

TECHNICAL SUPPORT DOCUMENT
For
DRAFT/PROPOSED AIR EMISSION PERMIT NO. 13900013-007

This technical support document (TSD) is intended for all parties interested in the draft/proposed permit and to meet the requirements that have been set forth by the federal and state regulations (40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp. 1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the preliminary determination to issue the draft/proposed permit.

1. General Information

1.1 Applicant and Stationary Source Location:

Table 1. Applicant and Source Address

Applicant/Address	Stationary Source/Address (SIC Code: 2952)
CertainTeed Corporation Owner Address: PO Box 860 Valley Forge, PA 19482 Operator Address: (same as stationary source)	CertainTeed Corporation Shakopee 3303 E 4th Ave Shakopee Scott County
Contact: John Kimble Phone: 952-403-6208	

1.2 Facility Description

The Shakopee Plant manufactures asphalt-roofing materials and is currently permitted to install an asphalt blowing operation.

1.3 Description of the Activities Allowed by this Permit Action

This permit action is a major amendment. The application requests several changes to the asphalt blowing operation that was originally permitted in 2006. The asphalt blowing equipment has not yet been constructed, but the Permittee has gained knowledge from an operational asphalt blowing line at another CertainTeed facility in Oxford, North Carolina. Based on the process knowledge from Oxford, the Permittee proposes the following changes:

- Installation of one new 1,000,000 gallon asphalt flux storage tanks, rather than converting the existing TK 009 to asphalt flux storage (new TKs 025).
- Increase in the capacity of pre-heat tank from 35,000 gallons to 160,000 gallons (existing in permit, but not yet built, TK 018) and installation of a pre-mix tank that is can also function as a pre-heat tank (new TK 027).

- Increase in the capacity of the blow stills (existing in permit, but not yet built, EUs 091-093). The stills can now process 50,000 gallons per batch rather than 30,000 gallons. However, annual limit on the amount of asphalt flux that can be processed in the blowstills remains unchanged.
- Installation of four railcar spurs that can accommodate unloading of 7 railcars per spur for asphalt flux unloading. Addition of emission units representing emission from asphalt flux unloading from railcars, asphalt flux unloading from trucks, and asphalt flux loading into trucks (EUs 112, 113, and 114 respectively). (See Section 3 "Technical Information" for more information.)
- Increase in capacity of thermal oxidizer from 15 MMBtu/hr to 30 MMBtu/hr (existing in permit, but not yet built, CE 047)
- Installation of an asphalt heater (new EU 111), a finished coating storage tank (TK 028), three additional tanks that qualify as insignificant activities under Minn. R. 7007.1300, and three heaters that qualify as insignificant activities under Minn. R. 7007.1300.

In addition to the changes to the asphalt blowing line, the Permittee has requested changes to emission factors and calculations methodologies for a number of permitted units (See Section 3.1 "Calculation of Potential to Emit")

The Permittee also requested the following changes:

- Removal of boilers EU 035, 036, and 110 and associated permit conditions because these units have been shut down and either removed or permanently dismantled.
- Addition of language clarifying that the requirements of 40 CFR pt. 63, subp. AAAAAAA are only valid for three years after the facility becomes a major source of hazardous air pollutants (HAPs), at which point the facility must comply with the requirements of 40 CFR pt. 63, subp. LLLLL for existing affected sources.
- Changes to emission limits for cooling section stacks (see Section 3 "Technical Information").

Additional changes made through this permit action include:

- TF Level: Addition of requirement to comply with 40 CFR pt. 63, subp. DDDDD by the appropriate compliance date (see Section 2. "National Emission Standards for Hazardous Air Pollutants" for more information).
- TF Level: Clarification of the units that are subject to the operating hour limit and addition of language allowing new, modified, or replaced units at Lines #1, #2, or #3 to be subject to the operating hour limit, and use the 8200 hr/yr limit in the calculations required by Minn. R. 7007.1200, subp. 2.
- GP 003, GP 013, GP 014: For units for which control efficiency is used to calculate potential to emit (PTE), addition of requirements to vent these units to the corresponding pieces of control equipment in order to make the control efficiencies enforceable. (E.g. requirement to vent certain units in GP 003 "Industrial Process Equipment" to fabric filters in GP 008 "Fabric Filter

Requirements”, requirement to vent EUs 071 and 072 (of GP 003) to the thermal oxidizer CE 004 upon startup of the GP 015 asphalt blowing operation, requirement to vent certain units in GP 013 “Postmodification Permit 002 NSPS Subject Units” to fabric filters in GP 008 “Fabric Filter Requirements” or the thermal oxidizer CE 004, and requirements to vent units in GP014 “Line 1 and 2 Saturators” to the thermal oxidizer CE 004, etc.). These are Title I conditions because the control efficiency is claimed in order to maintain the PTE of these units below major source thresholds.

- GP 008: Addition of particulate matter less than 2.5 microns ($PM_{2.5}$) control efficiency limit to ensure that the facility may take credit for control of $PM_{2.5}$ in calculations of PTE from the units that vent to the fabric filters in GP 008. Addition of periodic inspection and corrective action requirements to GP008; these are standard requirements for fabric filters in permits issued by the Minnesota Pollution Control Agency (MPCA).
- GP 011: Addition of applicable recordkeeping requirements from Minnesota Standards for Storage Vessels. Requirements organized by tanks size. Addition of alternative method of determining vapor pressure from asphalt storage tanks (See Section 3 “Technical Information”). Removal of NSPS UU Requirements for TK 009 of GP 011 (TK 009 was originally permitted to be converted from a No. 6 fuel oil tank to an asphalt flux storage tank. That permit action no longer authorizes that conversion and therefore NSPS subp. UU does not apply to TK 009). Clarification of when and how 40 CFR pt. 63, subp. LLLLL requirements apply.
- GP 012: Addition of requirement at GP 012 “Premodification Permit 002 NSPS Units” indicating that 3 years after the startup of the GP 015 asphalt blowing line, these units only have to comply with the requirements of 40 CFR pt. 63, subp. LLLLL.
- GP 014, EU 043, and CE 004: Addition of requirements indicating that the units are subject to 40 CFR pt. 63, subp. LLLLL 3 years after startup of the GP 015 blowing operation and that upon compliance with 40 CFR pt. 63, subp. LLLLL, the Permittee is no longer required to comply with 40 CFR pt. 63, subp. AAAAAAA for these units.
- GP 015: Moved requirements that apply only to CE 047 from GP 015 to CE 047. Added additional standard pollution control equipment requirements to CE 047.
- GP 019: Addition of GP019 “Mist Eliminators” for standard pollution control requirements for the mist eliminators controlling portions of the asphalt blowing operation
- GP 020: Addition of GP 020 for asphalt flux rail and truck loading and truck unloading (EUs 112-114)
- EU 088: Addition of paint usage limit and associated monitoring and recordkeeping requirements.

1.4. Facility Emissions:

Table 2. Title I Emissions Increase Summary

Pollutant	Limited Potential Emissions from Modification ** (tpy)	NSR/112(g) Threshold for New Major Source (tpy)	NSR Review Required? (Yes/No)
PM	22.5	250	No
PM ₁₀	35.6	250	No
PM _{2.5}	32.5	250	No
NO _x	25.6	250	No
SO ₂	86.1	250	No
CO	107	250	No
Ozone (VOC)	57.6	250	No
CO ₂ e*	23,000	100,000	No

*Carbon dioxide equivalents as defined in Minn. R. 7007.0100.

**Much of the change in potential emissions is due to changes in emission factors for the blowstills. Because the short-term capacity of the blowstills is modified through this permit action, the Title I calculation only reflect the new blowstill PTE rather than a net emissions increase. The PTE of the blowstills decreases or stays the same for all pollutants except CO.

Table 3. Total Facility Potential to Emit Summary

	PM tpy	PM₁₀ tpy	PM_{2.5} tpy	SO₂ tpy	NO_x tpy	CO tpy	CO₂e Tpy	VOC tpy	All HAPs tpy
Total Facility Limited PTE w/out Fugitives*	173.2	177.9	177.9	123.1	103	196	111,775	150.5	103.4
Total Facility Limited PTE w/ Fugitives	311.9	216.9	219.9	123.1	103	196	111,775	150.5	103.4
Net Emission Change through Permit Action	-12.4	-35.7	-38.8	-1.62	13.9	53.7	15,300	41.1	68.2
Total Facility Actual Emissions (2011)	94	166.2	166.2	31.8	10.8	30.6	**	31.6	**

*Per 40 CFR §52.21(b)(1)(iii) the Permittee is not required to include fugitives when determining its major sources status under the PSD Program

** Not reported in MN emission inventory.

Table 4. Facility Classification

Classification	Major/Affected Source	Synthetic Minor/Area	Minor/Area
PSD		X	
Part 70 Permit Program	X		
Part 63 NESHAP	X*		

*This permit authorizes the construction and operation of units that will make the facility a major source of HAPs. However, until startup of the GP 015 blowing operation, the facility is an area source under 40 CFR pt. 63.

2. Regulatory and/or Statutory Basis

New Source Review (NSR)

The facility has accepted limits, such that the facility's PTE remains below the major source threshold of 40 CFR Section 52.21

The existing facility has a PTE of approximately 96,000 tpy of CO₂e (including insignificant activities), and the proposed increase in CO₂e due to this permit action is around 23,000 tpy CO₂e. This increase is not subject to regulation under NSR because it is less than 100,000 tpy ("subject to regulation" is defined in 40 CFR § 52.21(b)(49)).

Part 70 Permit Program

The facility is a major source under the Part 70 permit program.

New Source Performance Standards (NSPS)

Units affected by this modification are subject to the following NSPS Standards (See Table 6: "Regulatory Overview of Units Affected by this Permit Action" for more information):

NSPS subpart UU: Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacture

NSPS subpart Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Modification, or Reconstruction Commenced after July 23, 1984. This standard only applies to TK 028. TK 018 and 025-027 are exempt from the subpart per 40 CFR Section 60.110b because these tanks, based on their maximum storage temperature, have a maximum true vapor pressure less than 3.5 kPa.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The units Affected by this modification are subject to the following NESHAP Standards (See Table 6: "Regulatory Overview of Units Affected by this Permit Action" for more information):

Subpart DDDDD: NESEHAP for Industrial, Commercial, and Institutional Boilers or Process Heaters

The compliance date of this standard for facilities that become major HAP sources after the effective date of the rule is:

1. for existing boilers and process heaters, 3 years after they become major HAP sources, and

2. for new boilers and process heaters, upon startup.

CertainTeed shall be in compliance with the rule, upon these compliance dates, for new and existing equipment. The Permittee has not yet submitted an initial notification for the NESHAP; therefore, per MPCA policy the specific requirements of the NESHAP have not been incorporated into the permit. The TF level of the permit contains a requirement stating that the Permittee shall comply with the standard upon the compliance date.

When CertainTeed submits the initial notification required by this standard, if more than 3 years remain in the permit term, the MPCA has 18 months after promulgation to reopen the permit and add the conditions (Minn. R. 7007.1600, subp. 1.A.)

Units affected by this permit action that may be subject to subp. DDDDD are: the existing boilers in GP 010, the new asphalt heater, EU 111 (considered a process heater), and three new heaters (for TKs 025 and 027).

The new thermal oxidizer CE 047 is considered a waste heat boiler per 40 CFR Section 63.7575 and therefore is excluded from the definition of "boiler" under the subpart and thus is not subject to this standard.

Subpart LLLLL: NESHAP for Asphalt Processing and Asphalt Roofing Manufacturing

Subpart AAAAAAA: Area Source NESHAP for Asphalt Processing and Asphalt Roofing Manufacturing

Compliance Assurance Monitoring (CAM)

CAM applies to a pollutant-specific emissions unit a Part 70 major source if the units satisfy all of the following criteria:

- 1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof) other than an emission limitation or standard that is exempt under 40 CFR pt. 64;
- 2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and
- 3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal or greater than 100 percent of the amount in tons per year, required for a source to be classified as a major source.

CAM does not apply to the changes allowed by this permit action. Many of the affected units are uncontrolled, for the units that are controlled CAM does not apply because:

- TK 025 & EU 114: The mist eliminators are not needed to meet any applicable requirements, the uncontrolled emissions of these units are below 100 tpy (or 25/10 tpy for HAPs); therefore criteria 2 and 3 above are not satisfied.
- TK 028: Uncontrolled emissions from TK 028 are less than 100 tpy (or 25/10 tpy for HAPs); therefore criteria 3 is not satisfied.
- EUs 091-093 satisfy criteria 3, and require the thermal oxidizer CE 047 to comply with the limits of 40 CFR pt. 63, subp. 63; however, limits proposed by EPA after November 19, 1990 pursuant

to section 111 or 112 of the Clean Air Act are exempt emission limits under 40 CFR Section 64.2(b)(1)(i). Under this scenario, criteria 1 is not satisfied. The blow stills are also subject to an asphalt throughput limit, but pollution control equipment is not required to meet this limit, under this scenario, criteria 2 is not satisfied

The facility currently has no CAM requirements in the permit; however, upon reissuance of the Part 70 permit, CAM requirements shall be incorporated, as applicable, for units controlled by fabric filters GP 008.

Environmental Review & Air Emissions Risk Analysis (AERA)

The facility is not subject to environmental review and not required to conduct air dispersion modeling or an AERA. None of the activities or thresholds in mandatory Environmental Assessment Worksheet (EAW) or Environmental Impact Statement categories of Minn. R. 4410.4300 or 4410.4400 were triggered by this permit action. The project does not trigger an EAW under Minn. R. 4410.4300 subp. 10B – for construction of a facility on a single site designed for or capable of storing 1,000,000 gallons or more of hazardous materials because the net increase in storage capacity is approximately 750,000 gallons.

Minnesota State Rules

Portions of the facility are subject to the following Minnesota Standards of Performance:

- Minn. R. 7011.0510 Standards of Performance for Existing Indirect Heating Equipment
- Minn. R. 7011.0515 Standards of Performance for New Indirect Heating Equipment
- Minn. R. 7011.0610 Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment
- Minn. R. 7011.0715 Standards of Performance for Post-1969 Industrial Process Equipment
- Minn. R. 7011.2300 Standards of Performance for Stationary Internal Combustion Engines
- Minn. R. 7011.1505 Standards of Performance for Liquid Petroleum and Volatile Organic Liquid Storage Vessels

Units affected by this amendment are subject to the following Minnesota Standards of Performance:

- Minn. R. 7011.0515 Standards of Performance for New Indirect Heating Equipment
- Minn. R. 7011.1505 Standards of Performance for Liquid Petroleum and Volatile Organic Liquid Storage Vessels

Table 5. Regulatory Overview of Units Affected by the Modification/Permit Amendment

(“units affected by the modification/permit amendment” does not include units only affected by small administrative changes or changes to emission factors. These changes are included in Section 3.1 “Description of the Activities Allowed by this Permit Action”)

Level*	Applicable Regulations	Comments:
GP 002: New Indirect Heating Equipment	Title I Condition: 40 CFR §52.21 and Minn. R. 7007.3000 Minn. R. 7011.0515 40 CFR pt. 63, subp. DDDDD (requirement at TF level of permit)	Prevention of Significant Deterioration: Fuel limited to natural gas and No. 2 fuel oil only. Additional total facility fuel usage limits contained at the “TF” level to limit the source’s PTE below the major source threshold under the PSD program. Standards of Performance for New Indirect Heating Equipment: The units in this group are subject to this standard because they were constructed or modified after January of 1977. The applicable emission limits were determined based on the following criteria: 1) the facility is within the Mpls-St. Paul Air Quality Control Region; 2) the units have a rated heat capacity of < 100 MMBTU/hr each; 3) all combustion equipment on site has a total rated heat input capacity of < 250 MMBtu/hr (~180 MMBtu/hr total); and 4) the units combust liquid fuels. NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters. The Permittee will be subject to this subpart upon becoming a major source of HAPs because they “own or operate an industrial, commercial, or institutional boiler or process heater...[that will be] located at a major source of HAP”.
GP 010: Boilers	40 CFR pt. 63, subp. DDDDD (requirement at TF level of permit) Title I Condition: 40 CFR §52.21 and Minn. R. 7007.3000	NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters: The Permittee will be subject to this subpart upon becoming a major source of HAPs because they “own or operate an industrial, commercial, or institutional boiler or process heater...[that will be] located at a major source of HAP”. Under the standard, area sources that increase actual or potential emissions such that they become major sources of HAPs, have until 3 years after becoming a major source to comply with the standard. As such, specific requirements of the standard were not incorporated in to the permit at this time, with the exception of a condition that requires the Permittee to comply with the subpart upon the compliance date. See Section 2 “National Emissions Standards for Hazardous Air Pollutants” for additional information. Prevention of Significant Deterioration: Fuel limited to natural gas and No. 2 fuel oil only. Additional total facility fuel usage limits contained at the “TF” level to limit the source’s PTE below the major source threshold under the PSD program.

Level*	Applicable Regulations	Comments:
GP 011: Standards of Performance for Storage Vessels (cont'd)	40 CFR pt. 60, subp. UU; Minn. R. 7011.7940	NSPS for Asphalt Processing and Asphalt Roofing Manufacture: The tanks added with this permit action are subject to this standard because they are asphalt storage tanks at asphalt roofing plans that commenced construction or modification after 1980. However, units that comply with 40 CFR pt. 63, subp. LLLLL satisfy the requirements of 40 CFR pt. 60, subp. UU. The existing tanks in GP 011 were built prior to 1980, and therefore not subject to the NSPS standard.
GP 012: NSPS UU Storage Tanks	40 CFR pt. 60, subp. UU; Minn. R. 7011.7940	NSPS for Asphalt Processing and Asphalt Roofing Manufacture: The tanks of GP 012 are subject to this standard because they are asphalt storage tanks at asphalt roofing plans that commenced construction or modification after 1980. Three years following startup of the asphalt blowing line several units in GP 012 will be subject to the requirements of 40 CFR pt. 63, subp. LLLLL. At this time, compliance with 40 CFR pt. 63, subp. LLLLL serves as compliance with 40 CFR pt. 60, subp. UU.
GP 015: Blowstills and New Thermal Oxidizer	Title I Condition: 40 CFR §52.21 and Minn. R. 7007.3000 40 CFR pt. 60, subp. UU; Minn. R. 7011.7940 40 CFR pt. 63, subp. LLLLL; Minn. R. 7011.7940	Prevention of Significant Deterioration: Limits on blowstill usage and asphalt throughput to maintain the facility's PTE below the PSD major source thresholds. NSPS for Asphalt Processing and Asphalt Roofing Manufacture: The blowstills are subject to this standard because they are blowstills at asphalt roofing plants that commenced construction or modification after 1980. However, units that comply with 40 CFR pt. 63, subp. LLLLL satisfy the requirements of 40 CFR pt. 60, subp. UU; therefore there are no requirements associated with 40 CFR pt. 60 subp. UU in the permit for these units. NESHAP for Asphalt Processing and Asphalt Roofing Manufacturing: The facility has elected to comply with the NESHAP by achieving a combustion efficiency of 99.5% for the thermal oxidizer CE 047.
GP 016: Cooling Section Limits	Title I Condition: 40 CFR §52.21 and Minn. R. 7007.3000	Prevention of Significant Deterioration: Limits on PM, PM ₁₀ , and PM _{2.5} to maintain the facility's PTE below the PSD major source thresholds.
GP 019: Mist Eliminators	Minn. R. 7007.0800	Permit Content: General Minnesota Rule requirements governing permit provisions needed to ensure compliance with all applicable requirements and that the Agency deems necessary to protect human health and the environment. (Control from these mist eliminators is not needed in order for the facility to limit its PTE below PSD major source thresholds.)

Level*	Applicable Regulations	Comments:
GP 020: Rail Unloading and Truck Loading/Unloading	Title I Condition: 40 CFR §52.21 and Minn. R. 7007.3000 Minn. R. 711.0715	Prevention of Significant Deterioration: Limits on asphalt throughput to maintain the facility's PTE below PSD major source thresholds. Standards of Performance for Post-1969 Industrial Process Equipment. This standard applies because there is no other promulgated standard of performance that applies to these operations. Section 3 "Technical Information" explains why these activities are assigned emission unit numbers.
CE 047: Thermal Oxidizer	40 CFR pt. 63, subp. LLLLL; Minn. R. 7011.7940	NESHAP for Asphalt Processing and Asphalt Roofing Manufacturing
EU 088: Nail Line Paint Applicator	Minn. R. 7007.0800, subp. 2 and Minn. R. 7005.0100, subp. 35a	General Minnesota Rules for Permit Content and Definition of Potential to Emit. The facility has found it difficult to meaningfully define a maximum emission rate for this piece of equipment; as such the Permittee has elected to take a limit on paint usage at EU 088 to essentially "define" the maximum emission rate from this piece of equipment. The limit on paint usage from this unit is not cited as a Title I Condition because the limit is not needed to remain below the 250 tpy VOC threshold.
TK 028	40 CFR pt. 60 subp. Kb & Minn. R. 7011.1520 40 CFR pt. 60, subp. UU; Minn. R. 7011.7940 Title I Condition: 40 CFR §52.21 and Minn. R. 7007.3000	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced after July 28, 1984: This standard is applicable because <ul style="list-style-type: none"> - The tank stores a petroleum liquid - Has a capacity greater than 151 m³ and a vapor pressure greater than 3.5 kPa (actual capacity ~340 m³ and vapor pressure ~5.3 kPa) NSPS for Asphalt Processing and Asphalt Roofing Manufacture: The tank is subject to this standard it is an asphalt storage tank at an asphalt roofing plants that commenced construction or modification after 1980. Prevention of Significant Deterioration: limits on asphalt throughput of maintain the source's PTE below the major source threshold under the PSD program

*Where the requirement appears in the permit (e.g., EU, SV, GP, etc.).

3. Technical Information

Cooling Section Limits

The PM and PM₁₀ emission limits for the cooling section stacks were originally calculated based on performance testing of similar stacks at an asphalt roofing plant in Ohio. CertainTeed has since conducted testing on one of the cooling section stacks (SV 052) and found that emissions at the Shakopee facility are lower than those at the Ohio facility, and that the limited PM/PM₁₀ PTE of these units was overestimated. Therefore, CertainTeed wishes to lower the safety factor applied to the tested rate for all the cooling section emission limits from 2.36 times the tested rate to 2 times the tested rate. Given the similarity between the exhaust points and that safety factor of 2 still provides an ample margin of compliance between the tested rates and the emissions limits it is reasonable to lower all cooling section limits.

Asphalt Flux Loading and Unloading

With this permit action, the Permittee is adding asphalt flux unloading from railcar and loading and unloading from trucks. The facility proposed that these activities be considered fugitives emissions sources. Under Minn. R. 7005.0100, subp. 11c, fugitive emissions are defined as "pollutant discharges that could not reasonably pass through a stack, chimney, or other functionally equivalent opening." Because there are a reasonable number of discrete locations where evaporative emissions are occurring from these activities (e.g. vents in the railcars) these activities were assigned an EU number rather than an FS number. The effect on the permit is minimal--the activities are not subject to Minnesota's general requirements for preventing fugitive dust from becoming airborne, these activities are subject to the Industrial Process Equipment Rule. However, fugitive dust from additional trucks used for the loading/unloading activities are still subject to the fugitive dust requirements of GP 017.

Vapor Pressure of Asphalt Storage Tanks

For the purposes of determining the applicability of both 40 CFR pt. 60 subp. Kb and Minn. R. 7011.1505 the true vapor pressure of the material in the storage tanks must be determined. According to the Asphalt Technology Laboratory at Owens Corning, information on asphalt vapor pressure as a function of temperature is not readily available and its measurement is not common. However, an Owens Corning study for determining the vapor pressure of asphalt based on storage temperature was conducted for the asphalt industry. (Trumbore, David C., Winter 1999. Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading. Environmental Progress, Vol. 18 No. 4, 250-259). This study was conducted specifically to estimate air emissions from asphalt storage tanks and the data were used by the Environmental Protection Agency (EPA) for developing the Asphalt Processing and Asphalt Roofing Manufacturing NESHAP. The study details options developed by the Asphalt Technology Laboratory at Owens Corning for estimating emissions from asphalt storage tanks, and includes a vapor pressure correlation to temperature for several types of asphalts. This study was also referenced in a second study by the Asphalt Technology Laboratory at Owens Corning for asphalt-related emissions in which CertainTeed participated. (Trumbore, David C., October 2005. Emission Factors for Asphalt-Related Emissions in Roofing Manufacturing. Environmental Progress, Vol. 24 No. 3, 268-278).

The Owens Corning study shows that a storage temperature of 500°F represents a vapor pressure of 10.4 kPa (78 mmHg). The following is an excerpt from the Federal Register final rule that is applicable for CertainTeed: "According to industry representatives, asphalt flux reaches 10.4 kPa at approximately 500 to 550 °F (oxidized asphalt would require higher temperatures to reach 10.4 kPa). The temperature estimate cited by the industry representatives was confirmed on a theoretical level using a regression equation for asphalt vapor pressure as a function of temperature, developed by the Owens Corning Company using a modified version of the American Society of Testing and Materials (ASTM) method D2879 (Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope). According to the regression equation, asphalt flux reaches a vapor pressure of 10.4 kPa at approximately 450 °F. Since the regression equation, which underpredicts the temperature at which asphalt flux reaches a given vapor pressure (according to industry and EPA representatives), tends to corroborate the storage temperature cited by the industry representatives, the EPA believes that a storage temperature of 500 °F appropriately represents a vapor pressure of 10.4 kPa."

CertainTeed has stated that the temperatures of the asphalt flux stored in their asphalt flux tanks (TK 018, TK025, and TK027) are all maintained at less than 500°F through storage tank temperature monitoring. All of the tanks will be equipped with temperature probes and will be connected to the facility's control system for providing heat to the tanks. Therefore, these tanks are not subject to NSPS subp. Kb and are only subject to monitoring and recordkeeping requirements of Minn. R. 7011.1510. The finished coating storage tank (TK 028) will generally be stored at a higher temperature and therefore has a higher maximum vapor pressure. Consequently, it is subject to NSPS subp. Kb, and will be vented to the thermal oxidizer CE 004.

Minn. R. 7011.1505 requires the Permittee to calculate vapor pressure using the methods outlined in American Petroleum Institute Bulletin 2517. As an alternative, the Permittee may use the methods outlined in "Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading." Environmental Progress, Vol. 18 No. 4, 250-259. This document is Appendix B to the permit.

3.1 Calculations of Potential to Emit

Attachment 1 to the TSD contains detailed spreadsheets and supporting information prepared by the MPCA and the Permittee. The text of the spreadsheets documents all assumptions and supporting information associated with the PTE calculations. Section 3.1 provides an overview of the calculation methods.

For all units and activities associated with the asphalt blowing operation, the short term PTE is based on maximum hourly throughput, whereas the annual PTE is based on the throughput limit of 200,000 tons asphalt/yr.

Asphalt Flux Tank and Blowstill Emission Factors

With this permit action, the Permittee has revised emission factors and for the blowstills and asphalt flux tanks to be consistent with CertainTeed's Oxford facility. The Oxford facility is representative of the proposed operations at the Shakopee facility because the Oxford facility operates a blowing operation using a ferric chloride catalyst. Many of the updated emissions factors are based on data pooled from a series of performance tests conducted across the country at asphalt roofing plants and conducted by EPA and the American Roofing Manufacturers Association (ARMA). All tests used to generate the emission factors were conducted with a test protocol approved by either EPA or the State's environmental agency.

The MPCA finds it reasonable to allow CertainTeed to use alternative emission factors based on sources other than AP-42 because the factors are based on EPA-approved performance tests (used in the creation of the MACT standard for asphalt roofing operations) and the quality of the data and the data evaluation used to determine the emission factors is similar to the procedures used by EPA in setting AP-42 factors. Additionally, the "Emission Factor Documentation for AP-42 Section 11.2 Asphalt Roofing Final Report" indicates that many of the emission factors applicable to the operations at CertainTeed are based off of testing at one facility. Many of the relevant AP-42 factors are given a rating of "D- Below Average" or "E – poor". CertainTeed has also applied a safety factor of 1.5 to the pooled data factors to ensure that they have provided a conservative estimate of potential emissions. The pooled -data also assumes that any "non-detects" were emitted at the detection level of the instrument.

Railcar Unloading

Asphalt Flux will be unloading from railcars into the asphalt flux storage tanks. The railcars must be heated in order for the asphalt flux to be unloaded. Emissions from this process result from the heating of the asphalt flux, and enter the atmosphere through rail car vents. PM10 and PM2.5 emissions from this process were estimated using the U.S. Air Force method per Appendix B of the Handbook of Chemical Hazard analysis Procedures. VOC, CO, and HAPs emissions were estimate using a study conducted by ARMA to determine a lb pollutant/lb PM emission factor.

Truck Loading/Unloading

Emissions from the truck loading and unloading activities were calculated based on AP-42 emission factors 5.2 for Transportation and Marketing of Petroleum Liquids (Section 5.2).

Paved Road Emissions

With this permit action, CertainTeed is revising their fugitive road emissions based on changes to EPA's AP-42 emissions factors for fugitive emissions from paved roads (Section 13.2.1, updated January 2011) as well as updated worst case estimates of vehicle miles traveled and mean vehicle weight. Additionally, a previously unpaved road section (staging) was updated since the last time the fugitive road dust emissions were updated. This permit actin takes into account that this section is now paved.

3.3 Periodic Monitoring

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements.

In evaluating the monitoring included in the permit, the MPCA considered the following:

- The likelihood of the facility violating the applicable requirements;
- Whether add-on controls are necessary to meet the emission limits;
- The variability of emissions over time;
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- The technical and economic feasibility of possible periodic monitoring methods; and
- The kind of monitoring found on similar units elsewhere.

The table below summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

Table 6. Periodic Monitoring for Units Affected by this Permit Action

("units affected by the modification/permit amendment" does not include units only affected by small administrative changes or changes emission factors. These changes are described in Section 3.1 "Description of the Activities Allowed by this Permit Action")

Level*	Requirement (rule basis)	Additional Monitoring	Discussion
GP 002: New Indirect Heating Equip.	Fuel Limited to Natural Gas and No. 2 Fuel Oil (Title I Condition 40 CFR § 52.21 & Minn. R. 7007.3000) PM ≤ 0.40 lb/MMBtu SO ₂ ≤ 2.0 lb/MMBtu Opacity ≤ 20% (Minn. R. 7011.0515)	Recordkeeping of fuel usage (fuel oil certification and 12-month rolling sum calculations for total facility No. 2 fuel oil combustion at TF level of permit)	All units use natural gas with No. 2 fuel oil as a backup; therefore, the likelihood of violating the emission limits is very small (the PTE of the units based on AP-42 factor s for No. 2 fuel oil combustion are 0.024 lb PM/MMBtu and 0.05 lb SO ₂ /MMBtu). The Permittee can demonstrate that these units will continue to operate such that emissions are well below the emission limits by only burning natural gas or No. 2 fuel oil certified to the sulfur content specifications required by the permit. Since these are permit conditions, the semi-annual deviations report will document any deviations from this condition.
GP 010: Boilers	Fuel Limited to Natural Gas and No. 2 Fuel Oil; Sulfur fuel content ≤0.05 wt % (Title I Condition 40 CFR § 52.21 & Minn. R. 7007.3000) Sulfur fuel content ≤0.05 wt % SO ₂ ≤ 0.50 lb/MMBtu	Daily recordkeeping of fuel usage (12-month rolling sum calculations for total facility No. 2 fuel oil combustion at TF level of permit); Fuel oil certification	All units use natural gas with No. 2 fuel oil as a backup; therefore, the likelihood of violating the emission limits is small (the PTE of the units based on AP-42 factor s for No. 2 fuel oil combustion are 0.024 lb PM/MMBtu and 0.05 lb SO ₂ /MMBtu). The Permittee can demonstrate that these units will continue to operate such that emissions are well below the emission limits by only burning natural gas or No. 2 fuel oil certified to the sulfur content specifications required by the permit. Since these are

Level*	Requirement (rule basis)	Additional Monitoring	Discussion
	(40 CFR pt. 60 subp. Dc & Minn. R. 7011.0570)		permit conditions, the semi-annual deviations report will document any deviations from this condition.
GP 011: Standards of Perform. for Storage Vessels	Opacity \leq 0% with exceptions (40 CFR pt. 63, subp. LLLLL & Minn. R. 7011.7940)	No additional monitoring. Monitoring required by rules: Records of vapor pressure and storage temperature; periodic performance testing	The monitoring required by the NESHAP and Minnesota standards of performance is adequate to provide a reasonable assurance of compliance with the emission limit.
	Asphalt Throughput \leq 200,000 tpy (Title I Condition 40 CFR § 52.21 & Minn. R. 7007.3000)	Additional Monitoring at GP 015	Recordkeeping of the asphalt inventory in TKs 025, 027, and 018 is required at GP 015.
GP 015: Blow Stills and New Thermal Oxidizer	Asphalt blowing \leq 200,000 tpy (12-month rolling sum) (Title I Condition 40 CFR § 52.21 & Minn. R. 7007.3000)	Daily records of tons of asphalt blown, 12-month rolling sum calculation, records of startup and shutdown of each still	
GP 016: Cooling Section Limits	PM/PM ₁₀ /PM _{2.5} \leq various lb/hr (Title I Condition 40 CFR § 52.21 & Minn. R. 7007.3000)	Visible emission checks, recordkeeping of visible emission checks, corrective actions, and periodic performance testing	
GP 019: Mist Elimin.	PM/PM ₁₀ /PM _{2.5} Control Efficiency \geq 90 % Pressure Drop limit: TBD (based on manufacturer's specifications) (Minn. R. 7007.0800, subp. 2)	Daily recordkeeping of pressure drop, periodic inspections, corrective actions, O&M Plan	Monitoring based on the Minnesota Performance Standard for Control Equipment is adequate to have a reasonable assurance of compliance. Because the control equipment is not needed to limit PTE below major source thresholds or to meet any limits from 40 CFR pt. 60 or pt. 63, it is reasonable to allow the Permittee to base the pressure drop range off of the manufacturer's specification rather than require that the range be established through an initial performance test.
GP 020	Throughput \leq 200,000	Recordkeeping and	Records and 12-month rolling sum calculations of the

Level*	Requirement (rule basis)	Additional Monitoring	Discussion
Rail Unloading and Truck Loading/ Unloading	tons asphalt (Title I Condition 40 CFR § 52.21 & Minn. R. 7007.3000)	12-month rolling sum calculations (at GP 015)	amount of asphalt loaded and unloaded is required by GP 015.
	PM ≤ 0.30 gr/DSCF Opacity ≤ 20% (Minn. R. 7011.0715)	Monitoring associated with mist eliminators (GP 019)	Monitoring associated with the mist eliminators at GP 019 provides a reasonable assurance of compliance with the rules PM and opacity limit
CE 047: Thermal Oxidizer	Temperature > TBD based on performance test Combustion efficiency ≥ 95% or total hydrocarbons ≤ 20 ppmvd @ 3% Oxygen (40 CFR pt. 63, subp. LLLLL)	No additional monitoring	Monitoring associated with NESHAP LLLLL is sufficient to ensure compliance with the rule limit
	Fuel limit to Natural Gas and No. 2 Fuel oil (Title I Condition 40 CFR § 52.21 & Minn. R. 7007.3000)	Records of No. 2 fuel oil usage, 12-month rolling sum calculations; sulfur content requirements all at TF level	
TK 028: Finished Coating Storage Tank	Opacity ≤ 0 % with exceptions (40 CFR pt. 60 subp. UU & Minn. R. 7011.0950) Vent to a control device with VOC control efficiency ≥ 95% (40 CFR pt. 60, subp. Kb & Minn. R. 7911.1520	No additional monitoring needed. Rule based monitoring: records of vessel dimension, temperature, and vapor pressure; control equipment monitoring, recordkeeping and reporting	Monitoring associated with NSPS UU and NSPS Kb, as well as the monitoring associated with CE 004 is sufficient to ensure compliance with the applicable rule limit
EU 088: Nail Line Paint Applicator	Paint Usage ≤ 35,000 gal/yr (12-mo. rolling sum) (Minn. R. 7007.0800, subp. 2 and Minn. R. 7005.0100, subp. 35a	Monthly Purchase records, 12-month rolling sum calculations, ongoing MSDS records.	The Permittee has a large margin of compliance between the total facility VOC PTE (tpy) and the PSD major source threshold of 250 tpy. As such, it is reasonable to allow the Permittee to base its 12-month rolling sum calculations on monthly purchase records rather than daily records. It should also be noted that the paint limit is not a Title I condition

Level*	Requirement (rule basis)	Additional Monitoring	Discussion
			because the limit itself is not needed to remain below the major source thresholds for PSD, but rather is employed to better define an annual PTE from the unit, which the Permittee has stated is difficult to define based on the equipment characteristics.

*Where the requirement appears in the permit (e.g., EU, SV, GP, etc.).

3.4 Insignificant Activities

CertainTeed has several operations which are classified as insignificant activities under the MPCA's permitting rules. These are listed in Appendix I to the permit. Table 8 below lists the insignificant activities required to be listed that are added with this permit action.

The permit is required to include periodic monitoring for all emissions units, including insignificant activities, per EPA guidance. The insignificant activities at this Facility are only subject to general applicable requirements. Using the criteria outlined earlier in this TSD, the following table documents the justification why no additional periodic monitoring is necessary for the current insignificant activities. See Attachment 1 of this TSD for PTE information for the insignificant activities.

Table 7. Insignificant Activities added by this Permit Action

Insignificant Activity	General Applicable Emission limit	Discussion
Minn. R. 7007.1300, subp 3(I): Individual units with potential emissions less than 1) 2000 lb/year NO _x , SO ₂ , PM, PM ₁₀ , VOC, and ozone; 2) 4,000 lb/yr CO 3) 1,000 tons/yr CO ₂ e	Tanks: PM, variable depending on airflow Opacity ≤ 20% (with exceptions) (Minn. R. 7011.0715) And Heaters: PM ≤ 0.40 lb/MMBtu, SO ₂ ≤ 2.0 lb/MMBtu, Opacity ≤ 20% (Minn. R. 7011.0515)	The Permittee is installing a ferric chloride storage tank, a ferric chloride use tank, and 3 natural gas fired heaters for TK 025 and 028 that qualify under this subpart. The Permittee has quantified the emissions from these units. Based on the PTE of these units it is highly unlikely that the units could violate the applicable requirements.

3.5 Permit Organization

In general, the permit meets the MPCA Delta Guidance for ordering and grouping of requirements. One area where this permit deviates slightly from Delta guidance is in the use of appendices. While appendices are fully enforceable parts of the permit, in general, any requirement that the MPCA thinks should be electronically tracked (e.g., limits, submittals, etc.), should be in Table A or B of the permit. The main reason is that the appendices are word processing sections and are not part of the electronic tracking system. Violation of the appendices can be enforced, but the computer system will not automatically generate the necessary enforcement notices or documents. Staff must generate these.

Two-stage Issuance:

The Minnesota permitting rules (Minn. R. 7007.0750, subp. 7) allow the MPCA to separate the issuance of the construction provisions from the operation provisions of a permit. This approach allows a Permittee to commence construction after the completion of the 30-day public comment period, but prior to the completion of EPA's 45-day review period required by Part 70. Minn. R. 7007.0750, subp. 7 indicates that amendments to Part 70 permits that authorize construction or modification and include enforceable limitation(s) assumed to avoid being subject to the New Source Review program under part C or D of the act are eligible for two-stage issuance. This permit is eligible for 2-stage issuance because it is a major amendment to a Part 70 permit that authorizes the construction of an asphalt blowing line and associated tanks and units. All units authorized by this permit action are subject to a limit on asphalt throughput that are Title I conditions assumed to avoid classification as a major source under the PSD program. Therefore, the construction and installation of the asphalt blowing operation and associated tanks and units (EUs 091-093, 111-114, TKs 018, 025-028, and CE 047) can be authorized after the 30-day public notice. Conditions that will be issued after the 30-day comment period, but prior to the completion of the EPA 45-day review period are marked with "[Stage I]" in the citation field. Examples of Stage 1 conditions include emission/operation limits and requirements to demonstrate initial compliance. In this draft/proposed permit, many Stage 1 conditions are identified as Title I Conditions to avoid classification as a major modification and can be found at GP 011, 015, 020, CE 047, and TK 028.

3.6 Comments Received

The MPCA plans to issue this draft/proposed permit under the provisions of Minn. R. 7007.0750, subp. 7. This rule allows the MPCA to issue permits in two stages. The requirements issued in the first stage – the Stage 1 conditions – are the portions of the draft/proposed permit that relate to the construction activities authorized by the draft/proposed permit.

During the public comment period and prior to final permit issuance, the Stage 1 conditions are denoted in the permit by "[Stage 1]." These designations will be removed in Stage 2 (final) permit issuance.

Any comments received on the draft/proposed permit will be addressed and added to this TSD after the public notice period and EPA review period.

4. Permit Fee Assessment

Attachment 3 to this TSD contains the MPCA's assessment of Application and Additional Points used to determine the permit application fee for this permit action as required by Minn. R. 7002.0019. The additional points charged based on this permit action are as follows

- 1) This permit includes the incorporation of two NSPS Standards - 40 CFR pt. 60, subp. Kb at TK 028 and 40 CFR pt. 60, subp. UU at TK 028. Other units added by this permit action are subject to 40 CFR pt. 60, subp. UU, but the requirements were either already contained in the permit for these units or the equipment was not subject to any requirements despite being an affected facility under the rule.
- 2) The permit incorporates one NESHAP standard - 40 CFR pt. 63, subp. LLLLLL requirements for TKs 018 and 025-027. The facility is also subject to 40 CFR pt. 63, subp. DDDDDD upon becoming a major

source of HAPs; however, the only requirement added for this standard was a condition requiring the Permittee to determine the applicability of the standard to their facility and comply by the appropriate compliance date. Additionally, per MPCA guidance, the Permittee is not charged for newly promulgated standards that are applicable to the facility, therefore the facility is not charged for NESHAP subp. DDDDD

5. Conclusion

Based on the information provided by CertainTeed, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 13900013-007 and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Kelsey Suddard (permit writer/engineer)
 Brent Rohne (enforcement)
 Jim Kolar (stack testing)
 Marshall Cole (peer reviewer)

AQ File No. 49; DQ 4209

Attachments: 1. PTE Summary and Calculation Spreadsheets
 2. CD-01 Forms
 3. Points Calculator

Attachment 1:

PTE Summary and Calculation Spreadsheets

PROJECT: Stack/Vent Information CertainTeed Shakopee
TITLE: STACK LIST

SV No.	Stack Name	Emission Rates															
		TSP	PM ₁₀ /PM _{2.5}	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e	TSP	PM ₁₀ /PM _{2.5}	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e
		Hourly Maximum Emissions (lb/hr)								Annual Potential Emissions (tpy)							
004	Regenerative Thermal Oxidizer Stack ¹	7.82	7.82	7.27	0.65	2.41	5.88	0.15	655	34.25	34.25	29.82	2.86	10.05	25.75	0.64	2,870
005	Born Asphalt Heater No. 1	0.02	0.02	0.00	0.33	0.23	0.02	0.01	328	0.09	0.09	0.01	1.43	1.01	0.07	0.02	1,435
006	Born Asphalt Heater No. 2	0.11	0.11	0.01	1.67	1.18	0.08	0.03	1,673	0.47	0.47	0.04	7.30	5.16	0.34	0.12	7,328
007	Born Asphalt Heater No. 3	0.11	0.11	0.01	1.67	1.18	0.08	0.03	1,673	0.47	0.47	0.04	7.30	5.16	0.34	0.12	7,328
008	Line #1 Hot Oil Heater	0.05	0.05	0.00	0.72	0.51	0.03	0.01	725	0.20	0.20	0.02	3.17	2.24	0.15	0.05	3,177
009	Line #2 Hot Oil Heater	0.03	0.03	0.00	0.52	0.37	0.02	0.01	527	0.15	0.15	0.01	2.30	1.62	0.11	0.04	2,306
011	Line #1 Back Surfacers Use Bin & Transfer System	0.10	0.10	0.00	0.00	0.00	0.00	0.00	-	0.42	0.42	0.00	0.00	0.00	0.00	0.00	-
013	Line #1 Surfacing Section Dust Collector	1.87	1.87	0.05	0.00	0.24	0.50	0.13	-	7.66	7.66	0.19	0.00	0.97	2.05	0.54	-
014	Modified Asphalt Hot Oil Heater #3	0.03	0.03	0.00	0.50	0.35	0.02	0.01	503	0.14	0.14	0.01	2.20	1.55	0.10	0.03	2,204
017	Backsurfacers Silo Dust Collector #1	0.21	0.21	0.00	0.00	0.00	0.00	0.00	-	0.84	0.84	0.00	0.00	0.00	0.00	0.00	-
018	Backsurfacers Silo Dust Collector #2	0.04	0.04	0.00	0.00	0.00	0.00	0.00	-	0.18	0.18	0.00	0.00	0.00	0.00	0.00	-
019	Line #2 Surfacing Section Dust Collector	0.83	0.83	0.04	0.00	0.21	0.44	0.12	-	3.39	3.39	0.17	0.00	0.86	1.81	0.48	-
020	Line #2 Back Surfacers Use Bin & Transfer System	0.04	0.04	0.00	0.00	0.00	0.00	0.00	-	0.16	0.16	0.00	0.00	0.00	0.00	0.00	-
022	Line #2 Filler Heater Dust Collector	0.15	0.15	0.00	0.00	0.00	0.00	0.00	-	0.63	0.63	0.00	0.00	0.00	0.00	0.00	-
037	Emergency Generator	0.23	0.23	0.12	7.36	1.96	0.21	0.00	376	0.06	0.06	0.03	1.84	0.49	0.05	0.00	94
040	Dust Collector DC-1 - Filler Silo #1	0.33	0.33	0.00	0.00	0.00	0.00	0.00	-	1.34	1.34	0.00	0.00	0.00	0.00	0.00	-
041	Dust Collector DC-2 - Filler Silo #2	0.33	0.33	0.00	0.00	0.00	0.00	0.00	-	1.34	1.34	0.00	0.00	0.00	0.00	0.00	-
042	Dust Collector DC-3 - Line #3 filler Use Bin	0.23	0.23	0.00	0.00	0.00	0.00	0.00	-	0.95	0.95	0.00	0.00	0.00	0.00	0.00	-
043	Dust Collector DC-8 - Line #3 Backsurfacers Use Bin	0.03	0.03	0.00	0.00	0.00	0.00	0.00	-	0.12	0.12	0.00	0.00	0.00	0.00	0.00	-
044	Dust Collector DC-7 - Line #3 Surfacing Section, Line #3 Dry Mat Looper, Headlap Silo, Mat Preheater	2.57	2.57	0.07	0.13	0.44	0.69	0.18	168	10.54	10.54	0.27	0.57	1.85	2.85	0.76	738
045	Dust Collector DC-4 - Line #3 Filler Heater	0.59	0.59	0.00	0.00	0.00	0.00	0.00	-	2.42	2.42	0.00	0.00	0.00	0.00	0.00	-
046	Dust Collector DC-11 - Replacement Filter for Line #1 and #2 Filler Use Bin	0.23	0.23	0.00	0.00	0.00	0.00	0.00	-	0.95	0.95	0.00	0.00	0.00	0.00	0.00	-
047	EF3A Exhaust Fan Vent ²	2.47	2.47	0.12	0.03	0.62	1.47	0.33	38	10.13	10.13	0.48	0.13	2.53	6.10	1.34	166
048	EF3B Exhaust Fan Vent ²	2.00	2.00	0.06	0.03	0.33	0.87	0.16	38	8.22	8.22	0.25	0.13	1.37	3.63	0.65	166
049	EF37 Exhaust Fan Vent ²	1.59	1.59	0.08	0.03	0.45	1.11	0.23	38	6.51	6.51	0.34	0.13	1.83	4.61	0.95	166
050	EF38 Exhaust Fan Vent ²	1.29	1.29	0.04	0.03	0.24	0.68	0.11	38	5.28	5.28	0.18	0.13	1.01	2.86	0.45	166
051	CS1 Exhaust Fan Vent ²	2.77	2.77	0.15	0.03	0.76	1.78	0.42	38	11.37	11.37	0.60	0.13	3.12	7.35	1.72	166
052	CS2 Exhaust Fan Vent ²	2.25	2.25	0.15	0.03	0.41	1.03	0.20	38	9.23	9.23	0.60	0.13	1.68	4.29	0.83	166
053	Line #3 Hot Oil Heater	0.10	0.10	0.01	1.49	1.05	0.07	0.02	1,492	0.42	0.416	0.03	6.51	4.60	0.30	0.10	6,534
056	Asphalt Heater No. 4	0.03	0.03	0.00	0.52	0.37	0.02	0.01	527	0.15	0.15	0.01	2.30	1.62	0.11	0.04	2,306

PROJECT: Stack/Vent Information CertainTeed Shakopee
TITLE: STACK LIST

SV No.	Stack Name	Emission Rates															
		TSP	PM ₁₀ /PM _{2.5}	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e	TSP	PM ₁₀ /PM _{2.5}	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e
		Hourly Maximum Emissions (lb/hr)								Annual Potential Emissions (tpy)							
057	Cooling Tower	1.23	1.23	0.00	0.00	0.00	0.00	0.00	-	5.39	5.39	0.00	0.00	0.00	0.00	0.00	-
058	New Thermal Oxidizer ³	4.74	4.74	19.65	4.11	23.50	10.26	20.88	3,510	19.66	19.66	86.08	17.99	102.68	44.17	91.46	15,374
060	Cooling Section Line #2 Stack 3 ²	0.66	0.66	0.03	0.03	0.16	0.50	0.07	38	2.70	2.70	0.11	0.13	0.67	2.13	0.27	166
061	Cooling Section Line #2 Stack 4 ²	0.98	0.98	0.03	0.03	0.15	0.49	0.06	38	4.01	4.01	0.10	0.13	0.63	2.06	0.24	166
062	Cooling Section Line #3 Stack 3 ²	1.14	1.14	0.05	0.03	0.26	0.72	0.12	38	4.67	4.67	0.19	0.13	1.08	3.01	0.49	166
063	Cooling Section Line #3 Stack 4 ²	1.70	1.70	0.04	0.03	0.25	0.69	0.11	38	6.96	6.96	0.18	0.13	1.02	2.88	0.45	166
064	Cooling Section Line #3 Stack 5 ²	0.88	0.88	0.03	0.03	0.19	0.57	0.08	38	3.59	3.59	0.14	0.13	0.79	2.40	0.33	166
065	Steam Boilers	0.96	0.96	2.07	4.00	3.36	0.22	0.08	11,455	2.28	2.277	3.041	17.530	14.725	0.964	0.331	23,651
066	Asphalt Heater #5	5.52E-05	5.52E-05	4.36E-06	8.64E-04	6.10E-04	4.00E-05	1.37E-05	1,734	0.48	0.48	0.04	7.57	5.35	0.35	0.12	7,595
SI 029-037	MUA Units	1.96E-04	1.96E-04	1.55E-05	2.36E-03	2.17E-03	1.42E-04	4.88E-05	6,167	1.720	1.720	0.136	20.704	19.011	1.245	0.427	27,010
EU 071/072	Line #1/2 Windseal Applicator Pre Group 15 ⁴	5.05	5.05	0.00	0.00	0.02	0.06	1.42E-03	-	20.70	20.70	0.00	0.00	0.09	0.25	0.01	-
EU 071/072	Line #1/2 Windseal Applicator Post Group 15 ⁴	0.50	0.50	0.00	0.00	0.00	0.01	1.42E-04	-	2.07	2.07	0.00	0.00	8.79E-03	0.03	0.00	-
TK 018	Preheat Tank ^{5,8}	-	0.66	-	-	5.96E-03	0.04	1.55E-03	-	-	1.58	-	-	1.42E-02	0.09	3.69E-03	-
TK025	Asphalt Flux Storage Tank #1 ⁸	-	0.33	-	-	2.98E-03	0.02	7.74E-04	-	-	0.79	-	-	7.10E-03	0.05	1.84E-03	-
TK027	Premix Tank ⁸	-	0.66	-	-	5.96E-03	0.04	1.55E-03	-	-	1.58	-	-	1.42E-02	0.09	3.69E-03	-
TK028	Finished Coating Tank	0.66	0.66	-	-	1.50E-02	3.11	3.87E-02	-	1.58	1.58	-	-	3.57E-02	7.39	9.20E-02	-
TK001- TK007, TK011	Asphalt Storage - Uncontrolled ^{6,7}	0.00	0.00	0.00	0.00	0.14	2.37	0.05	-	-	0.00	0.00	0.00	1.25	20.76	0.24	-
FS001-007	Fugitive Road Emissions Post Group 15	20.73	4.15	-	-	-	-	-	-	90.80	18.16	-	-	-	-	-	-
FS001-007	Fugitive Road Emissions Pre Group 15	30.30	6.06	-	-	-	-	-	-	132.70	26.54	-	-	-	-	-	-
FS 008	Railcar Heating	-	9.47	-	-	8.53E-03	0.06	2.22E-03	-	-	12.45	-	-	1.12E-02	0.07	2.91E-03	-
FS 009	Asphalt Flux Truck Unloading	1.39	0.28	-	-	-	-	-	-	6.08	1.22	-	-	-	-	-	-
Total Facility Emissions (including fugitives) if Group 15 Units are Installed without Truck Unloading ¹⁰		62.62	57.16	30.08	24.00	41.36	34.09	23.64	31,930.05	263.96	207.71	123.12	102.96	196.01	150.55	103.35	111,775.44
Total Facility Emissions (including fugitives) if Group 15 Units are Installed with Truck Unloading ^{9,10}		64.01	59.08	30.08	24.00	41.36	34.09	23.64	31,930.05	311.94	216.09	123.12	102.96	196.01	150.55	103.35	111,775.44
Total Facility Emissions (including fugitives) if Group 15 Units are NOT Installed ¹⁰		71.33	47.09	10.42	19.89	17.84	20.63	2.72	26,685.95	302.77	196.61	37.00	77.41	87.98	98.55	11.67	88,806.28
Total Facility Emissions (excluding fugitives) if Group 15 Units are Installed ¹⁰		41.89	43.54	30.08	24.00	41.36	34.03	23.64	31,930.05	173.16	177.10	123.12	102.96	196.00	150.47	103.34	111,775.44
Total Facility Emissions (excluding fugitives) if Group 15 Units are NOT Installed ¹⁰		41.03	41.03	10.42	19.89	17.84	20.63	2.72	26,685.95	170.07	170.07	37.00	77.41	87.98	98.55	11.67	88,806.28
PER 006 Total Facility Emissions (including fugitives) if Group 15 Units are installed										242.50	242.54	124.70	88.68	141.02	88.70	35.16	96,493.00

¹HAP emissions are estimated by using the ratio of the HAP and VOC emission factors shown in the "Asphalt Storage Tanks - No RTO" tab and multiplying by the potential VOC emissions and adding the RTO combustion HAP emissions. As storage tanks have the highest HAP emission factors, it is conservatively assumed that all VOC emissions are from Asphalt Storage Tanks with zero VOC emission from other manufacutring line equipment or the RTO.

²Emission Units 066, 088, 089, the Line #1/#2 Windseal use Tanks, Parts Washer, Line#1 and #2 Dry Mat Looper, Make up Heaters, Office Furnaces, HVAC units and Shrink wrappers were evenly distributed between all 11 Cooling Section Vents (SV 47-52, 60-64) while the Line #3 Dry Mat Looper (EU 081) was exclusively routed through SV60-64

³Includes emission from the new RTO, and the proposed Blowing Stills (EU 091-93)

⁴Before any Group 15 unit is installed, these emission units will be uncontrolled. After the installation of any Group 15 item, the units will be controlled by the RTO with a control efficiency of 90% for PM/VOC/CO/Organic HAP.

⁵TK 018 will be routed to RTO CE004 when installed

⁶Fugitive emissions can only occur from these tanks when the RTO is not in service. As the maximum annual emissions occur when the RTO is assumed to operate year round, fugitive emissions from the storage tanks are not included in the total.

⁷Pound per hour emission rate from the uncontrolled asphalt storage tanks can be approximately twenty times larger that what is reported here. For the purpose of facility wide PTE calculation. the emission rate has been averaged over 24 hours because of a limit on the number of delivery trucks allowed when the RTO is shut down. Additionally, once the RTO is shut down, it cannot be fully operational for approximately 8 hours. If the maximum potential short term emission rate from these tanks is needed for other purposes, refer to "Asphalt Storage Tanks - No RTO" tab.

⁸PM₁₀ emissions are assumed to be 100% condensible because Asphalt Flux Storage Tank #1 is heated, causing all PM₁₀ emissions. Therefore, PM₁₀/PM_{2.5} emissions are not counted towards TSP because they are not filterable PM emissions.

⁹Total Facility Emissions if Group 15 Units are Installed with Truck Loading assumes the worst case PTE for each pollutant between two cases: all asphalt flux being unloaded via railcar or via truck. All emissions associated with truck unloading are due to truck traffic.

¹⁰It is very important to note that pursuant to 40 CFR 52.21(b)(1)(iii), fugitive emissions shall not be included when determining whether the facility is a major stationary source.

PROJECT: Stack/Vent Information CertainTeed Shakopee
TITLE: EMISSION UNIT LIST

EU No.	Stack Name	Emission Rates															
		TSP	PM ₁₀ /PM _{2.5}	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e	TSP	PM ₁₀ /PM _{2.5}	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e
		Hourly Maximum Emissions (lb/hr)								Annual Potential Emissions (tpy)							
008	Born Asphalt Heater No. 1	0.021	0.021	0.002	0.327	0.231	0.015	0.005	327.61	0.09	0.09	0.01	1.43	1.01	0.07	0.02	1434.93
009	Born Asphalt Heater No. 2	0.107	0.107	0.008	1.667	1.178	0.077	0.026	1673.15	0.47	0.47	0.04	7.30	5.16	0.34	0.12	7328.40
010	Born Asphalt Heater No. 3	0.107	0.107	0.008	1.667	1.178	0.077	0.026	1673.15	0.47	0.47	0.04	7.30	5.16	0.34	0.12	7328.40
011	Line #1 Saturator/Coater/Mixers	**	**	***	0.00	0.48	**	**	0.00	**	**	***	0.00	1.97	**	**	0.00
012	Line #2 Saturator/Coater/Mixers	**	**	***	0.00	0.49	**	**	0.00	**	**	***	0.00	2.01	**	**	0.00
013	Line 1 Hot Oil Heater	0.046	0.05	0.00	0.72	0.51	0.03	0.01	725.42	0.20	0.20	0.02	3.17	2.24	0.15	0.05	3177.35
014	Line 2 Hot Oil Heater	0.034	0.03	0.00	0.52	0.37	0.02	0.01	526.52	0.15	0.15	0.01	2.30	1.62	0.11	0.04	2306.14
015	Modified Asphalt Hot Oil Heater #3	0.032	0.03	0.00	0.50	0.35	0.02	0.01	503.12	0.14	0.14	0.01	2.20	1.55	0.10	0.03	2203.65
020	Sand Truck Rec & Storage	0.249	0.25	0.00	0.00	0.00	0.00	0.00	0.00	1.02	1.02	0.00	0.00	0.00	0.00	0.00	0.00
021	Line #1 Back Surfacer Use Bin & Transfer System	0.103	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.42	0.00	0.00	0.00	0.00	0.00	0.00
023	Line #1 Surfacing Section	1.868	1.87	0.05	0.00	0.24	0.50	0.13	0.00	7.66	7.66	0.19	0.00	0.97	2.05	0.54	0.00
024	Line #1 & #2 Filler Use Bin	0.231	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.95	0.00	0.00	0.00	0.00	0.00	0.00
025	Line #2 Surfacing Section	0.827	0.83	0.04	0.00	0.21	0.44	0.12	0.00	3.39	3.39	0.17	0.00	0.86	1.81	0.48	0.00
026	Line #2 Back Surfacer Use Bin & Transfer System	0.039	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.16	0.00	0.00	0.00	0.00	0.00	0.00
028	Line #2 Filler Heater	0.154	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.63	0.00	0.00	0.00	0.00	0.00	
037	Emergency Generator	0.230	0.23	0.12	7.36	1.96	0.21	3.62E-03	376.29	0.06	0.06	0.03	1.84	0.49	0.05	9.05E-04	94.07
043	Line #3 Coater	**	**	7.25	0.00	0.75	**	**	0.00	**	**	29.74	0.00	3.09	**	**	0.00
044	Line #3 Laminant Adhesive Applicator	**	**	**	0.00	0.00	**	**	0.00	**	**	**	0.00	0.02	**	**	0.00
046	Line #3 Windseal Applicator	**	**	**	0.00	0.00	**	**	0.00	**	**	**	0.00	0.01	**	**	0.00
047	Filler Silo #1 with Transfer System	0.326	0.33	0.00	0.00	0.00	0.00	0.00	0.00	1.34	1.34	0.00	0.00	0.00	0.00	0.00	0.00
048	Filler Silo #2 with Transfer System	0.326	0.33	0.00	0.00	0.00	0.00	0.00	0.00	1.34	1.34	0.00	0.00	0.00	0.00	0.00	0.00
049	Line #3 Filler Use Bin & Transfer System	0.231	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.95	0.00	0.00	0.00	0.00	0.00	0.00
050	Headlap Silo & Transfer System*	2.571	2.57	0.00	0.00	0.00	0.00	0.00	0.00	10.54	10.54	0.00	0.00	0.00	0.00	0.00	0
051	Line #3 Back Surfacer Use Bin & Transfer System	0.030	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00
052	Line #3 Surfacing Section	*	*	0.06	0.00	0.32	0.69	0.18	0.00	*	*	0.26	0.00	1.33	2.82	0.74	0.00
053	Line #3 Filler Heater System	0.591	0.59	0.00	0.00	0.00	0.00	0.00	0.00	2.42	2.42	0.00	0.00	0.00	0.00	0.00	0.00
054	Line #3 Horizontal Mixer	**	**	**	0.00	0.05	**	**	0.00	**	**	**	0.00	0.19	**	**	0.00
055	Line #3 Vertical Mixer	**	**	**	0.00	0.04	**	**	0.00	**	**	**	0.00	0.17	**	**	0.00
056	Line #3 Hot Oil Heater	0.095	0.10	0.01	1.49	1.05	0.07	0.02	1491.80	0.42	0.42	0.03	6.51	4.60	0.30	0.10	6534.07
071	Line #1 Windseal Applicator ¹	2.525	2.52	0.00	0.00	0.01	0.05	1.18E-03	0.00	10.35	10.35	0.00	0.00	0.04	0.21	4.82E-03	0.00
072	Line #2 Windseal Applicator ¹	2.525	2.52	0.00	0.00	0.01	0.01	2.47E-04	0.00	10.35	10.35	0.00	0.00	0.04	0.04	1.01E-03	0.00
074	Mat Preheater	*	*	0.00	0.13	0.12	0.01	2.67E-03	168.49	*	*	0.00	0.57	0.52	0.03	0.01	737.97
075	EF3A Cooling Section Line #1	2.907	2.91	0.12	0.00	0.59	1.25	0.33	0.00	11.92	11.92	0.48	0.00	2.42	5.13	1.34	0.00
076	EF3B Cooling Section Line #1	2.356	2.36	0.06	0.00	0.31	0.65	0.16	0.00	9.66	9.66	0.25	0.00	1.26	2.67	0.65	0.00
077	EF37 Cooling Section Line #2	1.864	1.86	0.08	0.00	0.42	0.89	0.23	0.00	7.64	7.64	0.34	0.00	1.72	3.64	0.95	0.00
078	EF38 Cooling Section Line #2	1.511	1.51	0.04	0.00	0.22	0.46	0.11	0.00	6.20	6.20	0.18	0.00	0.89	1.90	0.45	0.00
079	CS1 Cooling Section Line #3	3.268	3.27	0.15	0.00	0.73	1.56	0.42	0.00	13.40	13.40	0.60	0.00	3.01	6.39	1.72	0.00
080	CS2 Cooling Section Line #3	2.648	2.65	0.15	0.00	0.38	0.81	0.20	0.00	10.86	10.86	0.60	0.00	1.56	3.32	0.83	0.00
081	Line #3 Dry Mat Looper	0.047	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.19	0.00	0.00	0.00	0.00	0.00	0.00
087	Asphalt Heater No. 4	0.034	0.03	0.00	0.52	0.37	0.02	0.01	526.52	0.15	0.15	0.01	2.30	1.62	0.11	0.04	2306.14
088	Line #1/2/3 Nail Line Paint Applicator	0.000	0.00	0.00	0.00	0.00	1.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.94	0.00	0.00

PROJECT: Stack/Vent Information CertainTeed Shakopee
TITLE: EMISSION UNIT LIST

EU No.	Stack Name	Emission Rates															
		TSP	PM ₁₀ /PM _{2.5}	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e	TSP	PM ₁₀ /PM _{2.5}	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e
		Hourly Maximum Emissions (lb/hr)								Annual Potential Emissions (tpy)							
089	Line #1 Filler Heater	0.043	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.19	0.00	0.00	0.00	0.00	0.00	0.00
090	Cooling Tower	1.231	1.23	0.00	0.00	0.00	0.00	0.00	0.00	5.39	5.39	0.00	0.00	0.00	0.00	0.00	0.00
091	Blowing Still	1.712	1.71	9.82	0.68	10.39	4.68	10.41	0.00	7.50	7.50	43.00	3.00	45.50	20.50	45.59	0.00
092	Blowing Still	1.712	1.71	9.82	0.68	10.39	4.68	10.41	0.00	7.50	7.50	43.00	3.00	45.50	20.50	45.59	0.00
093	Blowing Still	1.096	1.10	0.00	0.00	0.25	0.73	0.01	0.00	3.68	3.68	0.00	0.00	0.86	2.47	0.03	0.00
094	Cooling Section Line #2 Stack 3	0.755	0.76	0.03	0.00	0.13	0.28	0.06	0.00	3.10	3.10	0.11	0.00	0.55	1.17	0.26	0.00
095	Cooling Section Line #2 Stack 4	1.133	1.13	0.03	0.00	0.13	0.27	0.06	0.00	4.65	4.65	0.10	0.00	0.51	1.09	0.24	0.00
096	Cooling Section Line #3 Stack 3	1.324	1.32	0.05	0.00	0.23	0.50	0.12	0.00	5.43	5.43	0.19	0.00	0.96	2.04	0.49	0.00
097	Cooling Section Line #3 Stack 4	1.986	1.99	0.04	0.00	0.22	0.47	0.11	0.00	8.14	8.14	0.18	0.00	0.90	1.92	0.45	0.00
098	Cooling Section Line #3 Stack 5	1.014	1.01	0.03	0.00	0.16	0.35	0.08	0.00	4.16	4.16	0.13	0.00	0.67	1.43	0.33	0.00
099/100	Steam Boilers	0.962	0.96	2.07	4.00	3.36	0.22	0.08	11455.47	2.28	2.28	3.04	17.53	14.73	0.96	0.33	23650.85
101	MUA #1	3E-05	2.97108E-05	0	0	0.000328	2.15E-05	7.4E-06	933.104	0.26	0.26	0.02	3.13	2.88	0.19	0.06	4086.99
102	MUA #2	3E-05	2.97108E-05	0	0	0.000328	2.15E-05	7.4E-06	933.104	0.26	0.26	0.02	3.13	2.88	0.19	0.06	4086.99
103	MUA #3	1.2E-05	1.22941E-05	0	0	0.000136	8.9E-06	3.1E-06	386.112	0.11	0.11	0.01	1.30	1.19	0.08	0.03	1691.17
104	MUA #4	1.2E-05	1.22941E-05	0	0	0.000136	8.9E-06	3.1E-06	386.112	0.11	0.11	0.01	1.30	1.19	0.08	0.03	1691.17
105	MUA #5	1.9E-05	1.94657E-05	0	0	0.000215	1.41E-05	4.8E-06	611.344	0.17	0.17	0.01	2.05	1.88	0.12	0.04	2677.69
106	MUA #6	1.3E-05	1.30392E-05	0	0	0.000144	9.44E-06	3.2E-06	409.513	0.11	0.11	0.01	1.37	1.26	0.08	0.03	1793.67
107	MUA #7	2.2E-05	2.23529E-05	0	0	0.000247	1.62E-05	5.6E-06	702.022	0.20	0.20	0.02	2.36	2.16	0.14	0.05	3074.85
108	MUA #9	2.8E-05	2.76804E-05	0	0	0.000306	2E-05	6.9E-06	869.337	0.24	0.24	0.02	2.92	2.68	0.18	0.06	3807.69
109	MUA #10	3E-05	2.98039E-05	0	0	0.000329	2.16E-05	7.4E-06	936.029	0.26	0.26	0.02	3.14	2.89	0.19	0.06	4099.81
111	Born Asphalt Heater #5	5.5E-05	0.000055214	0	0	0.00061	4E-05	1.4E-05	1733.99	0.48	0.48	0.04	7.57	5.35	0.35	0.12	7594.89
TK001- TK007, TK011	Asphalt Storage - Controlled	**	**	**	0.00	0.13	**	**	0.00	**	**	**	0.00	0.56	**	**	0.00
TK001- TK007, TK011	Asphalt Storage - Uncontrolled ²	0.000	0.00	0.00	0.00	0.14	2.37	0.05	0.00	0.00	0.00	0.00	0.00	1.25	20.76	0.24	0.00
TK008	No. 2 Fuel Oil Storage	Insignificant emissions								Insignificant emissions							
TK010	Plasticizer Storage	Insignificant emissions								Insignificant emissions							
TK012	Line #3 Windseal Use Tank	**	**	**	0.00	0.00	**	**	0.00	**	**	**	0.00	0.00	**	**	0.00
TK013	Line #3 Laminant Use Tank	**	**	**	0.00	0.00	**	**	0.00	**	**	**	0.00	0.00	**	**	0.00
TK014	Line #3 Laminant Day Tank	**	**	**	0.00	0.00	**	**	0.00	**	**	**	0.00	0.00	**	**	0.00
TK015	Plant Windseal Day Tank	**	**	**	0.00	0.00	**	**	0.00	**	**	**	0.00	0.00	**	**	0.00
TK016	Horizon Circulation Tank	**	**	**	0.00	0.00	**	**	0.00	**	**	**	0.00	0.00	**	**	0.00
TK017	Horizon Batch Mixer	**	**	**	0.00	0.00	**	**	0.00	**	**	**	0.00	0.00	**	**	0.00
TK018	Preheat Tank	-	0.66	-	-	5.96E-03	3.91E-02	1.55E-03	-	-	1.58	-	-	0.01	0.09	3.69E-03	-
TK025	Asphalt Flux Storage #1	-	0.33	-	-	2.98E-03	1.96E-02	7.74E-04	-	-	0.79	-	-	0.01	4.66E-02	1.84E-03	-
TK027	Premix Tank	-	0.66	-	-	5.96E-03	3.91E-02	1.55E-03	-	-	1.58	-	-	0.01	0.09	3.69E-03	-
TK028	Finished Coating Tank	0.662	0.66	-	-	1.50E-02	3.11	3.87E-02	-	1.58	1.58	-	-	0.04	7.39	0.09	-
ISG	Line #1 Windseal Use Tank	0.003	3.41E-03	0.00	0.00	5.23E-04	1.44E-03	4.00E-06	0.00	0.01	1.49E-02	0.00	0.00	2.29E-03	6.29E-03	1.75E-05	0.00
ISG	Line #2 Windseal Use Tank	0.003	3.13E-03	0.00	0.00	4.80E-04	1.32E-03	3.66E-06	0.00	0.01	1.37E-02	0.00	0.00	2.10E-03	5.77E-03	1.60E-05	0.00
066	Laminant/Windseal Mixer	0.000	1.96E-04	0.00	0.00	6.28E-04	3.10E-03	1.20E-03	0.00	0.00	8.60E-04	0.00	0.00	2.75E-03	1.36E-02	5.25E-03	0.00
ISG	Parts Washers	0.000	0.00	0.00	0.00	0.00	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.56	0.00	0.00

PROJECT: Stack/Vent Information CertainTeed Shakopee
TITLE: EMISSION UNIT LIST

EU No.	Stack Name	Emission Rates															
		TSP	PM ₁₀ /PM _{2.5}	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e	TSP	PM ₁₀ /PM _{2.5}	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e
		Hourly Maximum Emissions (lb/hr)								Annual Potential Emissions (tpy)							
ISG	Line #1 Dry Mat Looper	0.026	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00
ISG	Line #2 Dry Mat Looper	0.026	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00
ISG	Make Up Heaters, Office Furnaces, HVAC	0.015	0.02	0.00	0.18	0.17	0.01	0.00	241.03	0.07	0.07	0.01	0.81	0.74	0.05	0.02	1055.70
ISG	Shrink Wrappers	0.011	0.01	0.00	0.13	0.12	0.01	2.78E-03	176	0.05	0.05	0.00	0.59	0.54	0.04	0.01	768.71
057	Windseal Mixer	**	**	**	0.00	8.55E-04	**	**	0.00	**	**	**	0.00	3.51E-03	**	**	0
ISG	Laminant Swell Tank	**	**	**	0.00	6.71E-04	**	**	0.00	**	**	**	0.00	2.75E-03	**	**	0
ISG	Horizon Concentrate Mixer	**	**	**	0.00	5.53E-05	**	**	0.00	**	**	**	0.00	2.27E-04	**	**	0
ISG	Firetube Heater - MMGal Tank #1	0.01	0.01	0.00	0.17	0.16	0.01	0.00	222	0.06	0.06	0.00	0.75	0.69	0.04	0.02	974
ISG	Firetube Heater - MMGal Tank #2	0.01	0.01	0.00	0.17	0.16	0.01	0.00	222	0.06	0.06	0.00	0.75	0.69	0.04	0.02	974
ISG	Firetube Heater - Finished Coating Tank	0.01	0.01	0.00	0.11	0.10	0.01	0.00	145	0.04	0.04	0.00	0.49	0.45	0.03	0.01	635
CE047	New Thermal Oxidizer Emissions	0.224	0.22	0.02	2.74	2.47	0.16	0.06	3510.11	0.98	0.98	0.08	11.99	10.82	0.71	0.24	15374.27
CE004	Existing RTO Emissions	**	**	**	0.65	0.46	**	0.01	655.22	**	**	**	2.86	2.02	**	0.05	2869.86
ISG	Ferric Chloride Tanks	-	-	-	-	-	-	2.12E-01	-	-	-	-	-	-	-	0.38	-
FS1	Fugitive Road Emissions (FRONT) Post Group 15	0.104	0.021	-	-	-	-	-	-	0.45	0.09	-	-	-	-	-	-
FS2	Fugitive Road Emissions (G-M) Post Group 15	1.087	0.217	-	-	-	-	-	-	4.76	0.95	-	-	-	-	-	-
FS3	Fugitive Road Emissions (PARKING)	0.025	0.005	-	-	-	-	-	-	0.11	0.02	-	-	-	-	-	-
FS4	Fugitive Road Emissions (P) Post Group 15	1.201	0.240	-	-	-	-	-	-	5.26	1.05	-	-	-	-	-	-
FS5	Fugitive Road Emissions (R-W)	10.659	2.132	-	-	-	-	-	-	46.69	9.34	-	-	-	-	-	-
FS6	Fugitive Road Emissions (STAGING)	0.617	0.123	-	-	-	-	-	-	2.70	0.54	-	-	-	-	-	-
FS7	Fugitive Road Emissions (YXQ)	7.038	1.408	-	-	-	-	-	-	30.83	6.17	-	-	-	-	-	-
FS1	Fugitive Road Emissions (FRONT) Pre Group 15	0.519	0.104	-	-	-	-	-	-	2.27	0.45	-	-	-	-	-	-
FS2	Fugitive Road Emissions (G-M) Pre Group 15	5.436	1.087	-	-	-	-	-	-	23.81	4.76	-	-	-	-	-	-
FS4	Fugitive Road Emissions (P) Pre Group 15	6.003	1.201	-	-	-	-	-	-	26.29	5.26	-	-	-	-	-	-
FS8	Railcar Heating	-	9.47	-	-	0.01	0.06	0.00	-	-	12.45	-	-	0.01	0.07	0.00	-
FS9	Asphalt Flux Truck Unloading	1.39	0.28	-	-	-	-	-	-	6.08	1.22	-	-	-	-	-	-
TOTALS ^{3,4}		64.00	57.15	30.06	24.45	41.80	28.29	23.73	32519.75	267.82	205.48	123.05	104.94	197.90	125.14	103.18	114358.32

* The PM₁₀ emission rates from these units are calculated using the control device outlet flow rate and grain loading. All PM₁₀ emissions from SV044 are listed in EU050.

** These units exhaust to the existing RTO (CE004). Stacks tests for PM₁₀, SO_x, and VOC have been completed for the RTO and are incorporated as enforceable conditions the Shakopee Plant's Title V permit. Emission rates from the RTO in the SV summary sheet for these pollutants are based on stack test results; therefore, associated unit-by-unit emission rates are not calculated or presented here.

***All SO2 emissions from these units are listed under EU 043

¹HAP emissions are conservatively estimated by using the ratio of the HAP and VOC emission factors shown in the "Asphalt Storage Tanks - No RTO" tab and multiplying by the potential VOC emissions. This is conservative due to the fact that the asphalt storage tanks have the highest HAP emission factors

²Pound per hour emission rate from the uncontrolled asphalt storage tanks can be approximately twenty times larger that what is reported here. For the purpose of facility wide PTE calculation. the emission rate has been averaged over 24 hours because of a limit on the number of delivery trucks allowed when the RTO is shut down and the fact that once shut down, the RTO can not be fully operational for approximately 8 hours. If the maximum potential short term emission rate from these tanks is needed for other purposes, refer to "Asphalt Storage Tanks - No RTO" tab.

³Totals do not necessarily match totals on SV Summary page. Emissions of pollutants from the existing RTO (CE004) except NO_x and CO are not included in these totals. Additionally, 90% PM₁₀/VOC control from CE004 is not included in totals on this page and tank emissions are duplicated due to multiple operating scenarios

⁴Assumes the worst case PTE for each pollutant between two cases: all asphalt flux being unloaded via railcar or via truck. All emissions associated with truck unloading are due to truck traffic.

Criteria Pollutant Emissions for Proposed Asphalt Flux Storage Tank #1 (TK025)

Pollutant	Hourly Potential Asphalt Production Rate ¹ (ton/hr)	Annual Potential Asphalt Production Rate (tpy)	ARMA Emission Factor ² (lb/ton asphalt)	Uncontrolled Emissions		Mist Eliminator Control Efficiency ³ (%)	Controlled Emissions	
				Hourly Potential Emission Rate (lb/hr)	Annual Potential Emission Rate (tpy)		Hourly Potential Emission Rate (lb/hr)	Annual Potential Emission Rate (tpy)
PM ₁₀ ⁴	21	100,000	0.16	3.31	7.88	90	0.331	0.788
VOC (as Propane)	21	100,000	9.32E-04	0.02	0.05	0	0.020	0.047
CO	21	100,000	1.42E-04	2.98E-03	7.10E-03	0	0.003	0.007

¹ Half of maximum potential hourly throughput sent through each storage tank (half of 42 ton/hr sent through TK025 and half sent through TK026) based on email from John Kimble of CertainTeed on 8/24/2012.

² Studies conducted by the Asphalt Roofing Manufacturers Association (ARMA).

³ New mist eliminator has 90 % control efficiency for PM₁₀/PM_{2.5}, Mist eliminator control efficiency for VOC conservatively taken as zero per conversation between Tony Colombari, Trinity Consultants, and MPCA 2/7/2013.

⁴ Particulate matter emissions from the asphalt storage tanks are assumed to be 100% condensable as the emissions are caused by the asphalt being heated (i.e., vaporized but will condense at ambient temperature). Therefore, the emissions will be included at PM₁₀ and PM_{2.5}, but not TSP (as TSP does not include condensable emissions).

Hazardous Air Pollutant Emissions for Proposed Asphalt Flux Storage Tank #1 (TK025)

Pollutant	Hourly Potential Asphalt Production Rate (ton/hr)	Annual Potential Asphalt Production Rate (tpy)	ARMA Emission Factor ¹ (lb/ton asphalt)	Hourly Potential Emission Rate (lb/hr)	Annual Potential Emission Rate (tpy)
Formaldehyde	21	100,000	2.16E-05	4.54E-04	1.08E-03
COS	21	100,000	4.65E-06	9.77E-05	2.33E-04
HCl	21	100,000	8.07E-07	1.69E-05	4.04E-05
Benzene	21	100,000	1.76E-06	3.69E-05	8.78E-05
Toluene	21	100,000	2.07E-06	4.35E-05	1.04E-04
Ethyl Benzene	21	100,000	2.37E-06	4.98E-05	1.19E-04
Xylene	21	100,000	2.37E-06	4.98E-05	1.19E-04
1,3 Butadiene	21	100,000	1.26E-06	2.64E-05	6.28E-05
Total Uncontrolled HAP				7.74E-04	1.84E-03

¹ Studies conducted by the Asphalt Roofing Manufacturers Association (ARMA).

TABLE 9. UNCONTROLLED EMISSION FACTORS (06092003)

Emission Source	Data Source	Test Method	Pollutant	Non-Detects	Emission Rates (lbs/ton,asphalt used at coater)			
					Emission Factor	Std. Deviation	Multiplier	Emission Factor
Flux Storage Tank	See Note 5.		PM/PM ₁₀		1.05E-01	NA	1.5	1.58E-01
	Pooled Data	M25A	THC (as Hexane)		6.07E-04	NA	1.5	9.11E-04
	See Note 2.		THC (as Propane)					9.32E-04
	Pooled Data	FTIR	CO		9.46E-05	NA	1.5	1.42E-04
	Pooled Data	FTIR	Formaldehyde		1.44E-05	NA	1.5	2.16E-05
	Pooled Data	FTIR	COS		3.10E-06	NA	1.5	4.65E-06
	Pooled Data	FTIR	HCl	X	5.38E-07	NA	1.5	8.07E-07
	Pooled Data	FTIR	Benzene	X	1.17E-06	NA	1.5	1.76E-06
	Pooled Data	FTIR	Toluene	X	1.38E-06	NA	1.5	2.07E-06
	Pooled Data	FTIR	Ethyl Benzene	X	1.58E-06	NA	1.5	2.37E-06
	Pooled Data	FTIR	Xylene	X	1.58E-06	NA	1.5	2.37E-06
	Pooled Data	FTIR	1,3 Butadiene	X	8.37E-07	NA	1.5	1.26E-06

1. THC (as Hexane) has been converted to VOC (as propane) by multiplying by 1.0234

TABLE 9. UNCONTROLLED EMISSION FACTORS (06092003)

Emission Source	Data Source	Test Method	Pollutant	Non-Detects	Emission Rates (lbs/ton,asphalt used at coater)				NOTES	
					Emission Factor	Std. Deviation	Multiplier	Emission Factor		
Flux Storage Tank	See Note 5.		PM/PM ₁₀		1.05E-01	NA	1.5	1.58E-01	!	1. Emission factors are based on the uncontrolled emissions as tested by ARMA . 2. THC (as Hexane) has been converted to VOC (as propane) by multiplying by 1.0234 3. ! Denotes compound is not a HAP. 4. * Denotes PAH. 5. Assumed to be the same as the asphalt storage tank emission rate.
	Pooled Data	M25A	THC (as Hexane)		6.07E-04	NA	1.5	9.11E-04	!	
	See Note 2.		THC (as Propane)					9.32E-04	!	
	Pooled Data	FTIR	CO		9.46E-05	NA	1.5	1.42E-04	!	
	Pooled Data	FTIR	Formaldehyde		1.44E-05	NA	1.5	2.16E-05		
	Pooled Data	FTIR	COS		3.10E-06	NA	1.5	4.65E-06		
	Pooled Data	FTIR	HCl	X	5.38E-07	NA	1.5	8.07E-07		
	Pooled Data	FTIR	Benzene	X	1.17E-06	NA	1.5	1.76E-06		
	Pooled Data	FTIR	Toluene	X	1.38E-06	NA	1.5	2.07E-06		
	Pooled Data	FTIR	Ethyl Benzene	X	1.58E-06	NA	1.5	2.37E-06		
	Pooled Data	FTIR	Xylene	X	1.58E-06	NA	1.5	2.37E-06		
	Pooled Data	FTIR	1,3 Butadiene	X	8.37E-07	NA	1.5	1.26E-06		

1. THC (as Hexane) has been converted to VOC (as propane) by multiplying by 1.0234

Criteria Pollutant Emissions for Proposed Preheat Storage Tank (TK018)

Pollutant	Hourly Potential Asphalt Production Rate ¹ (ton/hr)	Annual Potential Asphalt Production Rate (tpy)	ARMA Emission Factor ² (lb/ton asphalt)	Uncontrolled Emissions		Mist Eliminator Control Efficiency ³ (%)	Controlled Emissions	
				Hourly Potential Emission Rate (lb/hr)	Annual Potential Emission Rate (tpy)		Hourly Potential Emission Rate (lb/hr)	Annual Potential Emission Rate (tpy)
PM ₁₀ ⁴	42	200,000	0.16	6.62	15.75	90	0.662	1.575
VOC	42	200,000	9.32E-04	0.04	0.09	0	0.039	0.093
CO	42	200,000	1.42E-04	5.96E-03	1.42E-02	0	0.006	0.014

¹ Maximum potential hourly throughput based on email from John Kimble of CertainTeed on 8/24/2012.

² Studies conducted by the Asphalt Roofing Manufacturers Association (ARMA).

³ New mist eliminator has 90 % control efficiency for PM₁₀/PM_{2.5}. Mist eliminator control efficiency for VOC conservatively taken as zero per conversation between Tony Colombari, Trinity Consultants, and MPCA 2/7/2013.

⁴ Particulate matter emissions from the asphalt storage tanks are assumed to be 100% condensable as the emissions are caused by the asphalt being heated (i.e., vaporized but will condense at ambient temperature). Therefore, the emissions will be included at PM10 and PM2.5, but not TSP (as TSP does not include condensable emissions).

Hazardous Air Pollutant Emissions for Proposed Preheat Storage Tank (TK018)

Pollutant	Hourly Potential Asphalt Production Rate (ton/hr)	Annual Potential Asphalt Production Rate (tpy)	ARMA Emission Factor ¹ (lb/ton asphalt)	Hourly Potential Emission Rate (lb/hr)	Annual Potential Emission Rate (tpy)
Formaldehyde	42	200,000	2.16E-05	9.07E-04	2.16E-03
COS	42	200,000	4.65E-06	1.95E-04	4.65E-04
HCl	42	200,000	8.07E-07	3.39E-05	8.07E-05
Benzene	42	200,000	1.76E-06	7.37E-05	1.76E-04
Toluene	42	200,000	2.07E-06	8.69E-05	2.07E-04
Ethyl Benzene	42	200,000	2.37E-06	9.95E-05	2.37E-04
Xylene	42	200,000	2.37E-06	9.95E-05	2.37E-04
1,3 Butadiene	42	200,000	1.26E-06	5.27E-05	1.26E-04
Total Uncontrolled HAP				1.55E-03	3.69E-03

¹ Studies conducted by the Asphalt Roofing Manufacturers Association (ARMA).

Criteria Pollutant Emissions for Proposed Preheat Storage Tank (TK027)

Pollutant	Hourly Potential Asphalt Production Rate ¹ (ton/hr)	Annual Potential Asphalt Production Rate (tpy)	ARMA Emission Factor ² (lb/ton asphalt)	Uncontrolled Emissions		Mist Eliminator Control Efficiency ³ (%)	Controlled Emissions	
				Hourly Potential Emission Rate (lb/hr)	Annual Potential Emission Rate (tpy)		Hourly Potential Emission Rate (lb/hr)	Annual Potential Emission Rate (tpy)
PM ₁₀ ⁴	42	200,000	0.16	6.62	15.75	90	0.662	1.575
VOC	42	200,000	9.32E-04	0.04	0.09	0	0.039	0.093
CO	42	200,000	1.42E-04	5.96E-03	1.42E-02	0	0.006	0.014

¹ Maximum potential hourly throughput based on email from John Kimble of CertainTeed on 8/24/2012.

² Studies conducted by the Asphalt Roofing Manufacturers Association (ARMA).

³ New mist eliminator has 90 % control efficiency for PM₁₀/PM_{2.5}. Mist eliminator control efficiency for VOC conservatively taken as zero per conversation between Tony Colombari, Trinity Consultants, and MPCA 2/7/2013.

⁴ Particulate matter emissions from the asphalt storage tanks are assumed to be 100% condensable as the emissions are caused by the asphalt being heated (i.e., vaporized but will condense at ambient temperature). Therefore, the emissions will be included at PM10 and PM2.5, but not TSP (as TSP does not include condensable emissions).

Hazardous Air Pollutant Emissions for Proposed Preheat Storage Tank (TK027)

Pollutant	Hourly Potential Asphalt Production Rate (ton/hr)	Annual Potential Asphalt Production Rate (tpy)	ARMA Emission Factor ¹ (lb/ton asphalt)	Hourly Potential Emission Rate (lb/hr)	Annual Potential Emission Rate (tpy)
Formaldehyde	42	200,000	2.16E-05	9.07E-04	2.16E-03
COS	42	200,000	4.65E-06	1.95E-04	0.00
HCl	42	200,000	8.07E-07	3.39E-05	8.07E-05
Benzene	42	200,000	1.76E-06	7.37E-05	1.76E-04
Toluene	42	200,000	2.07E-06	8.69E-05	2.07E-04
Ethyl Benzene	42	200,000	2.37E-06	9.95E-05	2.37E-04
Xylene	42	200,000	2.37E-06	9.95E-05	2.37E-04
1,3 Butadiene	42	200,000	1.26E-06	5.27E-05	1.26E-04
Total Uncontrolled HAP				1.55E-03	3.69E-03

¹ Studies conducted by the Asphalt Roofing Manufacturers Association (ARMA).

TABLE 9. UNCONTROLLED EMISSION FACTORS (06092003)

Emission Source	Data Source	Test Method	Pollutant	Non-Detects	Emission Rates (lbs/ton,asphalt used at coater)			
					Emission Factor	Std. Deviation	Multiplier	Emission Factor
Flux Storage Tank	See Note 5.		PM/PM ₁₀		1.05E-01	NA	1.5	1.58E-01
	Pooled Data	M25A	THC (as Hexane)		6.07E-04	NA	1.5	9.11E-04
	See Note 2.		THC (as Propane)					9.32E-04
	Pooled Data	FTIR	CO		9.46E-05	NA	1.5	1.42E-04
	Pooled Data	FTIR	Formaldehyde		1.44E-05	NA	1.5	2.16E-05
	Pooled Data	FTIR	COS		3.10E-06	NA	1.5	4.65E-06
	Pooled Data	FTIR	HCl	X	5.38E-07	NA	1.5	8.07E-07
	Pooled Data	FTIR	Benzene	X	1.17E-06	NA	1.5	1.76E-06
	Pooled Data	FTIR	Toluene	X	1.38E-06	NA	1.5	2.07E-06
	Pooled Data	FTIR	Ethyl Benzene	X	1.58E-06	NA	1.5	2.37E-06
	Pooled Data	FTIR	Xylene	X	1.58E-06	NA	1.5	2.37E-06
	Pooled Data	FTIR	1,3 Butadiene	X	8.37E-07	NA	1.5	1.26E-06

Hazardous Air Pollutant Emissions for Proposed Preheat Storage Tank (TK027)

Pollutant	Hourly Potential Asphalt Production Rate (ton/hr)	Annual Potential Asphalt Production Rate (tpy)	ARMA Emission Factor ¹ (lb/ton asphalt)	Hourly Potential Emission Rate (lb/hr)	Annual Potential Emission Rate (tpy)
Formaldehyde	42	200,000	2.16E-05	9.07E-04	2.16E-03
COS	42	200,000	4.65E-06	1.95E-04	0.00
HCl	42	200,000	8.07E-07	3.39E-05	8.07E-05
Benzene	42	200,000	1.76E-06	7.37E-05	1.76E-04
Toluene	42	200,000	2.07E-06	8.69E-05	2.07E-04
Ethyl Benzene	42	200,000	2.37E-06	9.95E-05	2.37E-04
Xylene	42	200,000	2.37E-06	9.95E-05	2.37E-04
1,3 Butadiene	42	200,000	1.26E-06	5.27E-05	1.26E-04
		Total Uncontrolled HAP		1.55E-03	3.69E-03

¹ Studies conducted by the Asphalt Roofing Manufacturers Association (ARMA).

TABLE 9. UNCONTROLLED EMISSION FACTORS (06092003)

Emission Source	Data Source	Test Method	Pollutant	Non-Detects	Emission Rates (lbs/ton,asphalt used at coater)				NOTES	
					Emission Factor	Std. Deviation	Multiplier	Emission Factor		
Flux Storage Tank	See Note 5.		PM/PM ₁₀		1.05E-01	NA	1.5	1.58E-01	!	1. Emission factors are based on the uncontrolled emissions as tested by ARMA . 2. THC (as Hexane) has been converted to VOC (as propane) by multiplying by 1.0234 3. ! Denotes compound is not a HAP. 4. * Denotes PAH. 5. Assumed to be the same as the asphalt storage tank emission rate.
	Pooled Data	M25A	THC (as Hexane)		6.07E-04	NA	1.5	9.11E-04	!	
	See Note 2.		THC (as Propane)					9.32E-04	!	
	Pooled Data	FTIR	CO		9.46E-05	NA	1.5	1.42E-04	!	
	Pooled Data	FTIR	Formaldehyde		1.44E-05	NA	1.5	2.16E-05		
	Pooled Data	FTIR	COS		3.10E-06	NA	1.5	4.65E-06		
	Pooled Data	FTIR	HCl	X	5.38E-07	NA	1.5	8.07E-07		
	Pooled Data	FTIR	Benzene	X	1.17E-06	NA	1.5	1.76E-06		
	Pooled Data	FTIR	Toluene	X	1.38E-06	NA	1.5	2.07E-06		
	Pooled Data	FTIR	Ethyl Benzene	X	1.58E-06	NA	1.5	2.37E-06		
	Pooled Data	FTIR	Xylene	X	1.58E-06	NA	1.5	2.37E-06		
	Pooled Data	FTIR	1,3 Butadiene	X	8.37E-07	NA	1.5	1.26E-06		

Shakopee

This sheet makes two emissions comparisons. The first is comparing two pathways for asphalt flux and their corresponding emissions. Asphalt flux can either be sent through the blow still process, including the pre-heat an pre-mix tank, or it can be loaded onto tanker trucks before the blow still process and be processed off-site. This sheet compares having the entire facility throughput of 200,000 tons per year of asphalt flux loaded onto tanker trucks versus being processed in the blow stills. The primary vaporous emissions from truck loading are VOCs due to working losses as well as PM emissions from truck traffic. We are excluding the PM emissions from truck deliver of blown asphalt from this comparison, as it is conservatively included in the facility-wide PTE for both scenarios. The second emissions comparison is asphalt flux railcar unloading versus tanker truck asphalt flux unloading.

Truck Loading Vapor Losses		
L _L	Loading Loss, pounds per 1000 gallons of liquid loaded	5.87E-02
S	Saturation Factor ¹	1.45
P	Vapor pressure of liquid loaded (psi)	2.76E-02
M	Molecular weight of vapors ² (lb/lbmol)	83.5
T	Temperature of bulk liquid ³ (R)	710
eff _{PM}	Capture Efficiency of Mist Eliminator ⁴	90
eff _{VOC}	Capture Efficiency of Mist Eliminator ⁴	0

From Equation (1) from AP 42 5.2 for Transportation and Marketing of Petroleum Liquids:

$$L_L = 12.46 \cdot (S \cdot P \cdot M) / T$$

Vapor Pressure Calculation ¹		
T =	709.67	R
	250	°F
ln VP =	0.357	-
Vp =	1.430	mmHg
	0.028	psi

1. Constants for Clausius Clapeyron Equation from: Trubore, David C. *Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading*. Asphalt Technology Laboratory, Owens Corning, Summit, IL 60501.

1. Saturation Factor is most conservative value from AP 42 Table 5.2-1, for splash loading of a clean cargo tank.

2. Molecular weight taken as average of two calculated molecular weights of asphalt flux from: Trubore, David C. *Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading*. Asphalt Technology Laboratory, Owens Corning, Summit, IL 60501.

3. Truck loading temperature is 250°F per email from Mark Hovis, CertainTeed, to Tony Colombari, Trinity Consultants, on 12/4/2012.

4. New mist eliminator has 90 % control efficiency for PM₁₀/PM_{2.5}, the same as the currently installed mist eliminators (CE001, CE002 and CE003), per AirEmissionInventory spreadsheet downloaded from MPCA's Consolidated Emissions Data Repository (CEDR). Mist eliminator control efficiency for VOC conservatively taken as zero per conversation between Tony Colombari, Trinity Consultants, and MPCA 2/7/2013.

Truck Loading Emissions Summary

Throughput ¹ (ton/yr)	Density ² (lb/ft ³)	Throughput ³ (gal/yr)	Uncontrolled Loading Loss (lb/yr)	PM ₁₀ Emissions ⁴ (tpy)	PM _{2.5} Emissions ⁴ (tpy)	VOC Emissions ⁵ (tpy)
200,000	59.092	50,636,425	2,974	0.15	0.15	1.49
Throughput ⁶ (GPM)	-	Throughput (gal/hr)	Uncontrolled Loading Loss (lb/hr)	PM ₁₀ Emissions ⁴ (lb/hr)	PM _{2.5} Emissions ⁴ (lb/hr)	VOC Emissions ⁵ (lb/hr)
300	-	18,000	1.06	5.29E-05	5.29E-05	5.29E-04

1. Permitted yearly throughput of asphalt flux

2. From "Asphalt Storage Tanks - No RTO" tab of Facility Wide Emissions v6.0. Asphalt flux density is assumed to be similar to asphalt density

3. 1 cubic foot equals 7.480519 gallons.

4. For purposes of calculation, conservative assumption that all loading losses are PM₁₀. From Trubore, David C. *Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading*. Asphalt Technology Laboratory, Owens Corning, Summit, IL 60501: "it is assumed that particulate matter greater than 10 microns is captured by fiber bed filters so the total particulate emissions from the filter are considered PM emissions."

5. For purposes of calculation, conservatively assume all loading losses are VOC

6. Maximum GPM for truck loading per email from Mark Hovis, CertainTeed, to Tony Colombari, Trinity Consultants, on 12/4/2012

Truck Traffic Emissions for Loading/Unloading Asphalt Flux.

Loading ¹	dL ² (g/m2)	Segment Distance (miles)	W ³ (ton)	Truck Capacity ⁴ (gal)	Trucks per year	VMt per year	E - PM (lb/VMt)	E - PM ₁₀ (lb/VMt)	E - PM _{2.5} (lb/VMt)	PM (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)
YX,Q	4.75	0.18	30.00	6,000	8,439	1,527.53	1.35	0.27	0.07	1.03	0.21	0.05
TW1	6.39	0.11	30.00	6,000	8,439	886.14	1.77	0.35	0.09	0.78	0.16	0.04
R	6.39	0.03	30.00	6,000	8,439	278.50	1.77	0.35	0.09	0.25	0.05	0.01
P	7.31	0.34	30.00	6,000	8,439	2,860.96	2.00	0.40	0.10	2.86	0.57	0.14
G	3.98	0.24	30.00	6,000	8,439	2,033.90	1.15	0.23	0.06	1.17	0.23	0.06
Total	-	0.90	-	-	-	7,587.02	8.03	1.61	0.39	6.08	1.22	0.30

1. Loading and unloading route determined from Google maps and P&IDs received by Trinity Consultants June 25th, 2012.

2. Per 2005 Surface Loading Analysis provided from John Kimble 7/17/2012 via email.

3. Truck weight from "Shakopee Traffic" tab in "Facility Wide Emissions v5.2.xls".

4. Truck capacity per email from Mark Hovis, CertainTeed, to Tony Colombari, Trinity Consultants, on 12/4/2012.

Emission Factor Definitions

Factor	Description	Source of Data	PM	PM10	PM2.5
E=	Emission Factor (lb/VMt, vehicle miles traveled) ¹	AP-42 13.2.1, Equation 2	Equation 2		
k=	Particle Size Multiplier (lb/VMt)	AP-42 13.2.1, Table 13.2.1-1	0.011	0.0022	0.00054
sL=	Road Surface Silt Loading (g/m ²)	From silt loading tests	Varies		
P=	Number of "Wet" Days During an Averaging Period	AP-42 13.2.1, Figure 13.2.1-2	110		
N=	Number of Days in the Averaging Period	Annual	365		
W=	Average Vehicle Weight (tons)	2005 Permit Application Supporting Calculations "CT Traffic Analysis Final"	Varies		

1. Per Equation 2 of AP-42 Section 13.2.1.

$$E_{ext} = [k (sL)^{0.91} \times (W)^{1.02}] (1 - P/4N)$$

Asphalt Blowing Versus Truck Loading Emissions Comparison

ID Number	Stack Name	Emission Rates															
		TSP ¹	PM ₁₀ /PM _{2.5} ²	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e	TSP ¹	PM ₁₀ /PM _{2.5} ²	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e
		Hourly Maximum Emissions (lb/hr)								Annual Potential Emissions (tpy)							
EU 091	Blowing Still	1.71	1.71	9.82	0.68	10.39	4.68	10.41	0.00	7.50	7.50	43.00	3.00	45.50	20.50	45.59	0.00
EU 092	Blowing Still	1.71	1.71	9.82	0.68	10.39	4.68	10.41	0.00	7.50	7.50	43.00	3.00	45.50	20.50	45.59	0.00
EU 093	Blowing Still	1.10	1.10	0.00	0.00	0.25	0.73	0.01	0.00	3.68	3.68	0.00	0.00	0.86	2.47	0.03	0.00
TK 027	Premix Tank	-	0.66	-	-	0.006	0.039	0.002	0.00	-	1.575	0.004	-	0.014	0.093	0.004	-
TK 018	Preheat Tank	-	0.66	-	-	0.006	0.039	0.002	-	-	1.575	-	-	0.014	0.093	0.004	-
Sum (Asphalt blowing emissions)	Blowing Stills, Premix and Preheat Tank	4.52	5.84	19.63	1.37	21.04	10.17	20.83	0.00	18.68	21.83	86.00	6.00	91.88	43.65	91.22	0.00
N/A	Truck Loading ^{3,4}	1.39	0.28	-	-	-	5.29E-04	-	-	6.08	1.36	-	-	-	1.49	-	-

1. For purposes of calculation, TSP emissions from truck loading are negligible due to filter capture efficiency. From Trubore, David C. Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading. Asphalt Technology Laboratory, Owens Corning, Summit, IL 60501; "it is assumed that particulate matter greater than 10 microns is captured by fiber bed filters so the total particulate emissions from the filter are considered PM10 emissions."

2. Conservatively assume all PM10 is PM2.5 for Truck Loading.

3. Assume all working loss emissions from truck loading are VOCs.

4. Assumed truck traffic evenly distributed between 8,760 hours a year.

Railcar Unloading and Truck Unloading Emissions Comparison

SV No.	Stack Name	Emission Rates															
		TSP	PM ₁₀ /PM _{2.5}	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e	TSP	PM ₁₀ /PM _{2.5}	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e
		Hourly Maximum Emissions (lb/hr)								Annual Potential Emissions (tpy)							
FS 008	Railcar Heating	-	9.47	-	-	0.01	0.06	0.00	-	-	12.45	-	-	0.01	0.07	0.00	-
FS 009	Asphalt Flux Truck Unloading	1.39	0.28	-	-	-	-	-	-	6.08	1.22	-	-	-	-	-	-

Total Facility Emissions Comparison

Facility Emissions Summary ^{1,2}	Emission Rates															
	TSP	PM ₁₀ /PM _{2.5}	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e	TSP	PM ₁₀ /PM _{2.5}	SO _x	NO _x	CO	VOC	HAPs	CO ₂ e
	Hourly Maximum Emissions								Annual Potential Emissions							
	(lb/hr)								(tpy)							
Total Facility Emissions (including fugitives) if all asphalt unloaded from Railcar	62.62	57.16	30.08	24.00	41.36	34.09	23.64	31,930.05	263.96	207.71	123.12	102.96	196.01	150.55	103.35	114,358.32
Total Facility Emissions (including fugitives) if all asphalt unloaded from Trucks	64.01	47.97	30.08	24.00	41.36	34.03	23.64	31,930.05	270.04	196.47	123.12	102.96	196.00	150.47	103.34	114,358.32
Total Facility Emissions (including fugitives) Worst Case (Truck vs. Railcar Unloading)	64.01	57.16	30.08	24.00	41.36	34.09	23.64	31,930.05	270.04	207.71	123.12	102.96	196.01	150.55	103.35	114,358.32

1. Assuming Group 15 Units are installed.

2. Assuming all asphalt flux goes through Blowstill Process (rather than truck loading) is worst case scenario for all pollutants.

CertainTeed Shakopee Plant
Line #2 and Line #3 Nail Line Paint Applicator (EU088) Emissions Calculations

Emission Unit	Maximum Paint Usage¹ (gal/yr)	Maximum Paint Usage (L/yr)	VOC Content² (g/L)	VOC Emissions (g/yr)	VOC Emission (tpy)
Line #2/3 Paint Applicator	35,000	132,489	54.38	7,204,112	7.94

¹Maximum paint usage of 35,000 gallons per year will be added as a permit condition per email from John Kimble to Tony Colombari on 2/20/2013.

²VOC content of 36.25 g/L and safety factor of 1.5 used per email from John Kimble to Christine Kurtz of Trinity on 8/13/2010

Cooling Section Permit Limit Modification

The permit limits for the Cooling Section emission points are based on a combination of stack testing from CertainTeed's Avery facility and emission calculations that have been developed for units unique to the Shakopee facility. CertainTeed has performed stack testing on one of the cooling section stacks (SV 052) and is proposing to reduce the permit limits for all of the cooling section stacks based on the level of conservatism found during that stack test of SV 052 (due to the similarity between the exhaust points). The stack test result showed an average factor of safety of 2.36 for SV 052, and CertainTeed proposes to reduce this factor of safety to 2. This reduced factor of safety will be applied to all other stack vents, assuming similar level of conservatism.

Permit Limit Modification

SV	Description ¹	Current Permit Limit (lb/hr)	Current Permit Limit (tpy)	Average Stack Test Result (lb/hr)	Current Factor of Safety	Desired Factor of Safety	Proposed Permit Limit (lb/hr)	Proposed Permit Limit (tpy)
047	EF3A Exhaust Fan Vent	2.92	11.97	-	-	2	2.47	10.13
048	EF3B Exhaust Fan Vent	2.37	9.71	-	-	2	2.00	8.22
049	EF37 Exhaust Fan Vent	1.88	7.69	-	-	2	1.59	6.51
050	EF38 Exhaust Fan Vent	1.52	6.25	-	-	2	1.29	5.28
051	CS1 Exhaust Fan Vent	3.28	13.44	-	-	2	2.77	11.37
052	CS2 Exhaust Fan Vent	2.66	10.91	1.13	2.36	2	2.25	9.23
060	Cooling Section Line #2 Stack 3	0.78	3.19	-	-	2	0.66	2.70
061	Cooling Section Line #2 Stack 4	1.15	4.74	-	-	2	0.98	4.01
062	Cooling Section Line #3 Stack 3	1.35	5.52	-	-	2	1.14	4.67
063	Cooling Section Line #3 Stack 4	2.01	8.23	-	-	2	1.70	6.96
064	Cooling Section Line #3 Stack 5	1.03	4.24	-	-	2	0.88	3.59
Total		20.94	85.89	-	-	-	17.72	72.66

¹Emission Units 066, 088, 089, the Line #1/#2 Windseal use Tanks, Parts Washer, Line#1 and #2 Dry Mat Looper, Make up Heaters, Office Furnaces, HVAC units and Shrink wrappers were evenly distributed between all 11 Cooling Section Vents (SV 47-52, 60-64) while the Line #3 Dry Mat Looper (EU 081) was exclusively routed through SV60-64.

² Stack test results for SV 052 provided by John Kimble of CertainTeed are summarized in the table below:

Year	Emission Rate (lb/hr)
2006	1.23
2009	1.02

Example Calculations

Calculating Current Factor of Safety

Average Stack Test Result [E11] = (1.23 lb/hr + 1.02 lb/hr) / 2 = 1.13 lb/hr

Current Factor of Safety [F11] = SV 052 Permit Limit / SV 052 stack test result

Current Factor of Safety [F11] = 2.66 lb/hr / 1.13 lb/hr = 2.36 lb/hr

Calculating Proposed Permit Limit for SV 047

Proposed Permit Limit (lb/hr) = Current Permit limit (lb/hr) * Desired Factor of Safety / Current Factor of Safety

Proposed Permit Limit (lb/hr) [H6] = 2.92 lb/hr * 2 / 2.36 = 2.47 lb/hr

Proposed Permit Limit (tpy) = Current Permit limit (lb/hr) * Desired Factor of Safety / Current Factor of Safety

Proposed Permit Limit (tpy) [I6] = 11.97 tpy * 2 / 2.36 = 10.13 tpy

Potential CO2 Emissions From All Combustion Sources

Emission Unit	Description	Hours of Operation ^{1,2} (hrs)	Maximum Heat Input (MMBtu/hr)	Natural Gas Heat Content (Btu/scf)	No. 2 Fuel Oil Heat Content (Btu/gal)	No. 2 Fuel Oil Usage (gal/yr)	Default CO ₂ Emission Factor ³ (kg CO ₂ /MMBtu)	Default N ₂ O Emission Factor ³ (kg N ₂ O/MMBtu)	Default CH ₄ Emission Factor ³ (kg CH ₄ /MMBtu)	CO ₂ Emissions (GWP=1) ⁴ (kg/hr)
EU 099/100	Mode #1 - Natural Gas-Fired	8,760	40.8	1,020	NA	NA	53.02	0.0001	0.001	2164.48848
EU 099/100	Mode #2 - Natural Gas-Fired	5,890	40.8	1,020	NA	NA	53.02	0.0001	0.001	2164.48848
EU 099/100	Mode #2 - No. 2 Fuel Oil-Fired	2,870	40.8	NA	140,000	836,786	73.96	0.0006	0.003	3019.34304
EU 099/100	Total Mode #2	-	-	-	-	-	-	-	-	5183.83
CE 004	RTO	8760	5.6	1,020	NA	NA	53.02	0.0001	0.001	296.912
EU 008	Born Asphalt Heater No. 1	8760	2.8	1,020	NA	NA	53.02	0.0001	0.001	148.456
EU 009	Born Asphalt Heater No. 2	8760	14.3	1,020	NA	NA	53.02	0.0001	0.001	758.186
EU 010	Born Asphalt Heater No. 3	8760	14.3	1,020	NA	NA	53.02	0.0001	0.001	758.186
EU 087	Asphalt Heater No. 4	8760	4.5	1,020	NA	NA	53.02	0.0001	0.001	238.59
EU 013	Line 1 Hot Oil Heater	8760	6.2	1,020	NA	NA	53.02	0.0001	0.001	328.724
EU 014	Line 2 Hot Oil Heater	8760	4.5	1,020	NA	NA	53.02	0.0001	0.001	238.59
EU 056	Line #3 Hot Oil Heater	8760	12.75	1,020	NA	NA	53.02	0.0001	0.001	676.005
EU 037	Emergency Generator	500	2.3	NA	140,000	8,214	73.96	0.0006	0.003	170.108
EU 015	Modified Asphalt Hot Oil Heater #3	8760	4.3	1,020	NA	NA	53.02	0.0001	0.001	227.986
EU 101	MUA # 1, roofing manufacturing	8760	7.975	1,020	NA	NA	53.02	0.0001	0.001	422.8345
EU 102	MUA # 2, roofing dry end	8760	7.975	1,020	NA	NA	53.02	0.0001	0.001	422.8345
EU 103	MUA # 3, roofing packaging area	8760	3.30	1,020	NA	NA	53.02	0.0001	0.001	174.966
EU 104	MUA # 4, dry felt warehouse	8760	3.30	1,020	NA	NA	53.02	0.0001	0.001	174.966
EU 105	MUA # 5, roofing fin prod looper	8760	5.225	1,020	NA	NA	53.02	0.0001	0.001	277.0295
EU 106	MUA # 6, felt mill stock prep	8760	3.5	1,020	NA	NA	53.02	0.0001	0.001	185.57
EU 107	MUA # 7, felt mill machine room	8760	6.0	1,020	NA	NA	53.02	0.0001	0.001	318.12
Insignificant	MUA # 8, maintenance area	8760	1.5	1,020	NA	NA	53.02	0.0001	0.001	79.53
Insignificant	Shrink wrapper	8760	1.5	1,020	NA	NA	53.02	0.0001	0.001	79.53
EU 074	Mat preheater	8760	1.44	1,020	NA	NA	53.02	0.0001	0.001	76.3488
Insignificant	Office furnaces	8760	0.33	1,020	NA	NA	53.02	0.0001	0.001	17.4966
EU 108	MUA #9, line 3 coater	8760	7.43	1,020	NA	NA	53.02	0.0001	0.001	393.9386
EU 109	MUA #10, line 3 laminator	8760	8.0	1,020	NA	NA	53.02	0.0001	0.001	424.16
Insignificant	HVAC unit	8760	0.23	1,020	NA	NA	53.02	0.0001	0.001	12.1946
Current Total		NA	NA	NA	NA	NA	NA	NA	NA	12,085
Insignificant	Firetube Heater - MMGal Tank #1	8760	1.90	1,020	NA	NA	53.02	0.0001	0.001	100.738
Insignificant	Firetube Heater - MMGal Tank #2	8760	1.90	1,020	NA	NA	53.02	0.0001	0.001	100.738
Insignificant	Firetube Heater - Finished Coating Tank	8760	1.24	1,020	NA	NA	53.02	0.0001	0.001	65.7448
CE 047	New TO	8760	30	1,020	NA	NA	53.02	0.0001	0.001	1590.6
EU 111	Asphalt Heater #5	8760	14.82	1,020	NA	NA	53.02	0.0001	0.001	785.7564
Proposed Total										14,729

¹ Mode #2 of boiler hours of operation are limited by a facility wide limit of 845,000 gallons per year of fuel oil less the amount of fuel oil used in the emergency generators. The hours of operation of the boiler being fired by fuel oil is back calculated assuming all but the amount of fuel oil required to fire the emergency generator for 500 hours is combusted. The boiler is assumed to be natural gas fired for the remaining hours of operation. Identical results would occur if fuel oil was burned in other units.

² The emergency generator is limited to 500 hours of operation per page A-23 of Permit 13900013-005

³ Emission factors found in Table C-1 and C-2 of 40 CFR 98.

⁴ Global Warming Potentials (GWP) found in Table A-1 of 40 CFR 98.

N ₂ O Emissions (GWP=310) ⁴ (kg/hr)	CH ₄ Emissions (GWP=21) ⁴ (kg/hr)	CO ₂ Equivalents (kg/hr)	CO ₂ Equivalents (lb/hr)	CO ₂ Emissions (tpy)	N ₂ O Emissions (tpy)	CH ₄ Emissions (tpy)	CO ₂ Equivalents (tpy)
0.0040824	0.040824	2166.61	4776.55	20,901	0.04	0.39	20921.31
0.0040824	0.040824	2166.61	4776.55	14,054	0.03	0.27	14067.82
0.0244944	0.122472	3029.51	6678.91	9,551	0.08	0.39	9583.02
0.03	0.16	5196.12	11455.47	23604.70	0.10	0.65	23650.85
0.00056	0.0056	297.20	655.22	2,867	0.01	0.05	2869.86
0.00028	0.0028	148.60	327.61	1,434	0.00	0.03	1434.93
0.00143	0.0143	758.93	1673.15	7,321	0.01	0.14	7328.40
0.00143	0.0143	758.93	1673.15	7,321	0.01	0.14	7328.40
0.00045	0.0045	238.82	526.52	2,304	0.00	0.04	2306.14
0.00062	0.0062	329.05	725.42	3,174	0.01	0.06	3177.35
0.00045	0.0045	238.82	526.52	2,304	0.00	0.04	2306.14
0.001275	0.01275	676.67	1491.80	6,528	0.01	0.12	6534.07
0.00138	0.0069	170.68	376.29	94	0.00	0.00	94.07
0.00043	0.0043	228.21	503.12	2,201	0.00	0.04	2203.65
0.0007975	0.007975	423.25	933.10	4,083	0.01	0.08	4086.99
0.0007975	0.007975	423.25	933.10	4,083	0.01	0.08	4086.99
0.00033	0.0033	175.14	386.11	1,689	0.00	0.03	1691.17
0.00033	0.0033	175.14	386.11	1,689	0.00	0.03	1691.17
0.0005225	0.005225	277.30	611.34	2,675	0.01	0.05	2677.69
0.00035	0.0035	185.75	409.51	1,792	0.00	0.03	1793.67
0.0006	0.006	318.43	702.02	3,072	0.01	0.06	3074.85
0.00015	0.0015	79.61	175.51	768	0.00	0.01	768.71
0.00015	0.0015	79.61	175.51	768	0.00	0.01	768.71
0.000144	0.00144	76.42	168.49	737	0.00	0.01	737.97
0.000033	0.00033	17.51	38.61	169	0.00	0.00	169.12
0.000743	0.00743	394.32	869.34	3,804	0.01	0.07	3807.69
0.0008	0.008	424.58	936.03	4,096	0.01	0.08	4099.81
0.000023	0.00023	12.21	26.91	118	0.00	0.00	117.87
0.04	0.30	12,105	26,686	88,695	0.23	1.88	88,806
0.00019	0.0019	100.84	222.31	973	0.00	0.02	974
0.00019	0.0019	100.84	222.31	973	0.00	0.02	974
0.000124	0.00124	65.81	145.08	635	0.00	0.01	635
0.003	0.03	1592.16	3510.11	15,359	0.03	0.29	15,374
0.001482	0.01482	786.53	1733.99	7,587	0.01	0.14	7,595
0	0	14,751	32,520	114,222	0.28	2.36	114,358

Combustion Summary.

	Max Usage	Units	Heating Value ^{2,3}	Units	MMBTU/yr
Natural gas	1,347,966,471	ft ³ /yr	1,020	BTU/ft ³	1,374,926
No. 2 Fuel Oil ¹	836,786	gal/yr	140,000	BTU/gal	117,150

¹Part 70 Major Permit Modification Application limits total No. 2 Fuel Oil usage to 845,000 gal/yr. Emissions from No. 2 fuel usage for Steam Boilers (EU035/EU036) are calculated elsewhere, therefore, the No. 2 fuel usage for these units is not included in the calculations in this sheet. The maximum No. 2 Fuel Oil usage for these units is calculated by subtracting the amount of fuel oil used in the emergency generators from the limit of 845,000 gallons.

²Natural Gas Heating Value taken from AP-42 Table 1.4-1, Note a (7/98).

³Fuel Oil No. 2 heating value taken from AP-42 Table 1.3-2, Note d (5/10).

Combustion Source	Stack Number	Maximum Rating ¹ (MMBTU/hr)	Max Natural Gas Burned (ft ³ /yr)	Max No. 2 Oil Burned (gal/yr) ²
Regenerative Thermal Oxidizer	SV004	5.60	48,094,118	350,400
Born Heater #1	SV005	2.80	24,047,059	175,200
Born Heater #2	SV006	14.30	122,811,765	894,771
Born Heater #3	SV007	14.30	122,811,765	894,771
Asphalt Heater #4	SV056	4.50	38,647,059	281,571
Hot Oil Heater Line #1	SV008	6.20	53,247,059	387,943
Hot Oil Heater Line #2	SV009	4.50	38,647,059	281,571
Modified Asphalt Hot Oil Heater #3	SV014	4.30	36,929,412	269,057
Hot Oil Heater Line #3	SV053	12.75	109,500,000	797,786
New TO ³	SV058	30	257,647,059	107,143
Mat Preheater ⁴	SV044	1.44	12,367,059	0
MUA #1	SI029	7.975	68,491,176	0
MUA #2	SI030	7.975	68,491,176	0
MUA #3	SI031	3.30	28,341,176	0
MUA #4	SI032	3.30	28,341,176	0
MUA #5	SI033	5.225	44,873,529	0
MUA #6	SI034	3.5	30,058,824	0
MUA #7	SI035	6.0	51,529,412	0
MUA #9	SI036	7.43	63,810,588	0
MUA #10	SI037	8.0	68,705,882	0
Make-up Heaters, Office Furnace and HVAC unit 2.06 MMBtu/hr - Sum) ⁵	N/A	2.06	17,691,765	0
Shrink Wrappers (3 - 0.5 MMBtu/hr each) ^{4,5}	N/A	1.50	12,882,353	0
Firetube Heater - MMGal Tank #1 ⁵	N/A	1.90	16,317,647	0
Firetube Heater - MMGal Tank #2 ⁵	N/A	1.90	16,317,647	0
Firetube Heater - Finished Coating Tank ⁵	N/A	1.24	10,649,412	0
Asphalt Heater #5	SV066	14.82	127,282,800	927,346
	Total (per hr)	176.8	-	-
	Total (per yr)	1,374,926	1,347,966,471	4,440,214

¹Heat input capacities taken from email from John Kimble of CertainTeed to Tony Colombari of Trinity Consultants on 2/3/2011.

²Assumes that oil is burned 8,760 hrs per year, regardless of any permit limits.

³Thermal Oxidizer (TO) has a 500 hr/yr limit on fuel oil operation.

⁴Units only combust natural gas.

⁵Insignificant Unit

Determination of Worst Case Scenario

Potential Fuel Combinations	Mode #1	Mode #2	Worst-Case	Worst-Case Mode #
Natural Gas (MMBTU/yr)	1,374,926	1,257,776	-	-
No. 2 Fuel Oil (MMBTU/yr)	0	117,150	-	-
Total (MMBTU/yr)	1,374,926	1,374,926	-	-
TSP/PM10 (tpy)	5.12	6.07	6.07	Mode #2
SO2 (tpy)	0.40	3.34	3.34	Mode #2
NOx (tpy)	67.40	70.02	70.02	Mode #2
VOC (tpy)	3.71	3.47	3.71	Mode #1
CO (tpy)	56.61	53.88	56.61	Mode #1
HAPs (tpy)	1.27	1.19	Varies ³	Mode #1

¹Mode #1 is all units combusting natural gas year-round.

²Mode #2 is all units combusting the maximum permitted limit amount of fuel oil minus the usage of the emergency generator with the remaining time on natural gas.

³Worst-Case HAP emissions varies depending on the HAP. Maximum total HAP emissions will occur during mode #1

Scaled Emissions ¹						
Stack Number	PM ₁₀ ² (tpy)	SO ₂ ² (tpy)	NO _x ³ (tpy)	CO ⁴ (tpy)	VOC ⁴ (tpy)	HAPs ⁴ (tpy)
SV004	0.18	0.01	2.86	2.02	0.13	0.0
SV005	0.09	0.01	1.43	1.01	0.07	0.0
SV006	0.47	0.04	7.30	5.16	0.34	0.1
SV007	0.47	0.04	7.30	5.16	0.34	0.1
SV056	0.15	0.01	2.30	1.62	0.11	0.0
SV008	0.20	0.02	3.17	2.24	0.15	0.1
SV009	0.15	0.01	2.30	1.62	0.11	0.0
SV014	0.14	0.01	2.20	1.55	0.10	0.0
SV053	0.42	0.03	6.51	4.60	0.30	0.1
SV058	0.98	0.08	11.99	10.82	0.71	0.2
SV044	0.05	0.00	0.57	0.52	0.03	0.0
SI029	0.26	0.02	3.13	2.88	0.19	0.1
SI030	0.26	0.02	3.13	2.88	0.19	0.1
SI031	0.11	0.01	1.30	1.19	0.08	0.0
SI032	0.11	0.01	1.30	1.19	0.08	0.0
SI033	0.17	0.01	2.05	1.88	0.12	0.0
SI034	0.11	0.01	1.37	1.26	0.08	0.0
SI035	0.20	0.02	2.36	2.16	0.14	0.0
SI036	0.24	0.02	2.92	2.68	0.18	0.1
SI037	0.26	0.02	3.14	2.89	0.19	0.1
N/A	0.07	0.01	0.81	0.74	0.05	0.0
N/A	0.05	0.00	0.59	0.54	0.04	0.0
N/A	0.06	0.00	0.75	0.69	0.04	0.0
N/A	0.06	0.00	0.75	0.69	0.04	0.0
N/A	0.04	0.00	0.49	0.45	0.03	0.0
SV066	0.48	0.04	7.57	5.35	0.35	0.1
Total:	5.12	0.40	72.00	56.61	3.71	1.27

¹These scaled emission rates are used to determine annual potential emission rates for combustion units. The worst case scenario for each pollutant was used for calculations.

²PM₁₀ and SO₂ emissions are calculated with 100% natural gas combustion even though the worst case scenario shows Mode #2 emissions would be higher. This is due to the fact that the highest PM₁₀ and SO₂ emissions come from fuel oil fired in the large boilers rather than the combustion units.

³NO_x emissions are calculated with Mode #2 fuel combustion. NO_x emissions will be highest with fuel oil combusted in the combustion units.

⁴CO, VOC, and HAPs emissions are calculated with Mode #1 fuel combustion.

Mode #1 - Maximum Natural Gas Combustion

Pollutant	Factor	Units	Heat Value (BTU/lb)	Heat Input (BTU/yr)	Usage (lb/yr)	Emissions (lb/yr)	Emissions (Tons/yr)
TSP ¹	7.6	lb/MMscf	1,020	1.37E+12	1.35E+09	10244.55	5.12
PM10 ¹	7.6	lb/MMscf	1,020	1.37E+12	1.35E+09	10244.55	5.12
SO2 ²	0.6	lb/MMscf	1,020	1.37E+12	1.35E+09	808.78	0.40
NOx ²	100	lb/MMscf	1,020	1.37E+12	1.35E+09	134796.65	67.40
VOC ³	5.5	lb/MMscf	1,020	1.37E+12	1.35E+09	7413.82	3.71
CO ²	84	lb/MMscf	1,020	1.37E+12	1.35E+09	113229.18	56.61
2-Methylnaphthalene ³	2.40E-05	lb/MMscf	1,020	1.37E+12	1.35E+09	0.03	0.00
3-Methylchloranthrene ³	1.80E-06	lb/MMscf	1,020	1.37E+12	1.35E+09	0.00	0.00
7, 12-Dimethylbenz(a)anthracene ³	1.60E-05	lb/MMscf	1,020	1.37E+12	1.35E+09	0.02	0.00
Acenaphthene ³	1.80E-06	lb/MMscf	1,020	1.37E+12	1.35E+09	0.00	0.00
Acenaphthylene ³	1.80E-06	lb/MMscf	1,020	1.37E+12	1.35E+09	0.00	0.00
Anthracene ³	2.40E-06	lb/MMscf	1,020	1.37E+12	1.35E+09	0.00	0.00
Arsenic ⁴	2.00E-04	lb/MMscf	1,020	1.37E+12	1.35E+09	0.27	0.00
Benz(a)anthracene ³	1.80E-06	lb/MMscf	1,020	1.37E+12	1.35E+09	0.00	0.00
Benzene ³	2.10E-03	lb/MMscf	1,020	1.37E+12	1.35E+09	2.83	0.00
Benzo(a)pyrene ³	1.20E-06	lb/MMscf	1,020	1.37E+12	1.35E+09	0.00	0.00
Benzo(b)fluoranthene ³	1.80E-06	lb/MMscf	1,020	1.37E+12	1.35E+09	0.00	0.00
Benzo(g,h,i)perylene ³	1.20E-06	lb/MMscf	1,020	1.37E+12	1.35E+09	0.00	0.00
Benzo(k)fluoranthene ³	1.80E-06	lb/MMscf	1,020	1.37E+12	1.35E+09	0.00	0.00
Beryllium ⁴	1.20E-05	lb/MMscf	1,020	1.37E+12	1.35E+09	0.02	0.00
Cadmium ⁴	1.10E-03	lb/MMscf	1,020	1.37E+12	1.35E+09	1.48	0.00
Chromium ⁴	1.40E-03	lb/MMscf	1,020	1.37E+12	1.35E+09	1.89	0.00
Chrysene ³	1.80E-06	lb/MMscf	1,020	1.37E+12	1.35E+09	0.00	0.00
Cobalt ⁴	8.40E-05	lb/MMscf	1,020	1.37E+12	1.35E+09	0.11	0.00
Dibenzo(a,h)anthracene ³	1.20E-06	lb/MMscf	1,020	1.37E+12	1.35E+09	0.00	0.00
Dichlorobenzene ³	1.20E-03	lb/MMscf	1,020	1.37E+12	1.35E+09	1.62	0.00
Fluoranthene ³	3.00E-06	lb/MMscf	1,020	1.37E+12	1.35E+09	0.00	0.00
Fluorene ³	2.80E-06	lb/MMscf	1,020	1.37E+12	1.35E+09	0.00	0.00
Formaldehyde ²	7.50E-02	lb/MMscf	1,020	1.37E+12	1.35E+09	101.10	0.05
Hexane ³	1.80E+00	lb/MMscf	1,020	1.37E+12	1.35E+09	2426.34	1.21
Indeno(1,2,3-cd)pyrene ³	1.80E-06	lb/MMscf	1,020	1.37E+12	1.35E+09	0.00	0.00
Manganese ²	3.80E-04	lb/MMscf	1,020	1.37E+12	1.35E+09	0.51	0.00
Mercury ⁷	2.60E-04	lb/MMscf	1,020	1.37E+12	1.35E+09	0.35	0.00
Napthalene ³	6.10E-04	lb/MMscf	1,020	1.37E+12	1.35E+09	0.82	0.00
Nickel ⁴	2.10E-03	lb/MMscf	1,020	1.37E+12	1.35E+09	2.83	0.00
Phenanthrene ³	1.70E-05	lb/MMscf	1,020	1.37E+12	1.35E+09	0.02	0.00
Pyrene ³	5.00E-06	lb/MMscf	1,020	1.37E+12	1.35E+09	0.01	0.00
Selenium ⁴	2.40E-05	lb/MMscf	1,020	1.37E+12	1.35E+09	0.03	0.00
Toluene ³	3.40E-03	lb/MMscf	1,020	1.37E+12	1.35E+09	4.58	0.00
Total HAPs							1.27

¹AP-42 Section 1.4, Table 1.4-2 (7/98)

²AP-42 Section 1.4, Table 1.4-1 (7/98), emission factor for an uncontrolled boiler < 100 MMBtu/hr

³AP-42 Section 1.4, Table 1.4-3 (7/98)

⁴AP-42 Section 1.4, Table 1.4-4 (7/98)

Mode #2 - Maximum Fuel Oil Combustion and Remaining Combustion of Natural Gas

Mode #2 - Natural Gas Combustion

Pollutant	Factor	Units	Heat Value (BTU/lb ¹)	Heat Input (BTU/yr)	Usage (lb/yr)	Emissions (lb/yr)	Emissions (Tons/yr)
TSP ¹	7.6	lb/MMscf	1,020	1.26E+12	1.23E+09	9371.66	4.69
PM10 ¹	7.6	lb/MMscf	1,020	1.26E+12	1.23E+09	9371.66	4.69
SO2 ¹	0.6	lb/MMscf	1,020	1.26E+12	1.23E+09	739.87	0.37
NO2 ²	100	lb/MMscf	1,020	1.26E+12	1.23E+09	123311.35	61.66
VOC ³	5.5	lb/MMscf	1,020	1.26E+12	1.23E+09	6782.12	3.39
CO ²	84	lb/MMscf	1,020	1.26E+12	1.23E+09	103581.54	51.79
2-Methylnaphthalene ³	2.40E-05	lb/MMscf	1,020	1.26E+12	1.23E+09	0.03	0.00
3-Methylchloranthrene ³	1.80E-06	lb/MMscf	1,020	1.26E+12	1.23E+09	0.00	0.00
7, 12-Dimethylbenz(a)anthracene ³	1.60E-05	lb/MMscf	1,020	1.26E+12	1.23E+09	0.02	0.00
Acenaphthene ³	1.80E-06	lb/MMscf	1,020	1.26E+12	1.23E+09	0.00	0.00
Acenaphthylene ³	1.80E-06	lb/MMscf	1,020	1.26E+12	1.23E+09	0.00	0.00
Anthracene ³	2.40E-06	lb/MMscf	1,020	1.26E+12	1.23E+09	0.00	0.00
Arsenic ⁴	2.00E-04	lb/MMscf	1,020	1.26E+12	1.23E+09	0.25	0.00
Benz(a)anthracene ³	1.80E-06	lb/MMscf	1,020	1.26E+12	1.23E+09	0.00	0.00
Benzene ³	2.10E-03	lb/MMscf	1,020	1.26E+12	1.23E+09	2.59	0.00
Benzo(a)pyrene ³	1.20E-06	lb/MMscf	1,020	1.26E+12	1.23E+09	0.00	0.00
Benzo(b)fluoranthene ³	1.80E-06	lb/MMscf	1,020	1.26E+12	1.23E+09	0.00	0.00
Benzo(g,h,i)perylene ³	1.20E-06	lb/MMscf	1,020	1.26E+12	1.23E+09	0.00	0.00
Benzo(k)fluoranthene ³	1.80E-06	lb/MMscf	1,020	1.26E+12	1.23E+09	0.00	0.00
Beryllium ⁴	1.20E-05	lb/MMscf	1,020	1.26E+12	1.23E+09	0.01	0.00
Cadmium ⁴	1.10E-03	lb/MMscf	1,020	1.26E+12	1.23E+09	1.36	0.00
Chromium ⁴	1.40E-03	lb/MMscf	1,020	1.26E+12	1.23E+09	1.73	0.00
Chrysene ³	1.80E-06	lb/MMscf	1,020	1.26E+12	1.23E+09	0.00	0.00
Cobalt ⁴	8.40E-05	lb/MMscf	1,020	1.26E+12	1.23E+09	0.10	0.00
Dibenzo(a,h)anthracene ³	1.20E-06	lb/MMscf	1,020	1.26E+12	1.23E+09	0.00	0.00
Dichlorobenzene ³	1.20E-03	lb/MMscf	1,020	1.26E+12	1.23E+09	1.48	0.00
Fluoranthene ³	3.00E-06	lb/MMscf	1,020	1.26E+12	1.23E+09	0.00	0.00
Fluorene ³	2.80E-06	lb/MMscf	1,020	1.26E+12	1.23E+09	0.00	0.00
Formaldehyde ⁵	7.50E-02	lb/MMscf	1,020	1.26E+12	1.23E+09	92.48	0.05
Hexane ³	1.80E+00	lb/MMscf	1,020	1.26E+12	1.23E+09	2219.60	1.11
Indeno(1,2,3-cd)pyrene ³	1.80E-06	lb/MMscf	1,020	1.26E+12	1.23E+09	0.00	0.00
Manganese ³	3.80E-04	lb/MMscf	1,020	1.26E+12	1.23E+09	0.47	0.00
Mercury ³	2.60E-04	lb/MMscf	1,020	1.26E+12	1.23E+09	0.32	0.00
Naphthalene ³	6.10E-04	lb/MMscf	1,020	1.26E+12	1.23E+09	0.75	0.00
Nickel ⁴	2.10E-03	lb/MMscf	1,020	1.26E+12	1.23E+09	2.59	0.00
Phenanthrene ³	1.70E-05	lb/MMscf	1,020	1.26E+12	1.23E+09	0.02	0.00
Pyrene ³	5.00E-06	lb/MMscf	1,020	1.26E+12	1.23E+09	0.01	0.00
Selenium ⁴	2.40E-05	lb/MMscf	1,020	1.26E+12	1.23E+09	0.03	0.00
Toluene ³	3.40E-03	lb/MMscf	1,020	1.26E+12	1.23E+09	4.19	0.00
Total HAPs							1.16

¹AP-42 Section 1.4, Table 1.4-2 (7/98)

²AP-42 Section 1.4, Table 1.4-1 (7/98), emission factor for an uncontrolled boiler < 100 MMBtu/hr

³AP-42 Section 1.4, Table 1.4-3 (7/98)

⁴AP-42 Section 1.4, Table 1.4-4 (7/98)

Mode #2 - No. 2 Fuel Oil Combustion

Pollutant	Factor	Units	Heat Content (BTU/gal)	Heat Input (BTU/yr)	Usage (gal/yr)	Emissions (lb/yr)	Emissions (Tons/yr)
SO ₂ ^{1,2}	7.1	lb/Mgal	140,000	1.17E+11	836786	5941.18	2.97
NO _x ¹	20	lb/Mgal	140,000	1.17E+11	836786	16735.71	8.37
CO ¹	5	lb/Mgal	140,000	1.17E+11	836786	4183.93	2.09
TSP ³	3.3	lb/Mgal	140,000	1.17E+11	836786	2761.39	1.38
PM ₁₀ ³	3.3	lb/Mgal	140,000	1.17E+11	836786	2761.39	1.38
VOC ⁴	0.2	lb/Mgal	140,000	1.17E+11	836786	167.36	0.08
POM ⁵	3.30E-03	lb/Mgal	140,000	1.17E+11	836786	2.76	0.00
Formaldehyde ⁵	0.061	lb/Mgal	140,000	1.17E+11	836786	51.04	0.03
Arsenic ⁶	4.00E+00	lb/10 ¹² Btu	140,000	1.17E+11	836786	0.47	0.00
Beryllium ⁶	3.00E+00	lb/10 ¹² Btu	140,000	1.17E+11	836786	0.35	0.00
Cadmium ⁶	3.00E+00	lb/10 ¹² Btu	140,000	1.17E+11	836786	0.35	0.00
Chromium ⁶	3.00E+00	lb/10 ¹² Btu	140,000	1.17E+11	836786	0.35	0.00
Lead ⁶	9.00E+00	lb/10 ¹² Btu	140,000	1.17E+11	836786	1.05	0.00
Manganese ⁶	6.00E+00	lb/10 ¹² Btu	140,000	1.17E+11	836786	0.70	0.00
Mercury ⁶	3.00E+00	lb/10 ¹² Btu	140,000	1.17E+11	836786	0.35	0.00
Nickel ⁶	3.00E+00	lb/10 ¹² Btu	140,000	1.17E+11	836786	0.35	0.00
Selenium ⁶	1.50E+01	lb/10 ¹² Btu	140,000	1.17E+11	836786	1.76	0.00
Total HAPs							0.03

¹AP-42, Table 1.3-1 (5/10), assumes < 100 MMBtu/hr input and distillate oil combustion

²Assumes a fuel oil sulfur content of 0.05%

³PM₁₀ was conservatively assumed to be the addition of the total condensable PM emission factor from AP-42 Table 1.3-2 (5/10) for No. 2 oil fired combustion and the filterable PM emission factor for boilers from AP-42 Table 1.3-1 (5/10) for boilers < 100 MMBtu/hr burning distillate oil.

⁴AP-42, Table 1.3-3 (5/10). Non-methane total organic compound emission factor for distillate oil fired industrial boilers.

⁵AP-42, Table 1.3-9 (5/10)

⁶AP-42, Table 1.3-10 (5/10)

Emissions from the Blow Stills and

Tons asphalt throughput:	200,000	ton/yr
Average amount of catalyst	21	inches
	0.818	lb/ton asphalt (calculated from linear equation see Actual HCl Emission Factors.xls)

Blow Still (EU091/EU092) Emissions

Pollutant	Emission Factor	Units	Emission Factor Source	Emissions (lb/yr)	Emissions (tpy)
TSP	0.15	lb/ton asphalt	Jan. 87 stack test ^c	30,000.00	15.00
PM ₁₀	0.15	lb/ton asphalt	Jan. 87 stack test ^c	30,000.00	15.00
SO ₂	0.86	lb/ton asphalt	Trumbore, 98 ^a	172,000.00	86.00
NO _x	0.06	lb/ton asphalt	ARMA ^a	12,000.00	6.00
VOC	0.41	lb/ton asphalt	Jan. 87 & Aug. 98 stack tests ^b	82,000.00	41.00
CO	0.91	lb/ton asphalt	Aug. 98 stack test	182,000.00	91.00
CL ₂	0.01	lb/ton asphalt	Apr. 96 stack test	2,000.00	1.00
HCl	<i>See above</i>		--	163,620.00	81.81
Antimony	0.0000009	lb/ton asphalt	Trumbore, 98 ^a	0.18	0.00
Arsenic	0.000001	lb/ton asphalt	Trumbore, 98 ^a	0.20	0.00
Beryllium	0.00000007	lb/ton asphalt	Trumbore, 98 ^a	0.00	0.00
Cadmium	0.0000003	lb/ton asphalt	Trumbore, 98 ^a	0.06	0.00
Chromium	0.00001	lb/ton asphalt	Trumbore, 98 ^a	2.00	0.00
Cobalt	0.000005	lb/ton asphalt	Trumbore, 98 ^a	1.00	0.00
Lead	0.00002	lb/ton asphalt	Trumbore, 98 ^a	4.00	0.00
Manganese	0.00009	lb/ton asphalt	Trumbore, 98 ^a	18.00	0.01
Nickel	0.0001	lb/ton asphalt	Trumbore, 98 ^a	20.00	0.01
Phosphorus	0.000003	lb/ton asphalt	Trumbore, 98 ^a	0.60	0.00
Selenium	0.000001	lb/ton asphalt	Trumbore, 98 ^a	0.20	0.00
Benzene	0.003	lb/ton asphalt	Trumbore, 98 ^a	600.00	0.30
Toluene	0.002	lb/ton asphalt	ARMA ^b	400.00	0.20
Ethyl benzene	0.01	lb/ton asphalt	Trumbore, 98 ^a	2,000.00	1.00
Xylene	0.002	lb/ton asphalt	ARMA ^b	400.00	0.20
1,3 Butadiene	0.001	lb/ton asphalt	ARMA ^b	200.00	0.10
Formaldehyde	0.06	lb/ton asphalt	Aug. 98 stack test	12,000.00	6.00
Carbonyl Sulfide	0.001	lb/ton asphalt	ARMA ^b	200.00	0.10
Phenol	0.00003	lb/ton asphalt	ARMA ^b	6.00	0.00
2-methyl phenol	0.000005	lb/ton asphalt	ARMA ^b	1.00	0.00
4-methyl phenol	0.00002	lb/ton asphalt	ARMA ^b	4.00	0.00
Naphthalene	0.0001	lb/ton asphalt	Aug. 98 stack test	20.00	0.01
Di-n-butylphthalate	0.000006	lb/ton asphalt	ARMA ^b	1.20	0.00
Dimethylphthalate	0.000008	lb/ton asphalt	ARMA ^b	1.60	0.00
Bis(2-ethylhexyl)phthalate	0.00002	lb/ton asphalt	ARMA ^b	4.00	0.00
111-TCE	0.00002	lb/ton asphalt	Trumbore, 98 ^a	4.00	0.00
Benzo(a)pyrene - TAP only	0.00000008	lb/ton asphalt	ARMA ^b	0.00	0.00
4-Nitrophenol	0.00001	lb/ton asphalt	Trumbore, 98 ^a	2.00	0.00
POM	0.0002	lb/ton asphalt	ARMA ^b	40.00	0.02
Dibenzofuran	0.00008	lb/ton asphalt	ARMA ^b	16.00	0.01
Chloromethane	0.0005	lb/ton asphalt	Trumbore, 98 ^a	100.00	0.05
Vinyl chloride	0.0002	lb/ton asphalt	ARMA ^b	40.00	0.02
Chloroethane	0.0001	lb/ton asphalt	ARMA ^b	20.00	0.01
Dichloromethane	0.003	lb/ton asphalt	ARMA ^b	600.00	0.30
Chloroform	0.0002	lb/ton asphalt	ARMA ^b	40.00	0.02
Isophorone	0.000006	lb/ton asphalt	ARMA ^b	1.20	0.00

^aTrumbore, David C. 1998. "The Magnitude and Source of Air Emissions from Asphalt Blowing Operations." *Environmental Progress*. (17: 53 - 59).

^aStudies conducted by the Asphalt Roofing Manufacturers Association (ARMA).

^cPM-filterable + PM-condensable

measured in Jan. 87, assuming all PM is VOC.

Criteria Pollutant Emissions for Proposed Finished Coating Storage Tank (TK028)

Pollutant	Hourly Potential Asphalt Production Rate (ton/hr)	Annual Potential Asphalt Production Rate (tpy)	ARMA Emission Factor ¹ (lb/ton asphalt)	Control Efficiency ² (%)	Hourly Potential Emission Rate (lb/hr)	Annual Potential Emission Rate (tpy)
PM ₁₀ ²	42	200,000	0.16	90.00%	0.66	1.58
VOC	42	200,000	7.39E-01	90.00%	3.11	7.39
CO	42	200,000	3.57E-03	90.00%	0.01	0.04

¹ Studies conducted by the Asphalt Roofing Manufacturers Association (ARMA).

² Control efficiency for PM, VOC and CO from RTO is 90%.

³ Maximum potential hourly throughput based on email from John Kimble of CertainTeed on 8/24/2012.

Hazardous Air Pollutant Emissions for Proposed Finished Coating Storage Tank (TK028)

Pollutant	Hourly Potential Asphalt Production Rate (ton/hr)	Annual Potential Asphalt Production Rate (tpy)	ARMA Emission Factor ¹ (lb/ton asphalt)	Control Efficiency ² (%)	Hourly Potential Emission Rate (lb/hr)	Annual Potential Emission Rate (tpy)
Formaldehyde	42	200,000	3.11E-03	90.00%	1.30E-02	3.11E-02
COS	42	200,000	2.73E-03	90.00%	1.15E-02	2.73E-02
Naphthalene	42	200,000	1.71E-05	90.00%	7.18E-05	1.71E-04
Fluorene	42	200,000	1.14E-05	90.00%	4.79E-05	1.14E-04
Phenanthrene	42	200,000	1.83E-05	90.00%	7.69E-05	1.83E-04
Pyrene	42	200,000	1.37E-06	90.00%	5.74E-06	1.37E-05
HCl	42	200,000	2.48E-04	90.00%	1.04E-03	2.48E-03
Benzene	42	200,000	5.34E-04	90.00%	2.24E-03	5.34E-03
Toluene	42	200,000	6.30E-04	90.00%	2.65E-03	6.30E-03
Ethyl Benzene	42	200,000	7.26E-04	90.00%	3.05E-03	7.26E-03
Xylene	42	200,000	7.26E-04	90.00%	3.05E-03	7.26E-03
1,3 Butadiene	42	200,000	3.84E-04	90.00%	1.61E-03	3.84E-03
2-Methyl naphthalene	42	200,000	2.76E-05	90.00%	1.16E-04	2.76E-04
2-Methyl phenol	42	200,000	1.95E-05	90.00%	8.19E-05	1.95E-04
4-Methyl phenol	42	200,000	2.66E-05	90.00%	1.12E-04	2.66E-04
Total					3.87E-02	9.20E-02

¹ Studies conducted by the Asphalt Roofing Manufacturers Association (ARMA).

² Control efficiency for HAPs is assumed be to identical to VOC control efficiency

TABLE 6. UNCONTROLLED EMISSION FACTORS (06092003)

Emission Source	Data Source	Test Method	Pollutant	Non-Detects	Emission Rates (lbs/ton,asphalt used at coater)				NOTES	
					Emission Factor	Std. Deviation	Multiplier	Emission Factor		
Asphalt Storage Tank	Celotex	Mat'l Bal	PM/PM ₁₀		1.05E-01	NA	1.5	1.58E-01	!	1. Emission factors are based on the uncontrolled emissions as tested by ARMA . 2. THC (as C) has been converted to VOC (as propane) by multiplying by 1.223 3. ! Denotes compound is not a HAP. 4. * Denotes PAH.
	Pooled Data	M25A	THC (as C)		4.03E-01	NA	1.5	6.05E-01	!	
	See Note 1		THC (as Propane)					7.39E-01	!	
	Pooled Data	FTIR	CO		2.38E-03	NA	1.5	3.57E-03	!	
	Pooled Data	FTIR	Formaldehyde		2.07E-03	NA	1.5	3.11E-03		
	Pooled Data	FTIR	COS		1.82E-03	NA	1.5	2.73E-03		
	Pooled Data	FTIR	Naphthalene		1.14E-05	NA	1.5	1.71E-05	*	
	Pooled Data	FTIR	Fluorene		7.60E-06	NA	1.5	1.14E-05	*	
	Pooled Data	FTIR	Phenanthrene		1.22E-05	NA	1.5	1.83E-05	*	
	Pooled Data	FTIR	Pyrene	X	9.11E-07	NA	1.5	1.37E-06	*	
	Pooled Data	FTIR	HCl	X	1.65E-04	NA	1.5	2.48E-04		
	Pooled Data	FTIR	Benzene	X	3.56E-04	NA	1.5	5.34E-04		
	Pooled Data	FTIR	Toluene	X	4.20E-04	NA	1.5	6.30E-04		
	Pooled Data	FTIR	Ethyl Benzene	X	4.84E-04	NA	1.5	7.26E-04		
	Pooled Data	FTIR	Xylene	X	4.84E-04	NA	1.5	7.26E-04		
	Pooled Data	FTIR	1,3 Butadiene	X	2.56E-04	NA	1.5	3.84E-04		
	Pooled Data	FTIR	2-Methyl naphthalene		1.84E-05	NA	1.5	2.76E-05	*	
	Pooled Data	FTIR	2-Methyl phenol		1.30E-05	NA	1.5	1.95E-05	*	
	Pooled Data	FTIR	4-Methyl phenol		1.77E-05	NA	1.5	2.66E-05	*	

HAPs Total for page (with non-detects) = 9.20E-03

HAPs Total for page (w/o non-detects) = 5.96E-03

Total PAH (with Non-Detects) = 1.22E-04

Total PAH (w/o Non-Detects) = 1.20E-04

Ferric Chloride Tank Emissions

TANKs Summary

HCl Emissions (tpy)	HCl Emissions (lb/hr)
0.381	0.212

Calculation of HCl Throughput

Throughput ¹ (gpy)	Throughput (m ³ /yr)	Throughput (kg/yr)	Throughput (tpy)	Throughput HCl ² (tpy)
210,000	795	1,112,908	1,227	12.3

From MSDS received by Trinity on May 15th 2012 from CertainTeed

Chemical	Weight Percent ⁵
FeCl ₃	35-45
HCl	<1
H ₂ O	Balance
Solution SG	1.4

Ferric Chloride Tank Parameters ³	
Volume (gallon) ⁴	15,220
Interior Height (ft) ⁴	18
Interior Diameter (ft) ⁴	12
Throughput (gpy) ¹	210,000
Max Liq Height (ft)	18.0
Avg Liq Height (ft)	18.0
Turnovers per year	13.8
Heated Tank	No
Shell Color	White
Shell Condition	Good
Roof Color	White
Roof Condition	Good
Roof Type	Dome
Roof Height (ft)	2.0
Roof Radius (ft)	12.0

1. Throughput in gpy given in email from John Kimble on 8/29/2012.

2. HCl weight percentage conservatively assumed to be 1%.

3. Numbers for TANKs program that are not from sources in footnotes 1 and 4 are calculated in TANKs. The average liquid height is assumed to be the same as the maximum liquid height, and all other numbers or parameter colors and conditions are calculated or defaults.

4. Tank volume and dimensions from Shakopee Data Request v1.0 received on 6/29/2012.

5. Weight percentages used in TANKs calculations:

FeCl₃ = 40%, HCl = 1%, H₂O = 59%

Calculation of PM ₁₀ /PM _{2.5}						
T _P (°F)	P _S (mmHg)	Tavg P _H (mmHg)	T _F	E Tavg (lb/min/ft ²)	PM ₁₀ /PM _{2.5} Emissions ¹ (tpy)	PM ₁₀ /PM _{2.5} Emissions ² (lb/hr)
200	0.37	4.52	38.46	0.01	12.45	9.47

1. Evaporative flux is multiplied by the number of railcars (N) per year, duration of opening (D), and area of each opening
2. Evaporative flux is multiplied by the number of railcars open at a time (n), duration of opening (D) and area of each
3. All emissions are considered condensable, rather than filterable. Therefore, emissions are considered to be PM₀ and

TABLE 9. UNCONTROLLED EMISSION FACTORS (06092003)

Emission Source	Data Source	Test Method	Pollutant	Non-Detects	Emission Rates (lbs/ton, asphalt used at coater)				Conversion Factor (lb/lb PM ₁₀) ²	Emissions (tpy)	Emissions (lb/hr)	NOTES
					Emission Factor	Std. Deviation	Multiplier	Emission Factor				
Flux Storage Tank	See Note 5.		PM/PM ₁₀		1.05E-01	NA	1.5	1.58E-01	-	-	-	! 1. Emission factors are based on the uncontrolled emissions as tested by ARMA . 2. THC (as Hexane) has been converted to VOC (as propane) by multiplying by 1.0234 3. ! Denotes compound is not a HAP. 4. * Denotes PAH. 5. Assumed to be the same as the asphalt storage tank
	Pooled Data	M25A	THC (as Hexane)		6.07E-04	NA	1.5	9.11E-04	-	-	-	
	See Note 1		THC (as Propane)					9.32E-04	5.92E-03	7.36E-02	5.60E-02	
	Pooled Data	FTIR	CO		9.46E-05	NA	1.5	1.42E-04	9.01E-04	1.12E-02	8.53E-03	
	Pooled Data	FTIR	Formaldehyde		1.44E-05	NA	1.5	2.16E-05	1.37E-04	1.71E-03	1.30E-03	
	Pooled Data	FTIR	COS		3.10E-06	NA	1.5	4.65E-06	2.95E-05	3.68E-04	2.80E-04	
	Pooled Data	FTIR	HCl	X	5.38E-07	NA	1.5	8.07E-07	5.12E-06	6.38E-05	4.85E-05	
	Pooled Data	FTIR	Benzene	X	1.17E-06	NA	1.5	1.76E-06	1.11E-05	1.39E-04	1.06E-04	
	Pooled Data	FTIR	Toluene	X	1.38E-06	NA	1.5	2.07E-06	1.31E-05	1.64E-04	1.24E-04	
	Pooled Data	FTIR	Ethyl Benzene	X	1.58E-06	NA	1.5	2.37E-06	1.50E-05	1.87E-04	1.43E-04	
	Pooled Data	FTIR	Xylene	X	1.58E-06	NA	1.5	2.37E-06	1.50E-05	1.87E-04	1.43E-04	
	Pooled Data	FTIR	1,3 Butadiene	X	8.37E-07	NA	1.5	1.26E-06	7.97E-06	9.92E-05	7.55E-05	
	-	-	Total HAPs	-	-	-	-	-	-	2.91E-03	2.22E-03	

1. THC (as Hexane) has been converted to VOC (as propane) by multiplying by 1.0234
2. Emissions for HAPs, VOC and CO are calculated based on the ratio of their individual emission factor to that of PM/PM₁₀.

Emissions from Railcar Heating

The unloading railcars of the raw material, asphalt flux, leads to direct emissions from vents located on the roofs of incoming and stationed railcars. Factors used to determine the size and duration of emissions include the area of the vents, the number of railcars, and the duration of the unloading process requires, per railcar. The evaporative flux of asphalt flux fumes from the rail car vents was estimated using the U.S. Air Force method ; and emissions were assumed to be 100% PM10/PM2.5. The emission factors for VOCs, CO, and HAPs were estimated using a study conducted by the Asphalt Roofing Manufacturing Association (ARMA) to determine a lb-Pollutant per lb VOC factor. The value for the PM10/PM2.5 emissions in lbs/hr is based on the maximum possible hourly throughput, while the emissions in tons per year (tpy) are based on the yearly maximum number of railcars that will be unloaded.

Emission Factor Definitions			
Factor	Description	Source of Data	Equation or Value
E =	evaporative flux, (lb/min)/(ft ² pool surface)	Handbook of Chemical Hazard Analysis Procedures, EPA ¹	$E = (4.66E-6) \cdot (u)^{.75} \cdot T_F \cdot M \cdot (P_S/P_H)$
u =	windspeed just above liquid surface, mph	AP-42 7.1 Organic Liquid Storage Tanks Table 7.1-9	10.6
T _A =	absolute ambient temperature (minimum and maximum), K	AP-42 7.1 Organic Liquid Storage Tanks Table 7.1-7	274.9 285.5
T _F =	pool liquid temperature correction factor, dimensionless	Handbook of Chemical Hazard Analysis Procedures, EPA ¹	$T_P = 1.0 + 0.0043 \cdot T_P(^{\circ}C)^2$
T _P =	pool liquid temperature, F	Note 2	200
M =	pool liquid molecular weight, dimensionless	Estimates of Air Emissions from Asphalt Storage Tanks and Truck	84
P _S =	pool liquid vapor pressure at ambient temp, mmHg	Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading ³	$P_S \text{ (mmHg)} = \text{EXP}[a - b/T(r)]$
P _H =	hydrazine vapor pressure at ambient temperature, mmHg	Handbook of Chemical Hazard Analysis Procedures, EPA ¹	Equation Below ⁴
A =	area of railcar opening, ft ²	Note 2	3.14
n =	number of railcars open	Note 2	7
N =	number of cars/yr	Note 5	2300
D=	duration	Note 2	8

1. From U.S. Air Force method: Handbook of Chemical Hazard Analysis Procedures, Appendix B, Federal Emergency Management Agency, U.S. Dept. of Transportation, and U.S. Environmental Protection Agency, 1989. Page 402/520. <http://nepis.epa.gov/Adobe/PDF/10003MK5.PDF>

2. Per 7/26/2012 email from Mark Hovis

3. Trumbore, David C. "Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading." Asphalt Technology Laboratory. Owens Corning, Summit, IL 60501. Values for Clausius Clapeyron Equation: a = 18.2891, b =

$$P_H = 760 \cdot e^{65.3319 - (7245.2/T_A) - (8.22 \ln T_A) + (0.0061557 T_A)}$$

5. Per email from John Kimble July 9, 2012.

Calculation of $PM_{10}/PM_{2.5}$						
T_p (°F)	P_s (mmHg)	Tavg P_H (mmHg)	T_F	E Tavg (lb/min/ft ²)	$PM_{10}/PM_{2.5}$ Emissions ¹ (tpy)	$PM_{10}/PM_{2.5}$ Emissions ² (lb/hr)
200	0.37	4.52	38.46	0.01	12.45	9.47

1. Evaporative flux is multiplied by the number of railcars (N) per year, duration of opening (D), and area of each opening
2. Evaporative flux is multiplied by the number of railcars open at a time (n), duration of opening (D) and area of each
3. All emissions are considered condensable, rather than filterable. Therefore, emissions are considered to be PM_{10} and

TABLE 9. UNCONTROLLED EMISSION FACTORS (06092003)

Emission Source	Data Source	Test Method	Pollutant	Non-Detects	Emission Rates (lbs/ton,asph	
					Emission Factor	Std. Deviation
Flux Storage Tank	See Note 5.		PM/PM_{10}		1.05E-01	NA
	Pooled Data	M25A	THC (as Hexane)		6.07E-04	NA
	See Note 1		THC (as Propane)			
	Pooled Data	FTIR	CO		9.46E-05	NA
	Pooled Data	FTIR	Formaldehyde		1.44E-05	NA
	Pooled Data	FTIR	COS		3.10E-06	NA
	Pooled Data	FTIR	HCl	X	5.38E-07	NA
	Pooled Data	FTIR	Benzene	X	1.17E-06	NA
	Pooled Data	FTIR	Toluene	X	1.38E-06	NA
	Pooled Data	FTIR	Ethyl Benzene	X	1.58E-06	NA
	Pooled Data	FTIR	Xylene	X	1.58E-06	NA
	Pooled Data	FTIR	1,3 Butadiene	X	8.37E-07	NA
	-	-	Total HAPs	-	-	-

1. THC (as Hexane) has been converted to VOC (as propane) by multiplying by 1.0234
2. Emissions for HAPs, VOC and CO are calculated based on the ratio of their individual emission factor to that of PM/PM_{10}

Asphalt used at coater)		Conversion	Emissions	Emissions	NOTES
Multiplier	Emission Factor	Factor (lb/lb PM ₁₀) ²	(tpy)	(lb/hr)	
1.5	1.58E-01	-	-	-	! 1. Emission factors are based on the uncontrolled emissions as tested by ARMA . 2. THC (as Hexane) has been converted to VOC (as propane) by multiplying by 1.0234 3. ! Denotes compound is not a HAP. 4. * Denotes PAH. 5. Assumed to be the same as the asphalt storage tank
1.5	9.11E-04	-	-	-	
	9.32E-04	5.92E-03	7.36E-02	5.60E-02	
1.5	1.42E-04	9.01E-04	1.12E-02	8.53E-03	
1.5	2.16E-05	1.37E-04	1.71E-03	1.30E-03	
1.5	4.65E-06	2.95E-05	3.68E-04	2.80E-04	
1.5	8.07E-07	5.12E-06	6.38E-05	4.85E-05	
1.5	1.76E-06	1.11E-05	1.39E-04	1.06E-04	
1.5	2.07E-06	1.31E-05	1.64E-04	1.24E-04	
1.5	2.37E-06	1.50E-05	1.87E-04	1.43E-04	
1.5	2.37E-06	1.50E-05	1.87E-04	1.43E-04	
1.5	1.26E-06	7.97E-06	9.92E-05	7.55E-05	
-	-	-	2.91E-03	2.22E-03	

Asphalt Vapor Pressure & Temperature Correlations

Table 2. Vapor Pressure Correlations for Asphalts

For the Clausius Clapeyron Equation
 $\ln V_p (\text{mm Hg}) = a - b/T (R^2)$

Class of Asphalt	a	b	n	Average correlation coefficient
Flux	18.2891	12725.60	10	-0.99976
Paving	20.7962	15032.54	8	-0.99985
Oxidized	18.8642	13458.56	13	-0.99991

For a log log Equation
 $\log V_p (\text{mm Hg}) = A * \log T (^\circ F)^3 + B$

Class of Asphalt	a	b	n	Average correlation coefficient
Flux	7.0850	-16.8999	10	0.99736
Paving	7.8871	-19.0600	8	0.99965
	7.0607	-16.9570	13	0.99981

1. 1 Pa = 0.0075 mm Hg
2. 1 K = (R - 492) * 5/9 + 273
3. 1 °C = (F - 32) * 5/9

Asphalt Flux

T (°F)	P (kPa)
385	3.491
408	5.267

Using Clausius Clapeyron

T =	844.67 R
	385 °F
ln VP =	3.223
VP =	25.112 mmHg
	3.348 kPa

T =	867.67 R
	408 °F
ln VP =	3.623
VP =	37.438 mmHg
	4.991 kPa

Using Log-Log

T =	385 °F
log VP =	1.418
VP =	26.187 mm Hg
	3.491 kPa

T =	408 °F
log VP =	1.597
VP =	39.503 mm Hg
	5.267 kPa

Oxidized Asphalt

T (°F)	P (kPa)
400	3.470
425	5.323

Using Clausius Clapeyron

T =	859.67 R
	400 °F
ln VP =	3.209
VP =	24.747 mmHg
	3.299 kPa

T =	884.67 R
	425 °F
ln VP =	3.651
VP =	38.518 mmHg
	5.135 kPa

Using Log-Log

T =	400 °F
log VP =	1.415
VP =	26.023 mm Hg
	3.470 kPa

T =	425 °F
log VP =	1.601
VP =	39.927 mm Hg
	5.323 kPa

Supporting Data for Ferric Chloride Tank Emissions Calculations via TANKs 4.0.9d

Chemical Name in TANKs Chemical Database: Hydrochloric Acid (CAS 7647-01-0)

Parameters from Perry et. al, *Perry's Chemical Engineers' Handbook, 8th Edition*.

Liq. Mol. Weight	36.46
Vapor Mol. Weight	36.46
Liquid Density (lb/gal)	12.3512

Vapor Pressure Calculations Using Antoine Equation ² : $\log(P \text{ bar}) = A - (B/(T(K) + C))$							
A ¹	B ¹	C ¹	T (K)	logP	P (bar)	T (F)	P (psi)
4.57389	868.358	1.754	277.44	1.46	29.09	40	421.77
4.57389	868.358	1.754	283.00	1.52	33.45	50	485.02
4.57389	868.358	1.754	288.56	1.58	38.26	60	554.77
4.57389	868.358	1.754	294.11	1.64	43.54	70	631.36
4.57389	868.358	1.754	299.67	1.69	49.32	80	715.11
4.57389	868.358	1.754	305.22	1.75	55.61	90	806.33
4.57389	868.358	1.754	310.78	1.80	62.43	100	905.31

1. Antoine Equation Constants for HCl from:

2. Pressure in psi calculated for creation of chemical HCl in TANKs database using Option 1 for vapor pressure.

Chemical Name in TANKs Chemical Database: Water (CAS 7732-18-5)

Parameters from Perry et. al, *Perry's Chemical Engineers' Handbook, 8th Edition*.

Liq. Mol. Weight	18.02
Vapor Mol. Weight	18.02
Liquid Density (lb/gal)	8.345

Antoine Equation Constants for Water ³ : $\log(P)$			
Constant	A ⁴	B ⁴	C ⁴
Value	8.10765	1750.29	235

3. Vapor Pressure calculated using Option 2 in TANKs chemical database.

4. Antoine Equation Constants for H₂O from: <http://highered.mcgraw->

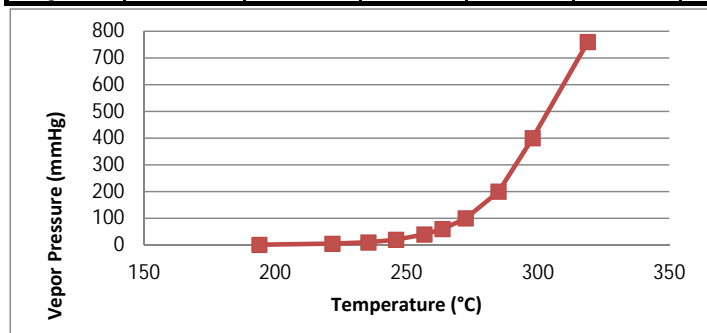
Chemical Name in TANKs Chemical Database: Ferric Chloride (CAS 7705-08-0)

Parameters from Perry et. al, *Perry's Chemical Engineers' Handbook, 8th Edition*.

Liq. Mol. Weight	270.3
Vapor Mol. Weight	270.3
Liquid Density (lb/gal)	23.4
Melting Pt. (°C)	304

Vapor Pressure Data from Perry et. al, *Perry's Chemical Engineers' Handbook, 8th Edition*.

Pressure	1	5	10	20	40	60	100	200	400	760
Temp. (°C)	194	221.8	235.5	246	256.8	263.7	272.5	285	298	319



5. Data shows that vapor pressures in range of TANKs program (40 to 100 °F) are negligible. Therefore, vapor pressure for FeCl₃ was entered as Option 1, with a vapor pressure equaling 10⁻⁶ (a close approximation of zero as the program does not accept a value of zero).

Table 1. Emission Factor Definitions

Factor	Description	Source of Data	PM	PM ₁₀	PM _{2.5}
E=	Emission Factor (lb/VMT, vehicle miles traveled,	AP-42 13.2.1, Equation 2	Equation 2		
k=	Particle Size Multiplier (lb/VMT)	AP-42 13.2.1, Table 13.2.1-1	0.011	0.0022	0.00054
sL=	Road Surface Silt Loading (g/m ²)	From silt loading tests	Varies		
P=	Number of "Wet" Days During an Averaging	AP-42 13.2.1, Figure 13.2.1-2	110		
N=	Number of Days in the Averaging Period	Annual	365		
W=	Average Vehicle Weight (tons)	2005 Permit Application Supporting Calculations 'CT Traffic Analysis Final'	Varies		

1. Per Equation 2 of AP-42 Section 13.2.1.

$$E_{ext} = [k (sL)^{0.91} \times (W)^{1.02}] (1 - P/4N)$$

Table 2. Miles Traveled by Pavement Segment

Pavement Segment ¹	Miles Traveled on Segment - By Truck Type ²												
	Out-Bound Semi Trucks	Asphalt Trucks	Sand / Granule Trucks	Filler / Headlap Trucks	Glass Mat Trucks	Misc. Raw Mat'l Trucks	Re-Supply Trucks	LTL Delivery Trucks	Shuttle Trucks	Forklift Driver Trucks	Waste Management Trucks	Coating Trailers Truck	Employee Vehicles
G	0.241	0.241	0.241	0.000	0.000	0.245	0.400	0.470	0.165	0.527	0.391	0.241	0.000
P	0.122	0.339	0.336	0.000	0.000	0.121	0.120	0.000	0.122	0.275	0.150	0.162	0.000
R	0.068	0.033	0.033	0.000	0.000	0.025	0.034	0.000	0.030	0.060	0.158	0.017	0.000
TW1	0.392	0.105	0.116	0.000	0.000	0.101	0.109	0.000	0.295	0.250	0.000	0.103	0.000
Y,X,Q	0.505	0.181	0.189	0.088	0.195	0.190	0.177	0.000	0.049	0.164	0.175	0.158	0.000
STAGING ³	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
FRONT	0.000	0.000	0.000	0.266	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PARKING ³	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.081
Veh. Freq., Trucks/Day ⁴	200.00	25.00	25.00	45.00	10.00	8.00	10.00	5.00	100.00	120.00	5.00	2.00	352.00
Total by Route	1.388	0.899	0.915	0.354	0.195	0.682	0.840	0.470	0.661	1.276	0.874	0.68	0.08

1. Segment locations located based on 2005 Surface Loading Analysis provided from John Kimble 7/17/2012 via email.

2. Miles traveled obtained by plotting truck routes and silt loading zones in ArcGIS. The ArcGIS "Measurement" tool was used to confirm the lengths of each route as it crossed the silt loading zone. Where the length was unclear, a conservative estimate was taken. This is the case especially for northbound traffic through the new paved segment between R and TW1.

3. Out-bound semi trucks are assumed to circumnavigate the STAGING zone, though the route is not shown on the roads map. 176 employees may park in the PARKING zone, and it is conservatively assumed that all employees cross the zone four times a day (entry, lunch out/back, and departure). The crossing distance is taken to be the SW/NE diagonal of the N-S rectangular zone, as the entrance is on the southwest, and the SW/NE diagonal is the longest possible distance.

4. Vehicle frequency provided by John Kimble with CertainTeed via email on 2/21/2013 and 3/16/2013.

Truck Traffic Emissions

Table 3. VMT/Day by Pavement Segment

Pavement Segment	VMT/Day by Truck and Segment ¹													VMT/Day
	Out-Bound Semi Trucks	Asphalt Trucks	Sand / Granule Trucks	Filler / Headlap Trucks	Glass Mat Trucks	Misc. Raw Mat'l Trucks	Re-Supply Trucks	LTL Delivery Trucks	Shuttle Trucks	Forklift Driver Trucks	Waste Management Trucks	Coating Trailers Truck	Employee Vehicles	Total VMT/Day by Seg.
G	48.20	6.03	6.03	0.00	0.00	1.96	4.00	2.35	16.50	63.24	1.96	0.48	0.00	150.737
P	24.40	8.48	8.40	0.00	0.00	0.97	1.20	0.00	12.20	33.00	0.75	0.32	0.00	89.717
R	13.60	0.83	0.83	0.00	0.00	0.20	0.34	0.00	3.00	7.20	0.79	0.03	0.00	26.814
TW1	78.40	2.63	2.90	0.00	0.00	0.81	1.09	0.00	29.50	30.00	0.00	0.21	0.00	145.529
Y,X,Q	101.00	4.53	4.73	3.96	1.95	1.52	1.77	0.00	4.90	19.68	0.88	0.32	0.00	145.221
STAGING	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12
FRONT	0.00	0.00	0.00	11.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.97
PARKING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.51	28.512
Total by Route	277.60	22.48	22.88	15.93	1.95	5.46	8.40	2.35	66.10	153.12	4.37	1.36	28.51	

1. VMT/Day is the product of the vehicle frequency and the distance traveled in miles.

Table 4. Percent of Truck Traffic by Segment

Pavement Segment	Percent of Traffic per Segment by Truck												
	Out-Bound Semi Trucks	Asphalt Trucks	Sand / Granule Trucks	Filler / Headlap Trucks	Glass Mat Trucks	Misc. Raw Mat'l Trucks	Re-Supply Trucks	LTL Delivery Trucks	Shuttle Trucks	Forklift Driver Trucks	Waste Management Trucks	Coating Trailers Truck	Employee Vehicles
G	32.0%	4.0%	4.0%	0.0%	0.0%	1.3%	2.7%	1.6%	10.9%	42.0%	1.3%	0.3%	0.0%
P	27.2%	9.4%	9.4%	0.0%	0.0%	1.1%	1.3%	0.0%	13.6%	36.8%	0.8%	0.4%	0.0%
R	50.7%	3.1%	3.1%	0.0%	0.0%	0.7%	1.3%	0.0%	11.2%	26.9%	2.9%	0.1%	0.0%
TW1	53.9%	1.8%	2.0%	0.0%	0.0%	0.6%	0.7%	0.0%	20.3%	20.6%	0.0%	0.1%	0.0%
Y,X,Q	69.5%	3.1%	3.3%	2.7%	1.3%	1.0%	1.2%	0.0%	3.4%	13.6%	0.6%	0.2%	0.0%
STAGING	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
FRONT	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PARKING	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

1. Percent of traffic is the fraction of VMT/day on a particular segment that is of a particular truck type. Percents sum to 100 for each segment.

Table 5. Truck Weights by Segment and Truck

Pavement Segment	Weight of Truck, by Segment, tons												
	Out-Bound Semi Trucks ²	Asphalt Trucks ³	Sand / Granule Trucks ⁴	Filler / Headlap Trucks ⁵	Glass Mat Trucks ⁶	Misc. Raw Mat'l Trucks ⁷	Re-Supply Trucks ⁸	LTL Delivery Trucks ⁹	Shuttle Trucks ¹⁰	Forklift Driver Trucks ¹¹	Waste Management Trucks ¹²	Coating Trailers Truck ¹³	Employee Vehicles ¹⁴
G	40.00	13.50	13.50	26.60	29.00	18.00	29.00	29.00	28.50	9.15	32.00	13.50	2.00
P	40.00	26.00	26.50	26.60	29.00	40.00	29.00	29.00	28.50	9.15	32.00	26.00	2.00
R	40.00	38.50	39.50	26.60	29.00	40.00	29.00	29.00	28.50	9.15	28.00	38.50	2.00
TW1	27.50	38.50	39.50	26.60	29.00	40.00	29.00	29.00	28.50	9.15	32.00	38.50	2.00
Y,X,Q	27.50	38.50	39.50	26.60	29.00	40.00	29.00	29.00	28.50	9.15	28.00	38.50	2.00
STAGING	27.50	38.50	39.50	26.60	29.00	40.00	29.00	29.00	28.50	9.15	32.00	38.50	2.00
FRONT	40.00	38.50	39.50	26.60	29.00	40.00	29.00	29.00	28.50	9.15	32.00	38.50	2.00
PARKING	40.00	38.50	39.50	26.60	29.00	40.00	29.00	29.00	28.50	9.15	32.00	38.50	2.00

1. Vehicle weight values provided by CertainTeed client contact.

2. Out-bound semi trucks load on zone TW1, after passing once through zone YXQ and STAGING unloaded. They then pass through YXQ a second time once loaded. Therefore, the loaded weight (40 tons) is used for all segments except TW1, STAGING and YXQ, where the mean value of loaded and unloaded weights (40 and 15 tons) is used.

3. Asphalt trucks unload in Zone P, and pass through other zones once. The mean value of loaded and unloaded weights (38.5 and 13.5 tons) is used in Zone P. The unloaded weight is used in Zone G, while the loaded weight is used in preceding zones.

4. Sand/granule trucks unload in Zone P, and pass through other zones once. The mean value of loaded and unloaded weights (39.5 and 13.5 tons) is used in Zone P. The unloaded weight is used in Zone G, while the loaded weight is used in preceding zones.

5. Filler/headlap trucks unload after passing through the FRONT and YXQ zones. Once unloaded, the trucks return by the same route. The mean value of loaded and unloaded weights (40.1 and 13.1 tons) is used in all zones.

6. Glass mat trucks unload after passing through the YXQ zone. The mean value of loaded and unloaded weights (40 and 18 tons) is used. YXQ is the only zone through which the glass mat trucks pass.

7. Misc. raw material trucks cross Zones YXQ, TW1, R and P while loaded, and then unload at the north end of the warehouse, shortly after entering Zone G. The unloaded weight (18 tons) is applied in Zone G, while the loaded weight (40 tons) is applied in all other zones.

8. Re-supply trucks both load and unload at the facility. The mean value of loaded and unloaded weights (40 tons and 18 tons) is used for the re-supply trucks in all zones.

9. LTL delivery trucks both load and unload at the facility. The mean value of loaded and unloaded weights (40 tons and 18 tons) is used for the LTL delivery trucks in all zones.

10. Shuttle trucks both load and unload at the facility. They do not leave the property boundary; instead they navigate round trips between Zones TW1 and G. It is assumed that the trucks are loaded when traveling in one direction and unloaded in another. The mean of the loaded and unloaded weights (45 and 12 tons) is used for the shuttle trucks in all zones.

11. Forklift driver trucks both load and unload at the facility. They do not leave the property boundary; instead they navigate round trips between Zones YXQ and G. It is assumed that the trucks are loaded when traveling in one direction and unloaded in another. The mean of the loaded and unloaded weights (11 and 7.3 tons) is used for the forklift driver trucks in all zones.

12. Waste management trucks load at the facility. It is assumed that the trucks pick up cargo as they go. The unloaded weight (24 tons) is used in Zone YXQ, while the mean of the loaded and unloaded weights (24 and 32 tons) is used in Zone R, and the loaded weight is used for conservatism in other zones.

13. Coating trailers trucks unload at the facility, after entering Zone P. The mean of the loaded and unloaded weights (38.5 and 13.5 tons) is used in Zone P, while the unloaded weight is used in Zone G, and the loaded weight is used for conservatism in other zones.

14. Employee vehicles are assumed to be 2 tons by weight at all times when vehicles are in use.

Table 6. PM Emission Calculations

Pavement Segment	Factors						Uncontrolled Emissions			Control Efficiency ⁵	Controlled Emissions		
	sL ^{1,2,3} (g/m ²)	W ⁴ (ton)	VMT/ yr	E - PM (lb/VMT)	E - PM ₁₀ (lb/VMT)	E - PM _{2.5} (lb/VMT)	PM (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)		PM (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)
G	3.98	22.74	55,019.01	0.87	0.17	0.04	23.81	4.76	1.17	80%	4.76	0.95	0.23
P	7.31	24.24	32,746.71	1.61	0.32	0.08	26.29	5.26	1.29	80%	5.26	1.05	0.26
R	6.39	29.87	9,787.11	1.76	0.35	0.09	8.61	1.72	0.42	0%	8.61	1.72	0.42
TW1	6.39	24.45	53,118.09	1.43	0.29	0.07	38.08	7.62	1.87	0%	38.08	7.62	1.87
Y,X,Q	4.75	25.95	53,005.67	1.16	0.23	0.06	30.83	6.17	1.51	0%	30.83	6.17	1.51
STAGING ³	4.75	27.50	4,380.00	1.23	0.25	0.06	2.70	0.54	0.13	0%	2.70	0.54	0.13
FRONT	4.09	26.60	4,369.05	1.04	0.21	0.05	2.27	0.45	0.11	80%	0.45	0.09	0.02
PARKING ³	1.00	2.00	10,406.88	0.02	0.00	0.00	0.11	0.02	0.01	0%	0.11	0.02	0.01
Total							132.70	26.54	6.51		90.80	18.16	4.46

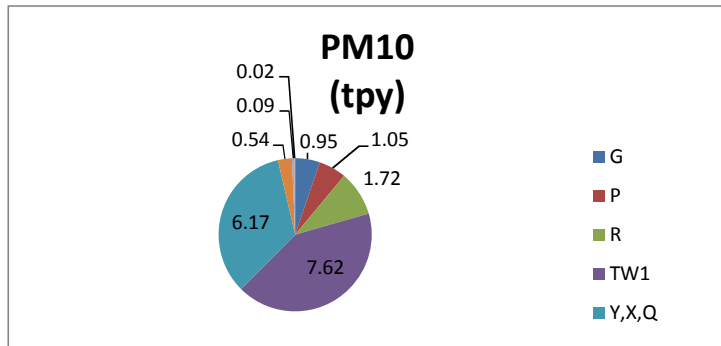
1. Silt loading of paved road segments per 2005 Surface Loading Analysis provided from John Kimble 7/17/2012 via email. Unpaved road silt content is mean silt content from sand and gravel processing facilities given in Table 13.2.2-1 to Section 13.2.2 of AP-42.

2. Staging sL assumed to be the same as Y,X,Q based on similar usage patterns. Staging area has been paved since the time of the 2005 sL analysis.

3. Parking sL value was obtained from Table 7 of the MPCA's "Estimating Fugitive Dust Emissions (Draft, July 2010)" for clean facilities. This value can be used as the parking area of the facility sees no industrial operation.

4. Vehicle weights reported here are the mean vehicle weights for each road segment. The mean vehicle weight is calculated by taking the average of the vehicle weights for the segment given in Table 5 by the percent of traffic given in Table 4.

5. Control efficiencies are based on the fugitive dust control plans implemented in the facility's original construction permit in 2005. This permit required a dust control plan to achieve 80% control on the FRONT, G and P zones.



Units with Emissions Changes

	PM	PM10	PM2.5	Sox	Nox	CO	VOC	CO2e
EU 091/092 action 007	15	15	15	86	6	91	41	
EU 091/092 action 006	46.3	46.3	46.3	87.7	5.73	47.24	6.79	
FS 001-FS 007 action 007	90.80	18.16	18.16					
FS 001-FS 007 action 006**	64.01	20.4	20.4					
EU 088 action 007							7.94	
EU 088 action 006							4.54	
CE 047 action 007	0.98	0.98	0.98	0.08	11.99	10.82	0.71	15374.27
CE 047 action 006	0.49	0.49	0.49	0.04	5.94	5.41	0.35	7687.14
TK 018 action 007		1.58	1.58			0.01	0.09	
TK 018 action 006		7.36	7.36			0.856	4.93	
Title I Increases	15.98	17.55	17.55	86.08	17.99	101.84	49.74	1.54E+04
Net Change in Emissions	(4.02)	(38.84)	(38.84)	(1.66)	6.32	48.33	33.13	7.69E+03

**PM PTE for FS 001- FS 007 from permit action 006 not available, so used original estimate of PM from FS 001 - FS 007 from permit action 007 prior to update

Units with Changes to Limits

	PM	PM10	PM2.5
PER 007			
SV 047	10.13	10.13	10.13
SV048	8.22	8.22	8.22
SV 049	6.51	6.51	6.51
SV 050	5.28	5.28	5.28
SV 051	11.37	11.37	11.37
SV 052	9.23	9.23	9.23
SV 060	2.70	2.70	2.70
SV 061	4.01	4.01	4.01
SV 062	4.67	4.67	4.67
SV 063	6.96	6.96	6.96
SV 064	3.59	3.59	3.59
PER 006			
SV 047	12.13	12.13	12.13
SV048	9.87	9.87	9.87
SV 049	7.85	7.85	7.85
SV 050	6.40	6.40	6.40
SV 051	13.60	13.60	13.60
SV 052	11.06	11.06	11.06
SV 060	3.34	3.34	3.34
SV 061	4.89	4.89	4.89
SV 062	5.67	5.67	5.67
SV 063	8.39	8.39	8.39
SV 064	4.40	4.40	4.40
Change due to PER 007	(14.95)	(14.95)	(14.95)

New Units

	PM	PM10	PM2.5	Sox	Nox	CO	VOC	CO2e
TK 025		0.79	0.79			7.10E-03	4.66E-02	
TK 027		1.58	0.01			1.42E-02	9.32E-02	
TK 028		1.58	0.04			3.57E-02	7.39E+00	
EU 111	0.48	0.48	0.48	0.04	7.57	5.35	0.35	7594.89
EU 112*		12.45	12.45				0.07	
FS 009*	6.08	1.22	1.22					
Total	6.56	18.09	14.99	0.04	7.57	5.40	7.96	7594.89

*worst case emissions when comparing rail unloading vs. truck loading/unloading

Total Title I Increases due to Permit Action 007

PM	PM10	PM2.5	Sox	Nox	CO	VOC	CO2e
22.54	35.64	32.54	86.12	25.56	107.24	57.70	22,969

Net Change in Emissions due to Permit Action 007

PM	PM10	PM2.5	Sox	Nox	CO	VOC	CO2e
(12.41)	(35.70)	(38.80)	(1.62)	13.89	53.73	41.09	1.53E+04

Attachment 2:

CD-01 Forms



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: Total Facility

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	A. NESHAP REQUIREMENTS
2.0		CD	40 CFR pt. 63, subp. DDDDD; 40 CFR Section 63.7495(c)	<p>The Permittee shall comply with all applicable requirements of 40 CFR Part 63 Subpart DDDDD by the compliance date listed below.</p> <p>For an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, the Permittee shall,</p> <p>(1) for any new or reconstructed boiler or process heater at the existing source be in compliance with 40 CFR pt. 63, subp. DDDDD upon startup.</p> <p>(2) for any existing boiler or process heater at the existing source must be in compliance with 40 CFR pt. 63, subp. DDDDD within 3 years after the startup of the GP 015 asphalt blowing operation (as defined in GP 015 of this permit).</p> <p>The Permittee shall apply for the appropriate permit amendment as applicable to incorporate the requirements of 40 CFR pt. 63, subp. DDDDD by the compliance date of the standard.</p>
3.0		CD	hdr	B. SOURCE-SPECIFIC REQUIREMENTS
4.0		CD	Minn. R. 7007.0800, subp. 2	Permit Appendix: This permit contains 2 appendices as listed in the permit Table of Contents. The Permittee shall comply with all requirements contained in the appendices.
5.0		CD	hdr	C. OPERATIONAL REQUIREMENTS
6.0		CD	40 CFR part 50; Minn. Stat. Sec. 116.07, subds. 4a and 9; Minn. R. 7007.0100, subps. 7A, 7L and 7M; Minn. R. 7007.0800, subps. 1, 2, and 4; Minn. R. 7009.0010-7009.0080	Ambient Air Quality Standards: The Permittee shall comply with and upon written request demonstrate compliance with National Primary and Secondary Ambient Air Quality Standards in Title 40 CFR part 50, and the Minnesota Ambient Air Quality Standards at Minn. R. 7009.0010 to 7009.0080.
7.0		LIMIT	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000	Operating Hours: less than or equal to 8,200 hours/year for each of the three Post-Modification Roofing Lines (#1, #2, and #3) and associated emission units, on a 12-month rolling sum basis. This limit does not apply to combustion units or asphalt storage tanks. As of permit issuance, this limit applies to EUs 011-012, 020-026, 043, 044, 046-051, 052-055, 057, 071, 072, 075-081, and 094-098.
8.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000	Hours of Operation: If the Permittee modifies, replaces, or adds new units to any of the three Post-Modification Roofing Lines (Lines #1, #2, or #3) that are not combustion units or storage tanks, such equipment is subject to the hours of operation limit as well as all of the associated hours of operation recordkeeping requirements listed in the Total Facility subject item of this permit. Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable. The Permittee may use the hours of operation limit in the calculations described in Minn. R. 7007.1200, subp. 2. A permit amendment will still be needed regardless of the emissions increase if the change will be subject to a new applicable requirement or requires revisions to the limits or monitoring and recordkeeping in this permit.
9.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000	No. 2 Fuel Oil Usage: less than or equal to 845,000 gallons/year on a 12-month rolling sum, with a sulfur content not to exceed 0.05 percent by weight.
10.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000	<p>If the Permittee modifies, replaces, or adds new No. 2 fuel oil combustion units, such equipment is subject to the applicable No. 2 fuel oil usage limit as well as all of the associated No. 2 fuel oil requirements in the Total Facility subject item of this permit. Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable. However, when calculating the emissions increase, only the hourly emissions increase (calculated per Minn. R. 7007.1200, subp. 3) shall be determined.</p> <p>A permit amendment will still be needed regardless of the emissions increase if the change will be subject to a new applicable requirement or requires revisions to the limits or monitoring and recordkeeping in this permit.</p>
11.0		CD	Minn. R. 7007.0800, subp. 2	No. 6 Fuel Oil Usage: The Permittee is prohibited from using No. 6 fuel oil in any combustion unit at the facility.



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

12.0		CD	Minn. R. 7007.0800, subps. 14 and 16(J)	Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation.
13.0		CD	Minn. R. 7017.2025	Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as specified by Minn. R. 7017.2025 following formal review of a subsequent performance test on the same unit.
14.0		CD	Minn. R. 7011.0020	Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.
15.0		CD	Minn. R. 7019.1000, subp. 4	Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.
16.0		CD	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)	Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.
17.0		CD	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0100; Minn. R. 7007.0800, subp. 2; Minn. R. 7011.0150; Minn. R. 7009.0020	Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne.
18.0		CD	Minn. R. 7030.0010 - 7030.0080	Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.
19.0		CD	Minn. R. 7007.0800, subp. 16	The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.
20.0		CD	Minn. R. 7007.0800, subp. 9(A)	Inspections: Upon presentation of credentials and other documents as may be required by law, allow the Agency, or its representative, to enter the Permittee's premises to have access to and copy any records required by this permit, to inspect at reasonable times (which include any time the source is operating) any facilities, equipment, practices or operations, and to sample or monitor any substances or parameters at any location.
21.0		CD	hdr	D. NOTIFICATION REQUIREMENTS See Table B For Additional Notification and Submittal Requirements
22.0		CD	Minn. R. 7019.1000, subp. 3	Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3, or as outlined in CE 004 requirements. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.
23.0		CD	Minn. R. 7019.1000, subp. 2	Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

24.0		CD	Minn. R. 7019.1000, subp. 1	Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.
25.0		CD	Minn. R. 7019.1000, subp. 1	Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.
26.0		CD	hdr	E. TESTING REQUIREMENTS
27.0		CD	Minn. R. ch. 7017	Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.
28.0		CD	Minn. R. 7017.2030, subps. 1-4, Minn. R. 7017.2018, and Minn. R. 7017.2035, subps. 1-2	Performance Test Notifications and Submittals: Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-Test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy or CD: due 105 days after each Performance Test. The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018. Note: For EU 091, EU 092, EU 093, and TK 018, the performance test report due 45 days after each performance test meets the requirement for submittal of performance test results 60 days after each test required by 40 CFR Section 63.10(d)(2).
29.0		CD	hdr	F. MONITORING REQUIREMENTS
30.0		CD	Minn. R. 7007.0800, subp. 4(D)	Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).
31.0		CD	Minn. R. 7007.0800, subp. 4(D)	Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.
32.0		CD	hdr	G. RECORDKEEPING REQUIREMENTS
33.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 & 5	Recordkeeping - Hours of operation of Lines #1, #2, and #3: Keep daily records of the number of hours per day of operation of each of the three Post-Modification Roofing Lines (#1, #2, and #3) and the associated emission units.
34.0		CD	Minn. R. 7007.0800, subp. 4 and 5	Recordkeeping - Hours of operation of Lines #1, #2, and #3 By the 15th day of each month: 1) calculate and record the number of hours of operation for each line during the previous month; 2) calculate and record the number of hours of operation for each line during the previous 12-month period by summing the monthly hours of operation data for the previous 12 months (12-month rolling sum).
35.0		CD	Minn. R. 7007.0800, subp. 5(B)	Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes.



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36.0		CD	Minn. R. 7007.0800, subp. 5(C)	Recordkeeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).
37.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 & 5	Recordkeeping - Fuel Usage. The Permittee shall maintain records of the total amount of No. 2 fuel oil combusted onsite, including in insignificant activities, on a monthly basis.
38.0		CD	Minn. R. 7007.0800, subp. 4 and 5	Recordkeeping - Fuel Usage By the 15th day of each month: 1) calculate and record the number of gallons of No. 2 fuel oil used during the previous month using the monthly fuel records; 2) calculate and record the number of gallons of No. 2 fuel oil used during the previous 12-month period by summing the monthly No. 2 fuel oil usage data for the previous 12 months (12-month rolling sum).
39.0		CD	Title I Condition: To avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 & 5	Recordkeeping - Fuel Oil Supplier Certification: The Permittee shall obtain a certification from the fuel supplier for each fuel oil delivery specifying the sulfur content of the oil, in percent by weight. Certification records shall be maintained for a minimum of five years from the date of receipt.
40.0		CD	Minn. R. 7007.1200, subp. 4	When the Permittee determines that no permit amendment or notification is required prior to making a change, the Permittee must retain records of all calculations required under Minn. R. 7007.1200. For expiring permits, these records shall be kept for a period of five years from the date the change was made or until permit reissuance, whichever is longer. For nonexpiring permits, these records shall be kept for a period of five years from the date that the change was made. The records shall be kept at the stationary source for the current calendar year of operation and may be kept at the stationary source or office of the stationary source for all other years. The records may be maintained in either electronic or paper format.
41.0		CD	hdr	H. REPORTING REQUIREMENTS
42.0		CD	Minn. R. 7007.1150 - 7007.1500	Application for Permit Amendment: If a permit amendment is needed, submit an application accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.
43.0		S/A	Minn. R. 7007.0400, subp. 3	Application for Permit Reissuance: due 180 days before expiration of Existing Permit
44.0		CD	Minn. R. 7007.1400, subp. 1(H)	Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H). Performance testing deadlines from the General Provisions of 40 CFR pt. 60 and pt. 63 are examples of deadlines for which the MPCA does not have authority to grant extensions and therefore do not meet the requirements of Minn. R. 7007.1400, subp. 1(H).
45.0		S/A	Minn. R. 7007.0800, subp. 6(A)(2)	Semiannual Deviations Report: due 30 days after end of each calendar half-year starting 09/28/2000. The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations occurred, the Permittee shall submit the report stating no deviations.
46.0		S/A	Minn. R. 7007.0800, subp. 4, 5, & 6	Report: due 31 days after end of each calendar year starting 02/03/2004. The report shall describe all No. 2 fuel oil combustion unit equipment changes made at the facility. This report shall be submitted with the annual compliance certification submitted to the Commissioner. See the requirement titled "Reporting - Changes of No. 2 Fuel Oil Combustion Units" in subject item Total Facility in Table A of this permit for more information regarding the content of this report.



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47.0		CD	Minn. R. 7007.0800, subp. 4, 5, & 6	Reporting - Changes of No. 2 Fuel Oil Combustion Units: For all No. 2 fuel oil combustion unit equipment changes made at the facility, the Permittee shall submit an annual report of such changes by January 31st of each year. The report shall describe changes made at the facility during the previous calendar year regardless if the change required a permit amendment. For all changes that didn't require a permit amendment, the changes shall be described by the Permittee using current applicable MPCA application forms for the new or replaced emission units, stack/vents, groups, and control equipment. The report shall be submitted with the annual Compliance Certification listed in Table B of this permit, and include the twelve monthly-calculated 12-month rolling sum No. 2 fuel oil usage values for the previous calendar year.
48.0		S/A	Minn. R. 7007.0800, subp. 6(C)	Compliance Certification: due 31 days after end of each calendar year starting 09/28/2000 (for the previous calendar year). The certification shall be submitted on a form approved by the Commissioner, both to the Commissioner, and to the U.S. EPA regional office in Chicago. This certification covers all deviations experienced during the calendar year.
49.0		CD	Minn. R. 7019.3000 - 7019.3010	Emissions Inventory Report: due on or before April 1 of each calendar year following permit issuance. To be submitted on a form approved by the Commissioner.
50.0		CD	Minn. R. 7002.0005 - 7002.0095	Emission Fees: due 60 days after receipt of an MPCA bill.



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Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: GP 001 Existing Indirect Heating Equipment

Associated Items: EU 008 Born Asphalt Heater No. 1

EU 009 Born Asphalt Heater No. 2

EU 010 Born Asphalt Heater No. 3

EU 013 Line 1 Hot Oil Heater

EU 014 Line 2 Hot Oil Heater

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	The following emission limits apply individually to each emission unit in GP 001.
2.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	Fuels Permitted: Natural gas and No. 2 fuel oil only. Refer to the Total Facility subject item in Table A of this permit for applicable No. 2 fuel oil usage, sulfur content, recordkeeping, and fuel oil certification requirements.
3.0		LIMIT	Minn. R. 7011.0510, subp. 1	Total Particulate Matter: less than or equal to 0.40 lbs/million Btu heat input . Potential emissions based on current EPA AP-42 emission factors and equipment design are 0.0075 lb/mmBtu when combusting natural gas and 0.024 lb/mmBtu when combusting No. 2 fuel oil.
4.0		LIMIT	Minn. R. 7011.0510, subp. 1	Sulfur Dioxide: less than or equal to 2.0 lbs/million Btu heat input . Potential emissions based on current EPA AP-42 emission factors and equipment design are 0.05 lb/mmBtu when combusting No. 2 fuel oil.
5.0		LIMIT	Minn. R. 7011.0510, subp. 2	Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.



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Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: GP 002 New Indirect Heating Equipment

Associated Items: EU 015 Mod Asphalt Hot Oil Heater #3

EU 056 Line #3 Hot Oil Heater

EU 087 Asphalt Heater No. 4

EU 111 Asphalt Heater #5

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	The following emission limits apply individually to each emission unit in GP 002.
2.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	Fuels Permitted: Natural gas and No. 2 fuel oil only. Refer to the Total Facility subject item in Table A of this permit for applicable No. 2 fuel oil usage, sulfur content, recordkeeping, and fuel oil certification requirements.
3.0		LIMIT	Minn. R. 7011.0515, subp. 1	Total Particulate Matter: less than or equal to 0.40 lbs/million Btu heat input . Potential emissions based on current EPA AP-42 emission factors and equipment design are 0.0075 lb/mmBtu when combusting natural gas and 0.024 lb/mmBtu when combusting No. 2 fuel oil.
4.0		LIMIT	Minn. R. 7011.0515, subp. 1	Sulfur Dioxide: less than or equal to 2.0 lbs/million Btu heat input . Potential emissions based on current EPA AP-42 emission factors and equipment design are 0.05 lb/mmBtu when combusting No. 2 fuel oil.
5.0		LIMIT	Minn. R. 7011.0515, subp. 2	Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.



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Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: GP 003 Industrial Process Equipment

Associated Items:

- EU 011 Line #1 Saturator/Coater/Mixers
- EU 012 Line #2 Saturator/Coater/Mixers
- EU 016 Sealant Pan/Independence Windseal Applicator
- EU 020 Sand Truck Rec & storage; back surfacing silo
- EU 021 Line #1 Back Surfacers Use Bin & Transfer System
- EU 023 Line #1 Surfacing Section
- EU 024 Lines #1 & #2 Filler Use Bin
- EU 025 Line #2 Surfacing Section
- EU 026 Line #2 Back Surfacers Use Bin & Transfer System
- EU 028 Line #2 Filler Heater
- EU 043 Line #3 Coater
- EU 044 Line #3 Laminant Adhesive Applicator
- EU 046 Line #3 Windseal Applicator
- EU 051 Line #3 Back surfacer Use Bin & Transfer System
- EU 052 Line #3 Surfacing section
- EU 053 Line #3 Filler Heater System
- EU 054 Line #3 Horizontal Mixer
- EU 055 Line #3 Vertical Mixer
- EU 057 Windseal Mixer
- EU 066 Modified Room Line #3 Laminant/Windseal Mixer
- EU 068 Independence Laminant Adhesive Applicator
- EU 070 Horizon Asphalt Applicator SV 047 - 052, SV 060 - 064
- EU 071 Line #1 Windseal Applicator
- EU 072 Line #2 Windseal Applicator
- EU 075 EF3A Cooling Section Line #1 SV 047
- EU 076 EF3B Cooling Section Line #1 SV 048
- EU 077 EF37 Cooling Section Line #2 SV 049
- EU 078 EF38 Cooling Section Line #2 SV 050
- EU 079 CS1 Cooling Section Line #3 SV 051
- EU 080 CS2 Cooling Section Line #3 SV 052
- EU 081 Line #3 Dry Mat Looper
- EU 088 Line #3 Nail Line Paint Applicator
- EU 089 Line #1 Filler Heater (indoor vented FF)

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	The following emission limits apply individually to each emission unit in GP 003.
2.0		LIMIT	Minn. R. 7011.0715, subp. 1(A)	Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.
3.0		LIMIT	Minn. R. 7011.0715, subp. 1(B)	Opacity: less than or equal to 20 percent opacity .



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4.0		CD	hdr	<p>The pollution control equipment requirements for the following GP 003 emission units are located in the following subject items in Table A of this permit:</p> <p>EU 011, EU012, EU 043, EU 044, EU 046, EU 054, EU 055, EU 057, EU 066, 071, 072: CE 004 (RTO) EU 016: CE 010 (mist eliminator) EU 020, EU 021, EU 023 - 026, EU 028, EU 030, EU 051 - 053: GP 008 (fabric filters)</p>
5.0		CD	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000	<p>At any time that any of the following emissions units are in operation, the Permittee shall vent that emission unit to a piece of control equipment as designated below.</p> <p>EUs 020, 021, 023 - 026, 028, 030, and 051 - 053 shall vent to a fabric filter meeting the requirements of GP 008 (fabric filters).</p> <p>EUs 071 and 072 shall vent to a thermal oxidizer meeting the requirements of CE 004 (thermal oxidizer) upon startup of the GP 015 asphalt blowing operation (as defined in GP 015 of this permit).</p>



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Subject Item: GP 008 Fabric Filter Requirements

Associated Items:

- CE 011 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
- CE 013 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
- CE 017 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
- CE 018 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
- CE 019 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
- CE 020 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
- CE 022 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
- CE 038 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
- CE 039 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
- CE 040 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
- CE 041 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
- CE 042 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
- CE 043 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
- CE 044 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
- SV 011 Line #1 Back Surfacers Use Bin & Transfer System
- SV 013 Line #1 Surfacing Section
- SV 017 Sand Truck Rec & storage
- SV 018 Sand Truck Rec & storage
- SV 019 Line #2 Surfacing Section
- SV 020 Line #2 Back Surfacers Use Bin & Transfer System
- SV 022 Line #2 Filler Heater
- SV 040 Dust Collector DC-1, Filler Silo #1
- SV 041 Dust Collector DC-2, Filler Silo #2
- SV 042 Dust Collector DC-3, Line #3 Filler Use Bin
- SV 043 Dust Collector DC-8, Line #3 Back Surfacers Use Bin
- SV 044 Dust Collector DC-7, Line #3 Surfacing Headlap and Dry Mat Looper, Headlap Silo and Transfer System
- SV 045 Dust Collector DC-4, Line #3 Filler Heater
- SV 046 Dust Collector DC-11, Lines #1 and #2 Filler Use Bin

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	The following requirements apply individually to each fabric filter in GP 008.
2.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	<p>The Permittee shall operate and maintain each fabric filter at all times that the unit controlled by the filter, as indicated below, is in operation:</p> <p>CE 011/SV 011: EU 021 Line #1 Back Surfacers Use Bin/Transfer System</p> <p>CE 013/SV 013: EU 023 Line #1 Surfacing Section</p> <p>CE 017&018/SV 017&018: EU 020 Sand Truck Receiving & Storage</p> <p>CE 019/SV 019: EU 025 Line #2 Surfacing Section</p> <p>CE 020/SV 020: EU 026 Line #2 Back Surfacers Use Bin/Transfer System</p> <p>CE 022/SV 022: EU 028 Line #2 Filler Heater</p> <p>CE 038/SV 040: EU 047 Filler Silo #1 w/Transfer System</p> <p>CE 039/SV 041: EU 048 Filler Silo #2 w/Transfer System</p> <p>CE 040/SV 042: EU 049 Line #3 Filler Use Bin/Transfer System</p> <p>CE 041/SV 043: EU 051 Line #3 Back Surfacers Use Bin/Transfer System</p> <p>CE 042/SV 044: EU 052 Line #3 Surfacing Section, EU 050 Headlap Silo/Transfer System, & Line #3 Dry Mat Looper</p> <p>CE 043/SV 045: EU 053 Line #3 Filler Heater System</p> <p>CE 044/SV 046: EU 024 Lines #1 & #2 Filler Use Bin</p>



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3.0		LIMIT	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	Total Particulate Matter: less than or equal to 0.010 grains/dry standard cubic foot for each fabric filter stack/vent.
4.0		LIMIT	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	PM < 10 micron: less than or equal to 0.010 grains/dry standard cubic foot for each fabric filter stack/vent.
5.0		LIMIT	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	PM < 2.5 micron: less than or equal to 0.010 grains/dry standard cubic foot for each fabric filter stack/vent.
6.0		LIMIT	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14	The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for Total Particulate Matter: greater than or equal to 99 percent control efficiency
7.0		LIMIT	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14	The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM < 10 micron: greater than or equal to 99 percent control efficiency
8.0		LIMIT	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14	The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM < 2.5 micron: greater than or equal to 93 percent control efficiency
9.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subps. 2, 4, & 14	Visible Emissions Check: Once each day of operation, the Permittee shall observe SV 011(CE 011), SV 013 (CE 013), SV 017 (CE 017), SV 018 (CE 018), SV 019 (CE 019), SV 020 (CE 020), SV 022 (CE 022), SV 040 (CE 038), SV 041 (CE 039), SV 042 (CE 040), SV 043 (CE 041), SV 044 (CE 042), SV 045 (CE 043), and SV 046 (CE 044) during daylight hours to determine if there are any visible emissions (VEs) from each stack/vent. If any VEs are observed, the Permittee shall follow the O&M plan for CE 011, CE 013, CE 017, CE 018, CE 019, CE 020, CE 022, CE 038, CE 039, CE 040, CE 041, CE 042, CE 043, or CE 044 as applicable, in order to eliminate the VEs as soon as possible. Each time visible emissions are observed is a deviation that must be reported in the semiannual deviations report.
10.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 and 5	Recordkeeping: The Permittee shall keep a record of all VE checks, whether or not any VEs were observed, and of any corrective actions taken. Each record shall specify the corresponding stack/vent number and shall be generated on the same day as the VE check and/or corrective action.
11.0		CD	Minn. R. 7007.0800, subp. 2	Given the characteristics of the inlet gas streams, If the Permittee is required to conduct performance test(s) on the units in GP 008, the Permittee shall test for compliance with the gr/DSCF limits and not the control efficiency limits.
12.0		CD	Minn. R. 7007.0800, subp. 2	Operation and Maintenance of control equipment: The Permittee shall operate and maintain the fabric filters according to the facility O&M plan and the control equipment manufacturer's specifications.
13.0		CD	Minn. R. 7007.0800, subps. 4, 5 and 14	Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections.



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14.0		CD	Minn. R. 7007.0800, subps. 4, 5, and 14	<p>Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur:</p> <ul style="list-style-type: none">- visible emissions are observed; or- the fabric filter or any of its components are found during the inspections to need repair. <p>Corrective actions shall eliminate visible emissions, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.</p>
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Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: GP 010 Boilers Requirements

Associated Items: EU 099 Steam Boiler #1

EU 100 Steam Boiler #2

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	A. OPERATIONAL REQUIREMENTS
2.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	Fuels Permitted: Natural gas and No. 2 fuel oil only. Refer to the Total Facility subject item of Table A of this permit for applicable fuel oil usage, sulfur content, recordkeeping, and fuel oil certification requirements.
3.0		CD	40 CFR Section 60.42c(i); Minn. R. 7011.0570	The SO2 emission limits, fuel oil sulfur limits, and percent reduction requirements apply at all times, including periods of startup, shutdown, and malfunction.
4.0		CD	hdr	B. EMISSION LIMITS (apply to each unit separately, unless otherwise noted)
5.0		LIMIT	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	Sulfur Content of Fuel: less than or equal to 0.05 percent by weight for No. 2 fuel oil being burned at the facility. This is more stringent than the 0.50 weight percent sulfur limit from 40 CFR Section 60.42c(d). This requirement also appears at in the Total Facility subject item of Table A.
6.0		LIMIT	40 CFR Section 60.42c(d); Minn. R. 7011.0570	Sulfur Content of Fuel: less than or equal to 0.50 percent by weight for No. 2 fuel oil being burned at the facility. Compliance with this limit is met by meeting the more stringent limit of 0.05 percent by weight.
7.0		LIMIT	40 CFR Section 60.42c(d); Minn. R. 7011.0570	Sulfur Dioxide: less than or equal to 0.50 lbs/million Btu heat input
8.0		CD	hdr	C. RECORDKEEPING AND REPORTING REQUIREMENTS
9.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 and 5	Recordkeeping: The Permittee shall keep daily records of the No. 2 fuel used in GP 010 boilers. These records shall be used in the 12-month rolling sum calculations required in the Total Facility subject item of Table A of this permit.
10.0		CD	40 CFR Section 60.48c(d); Minn. R. 7011.0570; Minn. R. 7007.0800, subp. 6	The Permittee of each affected facility subject to the SO2 emission limits, fuel oil sulfur limits, or percent reduction requirements under 40 CFR Section 60.42c shall submit reports to the Administrator.
11.0		CD	40 CFR Section 60.48c(e); Minn. R. 7011.0570; Minn. R. 7007.0800, subps. 5 & 6	The Permittee of each affected facility subject to the SO2 emission limits, fuel oil sulfur limits, or percent reduction requirements under 40 CFR Section 60.42c shall keep records and submit reports as required under paragraph (d) of this section, including the following information: -calendar dates covered in the reporting period -records of fuel supplier certification as described in GP 010 of this permit -certified statement signed by the owner or operator of the affected facility that the records of fuel supplier certifications submitted represent all of the fuel combusted during the reporting period.
12.0		CD	40 CFR Section 60.48c(f); Minn. R. 7011.0570	Fuel supplier certification shall include the following information: 1) for distillate oil: i. The name of the oil supplier; ii. A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in 40 CFR Section 60.41c; and iii. The sulfur content of the oil. 2) for other fuels: i. The name of the supplier of the fuel; ii. The potential sulfur emissions rate of the fuel in ng/J heat input; and iii. The method used to determine the potential sulfur emissions rate of the fuel.



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13.0		CD	40 CFR Section 60.48c(g)(2); Minn. R. 7011.0570; Minn. R. 7007.0800, subp. 5	As an alternative to meeting the requirements of paragraph (g)(1) of this section, the Permittee of an affected facility that combusts only natural gas, wood, fuels using fuel certification in 40 CFR Section 60.48c(f) to demonstrate compliance with the SO ₂ standard, fuels not subject to an emissions standard (excluding opacity), or a mixture of these fuels may elect to record and maintain records of the amount of each fuel combusted during each calendar month.
14.0		CD	40 CFR Section 60.48c(g)(3); Minn. R. 7011.0570; Minn. R. 7007.0800, subp. 5	As an alternative to meeting the requirements of paragraph (g)(1) of this section, the Permittee of an affected facility or multiple affected facilities located on a contiguous property until where the only fuels combusted in any steam generating unit (including steam generating units not subject to this subpart) at that property are natural gas, wood, distillate oil meeting the most current requirements in 40 CFR Section 60.42c to use fuel certification to demonstrate compliance with the SO ₂ standard, and/or fuels, excluding coal and residual oil, not subject to an emissions standard (excluding opacity) may elect to record and maintain records of the total amount of each steam generating unit fuel delivered to that property during each calendar month.
15.0		CD	40 CFR Section 60.48c(i); Minn. R. 7011.0570; Minn. R. 7007.0800, subp. 5	All records required under this section shall be maintained by the Permittee for a period of two (2) years following the date of such record.
16.0		CD	40 CFR Section 60.48c(j); Minn. R. 7011.0570; Minn. R. 7007.0800, subp. 6	The reporting period for the reports required under this subpart is each six-month period. All reports shall be submitted to the Administrator and shall be postmarked by the 30th day following the end of the reporting period.
17.0		CD	hdr	D. PERFORMANCE TESTING
18.0		CD	40 CFR Section 60.44c(h); Minn. R. 7011.0570	For affected facilities subject to 40 CFR Section 60.42c(h)(1), (2), or (3) where the Permittee seeks to demonstrate compliance with the SO ₂ standards based on fuel supplier certification, the performance test shall consist of the certification, the certification from the fuel supplier, as described under 40 CFR Section 60.48c(f), as applicable.
19.0		CD	40 CFR Section 60.45c(d); Minn. R. 7011.0570	The Permittee with an affected facility seeking to demonstrate compliance under 40 CFR Section 60.43c(e)(4) shall follow the applicable procedures under 40 CFR Section 60.48c(f).



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Subject Item: GP 011 Standards of Performance for Storage Vessels

Associated Items:

- TK 001 Asphalt CAS # 8052-42-4
- TK 002 Asphalt CAS # 8052-42-4
- TK 003 Asphalt CAS # 8052-42-4
- TK 004 Asphalt CAS # 8052-42-4
- TK 005 Asphalt CAS # 8052-42-4
- TK 006 Asphalt CAS # 8052-42-4
- TK 007 Asphalt CAS # 8052-42-4
- TK 008 No. 2 fuel oil CAS # 68476-30-2
- TK 010 Plasticizer CAS # 64742-52-5
- TK 011 Line #3 Asphalt Storage Tank
- TK 018 Asphalt Flux Preheat Tank
- TK 025 Asphalt Flux Storage #1
- TK 026 Asphalt Flux Storage #2
- TK 027 Asphalt Flux Premix Tank
- TK 028 Finished Coating Storage Tank

	NC/ CA	Type	Citation	Requirement
1.0		CD	Minn. R. 7007.0800, subp. 2 [stage 1]	The Permittee is authorized to install and operate TKs 018, 025, and 027, as defined by permit, at any time during the life of Air Emissions Permit No. 13900013-007. These units shall meet all the requirements of this permit.
2.0		CD	hdr	The requirements in GP 011 apply individually to each tank in GP 011.
3.0		LIMIT	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 [stage 1]	<p>Process Throughput: less than or equal to 200,000 tons/year to be calculated by the 15th day of each month for the previous 12-month period as described in GP 015 of this permit.</p> <p>This limit applies to the combined asphalt flux throughput for TK 025, and the asphalt flux throughput for TK 018 and TK 027 individually.</p> <p>Recordkeeping associated with this limit appears at GP 015.</p>
4.0		CD	hdr	MINNESOTA STANDARDS FOR LIQUID PETROLEUM AND VOLATILE ORGANIC LIQUID STORAGE VESSELS
5.0		CD	Minn. R. 7011.1505, subps. 3(B) and 3(C)	<p>This requirement applies to TKs 001-007, 010, and 011.</p> <p>For storage vessels with a storage capacity of greater than 2,000 gallons but less than or equal to 40,000 gallons the Permittee shall equip each storage vessel (tank) with a permanent submerged fill pipe or comply with the following requirements:</p> <p>(1) If the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than 78 mm Hg (1.5 psia) but not greater than 570 mm Hg (11.1 psia), the storage vessel shall be equipped with a floating roof, a vapor recovery system, or their equivalents.</p> <p>(2) If the true vapor pressure of the petroleum liquid as stored is greater than 570 mm Hg (11.1 psia), the storage vessel shall be equipped with a vapor recovery system or its equivalent.</p>



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6.0		CD	Minn. R. 7011.1505, subp. 3(C)	<p>As of permit issuance, this requirement applies only to TK 028</p> <p>For storage vessels with a storage capacity of greater than 40,000 gallons the Permittee shall comply with the following requirements:</p> <p>(1) If the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than 78 mm Hg (1.5 psia) but not greater than 570 mm Hg (11.1 psia), the storage vessel shall be equipped with a floating roof, a vapor recovery system, or their equivalents.</p> <p>(2) If the true vapor pressure of the petroleum liquid as stored is greater than 570 mm Hg (11.1 psia), the storage vessel shall be equipped with a vapor recovery system or its equivalent.</p>
7.0		CD	Minn. R. 7011.1510, subp. 1	<p>This requirement applies to TKs 008, 018, 025, 027, and 028.</p> <p>For storage vessels with a storage capacity of greater than 40,000 gallons the Permittee shall maintain the following records:</p> <p>A. Maintain a file of each type of petroleum liquid stored, of the typical Reid vapor pressure of each type of petroleum liquid stored, the dates of storage and withdrawals, and of the date on which the storage vessel is empty;</p>
8.0		CD	Minn. R. 7011.1510, subp. 1	<p>For storage vessels with a storage capacity of greater than 40,000 gallons the Permittee shall maintain the following records as applicable:</p> <p>B. Determine and record the average monthly storage temperature and true vapor pressure of the petroleum liquid stored at such temperature if:</p> <p>(1) the petroleum liquid has a true vapor pressure, as stored, greater than 26 mm Hg (0.5 psia) but less than 78 mm Hg (1.5 psia) and is stored in a storage vessel other than one equipped with a floating roof, a vapor recovery system or their equivalents; or</p> <p>(2) the petroleum liquid has a true vapor pressure, as stored, greater than 470 mm Hg (9.1 psia) and is stored in a storage vessel other than one equipped with a vapor recovery system or its equivalent</p>
9.0		CD	Minn. R. 7011.1510, subp. 2	<p>For the calculation required by Minn. R. 7011.1510, subp 1(B), the average monthly storage temperature is an arithmetic average calculated for each calendar month, or portion thereof if storage is for less than a month, from bulk liquid storage temperatures determined at least once every seven days.</p>
10.0		CD	Minn. R. 7011.1510, subp. 3	<p>For the calculation required by Minn. R. 7011.1510, subp 1(B), the true vapor pressure shall be determined by the procedure in American Petroleum Institute Bulletin 2517. This procedure is dependent upon determination of the storage temperature and the Reid vapor pressure, which requires sampling of the petroleum liquids in the storage vessels. Unless the agency or the commissioner requires in specific cases that the stored petroleum liquid be sampled, the true vapor pressure may be determined by using the average monthly storage temperature and the typical Reid vapor pressure. For those liquids for which certified specifications limiting the Reid vapor pressure exist, that Reid vapor pressure may be used. For other liquids, supporting analytical data must be made available on request of the agency or the commissioner when typical Reid vapor pressure is used.</p>
11.0		CD	Minn. R. 7007.0800, subp. 2	<p>For asphalt storage tanks only, as an alternative to the methods for determining true vapor pressure in Minn. R. 7011.1510, the Permittee may use the methods provided by "Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading" (Environmental Progress, Vol. 18 No. 4, 25--259, Trumbore, Davide C., Winter 1999) which is contained in Appendix B of this permit</p> <p>The Permittee is still required to maintain the records specified in Minn. R. 7011.1510 as applicable; however, for asphalt storage tanks, the Permittee may maintain records of the vapor pressure determined according to Appendix B of this permit in place of the Reid vapor pressure.</p>
12.0		CD	hdr	CONTROL EQUIPMENT REQUIREMENTS
13.0		CD	Minn. R. 7007.0800, subp. 2 and 14	<p>The Permittee shall vent the emissions from TKs 018, 025, and 027 to a mist eliminator meeting the requirements of GP 019.</p>
14.0		CD	hdr	NESHAP LLLL: ASPHALT PROCESSING AND ASPHALT ROOFING MANUFACTURING REQUIREMENTS



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15.0		CD	40 CFR Section 63.8683 and Minn. R. 7011.7940	<p>For all new or reconstructed tanks, with the exception of TK 028, the Permittee shall comply with the requirements of 40 CFR part 63, subpart LLLLLL upon startup. As of permit issuance this applies to tanks TKs 018, 025, and 027</p> <p>For all existing tanks meeting the applicability criteria of 40 CFR part 63, subpart LLLLLL, the Permittee shall comply with the requirements of 40 CFR part 63, subpart LLLLLL by 3 years after startup of the GP 015 asphalt blowing operation, as defined in GP 015 of this permit.</p>
16.0		CD	40 CFR Section 63.8698 and Minn. R. 7011.7940; Minn. R. 7007.0800, subp. 2	<p>TKs 018, 025, and 027 are a Group 2 asphalt storage tank under part 63 subpart LLLLLL as they are asphalt storage tanks with a capacity of 1.93 megagrams (Mg) of asphalt or greater that are not a Group 1 asphalt storage tanks.</p> <p>The following requirements are for Group 2 asphalt storage tanks. The Permittee shall determine if any of the tanks in GP 011 are Group 1 asphalt storage tanks by the compliance date for these tanks indicated in GP 011. The Permittee shall maintain records of this determination. If any of the GP 011 tanks are subject to Group 1 requirements the Permittee shall apply for the appropriate permit amendment as applicable to incorporate the Group 1 requirements within 60 days after the compliance date for these tanks.</p>
17.0		CD	40 CFR Sections 63.8681(b) and 63.8683(c)(2) and Minn. R. 7011.7940	Applicability of 40 CFR Part 60 Subpart UU and Part 63 Subpart LLLLLL: TK 018, 025, 026, and 027 are subject to 40 CFR pt. 60, subp. UU, and 40 CFR pt. 63, subp. LLLLLL. Therefore the tanks are required to comply only with the provisions of pt. 63, subp. LLLLLL.
18.0		LIMIT	40 CFR Section 63.8684(a) & part 63 subp. LLLLLL Table 1 and Minn. R. 7011.7940	Opacity: less than or equal to 0 percent opacity except for one consecutive 15-minute period in any 24-hour period when the storage tank transfer lines are being cleared. During this 15-minute period, the control device must not be bypassed. If the emissions from the asphalt storage tank are ducted to the saturator control device, the combined emissions from the saturator and storage tank must meet the 20 percent opacity limit (specified in 4.a of table 1) during this 15-minute period. At any other time, the opacity limit applies to Group 2 asphalt storage tanks.
19.0		CD	40 CFR Section 63.8685(a) and Minn. R. 7011.7940	Emission limitations (including operating limits) in subpart LLLLLL apply at all times, except during periods of startup, shutdown, and malfunction.
20.0		CD	40 CFR Section 63.8685(d) and Minn. R. 7011.7940	Site-Specific Monitoring Plan: develop and implement a written site-specific monitoring plan according to the provisions in Sections 63.8688(g) and (h).
21.0		CD	40 CFR Section 63.8685(c) and Minn. R. 7011.7940	Startup, Shutdown, and Malfunction Plan (SSMP): the Permittee shall develop and implement a written SSMP according to the provisions in Section 63.6(e)(3).
22.0		S/A	40 CFR Sections 63.8686(c) & 63.8687 & part 63 subp. LLLLLL Table 3 and Minn. R. 7011.7940	Performance Test: due 180 days after Initial Startup of TK 018, 025, 027, and 028. Testing shall be conducted for opacity from the exhaust gases of each tank and shall meet the requirements of 40 CFR Section 63.8687, and Table 3 in subp. LLLLLL.
23.0		CD	40 CFR Section 63.8691 and Minn. R. 7011.7940	Continuous Compliance Demonstration: The Permittee shall follow the procedures in Section 63.8691 and Table 5 of subp. LLLLLL to continuously determine compliance.
24.0		CD	40 CFR Section 63.8692 and Minn. R. 7011.7940	<p>Notifications: The Permittee shall submit notifications required by Section 63.8692, including the following:</p> <ol style="list-style-type: none"> 1. all applicable notifications in Sections 63.6(h)(4) and (5), 63.7(b) and (c), 63.8(f), and 63.9(b) through (f) and (h) by the dates specified; 2. notification of the actual date of startup of the affected facility not later than 15 calendar days after the startup date as required by Section 63.9(b)(4)(v); 3. initial notification not later than 120 calendar days after becoming subject to this subpart as required by Section 63.9(b)(3); 4. notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin, as required in Section 63.7(b)(1); 5. submit a notification of compliance status according to Section 63.9(h)(2)(ii), including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to Section 63.10(d)(2).
25.0		CD	40 CFR Section 63.8693 and Minn. R. 7011.7940	Reports: The Permittee shall submit applicable reports required by Section 63.8693 and subp. LLLLLL Table 6. See also GP 015 subject item of Table A and Table B for 40 CFR pt. 63, subp. LLLLLL reporting requirements.
26.0		CD	40 CFR Section 63.8694 and Minn. R. 7011.7940	Recordkeeping: The Permittee shall keep copies of all notifications and reports, startup/shutdown/malfunction records, performance test results, and records demonstrating continuous compliance as required by Sections 63.8694.



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27.0		CD	40 CFR Section 63.8694 and Minn. R. 7011.7940	The Permittee shall maintain records in a form suitable and readily available for expeditious review. The Permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance corrective action, report, or record. The Permittee shall keep each record on site for at least the first 2 years, and the records may be kept offsite for the remaining 3 years.
28.0		CD	40 CFR Section 63.8696 and Minn. R. 7011.7940	General Provisions: Follow the requirements of subp. LLLLL Table 7 to meet the requirements of part 63 subpart A.
29.0		CD	hdr	See TK 028 subject item of Table A for additional requirements for TK 028.



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: GP 012 Premodification Permit 002 NSPS Subject Units

Associated Items: CE 004 RTO (SV 004)

TK 015 Plant Windseal Day Tank

TK 016 Horizon Circulation Tank

TK 017 Horizon Batch Mixer

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	The following limits apply to each tank or unit separately.
2.0		CD	Minn. R. 7007.0800, subp. 2 and 14	The Permittee shall vent emissions from the tanks in GP 012 to a control device meeting the requirements of CE 004.
3.0		CD	40 CFR Section 63.8681(b); Minn. R. 7011.7940	<p>For all existing tanks meeting the applicability criteria of 40 CFR part 63, subpart LLLLL, the Permittee shall comply with the requirements of 40 CFR part 63, subpart LLLLL by 3 years after startup of the GP 015 asphalt blowing operation, as defined in GP 015 of this permit.</p> <p>Upon compliance with 40 CFR pt. 63, subp. LLLLL, the units in GP 012 are still an affected facility under 40 CFR pt. 60, subp. UU, but are no longer required to comply with the requirements of subp. UU.</p> <p>The Permittee shall apply for the appropriate permit amendment as applicable to incorporate the requirements for 40 CFR pt. 63, subp. LLLLL for the units in GP 012</p>
4.0		LIMIT	40 CFR Section 60.472(c); Minn. R. 7011.0950	Opacity: less than or equal to 0 percent opacity except for one consecutive 15-minute period in any 24-hour period when the transfer lines are being blown for clearing. CE 004 shall not be bypassed during this 15-minute period.



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: GP 013 Postmodification Permit 002 NSPS Subject Units

Associated Items: EU 047 Filler Silo #1 With Transfer System

EU 048 Filler Silo #2 With Transfer System

EU 049 Line #3 Filler Use Bin & Transfer System

EU 050 Headlap Silo & Transfer System

EU 082 Colored Granule Silo #21

EU 083 Colored Granule Silo #22

EU 084 Colored Granule Silo #23

EU 085 Colored Granule Silo #24

EU 086 Colored Granule Silo #25

TK 012 Line #3 Windseal Use Tank

TK 013 Line #3 Laminant Use Tank

TK 014 Line #3 Laminant Day Tank

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	The following limits apply to each emission unit or tank separately. EU 047, EU 048, EU 049, and EU 050 control equipment requirements (CE 038, CE 039, CE 040, and CE 042, respectively) are listed under GP 008 in table A of this permit. TK 012-014 control equipment requirements (CE 001 and CE 004) are listed under CE 004 in Table A of this permit.
2.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000	At any time that any of the following emissions units are in operation, the Permittee shall vent that emission unit to a piece of control equipment as designated below. EU 047-050 to a piece of control equipment meeting the requirements of GP 008 TK 012-014 to a piece of control equipment meeting the requirements of CE 004
3.0		LIMIT	40 CFR Section 60.472(d); Minn. R. 7011.0950	Opacity: less than or equal to 1 percent opacity .



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: GP 014 Line 1 and Line 2 Saturators

Associated Items: EU 011 Line #1 Saturator/Coater/Mixers

EU 012 Line #2 Saturator/Coater/Mixers

	NC/ CA	Type	Citation	Requirement
1.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	EU 011 and EU 012 Operating Prohibition: The Permittee is prohibited from simultaneously operating EU 011 and EU 012. Startup and shutdown operation of EU 011 and EU 012 are also included in this prohibition.
2.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14	The Permittee shall vent emissions to control equipment that meets the requirements of CE 004 at all times that EU 011 and/or EU 012 are in operation.
3.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 and 5	Recordkeeping (if applicable, see condition below): The Permittee shall record and keep a log of the time and date of each startup and shutdown event for each period of operation of EU 011 (Line 1 Saturator) and EU 012 (Line 2 Saturator). Data shall be entered into the log at the time of each startup and each shutdown for each emission unit. Records shall specify: 1. clock time to the nearest minute including AM or PM (or 24-hr military time) at the beginning of the startup and at the end of the shutdown; 2. month, day, and year of the startup or shutdown; 3. emission unit (EU 011 or EU 012) undergoing startup or shutdown; 4. the type of event (startup or shutdown).
4.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 and 5	If an emission unit is out of service the Recordkeeping requirement listed above does not apply. Instead, a tag with the following information is required (a) out of service date and an estimated duration, and (b) a brief note with explanation. This tag must remain with the applicable unit while it's out of service.
5.0		CD	hdr	EU 011 and EU 012 are subject to additional requirements in this permit. Refer to Table A Subject Items GP 003 and CE 004 for additional requirements for EU 011, and refer to Table A Subject Items GP 003, CE 004 and EU 012 for additional requirements for EU 012.
6.0		CD	hdr	NESHAP SUBPART LLLLLL REQUIREMENTS
7.0		CD	40 CFR Section 63.8683; Minn. R. 7011.7940	For the units in GP 014, the Permittee shall comply with the requirements 40 CFR pt. 63, subp. LLLLLL by 3 years after startup of the GP 015 asphalt blowing operation, as defined in GP 015 of this permit. Until the Permittee is in compliance with 40 CFR pt. 63, subp. LLLLLL the Permittee shall be in compliance with the applicable requirements of 40 CFR pt. 63, subp. AAAAAAA for the units in GP 014. Upon compliance with 40 CFR pt. 63, subp. LLLLLL, the Permittee is no longer subject to the requirements of 40 CFR pt. 63, subp. AAAAAAA. Upon compliance with 40 CFR pt. 63, subp. LLLLLL, EU 012 is still an affected facility under 40 CFR pt. 60, subp. UU, but is no longer required to comply with the requirements of subp. UU. The Permittee shall apply for the appropriate permit amendment as applicable to incorporate the requirements of 40 CFR pt. 63, subp. LLLLLL for the units in GP 014



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Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: GP 015 Blowstills and New Thermal Oxidizer

Associated Items: CE 047 Thermal Oxidizer

EU 091 Blowing Still #1

EU 092 Blowing Still #2

EU 093 Blowing Still #3

SV 058 Thermal Oxidizer (CE 047) Stack

	NC/ CA	Type	Citation	Requirement
1.0		CD	Minn. R. 7007.0800, subp. 2 [Stage 1]	The Permittee is authorized to install and operate EUs 091, 092 and 093, and CE 047 as defined by this permit, at any time during the life of Air Emissions Permit No. 13900013-007.
2.0		CD	40 CFR Section 63.8683(c) and Minn. R. 7011.7940 and Minn. R. 7007.0800, subp. 2	<p>Upon startup of the GP 015 units (blow stills and oxidizer), the facility becomes a major source of HAPs and the GP 015 units must be in compliance with 40 CFR pt. 63 subp. LLLLL (40 CFR Section 63.8683(c)(1)).</p> <p>Definition of "startup of the GP 015 asphalt blowing operation": The date on which the first unit of GP 015 starts up, is considered the startup date of the GP 015 blowing operation. Three (3) years after the facility becomes a major source of HAPs (3 years after the startup of the GP 015 asphalt blowing operation), the parts of the facility which are an existing affected source as defined by 40 CFR pt. 63 subp. LLLLL must be in compliance with 40 CFR pt. 63 Subpart LLLLL (40 CFR Section 63.8683 (c)(2)). No 40 CFR pt. 63 regulations for major sources of HAPs apply to the facility until after startup of the GP 015 units.</p>
3.0		CD	hdr	OPERATING AND EMISSION LIMITS
4.0		LIMIT	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 [Stage 1]	Process Throughput: less than or equal to 200,000 tons/year using 12-month Rolling Sum . This limit is on the total amount of asphalt blown in EUs 091, 092, and 093 combined.
5.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 and 5	<p>Recordkeeping - Asphalt Blowing: The Permittee shall maintain monthly records of the following:</p> <ol style="list-style-type: none"> 1) The amount of asphalt flux received by railcar during the previous month, based on purchase records; 2) The amount of asphalt flux received by tank truck during the previous month, based on purchase records; 3) The amount of oxidized asphalt received by tank truck during the previous month, based on purchase records; 4) The amount of asphalt shipped offsite via tank truck, based on shipping records; and 5) The amount of asphalt contained in TKs 025, 027, and 018 on the last operating day of the month.
6.0		CD	Minn. R. 7007.0800, subps. 4 and 5	<p>Recordkeeping - Asphalt Blowing: By the 15th day of each month the Permittee shall calculate and record the total tons of asphalt blown in the previous month based on the formula below</p> $AB = ((CI) - (PI)) + PR + PT - ST$ <p>AB = Amount of asphalt blown (tons/month) CI = Current inventory, based on monthly record of the amount of asphalt in TKs 025, 027, and 028 PI = Previous month's inventory, based on the records of the amount of asphalt in TKs 025, 027, and 018 from the month prior PR = Amount of asphalt flux received via railcar, based on purchase records PT = Amount of asphalt flux and/or oxidized asphalt received via tank truck, based on purchase records ST = Amount of asphalt flux shipped off-site via tank truck, based on shipping records</p>
7.0		CD	Minn. R. 7007.0800, subps. 4 and 5	Recordkeeping - Asphalt Blowing: By the 15th day of each month the Permittee shall calculate and record the 12-month rolling sum of tons of asphalt blown during the previous 12-month period by summing the monthly tons of asphalt blown determined according to the equation above for the previous 12 months.



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8.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 [stage 1]	Blowing Still Usage: The Permittee shall not be blowing asphalt in more than two blowing stills at any time.
9.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 and 5	Recordkeeping - Blowing Still Usage: The Permittee shall keep records of the startup and shutdown date and time for each blowing still. Records shall specify the emission unit/blowing still identification number.
10.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 [stage 1]	Fuels Permitted: Natural gas and No. 2 fuel oil only. Refer to the Total Facility subject item in Table A of this permit for applicable No. 2 fuel oil usage, sulfur content, recordkeeping, and fuel oil certification requirements.
11.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14 [stage 1]	The Permittee shall vent EUs 091, 092, and 093 to a thermal oxidizer meeting the requirement of CE 047 at all times that EUs 091, 092, or 093 are operating.
12.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14 [stage 1]	CE 047 Operation, Shutdown, and Breakdown: The Permittee shall not blow asphalt when CE 047 is not in operation. During CE 047 shutdowns and breakdowns, emissions from the blowing stills shall continue to be routed through the knockout tank for PM, PM10, and PM2.5 control.
13.0		CD	hdr	NESHAP SUBPART LLLLL REQUIREMENTS (see CE 047 for additional requirements)
14.0		CD	40 CFR Section 63.8681(b); Minn. R. 7011.7940	Applicability of 40 CFR Part 60, Subpart UU: EU 091, EU 092, and EU 093 are subject to 40 CFR pt. 60, subp. UU, and 40 CFR pt. 63, subp. LLLLL. Therefore these emission units are required to comply only with the provisions of pt. 63, subp. LLLLL.
15.0		CD	40 CFR Section 63.8685(a); Minn. R. 7011.7940	Emission limitations (including operating limits) in subpart LLLLL apply at all times, except during periods of startup, shutdown, and malfunction.
16.0		CD	40 CFR Section 63.8685(c) ; Minn. R. 7011.7940	Startup, Shutdown, and Malfunction Plan (SSMP): the Permittee shall develop and implement a written SSMP according to the provisions in Section 63.6(e)(3).
17.0		CD	40 CFR Section 63.8691; Minn. R. 7011.7940	Continuous Compliance Demonstration: The Permittee shall follow the procedures in Section 63.8691 and Table 5 of subp. LLLLL to continuously determine compliance.
18.0		CD	hdr	NEHSAP Notifications and Reports (see Table B for additional requirements)
19.0		CD	40 CFR Section 63.8692; Minn. R. 7011.7940	Notifications: The Permittee shall submit notifications required by Section 63.8692, including the following (Notifications are also listed in Table B): 1. all applicable notifications in Sections 63.6(h)(4) and (5), 63.7(b) and (c), 63.8(f), and 63.9(b) through (f) and (h) by the dates specified; 2. submit a notification of the actual date of startup of the affected facility not later than 15 calendar days after the startup date as required by Section 63.9(b)(4)(v); 3. submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin, as required in Section 63.7(b)(1); 4. submit a notification of compliance status according to Section 63.9(h)(2)(ii), including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to Section 63.10(d)(2).
20.0		S/A	40 CFR Section 63.9(b)	Notification: due 120 days after Startup of GP 015 units. The Permittee shall submit an Initial Notification in accordance with 40 CFR Section 63.9(b).
21.0		S/A	40 CFR Section 63.9(b)(4)(v)	Notification of the Actual Date of Initial Startup: due 15 days after Initial Startup of any GP 015 emission unit.



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22.0		S/A	40 CFR Section 63.9(e)	Performance Test Notification (written): due 60 days before Performance Test is scheduled to begin, as required in 40 CFR Section 63.7(b)(1).
23.0		S/A	40 CFR Section 63.9(h)(2)(ii)	Notification of compliance status: due 60 days after Performance Test. The Permittee shall submit the Notification of Compliance Status and results of the performance tests according to 40 CFR Section 63.9(h)(2)(ii).
24.0		S/A	40 CFR Section 63.8693; Minn. R. 7011.7940	<p>Semiannual Compliance Report: due 31 days after end of each calendar half-year following Startup of any GP 015 units.</p> <p>The Report shall contain the information listed in Table A under GP 015 and Section 63.8693(c) and (d).</p> <p>The first compliance report must cover the period beginning on the compliance (start up of GP 015 units) and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half year after the compliance date.</p> <p>Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.</p> <p>This report may be submitted with the Semiannual Deviations Report required by 40 CFR Part 70 and contained in Table B.</p>
25.0		CD	40 CFR Section 63.8693(c) and (d); Minn. R. 7011.7940	<p>Reports: The Permittee shall submit applicable reports required by Section 63.8693 and subp. LLLLL Table 6 (See also Table B).</p> <p>The compliance report shall contain the following information:</p> <ol style="list-style-type: none"> 1) company name and address; 2) statement by a responsible official with that official's name, title, and signature, certifying the truth accuracy, and completeness of the content of the report; 3) date of report and beginning and ending dates of the reporting period; 4) If you had a startup, shutdown, or malfunction during the reporting period and you to action consistent with you SSMP, the compliance report must include the information in Section 63.10(d)(5)(i); 5) If there are no deviations from any emission limitations (emission limit, operating limit, opacity limit, and visible emission limit) that apply to you, a statement that there were no deviations from the emission limitations during the reporting period;
26.0		CD	40 CFR Section 63.8693(c) and (d); Minn. R. 7011.7940	<p>Content of Compliance Report Continued:</p> <ol style="list-style-type: none"> 6) If there were no period during which the CPMS was out-of-control as specified in Section 63.8(c)(7), a statement that there were no periods during which the CPMS was out-of-control during the reporting period; 7) For each deviation from an emission limitation (emission limit, operating limit, opacity limit, and visible emissions limit), you must also include the information in items 8-19. 8) the date and time that each malfunction started and stopped; 9) the date and time that each CPMS was inoperative, except for zero (low-level) and high-level checks; 10) the date and time that each CPMS was out-of-control, including the information in Section 63.8(c)(8); 11) the date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period;
27.0		CD	40 CFR Section 63.8693(c) and (d); Minn. R. 7011.7940	<p>Content of Compliance Report Continued</p> <ol style="list-style-type: none"> 12) a summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period; 13) a breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes; 14) a summary of the total duration of CPMS downtime during the reporting period and the total duration of CPMS downtime as a percent of the total source operating time during that reporting period; 15) an identification of each air pollution that was monitored at the affected source; 16) a brief description of the process units; 17) a brief description of the CPMS; 18) the date of the latest CPMS certification or audit; and 19) a description of any changes in CPMS processes or controls since the last reporting period.



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28.0		CD	40 CFR Section 63.8696	General Provisions: Follow the requirements of subp. LLLLL Table 7 to meet the requirements of part 63 subpart A.
29.0		CD	hdr	NESHAP Recordkeeping
30.0		CD	40 CFR Sections 63.8694 & 63.8695; Minn. R. 7011.7940	Recordkeeping: The Permittee shall keep copies of all notifications and reports, startup/shutdown/malfunction records, performance test results, and records demonstrating continuous compliance as required by Sections 63.8694 and 63.8695.



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: GP 016 Cooling Sections Limits

Associated Items: EU 075 EF3A Cooling Section Line #1 SV 047
EU 076 EF3B Cooling Section Line #1 SV 048
EU 077 EF37 Cooling Section Line #2 SV 049
EU 078 EF38 Cooling Section Line #2 SV 050
EU 079 CS1 Cooling Section Line #3 SV 051
EU 080 CS2 Cooling Section Line #3 SV 052
EU 094 Line #2 Cooling Section Stack 3 SV 060
EU 095 Line #2 Cooling Section Stack 4 SV 061
EU 096 Line #3 Cooling Section Stack 3 SV 062
EU 097 Line #3 Cooling Section Stack 4 SV 063
EU 098 Line #3 Cooling Section Stack 5 SV 064
SV 047 EF3A Exhaust Fan Vent
SV 048 EF3B Exhaust Fan Vent
SV 049 EF37 Exhaust Fan Vent
SV 050 EF38 Exhaust Fan Vent
SV 051 CS1 Cooling Section Line #3
SV 052 CS2 Cooling Section Line #3
SV 060 Cooling Section Line 2 Stack 3
SV 061 Cooling Section Line 2 Stack 4
SV 062 Cooling Section Line 3 Stack 3
SV 063 Cooling Section Line 3 Stack 4
SV 064 Cooling Section Line 3 Stack 5

	NC/ CA	Type	Citation	Requirement
1.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	Total Particulate Matter: less than or equal to 2.47 lbs/hour from SV 047.
2.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 10 micron: less than or equal to 2.47 lbs/hour from SV 047.
3.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 2.5 micron: less than or equal to 2.47 lbs/hour from SV 047
4.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	Total Particulate Matter: less than or equal to 2.00 lbs/hour from SV 048.
5.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 10 micron: less than or equal to 2.00 lbs/hour from SV 048.



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6.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 2.5 micron: less than or equal to 2.00 lbs/hour from SV 048.
7.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	Total Particulate Matter: less than or equal to 1.59 lbs/hour from SV 049.
8.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 10 micron: less than or equal to 1.59 lbs/hour from SV 049.
9.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 2.5 micron: less than or equal to 1.59 lbs/hour from SV 049.
10.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	Total Particulate Matter: less than or equal to 1.29 lbs/hour from SV 050.
11.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 10 micron: less than or equal to 1.29 lbs/hour from SV 050.
12.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 2.5 micron: less than or equal to 1.29 lbs/hour from SV 050.
13.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	Total Particulate Matter: less than or equal to 0.66 lbs/hour from SV 060.
14.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 10 micron: less than or equal to 0.66 lbs/hour from SV 060.
15.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 2.5 micron: less than or equal to 0.66 lbs/hour from SV 060.
16.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	Total Particulate Matter: less than or equal to 0.98 lbs/hour from SV 061.
17.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 10 micron: less than or equal to 0.98 lbs/hour from SV 061.
18.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 2.5 micron: less than or equal to 0.98 lbs/hour from SV 061



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19.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	Total Particulate Matter: less than or equal to 2.77 lbs/hour from SV 051.
20.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 10 micron: less than or equal to 2.77 lbs/hour from SV 051.
21.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 2.5 micron: less than or equal to 2.77 lbs/hour from SV 051
22.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	Total Particulate Matter: less than or equal to 2.25 lbs/hour from SV 052.
23.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 10 micron: less than or equal to 2.25 lbs/hour from SV 052.
24.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 2.5 micron: less than or equal to 2.25 lbs/hour from SV 052
25.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	Total Particulate Matter: less than or equal to 1.14 lbs/hour from SV 062.
26.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 10 micron: less than or equal to 1.14 lbs/hour from SV 062.
27.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 2.5 micron: less than or equal to 1.14 lbs/hour from SV 062
28.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	Total Particulate Matter: less than or equal to 1.70 lbs/hour from SV 063.
29.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 10 micron: less than or equal to 1.70 lbs/hour from SV 063.
30.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 2.5 micron: less than or equal to 1.70 lbs/hour from SV 063
31.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	Total Particulate Matter: less than or equal to 0.88 lbs/hour from SV 064.



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32.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 10 micron: less than or equal to 0.88 lbs/hour from SV 064.
33.0		LIMIT	Title I Condition: To limit emissions to less than the major source threshold under 40 CFR Section 52.21 and Minn. R. 7007.3000	PM < 2.5 micron: less than or equal to 0.88 lbs/hour from SV 064
34.0		CD	Title I Condition: To avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subps. 2, 4, & 14	Visible Emissions Check: Once each day of operation, the Permittee shall observe each GP 016 stack/vent (SV 047, SV 048, SV 049, SV 050, SV 051, SV 052, SV 060, SV 061, SV 062, SV 063 and SV 064) during daylight hours while the equipment vented to that stack is in operation to determine if there are any visible emissions (VEs) from each stack/vent. If any VEs are observed, the Permittee shall take corrective action in order to eliminate the VEs as soon as possible.
35.0		CD	Title I Condition: To avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 5	Recordkeeping: The Permittee shall keep a record of all VE checks, whether or not any VEs were observed, and of any corrective actions taken. All records shall specify the corresponding stack/vent number.
36.0		CD	hdr	TESTING REQUIREMENTS
37.0		S/A	Title I Condition: To avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2; Minn. R. 7017.2020, subp. 1	Performance Test: due before end of each calendar 60 months starting 08/12/2009 to measure the emission rate of particulate matter from SV 052 of Cooling Section Line 3 Each test date starts a new calendar 60-month period during which testing must be performed and the Permittee shall not exceed 60 months between tests.
38.0		S/A	Title I Condition: To avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2; Minn. R. 7017.2020, subp. 1	Performance Test: due before end of each calendar 60 months starting 08/12/2009 to measure the emission rate of particulate matter less than 10 microns from SV 052 of Cooling Section Line 3 Each test date starts a new calendar 60-month period during which testing must be performed and the Permittee shall not exceed 60 months between tests.
39.0		S/A	Title I Condition: To avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2; Minn. R. 7017.2020, subp. 1	Performance Test: due before end of each calendar 60 months starting 08/12/2009 to measure the emission rate of particulate matter less than 2.5 microns from SV 052 of Cooling Section Line 3 Each test date starts a new calendar 60-month period during which testing must be performed and the Permittee shall not exceed 60 months between tests.



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: GP 017 Roadway Fugitive Emission Sources

Associated Items: FS 001 Paved facility road between south end of plant and off-site road

FS 002 Paved facility road to west of plant

FS 003 Paved employee parking south of plant

FS 004 Paved facility road to north of plant

FS 005 Paved facility road to northeast of plant

FS 006 Paved truck staging east of FS 007

FS 007 Paved facility road to southeast of plant

	NC/ CA	Type	Citation	Requirement
1.0		CD	Minn. R. 7007.0800, subp. 2	The Permittee shall develop and implement a fugitive dust control plan for FS 001, FS 002, and FS 004. The plan shall include measures to ensure 80% control of fugitive PM10 emissions from these sources. The fugitive dust control plan and program must be implemented upon startup of any GP 015 emission unit.
2.0		CD	Minn. R. 7011.0150	Fugitive Emissions: The Permittee shall not allow any road, driveway, or open area to be used without applying all such reasonable measures as may be required to prevent particulate matter from becoming airborne. The Permittee shall take reasonable precautions to prevent the discharge of visible fugitive dust emissions beyond the facility property line. Reasonable measures include but are not limited to paving or frequent clearing of roads, driveways, and parking lots; application of dust-free surfaces; or the application of water.



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: GP 018 Make Up Air Units

Associated Items: EU 101 Make up air #1 roofing manufacturing
EU 102 Make up air #2 roofing dry end
EU 103 Make up air #3 roofing packaging area
EU 104 Make up air #4 dry felt warehouse
EU 105 Make up air #5 roofing fin prod looper
EU 106 Make up air #6 felt mill stock prep
EU 107 Make up air #7 felt mill machine room
EU 108 Make up air #9 line 3 coater
EU 109 Make up air #10 line 3 laminator

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	The following emission limits apply individually to each emission unit in GP 018.
2.0		CD	Minn. R. 7007.0800, subp. 2	Permitted Fuel: natural gas only
3.0		LIMIT	Minn. R. 7011.0610, subp. 1(A)(1)	Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.
4.0		LIMIT	Minn. R. 7011.0610, subp. 1(A)(2)	Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.
5.0		LIMIT	Minn. R. 7011.0610, subp. 2(A)	Sulfur Dioxide: less than or equal to 2.0 lbs/million Btu heat input . The potential to emit from each unit is 0.00059 lb/mmBtu due to equipment design and allowable fuel.



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: GP 019 Mist Eliminators

Associated Items: CE 049 Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min

CE 050 Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min

	NC/ CA	Type	Citation	Requirement
1.0		LIMIT	Minn. R. 7007.0800, subps 2 and 14	The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for Total Particulate Matter: greater than or equal to 90 percent control efficiency
2.0		LIMIT	Minn. R. 7007.0800, subps 2 and 14	The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM < 10 micron: greater than or equal to 90 percent control efficiency
3.0		LIMIT	Minn. R. 7007.0800, subps 2 and 14	The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM < 2.5 micron: greater than or equal to 90 percent control efficiency
4.0		CD	Minn. R. 7007.0800, subps. 2 and 14	Pressure Drop: The Permittee shall maintain the pressure drop across the mist eliminators according to the manufacturers specifications, unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3 based on the values recorded during the most recent MPCA-approved performance test where compliance was demonstrated. The new range shall be implemented upon receipt of the Notice of Compliance letter granting preliminary approval. The range is final upon issuance of a permit amendment incorporating the change. The Permittee shall record the pressure drop at least once every 24 hours when in operation.
5.0		CD	Minn. R. 7007.0800, subps. 4 and 5	Recordkeeping of Pressure Drop. The Permittee shall record the time and date of each pressure drop reading and whether or not the recorded pressure drop was within the range specified in this permit.
6.0		CD	Minn. R. 7007.0800, subps. 2 and 14	The Permittee shall operate and maintain the mist eliminators at all times that any emission unit controlled by the mist eliminators in operation. For the purposes of GP 019 only, operation of the tanks does not include idle time when there is no throughput of material and the tanks are maintained at a constant temperature. The Permittee shall document periods of non-operation of the control equipment.
7.0		CD	Minn. R. 7007.0800, subp. 4	Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored fabric filter is in operation.
8.0		CD	Minn. R. 7007.0800, subps. 4, 5 and 14	Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections.
9.0		CD	Minn. R. 7007.0800, subps. 4, 5, and 14	Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - the recorded pressure drop is outside the required operating range; or - the fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.
10.0		CD	Minn. R. 7007.0800, subp. 14	The Permittee shall operate and maintain the fabric filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: GP 020 Asphalt Rail Unloading and Truck Loading/Unloading

Associated Items: EU 112 Asphalt Flux Rail Car Unloading

EU 113 Asphalt Flux Truck Unloading

EU 114 Asphalt Flux Truck Loading

	NC/ CA	Type	Citation	Requirement
1.0		CD	Minn. R. 7007.0800, subp. 2 [stage 1]	The Permittee is authorized to install and operate equipment described by EU 112, 113, and 114, at any time during the life of Air Emissions Permit No. 13900013-007.
2.0		LIMIT	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 [stage 1]	Process Throughput: less than or equal to 200,000 tons/hour to be calculated by the 15th day of each month for the previous 12-month period as described in GP 015 of this permit. This limit applies individually to the throughput of asphalt flux for each EU 112 and EU 113 the throughput of oxidized asphalt for EU 114. See GP 015 for recordkeeping associated with these activities. Recordkeeping associated with this limit appears at GP 015.
3.0		CD	hdr	The following emission limits apply individually to each emission unit in GP 020. The emission limits apply to the loading activities only and not to the fugitive road dust from the truck traffic. Emissions from those activities are addressed in GP 017.
4.0		LIMIT	Minn. R. 7011.0715, subp. 1(A)	Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.
5.0		LIMIT	Minn. R. 7011.0715, subp. 1(B)	Opacity: less than or equal to 20 percent opacity .
6.0		CD	Minn. R. 7007.0800, subp. 2 and 14	At any time EU 114 is in operation, the Permittee shall vent the emissions from EU 114 to a piece of control equipment meeting the requirements of GP 019 (Mist Eliminators).



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: EU 012 Line #2 Saturator/Coater/Mixers

Associated Items: CE 002 Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min

CE 004 RTO (SV 004)

GP 003 Industrial Process Equipment

GP 014 Line 1 and Line 2 Saturators

SV 002 CE 002 mist eliminator

SV 004 CE 004 RTO stack

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	See GP 014 and CE 004 for additional requirements.
2.0		CD	hdr	A. EMISSION LIMITS
3.0		LIMIT	40 CFR pt. 63, subp. AAAAAAA Table 2	Total Particulate Matter: less than or equal to 0.06 lbs/ton (0.03 kilograms per megagram) of asphalt shingle or mineral-surfaced roll roofing produced. This emission limit applies to the process that involves only the Coater. See monitoring and recordkeeping requirements at CE 004.
4.0		LIMIT	40 CFR pt. 63, subp. AAAAAAA Table 2	Total Particulate Matter: less than or equal to 0.30 lbs/ton (0.15 kilograms per megagram) of saturated felt or smooth-surfaced roll roofing produced. This emission limit applies to the Saturator only. See monitoring and recordkeeping requirements at CE 004.
5.0		LIMIT	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	PM < 10 micron: less than or equal to 0.08 lbs/ton (0.04 kilograms per megagram) of asphalt shingle or mineral-surfaced roll roofing produced. This emission limit applies to the process that involves only the Coater.
6.0		LIMIT	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	PM < 10 micron: less than or equal to 0.8 lbs/ton (0.4 kilograms per megagram) of saturated felt or smooth-surfaced roll roofing produced. This emission limit applies to the Saturator only.
7.0		LIMIT	40 CFR Section 60.472(a)(2); Minn. R. 7011.0950	Saturator exhaust gases Opacity: less than or equal to 20 percent opacity
8.0		CD	40 CFR Section 60.472(a)(3); Minn. R. 7011.0950	Visible Emissions: Do not exhibit any visible emissions from the saturator capture system for not more than 20 percent of any period of consecutive valid observations totaling 60 minutes.
9.0		CD	hdr	B. PERFORMANCE TEST REQUIREMENTS
10.0		S/A	Minn. R. 7017.2020, subp. 1	Performance Test: due before end of each 60 months starting 03/19/2007 to measure emissions of total particulate matter from EU 012. Each test date starts a new calendar 60-month period during which testing must be performed and the Permittee shall not exceed 60 months between tests.
11.0		S/A	Minn. R. 7017.2020, subp. 1	Performance Test: due before end of each calendar 60 months starting 03/19/2007 to measure emissions of particulate matter less than 10 microns from EU 012. Each test date starts a new calendar 60-month period during which testing must be performed and the Permittee shall not exceed 60 months between tests.
12.0		S/A	Minn. R. 7017.2020, subp. 1	Performance Test: due before end of each calendar 60 months starting 03/19/2007 to measure opacity from EU 012 (SV 004). Each test date starts a new calendar 60-month period during which testing must be performed and the Permittee shall not exceed 60 months between tests.
13.0		CD	hdr	NESHAP SUBPART LLLLLL REQUIREMENTS



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

14.0		CD	40 CFR Section 63.8683; Minn. R. 7011.7940	<p>The Permittee shall comply with the requirements 40 CFR pt. 63, subp. LLLLL for this unit by 3 years after startup of the GP 015 asphalt blowing operation, as defined in GP 015 of this permit. Until the Permittee is in compliance with 40 CFR pt. 63, subp. LLLLL the Permittee shall be in compliance with the applicable requirements of 40 CFR pt. 63, subp. AAAAAAA for this unit.</p> <p>Upon compliance with 40 CFR pt. 63, subp. LLLLL, the Permittee is no longer subject to the requirements of 40 CFR pt. 63, subp. AAAAAAA.</p> <p>Upon compliance with 40 CFR pt. 63, subp. LLLLL, EU 012 is still an affected facility under 40 CFR pt. 60, subp. UU, but is no longer required to comply with the requirements of subp. UU.</p> <p>The Permittee shall apply for the appropriate permit amendment as applicable to incorporate the requirements of 40 CFR pt. 63, subp. LLLLL for EU 012.</p>
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COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: EU 037 Emergency Generator

Associated Items: SV 037 Emergency Generator stack

	NC/ CA	Type	Citation	Requirement
1.0		LIMIT	Minn. R. 7005.0100, subp. 35a; Minn. R. 7007.0800, subp. 2	Operating Hours: less than or equal to 500 hours/year using 12-month Rolling Sum
2.0		LIMIT	Minn. R. 7011.2300, subp. 2	Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input
3.0		LIMIT	Minn. R. 7011.2300, subp. 1	Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.
4.0		CD	Minn. R. 7005.0100, subp. 35a; Minn. R. 7007.0800, subp. 5	Recordkeeping: By the 15th day of each month, calculate and record the EU 037 operating hours during the previous month and for the previous 12-month period (12-month Rolling Sum).
5.0		CD	Minn. R. 7017.2020, subp. 1	Performance Test: Upon the request of the Commissioner, testing shall be conducted in accordance with Minn. R. 7017.2001 - 7017.2060.
6.0		CD	Minn. R. 7007.0800, subp. 4	Visible Emissions (VE) Check: Once each day of operation, the Permittee shall observe the generator stack/vent during daylight hours to determine if there are any visible emissions.
7.0		CD	Minn. R. 7007.0800, subp. 5	Recordkeeping: The Permittee shall keep a record of all VE checks, whether or not any VEs were observed, and of any corrective actions taken.
8.0		CD	Minn. R. 7007.0800, subp. 2	Stack Requirements: Prior to the startup of any GP 015 emission unit the Permittee shall modify SV 037 from the current horizontal vent to an uncapped vertical vent so that emissions are discharged upward.



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: EU 043 Line #3 Coater

Associated Items: CE 001 Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min

CE 004 RTO (SV 004)

GP 003 Industrial Process Equipment

SV 004 CE 004 RTO stack

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	See CE 004 for additional requirements
2.0		CD	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000	The Permittee shall vent EU 043 to a control device meeting the requirements of CE 004 at all times that EU 043 is operating.
3.0		LIMIT	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and 7007.3000; 40 CFR Section 60.472(a)(1)(i); Minn. R. 7011.0950	Total Particulate Matter: less than or equal to 0.08 lbs/ton (0.04 kilograms per megagram) of asphalt shingle or mineral-surfaced roll roofing produced. This emission limit applies to the Coater only.
4.0		LIMIT	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	PM < 10 micron: less than or equal to 0.08 lbs/ton (0.04 kilograms per megagram) of asphalt shingle or mineral-surfaced roll roofing produced. This emission limit applies to the Coater only.
5.0		LIMIT	40 CFR Section 60.472(a)(2); Minn. R. 7011.0950	Opacity: less than or equal to 20 percent opacity from EU 043.
6.0		CD	40 CFR Section 60.472(a)(3); Minn. R. 7011.0950	Visible Emissions: Do not exhibit any visible emissions from the saturator capture system for not more than 20 percent of any period of consecutive valid observations totaling 60 minutes.
7.0		CD	hdr	B. PERFORMANCE TEST REQUIREMENTS
8.0		S/A	Minn. R. 7017.2020, subp. 1	Performance Test: due before end of each 60 months starting 02/10/2009 to measure emissions of total particulate matter from EU 043. Each test date starts a new calendar 60-month period during which testing must be performed and the Permittee shall not exceed 60 months between tests.
9.0		S/A	Minn. R. 7017.2020, subp. 1	Performance Test: due before end of each calendar 60 months starting 02/10/2009 to measure emissions of particulate matter less than 10 microns from EU 043. Each test date starts a new calendar 60-month period during which testing must be performed and the Permittee shall not exceed 60 months between tests.
10.0		S/A	Minn. R. 7017.2020, subp. 1	Performance Test: due before end of each calendar 60 months starting 02/10/2009 to measure opacity from EU 043 (SV 004). Each test date starts a new calendar 60-month period during which testing must be performed and the Permittee shall not exceed 60 months between tests.
11.0		CD	hdr	NESHAP LLLLL REQUIREMENTS
12.0		CD	40 CFR Section 63.8683; Minn. R. 7011.7940	<p>The Permittee shall comply with the requirements 40 CFR pt. 63, subp. LLLLL by 3 years after startup of the GP 015 asphalt blowing operation, as defined in GP 015 of this permit. Until the Permittee is in compliance with 40 CFR pt. 63, subp. LLLLL the Permittee shall be in compliance with the requirements of 40 CFR pt. 63, subp. AAAAAA of EU 043</p> <p>Upon compliance with 40 CFR pt. 63, subp. LLLLL, the Permittee is no longer subject to the requirements of 40 CFR pt. 63, subp. AAAAAA.</p> <p>Upon compliance with 40 CFR pt. 63, subp. LLLLL, EU 043 is still an affected facility under 40 CFR pt. 60, subp. UU, but is no longer required to comply with the requirements of subp. UU.</p> <p>The Permittee shall apply for the appropriate permit amendment as applicable to incorporate the requirements of 40 CFR pt. 63, subp. LLLLL for EU 043.</p>



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: EU 074 Line #3 Mat Preheater

Associated Items: CE 042 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 044 Dust Collector DC-7, Line #3 Surfacing Headlap and Dry Mat Looper, Headlap Silo and Transfer System

	NC/ CA	Type	Citation	Requirement
1.0		LIMIT	Minn. R. 7011.0610, subp. 1(A)(1)	Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735.
2.0		LIMIT	Minn. R. 7011.0610, subp. 1(A)(2)	Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.
3.0		CD	Minn. R. 7007.0800, subp. 2	Permitted Fuel: natural gas only



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: EU 088 Line #3 Nail Line Paint Applicator

Associated Items: GP 003 Industrial Process Equipment

SV 048 EF3B Exhaust Fan Vent

SV 049 EF37 Exhaust Fan Vent

SV 050 EF38 Exhaust Fan Vent

SV 051 CS1 Cooling Section Line #3

SV 052 CS2 Cooling Section Line #3

	NC/ CA	Type	Citation	Requirement
1.0		LIMIT	Minn. R. 7007.0800, subp. 2; Minn. R. 7005.0100, subp. 35a	Material Usage: less than or equal to 35000 gallons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period as described later in this permit. This limit applies to the paint used at EU 088
2.0		CD	Minn. R. 7007.0800, subps. 4 and 5	The Permittee shall maintain monthly records of the total quantity of paint used at EU 088. This record shall be based on purchase records.
3.0		CD	Minn. R. 7007.0800, subps. 4 and 5	Monthly Recordkeeping -- Paint Usage. By the 15th of the month, the Permittee shall calculate and record the following: 1) The total usage of paint for the previous calendar month using the monthly purchase records. This record shall also include the VOC contents of each paint as determined by the Material Content requirement of this permit; 2) The 12-month rolling sum paint usage for the previous 12-month period by summing the monthly paint usage data for the previous 12 months.
4.0		CD	Minn. R. 7007.0800, subps. 4 and 5	Material Content. VOC contents in coating materials shall be determined by the Material Safety Data Sheet (MSDS) provided by the supplier for each material used. If a material content range is given on the MSDS, the highest number in the range shall be used in all compliance calculations. Other alternative methods approved by the MPCA may be used to determine the VOC contents. The Commissioner reserves the right to require the Permittee to determine the VOC contents of any material, according to EPA or ASTM reference methods. If an EPA or ASTM reference method is used for material content determination, the data obtained shall supersede the MSDS.
5.0		CD	Minn. R. 7005.0100, subp. 35a	Maximum Contents of Materials: The Permittee assumed a VOC contents of 54.4 g/L when determining the short term potential to emit of EU 088. This VOC content is not a limit, but changing to a material that has a higher content of VOC is considered a change in method of operation that must be evaluated under Minn. R. 7007.1200, subp. 3 to determine if a permit amendment or notification is required under Minn. R. 7007.1150.



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: CE 004 RTO (SV 004)

Associated Items:

- EU 011 Line #1 Saturator/Coater/Mixers
- EU 012 Line #2 Saturator/Coater/Mixers
- EU 043 Line #3 Coater
- EU 044 Line #3 Laminant Adhesive Applicator
- EU 046 Line #3 Windseal Applicator
- EU 054 Line #3 Horizontal Mixer
- EU 055 Line #3 Vertical Mixer
- EU 057 Windseal Mixer
- EU 066 Modified Room Line #3 Laminant/Windseal Mixer
- EU 070 Horizon Asphalt Applicator SV 047 - 052, SV 060 - 064
- EU 071 Line #1 Windseal Applicator
- EU 072 Line #2 Windseal Applicator
- GP 012 Premodification Permit 002 NSPS Subject Units
- TK 001 Asphalt CAS # 8052-42-4
- TK 002 Asphalt CAS # 8052-42-4
- TK 003 Asphalt CAS # 8052-42-4
- TK 004 Asphalt CAS # 8052-42-4
- TK 005 Asphalt CAS # 8052-42-4
- TK 006 Asphalt CAS # 8052-42-4
- TK 007 Asphalt CAS # 8052-42-4
- TK 011 Line #3 Asphalt Storage Tank
- TK 012 Line #3 Windseal Use Tank
- TK 013 Line #3 Laminant Use Tank
- TK 014 Line #3 Laminant Day Tank
- TK 015 Plant Windseal Day Tank
- TK 016 Horizon Circulation Tank
- TK 017 Horizon Batch Mixer
- TK 019 Line 1 Presidential Laminate Batch Tank
- TK 020 Line 1 Presidential Laminate Day Tank
- TK 021 Line 1 Presidential Laminate Use Tank
- TK 022 Line 1 Presidential Sealant Use Tank
- TK 023 Line 2 Presidential/ Splinter Circulation Tank
- TK 024 Line 1 Splinter Off-Line Use Tank
- TK 028 Finished Coating Storage Tank

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	A. EMISSION LIMITS Limits apply to combined emissions of RTO (CE 004) and Mist Eliminators (CE 001, CE 002, CE 003) vented through SV 004.
2.0		LIMIT	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	Total Particulate Matter: less than or equal to 7.82 lbs/hour for SV 004. This emission limit is for the pollution control equipment (mist eliminator and RTO combined). During the performance test, each of the gas streams emissions (lb/hr) from the emission units and/or tanks to all three of the mist eliminators must be combined to come up with the total inlet concentration.



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3.0		LIMIT	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	PM < 10 micron: less than or equal to 7.82 lbs/hour for SV 004. This emission limit is for the pollution control equipment (mist eliminator and RTO combined). During the performance test, each of the gas streams emissions (lb/hr) from the emission units and/or tanks to all three of the mist eliminators must be combined to come up with the total inlet concentration.
4.0		LIMIT	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	Volatile Organic Compounds: less than or equal to 5.88 lbs/hour for SV 004. This emission limit is for the pollution control equipment (mist eliminator and RTO combined). During the performance test, each of the gas streams emissions (lb/hr) from the emission units and/or tanks to all three of the mist eliminators must be combined to come up with the total inlet concentration.
5.0		CD	hdr	B. OPERATIONAL REQUIREMENTS: RTO (CE 004) and Mist Eliminators (CE 001, CE 002, CE 003) Combined
6.0		CD	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 14	Routing Of EU 071 and EU 072 Emissions: Prior to startup of any GP 015 emission unit, the Permittee shall vent all EU 071 and EU 072 emissions to CE 004.
7.0		LIMIT	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 14	Operate and maintain control equipment (mist eliminators and RTO) for Total Particulate Matter: greater than or equal to 90 percent control efficiency
8.0		LIMIT	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 14	Operate and maintain control equipment (mist eliminators and RTO) for Particulate Matter < 10 micron: greater than or equal to 90 percent control efficiency
9.0		LIMIT	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 14	Operate and maintain control equipment (mist eliminators and RTO) for Volatile Organic Compounds: greater than or equal to 90 percent control efficiency
10.0		CD	Minn. R. 7007.0800, subp. 2	Operation and Maintenance of control equipment: The Permittee shall operate and maintain the mist eliminators (CE 001, CE 002, and CE 003) and the regenerative thermal oxidizer (CE 004) according to the facility O&M plan and the control equipment manufacturer's specifications. The Permittee shall document periods of non-operation of the control equipment.
11.0		LIMIT	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 14	Temperature: greater than or equal to 1440.0 degrees F in the CE 004 combustion chamber as a three-hour rolling average calculated every hour. A new minimum temperature may be set pursuant to Minn. R. 7017.2025, subp. 3, based on the average temperature recorded during the most recent MPCA-approved performance test for PM, PM10, and VOC where compliance was demonstrated. If the three-hour rolling average temperature drops below the minimum temperature limit, the PM, PM10, and VOC emissions shall be considered uncontrolled until the average minimum temperature limit is once again achieved. This shall be reported as a deviation.
12.0		CD	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	CE 004 Corrective Action: If the combustion temperature in CE 004 falls below 1440.0 degrees F, the Permittee shall take corrective action as soon as possible according to the manufacturer's specifications, and the facility O&M plan. The Permittee shall keep a log of all corrective actions taken with records entered upon completion of each corrective action.
13.0		CD	Minn. R. 7007.0800, subp. 2	CE 004 Operation, Breakdowns, and Emergency Maintenance: The Permittee shall vent all emissions sources listed in the CE 004 Associated Items, to CE 004 at all times except during CE 004 breakdown or emergency maintenance or when the three manufacturing lines are shut down. During CE 004 breakdown or emergency maintenance or when the three manufacturing lines are shut down, tank emissions shall be vented to and controlled by CE 003, and coater emissions shall be vented to and controlled by CE 001 and CE 002. CE 001, CE 002, and CE 003 shall be operating when emissions are vented to them. Emergency maintenance is defined as maintenance that must be conducted as soon as possible to avoid imminent damage to process or control equipment. The Permittee shall keep a log of start and stop times for all periods of CE 004 downtime that occur when any of the CE 004 Associated Items are operating. The log shall specify the cause of the CE 004 downtime.



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Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

14.0		CD	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21; Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	Fuels Permitted: Natural gas and No. 2 fuel oil only. Refer to the Total Facility subject item in Table A of this permit for applicable No. 2 fuel oil usage, sulfur content, recordkeeping, and fuel oil certification requirements.
15.0		CD	hdr	C. MONITORING AND RECORDKEEPING
16.0		CD	40 CFR Section 60.473(b); Minn. R. 7007.0800, subp. 4	Temperature Monitoring: The Permittee shall continuously monitor and record the temperature in the combustion zone of the pollution control equipment. The monitoring instrument shall have an accuracy of +/-18 F over its range. The monitor shall operate at all times when these pollution control equipment are operating.
17.0		CD	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 5	Temperature Recordkeeping: The Permittee shall record and maintain all CE 004, temperature records at this facility. The records shall be composed of a continuous hard copy readout or manual readings taken every 15 minutes when CE 004 is in operation.
18.0		CD	Minn. R. 7007.0800, subps. 4 and 5	Daily Monitoring: The Permittee shall physically verify the operation of the temperature recording device at least once each operating day to verify that it is working and recording properly. The Permittee shall maintain a written record of the daily verifications.
19.0		CD	Minn. R. 7007.0800, subp. 4	Monitoring Equipment: The Permittee shall install and maintain thermocouples to conduct temperature monitoring required by this permit. The monitoring equipment must be installed, in use, and properly maintained whenever operation of the monitored control equipment is required.
20.0		CD	Minn. R. 7007.0800, subps. 4, 5, and 14	Quarterly Inspections: At least once per calendar quarter, the Permittee shall inspect the control equipment internal and external system components, including but not limited to the refractory, heat exchanger, and electrical systems. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection.
21.0		CD	Minn. R. 7007.0800, subps. 4, 5, and 14	Annual Calibration: The Permittee shall calibrate the temperature monitor at least annually and shall maintain a written record of the calibration and any action resulting from the calibration.
22.0		CD	40 CFR Section 63.11563(a)	The Permittee shall maintain the operating parameters established under 40 CFR Sections 63.11562(a)(2), (b)(2), (b)(3), and (c)(2) as specified in Table 4 of this subpart.
23.0		CD	40 CFR Section 63.11563(b)	The Permittee shall develop and make available for inspection by the delegated authority, upon request, a site-specific monitoring plan for each monitoring system that addresses the following: 1. Installation of the CPMS probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (e.g., on or downstream of the last control device); 2. Performance and equipment specifications for the probe or interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction system; and 3. Performance evaluation procedures and acceptance criteria (e.g., calibrations).
24.0		CD	40 CFR Section 63.11563(b) (continued)	The site-specific monitoring plan must address the following: 1. Ongoing operation and maintenance procedures in accordance with the general requirements of Sections 63.8(c)(1), (c)(3), (c)(4)(ii), (c)(7), and (c)(8); 2. Ongoing data quality assurance procedures in accordance with the general requirements of Section 63.8(d); and 3. Ongoing recordkeeping and reporting procedures in accordance with the general requirements of Sections 63.10(c), (e)(1), and (e)(2)(i).



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

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25.0		CD	40 CFR Section 63.11563(c)	<p>The Permittee shall install, operate, and maintain a continuous parameter monitoring system (CPMS).</p> <p>1. The CPMS must complete a minimum of one cycle of operation for each successive 15-minute period.</p> <p>2. To determine the 3-hour average: (i) have a minimum of four successive cycles of operation to have a valid hour of data; (ii) have valid data from at least three of four equally spaced data values for that hour from a CPMS that is not out-of-control according to the site-specific monitoring plan; (iii) determine the 3-hour average of all recorded readings for each operating day, except as stated in paragraph (g) of this section. The Permittee must have at least two of the three hourly averages for that period using only hourly average values that are based on valid data (i.e., not from out-of-control periods).</p> <p>3. The Permittee shall record the results of each inspection, calibration, and validation check of the CPMS.</p>
26.0		CD	40 CFR Section 63.11563(d)	<p>For each temperature monitoring device, the Permittee shall meet the CPMS requirements in paragraphs (c)(1) through (c)(3) of this section and the following requirements:</p> <p>1. Locate the temperature sensor in a position that provides a representative temperature.</p> <p>2. For a noncryogenic temperature range, use a temperature sensor with a minimum measurement sensitivity of 2.8 degree C or 1.0 percent of the temperature value, whichever is larger.</p> <p>3. If a chart recorder is used, the recorder sensitivity in the minor division must be at least 20 degree F.</p>
27.0		CD	40 CFR Section 63.11563(d) (continued)	<p>4. Perform an accuracy check at least semiannually or following an operating parameter deviation:</p> <ul style="list-style-type: none"> (i) According to the procedures in the manufacturer's documentation; or (ii) By comparing the sensor output to redundant sensor output; or (iii) By comparing the sensor output to the output from a calibrated temperature measurement device; or (iv) By comparing the sensor output to the output from a temperature simulator. <p>5. Conduct accuracy checks any time the sensor exceeds the manufacturer's specified maximum operating temperature range or install a new temperature sensor.</p> <p>6. At least quarterly or following an operating parameter deviation, perform visual inspections of components if redundant sensors are not used.</p>
28.0		CD	40 CFR Section 63.11563(j)	The Permittee shall conduct a performance evaluation of each CPMS in accordance with the site-specific monitoring plan.
29.0		CD	40 CFR Section 63.11563(k)	The Permittee shall operate and maintain the CPMS in continuous operation according to the site-specific monitoring plan.
30.0		CD	40 CFR Section 63.11563(n)	At all times the Permittee shall operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the Permittee to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.
31.0		CD	40 CFR Section 63.11564(a)	The Permittee shall submit the notifications specified in paragraphs (a)(1) through (a)(6) of this section.
32.0		CD	40 CFR Section 63.11564(b)	The Permittee shall submit a compliance report as specified in paragraphs (b)(1) through (b)(4) of this section.
33.0		CD	40 CFR Section 63.11564(c)	The Permittee shall maintain the records specified in paragraphs (c)(1) through (c)(10) of this section.
34.0		CD	40 CFR Section 63.11565	The Permittee shall comply with the requirements of the General Provisions (40 CFR pt. 63, subp. A) according to Table 5 of this subpart.



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

35.0		LIMIT	40 CFR pt. 63, subp. AAAAAAA Table 2	Total Particulate Matter: less than or equal to 0.06 lbs/ton of asphalt roofing product manufactured, or Polycyclic Aromatic Hydrocarbons (PAH): less than or equal to 0.0002 lbs/ton of asphalt roofing product manufactured. This limit applies to coater-only production lines (Line 3).
36.0		LIMIT	40 CFR pt. 63, subp. AAAAAAA Table 2	Total Particulate Matter: less than or equal to 0.36 lbs/ton of asphalt roofing product manufactured or, Polycyclic Aromatic Hydrocarbons (PAH): less than or equal to 0.0009 lbs/ton of asphalt roofing product manufactured. This limit applies to combined saturator/coater production lines (Lines 1 and 2).
37.0		CD	hdr	D. PERFORMANCE TESTING
38.0		CD	Minn. R. 7007.0800, subp. 2	Given the characteristics of the inlet gas streams, If the Permittee is required to conduct performance test(s) on CE 004 the Permittee shall not conduct performance test(s) for control efficiency.
39.0		CD	hdr	E. NESHAP LLLLL REQUIREMENTS
40.0		CD	40 CFR Section 63.8683; Minn. R. 7011.7940	<p>The Permittee shall comply with the requirements 40 CFR pt. 63, subp. LLLLL by 3 years after startup of the GP 015 asphalt blowing operaiton, as defined in GP 015 of this permit. Until the Permittee is in compliance with 40 CFR pt. 63, subp. LLLLL the Permittee shall be in compliance with the requirements of 40 CFR pt. 63, subp. AAAAAAA of CE 004.</p> <p>Upon compliance with 40 CFR pt. 63, subp. LLLLL, the Permittee is no longer subject to the requirements of 40 CFR pt. 63, subp. AAAAAAA.</p> <p>Upon compliance with 40 CFR pt. 63, subp. LLLLL, the CE 004 is still an affected facility under 40 CFR pt. 60, subp. UU, but is no longer required to comply with the requirements of subp. UU.</p> <p>The Permittee shall apply for the appropriate permit amendment as applicable to incorporate the requirements of 40 CFR pt. 63, subp. LLLLL for the units in CE 004.</p>



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: CE 010 Mist Eliminator - Low Velocity, i.e., V<250 Ft/Min

Associated Items: EU 016 Sealant Pan/Independence Windseal Applicator

	NC/ CA	Type	Citation	Requirement
1.0		LIMIT	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 14	Operate and maintain control equipment for Total Particulate Matter: greater than or equal to 92 percent control efficiency
2.0		LIMIT	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 14	Operate and maintain control equipment for Particulate Matter < 10 micron: greater than or equal to 92 percent control efficiency
3.0		CD	Minn. R. 7007.0800, subp. 2	Operation and Maintenance of control equipment: The Permittee shall operate and maintain the mist eliminators according to the facility O&M plan and the control equipment manufacturer's specifications.



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: CE 047 Thermal Oxidizer

Associated Items: EU 091 Blowing Still #1

EU 092 Blowing Still #2

EU 093 Blowing Still #3

GP 015 Blowstills and New Thermal Oxidizer

	NC/ CA	Type	Citation	Requirement
1.0		CD	Minn. R. 7007.0800, subp. 2 [stage 1]	The Permittee is authorized to install and operate equipment described by CE 047, at any time during the life of Air Emissions Permit No. 13900013-007.
2.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14 [stage 1]	The Permittee shall operate CE 047 at all times that EU 091, 092, or 093 are operating.
3.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14 [stage 1]	CE 047 Operation, Shutdown, and Breakdown: The Permittee shall not blow asphalt when CE 047 is not in operation. During CE 047 shutdowns and breakdowns, emissions from the blowing stills shall continue to be routed through the knockout tank for PM10 control.
4.0		CD	40 CFR Section 63.8684(a) & part 63 subp. LLLLL Table 1; Minn. R. 7011.7940 [stage 1]	The Permittee shall comply with one of the two following limits (combustion efficiency limit or total hydrocarbons limit). The Permittee shall maintain records on-site at all times documenting the limit with which they are complying.
5.0		CD	40 CFR Section 63.8684(a) & part 63 subp. LLLLL Table 1; Minn. R. 7011.7940 [stage 1]	Combustion efficiency: greater than or equal to 99.5% for CE 047.
6.0		LIMIT	40 CFR Section 63.8684(a) & part 63 subp. LLLLL Table 1; Minn. R. 7011.7940 [stage 1]	THC (Total Hydrocarbons): less than or equal to 20 parts per million volumetric dry basis at 3% oxygen at SV 058.
7.0		CD	40 CFR Section 63.8684(b) & part 63 subp. LLLLL Table 2; Minn. R. 7011.7940; Section 63.6(e)(1)(ii)	CE 047 Combustion Zone Temperature: maintain the 3-hour average combustion zone temperature at or above the temperature measured during the most recent performance test. If the 3-hour combustion zone temperature falls below the value measured during the most recent performance test, the Permittee shall take corrective action as soon as possible to restore the temperature to at least the required minimum, according to the Startup, Shutdown, and Malfunction Plan (SSMP). Prior to the first performance test, the Permittee shall maintain the 3-hour average combustion zone temperature at or above the minimum temperature limit provided by the manufacturer. The Permittee has two options (see below) to calculate the 3-hour average combustion zone temperature. Option1: install and use an automatic system to measure, give warning, and calculate the 3-hour average temperatures, or Option 2: manually record and calculate the 3-hour average temperatures.
8.0		CD	40 CFR Section 63.8685(a); Minn. R. 7011.7940	Emission limitations (including operating limits) in subpart LLLLL apply at all times, except during periods of startup, shutdown, and malfunction.
9.0		CD	40 CFR Section 63.8685(c) ; Minn. R. 7011.7940	Startup, Shutdown, and Malfunction Plan (SSMP): the Permittee shall develop and implement a written SSMP according to the provisions in Section 63.6(e)(3).
10.0		CD	40 CFR Section 63.8688(a) and (b); Minn. R. 7011.7940	Monitoring: The Permittee shall install, operate, and maintain a continuous parameter monitoring system (CPMS) to measure CE 047 combustion zone temperature on a 3-hour average according to the requirements of Section 63.8688(a) and (b).



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

11.0		CD	40 CFR Section 63.8685(d) and 63.8688(g) and (h); Minn. R. 7011.7940	<p>Site-Specific Monitoring Plan: develop and implement a written site-specific monitoring plan according to the provisions in Section 63.8688(g) and (h). The monitoring plan must address:</p> <ul style="list-style-type: none"> - The installation of the CPMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions; - performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and data collection and reduction system; - performance evaluation procedures and acceptance criteria; - ongoing operation and maintenance procedures in accordance with the general requirements of Section 63.8(c)(1), (c)(3), (c)(4)(ii), (c)(7), and (c)(8); - ongoing data quality assurance procedures in accordance with the general requirements of Section 63.8(d); and
12.0		CD	40 CFR Section 63.8685(d) and 63.8688(g) and (h); Minn. R. 7011.7940	<p>Site-Specific Monitoring Plan Continued:</p> <ul style="list-style-type: none"> - On-going recordkeeping and reporting procedures in accordance with the general requirements of Section 63.10(c), (e)(1), and (e)(2)(i);
13.0		CD	40 CFR Section 63.8688(i) and (j); Minn. R. 7011.7940	<p>The Permittee shall conduct a performance evaluation of the CPMS in accordance with Section 63.8688(i) and the site-specific monitoring plan, and operate and maintain the CPMS in continuous operation according to the site-specific monitoring plan.</p>
14.0		CD	40 CFR Section 63.8690(b) and (c); Minn. R. 7011.7940	<p>Except for monitor malfunctions, associated repairs, and required quality assurance or control activities, the Permittee shall monitor continuously (or collect data at all required intervals) at all times that the affected source is operating. This includes periods of startup, shutdown, and malfunctions when the affected source is operating</p> <p>The Permittee shall not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels, nor may such data be used in fulfilling a minimum data availability requirement, if applicable. The Permittee shall use all the data collected during all other periods in assessing the operation of the control device and associated control system.</p>
15.0		CD	Minn. R. 7007.0800, subps. 4 and 5	<p>Daily Monitoring: The Permittee shall physically verify the operation of the temperature recording device at least once each operating day to verify that it is working and recording properly. The Permittee shall maintain a written record of the daily verifications.</p>
16.0		CD	Minn. R. 7007.0800, subps. 4 and 5	<p>The Permittee shall maintain and operate a thermocouple monitoring device that continuously indicates and records the combustion chamber temperature of the thermal oxidizer. The monitoring device shall have a margin of error less than the greater of +/- 0.75 percent of the temperature being measured or +/- 2.5 degrees Celsius. The recording device shall also calculate the three-hour rolling average combustion chamber temperature.</p>
17.0		CD	Minn. R. 7007.0800, subps. 4, 5, and 14	<p>Quarterly Inspections: At least once per calendar quarter, the Permittee shall inspect the control equipment internal and external system components, including but not limited to the refractory, heat exchanger, and electrical systems. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection.</p>
18.0		CD	Minn. R. 7007.0800, subps. 4, 5, and 14	<p>Annual Calibration: The Permittee shall calibrate the temperature monitor at least annually and shall maintain a written record of the calibration and any action resulting from the calibration.</p>
19.0		CD	Minn. R. 7007.0800, subp. 14	<p>The Permittee shall operate and maintain the thermal oxidizer in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.</p>
20.0		S/A	40 CFR Sections 63.8686(c) & 63.8687 & pt. 63, subp. LLLLL Table 3; Minn. R. 7011.7940; Minn. R. 7007.0800, subp. 2 [stage 1]	<p>Performance Test: due 180 days after Initial Startup of EU 091, EU 092, or EU 093 (whichever starts up first). Testing shall be for total hydrocarbon emissions from SV 058 or percent combustion efficiency of CE 047 and shall meet the requirements of 40 CFR Section 63.8687 and table 3 in subp. LLLLL. Refer to page A-2 for additional requirements pertaining to performance testing.</p>
21.0		S/A	40 CFR Section 63.7(a)(3); Minn. R. 7017.2020, subp. 1	<p>Testing Frequency Plan: due 60 days after Performance Test to determine CE 047 total hydrocarbon emissions or percent combustion efficiency. The plan shall specify a testing frequency based on the initial CE 047 performance test results and MPCA guidance. Future performance tests based on 12-month, 36-month, and 60-month intervals, or as applicable, shall be required upon written approval of the MPCA.</p>



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

22.0		CD	hdr	Oxidizer Fuel Usage
23.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	Fuels Permitted: Natural gas and No. 2 fuel oil only. Refer to the Total Facility subject item in Table A of this permit for applicable No. 2 fuel oil usage, sulfur content, recordkeeping, and fuel oil certification requirements.
24.0		CD	40 CFR Section 63.8681(b); Minn. R. 7011.7940	Applicability of 40 CFR Part 60, Subpart UU: CE 047 is subject to 40 CFR pt. 60, subp. UU, and 40 CFR pt. 63, subp. LLLLLL. Therefore these emission units are required to comply only with the provisions of pt. 63, subp. LLLLLL.



COMPLIANCE PLAN **CD-01**

Facility Name: CertainTeed Corp

Permit Number: 13900013 - 007

Subject Item: TK 028 Finished Coating Storage Tank

Associated Items: CE 004 RTO (SV 004)

GP 011 Standards of Performance for Storage Vessels

	NC/ CA	Type	Citation	Requirement
1.0		CD	Minn. R. 7007.0800, subp. 2 [stage 1]	The Permittee is authorized to install and operate TK 028, as defined by permit, at any time during the life of Air Emissions Permit No. 13900013-007. These units shall meet all the requirements of this permit.
2.0		LIMIT	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 [stage 1]	Process Throughput: less than or equal to 200,000 tons/year to be calculated by the 15th day of each month for the previous 12-month period as described in GP 015 of this permit. This limit applies to the asphalt throughput for TK 028. Recordkeeping associated with this limit appears at GP 015.
3.0		CD	40 CFR Section 60.112b(a); Minn. R. 7011.1520(C); Minn. R. 7007.0800, subps. 2 and 14	The Permittee shall vent emissions from TK 028 to a control device meeting the requirements of CE 004 for this permit at all times that TK 028 is in operation.
4.0		CD	hdr	NSPS Subpart Kb Requirements
5.0		CD	40 CFR Section 60.112b(a); Minn. R. 7011.1520(C)	The storage vessel shall be equipped with a closed vent system and control device as described below and meeting the requirements of 40 CFR Section 60.112b(a)(3).
6.0		CD	40 CFR Section 60.112b(a)(3)(i); Minn. R. 7011.1520(C)	The closed vent system shall be designed to collect all VOC vapors and gasses discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined in part 60, subpart VV, Section 60.485(b).
7.0		CD	40 CFR Section 60.112b(a)(3)(ii); Minn. R. 7011.1520(C)	The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater.
8.0		CD	40 CFR Section 60.112b(c)(1); Minn. R. 7011.1520(C)	Control Device Operating Plan - The Permittee is exempt from the requirements of Section 60.8, but shall submit for approval by the Administrator as an attachment to the notification required by Section 60.7(a)(1) an operating plan containing the following information: 1) documentation demonstrating that the control device will achieve the required control efficiency during maximum loading conditions, including flow and VOC content under varying liquid level conditions (dynamic and static) and manufacturer's design specifications for the control device. If the control device or the closed vent capture system receives vapors, gases, or liquids other than fuels from sources that are not designated sources under this subpart, the efficiency demonstration is to include consideration of all vapors, gases, and liquids received by the closed vent capture system and control device.
9.0		CD	40 CFR Section 60.112b(c)(1); Minn. R. 7011.1520(C)	Control Device Operating Plan Continued - If an enclosed combustion device with a minimum residence time of 0.75 seconds and a minimum temperature of 816 degrees Celsius is used to meet the 95 percent requirement, documentation that those conditions will exist is sufficient to meet the requirements of this paragraph. 2) A description of the parameter or parameters to be monitored to ensure that the control device will be operated in conformance with its design and explanation of the criteria used for selection of that parameter (or parameters).
10.0		CD	40 CFR Section 60.112b(c)(1); Minn. R. 7011.1520(C)	The Permittee shall operate the closed vent system and control device and monitor the parameters of the closed vent system and control device in accordance with the operating plan submitted to the Administrator described above and in accordance with Section 60.112b(c)(1), unless the plan was modified by the Administrator during the review process. In this case, the modified plan applies.
11.0		CD	40 CFR Section 60.115b; Minn. R. 7011.1520(C)	The Permittee shall maintain copies of all reports and records required by 40 CFR subp. Kb, except for the records required by 40 CFR Section 60.115b(c)(1) for at least 2 years. The record required by Section 60.115b(c)(1) will be kept for the life of the control equipment.
12.0		CD	40 CFR Section 60.115b(c)(1); Minn. R. 7011.1520(C)	The Permittee shall maintain a record of the operating plan for the life of the control equipment.
13.0		CD	40 CFR Section 60.115b(c)(2); Minn. R. 7011.1520(C)	The Permittee shall maintain records of the measured values of the parameters monitored in accordance with Section 60.113b(c)(2).



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14.0		CD	40 CFR Section 60.116b(b); Minn. R. 7011.1520(C)	For the life of the source, the Permittee shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel.
15.0		CD	40 CFR Section 60.115b(e)(1); Minn. R. 7011.1520(C)	<p>The Permittee may use available data on the storage temperature to determine the maximum true vapor pressure as determined below:</p> <p>For vessels operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For vessels operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service.</p>
16.0		CD	40 CFR Section 60.115b(e)(2); Minn. R. 7011.1520(C)	<p>For crude oil or refined petroleum products the vapor pressure may be obtained by the following:</p> <p>1) Available data on the Reid vapor pressure and the maximum expected storage temperature based on the highest expected calendar-month average temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in API Bulletin 2517, unless the Administrator specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the samples(s).</p> <p>2) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa or with physical properties that preclude determination by the recommended method is to be determined from available data and recorded if the estimated maximum true vapor pressure is greater than 3.5 kPa.</p>
17.0		CD	40 CFR Section 60.115b(e)(3); Minn. R. 7011.1520(C)	<p>For other liquids, the vapor pressure, the Permittee shall determine the vapor pressure using one of the following:</p> <p>1) standard reference texts;</p> <p>2) ASTM D2879-83, 96, or 97</p> <p>3) an appropriate method approved by the Administrator; or</p> <p>4) calculated by an appropriate method approved by the Administrator.</p>
18.0		CD	hdr	NSPS Subpart UU Requirements
19.0		LIMIT	40 CFR Section 60.472(c); Minn. R. 7011.0950	<p>Opacity: less than or equal to 0 percent opacity from exhaust gases from TK 028 (SV 004), except for one consecutive 15- minute period in any 24-hour period when the transfer lines are being blown for cleaning. The control device shall not be bypassed during this 15-minute period.</p> <p>This limit applies within 60 days after achieving the maximum production rate at which the affected facility will be operated, but no later than 180 days after initial startup of such facility.</p>

Attachment 3:

Points Calculator

1) AQ Facility ID No.:	13900013
2) Facility Name:	CertainTeed Corp
3) Small business? y/n?	N
4) DQ Numbers (including all rolled) :	4209
5) Date of each Application Received:	10/30/12
6) Final Permit No.	13900013-007
7) Permit Staff	Kelsey Suddard
8) "Work completed" in which .xls file (i.e. unit 2b, unit 1a, biofuels)?	NA

<u>Application Type</u>	<u>DQ No.</u>	<u>Qty.</u>	<u>Points</u>	<u>Total Points</u>
Administrative Amendment			1	0
Minor Amendment			4	0
Applicability Request			10	0
Moderate Amendment			15	0
Major Amendment	4209	1	25	25
Individual State Permit (not reissuance)			50	0
Individual Part 70 Permit (not reissuance)			75	0

Additional Points

Modeling Review			15	0
BACT Review			15	0
LAER Review			15	0
CAIR/Part 75 CEM analysis			10	0
NSPS Review	4209	2	10	20
NESHAP Review	4209	1	10	10
Case-by-case MACT Review			20	0
Netting			10	0
Limits to remain below threshold			10	0
Plantwide Applicability Limit (PAL)			20	0
AERA review			15	0
Variance request under 7000.7000			35	0
Confidentiality request under 7000.1300			2	0

EAW review

Part 4410.4300, subparts 18, item A; and 29			15	0
Part 4410.4300, subparts 8, items A & B; 10, items A to C; 16, items A & D; 17, items A to C & E to G; and 18, items B & C			35	0
Part 4410.4300, subparts 4; 5 items A & B; 13; 15; 16, items B & C; and 17 item D			70	0
			Add'l Points	30

NOTES:

Total Points	55
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Details