 18.
16. Operational Requirement – Solvent, Cleaning Solutions  
CertainTeed Corporation shall keep the solvents and cleaning solutions in closed containers whenever the materials are not in use. CertainTeed Corporation shall provide and maintain suitable, easily read, permanent markings on all solvent and cleaning solution containers used with this equipment.
17. Operational Requirement – Cooling Tower
- A. The cooling tower cell (E-2715) shall be operated and maintained in accordance with the manufacturer's specifications, which shall be kept on site.
  - B. The total cooling water circulation rate shall not exceed █ gallons per hour on a 24 hour average. The cell shall be equipped with a discharge gauge or meter. These gauges or meters shall be located such that the Department of Natural Resources' employees may easily observe them. CertainTeed Corporation shall keep daily records on site of the total cooling water circulation rate.
  - C. The drift loss from the cell shall not exceed 0.005 percent of the water circulation rate. Verification of drift loss shall be by manufacturer's guaranteed drift loss, which shall be kept on site.

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- D. The total dissolved solids (TDS) concentration in the cell's blowdown water shall not exceed 1,330 milligrams per liter (1,330 parts per million weight) per sampling event as provided in Special Condition 18.
  - E. CertainTeed Corporation shall maintain an operating and maintenance log for the cooling tower cell which shall include the following:
    - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions;
    - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.; and
    - 3) Dates of all above schedules, incidents, activities, and actions.
18. Emission Testing
- A. CertainTeed Corporation shall test each location and pollutant indicated with an emission rate/detection level indicated in Table 11.

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

**Table 11: Emission Testing Rates (lb/hr)**

Pollutant	Main baghouse CTRL-6	Mist eliminator CTRL-5 at flux tanks	Thermal oxidizer CTRL-7 at blow stills	RTO CTRL-12 at oxidized tanks, mixers, coater, laminate, sealant	Mist eliminator CTRL-10 at surfacing	<sup>1</sup> Cooling Section
PM	2.38E-02	4.32E-01	2.499	1.062	5.77E-02	3.761
PM <sub>10</sub>	2.38E-02	4.32E-01	3.525	1.083	5.77E-02	4.313
PM <sub>2.5</sub>	1.19E-02	3.71E-01	2.298	7.42E-01	4.99E-02	5.52E-01
SO <sub>2</sub>		Detection	20.463	7.80E-01	2.00E-01	
NO <sub>2</sub>		Detection	5.177	3.82E-01	Detection	
VOC		4.12E-01	15.287	7.39E-01	3.835	1.780
CO		3.259	43.409	7.587	2.028	
H <sub>2</sub> S		5.09E-01			Detection	
CO <sub>2</sub>		Detection minus ambient conc.	10,006.43	458.82	Detection minus ambient conc.	
CH <sub>4</sub>		Detection	8.350	8.79E-03	Detection	
Acenaphthene		Detection			Detection	
Acenaphthylene		Detection			1.83E-04	
Anthracene		Detection			1.83E-04	
Benzo(a)Pyrene		Detection			Detection	
Chrysene		Detection			1.83E-04	
Fluoranthene		Detection			Detection	
Fluorene		5.21E-04			9.16E-04	
2-Methylnaphthalene		1.26E-03			2.15E-03	
Phenanthrene		8.34E-04			1.29E-03	
Pyrene		Detection			6.65E-04	
Benzene		1.95E-02	1.36E-01	1.46E-02	5.55E-02	
1,3 Butadiene		Detection	4.52E-02	7.23E-03	1.99E-02	
Carbonyl sulfide		1.25E-01			1.16E-01	
Chlorine		Detection	4.54E-01	Detection	Detection	
Ethyl benzene		5.31E-03			7.51E-02	
Formaldehyde		7.68E-04	2.728	3.32E-02	1.98E-01	
Hexane		8.23E-02			2.666	
Hydrogen chloride		Detection	34.398	4.65E-03	2.56E-02	
Naphthalene		7.79E-04			7.91E-04	

<sup>1</sup> Test all cooling section stacks and sum the tests for comparison to the table rate.

<sup>2</sup> Emissions shall be tested for the duration or volume specified in the test method. If the results are below the detection limit, then the emission rate shall be reported as the detection limit or the results shall be reported as measured with an expression of the false positive risk. Alternatively, the testing duration or volume may be increased such that a limit of detection is reached. In such case the emission rate (lb/hr) shall consider the longer sampling time. e.g. a lower emission rate may be achieved by extending the sampling time.

<sup>3</sup> "Detection" represents a value of no data in the PTE calculations.

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- B. The following EPA test methods in Table 12 may be used. Alternative methods and source specific modifications may be allowed. All methods shall be authorized by the Air Pollution Control Program's Compliance/Enforcement Section prior to testing.

**Table 12: Suggested Test Methods**

Pollutant	Main baghouse CTRL-6	Mist eliminator CTRL-5 at flux tanks	Thermal oxidizer CTRL-7 at blow stills	RTO CTRL-12 at oxidized tanks, mixers, coater, laminate, sealant	Mist eliminator CTRL-10 at surfacing	Cooling Section
PM	5D	5A	5A	5A	5A	5A
PM <sub>10</sub>	201A and 202	201A and 202	201A and 202	201A and 202	201A and 202	201A and 202
PM <sub>2.5</sub>	201A and 202	201A and 202	201A and 202	201A and 202	201A and 202	201A and 202
SO <sub>2</sub>		6C	6A	6A	6C	
NO <sub>2</sub>		7 / 7A	7D	7D	7 / 7A	
VOC		18 with 25/25A	18 with 25/25A	18 with 25/25A	18 with 25/25A	18 with 25/25A
CO		10	10	10	10	
H <sub>2</sub> S		15			15	
CO <sub>2</sub>		3A	6A	6A	3A	
CH <sub>4</sub>		3C	3C	3C	3C	
Acenaphthene		GC/MS			GC/MS	
Acenaphthylene		GC/MS			GC/MS	
Anthracene		GC/MS			GC/MS	
Benzo(a)Pyrene		GC/MS			GC/MS	
Chrysene		GC/MS			GC/MS	
Fluoranthene		GC/MS			GC/MS	
Fluorene		GC/MS			GC/MS	
2-Methylnaphthalene		GC/MS			GC/MS	
Phenanthrene		GC/MS			GC/MS	
Pyrene		GC/MS			GC/MS	
Benzene		GC/MS	GC/MS	GC/MS	GC/MS	
1,3 Butadiene		GC/MS	GC/MS	GC/MS	GC/MS	
Carbonyl sulfide		GC/MS			GC/MS	
Chlorine		GC/MS	GC/MS	GC/MS	GC/MS	
Ethyl benzene		GC/MS			GC/MS	
Formaldehyde		GC/MS	GC/MS	GC/MS	GC/MS	
Hexane		GC/MS			GC/MS	
Hydrogen chloride		GC/MS	GC/MS	GC/MS	GC/MS	
Naphthalene		GC/MS			GC/MS	

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### SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

#### C. Cooling Tower

- 1) CertainTeed Corporation shall conduct testing on cooling tower cell (E-2715) blowdown water to determine TDS concentration in milligrams per liter. Complete testing reports shall be kept on site.
- 2) Testing shall be conducted using an Air Pollution Control Program preapproved method.
- 3) Testing shall be conducted according to the following schedule,
  - i. Weekly testing for a minimum of eight consecutive weeks after startup. Should the testing yield no exceedance of the limit during this period then,
  - ii. The permittee shall test monthly for a minimum of six consecutive months. Should the testing yield no exceedance of the limit during this period then,
  - iii. The permittee shall test once per every six consecutive months.
  - iv. If at any time an exceedance is shown, testing shall revert to a weekly frequency and progress in a manner according to the above schedule.
- 4) A TDS concentration above the limit will be considered an exceedance and corrective actions shall be implemented within 48 hours. An exceedance does not necessarily indicate a violation of the limit.
- 5) When the number of exceedances exceeds three percent of the total number of tests in a six month period and corrective actions fail to return the emission units to level below the limit, then the permittee shall submit a complete Application for Authority to Construct to the Permits Section within 90 days of the last exceedance.

#### D. Haul Roads

- 1) Silt loading shall not exceed █ grams per square meter ( $g/m^2$ ) on any paved haul road individual sample.

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### SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- 2) Compliance with the silt loading limitation shall be demonstrated by conducting silt loading sampling (as defined in Appendix C.1 and C.2 of AP-42 *Compilation of Air Pollution Emission Factors*, Fifth Edition).
  - i. Silt loading sampling shall be conducted using a vacuum equipped with HEPA filtration.
  - ii. Each sample area shall be large enough to obtain 300 grams of material.
  - iii. The sampling locations shall be representative (as defined in Appendix C of AP-42), however at least 4 samples shall be obtained, i.e. one near each main entrance, one along the warehouse road loop, one along the receiving pit loop.
- 3) Sampling shall be conducted at the midpoint of the cleaning cycle (i.e. if cleaning is scheduled every 24 hours, then sampling shall be conducted at the midpoint of 12 hours). The cleaning frequency shall be conducted at the same frequency that corresponds to a compliant test, or more often. Cleaning may be temporarily suspended during adequate precipitation or inclement weather (i.e. rain exceeding 0.25 inches per day being sufficient to maintain no visible emissions, or roads covered in snow or ice). If rain exceeding 0.25 inches per day occurs, then sampling shall be conducted at the midpoint of the next cleaning cycle. Record of the cleaning schedule, actual cleanings conducted, and daily precipitation shall be kept on site.
- 4) Analysis of samples shall be conducted in accordance with ASTM C 136 method. The silt calculation shall add all mass retained in the vacuum bag to the mass passing the #200 sieve.
- 5) Testing shall be conducted according to the following schedule,
  - i. Initial testing shall be conducted according to Special Condition 18.F. Should the testing yield no exceedance of the limit during this period then,
  - ii. Testing shall be conducted once a quarter for four consecutive quarters. Should the testing yield no exceedance of the limit during this period then,
  - iii. Testing shall be conducted once annually.
  - iv. If at any time an exceedance is shown, testing shall be conducted within 30 days and progress in a manner

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

according to the above schedule.

- 6) A written copy of the full test report and results shall be submitted to the Compliance/Enforcement Section within 30 days of completion of the testing. At a minimum, the report must include sample road segment locations, recent weather conditions, HEPA vacuum bag model number, cleaning method and schedule, sampling date/time, tons of material received and shipped on the sampling day compared to the permitted capacity, legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required EPA Method for at least one sample run.
  - 7) If the results show that the silt loading exceeds the  $\blacksquare$  g/m<sup>2</sup> limit on two consecutive tests (i.e. if one or more of the four required samples per test shows an exceedance, then the entire test shows an exceedance, but two consecutive tests are needed to show an exceedance of the limit), then CertainTeed Corporation shall evaluate what effects the exceedance would have had on the permit applicability and modeling applicability of this project. CertainTeed Corporation shall submit the results of any such evaluation, in a complete Application for Authority to Construct to the Permits Section within 90 days of submitting the silt loading test results report required in Special Condition 18.D.6) of this permit.
- E. Testing shall be performed at the short term permitted capacity. However, recycled oil shall not exceed  $\blacksquare$  % by weight of flux usage. Short term permitted capacity is defined as 90 to 100 percent of the short term MHDR in Table 18. If the value is N/A then refer to the long term MHDR. The test shall note recycled oil, ferric chloride solution usage rate, thermal oxidizer and regenerative thermal oxidizer natural gas usage rate. Recycled oil and ferric chloride solution usage rates may be calculated by dividing CertainTeed Jonesburg tested emission rates by other CertainTeed installation tested emission rates and multiplying by the other CertainTeed installation usage rates. If it is impractical to test at permitted capacity, emission unit(s) may be tested at less than the permitted capacity; in this case, subsequent operation of the emission unit(s) is limited to 110 percent of the test rate until a new test is conducted.

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#### SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

Once the emission unit(s) is so limited, operation at higher capacities is allowed for no more than 15 total days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity.

- F. Initial testing shall be performed within 60 days after achieving the long term permitted capacity of the respective process. Long term permitted capacity is defined as 90 to 100 percent of the long term MHDR in Table 18. If the value is N/A then refer to the short term MHDR. Initial testing shall be performed not later than 180 days after initial start-up for commercial operation and shall be conducted in accordance with the procedures in this permit and the approved test plan.
- G. A completed Proposed Test Plan Form (enclosed) shall be submitted to the Compliance/Enforcement Section at least 60 days prior to the proposed test date so that the Air Pollution Control Program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The Proposed Test Plan may serve the purpose of notification and must be approved by the Director prior to conducting the required emission testing.
- H. A written copy of the full test report and results shall be submitted within 60 days of completion of any required testing. The report shall include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required test method for at least one sample run.
- I. CertainTeed Corporation shall submit a report to each the Compliance/Enforcement Section and Permits Section establishing ranges for the parameters in Table 13, and show how the ranges were developed (e.g. directly from compliant testing, calculations from test data, manufacturer's specifications). The report shall be submitted within 90 days of the submittal of the initial test report in Special Condition 18.H. The report may be submitted with the permit applicability request in Special Condition 19.

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

**Table 13: Operation Ranges to be Established**

Control Device	Maximum and Minimum Pressure Drop	Maximum Inlet Temperature	Minimum Combustion Temperature	Filter/Media Replacement Schedule	Maximum Outlet Carbon Monoxide Concentration
Main baghouse CTRL-6	x			x	
Mist eliminator CTRL-5 at flux tanks	x	x		x	
Thermal oxidizer CTRL-7 at blow stills			x		x
RTO CTRL-12			x	x	x
Mist eliminator CTRL-10 at surfacing	x			x	
Mist eliminator CTRL-11	x	x		x	

- J. The reports in Special Conditions 18.H. and 18.I. are to fully account for all operational and emission parameters addressed both in the permit conditions as well as in any other applicable state or federal rules or regulations. Applicable NSPS and MACT standards may have separate test requirements than this permit.
  - K. Subsequent testing, except for the cooling tower and haul roads, shall be conducted once every 5 years or at a frequency established in a future permit.
19. **As-Built Evaluation**  
 CertainTeed Corporation shall submit a permit applicability request within 90 days of the submittal of the initial test report in Special Condition 18.H. At a minimum the request shall provide the following:
- A. Comparison of previous permitted capacity, tested production rate, and revised short and long term MHDR.
  - B. Copy of equipment manufacturer specifications for each emission unit showing make, model, year, serial, maximum capacity.
  - C. Comparison of permitted to as-built stack parameters, i.e. height, diameter, flowrate, velocity, temperature, locational coordinates, building dimensions, haul road dimensions and locations.
  - D. Railcar vent emissions shall be recalculated based upon the flux tanks CTRL-5 emission test. Railcar vent emissions may be scaled based upon

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

the ratio of railcar vent VOC (lb/ton flux) to CTRL-5 VOC (lb/ton flux), or other pollutant ratio if approved by the Air Pollution Control Program.

- E. RTO CTRL-12, blow stills CTRL-7, and cooling section emissions shall be recalculated as indicated in Table 14 based upon the surfacing CTRL-10 emission test. The respective emission rates may be scaled based upon the ratio of each CTRL-12, CTRL-7, and cooling section VOC (lb/ton oxidized asphalt) to CTRL-10 VOC (lb/ton oxidized asphalt), or other pollutant ratio if approved by the Air Pollution Control Program.

**Table 14: CTRL-12, CTRL-7, and Cooling Section Recalculated Rates**

Pollutant	Thermal oxidizer CTRL-7 at blow stills	RTO CTRL-12 at oxidized tanks / coater	Cooling Section
PM			
PM <sub>10</sub>			
PM <sub>2.5</sub>			
SO <sub>2</sub>			x
NO <sub>2</sub>			x
VOC			
CO			x
H <sub>2</sub> S	x	x	x
CO <sub>2</sub>			x
CH <sub>4</sub>			x
Acenaphthene	x	x	x
Acenaphthylene	x	x	x
Anthracene	x	x	x
Benzo(a)Pyrene	x	x	x
Chrysene	x	x	x
Fluoranthene	x	x	x
Fluorene	x	x	x
2-Methylnaphthalene	x	x	x
Phenanthrene	x	x	x
Pyrene	x	x	x
Benzene			x
1,3 Butadiene			x
Carbonyl sulfide	x	x	x
Chlorine			x
Ethyl benzene	x	x	x
Formaldehyde			x
Hexane	x	x	x
Hydrogen chloride			x
Naphthalene	x	x	x

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- F. Oxidized asphalt shipping emissions shall be recalculated referencing other emission testing, *Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading* Trumbore 1999, or other method approved by the Air Pollution Control Program.
- G. Revised installation-wide short term PTE and long term PTE. The PTE shall be the sum of rates used to issue this permit and the initial tested emission rates, except tested emission rates shall be used for respective units and the recalculated values in items D, E, and F above.
- 20. Record Keeping and Reporting Requirements
  - A. CertainTeed Corporation shall maintain on site all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include SDS for all materials used.
  - B. CertainTeed Corporation shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (6) REVIEW

Project Number: 2013-07-059  
Installation ID Number: 139-0052  
Permit Number:

CertainTeed Corporation  
100 CertainTeed Drive  
Jonesburg, MO 63351

Complete Date  
of Application: September 19, 2013

Parent Company:  
Saint-Gobain North America  
P.O. Box 860  
Valley Forge, PA 19482

Montgomery County, S8 & 17, T47N, R3W

REVIEW SUMMARY

- CertainTeed Corporation has applied for authority to construct a new asphalt shingle manufacturing installation.
- HAP emissions are expected from the proposed equipment. Potential HAP emissions are from handling and modifying asphalt, handling roofing granules, natural gas and diesel combustion, and cooling tower water treatments.
- NSPS under 40 CFR 60 apply to the installation.
  - Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units* applies to steam boiler 1 F-3201, steam boiler 2 F-8001, thermal fluid heater 1 F-3800, and thermal fluid heater 2 F-4200.
  - Subpart UU, *Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacture* applies to the following units,

Table 15: NSPS UU Applicable Units

Affected Facility Group	Emission Unit	Description
Mineral handling and storage	TK-1510	Pneumatic limestone receiving and silo 1
	TK-1520	Pneumatic limestone receiving and silo 2
	TK-1610	Limestone cold filler bin
	U-1605	Limestone fluidized bed heater
	TK-1602	Limestone hot filler bin
	TK-1710	Pneumatic sand receiving and silo
	UL-1	Gravity receiving pit 1 for sand and granules
	UL-2	Gravity receiving pit 2 for sand and granules
	DP-1	Transfer from pits to conveyor 1
	DP-2	Transfer from conveyor 1 to tripper car
	DP-3	Transfer from tripper car to silos
	DP-4	Transfer from silos to conveyor 2
	DP-5	Transfer from silos to conveyor 3

	HLS-1, GS-1	Transfer from conveyor 2 and conveyor 3 to day bins
	TK-1810	Day bins
Asphalt storage tanks	See Permit Table 17	Comply with MACT LLLLL
Blowing stills	R-0610, R-0620	Comply with MACT LLLLL

- Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* applies to the diesel firepump P-2510.
- Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984* applies to the █ gallon oxidized asphalt tank TK-0810.
- None of the NESHAPs under 40 CFR 61 apply to this installation.
- MACT under 40 CFR 63 apply to the installation.
  - Subpart DDDDD, *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters* applies to the following units,

Table 16: MACT DDDDD Applicable Units

Emission Unit	Description
F-3201	Steam boiler 1
F-8001	Steam boiler 2
F-0313	Asphalt heater at tank TK-0310
F-0323	Asphalt heater at tank TK-0320
F-0807	Asphalt heater at tank TK-0810
F-3800	Thermal fluid heater 1
F-4200	Thermal fluid heater 2
H-4	Mat preheater

- Subpart LLLLL, *National Emission Standard for Hazardous Air Pollutants: Asphalt Processing and Asphalt Roofing Manufacturing* applies to the following units.

Table 17: MACT LLLLL Applicable Units

Emission Unit	Description
TK-0310	Flux asphalt tank █ gal
TK-0320	Flux asphalt tank █ gal
TK-0410	Recycled oil tank █ gal
TK-0510	Mix tank █ gal
TK-0520	Mix tank █ gal
R-0610	Blowing still 1
R-0620	Blowing still 2
TK-8420	Oxidized asphalt tank █ gal
TK-8430	Oxidized asphalt tank █ gal
TK-0920	Vertical surge tank (contains a mixer)
A-0905	Horizontal coating mixer
U-8710	Coater
TK-1010	█ gal AC-20 asphalt tank
TK-1210	Windseal day/mix tank █ gal

TK-1110	Windseal batch/mix tank	gal
U-8803	Windseal applicator	
TK-1410	Laminate day/mix tank	gal
TK-1310	Laminate batch/mix tank	gal
U-8903	Laminate applicator south	
U-8904	Laminate applicator north	

- Subpart ZZZZ, *National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines* applies to the diesel firepump P-2510. The MACT requirements are met if NSPS IIII is met.
- Enclosures, baghouses, mist eliminators, and thermal oxidation are being used to control the PM, PM<sub>10</sub>, PM<sub>2.5</sub>, VOC, H<sub>2</sub>S, and HAP emissions from the equipment in this permit.
- This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM, PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, VOC, and CO are above de minimis. Potential emissions of hexane, hydrogen chloride, and combined HAPs are above the major source level. Section (9) major HAP review was not required because the HAPs emit from units subject to a MACT.
- This installation is located in Montgomery County, an attainment area for all criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation will manufacture asphalt shingles, SIC 2952. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
  - The installation does not belong to Item 10, petroleum refineries. It does not distill asphalt from petroleum. Also the primary business activity differs.
  - The installation does not belong to Item 21, fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input.
  - The installation does not belong to Item 20, chemical process plants. Although it will manufacture roofing adhesive/sealant and oxidized roofing asphalt, the installation is not part of the SIC major group 28.
  - The installation does not belong to Item 22, petroleum storage and transfer facilities with a capacity exceeding three hundred thousand (300,000) barrels. Total storage capacity is significantly less than 300,000 barrels.
  - The installation does not belong to Item 24, glass fiber processing plants. The installation will trim and coat fiberglass mat. It will not manufacture glass fiber.
  - The installation does not belong to Item 27, Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act. All applicable NSPS, NESHAP, and MACT were promulgated after August 7, 1980.

- An ambient air quality impact analysis (AAQIA or modeling) was performed to determine the ambient impact of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, CO, and several HAPs. Initial PTE calculations showed SO<sub>2</sub> to be above de minimis, therefore modeling was conducted, which showed exceedances. Final calculations result in SO<sub>2</sub> slightly below de minimis, which would not require modeling. However final SO<sub>2</sub> emission rates were modeled due to the previous modeled exceedances. No model is readily available which can accurately predict ambient ozone concentrations caused by this installation's VOC emissions.
- Emissions testing are required.
- A Part 70 Operating Permit application is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

CertainTeed Corporation has applied for authority to construct an asphalt roofing manufacturing installation near Jonesburg. The installation will receive flux asphalt, oxidized asphalt, recycled oil, ferric chloride, AC-20 asphalt, fiberglass mat, limestone, sand, roofing granules, polymer, ink, paint, pallets, siding, drywall, and insulation. Materials will be received by rail and truck. Flux asphalt, recycled oil, and ferric chloride will be mixed then oxidized in 2 blow stills. Oxidized asphalt will be mixed with limestone and applied to fiberglass mat at the coater. There will be one asphalt roofing manufacturing line. Coated fiberglass will be surfaced with sand and roofing granules, then cooled. Windseal and laminate consisting of AC-20 asphalt and polymer will be applied, followed with a paint strip before being packaged and labeled with ink. Laminated shingles, drywall, siding, and insulation are shipped. Blown asphalt may also be shipped. The installation does not manufacture siding, drywall, or insulation, but rather has a separate warehouse for these and other materials.

CertainTeed Corporation is permitted as a minor source of PM, PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>2</sub>, VOC, and CO. The installation will be a de minimis SO<sub>2</sub> source and a major HAP source. The installation will be a Part 70 operating permit source for CO and HAP.

No permits have previously been issued to CertainTeed Corporation from the Air Pollution Control Program. A preconstruction waiver was issued allowing construction to commence before permit issuance. Warehouse and manufacturing were considered separate projects. The warehouse did not require a construction permit.

CertainTeed Corporation requested confidentiality for much of the information that was submitted. This is the public permit. A confidential version is available under project 2013-07-060.

MHDRs for processes on the manufacturing line were determined by line speed and product specification sheets. MHDR was scaled up to account for less than 100% transfer efficiency of the materials to the fiberglass. Short term MHDR is the maximum

throughput corresponding with 1 to 24-hour modeling averaging periods. Short term MHDR may be conditioned by a permit limit. Long term MHDR is based upon bottlenecks encountered at longer timeframes and corresponds with the annual PTE. Emission units are summarized in Table 18. Control devices are summarized in Table 19.

Table 18: Emission Unit Summary

Emission Unit	Control Device	Emission Point	Description	Short Term MHDR	Long Term MHDR			
Natural gas combustion (mmbtu/hr input)								
F-3201	N/A	S-05	Steam boiler 1	█	N/A			
F-8001		S-06	Steam boiler 2					
F-0313		S-24	Asphalt heater at tank TK-0310					
F-0323		S-25	Asphalt heater at tank TK-0320					
F-0807		S-26	Asphalt heater at tank TK-0810					
F-3800		S-07	Thermal fluid heater 1					
F-4200		S-08	Thermal fluid heater 2					
H-4		S-15	Mat preheater					
H-31		S-39 to S-44				Office HVAC		
H-32						Office hood		
H-33						Office lab gas		
H-39 to H-44						Office air handling		
H-46						Front office water heater		
H-35, H-45						Manufacturing make-up air		
H-36						Maintenance water heater		
H-37						Boiler room HVAC		
H-38						Boiler room laboratory gas		
F-3711			S-03			Blow stills thermal oxidizer CTRL-7		
B-6005		S-21	Regenerative thermal oxidizer RTO CTRL-12					
Limestone, sand, granules, polymer receiving (tph)								
TK-1510		CTRL-2	S-04			Pneumatic limestone receiving and silo 1	█	█
TK-1520			Pneumatic limestone receiving and silo 2					
TK-1610	CTRL-4	S-13	Limestone cold filler bin					
U-1605	CTRL-3	S-14	Limestone fluidized bed heater					
TK-1602			Limestone hot filler bin					
TK-1710	CTRL-1	S-01	Pneumatic sand receiving and silo					
U-1309	CTRL-14	S-10	Polymer supersack receiving 1, for laminate					
U-1109	CTRL-15	S-11	Polymer supersack receiving 2, for windseal					
UL1, UL2	N/A	DP1	Gravity receiving pits 1 and 2					
DP1	enclosure		Pits to conveyor 1					
DP2	N/A		Conveyor 1 to tripper car					
DP3	N/A		Tripper car to silos					
DP4	N/A		Silos to conveyor 2: colored granules					
DP5	N/A	DP5	Silos to conveyor 3: headlap, shadowline					
HLS-1, GS-1	CTRL-6	S-34	Conveyor 2 and Conveyor 3 to day bins					
TK-1810			Day bins to screw/elevator					
FDR-2360			Rotary turret					
FDR-2450			Reclaim screw/elevator					
Asphalt storage, processing (tph)								
RC01 – RC07	N/A	RC01-RC07	Asphalt, AC-20 railcar/truck receiving vents	█	█			
TRK01 – TRK07	N/A	TRK01 – TRK07	Oxidized asphalt railcar/truck shipping vents					
TK-0310	CTRL-5	S-02	Flux asphalt tank █ gal					
TK-0320			Flux asphalt tank █ gal					
TK-0410			Recycled oil tank █ gal					
TK-0510			Mix tank █ gal					
TK-0520			Mix tank █ gal					

TK-9420			Flux mist eliminator condensate tank		
TK-0420	N/A	TK-0420	Ferric chloride solution tank		■
R-0610	CTRL-7	S-03	Blowing still 1	■	■
R-0620			Blowing still 2		
TK-3610			Blow still 1 knockout tank		
TK-3620			Blow still 2 knockout tank		
TK-3640			Blow still 1 drying tank		
TK-3650			Blow still 2 drying tank		
TK-3670	N/A	TK-3670	Blow still condensate tank ■ gal		N/A
TK-0810	CTRL11,12	S-21	Oxidized asphalt tank ■ gal	■	■
TK-8420			Oxidized asphalt tank ■ gal		
TK-8430			Oxidized asphalt tank ■ gal		
TK-1010			■ gal AC-20 asphalt tank		
A-0905			Horizontal coating mixer		
TK-0920			Vertical surge tank (contains a mixer)		
TK-6010			Manufacturing line mist eliminator condensate tank		
TK-3710	*	*	Hot Oil catch tank 1	N/A	N/A
TK-3815	*	*	Hot Oil catch tank 2	N/A	N/A
TK-4215	*	*	Hot Oil catch tank 3	N/A	N/A
TK-3700	*	*	Hot Oil expansion tank 1	N/A	N/A
TK-3810	*	*	Hot Oil expansion tank 2	N/A	N/A
TK-4210	*	*	Hot Oil expansion tank 3	N/A	N/A
TK-1210	CTRL 13,11,12	S-21	Windseal day/mix tank ■ gal	■	■
TK-1110			Windseal batch/mix tank ■ gal		
TK-1220			Windseal use/mix tank ■ gal		
TK-1410			Laminate day/mix tank		
TK-1310			Laminate batch/mix tank ■ gal		
TK-1420			Laminate use/mix tank		
Emission units at the line itself (tph of noted material)					
U-8601	CTRL-8	S-15	Fiberglass mat unwinding and splicing	N/D	■
U-8602			Fiberglass mat looping	N/D	
U-8710	CTRL11,12	S-21	Coater (tph oxidized asphalt)	N/D	
FLT-5870	CTRL 9,10	S-30	Surfacing (tph oxidized asphalt)	N/D	
U-8751	N/A	SCOOL3	Cooling section (tph oxidized asphalt)	N/D	
U-8803	CTRL 13,11,12	S-21	Windseal application (tph modified asphalt)	N/D	
U-8903			Laminate application south (tph modified asphalt)	N/D	
U-8904			Laminate application north (tph modified asphalt)	N/D	
U-8805	N/A	PA-1	Paint strip for nailing guide (tph paint)	N/D	
Other emission units					
E-2715	N/A	S-23	Cooling tower (gph)	N/D	■
P-2510	N/A	S-22	Diesel firepump (hp)	N/D	
DTank01	N/A	DTank01	Diesel tank (gph)	N/D	
HRoad	cleaning	HRoad	Paved haul roads	varies	

N/A = not applicable, N/D = not determined

\* Hot oil catch and expansion tanks are not emission units.

Table 19: Control Devices

Control Device	Description
CTRL-1	Sand silo filter
CTRL-2	Limestone silos filter
CTRL-3	Limestone heater filter
CTRL-4	Limestone cold filler filter
CTRL-5	Flux tanks mist eliminator
CTRL-6	Granules baghouse
CTRL-7	Blow stills thermal oxidizer
CTRL-8	Fiberglass mat filter
CTRL-9	Rolling prefilter for CTRL-10
CTRL-10	Surfacing section mist eliminator

CTRL-11	Mixers, oxidized tanks, coater, laminate and sealant mist eliminator, routed to CTRL-12
CTRL-12	Regenerative thermal oxidizer
CTRL-13	Laminate and sealant mist eliminator, routed to CTRL-11
CTRL-14	Polymer receiving filter
CTRL-15	Polymer receiving filter

## EMISSIONS/CONTROLS EVALUATION

### Asphalt railcar / truck receiving vents

Asphalt flux will be received by railcar or truck. Seven railcar vents may be open at the same time. Emissions from truck vents were assumed equal to the railcars. Only █ pumps can operate simultaneously, for a total of █ gallons per minute for either rail or truck. Railcar and truck receiving will not occur simultaneously at full MHDR. This equates to █ tph for railcar/truck emptying and flux tank filling. Usage of the lowest specific gravity results in the highest annual fume generation. Usage of the highest specific gravity results in the highest short term fume generation rate for modeling.

The railcars are not equipped with heaters. The asphalt may have to be heated to █ degrees Fahrenheit in order for it to be pumped into the installation. Heat will be provided to the railcars through non-contact steam or thermal fluid lines from the installation. Evaporative emissions were assumed to include working loss emptying emissions. Asphalt fume emissions from railcar vents were calculated using an EPA/FEMA equation for the evaporation rate from a liquid pool obtained from, *Technical Guidance for Hazards Analysis Emergency Planning for Extremely Hazardous Substances*, December 1987, Appendix G-3. The fume generation rate was calculated at █ degrees Fahrenheit which results in conservatively higher emissions compared to the █ degrees needed to initiate flow. The area of the vent opening was used instead of the maximum area of the pool surface inside the railcar, as the maximum pool surface area would result in fume emissions exceeding 100 pounds per hour. This value seemed inappropriately high. The vent opening was assumed by the applicant as 1 square foot per railcar. There are no control devices, other than reducing windspeed by maintaining minimum vent opening. Short term emissions used the total area open at one time, while annual PTE used the number of cars needed on an annual basis open for 24 hours per day. The maximum number of railcars open at one time is █. Approximately █ railcars will be needed in a year.

Fume was divided into 78% VOC and 22% PM according to *Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading*, Trumbore, 1999. HAP emissions were calculated using a 2009 emission test from the CertainTeed Wilmington installation and a combination of tested values from the Asphalt Roofing Manufacturing Association (ARMA) document *Proposed Emission Factors for Criteria Pollutants and Hazardous Air Pollutants from Asphalt Roofing Manufacturing*, May 12, 2003. All data was collected from oxidized asphalt, which is chemically different from flux. The EPA/FEMA VOC evaporation value was divided by the controlled Wilmington VOC value and multiplied by the Wilmington speciated HAPs to obtain the HAP values for Jonesburg. The HAP profile was completed by dividing the EPA/FEMA VOC evaporation value by the uncontrolled ARMA value and multiplying by the uncontrolled ARMA speciated HAPs. Receiving vent emissions will be reevaluated following flux tank emission testing.

Hydrogen sulfide was calculated using values obtained from the North Carolina Division of Air Quality investigation 03008 of Salisbury Associated Asphalt, May 22, 2003.

PM emissions were calculated using the EPA/FEMA method and applying the Trumbore ratio. The applicant assumed PM<sub>10</sub> was equal to PM. PM<sub>2.5</sub> was assumed as 50% of the filterable and all of the condensable. Filterable and condensable ratios were obtained from tested values at CertainTeed's Oxford mist eliminator exhaust.

CO emissions were calculated using an applicant provided emission factor. GHG emissions were not calculated due to the EPA document, *Available and Emerging Technologies for Reducing GHG Emissions from the Petroleum Refining Industry*, October 2010, Section 2.2.9. It states that storage tanks will generally have negligible GHG emissions except for unstabilized crude oil.

Asphalt emits more volatiles at higher temperatures. However, a special condition for an upper limit on asphalt receiving temperature was not included as the installation will only need to heat to the point of flow. There is no benefit from a higher heat except pump efficiency. Evaporative emissions were calculated at █ F. Tank filling emissions were calculated at the maximum pumping rate. Various flux MSDS show a melting point of █, █, and █ degrees Fahrenheit.

Oxidized asphalt may be received on a non-routine basis, for instance if the blow stills cannot operate. Oxidized asphalt will be received at approximately █ degrees Fahrenheit into tanks TK-8420 and TK-8430, bypassing all of the flux tanks. Because oxidized is received at a higher temperature than flux, the potential fume generation rate from the vehicle tankers is higher. If oxidized asphalt has to be heated and vented before being received, then the potential fume generation rate is even higher. However, the worst case emissions consider the flux tanks and blow stills operating, therefore receiving oxidized asphalt was not included in the model emissions or PTE. A permit limit reflects this operating scenario.

Railcar evaporation emissions will be recalculated using site specific testing of flux tanks. Emissions from shipping oxidized asphalt offsite were assumed to be equal to railcar evaporative emissions. A permit throughput limit includes flux receiving and oxidized shipping. Shipping emissions may be reevaluated following emission testing of flux versus oxidized.

#### Asphalt tanks

Emissions from flux tanks were calculated using the same tested emission factors as what were used to calculate the railcar evaporative emissions, except it was not necessary to also use the EPA/FEMA values.

Flux tanks are controlled by a mist eliminator, which the applicant assumed an extra █% VOC control on top of the Wilmington controlled emission rates. However, the Trumbore 1999 document states that zero VOC control is assumed for fiber bed filters. The efficiency may be zero because the filters collect organic oil which depending on the emission test method may be considered part of the particulate fraction in the hydrocarbon fumes and not the VOC fraction. Emissions will be reevaluated following

site specific testing.

Emissions from the recycled oil tank and subsequent blow still and manufacturing line emissions were assumed the same as flux emissions, except the recycled oil MSDS shows trace amounts of lead and nickel. These HAPs were added in proportion to filterable PM. The applicant proposed a █% reduction in all emissions at the █ gallon mix tanks since the same material will be previously handled and many of the volatiles may have already been released. All of these tanks are routed to a common mist eliminator which will be tested.

Emissions from the AC-20 and oxidized tanks use the flux factors, except VOC and HAP were reduced by █% using the RTO instead of only a mist eliminator. Flux VOC and HAP emission factors originate from tested oxidized tanks. AC-20 MHDR is limited by special condition to █ tpd. Oxidized tank MHDR is bottlenecked by the blow stills. Where there will be more than one tank holding the same material and at the same place in the process flow diagram, for calculation simplicity the full MHDR and emissions were assumed from only one tank. The AC-20, oxidized, laminate, and windseal tanks are routed to a common RTO which will be tested.

#### Limestone, sand, granules, polymer

PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from pneumatically transferred materials were calculated using the applicant supplied emission factors of █, █, and █ grains per standard cubic foot, respectively. Colored granule MSDS show chromium III and cobalt HAPs. The highest weight percentages were used to develop a theoretical conservative granule for emission calculations. Weight percentages were multiplied by the PM emissions to obtain the HAP emissions.

Emissions from gravity receiving, conveyor transfer, and silo operation were calculated using SCC 30502031 and 30502006. Chromium and cobalt emissions were calculated as just described. Some roofing granules are oil coated and may have reduced particulate emissions. However, emission factors for handling sand were conservatively used as the conveying system is combined.

#### Fiberglass mat

Fiberglass mat is received in rolls approximately █ feet tall, unwound, spliced together, accumulated into loops, and preheated before being coated. Particulate emissions from these processes are partially captured by a hood located at looping/preheating. Captured emissions are routed to a filter. The hood is not expected to obtain 100% capture from unwinding and splicing. The mat MSDS shows residual formaldehyde at 0.1% weight, and some may emit during preheating. The applicant provided a formaldehyde emission factor from their Wilmington emission test.

#### Blow stills

Flux asphalt is oxidized in the blow stills to improve shingle durability. There will be 2 stills. Each still will essentially be a █ gallon batch tank where heated asphalt is chemically changed by bubbling air through it in the presence of a ferric chloride catalyst. Batch time is █ hours to fill, █ hours to oxidize, and █ hours to empty. Worse case emissions are expected during the oxidation process, and modeling standards

require emissions to be calculated at the short term, less than a 24-hour basis. Therefore short term emissions were calculated based upon an MHDR of █ gallons per hour divided by █ hours oxidation time. The density at █ degrees Fahrenheit results in █ tph, equating to either still oxidizing continuously but not at the same time. This amount is limited by special condition. Long term MHDR and annual PTE are based on asphalt usage at line speed of █ tph. GHG emissions were calculated using 40 CFR 98 Subpart Y(h)(2). Blow still emissions will be controlled by thermal oxidizer CTRL-7 which will be tested. Emissions from the uncontrolled condensate tank were calculated using the EPA TANKS program version 4.09D. Potential VOC and HAP emissions from that tank are less than 5 pounds per year.

### Mixers

Oxidized asphalt will be mixed with heated limestone in vertical and horizontal mixer tanks. For this review MHDR and emission factor unit of measure were based upon asphalt throughput only, █ tph. Emission factors were provided by the applicant citing other tested facilities. Emissions will be routed to mist eliminator CTRL-11 then to RTO CTRL-12. Emissions will be reevaluated following site specific testing. If the coater is not operating, then the mixers are also not operating and emissions may be routed to CTRL-11 only. Even though the mist eliminator has lower control efficiencies, the lower efficiencies are encountered at low to almost zero throughput. Greater potential emissions are from normal operation at regular MHDR.

### Coater and Surfacing

Mixed asphalt will be applied to the fiberglass mat at the coater. Coated web is covered with granules and sand at surfacing. For this review, MHDR and emission factor unit of measure were based upon asphalt throughput only, █ tph. PM emissions were provided from the CertainTeed Fremont test. PM<sub>2.5</sub> was estimated using a ratio of the blow stills' filterable and condensable emissions. The applicant provided HAP emission factors based upon controlled, common testing of a coater and surfacing. HAP emissions for this review were estimated by assuming █% of the common test emissions from the coater and █% of the common test emissions from surfacing. Coater emissions will be routed to mist eliminator CTRL-11 then to RTO CTRL-12. Surfacing emissions will be routed to prefilter CTRL-9 then to mist eliminator CTRL-10. Emissions will be reevaluated following site specific testing. The coater and surfacing were modeled without fugitive emissions and █% capture efficiency is required.

### Cooling

Surfaced web will be cooled from approximately █ degrees to █ degrees Fahrenheit in the cooling section. The web will pass over several rolling drums with non-contact cooling water circulated inside them. The majority, estimated as 95%, of emissions will be routed to the roof and emit uncontrolled. For this review, MHDR and emission factor unit of measure were based upon asphalt throughput only, █ tph. PM emissions were calculated based upon CertainTeed Shakopee tests. There were multiple stacks but only one was tested. The Shakopee values were scaled up to account for total airflow. The cooling section is not subject to MACT LLLLL. HAP emissions were calculated based upon ARMA uncontrolled coater values, multiplied by the ratio of the CertainTeed Avery uncontrolled coater VOC to the ARMA coater VOC. Emissions will be reevaluated following site specific testing.

### Laminate, Windseal

Laminate and windseal will be manufactured onsite by combining AC-20 asphalt with polymer. These tanks will be routed to mist eliminator CTRL-13, which will be routed to mist eliminator CTRL-11 and RTO CTRL-12. Capture efficiency from the tanks will be █%. Capture efficiency from applying laminate and windseal was estimated as █%. Emission factors were provided by the applicant and will be verified by testing. If the coater is not operating then laminate and sealant are also not operating and emissions may be routed to mist eliminator CTRL-13 then CTRL-11. Even though the mist eliminator has lower control efficiencies, the lower efficiencies are encountered at low to almost zero throughput. Greater potential emissions are from normal operation at regular MHDR.

### Paint, Ink

VOC emissions from paint application were calculated using mass balance. The paint is latex based and roller applied. PM emissions were assumed zero. The paint MSDS shows zero HAPs. Packaged shingles will be labeled with thermal transfer printers. The printer ribbon regulatory data sheet indicates zero VOC, however it does contain a total combined concentration of mercury, lead, cadmium, and hexavalent chromium of less than 100 ppm. A European test report shows each of these metals present at less than the method quantification limit, for a combined total less than 12.3 ppm. Emission calculations assuming 90 pounds of print roll consumed per hour, with an unrealistic low ink transfer efficiency of 0%, result in a combined metal HAP PTE of 0.0048 tpy. Therefore potential emissions from ink usage were considered negligible.

### Cooling Tower

Cooling tower PM emissions were calculated using the California South Coast Air Quality Management District document, *Guidelines for Calculating Emissions from Cooling Towers*, June 2006 alternative PM emission calculation method, and the New Mexico Environment Department Air Quality Bureau technical memorandum, September 9, 2013, *Calculating TSP, PM<sub>10</sub> and PM<sub>2.5</sub> from Cooling Towers*. Water additives to inhibit corrosion and biological growth result in potential VOC, HAP, and sulfuric acid emissions.

### Natural Gas Combustion

The emission factors used in this analysis were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Chapter 1.4 *Natural Gas Combustion*, July 1998. No low NO<sub>x</sub> burners are proposed. Thermal oxidizer and RTO natural gas combustion emissions were added to stack tested emission rates. No units are dual fueled.

### Firepump and fuel tank

The firepump will be powered by a █ hp diesel engine. Criteria emissions were calculated using Tier 4 standards in 40 CFR 1039. Condensable PM emissions from AP-42 were added to the Tier filterable PM standards. GHG emissions were calculated using 40 CFR 98. HAP emissions were calculated using SCC 20100102. The engine will be used for readiness testing and emergencies. Annual PTE was calculated using 500 hours. There is no limit on true emergency usage. Modeling based upon hourly

MHDR resulted in no time of day or hours per year limits. Emissions from the diesel storage tank were calculated using the EPA TANKS program version 4.09D. Potential VOC and HAP fuel tank emissions are less than 5 pounds per year.

#### Paved haul roads

Emissions from haul roads were calculated using AP-42 Section 13.2.1, *Paved Roads*, January 2011. There is a silt loading permit limit of █ gram per square meter requiring testing. Annual PTE emission rates consider bottlenecked MHDR for 8,760 hours. Model emission rates are based upon the maximum number of trucks per day as the shortest averaging period is 24 hours.

#### Emission Testing

Significant portions of the as-built installation will require emission testing. Reasons for testing include: estimated control efficiencies, control efficiencies higher than industry documents claim, differences between flux and oxidized asphalt, prior testing not fully speciating PM<sub>10</sub> and PM<sub>2.5</sub>, asphalt fume's dual nature as PM and VOC, calculations for several emission units omitting speciated HAPs when they are present at upstream or downstream processes with the same raw material, and combining all of these reasons also considering that several pollutants were very close to allowable ambient concentrations.

HAP testing is designed to obtain the most data from emission units with less control efficiency because emissions should be easier to detect. Total VOC from processes handling the same material can then be compared to reevaluate HAP emissions from those other processes that were not tested for HAPs.

CO<sub>2</sub> and methane testing is required as the installation originally proposed limits to avoid being a major GHG source. Also, CO<sub>2</sub> is measured in many non-CO<sub>2</sub> tests in order to calibrate or correct the test results and therefore should not add extra burden to test. CO<sub>2</sub> values noted as "detection minus ambient concentration" means to subtract the ambient concentration from the test result so that an emission unit that is truly not a CO<sub>2</sub> source isn't represented as one.

The permit contains Special Condition 19 which is a method to reestablish compliance shall emission testing result in higher than permitted emissions, or as-built parameters differ from permitted values..

Asphalt is natural in origin and variable in nature. A limit on asphalt quality was not included as the emission calculations used the worst case high or low density, depending on which resulted in the highest emissions throughput. Also a limit on quality is not needed so long as the recycled oil throughput doesn't exceed its limit. A change in asphalt or other raw materials outside of values used in the model or PTE calculations is a change in the method of operation and is subject to permit applicability. Catalysts other than ferric chloride such as phosphorus pentoxide or phosphorous sulphide are subject to permit applicability.

### Opacity

Zero % opacity is either required by NSPS UU, MACT LLLLL, or proposed by the applicant for mineral handling and storage, asphalt tanks, and blow stills. Commonly ducted emission units are therefore also subject to zero % opacity.

### Startup, Shutdown, Malfunction

Startup and shutdown emissions are expected to be the same or less compared to normal operation emissions as long as control devices are operating. Modeled emissions considered all processes operating at maximum short term MHDR simultaneously, which may not occur in actual practice, and therefore should be conservative compared to an SSM event. The RTO is required to be at temperature before emissions are routed to it. When the coater is not operating asphalt throughput is very low and emissions are routed to a mist eliminator. These emissions are potentially less than normal operation. Malfunction events are expected to occur over a shorter timeframe than most of the model standards. The shortest standards are 1 hour for SO<sub>2</sub> and NO<sub>2</sub>. SO<sub>2</sub> and NO<sub>2</sub> are created primarily by add-on combustion control devices. If they malfunction and are not operating, then SO<sub>2</sub> and NO<sub>2</sub> emissions should be significantly less than what was modeled. There are no emission limits directly corresponding to a value to avoid PSD review, Part 70 operating permit review, or major source MACT applicability, i.e. there are no < 250 tpy, < 100 tpy, or < 10/25 tpy limits. Excess emissions are to be reported through 10 CSR 10-6.050 and applicable federal requirements.

The following table provides an emissions summary for this project. There are no existing potential or actual emissions. Potential emissions of the project / installation represent the PTE of the new installation, assuming continuous operation (8,760 hours per year) using long term MHDR.

Table 20: Emissions Summary (tpy)

Pollutant	Regulatory <i>De Minimis</i> Levels	Potential Emissions of the Project / Installation
PM	25.0	38.15
PM <sub>10</sub>	15.0	35.96
PM <sub>2.5</sub>	10.0	13.01
SO <sub>x</sub>	40.0	38.09
NO <sub>x</sub>	40.0	52.71
VOC	40.0	61.47
CO	100.0	140.63
H <sub>2</sub> S	10.0	0.82
Sulfuric Acid Mist	7.0	4.14
CO <sub>2</sub>	N/A	69,821.28
CH <sub>4</sub>	N/A	14.46
N <sub>2</sub> O	N/A	1.07
GHG (CO <sub>2</sub> e)	100,000	70,501.98
GHG (mass)	250.0	69,836.80
Combined HAPs	25.0	104.72

Combined POM	10.0	0.09
POM Fluorene	<sup>1</sup> 0.01	9.84E-03
POM 2-Methylnaphthalene	<sup>1</sup> 0.01	2.47E-02
POM Phenanthrene	<sup>1</sup> 0.01	1.98E-02
Benzene	<sup>1</sup> 2.0	0.92
1,3 Butadiene	<sup>1</sup> 0.07	0.24
Chlorine	<sup>1</sup> 0.1	0.73
Chromium III compounds	<sup>1</sup> 5.0	7.15E-03
Cobalt compounds	<sup>1</sup> 0.1	3.23E-03
Dichloromethane	10.0	0.22
Ethyl benzene	10.0	1.54
Formaldehyde	<sup>1</sup> 2.0	6.46
Hexane	10.0	34.64
Hydrogen chloride	10.0	55.57
Lead compounds	<sup>1</sup> 0.01	5.9E-03
Methanol	10.0	0.70
Nickel compounds	<sup>1</sup> 1.0	6.97E-03
Toluene	10.0	0.96
Xylene	10.0	0.92

N/A = Not Applicable; N/D = Not Determined

<sup>1</sup> = SMAL

### PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM, PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, VOC, and CO are above de minimis. Potential emissions of hexane, hydrogen chloride, and combined HAPs are above the major source level. Section (9) major HAP review was not required because the HAPs emit from units subject to a MACT.

### APPLICABLE REQUIREMENTS

CertainTeed Corporation shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

#### GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170

- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

#### SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400 applies to the cooling section. Permitted PM potential emissions are 3.96 lbs/hr. P is █ tph. E is █ lb/hr. The PTE is less than the allowable emissions E, therefore compliance is demonstrated.
- *New Source Performance Regulations*, 10 CSR 10-6.070
  - 40 CFR 60 Subparts Dc, Kb, UU, and IIII apply. See the review summary for details.
- *MACT Regulations*, 10 CSR 10-6.075
  - 40 CFR 63 Subparts DDDDD, LLLLL, and ZZZZ apply. See the review summary for details.
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260 applies to emission units that emit at CTRL-5, CTRL-7, CTRL-10, CTRL-11, CTRL-12, railcar vents, oxidized asphalt shipping, cooling section, cooling tower, and firepump engine. Emission testing and subsequent calculations will determine the compliance status of the units emitting at control devices. The highest concentrations of SO<sub>2</sub> and SO<sub>3</sub> are expected at CTRL-7 and CTRL-12, which will be tested. Emission units that may emit sulfur compounds where the compounds may not be SO<sub>2</sub>, SO<sub>3</sub>, or sulfuric acid are those handling asphalt but that are not routed to a combustion control device. These units are expected to be in compliance and calculations following emission testing will confirm the compliance status. The cooling tower is a potential sulfuric acid source. Potential emissions were calculated assuming all sulfuric acid added to the circulation water will be emitted, 4.14 tpy. This is a conservatively high value as most of the acid will be consumed in reactions or removed with blowdown. The cooling tower is expected to be in compliance. The firepump engine will be fueled by ULSD and will be in compliance.
- *Restriction of Particulate Matter Emissions From Fuel Burning Equipment Used for Indirect Heating*, 10 CSR 10-6.405 does not apply. All indirect heating units will be fueled by pipeline grade natural gas.

#### AMBIENT AIR QUALITY IMPACT ANALYSIS

Modeling was performed to determine the ambient impact of the pollutants in Table 21. HAPs were modeled because their potential emissions exceed the major source level and/or SMAL. The Risk and Technology Review (RTR) have not been completed for applicable MACTs ZZZZ, DDDDD, and LLLLL. PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, and CO were modeled as their potential emissions exceed de minimis. Initial PTE calculations

showed SO<sub>2</sub> to be above de minimis, therefore modeling was conducted, which showed exceedances. Final calculations result in SO<sub>2</sub> slightly below de minimis, which would not require modeling. However final SO<sub>2</sub> emission rates were modeled due to the previous modeled exceedances. Monitoring is not required. Further modeling may be necessary following installation PTE recalculation following emission testing. For further details see the attached memo titled, *Section 6 Ambient Air Quality Impact Analysis (AAQIA) for the CertainTeed Corporation-Jonesburg Facility*.

Table 21: Modeling Summary

Pollutant	Averaging Time	Significant Impact	Significant Impact Level	Full Impact Analysis Triggered ?		NAAQS		Increment	
				Yes	No	CertainTeed	Standard	CertainTeed	Standard
CO	1-Hour	337.99	2,000		X	----	----	----	----
	8-Hour	201.39	500		X	----	----	----	----
NO <sub>x</sub>	1-Hour	110.22	7.55	X		167.05	188.68	No Standard	
	Annual	8.14	1	X		30.78	100	8.14	25
PM <sub>2.5</sub>	24-Hour	12.07	1.2	X		29.41	35	Baseline Not Triggered	
	Annual	2.36	0.3	X		11.16	12	Baseline Not Triggered	
PM <sub>10</sub>	24-Hour	29.73	5	X		66.27	150	27.27	30
	Annual	6.34	1	X		No Standard		6.34	17
SO <sub>2</sub>	1-Hour	77.51	7.83	X		133.78	195.75	No Standard	
	3-Hour	71.08	25	X		175.53	1300	68.11	512
	24-Hour	29.19	5	X		53.99	365	26.50	91
	Annual	3.09	1	X		10.16	80	3.09	20

### STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

\_\_\_\_\_  
 David Little, PE  
 Environmental Engineer III

\_\_\_\_\_  
 Date

### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated July 17, 2013, received July 22, 2013, designating Saint-Gobain North America as the owner and operator of the installation. Revisions received August 22, 2013 and October 18, 2013.
- PTE calculations received August 30, 2013, September 13, 2013, September 19, 2013, November 14, 2013, December 10, 2013, April 10, 2014, September 4, 2014, November 14, 2014, February 11, 2015, March 13, 2015.

The following documents are references for the permit:

- EPA, *AP-42 Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- EPA and FEMA, *Technical Guidance for Hazards Analysis, Emergency Planning for Extremely Hazardous Substances*, December 1987, Appendix G-3.
- EPA, *Locating and Estimating Air Emissions from Sources of Polycyclic Organic Matter*, July 1998, Section 4.6
- EPA, *National Emission Standards for Hazardous Air Pollutants: Asphalt Processing and Asphalt Roofing Manufacturing - Background Information Document for Promulgated Standards*, February 2003.
- EPA, *Available and Emerging Technologies for Reducing GHG Emissions from the Petroleum Refining Industry*, October 2010, Section 2.2.9
- ARMA, *Polyaromatic Hydrocarbon Emissions from Asphalt Processing and Roofing Manufacturing Operations*, September 1998.
- ARMA, *Proposed Emission Factors for Criteria Pollutants and Hazardous Air Pollutants from Asphalt Roofing Manufacturing*, EME Solutions, Inc., Jankousky, Angela L., May 12, 2003.
- Trumbore, David C., *The Magnitude and Source of Air Emissions from Asphalt Blowing Operations*, Environmental Progress, Vol. 17, No. 1, Spring 1998.
- Trumbore, David C., *Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading*, Environmental Progress, Vol. 18, No. 4, Winter 1999.
- Trumbore, David C., et al, *Emission Factors for Asphalt-Related Emissions in Roofing Manufacturing*, Environmental Progress, Vol. 24, No. 3, October 2005.
- North Carolina Division of Air Quality, Toxics Protection Branch, Air Toxics Support Team, *Investigation of Asphalt Terminal Modeling Scenarios Investigation # 03008*, May 22, 2003.
- California South Coast Air Quality Management District, *Guidelines for Calculating Emissions from Cooling Towers*, June 2006, alternative PM emission calculation method
- New Mexico Environment Department Air Quality Bureau, Technical Memorandum, *Calculating TSP, PM<sub>10</sub> and PM<sub>2.5</sub> from Cooling Towers*, September 9, 2013.

## APPENDIX A

### Abbreviations and Acronyms

<b>%</b> .....	percent	<b>m/s</b> .....	meters per second
<b>°F</b> .....	degrees Fahrenheit	<b>Mgal</b> .....	1,000 gallons
<b>acfm</b> .....	actual cubic feet per minute	<b>MW</b> .....	megawatt
<b>BACT</b> .....	Best Available Control Technology	<b>MHDR</b> .....	maximum hourly design rate
<b>BMPs</b> .....	Best Management Practices	<b>MMBtu</b> ....	Million British thermal units
<b>Btu</b> .....	British thermal unit	<b>MMCF</b> .....	million cubic feet
<b>CAM</b> .....	Compliance Assurance Monitoring	<b>MSDS</b> .....	Material Safety Data Sheet
<b>CAS</b> .....	Chemical Abstracts Service	<b>NAAQS</b> ...	National Ambient Air Quality Standards
<b>CEMS</b> .....	Continuous Emission Monitor System	<b>NESHAPs</b>	National Emissions Standards for Hazardous Air Pollutants
<b>CFR</b> .....	Code of Federal Regulations	<b>NO<sub>x</sub></b> .....	nitrogen oxides
<b>CO</b> .....	carbon monoxide	<b>NSPS</b> .....	New Source Performance Standards
<b>CO<sub>2</sub></b> .....	carbon dioxide	<b>NSR</b> .....	New Source Review
<b>CO<sub>2e</sub></b> .....	carbon dioxide equivalent	<b>PM</b> .....	particulate matter
<b>COMS</b> .....	Continuous Opacity Monitoring System	<b>PM<sub>2.5</sub></b> .....	particulate matter less than 2.5 microns in aerodynamic diameter
<b>CSR</b> .....	Code of State Regulations	<b>PM<sub>10</sub></b> .....	particulate matter less than 10 microns in aerodynamic diameter
<b>dscf</b> .....	dry standard cubic feet	<b>ppm</b> .....	parts per million
<b>EQ</b> .....	Emission Inventory Questionnaire	<b>PSD</b> .....	Prevention of Significant Deterioration
<b>EP</b> .....	Emission Point	<b>PTE</b> .....	potential to emit
<b>EPA</b> .....	Environmental Protection Agency	<b>RACT</b> .....	Reasonable Available Control Technology
<b>EU</b> .....	Emission Unit	<b>RAL</b> .....	Risk Assessment Level
<b>fps</b> .....	feet per second	<b>SCC</b> .....	Source Classification Code
<b>ft</b> .....	feet	<b>scfm</b> .....	standard cubic feet per minute
<b>GACT</b> .....	Generally Available Control Technology	<b>SDS</b> .....	Safety Data Sheet
<b>GHG</b> .....	Greenhouse Gas	<b>SIC</b> .....	Standard Industrial Classification
<b>gpm</b> .....	gallons per minute	<b>SIP</b> .....	State Implementation Plan
<b>gr</b> .....	grains	<b>SMAL</b> .....	Screening Model Action Levels
<b>GWP</b> .....	Global Warming Potential	<b>SO<sub>x</sub></b> .....	sulfur oxides
<b>HAP</b> .....	Hazardous Air Pollutant	<b>SO<sub>2</sub></b> .....	sulfur dioxide
<b>hr</b> .....	hour	<b>tph</b> .....	tons per hour
<b>hp</b> .....	horsepower	<b>tpy</b> .....	tons per year
<b>lb</b> .....	pound	<b>VMT</b> .....	vehicle miles traveled
<b>lbs/hr</b> .....	pounds per hour	<b>VOC</b> .....	Volatile Organic Compound
<b>MACT</b> .....	Maximum Achievable Control Technology		
<b>µg/m<sup>3</sup></b> .....	micrograms per cubic meter		

Mr. Mark Hyde  
Plant Manager  
CertainTeed Corporation  
100 CertainTeed Drive  
Jonesburg, MO 63351

RE: New Source Review Permit - Project Number: 2013-07-059

Dear Mr. Hyde:

Enclosed with this letter is your permit to construct. Note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and with your operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission, whose contact information is: Administrative Hearing Commission, Truman State Office Building, Room 640, 301 W. High Street, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: [www.ao.mo.gov/ahc](http://www.ao.mo.gov/ahc).

If you have any questions regarding this permit, please contact David Little, Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp  
New Source Review Unit Chief

SH:dll

Enclosures

c: St. Louis Regional Office  
PAMS File: 2013-07-059

Permit Number: