Title V Permit Renewal Application

Prepared for:
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Moundsville, WV

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1 Introduction

CertainTeed Gypsum WV, Inc. (CertainTeed) operates a synthetic gypsum wallboard forming facility in Moundsville, West Virginia (Moundsville facility). The Moundsville facility is a major source under Title V because potential emissions of nitrogen oxides (NO_X) and carbon monoxide (CO) exceed the applicable major source threshold of 100 tons per year (tpy).

CertainTeed currently holds a valid Title V Permit to Operate (R30-05100113-2010) pursuant to West Virginia Department of Environmental Protection (WVDEP) Division of Air Quality (DAQ) Rule 45CSR-30 Requirements for Operating Permits, issued on May 27, 2010.

CertainTeed is submitting this timely and complete Title V permit application by the submission deadline of November 27, 2014 (i.e., at least 6 months prior to the date of permit expiration) in accordance with 45 CSR 30-4.1.a.3. Presuming WVDEP finds this application administratively complete by May 27, 2015, CertainTeed may continue to operate the Moundsville facility under a permit application shield (45 CSR30-5.6.a) in accordance with the terms of Permit to Operate (R30-05100113-2010) until the renewed Title V operating permit is issued.

CertainTeed is also requesting an increase in throughput and an associated increase in potential to emit (PTE) for a number of pieces of equipment (Table 1-1). This increase in production is requested to accurately reflect the engineering design requirements of the equipment at the time of the original construction; the facility is not proposing to modify the existing equipment for this production increase. Also, the increase in throughput does not result in an increase in emissions greater than the modification thresholds listed in 45 CSR 13-2.17.

Table 1-1: Requested Equipment Throughput and Associated Revised PTE

Equipment		Revised Throughput (tph)[1]	Revised PTE (tpy)	
			$PM_{2.5}$	PM_{10}
EU07	DSG Conveying Equipment	200	0.04	0.08
EU08	Dry DSG Storage Silo (#1 Intermediate DSG Silo)	200	0.11	0.23
EU14	Stucco Cooler	100	0.38	0.75
EU21	Mixer and Additives Storage	100	0.22	0.44
EU23	Intermediate Stucco Silo	60	0.11	0.22
EU24	Stucco Ball Mill	111	0.66	1.33
EU45	K20 Kettle Bad Batch Return Screw	100	0.04	0.08
EU46	Stucco Cooler Bypass Screw #2	100	0.04	0.08

[1] Based on ENVIRON site visit in April 2014.

As part of this Title V permit renewal application, CertainTeed is also requesting a General Permit for four emergency engines – one fire pump generator and three lift station engines, which are used to operate the septic system when there is no electricity available from the grid. Details of the engines are summarized in Table 1-2.

The facility's status as a major source in accordance with New Source Review/Prevention of Significant Determination (PSD) and Title V, as well as a minor source of emissions of hazardous air pollutants (HAPs) will not change[1]. A discussion of the emissions units currently in operation at the Moundsville facility can be found in the facility description below.

[1] WV DAQ 45 CSR 30 (2.26) and §112 of Clean Air Act. Available at: http://www.dep.wv.gov/daq/publicnoticeandcomment/Documents/Final45CSR30.pdf.

Table 1-2: CertainTeed Moundsville Emergency Stationary Engines								
Stationary Engines	**Purpose of Stationary Engine**	**Engine Make**	**Model Year**	**Engine Installation Date**	**Engine Category**	**Cylinder Displacement (Liter/cylinder)**	**Engine Rating (hp)**	**Engine Usage (hours/yr)**
Lift Station Generator 1 (Office)	Emergency Septic System Power	Cummins	2004 - 2006	March, 2008	4-Stroke	2.2	37	26
Lift Station Generator 2 (South)		Cummins	2006	March, 2008	4-Stroke	1.6	27	26
Lift Station Generator 3 (North)		Cummins	2006	March, 2008	4-Stroke	1.6	27	28
Fire Pump	Fire Protection	John Deere	2005	March, 2008	4-Stroke	8.1	252	41

2 Facility and Source Description

The CertainTeed facility is located in Marshall County, West Virginia, at 10 Energy Road, Moundsville. The facility location map is provided in Appendix A.

The CertainTeed facility is a gypsum wallboard forming facility that consists of receiving raw materials (primarily synthetic gypsum with some natural gypsum and additives), drying, grinding, and calcining the gypsum, followed by mixing with wet and dry additives to form a slurry. The slurry is placed between two layers of paper to form the wallboard. The wallboard is then dried, cut, and stacked for delivery. A general plot plan of the facility and a process flow diagram is provided in Appendix B and Appendix C, respectively.

Table 2-1 summarizes the emissions units currently in operation at the Moundsville facility including the four generators discussed in Section 1. In addition, Table 2-1 lists the applicable New Source Performance Standards (NSPS) for each piece of equipment, which are discussed in Section 4.

Table 2-1: CertainTeed Moundsville Equipment Table

Emission Point ID	Control Device	Emission Unit ID	Emission Unit Description	Design Capacity	NSPS Subpart
EP02	FF02	EU02	Waste Recycle System – End Saw	2 tph	N/A
EP03	FF03	EU03	Waste Recycle System – Dunnage Machine	2 tph	N/A
EP05	FF05	EU05	Cage Mill DSG Dryer	120 tph 50 MMBtu/hr	OOO
EP06	FF06	EU06	Cage Mill Feed Silo (Wet DSG Silo)	200 tons	OOO
EP07	FF07	EU07	DSG Conveying System	200 tph	OOO
EP08	FF08	EU08	Dry DSG Storage Silo (Intermediate DSG Silo)	200 tph	OOO
EP12	FF12	EU12	K10 Kettle	44 tph 31.7 MMBtu/hr	UUU
EP13	FF13	EU13	K20 Kettle	44 tph 31.7 MMBtu/hr	UUU
EP14	FF14	EU14	Stucco Cooler	88 tph	N/A
EP16	FF16	EU16	HRA DSG Silo	2.61 tph	OOO
EP17	FF17	EU17	HRA Dextrose Silo	0.1375 tph	N/A
EP18	FF18	EU18	HRA Ball Mill System	1.65 tph	OOO

Table 2-1: CertainTeed Moundsville Equipment Table					
Emission Point ID	**Control Device**	**Emission Unit ID**	**Emission Unit Description**	**Design Capacity**	**NSPS Subpart**
EP20	FF20	EU20	Stucco Silo	600 tph	N/A
EP21	FF21	EU21	Mixer and Additive	100 tph	N/A
EP22	FF22	EU22	Stucco Metering Equipment	96 tph	N/A
EP23	FF23	EU23	Intermediate Stucco Silo	60 tph	N/A
EP24	FF24	EU24	Stucco Ball Mill	111 tph	N/A
EP25	FF25	EU25	Starch Bulk Silo	24.8 tph	N/A
EP27	FF27	EU27	Semi-Bulk Transfer Station Bin	24.8 tph	N/A
EP29	FF29	EU29	Boric Acid Feeder	3 tph	N/A
EP30	FF30	EU30	Potash Feeder Bin	6 tph	N/A
EP31	FF31	EU31	Dextrose Feeder Bin	2.5 tph	N/A
EP33	FF33	EU33	Starch Feeder Bin	2 tph	N/A
EP34	FF34	EU34	HRA Feeder Bin	4 tph	N/A
EP36	N/A	EU36	Board Dryer	Total of 147 MMBtu/hr	N/A
EP37	N/A	EU37	Two Paper Heaters	Total of 1.9 MMBtu/hr	N/A
Fugitive	N/A	EU39	Storage Piles	6.83 acres	N/A
Fugitive	N/A	EU40	Material Handling	330 to 1,100 tph	N/A
Fugitive	N/A	EU41	Haul Roads	67,085 mi/yr	N/A
EP42	N/A	EU42	Foaming Agent Tank 1	9,500 gal	N/A
EP43	N/A	EU43	Foaming Agent Tank 2	100 gal	N/A
EP44	FF44	EU44	K10 Kettle Supply Screw	120 tph	OOO
EP45	FF45	EU45	K20 Kettle Bad Batch Return Screw	100 tph	OOO
EP46	FF46	EU46	Stucco Cooler By Pass Screw #2	100 tph	N/A
EP47	FF47	EU47	Cage Mill Cyclone Transfer Screw	120 tph	OOO
EP48	FF48	EU48	K20 Kettle Transfer Screw	120 tph	OOO
Fugitive	N/A	EU49	Inking Operations	3.3 lb/hr	N/A

Table 2-1: CertainTeed Moundsville Equipment Table					
Emission Point ID	**Control Device**	**Emission Unit ID**	**Emission Unit Description**	**Design Capacity**	**NSPS Subpart**
EP50	FF50	EU50	Ethylated Starch Silo	5,000 ft^3	N/A
EP51	FF51	EU51	Ethylated Starch Feeder Bin	1 ton/hr	N/A
EP52	FF52	EU52	Vermiculite Silo	3,000 ft^3	OOO
EP53	FF53	EU53	Vermiculite Feeder Bin	1 ton/hr	OOO
--	--	--	Lift Station Generator 1	37 hp	IIII
--	--	--	Lift Station Generator 2	27 hp	IIII
--	--	--	Lift Station Generator 3	27 hp	IIII
--	--	--	Fire Pump	252 hp	IIII

The renewal of this Title V Permit to Operate includes updates to incorporate emissions limits of the equipment constructed versus the current limits, which were based on estimates from the permit to construct application. The original emissions estimates were prepared using published emission factors, engineering estimates, or manufacturer's guarantees when available. As discussed in Section 1, the throughput and corresponding PTE for some pieces of equipment have been adjusted to reflect the true design capacity of the equipment. As a result, the PTE for the facility has been updated to more realistically reflect emissions from the sources at the Moundsville facility.

The WVDEP permit application forms are included in Appendices D (Equipment Table), E (Emission Unit Forms), F (Air Pollution Control Device Forms), G (General Application forms), and H (Class II – General Permit G-60C forms).

3 Emissions Calculations

CertainTeed facility generates criteria pollutant emissions, such as particulate matter (PM), PM with an aerodynamic diameter less than 10 microns (PM_{10}), PM with an aerodynamic diameter less than 2.5 microns ($PM_{2.5}$), nitrogen oxides (NO_X), carbon monoxide (CO), sulfur dioxide (SO_2), as well as volatile organic compounds (VOC), a precursor to ozone formation. The facility also generates certain hazardous air pollutants (HAPs).

The primary source of PM emissions at the facility is due to process emissions generated in the dryers and kettle calciners. Additional sources of emissions include - grinding, transfer and handling of the gypsum and stucco. PM emissions are reduced by:

- Appropriate engineering design of the emission units,
- Use of the current fabric filter-type devices (e.g., bag-houses and bin vent filters), and
- Building enclosures.

Fugitive PM emissions are also be generated from the gypsum storage piles and road dust. The primary manner of raw material desulfurized gypsum (DSG) delivery to the facility is by conveyor, which helps minimize the potential for certain types of fugitive dust emissions.

The use of organic additives at the facility generates some VOC emissions. In addition, combustion emissions are generated from the dryers, kettles, heaters, and generators.

Detailed explanation of emission calculations is provided in the sections below and calculations are shown in Appendix I. Appendix J provides a facility-wide emissions summary.

3.1 Particulate Matter (PM) Emissions

Emission units that generate PM emissions from Moundsville's process are subject to NSPS Subpart OOO (Nonmetallic Mineral Processing Facilities) and UUU (Calciners and Dryers in Mineral Industries). The PM emissions were calculated using the applicable allowable mass concentrations (in gr/dscf) and the exhaust flow rate (cfm) of each unit. The PTE calculations were calculated using a grain outlet of 0.01 gr/dscf based on NSPS applicable equipment requirement[2], except for the dry DSG storage silo bin for which a grain outlet of 0.02 gr/dscf was used based on equipment stack test results.

Emission units not subject to NSPS subpart OOO and UUU are subject to state standard 45 CSR 7, which requires PM emissions not to exceed 0.01 gr/dscf (45 CSR 7, 4.7.b.2).

[2] The emission rates are typical of those provided by the wallboard industry.

3.2 Natural Gas Combustion Emissions

The following emission units operate using natural gas as the primary fuel:

a. Cage Mill DSG dryer,

b. Kettle Calciners,

c. Board Dryers, and

d. Paper Heaters.

The combustion of natural gas generates NO_X and CO, along with smaller amounts of SO_2 and VOC emissions. Emissions for these sources were calculated using the maximum of stack test results available, or a default emission factor from AP-42.[3] PTE emissions were calculated assuming continual operation of the equipment at maximum heat input capacity and all year round operation.

3.3 Stationary Engines Emission

The combustion of diesel fuel in the emergency stationary engines generates emissions of NO_X, CO, SO_2, PM_{10}, and VOC. All uncontrolled emission factors for stationary engines were obtained from the manufacturers' specification and emissions data sheets. Emissions were calculated as a function of engine rating in horsepower (hp), and estimated hours of operation per year.

3.4 VOC Emissions

Potential sources of VOC include wet additives and ink. The board dryer and dunnage machine use additives during the drying processes. Cedepal FA-406 additive has a maximum VOC content of 16%. All other additives contain either no VOCs or have a VOC content of less than 1%. The inking operation equipment use TSO-1 black ink with a VOC content of 90%.

3.5 Fugitive PM Emissions

Fugitive PM emissions are generated from the following sources:

- Material handling operations,
- Wind erosion from storage piles, and
- On-road emissions from trucks.

Emissions were calculated based the following methodology.

3.5.1 Material Handling

Material handling includes emissions from the transfer of synthetic gypsum to stockpiles, storage sheds, and to various other outdoor transfer locations. It also includes indoor transfer of

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[3] USEPA, Emission Factors and AP 42. Chapter 1.4 – Natural Gas Combustion, July 1998. Available at: http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf.

material to the Cage Feed Silo. The fugitive PM emissions from material handling were calculated based on emission factors obtained from AP-42.[4] Emissions were calculated as a function of wind speed and moisture content and are assumed to be generated from each material transport point.

3.5.2 Wind Erosion from Storage Piles

Fugitive PM emissions are also generated from outdoor storage piles as high winds pass over the storage piles, providing enough lift force to suspend individual gypsum particles. The total suspended PM emission factor for wind erosion of storage piles was calculated according to Kinsey and Cowherd.[5] Emissions were calculated as a function of silt content, precipitation, and wind speed.

3.5.3 On-Road Emissions

Fugitive PM emissions are generated from vehicle movement on facility roads and surfaces. Emissions generated from truck travel on paved roads were calculated using emission factors from AP-42[6].

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[4] USEPA, Emission Factors and AP 42. Chapter 13.2.4 – Aggregate Handling and Storage Piles, November 2006. Available at: http://www.epa.gov/ttn/chief/ap42/ch13/final/c13s0204.pdf.

[5] Kinsey, J.S. and Cowherd, C. J., Jr. Fugitive Emissions, Buonicore, A.J. and Davis, W.T., Air Pollution Engineering Manual, 1992.

[6] USEPA, Emission Factors and AP 42. Chapter 13.2.1 – Paved Roads, January 2011. Available at: http://www.epa.gov/ttn/chief/ap42/ch13/final/c13s0201.pdf.

4 Regulatory Analysis

A key objective of a Title V operating permit application is to compile all applicable Clean Air Act-derived requirements into one document. The requirements can be categorized as: (1) emission limits and work practice standards; and (2) testing, monitoring, recordkeeping, and reporting requirements. To compile a list of the requirements applicable to a facility, it is first necessary to determine which Federal and State air regulations apply to the facility as a whole, or to individual emission units. This section documents the applicability determinations made for Federal and State air quality regulations.

The remainder of this section summarizes the air permitting requirements and key air quality regulations that apply to the operation of the Moundsville facility. Applicability or non-applicability of the following regulatory programs is addressed:

- New Source Review (NSR) permitting;
- Title V of the 1990 Clean Air Act Amendments;
- National Emission Standards for Hazardous Air Pollutants (NESHAP);
- New Source Performance Standards (NSPS);
- Compliance Assurance Monitoring (CAM);
- Chemical Accident Prevention;
- Stratospheric Ozone Protection; and
- West Virginia State Implementation Plan regulations.

This review is presented to supplement and/or add clarification to the information provided in the WVDEP Title V application forms, which fulfill the requirement to include citations and descriptions of applicable statutory and administrative code requirements.

In addition to providing a summary of applicable requirements, this section of the application also provides non-applicability determinations for certain regulations, allowing the WVDEP to confirm that identified regulations are not applicable to the Moundsville facility. Note that explanations of non-applicability are limited to those regulations for which there may be some question of applicability specific to the operations at the Moundsville facility. Regulations that are categorically non-applicable are not discussed (e.g., NSPS Subpart J, Standards of Performance for Petroleum Refineries).

4.1 New Source Review Source Classification

Federal construction permitting programs (regulated under 40 CFR 51) regulate new sources of attainment pollutants under PSD[7] and new sources of non-attainment pollutants under Non-Attainment New Source Review (NNSR). PSD and NNSR regulations apply when a new

[7] Code of Federal Regulations. 40 CFR 51.166 (b)(1)(i)(b). Available at: http://www.ecfr.gov/cgi-bin/text-idx?SID=cb0eb3787791666d701fa8d37b0b6742&node=40:2.0.1.1.2&rgn=div5#40:2.0.1.1.2.6.8.6.

major stationary source is constructed or the major modification of any existing major stationary source, such as installing new equipment or modifying existing equipment where a significant increase in emissions results from the change.

The Moundsville area is in attainment for CO, NO_2, $PM_{2.5}$, PM_{10}, and O_3, and is in non-attainment for SO_2. The Moundsville facility's potential to emit, without synthetic or voluntary emissions limitations, is above the major stationary thresholds, specifically for attainment CO threshold. As such, the Moundsville facility is a major source with respect to PSD. The proposed edits to the equipment throughputs and addition of the generators will not change the PSD standing of the Moundsville facility.

4.2 Title V Operating Permit Program

Title 40 of the Code of Federal Regulations Part 70 (40 CFR 70) establishes the federal Title V operating permit program. West Virginia has incorporated the provisions of this federal program in its Title V operating permit program in 45 CSR 30. The major source thresholds are 10 tons per year (tpy) of a single hazardous air pollutant (HAP), 25 tpy of any combination of HAPs, and 100 tpy of criteria pollutants.

The potential emissions of at least one regulated pollutant exceed the corresponding threshold(s) at this facility. Therefore, the Moundsville facility is classified as a major source for Title V purposes. The Moundsville facility currently holds a valid Title V Permit to Operate (R30-05100113-2010) pursuant to WVDEP DAQ Rule 45 CSR 30 Requirements for Operating Permits, issued on May 27, 2010.

CertainTeed is submitting this timely and complete Title V permit renewal application by the submission deadline of November 27, 2014 (i.e., at least 6 months prior to the date of permit expiration) in accordance with 45 CSR 30-4.1.a.3. With the timely and complete submittal of this application, CertainTeed specifically requests that the Moundsville facility be authorized to continue operation under an application shield (45 CSR30-5.6.a) in accordance with the terms of Permit to Operate (R30-05100113-2010) until the renewed Title V operating permit is issued.

4.3 National Emissions Standards for Hazardous Air Pollutants

National Emissions Standards for Hazardous Air Pollutants (NESHAP) are generally only applicable to major sources of HAPs. 40 CFR 63 NESHAP allowable emission limits are established on the basis of a maximum achievable control technology determination for a particular major source. A HAP major source is defined as having potential emissions in excess of 25 tpy for total HAPs and/or potential emissions in excess of 10 tpy for any individual HAP. NESHAP applies to sources in specifically regulated industrial source categories [Clean Air Act Section 112(d)] or on a case-by-case basis [Section 112(g)] for facilities not regulated as a specific industrial source type. In addition to 40 CFR 63 Subpart A (NESHAP Subpart A), the following NESHAP could potentially apply to the Moundsville facility:

- 40 CFR 63 Subpart DDDDD - Industrial, Commercial, and Institutional Boilers and Process Heaters.

Since the Moundsville facility is not a major source of HAPs, this rule does not apply.

- 40 CFR 63 Subpart ZZZZ – Stationary Reciprocating Internal Combustion Engines (RICE).

The Moundsville facility is considered an area source HAPs because the HAP emissions are below the major source thresholds. Therefore, the diesel fueled stationary engines at Moundsville facility are subject to the RICE NESHAP per § 63.6585 (c). According to §63.6590(c)(1), a new stationary RICE, in which the facility commenced construction of the stationary RICE on or after June 12, 2006, is subject to 40 CFR part 60 Subpart IIII, for compression ignition engines (See Section 4.4 for further information).

4.4 New Source Performance Standards

New Source Performance Standards (NSPS), regulated under 40 CFR 60, require new, modified, or reconstructed sources to control emissions to the level achievable by the best demonstrated technology as specified in the applicable provisions. Moreover, any source subject to an NSPS is also subject to the general provisions of NSPS Subpart A, except where expressly noted. The following is a summary of applicability and non-applicability determinations for NSPS regulations of relevance to the Moundsville facility.

4.4.1 Subpart OOO

NSPS Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants, regulates PM emissions from each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, and enclosed truck or rail car loading operation at a nonmetallic mineral processing plant. Gypsum is included in the list of nonmetallic minerals covered by the rule. The NSPS Subpart A provisions also apply to units covered under Subpart OOO with the exception of §60.18, General Control Device. Line exceptions to provisions of Subpart A are listed in §60.670. NSPS Subpart OOO is incorporated by reference by WVDEP Title 45 CSR 16 Standards of Performance for New Stationary Sources Pursuant to 40 CFR 60.

The equipment at the Moundsville facility covered by Subpart OOO emission standards is listed in Table 2-1. This equipment includes DSG drying mill, mill feed silo, conveying systems, storage silo, ball mill system, kettle screws, transfer screws, and vermiculite silo and feeder bin. The gypsum surge/strategic stockpile, the transfer of material to the surge/strategic pile, and the transfer of material to the gypsum storage shed are not covered by Subpart OOO because they are not part of the "non-metallic mineral processing plant" as defined in the rule. This same non-applicability determination applies to all equipment in the wallboard manufacturing part of the plant. In addition, the indirect stucco cooling system and stucco storage bins are not subject to Subpart OOO. These systems involve the handling of stucco, not gypsum, and stucco is not one of the materials specifically listed as regulated under Subpart OOO. CertainTeed operates the applicable units in compliance with NSPS OOO and meets the requirements applicable to date. (e.g., performance testing).

4.4.2 Subpart UUU

NSPS Subpart UUU, Standards of Performance for Calciners and Dryers in Mineral Industries, regulates PM emissions from calciners and dryers at mineral processing plants. Calciners are defined by the regulation as equipment used to remove chemically bound water from the mineral material through direct or indirect heating. These requirements apply to gypsum processing because gypsum is included in the definition of a mineral processing plant. Subpart

UUU is incorporated by reference by WVDEP Title 45 CSR 16 Standards of Performance for New Stationary Sources Pursuant to 40 CFR 60.

The only units at the Moundsville facility subject to NSPS Subpart UUU are the Calciners (EU12 and EU13). CertainTeed will operate the applicable units in compliance with NSPS UUU and meets the requirements applicable to date.

4.4.3 Subpart IIII

NSPS Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, is applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE). The engines are subject to 40 CFR part 60 Subpart IIII. The following sub-sections are applicable to emergency stationary CI ICEs at the Moundsville facility (model year pre-2007 with a displacement of < 10 liters per cylinder):

§60.4205 (a) – owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of less than 10 liters per cylinder that are not fire pump engines must comply with the emission standards in Table 1 to this subpart.

§60.4205 (c) – owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in table 4 to this subpart, for all pollutants.

§60.4206 – owners and operators of stationary CI ICE must operate and maintain these engines as per emission standards as required in §60.4205 over the entire life of the engine.

§60.4207 – owners and operators of stationary CI ICE must comply with the fuel requirements as mentioned in this subpart.

§60.4209 and §60.4211 – owners and operators of stationary CI ICE are subject to monitoring and compliance requirements of this subpart.

§60.4212 and §60.4214 - owners and operators of stationary CI ICE must comply with all the testing, notification, reporting, and recordkeeping requirements.

The only units at the Moundsville facility subject to NSPS Subpart IIII are the four diesel fueled stationary engines described in Table 2-2. The engines meet the emission standards of the Subpart based on manufacturer specifications. CertainTeed operates the applicable units in compliance with NSPS IIII.

4.5 Compliance Assurance Monitoring

Under 40 CFR 64, *Compliance Assurance Monitoring*, facilities are required to assess whether their pollution control equipment is being adequately monitored to assure compliance with emission limitations. This regulation only applies to emission units of major sources that use control devices to achieve compliance with an emission limit and whose pre-controlled emissions are greater than the major source threshold under Title V. As summarized in Moundsville's initial Title V permit application, the facility utilizes a number of baghouses; however, these baghouses are an integral part of the material transfer and separation process

and are not considered air pollution control devices for purposes of meeting an emission limitation. All the material collected by the baghouses are reintroduced into the process. In addition, the bin vent filters used at the Moundsville facility are integrated into the bins they serve and operate passively to capture material in displacement air and return it to the storage bin. Therefore, because the baghouses and bin vent filters are for product recovery or are inherent to the operations, they are not considered control devices with respect to the CAM regulations. Therefore, CAM is not applicable to this facility.

4.6 Chemical Accident Prevention

Subpart B of 40 CFR 68 outlines requirements for risk management prevention plans pursuant to Section 112(r) of the Clean Air Act. Applicability to this subpart is determined based on type and quantity of the chemicals stored at the Moundsville facility.

A previous evaluation conducted by a consultant for CertainTeed indicated that the amount of Section 112(r) substances stored at the Moundsville facility has determined that the stored quantities do not trigger applicability of the risk management plan regulations of 40 CFR 68 Subpart B.

4.7 Stratospheric Ozone Protection Regulations

The requirements originating form Title VI of the Clean Air Act, entitled Protection of Stratospheric Ozone, are contained in 40 CFR 82. Subparts A, C, D, E, G, and H are not applicable to the Moundsville facility. Subpart B, Service of Motor Vehicle Air Conditioners, would potentially apply if CertainTeed were to perform service on motor (fleet) vehicles and if this service involved an ozone- depleting substance in the air conditioner. 40 CFR 82 Subpart F, Recycling and Emissions Reduction, would potentially apply if and when CertainTeed maintains, services, or disposes of appliances that utilize Class I or Class II ozone depleting substances. Subpart F generally requires persons completing the repairs, service, or disposal to be properly certified. All repairs, service, and disposal of ozone depleting substances from any chillers and air conditioners at the facility will be completed by a certified technician.

4.8 WV State Implementation Plan Regulations

The Moundsville facility is currently permitted under the regulations contained in West Virginia's Title 45 Legislative Rule Department of Environmental Protection Office of Air Quality (WVDEP regulations). A federal operating permit must be issued by the agency upon determination that the facility can reasonably be expected to comply with the WVDEP regulations and all applicable federal requirements. This section of the application highlights specific West Virginia regulations that apply to the Moundsville facility.

Title 45 is divided into various series, each covering a specific aspect of the state's air pollution regulatory program. The series that contain requirements that could be applicable to the Moundsville facility equipment are discussed in the following sections. West Virginia regulations that are generally applicable to the facility as a whole are not discussed.

4.8.1 Series 2

Series 2, *To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers*, applies to any fuel burning unit that combusts any fuel in which the produced energy is transferred to a usage point through a medium that is not contacted by and adds no substance to the products of combustion. Because, the DSG cage mill system, kettles, paper heaters, and board dryer are all direct heat transfer units, these units are not subject to Series 2 as they are not classified as fuel burning units.

4.8.2 Series 7

Series 7, *To Prevent & Control Particulate Matter Air Pollution from Manufacturing Processes & Associated Operations*, defines PM emission standards for manufacturing processes and associated operations. The regulation requires the facility to comply with PM emissions as defined in the regulation from point and fugitive sources, as well as to employ good operating practices to prevent/reduce fugitive emissions at the facility.

Specifically, opacity from any process source operation shall not exceed 20%, except for 40% for any period or periods aggregating no more than 5 minutes in any 60-minute period. The applicable exception to this standard is that there shall be no visible emissions from any storage structure(s) associated with any manufacturing process(es) that are required to have a full enclosure and be equipped with a PM control device under subsection 5.1 of this series.

Subsection 5.1 requires that fugitive PM be minimized from any manufacturing process or storage structure by operating these sources with an equipped system, that may include, but is not limited to, process equipment design, control equipment design or operation or maintenance procedures to minimize emissions. These systems should be in place to ensure the lowest fugitive PM emissions reasonably achievable. CertainTeed applies proper control measures to roads, stockpiles, and general material handling sources to maintain particulate matter control of the plant premises, when applicable. In addition, the facility is subject to the particulate emissions by weight under Table 45-7A which is based on the lb/hr capacity of the applicable units.

CertainTeed operates a well-designed facility and employs proper work practices at the facility to prevent and minimize PM emissions. In addition, many of the sources are subject to NSPS standards, which are more stringent than the state rules. CertainTeed employs proper measures to minimize fugitive emissions, as most of the PM collected is recycled back into the system. Compliance with this regulation is expected.

4.8.3 Series 13

Series 13, *Permits for Construction, Modification, Relocation and Operation of Stationary Source of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation,* regulates the criteria for obtaining a permit to construct and operate a new minor stationary source within the state of West Virginia.

The Moundsville facility is a major stationary source, operating under a Title V Permit to Operate (R30-05100113-2010), issued on May 27, 2010.

4.8.4 Series 14

Series 14, *Permits for Construction and Major Modification of Major Stationary Sources for the Prevention of Significant Deterioration of Air Quality,* regulates the criteria for obtaining a permit to construct and operate a new major stationary source within the state of West Virginia. It also regulates the criteria for a major modification of major stationary source within the state.

As mentioned above, the Moundsville facility is a major stationary source, operating under a Title V Permit to Operate (R30-05100113-2010), issued on May 27, 2010.

CertainTeed is also requesting an increase in throughput and an associated increase in PTE for a number of pieces of equipment (see Table 1-1). However, because it is not a major modification, as described in section 2.40 of the rule, or result in a significant increase of emissions as described in section 2.74, a separate permit for major modification (45 CSR 19) is not submitted at this time.

4.8.5 Series 17

Series 17, *To Prevent & Control Particulate Matter Air Pollution from Materials Handling, Preparation, Storage & Other Sources of Fugitive Particulate Matter*, requires the prevention and control of PM from materials handling, preparation, storage, and other fugitive particulate sources beyond the property boundary through the appropriate use of preventative measures, which include but are not limited to, water or chemicals, enclosure/covering of sources, and installation of hoods/fans/fabric filters. The rule states that no fugitive PM may be discharged beyond the property line.

CertainTeed operates a well-designed facility and takes reasonable measures to reduce fugitive PM that include, but are not limited to, fabric filters, watering of haul roads, and paving the main roads. Compliance with this rule is expected.

4.8.6 Series 21

Series 21, *Regulation to Prevent and Control Air Pollution From the Emission of Volatile Organic Compounds*, requires the use of reasonably available control technology for sources engaged in the manufacture, mixing, storage, use or application of volatile organic compounds (VOCs).

However, because this regulation only applies to sources located in Putnam County, Kanawha County, Cabell County, Wayne County, and Wood County, this regulation is not applicable to the Moundsville facility, which is located in Marshall County.

4.8.7 Series 27

Series 27, *To Prevent and Control the Emissions of Toxic Air Pollutants*, details how to prevent and control the discharge of toxic air pollutants requiring the application of best available technology (BAT).

The Moundsville facility is not subject to this regulation because it does not contain chemical processing units.

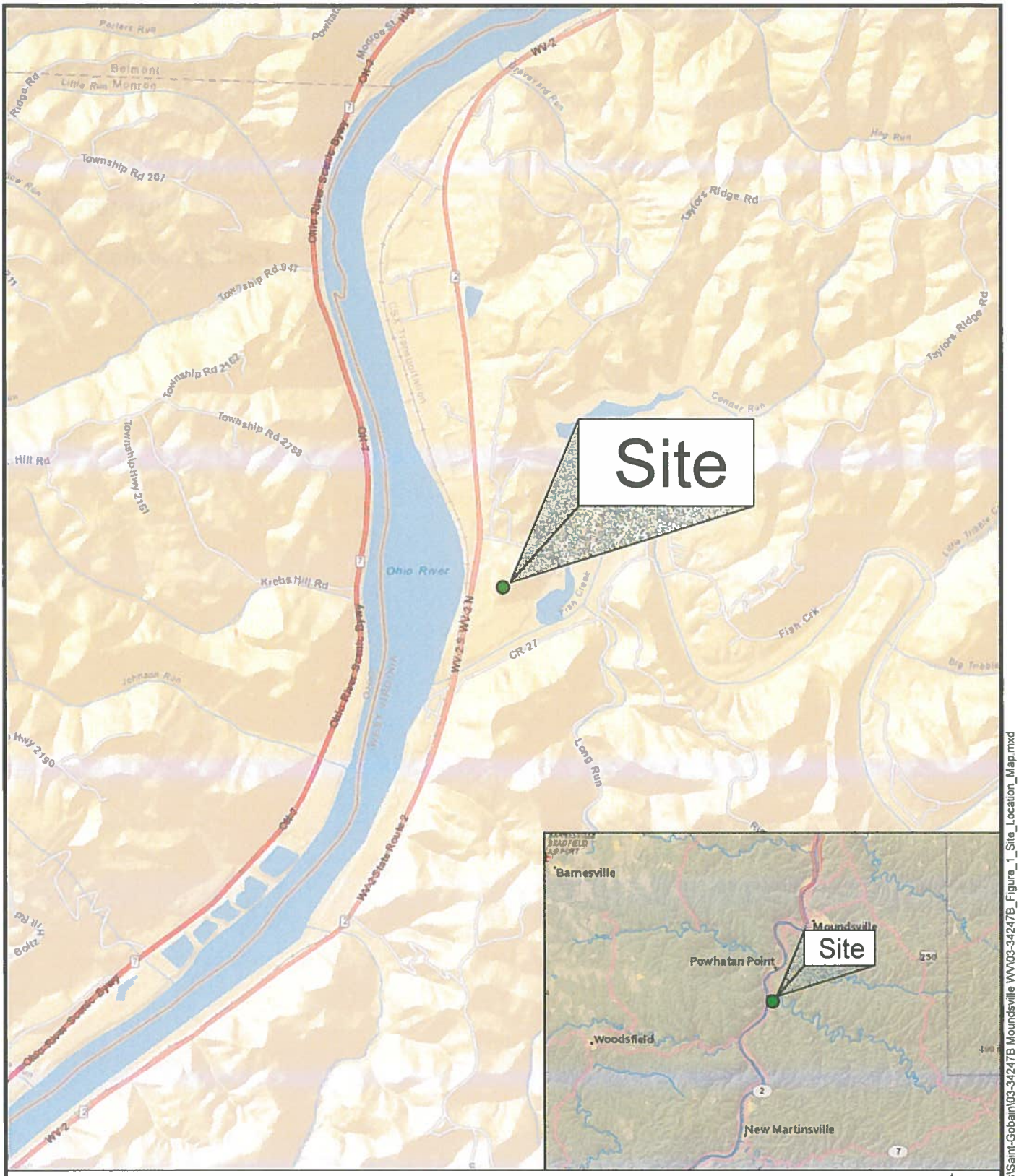
4.8.8 Class II – General Permit G-60C

The purpose of this Class II General Permit is to authorize the construction, modification, administrative update, relocation, and operation of eligible emergency generators through a Class II General Permit registration process. The Class II General Permits address the prevention and control of regulated pollutants from the operation of emergency generator(s). CertainTeed is requesting a Class II General Permit for its four emergency engines, which will be subject to these, permit requirements.

No additional regulations were identified that apply to the Moundsville facility.

Appendix A

Facility Location Map



SOURCE:
National Geographic World Map
ESRI ArcGIS Online
© 2010 National Geographic Society
Reference Data: National Geographic, Esri, DeLorme, HERE, IPC, NRCAN, METI

Map Created with ESRI ArcMap and National Geographic TOPO!™ ©2001 National Geographic Holdings [www.topo.com]

0 0.5 1 MILES

2,500 0 2,500 5,000 7,500 10,000 FEET

CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
1:40,000

Path: Z:\01_Projects\Saint-Gobain\03-34247B Moundsville WV\03-34247B_Figure_1_Site_Location_Map.mxd

ENVIRON

Site Location Map

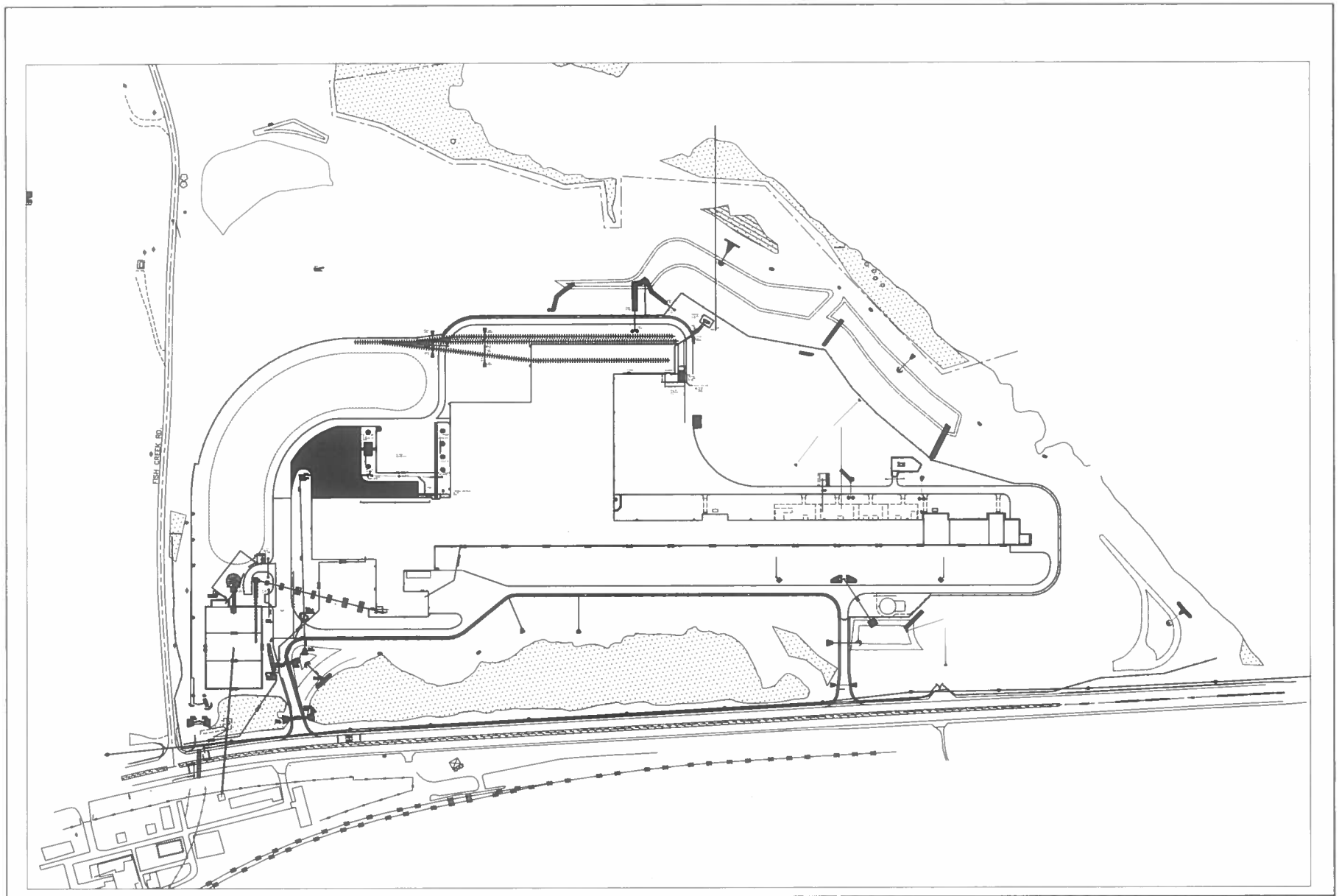
9622 Energy Road
Proctor, West Virginia 26055

Figure
1

DRAFTED BY: SShin | Date: 10/28/2014 | PROJECT: 03-34247B

Appendix B

Facility Plot Plan



REV	REVISION	DATE	CT	CHP	LHE	SAC	VEC	WC
C	REVISED FOR SIGN-OFF	08-08-2007						
B	REVISED FOR SIGN OFF	06-01-2007						

CERTAINTEED GYPSUM, WEST VIRGINIA, INC.

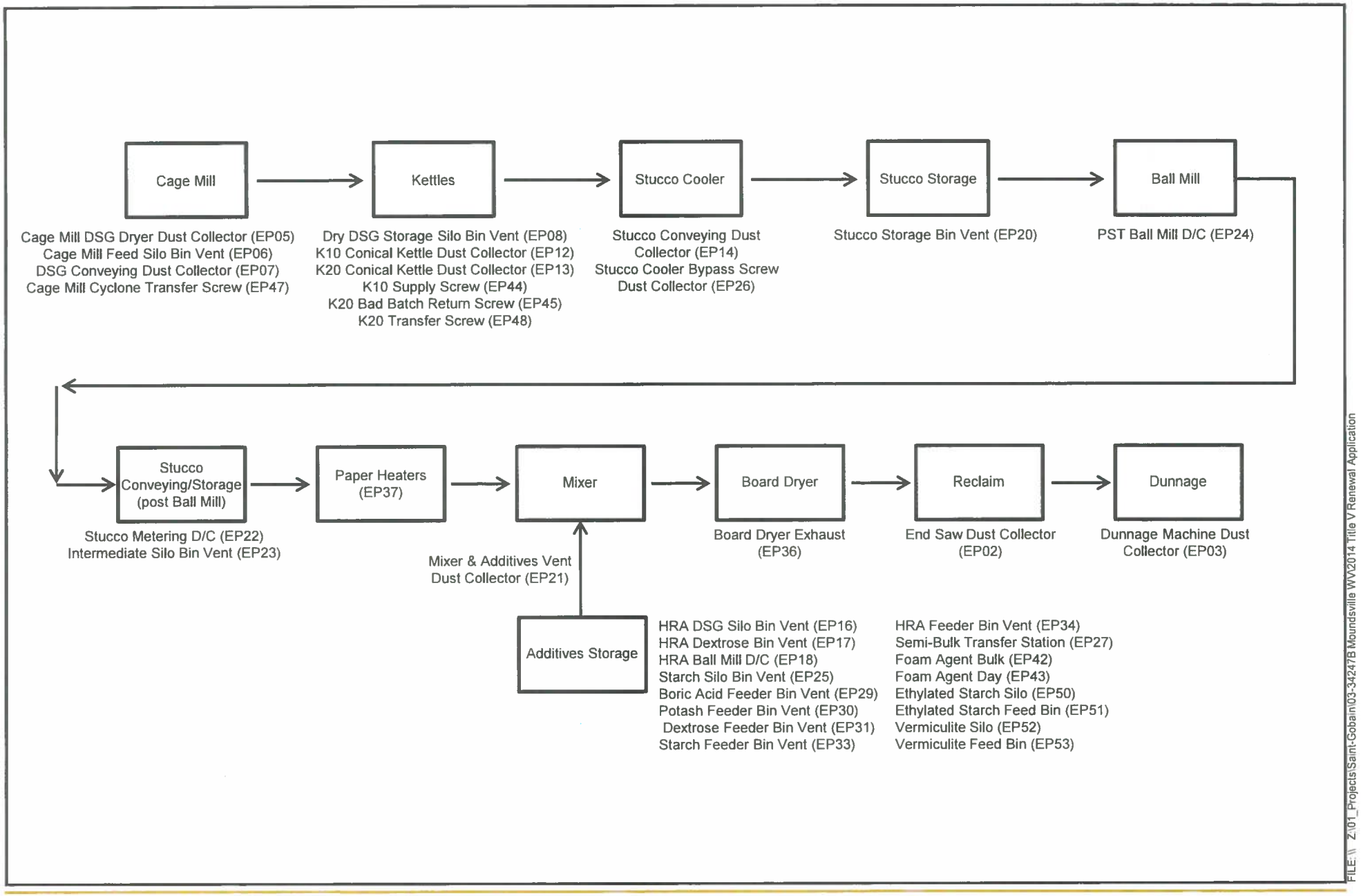
MEP COORDINATION / AS BUILT DRAWING

MOUNDSVILLE PLANT | SCALE: 1" = 30' | DATE: 04/24/2007

SITE PLAN - OVERALL | 050 | C

Appendix C

Process Flow Diagram



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ENVIRON

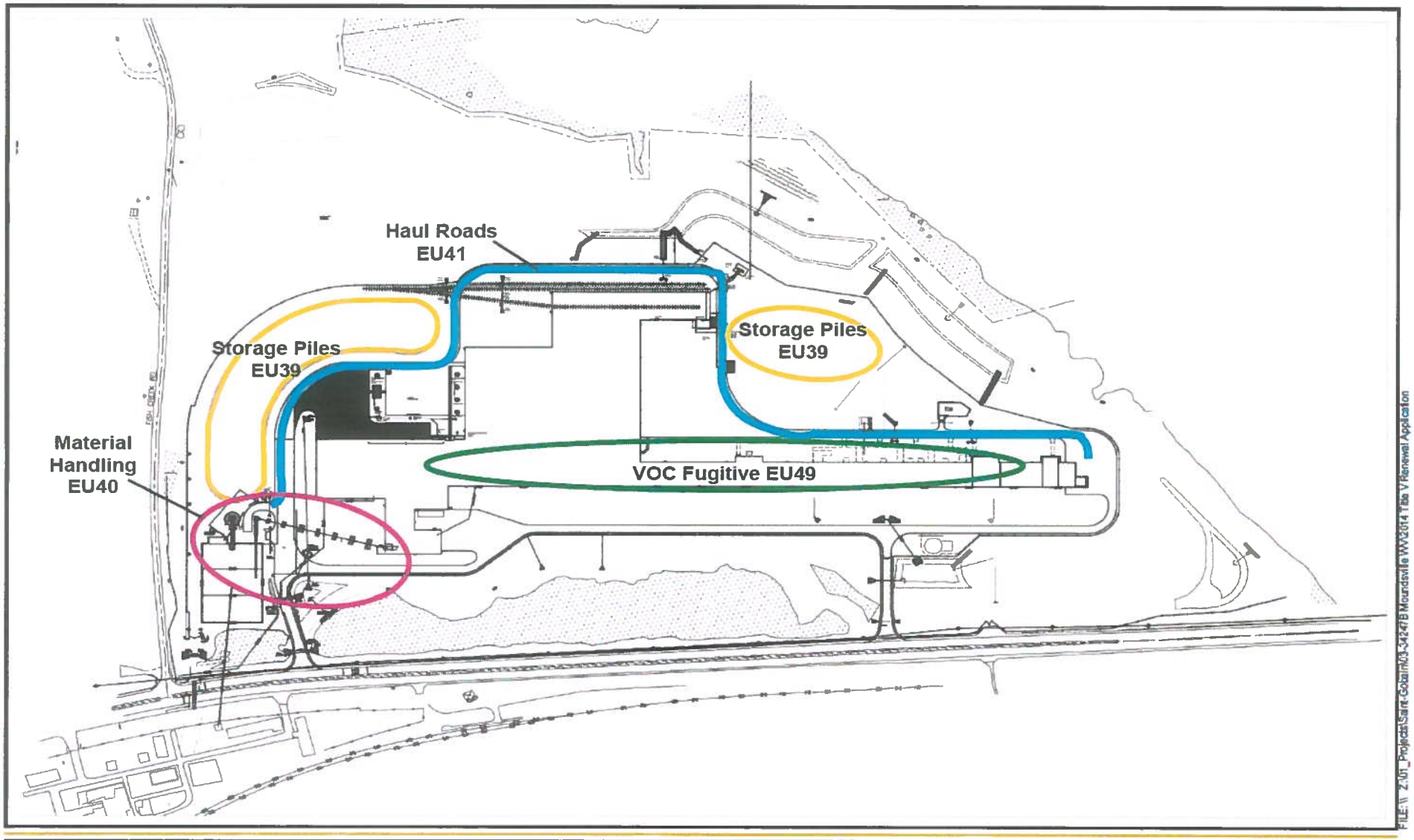
DRAFTED BY: SSS | DATE:

CertainTeed's Moundsville Facility
Emission Points Associated With Each Process Area

CertainTeed Gypsum WV, Inc.
Moundsville, West Virginia

Figure 1

PROJECT: 03-34247B



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CertainTeed's Moundsville Facility
Emission Points Associated With Each Process Area

CertainTeed Gypsum WV, Inc.
Moundsville, West Virginia

Figure
2

PROJECT: 03-34247B

Appendix D

WV DAQ Forms

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
601 57th Street SE
Charleston, WV 25304
Phone: (304) 926-0475
www.dep.wv.gov/daq

INITIAL/RENEWAL TITLE V PERMIT APPLICATION - GENERAL FORMS

Section 1: General Information

1. **Name of Applicant (As registered with the WV Secretary of State's Office):** CertainTeed Gypsum WV, Inc.	**2. Facility Name or Location:** Moundsville Facility
3. DAQ Plant ID No.: 051 — 00113	**4. Federal Employer ID No. (FEIN):** 20 - 2411363

5. Permit Application Type:

☐ Initial Permit — When did operations commence? 03/17/2008
☒ Permit Renewal — What is the expiration date of the existing permit? 05/27 /2015
☐ Update to Initial/Renewal Permit Application

6. Type of Business Entity:

☒ Corporation ☐ Governmental Agency ☐ LLC
☐ Partnership ☐ Limited Partnership

7. Is the Applicant the:

☐ Owner ☐ Operator ☒ Both

If the Applicant is not both the owner and operator, please provide the name and address of the other party.

_____
_____
_____

8. Number of onsite employees:

90

9. Governmental Code:

☒ Privately owned and operated; 0
☐ Federally owned and operated; 1
☐ State government owned and operated; 2
☐ County government owned and operated; 3
☐ Municipality government owned and operated; 4
☐ District government owned and operated; 5

10. Business Confidentiality Claims

Does this application include confidential information (per 45CSR31)? ☐ Yes ☒ No

If yes, identify each segment of information on each page that is submitted as confidential, and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's *"PRECAUTIONARY NOTICE-CLAIMS OF CONFIDENTIALITY"* guidance.

11. Mailing Address		
Street or P.O. Box: 7200 Energy Road		
City: Proctor	**State:** WV	**Zip:** 26055
Telephone Number: (304) 843-3000	**Fax Number:** (304) 843-3001	

12. Facility Location		
Street: 10 Energy Road	**City:** Moundsville	**County:** Marshall
UTM Easting: 516 km	**UTM Northing:** 4,408 km	**Zone:** ☒ 17 or ☐ 18
Directions: The plant is located approximately 5 miles south of Moundsville on State Highway 2.		
Portable Source? ☐ Yes ☒ No		
Is facility located within a nonattainment area? ☒ Yes ☐ No		**If yes, for what air pollutants?** $PM_{2.5}$
Is facility located within 50 miles of another state? ☒ Yes ☐ No		**If yes, name the affected state(s).** PA
Is facility located within 100 km of a Class I Area[1]? ☐ Yes ☒ No **If no, do emissions impact a Class I Area[1]?** ☐ Yes ☒ No		**If yes, name the area(s).**

[1] *Class I areas include Dolly Sods and Otter Creek Wilderness Areas in West Virginia, and Shenandoah National Park and James River Face Wilderness Area in Virginia.*

13. Contact Information		
Responsible Official: Scott Dolan		**Title:** Plant Manager
Street or P.O. Box: 7200 Energy Road		
City: Proctor	**State:** WV	**Zip:** 26055
Telephone Number: (304) 843-3005	**Fax Number:** (304) 843-3001	
E-mail address: Scott.Dolan@saint-gobain.com		
Environmental Contact: Joe Sabbatis		**Title:** Great Lakes Regional Manager – Health, Safety, & Environmental Affairs
Street or P.O. Box: 168 Creekside Drive		
City: Amherst	**State:** NY	**Zip:** 14228
Telephone Number: (716) 691-2067	**Fax Number:** (716) 691-2079	
E-mail address: Joseph.Sabbatis@saint-gobain.com		
Application Preparer: Rachel Velthuisen		**Title:** Senior Manager
Company: ENVIRON International Corporation		
Street or P.O. Box: 707 Wilshire Blvd., Suite 4950 (mailing address)		
City: Los Angeles	**State:** CA	**Zip:** 90017
Telephone Number: (919) 529-4747	**Fax Number:** (213) 943-6301	
E-mail address: rvelthuisen@environcorp.com		

14. Facility Description

List all processes, products, NAICS and SIC codes for normal operation, in order of priority. Also list any process, products, NAICS and SIC codes associated with any alternative operating scenarios if different from those listed for normal operation.

Process	Products	NAICS	SIC
Gypsum Product Manufacturing	Gypsum Wallboard Products	327420	3275

Provide a general description of operations.

Operations of the gypsum wallboard forming facility consist of receiving raw materials (primarily synthetic gypsum with some natural gypsum and additives), drying, grinding, and calcining the gypsum, followed by mixing with wet and dry additives to form a slurry. The slurry is placed between two layers of paper to form the wallboard. The wallboard is dried, cut, and stacked for delivery.

15. Provide an **Area Map** showing plant location as **ATTACHMENT A**.

See Appendix A of the application.

16. Provide a **Plot Plan(s)**, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is located as **ATTACHMENT B**. For instructions, refer to "Plot Plan - Guidelines."

See Appendix B of the application.

17. Provide a detailed **Process Flow Diagram(s)** showing each process or emissions unit as **ATTACHMENT C**. Process Flow Diagrams should show all emission units, control equipment, emission points, and their relationships.

See Appendix C of the application.

Section 2: Applicable Requirements

18. Applicable Requirements Summary	
Instructions: Mark all applicable requirements.	
☒ SIP	☐ FIP
☒ Minor source NSR (45CSR13)	☒ PSD (45CSR14)
☒ NESHAP (45CSR34)	☒ Nonattainment NSR (45CSR19)
☒ Section 111 NSPS	☒ Section 112(d) MACT standards
☐ Section 112(g) Case-by-case MACT	☐ 112(r) RMP
☐ Section 112(i) Early reduction of HAP	☐ Consumer/commercial prod. reqts., section 183(e)
☐ Section 129 Standards/Reqts.	☐ Stratospheric ozone (Title VI)
☐ Tank vessel reqt., section 183(f)	☐ Emissions cap 45CSR§30-2.6.1
☐ NAAQS, increments or visibility (temp. sources)	☐ 45CSR27 State enforceable only rule
☐ 45CSR4 State enforceable only rule	☐ Acid Rain (Title IV, 45CSR33)
☐ Emissions Trading and Banking (45CSR28)	☐ Compliance Assurance Monitoring (40CFR64)
☐ CAIR NO_x Annual Trading Program (45CSR39)	☐ CAIR NO_x Ozone Season Trading Program (45CSR40)
☐ CAIR SO_2 Trading Program (45CSR41)	

19. Non Applicability Determinations
List all requirements which the source has determined not applicable and for which a permit shield is requested. The listing shall also include the rule citation and the reason why the shield applies. Please refer to Section 4 "Regulatory Analysis" of the application report.
☒ Permit Shield

19. Non Applicability Determinations *(Continued)* *- Attach additional pages as necessary.*

List all requirements which the source has determined not applicable and for which a permit shield is requested. The listing shall also include the rule citation and the reason why the shield applies.

Please see Section 4 "Regulatory Analysis" of the report.

☒ Permit Shield

20. Facility-Wide Applicable Requirements

List all facility-wide applicable requirements. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*).

Please refer to Section 4 "Regulatory Analysis" of the report

☒ Permit Shield

For all facility-wide applicable requirements listed above, provide monitoring/testing / recordkeeping / reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

CertainTeed will continue to follow monitoring/testing/recordkeeping/reporting requirements in its current Title V permit R30-05100113-2010 to demonstrate compliance.

In addition, CertainTeed will follow the associated requirements of the Class II General Permit for the emergency generators.

Are you in compliance with all facility-wide applicable requirements? ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

21. Active Permits/Consent Orders		
Permit or Consent Order Number	Date of Issuance MM/DD/YYYY	List any Permit Determinations that Affect the Permit *(if any)*
R13-2656E	08/22 /2013	N/A
R30-05100113-2010	05/27/2010	N/A
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22. **Inactive Permits/Obsolete Permit Conditions**		
Permit Number	Date of Issuance	Permit Condition Number
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Section 3: Facility-Wide Emissions

23. Facility-Wide Emissions Summary [Tons per Year]	
Criteria Pollutants	**Potential Emissions**
Carbon Monoxide (CO)	252
Nitrogen Oxides (NO_X)	121
Lead (Pb)	
Particulate Matter ($PM_{2.5}$)[1]	128
Particulate Matter (PM_{10})[1]	160
Total Particulate Matter (TSP)	212
Sulfur Dioxide (SO_2)	1
Volatile Organic Compounds (VOC)	19
Hazardous Air Pollutants[2]	**Potential Emissions**
Total HAP	2.15
Regulated Pollutants other than Criteria and HAP	**Potential Emissions**
Greenhouse Gases (GHGs)	**Potential Emissions**
Carbon Dioxide (CO_2)	134,502
Nitrous Oxide (N_2O)	0.25
Methane (CH_4)	2.53
Hydrofluorocarbons (HFCs)	--
Perfluorocarbons (PFCs)	--
Sulfur hexafluoride (SF_6)	--
CO_2 equivalent (CO_2e)	--

[1] $PM_{2.5}$ and PM_{10} are components of TSP.
[2] For HAPs that are also considered PM or VOCs, emissions should be included in both the HAPs section and the Criteria Pollutants section.

Section 4: Insignificant Activities

24. Insignificant Activities (Check all that apply)		
☒	1.	Air compressors and pneumatically operated equipment, including hand tools.
☒	2.	Air contaminant detectors or recorders, combustion controllers or shutoffs.
☒	3.	Any consumer product used in the same manner as in normal consumer use, provided the use results in a duration and frequency of exposure which are not greater than those experienced by consumer, and which may include, but not be limited to, personal use items; janitorial cleaning supplies, office supplies and supplies to maintain copying equipment.
☒	4.	Bathroom/toilet vent emissions.
☒	5.	Batteries and battery charging stations, except at battery manufacturing plants.
☒	6.	Bench-scale laboratory equipment used for physical or chemical analysis, but not lab fume hoods or vents. Many lab fume hoods or vents might qualify for treatment as insignificant (depending on the applicable SIP) or be grouped together for purposes of description.
☐	7.	Blacksmith forges.
☐	8.	Boiler water treatment operations, not including cooling towers.
☒	9.	Brazing, soldering or welding equipment used as an auxiliary to the principal equipment at the source.
☐	10.	CO_2 lasers, used only on metals and other materials which do not emit HAP in the process.
☒	11.	Combustion emissions from propulsion of mobile sources, except for vessel emissions from Outer Continental Shelf sources.
☒	12.	Combustion units designed and used exclusively for comfort heating that use liquid petroleum gas or natural gas as fuel.
☒	13.	Comfort air conditioning or ventilation systems not used to remove air contaminants generated by or released from specific units of equipment.
☐	14.	Demineralized water tanks and demineralizer vents.
☒	15.	Drop hammers or hydraulic presses for forging or metalworking.
☐	16.	Electric or steam-heated drying ovens and autoclaves, but not the emissions from the articles or substances being processed in the ovens or autoclaves or the boilers delivering the steam.
☐	17.	Emergency (backup) electrical generators at residential locations.
☐	18.	Emergency road flares.
☐	19.	Emission units which do not have any applicable requirements and which emit criteria pollutants (CO, NO_x, SO_2, VOC and PM) into the atmosphere at a rate of less than 1 pound per hour and less than 10,000 pounds per year aggregate total for each criteria pollutant from all emission units. Please specify all emission units for which this exemption applies along with the quantity of criteria pollutants emitted on an hourly and annual basis: _____ _____ _____ _____ _____ _____ _____ _____ _____

24. Insignificant Activities (Check all that apply)		
☐	20.	Emission units which do not have any applicable requirements and which emit hazardous air pollutants into the atmosphere at a rate of less than 0.1 pounds per hour and less than 1,000 pounds per year aggregate total for all HAPs from all emission sources. This limitation cannot be used for any source which emits dioxin/furans nor for toxic air pollutants as per 45CSR27. Please specify all emission units for which this exemption applies along with the quantity of hazardous air pollutants emitted on an hourly and annual basis: _____ _____ _____ _____ _____
☐	21.	Environmental chambers not using hazardous air pollutant (HAP) gases.
☐	22.	Equipment on the premises of industrial and manufacturing operations used solely for the purpose of preparing food for human consumption.
☐	23.	Equipment used exclusively to slaughter animals, but not including other equipment at slaughterhouses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.
☒	24.	Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis.
☐	25.	Equipment used for surface coating, painting, dipping or spray operations, except those that will emit VOC or HAP.
☒	26.	Fire suppression systems.
☒	27.	Firefighting equipment and the equipment used to train firefighters.
☐	28.	Flares used solely to indicate danger to the public.
☐	29.	Fugitive emission related to movement of passenger vehicle provided the emissions are not counted for applicability purposes and any required fugitive dust control plan or its equivalent is submitted.
☐	30.	Hand-held applicator equipment for hot melt adhesives with no VOC in the adhesive formulation.
☒	31.	Hand-held equipment for buffing, polishing, cutting, drilling, sawing, grinding, turning or machining wood, metal or plastic.
☐	32.	Humidity chambers.
☐	33.	Hydraulic and hydrostatic testing equipment.
☒	34.	Indoor or outdoor kerosene heaters.
☐	35.	Internal combustion engines used for landscaping purposes.
☐	36.	Laser trimmers using dust collection to prevent fugitive emissions.
☐	37.	Laundry activities, except for dry-cleaning and steam boilers.
☒	38.	Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.
☐	39.	Oxygen scavenging (de-aeration) of water.
☐	40.	Ozone generators.
☐	41.	Plant maintenance and upkeep activities (e.g., grounds-keeping, general repairs, cleaning, painting, welding, plumbing, re-tarring roofs, installing insulation, and paving parking lots) provided these activities are not conducted as part of a manufacturing process, are not related to the source's primary business activity, and not otherwise triggering a permit modification. (Cleaning and painting activities qualify if they are not subject to VOC or HAP control requirements. Asphalt batch plant

24. Insignificant Activities (Check all that apply)		
		owners/operators must still get a permit if otherwise requested.)
☒	42.	Portable electrical generators that can be moved by hand from one location to another. "Moved by Hand" means that it can be moved without the assistance of any motorized or non-motorized vehicle, conveyance, or device.
☒	43.	Process water filtration systems and demineralizers.
☐	44.	Repair or maintenance shop activities not related to the source's primary business activity, not including emissions from surface coating or de-greasing (solvent metal cleaning) activities, and not otherwise triggering a permit modification.
☒	45.	Repairs or maintenance where no structural repairs are made and where no new air pollutant emitting facilities are installed or modified.
☐	46.	Routing calibration and maintenance of laboratory equipment or other analytical instruments.
☐	47.	Salt baths using nonvolatile salts that do not result in emissions of any regulated air pollutants. Shock chambers.
☐	48.	Shock chambers.
☐	49.	Solar simulators.
☐	50.	Space heaters operating by direct heat transfer.
☐	51.	Steam cleaning operations.
☐	52.	Steam leaks.
☐	53.	Steam sterilizers.
☐	54.	Steam vents and safety relief valves.
☐	55.	Storage tanks, reservoirs, and pumping and handling equipment of any size containing soaps, vegetable oil, grease, animal fat, and nonvolatile aqueous salt solutions, provided appropriate lids and covers are utilized.
☐	56.	Storage tanks, vessels, and containers holding or storing liquid substances that will not emit any VOC or HAP. Exemptions for storage tanks containing petroleum liquids or other volatile organic liquids should be based on size limits such as storage tank capacity and vapor pressure of liquids stored and are not appropriate for this list.
☐	57.	Such other sources or activities as the Director may determine.
☐	58.	Tobacco smoking rooms and areas.
☐	59.	Vents from continuous emissions monitors and other analyzers.

Section 5: Emission Units, Control Devices, and Emission Points

25. Equipment Table
Fill out the **Title V Equipment Table** and provide it as **ATTACHMENT D**. **See Attachment D**
26. Emission Units
For each emission unit listed in the **Title V Equipment Table**, fill out and provide an **Emission Unit Form** as **ATTACHMENT E**. **See Attachment E**
For each emission unit not in compliance with an applicable requirement, fill out a **Schedule of Compliance Form** as **ATTACHMENT F**. **N/A**
27. Control Devices
For each control device listed in the **Title V Equipment Table**, fill out and provide an **Air Pollution Control Device Form** as **ATTACHMENT G**. **See Attachment G**
For any control device that is required on an emission unit in order to meet a standard or limitation for which the potential pre-control device emissions of an applicable regulated air pollutant is greater than or equal to the Title V Major Source Threshold Level, refer to the **Compliance Assurance Monitoring (CAM) Form(s)** for CAM applicability. Fill out and provide these forms, if applicable, for each Pollutant Specific Emission Unit (PSEU) as **ATTACHMENT H**. **N/A – The baghouses used at the facility are part of the process and are not subject to CAM.**

Section 6: Certification of Information

28. Certification of Truth, Accuracy and Completeness and Certification of Compliance

*Note: This Certification must be signed by a responsible official. The **original**, signed in **blue ink**, must be submitted with the application. Applications without an **original** signed certification will be considered as incomplete.*

a. Certification of Truth, Accuracy and Completeness

I certify that I am a responsible official (as defined at 45CSR§30-2.38) and am accordingly authorized to make this submission on behalf of the owners or operators of the source described in this document and its attachments. I certify under penalty of law that I have personally examined and am familiar with the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine and/or imprisonment.

b. Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

Responsible official (type or print)

Name: Scott Dolan	Title: Plant Manager

Responsible official's signature:

Signature: _____ Signature Date: 11/7/14

(Must be signed and dated in blue ink)

Note: Please check all applicable attachments included with this permit application:	
☒	ATTACHMENT A: Area Map
☒	ATTACHMENT B: Plot Plan(s)
☒	ATTACHMENT C: Process Flow Diagram(s)
☒	ATTACHMENT D: Equipment Table
☒	ATTACHMENT E: Emission Unit Form(s)
☐	ATTACHMENT F: Schedule of Compliance Form(s)
☒	ATTACHMENT G: Air Pollution Control Device Form(s)
☐	ATTACHMENT H: Compliance Assurance Monitoring (CAM) Form(s)

All of the required forms and additional information can be found and downloaded from, the DEP website at www.dep.wv.gov/daq, requested by phone (304) 926-0475, and/or obtained through the mail.

ATTACHMENT D - Title V Equipment Table

(includes all emission units at the facility except those designated as insignificant activities in Section 4, Item 24 of the General Forms)

Emission Point ID[1]	Control Device[1]	Emission Unit ID[1]	Emission Unit Description	Design Capacity	Year Installed/ Modified
EP02	FF02	EU02	Waste Recycle System – End Saw	2 tph	2008
EP03	FF03	EU03	Waste Recycle System – Dunnage Machine	2 tph	2008
EP05	FF05	EU05	Cage Mill DSG Dryer	120 tph 50 MMBtu/hr	2007
EP06	FF06	EU06	Cage Mill Feed Silo (Wet DSG Silo)	200 tons	2007
EP07	FF07	EU07	DSG Conveying System	200 tph	2008
EP08	FF08	EU08	Dry DSG Storage Silo (Intermediate DSG Silo)	200 tph	2007
EP12	FF12	EU12	K10 Kettle	44 tph 31.7 MMBtu/hr	2008
EP13	FF13	EU13	K20 Kettle	44 tph 31.7 MMBtu/hr	2008
EP14	FF14	EU14	Stucco Cooler	88 tph	2008
EP16	FF16	EU16	HRA DSG Silo	2.61 tph	2007
EP17	FF17	EU17	HRA Dextrose Silo	0.1375 tph	2007
EP18	FF18	EU18	HRA Ball Mill System	1.65 tph	2007
EP20	FF20	EU20	Stucco Silo	600 tph	2007
EP 21	FF21	EU21	Mixer and Additive	100 tph	2007
EP22	FF22	EU22	Stucco Metering Equipment	96 tph	2008
EP23	FF23	EU23	Intermediate Stucco Silo	60 tph	2007
EP24	FF24	EU24	Stucco Ball Mill	111 tph	2008
EP25	FF25	EU25	Starch Bulk Silo	24.8 tph	2008
EP27	FF27	EU27	Semi-Bulk Transfer Station Bin	24.8 tph	2007
EP29	FF29	EU29	Boric Acid Feeder	3 tph	2007
EP30	FF30	EU30	Potash Feeder Bin	6 tph	2007
EP31	FF31	EU31	Dextrose Feeder Bin	2.5 tph	2007
EP33	FF33	EU33	Starch Feeer Bin	2 tph	2007
EP34	FF34	EU34	HRA Feeder Bin	4 tph	2007
EP36	N/A	EU36	Board Dryer	Total of 147 MMBtu/hr	2007

EP37	N/A	EU37	Two Paper Heaters	Total of 1.9 MMBtu/hr	2007
Fugitive	N/A	EU39	Storage Piles	6.83 acres	2007
Fugitive	N/A	EU40	Material Handling	330 to 1,100 tph	2007
Fugitive	N/A	EU41	Haul Roads	67,085 mi/yr	2007
EP42	N/A	EU42	Foaming Agent Tank 1	9,500 gal	2007
EP43	N/A	EU43	Foaming Agent Tank 2	100 gal	2007
EP44	FF44	EU44	K10 Kettle Supply Screw	120 tph	2007
EP45	FF45	EU45	K20 Kettle Bad Batch Return Screw	100 tph	2007
EP46	FF46	EU46	Stucco Cooler ByPass Screw #2	100 tph	2007
EP47	FF47	EU47	Cage Mill Cyclone Transfer Screw	120 tph	2007
EP48	FF48	EU48	K20 Kettle Transfer Screw	120 tph	2007
Fugitive	N/A	EU49	Inking Operations	3.3 lb/hr	2007
EP50	FF50	EU50	Ethylated Starch Silo	5,000 ft^3	2013
EP51	FF51	EU51	Ethylated Starch Feeder Bin	1 ton/hr	2013
EP52	FF52	EU52	Vermiculite Silo	3,000 ft^3	2013
EP53	FF53	EU53	Vermiculite Feeder Bin	1 ton/hr	2013
			Lift Station Generator 1	37 hp	2006
			Lift Station Generator 2	27 hp	2006
			Lift Station Generator 3	27 hp	2006
			Fire Pump	252 hp	2005

[1]For 45CSR13 permitted sources, the numbering system used for the emission points, control devices, and emission units should be consistent with the numbering system used in the 45CSR13 permit. For grandfathered sources, the numbering system should be consistent with registrations or emissions inventory previously submitted to DAQ. For emission points, control devices, and emissions units which have not been previously labeled, use the following 45CSR13 numbering system: 1S, 2S, 3S,... or other appropriate description for emission units; 1C, 2C, 3C,... or other appropriate designation for control devices; 1E, 2E, 3E, ... or other appropriate designation for emission points.

ATTACHMENT E - Emission Unit Form

Emission Unit Description - ***DSG Handling, Drying/Calcining, Cooling and Stucco Handling Process***

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
See Table 1	See Table 1	See Table 1

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

DSG Handling, Drying/Calcining, Cooling and Stucco Handling Process

Manufacturer:	**Model number:**	**Serial number:**
See Table 1	N/A	N/A
Construction date:	**Installation date:**	**Modification date(s):**
See Table 1	See Table 1	N/A

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
See Table 1

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
See Table 1	See Table 1	8,760 hours/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X_Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: EU05 (cage mill dryer): 50 MMBtu/hr EU12 (kettle #1): 31.7 MMBtu/hr EU13 (kettle #2): 31.7 MMBtu/hr	**Type and Btu/hr rating of burners:** EU05 (cage mill dryer): North American Mfg. EU12 & EU13 (kettle #1 & #2): Hamworthy-Peabody Combustion Inc.

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Pipeline quality natural gas as the only fuel.
EU05 (cage mill dryer): 0.05 MMscf/hr
EU12 (kettle #1): 0.03 MMscf/hr
EU13 (kettle #2): 0.03 MMscf/hr
Natural gas usage for the facility is limited by R13-2656 (4.1.4) to 251.84 Mscf per hour and 2,206.12 MMscf per year.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0.5 grains or less of total sulfur per 100 standard cubic feet		1025 Btu per std. cubic foot

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Table 2	See Table 2
Nitrogen Oxides (NO_X)	See Table 2	See Table 2
Lead (Pb)	See Table 2	See Table 2
Particulate Matter ($PM_{2.5}$)	See Table 2	See Table 2
Particulate Matter (PM_{10})	See Table 2	See Table 2
Total Particulate Matter (TSP)	See Table 2	See Table 2
Sulfur Dioxide (SO_2)	See Table 2	See Table 2
Volatile Organic Compounds (VOC)	See Table 2	See Table 2
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
	See Table 2	See Table 2
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
N/A	N/A	N/A

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

Fabric Filter emissions were based on:
0.01 grains of PM/PM_{10} per dscf of exhaust gases for all fabric filters serving non-combustion sources (except the Dry DSG Silo Bin Vent).
0.02 Grains of PM/PM_{10} per dscf for the Dry DSG Silo Bin Vent.
With the exception of FF02 and FF05, $PM_{2.5}$ is assumed to be 50% of PM based on stack test results of a similar source for non-combustion related fabric filters. Filterable $PM_{2.5}$ emissions from FF05 are assumed to be 100% of PM, and filterable $PM_{2.5}$ emissions from FF02 are based on August 2013 stack test data.

Combustion source emissions were based on:
PM/PM_{10} for the Cage Mill – AP-42 Factors
PM/PM_{10} for the Kettles – stack test data
NOx/CO - stack test data
SO2/VOC - AP-42 factors
PM2.5 assumed to be 100% of PM for Kettles and Cage Mill

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

45 CSR 13 Permit No R13-2656 Specific Requirement 4.1.1: point source emissions limitation
45 CSR 7-5.1: minimize emissions of fugitive particulate matter
45 CSR 13 Permit No R13-2656 Specific Requirement 4.1.2: fugitive source emissions limitations
45 CSR 13 Permit No R13-2656 Specific Requirements 4.1.3 and 4.1.4: natural gas limitations
45 CSR 7-3.1: 20% opacity limitation
45 CSR 7-4.1: particulate limitation as specified in Table 45-7A
40 CFR Part 60 Subpart OOO: stack emissions limitation
40 CFR Part 60 Subpart OOO: Stack 7% opacity limitation
40 CFR Part 60 Subpart OOO: Fugitive 10% opacity limitation
40 CFR Part 60 Subpart OOO: Material handling operations enclosed in a building limitation
40 CFR Part 60 Subpart UUU: kettle particulate limitation
40 CFR Part 60 Subpart UUU: Kettle 10% opacity limitation
45 CSR 13 Permit No R13-2656 Specific Requirements 4.1.20 and 21: additive VOC and HAP limitations
45 CSR 13-5.11: operation and maintenance of control equipment
45 CSR 13 Permit No R13-2656 Specific Requirements 4.1.10, 11, 12, and 13: stack emissions limitation and compliance
45 CSR 30-12.7: The pressure drop across the baghouses shall be maintained between 0.5 and 6 in. H2O
45 CFR 16: testing methods and reporting requirements

_X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

45 CSR 13 Permit No R13-2656 Specific Requirement 4.1.1: point source emissions limitation

Permit No R13-2656: 4.2.1 The Permittee shall monitor and record the pressure drop across the fabric filters on a weekly basis.

45 CSR 7-5.1: minimize emissions of fugitive particulate matter

45 CSR 13 Permit No R13-2656 Specific Requirement 4.1.2: fugitive source emissions limitations

Permit No R13-2656: 4.1.7 No person shall cause, suffer, allow, or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable.

45 CSR 13 Permit No R13-2656 Specific Requirements 4.1.3 and 4.1.4: natural gas limitations

45 CSR 7-3.1: 20% opacity limitation

Permit No R13-2656: 4.2.5 For the purpose of determining compliance with the opacity limits of 4.1.5, 4.1.11, and 4.1.12 the permittee shall conduct visible emissions checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit, as needed (when visible emissions are observed).

45 CSR 7-4.1: particulate limitation as specified in Table 45-7A

Permit No R13-2656: 4.2.1 The Permittee shall monitor and record the pressure drop across the fabric filters on a weekly basis.

40 CFR Part 60 Subpart OOO: stack emissions limitation

Permit No R13-2656: 4.2.1 The Permittee shall monitor and record the pressure drop across the fabric filters on a weekly basis.

40 CFR Part 60 Subpart OOO: Stack 7% opacity limitation

Permit No R13-2656: 4.2.5 For the purpose of determining compliance with the opacity limits of 4.1.5, 4.1.11, and 4.1.12 the permittee shall conduct visible emissions checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit, as needed (when visible emissions are observed).

40 CFR Part 60 Subpart OOO: Fugitive 10% opacity limitation

Permit No R13-2656: 4.2.5 For the purpose of determining compliance with the opacity limits of 4.1.5, 4.1.11, and 4.1.12 the permittee shall conduct visible emissions checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit, as needed (when visible emissions are observed).

40 CFR Part 60 Subpart OOO: Material handling operations enclosed in a building limitation

40 CFR Part 60 Subpart UUU: kettle particulate limitation

40 CFR Part 60 Subpart UUU: Kettle 10% opacity limitation

45 CSR 13 Permit No R13-2656 Specific Requirements 4.1.20 and 21: additive VOC and HAP limitations

Permit No R13-2656: 4.2.3 The permittee shall monitor and record the quantity of all inks, wet additives and foaming agents used along with their VOC and HAP content.

45 CSR 13-5.11: operation and maintenance of control equipment

Permit No R13-2656: 4.2.7 For all air pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.

Permit No R13-2656: 4.2.8 For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. the equipment involved
b. steps taken to minimize emissions during the event
c. the duration of the event
d. the estimated increase in emissions during the event

For each such case associated with an equipment malfunction, the additional information shall be also be recorded:

e. the cause of the malfunction
f. steps taken to correct the malfunction
g. any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

Emission Unit: DSG Handling, Drying/Calcining, Cooling and Stucco Handling Process

Table 1. Emissions Unit Description
CertainTeed Gypsum, Moundsville, WV

Emissions Unit ID	Emission Unit Name	Control Device ID	Emissions Unit Manufacturer	Construction Date	Installation Date	Maximum Capacity (tph)
EU02	Waste/Recycle System	FF02			2008	2
EU03	Waste/Recycle System	FF03			2008	2
EU05	Cage Mill DSG Dryer	FF05	Alstom	2/28/2007	9/20/2007	120
EU06	Cage Mill Feed Silo - Wet DSG Silo	FF06	Donaldson Torit	2/28/2007	9/21/2007	200 tons
EU07	DSG Conveying Equipment	FF07	WTW Americas	9/19/2007	1/11/2008	200
EU47	Cage Mill Cyclone Transfer Screw	FF47	Donaldson Torit	3/26/2007	11/15/2007	120
EU08	Dry DSG Storage Silo (Intermediate DSG Silo)	FF08	Donaldson Torit	8/6/2007	11/9/2007	200
EU12	K-10 Kettle	FF12	Manthrope (SGGE)	4/3/2007	1/11/2008	44
EU13	K-20 Kettle	FF13	Manthrope (SGGE)	4/3/2007	1/12/2008	44
EU48	K-20 Kettle Transfer Screw	FF48	Strongco	6/27/2007	11/16/2007	120
EU44	K-10 Kettle Supply Screw	FF44	Strongco	9/19/2007	11/16/2007	120
EU45	K-20 Kettle Bad Batch Return Screw	FF45	Strongco	1/23/2007	11/17/2007	100
EU46	Stucco Cooler Bypass Screw #2	FF46	Strongco	3/26/2007	1/4/2008	100
EU14	Stucco Cooler Bypass Screw #2	FF14	AVT	9/19/2007	1/4/2008	88
EU16	HRA DSG Silo	FF16	Ven den berg	1/19/2007	10/18/2007	2.61
EU17	HRA Dextrose Silo	FF17	Ven den berg	1/19/2007	10/3/2007	0.1375
EU18	HRA Ball Mill System	FF18	Patterson	9/5/2006	8/10/2007	1.65
EU39	Storage Piles	N/A	N/A	2007	2007	6.83 acres
EU40	Outside Material Handling Equipment	N/A	N/A	2007	2007	1,100

Notes:

tph - tons per hour

EU - emission unit

FF - fabric filter

DSG - desulphogypsum

Emission Unit: DSG Handling, Drying/Calcining, Cooling and Stucco Handling Process

Table 2. Emissions Data
CertainTeed Gypsum, Moundsville, WV

Emissions Unit ID	$PM_{2.5}$		PM_{10}		PM		NO_x		CO		SO_2		VOC		HAP	
	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)
EU02	0.86	3.8	1.97	8.6	1.97	8.6	-	-	-	-	-	-	-	-	-	-
EU03	0.30	1.3	0.60	2.6	0.60	2.6	-	-	-	-	-	-	-	-	-	-
EU05	6.00	26.3	6.00	26.3	6.28	27.5	2.29	10.05	2.65	11.61	0.03	0.13	0.27	1.18	0.09	0.41
EU06	0.01	0.1	0.03	0.1	0.03	0.1	-	-	-	-	-	-	-	-	-	-
EU07	0.01	0.0	0.02	0.1	0.02	0.1	-	-	-	-	-	-	-	-	-	-
EU47	0.01	0.0	0.02	0.1	0.02	0.1	-	-	-	-	-	-	-	-	-	-
EU08	0.03	0.1	0.05	0.2	0.05	0.2	-	-	-	-	-	-	-	-	-	-
EU12	3.07	13.4	3.07	13.4	3.99	17.5	6.80	29.79	15.58	68.23	0.02	0.08	0.17	0.75	0.06	0.26
EU13	3.07	13.4	3.07	13.4	3.99	17.5	6.80	29.79	15.58	68.23	0.02	0.08	0.17	0.75	0.06	0.26
EU48	0.01	0.0	0.02	0.1	0.02	0.1	-	-	-	-	-	-	-	-	-	-
EU44	0.01	0.0	0.02	0.1	0.02	0.1	-	-	-	-	-	-	-	-	-	-
EU45	0.01	0.0	0.02	0.1	0.02	0.1	-	-	-	-	-	-	-	-	-	-
EU46	0.01	0.0	0.02	0.1	0.02	0.1	-	-	-	-	-	-	-	-	-	-
EU14	0.09	0.4	0.17	0.8	0.17	0.8	-	-	-	-	-	-	-	-	-	-
EU16	0.03	0.1	0.05	0.2	0.05	0.2	-	-	-	-	-	-	-	-	-	-
EU17	0.03	0.1	0.05	0.2	0.05	0.2	-	-	-	-	-	-	-	-	-	-
EU18	0.26	1.1	0.52	2.3	0.52	2.3	-	-	-	-	-	-	-	-	-	-
EU39	0.28	1.2	1.89	8.3	3.77	16.5	-	-	-	-	-	-	-	-	-	-
EU40	0.55	2.4	3.45	15.1	7.14	31.3	-	-	-	-	-	-	-	-	-	-

Notes:
PM - particulate matter
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
NO_x - oxides of nitrogen
CO - carbon monoxide
SO_2 - sulfur dioxide
VOC - volatile organic compound
HAP - hazardous air pollutant
lbs/hr - pounds per hour
tpy - tons per year
EU - emission unit

ATTACHMENT E - Emission Unit Form

Emission Unit Description – Mixer/Additives

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
See Table 1	See Table 1	See Table 1

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

Mixer / Additives

Manufacturer:	**Model number:**	**Serial number:**
See Table 1	N/A	N/A
Construction date:	**Installation date:**	**Modification date(s):**
See Table 1	See Table 1	N/A

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
See Table 1

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
See Table 1	See Table 1	8,760 hours/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? __Yes _X_ No	**If yes, is it?** ___ Indirect Fired __Direct Fired
Maximum design heat input and/or maximum horsepower rating: N/A	**Type and Btu/hr rating of burners:** N/A

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
N/A

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
N/A	N/A	N/A	N/A

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	N/A	N/A
Nitrogen Oxides (NO_X)	N/A	N/A
Lead (Pb)	N/A	N/A
Particulate Matter ($PM_{2.5}$)	See Table 2	See Table 2
Particulate Matter (PM_{10})	See Table 2	See Table 2
Total Particulate Matter (TSP)	See Table 2	See Table 2
Sulfur Dioxide (SO_2)	N/A	N/A
Volatile Organic Compounds (VOC)	N/A	N/A
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
	N/A	N/A
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
N/A	N/A	N/A

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

Fabric Filter emissions were based on:
0.01 grains of PM/PM_{10} per dscf of exhaust gases
$PM_{2.5}$ assumed to be 50% of PM

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

45 CSR 13 Permit No R13-2656 Specific Requirement 4.1.1: point source emissions limitation
45 CSR 7-5.1: minimize emissions of fugitive particulate matter
45 CSR 13 Permit No R13-2656 Specific Requirement 4.1.2: fugitive source emissions limitations
45 CSR 7-3.1: 20% opacity limitation
45 CSR 7-4.1: particulate limitation as specified in Table 45-7A
45 CSR 13 Permit No R13-2656 Specific Requirements 4.1.20 and 21: additive VOC and HAP limitations
45 CSR 13-5.11: operation and maintenance of control equipment

_X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

45 CSR 13 Permit No R13-2656 Specific Requirement 4.1.1: point source emissions limitation
Permit No R13-2656: 4.2.1 The Permittee shall monitor and record the pressure drop across the fabric filters on a weekly basis.

45 CSR 7-5.1: minimize emissions of fugitive particulate matter

45 CSR 13 Permit No R13-2656 Specific Requirement 4.1.2: fugitive source emissions limitations
Permit No R13-2656: 4.1.7 No person shall cause, suffer, allow, or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable.

45 CSR 7-3.1: 20% opacity limitation
Permit No R13-2656: 4.2.5 For the purpose of determining compliance with the opacity limits of 4.1.5, 4.1.11, and 4.1.12 the permittee shall conduct visible emissions checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit, as needed (when visible emissions are observed).

45 CSR 7-4.1: particulate limitation as specified in Table 45-7A
Permit No R13-2656: 4.2.1 The Permittee shall monitor and record the pressure drop across the fabric filters on a weekly basis.

45 CSR 13 Permit No R13-2656 Specific Requirements 4.1.20 and 21: additive VOC and HAP limitations
Permit No R13-2656: 4.2.3 The permittee shall monitor and record the quantity of all inks, wet additives and foaming agents used along with their VOC and HAP content.

45 CSR 13-5.11: operation and maintenance of control equipment
Permit No R13-2656: 4.2.7 For all air pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
Permit No R13-2656: 4.2.8 For all air pollution control equipment listed in Section 1.0, the permittee shall

	maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded: a. the equipment involved b. steps taken to minimize emissions during the event c. the duration of the event d. the estimated increase in emissions during the event For each such case associated with an equipment malfunction, the additional information shall be also be recorded: e. the cause of the malfunction f. steps taken to correct the malfunction g. any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.
Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.	

Emission Unit: Mixer/Additives

Table 1. Emissions Unit Description
CertainTeed Gypsum, Moundsville, WV

Emissions Unit ID	Emission Unit Name	Control Device ID	Emissions Unit Manufacturer	Construction Date	Installation Date	Maximum Capacity (tph)
EU20	Stucco Silo	FF20	Ven den Berg	2/17/2007	6/27/2007	600
EU22	Stucco Metering Equipment	FF22	Ven den Berg	4/11/2007	1/7/2008	96
EU21	Mixer and Additives	FF21	Ven den Berg	10/26/2007	12/1/2007	100
EU23	Intermediate Stucco Silo	FF23	Ven den Berg	6/6/2007	7/3/2007	60
EU24	Stucco Ball Mill	FF24	Industrial Machine & Welding	10/12/2007	1/12/2008	111
EU25	Starch Bulk Silo	FF25	Ven den Berg	7/4/2008	8/11/2008	24.8
EU27	Semi-Bulk transfer Station Bin	FF27	Ven den Berg	8/6/2007	10/10/2007	24.8
EU29	Boric Acid Feeder Bin	FF29	Ven den Berg	1/19/2007	10/18/2007	3
EU30	Potash Feeder Bin	FF30	Ven den Berg	1/19/2007	9/20/2007	6
EU31	Dextrose Feeder Bin	FF31	Ven den Berg	1/19/2007	10/19/2007	2.5
EU33	Starch Feeder Bin	FF33	Ven den Berg	1/19/2007	10/11/2007	2
EU34	HRA Feeder Bin	FF34	Ven den Berg	1/19/2007	9/20/2007	4
EU50	Ethylated Starch Silo	FF50			2013	5,000 ft^3
EU51	Ethylated Starch Feeder Bin	FF51			2013	1 (ton/hr)
EU52	Vermiculite Silo	FF52			2013	3,000 ft^3
EU53	Vermiculite Feeder Bin	FF53			2013	1 (ton/hr)

Notes:
EU - emission unit
FF - fabric filter
tph - tons per hour

Emission Unit: Mixer/Additives

Table 2. Emissions Data
CertainTeed Gypsum, Moundsville, WV

Emissions Unit ID	$PM_{2.5}$		PM_{10}		PM		NO_x		CO		SO_2		VOC		HAP	
	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)
EU20	0.03	0.1	0.05	0.2	0.05	0.2	-	-	-	-	-	-	-	-	-	-
EU22	0.11	0.5	0.23	1.0	0.23	1.0	-	-	-	-	-	-	-	-	-	-
EU21	0.05	0.2	0.10	0.4	0.10	0.4	-	-	-	-	-	-	-	-	-	-
EU23	0.03	0.1	0.05	0.2	0.05	0.2	-	-	-	-	-	-	-	-	-	-
EU24	0.15	0.7	0.30	1.3	0.30	1.3	-	-	-	-	-	-	-	-	-	-
EU25	0.06	0.3	0.12	0.5	0.12	0.5	-	-	-	-	-	-	-	-	-	-
EU27	0.03	0.1	0.05	0.2	0.05	0.2	-	-	-	-	-	-	-	-	-	-
EU29	0.03	0.1	0.05	0.2	0.05	0.2	-	-	-	-	-	-	-	-	-	-
EU30	0.03	0.1	0.05	0.2	0.05	0.2	-	-	-	-	-	-	-	-	-	-
EU31	0.03	0.1	0.05	0.2	0.05	0.2	-	-	-	-	-	-	-	-	-	-
EU33	0.03	0.1	0.05	0.2	0.05	0.2	-	-	-	-	-	-	-	-	-	-
EU34	0.03	0.1	0.05	0.2	0.05	0.2	-	-	-	-	-	-	-	-	-	-
EU50	0.06	0.3	0.12	0.5	0.12	0.5	-	-	-	-	-	-	-	-	-	-
EU51	0.03	0.1	0.05	0.2	0.05	0.2	-	-	-	-	-	-	-	-	-	-
EU52	0.06	0.3	0.12	0.5	0.12	0.5	-	-	-	-	-	-	-	-	-	-
EU53	0.03	0.1	0.05	0.2	0.05	0.2	-	-	-	-	-	-	-	-	-	-

Notes:
PM - particulate matter
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
NO_x - oxides of nitrogen
CO - carbon monoxide
SO_2 - sulfur dioxide
VOC - volatile organic compound
HAP - hazardous air pollutant
lbs/hr - pounds per hour
tpy - tons per year
EU - emission unit

ATTACHMENT E - Emission Unit Form

Emission Unit Description - ***Facility Haul Roads***

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
EU41	Haul Roads	N/A

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

Facility Haul Roads (fugitive emissions)

Manufacturer:	**Model number:**	**Serial number:**
N/A	N/A	N/A
Construction date:	**Installation date:**	**Modification date(s):**
2007	N/A	N/A

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):

Gypsum Supply and Finished Wallboard round trip truck trips limited in R13-2656 to a maximum of 41,000 trips per rolling 12-months.

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
N/A	N/A	8,760 hours/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: N/A	**Type and Btu/hr rating of burners:** N/A

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

N/A

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
N/A	N/A	N/A	N/A

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	N/A	N/A
Nitrogen Oxides (NO_X)	N/A	N/A
Lead (Pb)	N/A	N/A
Particulate Matter ($PM_{2.5}$)	0.05	0.20
Particulate Matter (PM_{10})	0.18	0.81
Total Particulate Matter (TSP)	0.92	4.00
Sulfur Dioxide (SO_2)	N/A	N/A
Volatile Organic Compounds (VOC)	N/A	N/A
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
N/A	N/A	N/A
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

Potential emissions were calculated using AP-42 Section 13.2.1 (January 2011)

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

45 CSR 7-5.1: minimize emissions of fugitive particulate matter
45 CSR 7-5.2: control of roadway particulate emissions
45 CSR 13 Permit No R13-2656 Specific Requirement 4.1.19: Truck Trips limitation

_X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

45 CSR 7-5.1: minimize emissions of fugitive particulate matter
Permit No R13-2656: 4.2.4 The permittee shall monitor and record the number of gypsum supply and finished wall board truck trips on a monthly basis.

45 CSR 7-5.2: control of roadway particulate emissions
Permit No R13-2656: 4.2.4 The permittee shall monitor and record the number of gypsum supply and finished wall board truck trips on a monthly basis.

45 CSR 13 Permit No R13-2656 Specific Requirement 4.1.19: Truck Trips limitation
Permit No R13-2656: 4.2.4 The permittee shall monitor and record the number of gypsum supply and finished wall board truck trips on a monthly basis.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description – ***Storage/Transfer of Additives and Ink Usage***

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
See Table 1	See Table 1	See Table 1

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

Additive storage tanks and associated fill operation

Ink application

Manufacturer:	**Model number:**	**Serial number:**
See Table 1	N/A	N/A
Construction date:	**Installation date:**	**Modification date(s):**
See Table 1	See Table 1	N/A

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
See Table 1

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
See Table 1	See Table 1	8,760 hours/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: N/A	**Type and Btu/hr rating of burners:** N/A

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

N/A

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
N/A	N/A	N/A	N/A

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	N/A	N/A
Nitrogen Oxides (NO_X)	N/A	N/A
Lead (Pb)	N/A	N/A
Particulate Matter ($PM_{2.5}$)	N/A	N/A
Particulate Matter (PM_{10})	N/A	N/A
Total Particulate Matter (TSP)	N/A	N/A
Sulfur Dioxide (SO_2)	N/A	N/A
Volatile Organic Compounds (VOC)	See Table 2	See Table 2
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
	N/A	N/A
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
	N/A	N/A

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

Fugitive VOC emissions from additive storage and bulk loading are considered negligible.
Note: VOC emissions from additives are assumed to be emitted from the Board Dryer stack serving zones 1 & 2.

Fugitive VOC emissions from ink usage are estimated based on maximum material applied.

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

45 CSR 13 Permit No R13-2656 Specific Requirements 4.1.20 and 21: additive VOC and HAP limitations.
45 CSR 13 Permit No R13-2656 Specific Requirements 4.1.1: Inking Operations VOC limitations.

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

45 CSR 13 Permit No R13-2656 Specific Requirements 4.1.20 and 21: additive VOC and HAP limitations

4.2.3 The permittee shall monitor and record the quantity of all inks, wet additives and foaming agents used along with their VOC and HAP content.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

Emission Unit: Storage/Transfer of Additives and Ink Usage

Table 1. Emissions Unit Description
CertainTeed Gypsum, Moundsville, WV

Emissions Unit ID	Emission Unit Name	Control Device ID	Emissions Unit Manufacturer	Construction Date	Installation Date	Maximum Capacity
EU42	Fugitive VOC emissions due to additive storage and loading	N/A	N/A	2007	2007	9,500 gal
EU43						100 gal
EU49	Fugitive VOC emissions due to Ink Usage	N/A	N/A	2007	2007	3.3 lb/hr

Notes:
EU - emission unit
tph - tons per hour
gal - gallons
lb/hr - pound per hour

Emission Unit: Storage/Transfer of Additives and Ink Usage

Table 2. Emissions Data
CertainTeed Gypsum, Moundsville, WV

Emissions Unit ID	$PM_{2.5}$		PM_{10}		PM		NO_X		CO		SO_2		VOC		HAP	
	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)
EU42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EU43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EU49	-	-	-	-	-	-	-	-	-	-	-	-	2.7	11.83	-	-

Notes:
PM - particulate matter
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
NO_x - oxides of nitrogen
CO - carbon monoxide
SO_2 - sulfur dioxide
VOC - volatile organic compound
HAP - hazardous air pollutant
lbs/hr - pounds per hour
tpy - tons per year
EU - emission unit

ATTACHMENT E - Emission Unit Form

Emission Unit Description – Dryer Section

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
See Table 1	See Table 1	See Table 1

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

Board dryer and two paper heaters

Manufacturer:	**Model number:**	**Serial number:**
See Table 1	N/A	N/A
Construction date:	**Installation date:**	**Modification date(s):**
See Table 1	See Table 1	N/A

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
N/A

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
See Table 1	See Table 1	8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X_Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: EU36 (board dryer): Total of 147 MMBtu/hr (Zone 1: 62 MMBtu/hr, Zone 2: 59 MMBtu/hr, Zone 3: 26 MMBtu/hr) EU37 (paper heater): Total of 1.9 MMBtu/hr	**Type and Btu/hr rating of burners:** EU36 (board dryer): Grenzebach EU37 (paper heaters): Marsden, Inc.

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Pipeline quality natural gas as the only fuel.
EU36 (board dryer): 0.14 MMscf/hr total
EU37 (paper heater): 0.00184 MMscf/hr total
Natural gas usage for the facility is limited by R13-2656 (4.1.4) to 251.84 Mscf per hour and 2,206.12 MMscf per year.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0.5 grains or less of total sulfur per 100 standard cubic feet		1025 Btu per standard cubic ft

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Table 2	See Table 2
Nitrogen Oxides (NO_X)	See Table 2	See Table 2
Lead (Pb)	See Table 2	See Table 2
Particulate Matter ($PM_{2.5}$)	See Table 2	See Table 2
Particulate Matter (PM_{10})	See Table 2	See Table 2
Total Particulate Matter (TSP)	See Table 2	See Table 2
Sulfur Dioxide (SO_2)	See Table 2	See Table 2
Volatile Organic Compounds (VOC)	See Table 2	See Table 2
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
	See Table 2	See Table 2
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
N/A	N/A	N/A

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

Board Dryer emissions were based on:
PM/PM10/PM2.5 – stack test data
NOx/CO - stack test data
SO2 - AP-42 factors
VOC - AP-42 factors

Paper Heater emissions were based on:
AP-42 for all pollutants

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

45 CSR 13 Permit No R13-2656 Specific Requirement 4.1.1: point source emissions limitation
45 CSR 13 Permit No R13-2656 Specific Requirements 4.1.3 and 4.1.4: natural gas limitations
45 CSR 7-3.1: 20% opacity limitation
45 CSR 7-4.1: particulate limitation as specified in Table 45-7A

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

45 CSR 13 Permit No R13-2656 Specific Requirement 4.1.1: point source emissions limitation

45 CSR 13 Permit No R13-2656 Specific Requirements 4.1.3 and 4.1.4: natural gas limitations

45 CSR 7-3.1: 20% opacity limitation

4.2.5 For the purpose of determining compliance with the opacity limits of 4.1.5, 4.1.11, and 4.1.12 the permittee shall conduct visible emissions checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit, as needed (when visible emissions are observed).

45 CSR 7-4.1: particulate limitation as specified in Table 45-7A
Permit No R13-2656: 4.1.3 Use of pipeline quality natural gas only.

Are you in compliance with all applicable requirements for this emission unit? _X_ Yes ___ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

Emission Unit: Dryer Section

Table 1. Emissions Unit Description
CertainTeed Gypsum, Moundsville, WV

Emissions Unit ID	Emission Unit Name	Control Device ID	Emissions Unit Manufacturer	Construction Date	Installation Date	Maximum Capacity (MMBtu/hr)
EU36	Board Dryer (Zones 1, 2)	N/A	Grenzebach Corporation	9/1/2007	3/17/2008	Total 147 (Zone 1: 62, Zone 2: 59, Zone 3: 26)
	Board Dryer (Zone 3)	N/A				
EU37	Two Paper Heaters	N/A	Marsden, Inc.	9/1/2007	3/17/2008	Total 1.9

Notes:
EU - emission unit
MMBtu/hr - million British thermal units per hour

Emission Unit: Dryer Section

Table 2. Emissions Data
CertainTeed Gypsum, Moundsville, WV

Emissions Unit ID	$PM_{2.5}$		PM_{10}		PM		NO_x		CO		SO_2		VOC		HAP	
	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)
EU36	8.08	35.4	8.08	35.4	9.51	41.7	5.29	23.2	13.31	58.3	0.07	0.3	0.87	3.8	0.23	1.0
	5.73	25.1	5.73	25.1	7.16	31.3	6.32	27.7	10.40	45.6	0.02	0.1	0.18	0.8	0.05	0.2
EU37	0.01	0.1	0.01	0.1	0.02	0.1	0.17	0.8	0.07	0.3	0.00	0.0	0.01	0.0	0.00	0.0

Notes:
PM - Particulate matter
$PM_{2.5}$ - Particulate matter less than 2.5 microns in diameter
PM_{10} - Particulate matter less than 10 microns in diameter
NO_x - Oxides of nitrogen
CO - Carbon monoxide
SO_2 - Sulfur dioxide
VOC - Volatile organic compound
HAP - Hazardous air pollutant
lbs/hr - Pounds per hour
tpy - Tons per year
EU - emission unit

ATTACHMENT E - Emission Unit Form

Emission Unit Description – ***Stationary Emergency Engines***

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
See Table 1	See Table 1	See Table 1

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

Lift Station Generator, Fire Pump

Manufacturer:	**Model number:**	**Serial number:**
See Table 1	N/A	N/A
Construction date:	**Installation date:**	**Modification date(s):**
See Table 1	See Table 1	N/A

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
See Table 1

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
See Table 1	See Table 1	See Table 1

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X_Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: Lift Station Generator #1: 37 hp Lift Station Generator #2: 27 hp Lift Station Generator #3: 27 hp Fire Pump: 252 hp	**Type and Btu/hr rating of burners:** Lift Station Generator: Diesel fired stationary engine (Cummins) Fire Pump: Diesel – fire pump (John Deere)

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Diesel the only fuel. Information available about hours of operation.
Lift Station Generator #1: 100 hours / year
Lift Station Generator #2: 100 hours / year
Lift Station Generator #3: 100 hours / year
Fire Pump: 100 hours / year

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Diesel	Diesel fuel that meets the requirements of 40 CFR 80.510(b) for non-road diesel fuel		

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Table 2	See Table 2
Nitrogen Oxides (NO_X)	See Table 2	See Table 2
Lead (Pb)	See Table 2	See Table 2
Particulate Matter ($PM_{2.5}$)	See Table 2	See Table 2
Particulate Matter (PM_{10})	See Table 2	See Table 2
Total Particulate Matter (TSP)	See Table 2	See Table 2
Sulfur Dioxide (SO_2)	See Table 2	See Table 2
Volatile Organic Compounds (VOC)	See Table 2	See Table 2
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
	See Table 2	See Table 2
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
N/A	N/A	N/A

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

Combustion source emissions were based on:
Manufacturer data, where available. Else, AP-42 Chapter 3.3.

Applicable Requirements
List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included. General Permit – G60C 40 CFR Part 60 Subpart IIII: all requirements for owners and operators of stationary engines
___ Permit Shield
For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.) 40 CFR 60 (§60.4214): notification, reporting, and recordkeeping requirements Includes all applicable notification, reporting, and recordkeeping requirements.
Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

Emission Unit: Stationary Engines

Table 1. Emissions Unit Description
CertainTeed Gypsum, Moundsville, WV

Emission Unit Name	Emissions Unit Manufacturer	Model Year	Installation Date	Engine Horsepower (hp)	Cylinder Displacement (liters/cylinder)
Lift Station Generator 1 (Office)	Cummins	2004 - 2006	March, 2008	37	2.2
Lift Station Generator 2 (South)	Cummins	2006	March, 2008	27	1.6
Lift Station Generator 3 (North)	Cummins	2006	March, 2008	27	1.6
Fire Pump	John Deere	2006	March, 2008	252	8.1

Notes:
hp - horsepower

Emission Unit: Stationary Engines

Table 2. Emissions Data
CertainTeed Gypsum, Moundsville, WV

Emission Unit Name	$PM_{2.5}$		PM_{10}		PM		NO_x		CO		SO_2		VOC		HAP	
	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)	(lbs/hr)	(tpy)
Lift Station Generator 1 (Office)	--	--	--	--	0.001	0.002	0.002	0.008	0.001	0.005	0.001	0.004	0.000	0.000	1.91E-05	8.36E-05
Lift Station Generator 2 (South)	--	--	--	--	0.000	0.002	0.001	0.006	0.001	0.004	0.001	0.003	0.000	0.000	1.39E-05	6.10E-05
Lift Station Generator 3 (North)	--	--	--	--	0.000	0.002	0.001	0.006	0.001	0.004	0.001	0.003	0.000	0.000	1.39E-05	6.10E-05
Fire Pump	--	--	--	--	0.001	0.005	0.047	0.206	0.006	0.024	0.006	0.026	0.002	0.008	1.30E-04	5.69E-04

Notes:
PM - particulate matter
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
NO_x - oxides of nitrogen
CO - carbon monoxide
SO_2 - sulfur dioxide
VOC - volatile organic compound
HAP - hazardous air pollutant
lbs/hr - pounds per hour
tpy - tons per year

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF02 – End Saw Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grains/dscf)	
Manufacturer: Donaldson	**Model number:** DLMC 4/8/15	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

192 Polyester bags
Dia.:19.5 in, length: 4.94 ft.
Total cloth area: 3,901 ft^2
Flow rate: 23,000 scfm at 75°F
Pressure Drop: High: 6 in. H_2O, Low: 0.5 in. H_2O
Particulate Loading: 0.01 grain/dscf at Outlet

Capture/Control efficiency based on particulate loading
Air to cloth ratio: 7.44 ft/min

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF03-Dunnage Machine Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLMC 3/6/15	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

90 Polyester bags
Dia.:19.5 in., length: 4.94 ft.
Total cloth area: 1449 ft^2
Air to cloth ratio: 7.44 ft/min
Flow rate: 7,000 scfm at ambient temp.
Pressure Drop: High: 6 in. H_2O, Low: 0.5 in. H_2O

Particulate loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading
Air to cloth ratio: 4.83 ft/min

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF05 – Cage Mill DSG Dryer Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grains/dscf)	
Manufacturer: Scheuch	**Model number:** SF-D-W-05/15-D-10	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

750 Polyacrylnitil bags
Dia.: 60 mm, Length: 4,500 mm
Total cloth area: 17,856 ft^2
Air to cloth ratio: 3.92 ft/min
Flow rate: 70,000 scfm at 185°F
Pressure Drop: High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF06 – Cage Mill Feed Silo (Wet DSG Silo) Bin Vent	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLMV 4/7	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

6 Tetratex on Polyester bags
Dia.: 19.5 in., Length: 2.32 ft.
Total cloth area: 43 ft^2
Air to cloth ratio: 6.98 ft/min
Flow rate: 300 scfm at Ambient temp.
Pressure drop: High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF07 – DSG Conveying Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** SA-F40HF KS1	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

4 Tetratex on Polyester bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 43 ft^2
Air to cloth ratio: 4.65 ft/min
Flow rate: 200 scfm at 185 °F
Pressure drop: High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF08 – Dry DSG Storage (Intermediate DSG) Silo Bin Vent	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Cyclonaire	**Model number:** 84-DC-36	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

36 Polyester bags
Dia.: 5.75 in., Length: 7 ft.
Total cloth area: 382 ft^2
Air to cloth ratio: 5.50 ft/min
Flow rate: 2,100 scfm at 185 °F
Pressure drop: High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.02 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF12 – K10 Conical Kettle Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Scheuch	**Model number:** S-D-W-05/12-D-06	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

360 P84 550 g bags
Dia.: 60 mm., Length: 4,267 mm.
Total cloth area: 8,568 ft^2
Air to cloth ratio: 4.08 ft/min
Flow rate: 35,000 scfm at 300 °F
Pressure drop: High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF13 – K10 Conical Kettle Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Scheuch	**Model number:** S-D-W-05/12-D-06	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

360 P84 550 g bags
Dia.: 60 mm., Length: 4,267 mm.
Total cloth area: 8,568 ft^2
Air to cloth ratio: 4.08 ft/min
Flow rate: 35,000 scfm at 300 °F
Pressure drop: High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF14 – Stucco Cooler Nuisance Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLMC 1/3/15	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

30 Polyester bags
Dia.: 19.5 in., Length: 4.94 ft.
Total cloth area: 485 ft^2
Air to cloth ratio: 4.12 ft/min
Flow rate: 2,000 scfm at 170 °F
Pressure drop: High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF16 – HRA Landplaster Bin Vent	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V10/10 FAD K3	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

10 Polyester bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 108 ft^2
Air to cloth ratio: 5.45 ft/min
Flow rate: 589 scfm at 185 °F
Pressure drop: High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF17 – HRA Dextrose Bin Vent	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V10/10 FAD K3	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

10 Polyester bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 108 ft^2
Air to cloth ratio: 5.45 ft/min
Flow rate: 589 scfm at Ambient temp.
Pressure drop: High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF18 – HRA Ball Mill Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V25/12 FAD K3	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

20 Polyester bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 269 ft^2
Air to cloth ratio: 4.38 ft/min
Flow rate: 1,177 scfm at 150 °F
Pressure drop: High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF20 – Stucco Silo Bin Vent	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V 20/10 F K3	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

20 Polyester bags
Dia.: 19.5 in., Length: 4.94 ft.
Total cloth area: 215 ft^2
Air to cloth ratio: 2.74 ft/min
Flow rate: 589 scfm at 170 °F
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF21 – Mixer & Additives Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V 30/15 FAD K3	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

20 Polyester bags
Dia.: 19.5 in., Length: 4.94 ft.
Total cloth area: 323 ft^2
Air to cloth ratio: 3.65 ft/min
Flow rate: 1,177 scfm at 150 °F
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF22 – Stucco Metering Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V 45/15 FAD K3	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

30 Polyester bags
Dia.: 19.5 in., Length: 4.94 ft.
Total cloth area: 484 ft^2
Air to cloth ratio: 5.47 ft/min
Flow rate: 2,649 scfm at 170 °F
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF23 – Intermediate Stucco Silo Bin Vent	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V 20/10 F K3	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

20 Polyester bags
Dia.: 19.5 in., Length: 4.94 ft.
Total cloth area: 215 ft^2
Air to cloth ratio: 2.74 ft/min
Flow rate: 589 scfm at 150 °F
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF24 – Stucco Ball Mill Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V 60/15 K11	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

60 Polyester bags
Dia.: 19.5 in., Length: 4.94 ft.
Total cloth area: 646 ft^2
Air to cloth ratio: 5.47 ft/min
Flow rate: 3,531 scfm at 150 °F
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF25 – Starch Bulk Silo Bin Vent	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V 20/10 FAD K3	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

10 Polyester bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 215 ft^2
Air to cloth ratio: 6.57 ft/min
Flow rate: 1,413 scfm at Ambient temp.
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF27 – Semi-bulk Transfer Station Bin Vent	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V 10/10 FAD K3	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

12 Polyester bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 108 ft^2
Air to cloth ratio: 5.47 ft/min
Flow rate: 589 scfm at Ambient temp.
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF29 – Boric Acid Feeder Bin Vent	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V 10/10 FAD K3	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

10 Polyester bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 108 ft^2
Air to cloth ratio: 5.47 ft/min
Flow rate: 589 scfm at Ambient temp.
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF29 – Boric Acid Feeder Bin Vent	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V 10/10 FAD K3	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

10 Polyester bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 108 ft^2
Air to cloth ratio: 5.47 ft/min
Flow rate: 589 scfm at Ambient temp.
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF30 – Potash Feeder Bin Vent	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V 10/10 FAD K3	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

10 Polyester bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 108 ft^2
Air to cloth ratio: 5.47 ft/min
Flow rate: 589 scfm at Ambient temp.
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF31 – Dextrose Feeder Bin Vent	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V 10/10 FAD K3	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

10 Polyester bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 108 ft^2
Air to cloth ratio: 5.47 ft/min
Flow rate: 589 scfm at Ambient temp.
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF33 – Starch Feeder Bin Vent	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V 10/10 FAD K3	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

10 Polyester bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 108 ft^2
Air to cloth ratio: 5.47 ft/min
Flow rate: 589 scfm at Ambient temp.
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF34 – HRA Feeder Bin Vent	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** DLM V 10/10 FAD K3	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

10 Polyester bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 108 ft^2
Air to cloth ratio: 5.47 ft/min
Flow rate: 589 scfm at 100 °F
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF44 – K10 Kettle Supply Screw Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** SA-F40HF KS1	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

4 Tetratex on Polyester bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 43 ft^2
Air to cloth ratio: 4.65 ft/min
Flow rate: 200 scfm at 185 °F
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF45 – K20 Kettle Bad Batch Return Screw Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** SA-F40HB	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

4 Tetratex on Nomex bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 43 ft^2
Air to cloth ratio: 4.65 ft/min
Flow rate: 200 scfm at 300 °F
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF46 – Stucco Cooler Bypass Screw #2 Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** SA-F40HB	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

4 Tetratex on Nomex bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 43 ft^2
Air to cloth ratio: 4.65 ft/min
Flow rate: 200 scfm at 300 °F
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF47 – Cage Mill Cyclone Transfer Screw Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** SA-F40HF KS1	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

4 Tetratex on Polyester bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 43 ft^2
Air to cloth ratio: 4.65 ft/min
Flow rate: 200 scfm at 300 °F
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FF48 – K20 Kettle Transfer Screw Dust Collector	**List all emission units associated with this control device.** PM/PM_{10} (grain/dscf)	
Manufacturer: Donaldson	**Model number:** SA-F40HF KS1	**Installation date:** MM/DD/YYYY

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
PM/PM_{10}	N/A	N/A

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

4 Tetratex on Polyester bags
Dia.: 19.5 in., Length: 3.31 ft.
Total cloth area: 43 ft^2
Air to cloth ratio: 4.65 ft/min
Flow rate: 200 scfm at 185 °F
Pressure drop – High: 6 in H_2O, Low: 0.5 in H_2O

Particulate Loading: 0.01 grain/dscf at outlet
Capture/Control efficiency based on particulate loading

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes X No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The baghouses/filters utilized at the facility are part of the process for material transfer and separation and not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop of baghouses will be monitored electronically for indication of deterioration

CertainTeed proposes the monitoring, recordkeeping, reporting, and testing requirements as specified in the existing R13 permit. These requirements will be adequate to demonstrate compliance with emissions limits and operating parameters.

Appendix E

Class II – General Permit – G-60C Form

G60-C REGISTRATION APPLICATION FORMS

General Permit G60-C Registration
Section Applicability Form

General Permit G60-C was developed to allow qualified registrants to seek registration for emergency generator(s).

General Permit G60-C allows the registrant to choose which sections of the permit that they wish to seek registration under. Therefore, please mark which sections that you are applying for registration under. Please keep in mind, that if this registration is approved, the issued registration will state which sections will apply to your affected facility.

Section 5	Reciprocating Internal Combustion Engines (R.I.C.E.)*	☒
Section 6	Tanks	☐
Section 7	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (40CFR60 Subpart IIII)	☒
Section 8	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (40CFR60 Subpart JJJJ)	☐

* **Affected facilities that are subject to Section 5 may also be subject to Sections 7 or 8. Therefore, if the applicant is seeking registration under both sections, please select both.**

EMERGENCY GENERATOR ENGINE DATA SHEET

Source Identification Number[1]		EG1 (Lift Station Generator 1)		EG2 (Lift Station Generator 2)		EG3 (Lift Station Generator 3)	
Engine Manufacturer and Model		Cummins (20 DKAE)		Cummins (15 DKAC)		Cummins (15 DKAC)	
Manufacturer's Rated bhp/rpm		0.021		0.015		0.015	
Source Status[2]		NS		NS		NS	
Date Installed/Modified/Removed[3]		March 2008		March 2008		March 2008	
Engine Manufactured/Reconstruction Date[4]		2004 - 2006		2006		2006	
Is this a Certified Stationary Spark Ignition Engine according to 40CFR60 Subpart IIII? (Yes or No)[5]		Yes		Yes		Yes	
Is this a Certified Stationary Spark Ignition Engine according to 40CFR60 Subpart JJJJ? (Yes or No)[6]		N/A		N/A		N/A	
Engine, Fuel and Combustion Data	Engine Type[7]	LB4S		LB4S		LB4S	
	APCD Type[8]						
	Fuel Type[9]	Diesel		Diesel		Diesel	
	H_2S (gr/100 scf)	--		--		--	
	Operating bhp/rpm	0.021		0.015		0.015	
	BSFC (Btu/bhp-hr)	--		--		--	
	Fuel throughput (ft^3/hr)	0.27		0.20		0.20	
	Fuel throughput ($MMft^3$/yr)	2.67 E-05		2.00 E-05		2.00E-05	
	Operation (hrs/yr)	100		100		100	
Reference[10]	Potential Emissions[11]	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
MD	NO_X	0.16	0.008	0.12	0.006	0.12	0.006
MD	CO	0.12	0.005	0.08	0.004	0.08	0.004
MD	VOC	0.004	0.0002	0.003	0.0001	0.003	0.0001
AP-42	SO_x	0.076	0.004	0.055	0.003	0.055	0.003
MD	PM	0.047	0.002	0.035	0.002	0.035	0.002
AP-42	Formaldehyde	0.0004	0.00002	0.0002	0.00001	0.0001	0.00001
AP-42	CO_2	43	2.13	31	1.55	31	1.55

EMERGENCY GENERATOR ENGINE DATA SHEET

Source Identification Number[1]		EG4 (Fire Pump)			
Engine Manufacturer and Model		John Deere (JW6H-UF38)			
Manufacturer's Rated bhp/rpm		0.143			
Source Status[2]		NS			
Date Installed/Modified/Removed[3]		March 2008			
Engine Manufactured/Reconstruction Date[4]		2005			
Is this a Certified Stationary Spark Ignition Engine according to 40CFR60 Subpart IIII? (Yes or No)[5]		Yes			
Is this a Certified Stationary Spark Ignition Engine according to 40CFR60 Subpart JJJJ? (Yes or No)[6]		N/A			
Engine, Fuel and Combustion Data	Engine Type[7]	LB4S			
	APCD Type[8]				
	Fuel Type[9]	Diesel			
	H_2S (gr/100 scf)	--			
	Operating bhp/rpm	0.143			
	BSFC (Btu/bhp-hr)	--			
	Fuel throughput (ft^3/hr)	1.87			
	Fuel throughput ($MMft^3$/yr)	1.87 E-04			
	Operation (hrs/yr)	100			
Reference[10]	Potential Emissions[11]	lbs/hr	tons/yr		
MD	NO_X	4.13	0.206		
MD	CO	0.48	0.024		
MD	VOC	0.15	0.008		
AP-42	SO_x	0.52	0.026		
MD	PM	0.09	0.005		
AP-42	Formaldehyde	0.003	0.0001		
AP-42	CO_2	290	14.5		

1. Enter the appropriate Source Identification Number for each emergency generator. Generator engines should be designated EG-1, EG-2, EG-3 etc. If more than three (3) engines exist, please use additional sheets.

2. Enter the Source Status using the following codes:

   NS Construction of New Source (installation) ES Existing Source

MS Modification of Existing Source RS Removal of Source

3. Enter the date (or anticipated date) of the engine's installation (construction of source), modification or removal.

4. Enter the date that the engine was manufactured, modified or reconstructed.

5. Is the engine a certified stationary spark ignition internal combustion engine according to 40CFR60 Subpart IIII. If so, the engine and control device must be operated and maintained in accordance with the manufacturer's emission-related written instructions. You must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. If the certified engine is not operated and maintained in accordance with the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and you must demonstrate compliance according to 40CFR§60.4210 as appropriate.

   Provide a manufacturer's data sheet for all engines being registered.

6. Is the engine a certified stationary spark ignition internal combustion engine according to 40CFR60 Subpart JJJJ. If so, the engine and control device must be operated and maintained in accordance with the manufacturer's emission-related written instructions. You must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. If the certified engine is not operated and maintained in accordance with the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and you must demonstrate compliance according to 40CFR§60.4243a(2)(i) through (iii), as appropriate.

   Provide a manufacturer's data sheet for all engines being registered.

7. Enter the Engine Type designation(s) using the following codes:

   LB2S Lean Burn Two Stroke
   LB4S Lean Burn Four Stroke
   RB4S Rich Burn Four Stroke

8. Enter the Air Pollution Control Device (APCD) type designation(s) using the following codes:

   A/F Air/Fuel Ratio
   HEIS High Energy Ignition System
   PSC Prestratified Charge
   NSCR Rich Burn & Non-Selective Catalytic Reduction
   IR Ignition Retard
   SIPC Screw-in Precombustion Chambers
   LEC Low Emission Combustion
   SCR Lean Burn & Selective Catalytic Reduction

9. Enter the Fuel Type using the following codes:

   PQ Pipeline Quality Natural Gas
   2FO #2 Fuel Oil
   RG Raw Natural Gas
   LPG Liquid Propane Gas

10. Enter the Potential Emissions Data Reference designation using the following codes. Attach all referenced data to this *Compressor/Generator Data Sheet(s)*.

    MD Manufacturer's Data
    GR GRI-HAPCalc™
    AP AP-42
    OT Other _____ (please list)

11. Enter each engine's Potential to Emit (PTE) for the listed regulated pollutants in pounds per hour and tons per year. PTE shall be calculated at manufacturer's rated brake horsepower and may reflect reduction efficiencies of listed Air Pollution Control Devices. Emergency generator engines may use 500 hours of operation when calculating PTE. PTE data from this data sheet shall be incorporated in the *Emissions Summary Sheet*.

STORAGE TANK DATA SHEET

Source ID #[1]	Status[2]	Content[3]	Volume[4]	Dia[5]	Throughput[6]	Orientation[7]	Liquid Height[8]

1. Enter the appropriate Source Identification Numbers (Source ID #) for each storage tank located at the compressor station. Tanks should be designated T01, T02, T03, etc.
2. Enter storage tank Status using the following:

   EXIST Existing Equipment NEW Installation of New Equipment
   REM Equipment Removed
3. Enter storage tank content such as condensate, pipeline liquids, glycol (DEG or TEG), lube oil, etc.
4. Enter storage tank volume in gallons.
5. Enter storage tank diameter in feet.
6. Enter storage tank throughput in gallons per year.
7. Enter storage tank orientation using the following:

   VERT Vertical Tank HORZ Horizontal Tank
8. Enter storage tank average liquid height in feet.

EMERGENCY GENERATOR EMISSION SUMMARY SHEET FOR CRITERIA POLLUTANTS

Emergency Generator Location:						Registration Number (Agency Use) G60-C				
	Potential Emissions (lbs/hr)					Potential Emissions (tons/yr)				
Source ID No.	NO_X	CO	VOC	SO_2	PM_{10}	NO_X	CO	VOC	SO_2	PM_{10}
Total										

EMERGENCY GENERATOR EMISSION SUMMARY SHEET FOR HAZARDOUS/TOXIC POLLUTANTS

Emergency Generator Location: | **Registration Number** (Agency Use) G60-C

	Potential Emissions (lbs/hr)						Potential Emissions (tons/yr)					
Source ID No.	Benzene	Ethyl-benzene	Toluene	Xylenes	n-Hexane	Formalde-hyde	Benzene	Ethyl-benzene	Toluene	Xylenes	n-Hexane	Formalde-hyde
Total												

General Permit Levels
Construction, Modification, Relocation, Administrative Update

Class II General Permits – G10-C (Coal Preparation and Handling), G20-B (Hot Mix Asphalt), G30-D (Natural Gas Compressor Stations), G35-A (Natural Gas Compressor Stations with Flares/Glycol Dehydration Units), G40-B (Nonmetallic Minerals Processing), G50-B (Concrete Batch Plant), G60-C (Emergency Generators)

Class I General Permit - G65-C (Emergency Generators)

General Permit	Public Notice	Review Period as per 45CSR13	Application Fee	Criteria	Application Type
Class II General Permit (Construction)	30 days (applicant)	90 days	$500 + applicable NSPS fees	6 lb/hr and 10 tpy of any regulated air pollutant OR 144 lb/day of any regulated air pollutant, OR 2 lb/hr of any hazardous air pollutant OR 5 tpy of aggregated HAP OR 45CSR27 TAP (10% increase if above BAT triggers or increase to BAT triggers) or subject to applicable standard or rule, but subject to specific eligibility requirements	Registration Application
Class II General Permit (Modification)	30 days (applicant)	90 days	$500 + applicable NSPS fees	Same as Class II General Permit (Construction) but subject to specific eligibility requirements	Registration Application
Administrative Update (Class I)	None	60 days	None	Decrease in emissions or permanent removal of equipment OR more stringent requirements or change in MRR that is equivalent or superior	Registration Application or Written Request
Administrative Update (Class II)	30 days (applicant)	60 days	$300 + applicable NSPS fees	No change in emissions or an increase less than Class II Modification levels	Registration Application
Relocation	30 days (applicant)	45 days	$500 + applicable NSPS fees	No emissions increase or change in facility design or equipment	Registration Application
Class I General Permit	None	45 days	$250	Same as Class II General Permit (Construction) but subject to specific eligibility requirements	Registration Application

Appendix F

Supporting Emissions Calculation

Table 1. Summary of Potential Annual Facility Emissions - Criteria Pollutants
CertainTeed Gypsum, Moundsville, WV

Emission Unit ID	Emission Unit Name	Fabric Filter ID	Fabric Filter System Name	Potential Emissions (tpy)								
				$PM_{2.5}$- Filterable	PM_{10} - Filterable	PM - Filterable	PM - Condensable	NO_x	CO	SO_2	VOC	HAP
EU02	Waste/Recycle System	FF02	End Saw Dust Collector	3.754	8.635	8.635	-	-	-	-	-	-
EU03	Waste/Recycle System	FF03	Dunnage Machine Dust Collector	1.314	2.628	2.628	-	-	-	-	-	-
EU05	Cage Mill DSG Dryer	FF05	Cage Mill DSG Dryer Dust Collector1,2	26.280	26.280	26.280	1.218	10.050	11.613	0.128	1.176	0.405
EU06	Cage Mill Feed Silo	FF06	Cage Mill Feed Silo Bin Vent	0.056	0.113	0.113	-	-	-	-	-	-
EU07	DSG Conveying Equipment	FF07	DSG Conveying Dust Collector	0.038	0.075	0.075	-	-	-	-	-	-
EU47	Cage Mill Cyclone Transfer Screw	FF47	Cage Mill Cyclone Transfer Screw Dust Collector	0.038	0.075	0.075	-	-	-	-	-	-
EU08	Dry DSG Storage Silo (Intermediate DSG Silo)	FF08	Dry DSG Storage Silo Bin 3	0.113	0.225	0.225	-	-	-	-	-	-
EU12	K-10 Kettle	FF12	K-10 Conical Kettle Dust Collector3	13.434	13.434	13.434	4.028	29.786	68.234	0.081	0.745	0.257
EU13	K-20 Kettle	FF13	K-20 Conical Kettle Dust Collector3	13.434	13.434	13.434	4.028	29.786	68.234	0.081	0.745	0.257
EU48	K-20 Kettle Transfer Screw	FF48	K-20 Transfer Screw Dust Collector	0.038	0.075	0.075	-	-	-	-	-	-
EU44	K-10 Kettle Supply Screw	FF44	K-10 Supply Screw Dust Collector	0.038	0.075	0.075	-	-	-	-	-	-
EU45	K-20 Kettle Bad Batch Return Screw	FF45	K-20 Bad Batch Return Screw Dust Collector	0.038	0.075	0.075	-	-	-	-	-	-
EU46	Stucco Cooler Bypass Screw #2	FF46	Stucco Cooler Bypass Screw #2 Dust Collector	0.038	0.075	0.075	-	-	-	-	-	-
EU14	Stucco Cooler	FF14	Stucco Cooler Nuisance Dust Collector	0.375	0.751	0.751	-	-	-	-	-	-
EU16	HRA DSG Silo	FF16	HRA Landplaster Bin Vent	0.110	0.221	0.221	-	-	-	-	-	-
EU17	HRA Dextrose Silo	FF17	HRA Dextrose Bin Vent	0.110	0.221	0.221	-	-	-	-	-	-
EU18	HRA Ball Mill System	FF18	HRA Ball Mill Dust Collector	1.149	2.298	2.298	-	-	-	-	-	-
EU20	Stucco Silo	FF20	Stucco Silo Bin Vent	0.111	0.221	0.221	-	-	-	-	-	-
EU22	Stucco Metering Equipment	FF22	Stucco Metering Dust Collector	0.497	0.995	0.995	-	-	-	-	-	-
EU21	Mixer & Additives	FF21	Mixer & Additives Dust Collector	0.221	0.442	0.442	-	-	-	-	-	-
EU23	Intermediate Stucco Silo	FF23	Intermediate Stucco Silo Bin Vent	0.111	0.221	0.221	-	-	-	-	-	-
EU24	Stucco Ball Mill	FF24	Stucco Ball Mill Dust Collector	0.663	1.326	1.326	-	-	-	-	-	-
EU25	Starch Bulk Silo	FF25	Starch Bulk Silo Bin Vent	0.265	0.530	0.530	-	-	-	-	-	-
EU27	Semi-Bulk Transfer Station Bin	FF27	Semi-Bulk Transfer Station Bin Vent	0.111	0.221	0.221	-	-	-	-	-	-
EU29	Boric Acid Feeder Bin	FF29	Boric Acid Feeder Bin Vent	0.111	0.221	0.221	-	-	-	-	-	-
EU30	Potash Feeder Bin	FF30	Potash Feeder Bin Vent	0.111	0.221	0.221	-	-	-	-	-	-
EU31	Dextrose Feeder Bin	FF31	Dextrose Feeder Bin Vent	0.111	0.221	0.221	-	-	-	-	-	-
EU33	Starch Feeder Bin	FF33	Starch Feeder Bin Vent	0.111	0.221	0.221	-	-	-	-	-	-
EU34	HRA Feeder Bin	FF34	HRA Feeder Bin Vent	0.111	0.221	0.221	-	-	-	-	-	-
EU50	Ethylated Starch Silo	FF50	Ethylated Starch Silo Bin Vent	0.265	0.530	0.530	-	-	-	-	-	-
EU51	Ethylated Starch Feeder Bin	FF51	Ethylated Starch Feeder Bin Vent	0.111	0.221	0.221	-	-	-	-	-	-
EU52	Vermiculite Silo	FF52	Vermiculite Silo Bin Vent	0.265	0.530	0.530	-	-	-	-	-	-
EU53	Vermiculite Feeder Bin	FF53	Vermiculite Feeder Bin Vent	0.111	0.221	0.221	-	-	-	-	-	-
EU36	Board Dryer (Zones 1, 2)	N/A	N/A	35.410	35.410	35.410	6.26	23.16	58.30	0.31	3.79	1.00
	Board Dryer (Zone 3)	N/A	N/A	25.082	25.082	25.082	8.58	27.68	45.55	0.07	0.79	0.21
EU37	Paper Heaters	N/A	N/A	0.0613	0.0613	0.0613	0.0460	0.7587	0.3228	0.0048	0.0444	0.015
EU39	Storage Piles	N/A	N/A	1.239	8.261	16.522	-	-	-	-	-	-
EU40	Material Handling	N/A	N/A	2.424	15.090	31.279	-	-	-	-	-	-
EU41	Haul Roads	N/A	N/A	0.203	0.809	4.008	-	-	-	-	-	-
EU42	Foaming Agent Storage Tank	N/A	N/A	-	-	-	-	-	-	-	-	-
EU43	Foaming Agent Storage Tank	N/A	N/A	-	-	-	-	-	-	-	-	-
EU49	Fugitive VOC Emissions	N/A	N/A	-	-	-	-	-	-	-	11.83	-
N/A	Emergency Stationary Engines	N/A	N/A	-	-	0.011	-	0.227	0.037	0.035	0.008	0.0008
Facility Wide PTE (tpy)				**128**	**160**	**188**	**24**	**121**	**252**	**0.71**	**19**	**2.15**

Notes.
PM - particulate matter
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
NO_x - oxides of nitrogen
CO - carbon monoxide
FF - fabric filter
SO_2 - sulfur dioxide
VOC - volatile organic compound
HAP - hazardous air pollutant
tpy - tons per year
EU - emission unit
PTE - potential to emit

Table 2. Summary of Potential Annual Facility Emissions - Hazardous Air Pollutants
CertainTeed Gypsum Moundsville, WV

Pollutant	CAS Number	DSG Dryer	Kettle 1	Kettle 2	Board Dryer Zones 1 & 2 (tpy)	Board Dryer Zone 3	Paper Heaters	Stationary Engines	Total (tpy)
Speciated Organics									
2-Methylnaphthalene	91-57-6	5.15E-06	3.27E-06	3.27E-06	1.25E-05	2.68E-06	1.95E-07	–	0.000
3-Methylchloranthrene	56-49-5	3.86E-07	2.45E-07	2.45E-07	9.35E-07	2.01E-07	1.46E-08	–	0.000
7,12-Dimethylbenz(a)anthracene	57-97-6	3.44E-06	2.18E-06	2.18E-06	8.31E-06	1.79E-06	1.30E-07	–	0.000
Acenaphthene	83-32-9	3.86E-07	2.45E-07	2.45E-07	9.35E-07	2.01E-07	1.46E-08	1.70E-07	0.000
Acenaphthylene	203-96-8	3.86E-07	2.45E-07	2.45E-07	9.35E-07	2.01E-07	1.46E-08	6.07E-07	0.000
Anthracene	120-12-7	5.15E-07	3.27E-07	3.27E-07	1.25E-06	2.68E-07	1.95E-08	2.24E-07	0.000
Benz(a)anthracene	56-55-3	3.86E-07	2.45E-07	2.45E-07	9.35E-07	2.01E-07	1.46E-08	–	0.000
Benzene	71-43-2	4.51E-04	2.86E-04	2.86E-04	1.09E-03	2.34E-04	1.70E-05	1.12E-04	0.002
Benzo(a)pyrene	50-32-8	2.58E-07	1.63E-07	1.63E-07	6.24E-07	1.34E-07	9.73E-09	2.26E-08	0.000
Benzo(b)fluoranthene	205-99-2	3.86E-07	2.45E-07	2.45E-07	9.35E-07	2.01E-07	1.46E-08	1.19E-08	0.000
Benzo(g,h,i)perylene	191-24-2	2.58E-07	1.63E-07	1.63E-07	6.24E-07	1.34E-07	9.73E-09	5.87E-08	0.000
Benzo(k)fluoranthene	205-82-3	3.86E-07	2.45E-07	2.45E-07	9.35E-07	2.01E-07	1.46E-08	1.86E-08	0.000
Chrysene	218-01-9	3.86E-07	2.45E-07	2.45E-07	9.35E-07	2.01E-07	1.46E-08	4.24E-08	0.000
Dibenzo(a,h) anthracene	53-70-3	2.58E-07	1.63E-07	1.63E-07	6.24E-07	1.34E-07	9.73E-09	–	0.000
Dichlorobenzene	25321-22-6	2.58E-04	1.63E-04	1.63E-04	6.24E-04	1.34E-04	9.73E-06	–	0.001
Fluoranthene	206-44-0	6.44E-07	4.08E-07	4.08E-07	1.56E-06	3.35E-07	2.43E-08	9.14E-07	0.000
Fluorene	86-73-7	6.01E-07	3.81E-07	3.81E-07	1.45E-06	3.13E-07	2.27E-08	3.51E-06	0.000
Formaldehyde	50-00-0	1.61E-02	1.02E-02	1.02E-02	3.90E-02	8.37E-03	6.08E-04	1.42E-04	0.085
Hexane	110-54-3	3.86E-01	2.45E-01	2.45E-01	9.35E-01	2.01E-01	1.46E-02	–	2.027
Indo(1,2,3-cd)pyrene	193-39-5	3.86E-07	2.45E-07	2.45E-07	9.35E-07	2.01E-07	1.46E-08	–	0.000
Naphthalene	91-20-3	1.31E-04	8.30E-05	8.30E-05	3.17E-04	6.81E-05	4.95E-06	1.02E-05	0.001
Phenanthrene	85-01-8	3.65E-06	2.31E-06	2.31E-06	8.83E-06	1.90E-06	1.38E-07	3.53E-06	0.000
Pyrene	129-00-0	1.07E-06	6.80E-07	6.80E-07	2.60E-06	5.58E-07	4.05E-08	5.74E-07	0.000
Toluene	108-88-3	7.30E-04	4.63E-04	4.63E-04	1.77E-03	3.80E-04	2.76E-05	4.91E-05	0.004
Methanol	67-6-1	0.00E+00	0.00E+00	0.00E+00	1.96E-02	0.00E+00	0.00E+00	–	0.020
Xylene	1330-20-7	–	–	–	–	–	–	3.42E-05	0.000
Propylene	115-07-1	–	–	–	–	–	–	3.10E-04	0.000
1,3-Butadiene	106-99-0	–	–	–	–	–	–	4.69E-06	0.000
Acetaldehyde	75-07-0	–	–	–	–	–	–	9.21E-05	0.000
Acrolein	107-02-8	–	–	–	–	–	–	1.11E-05	0.000
Benzo(a)anthracene	56-55-3	–	–	–	–	–	–	2.02E-07	0.000
Indeno(1,2,3-cd)pyrene	193-39-5	–	–	–	–	–	–	4.50E-08	0.000
Dibenz(a,h)anthracene	53-70-3	–	–	–	–	–	–	7.00E-08	0.000
Benzo(g,h,i)perylene	191-24-2	–	–	–	–	–	–	5.87E-08	0.000
Metals									
Arsenic	7440-38-2	4.27E-05	2.72E-05	2.72E-05	1.04E-04	2.23E-05	1.62E-06	–	2.3E-04
Beryllium	7440-41-7	2.56E-06	1.63E-06	1.63E-06	6.24E-06	1.34E-06	9.73E-08	–	1.4E-05
Cadmium	7440-43-9	2.35E-04	1.50E-04	1.50E-04	5.72E-04	1.23E-04	8.92E-06	–	1.2E-03
Chromium	7440-47-3	2.99E-04	1.91E-04	1.91E-04	7.27E-04	1.56E-04	1.14E-05	–	1.6E-03
Cobalt	7440-48-4	1.80E-05	1.14E-05	1.14E-05	4.36E-05	9.38E-06	6.81E-07	–	9.5E-05
Lead	7439-92-1	1.07E-04	6.80E-05	6.80E-05	2.60E-04	5.58E-05	4.05E-06	–	5.6E-04
Manganese	7439-96-5	8.12E-05	5.17E-05	5.17E-05	1.97E-04	4.24E-05	3.08E-06	–	4.3E-04
Mercury	7439-97-6	5.56E-05	3.54E-05	3.54E-05	1.35E-04	2.90E-05	2.11E-06	–	2.9E-04
Nickel	7440-02-0	4.49E-04	2.86E-04	2.86E-04	1.09E-03	2.34E-04	1.70E-05	–	2.4E-03
Selenium	7782-49-2	5.13E-06	3.27E-06	3.27E-06	1.25E-05	2.68E-06	1.95E-07	–	2.7E-05
Total HAP		**0.405**	**0.257**	**0.257**	**1.001**	**0.211**	**0.015**	**0.0008**	**2.15**

Notes:
tpy - tons per year

Table 3. Summary of Potential Annual Facility Emissions - Greenhouse Gas
Certain Teed Gypsym, Moundsville, WV

Emission Unit	Potential Emissions (tpy)					
	Carbon Dioxide (CO_2)	Methane (CH_4)	Nitrous Oxide (N_2O)	Hydrofluorocarbons (HFC)	Perfluorocarbons (PFC)	Sulfur Hexafluoride (SF_6)
DSG Dryer	25,618	0.483	0.048	--	--	--
Kettle 1	16,237	0.306	0.031	--	--	--
Kettle 2	16,237	0.306	0.031	--	--	--
Dryer (Zones 1 & 2)	62,080	1.170	0.117	--	--	--
Dryer (Zones 3)	13,340	0.251	0.025	--	--	--
Paper Heaters	971	0.018291	0.001829	--	--	--
Stationary Engines	20	--	--	--	--	--
Facility Wide Total	**134,502**	**2.53**	**0.25**	--	--	--

Notes:
DSG - desulphogypsum

Table 4. PTE Annual Fabric Filter Emissions
CertainTeed Gypsum, Moundsville, WV

Fabric Filter System Name	ID	Vent Inside (I)/ Outside(O)	Flowrate (cfm)	NSPS Subpart	Exit Grain Loading (gr/dscf)	$PM_{2.5}$ Exit Grain Loading (gr/dscf)	Potential Annual Operation (hrs/yr)	PM/PM_{10} Potential Emissions (lb/hr)	(tpy)	$PM_{2.5}$ Potential Emissions[2] (lb/hr)	(tpy)
End Saw Dust Collector	FF02	O	23,000	N/A	0.01	4.35E-03	8,760	1.97	8.63	0.86	3.75
Dunnage Machine Dust Collector	FF03	O	7,000	N/A	0.01		8,760	0.60	2.63	0.30	1.31
Cage Mill DSG Dryer Dust Collector[1,2]	FF05	O	70,000	OOO	0.01		8,760	6.00	26.28	6.00	26.28
Cage Mill Feed Silo Bin Vent	FF06	I	300	OOO	0.01		8,760	0.03	0.11	0.01	0.06
DSG Conveying Dust Collector	FF07	I	200	OOO	0.01		8,760	0.02	0.08	0.01	0.04
Cage Mill Cyclone Transfer Screw	FF47	I	200	OOO	0.01		8,760	0.02	0.08	0.01	0.04
Dry DSG Storage Silo Bin [3]	FF08	I	300	OOO	0.02		8,760	0.05	0.23	0.03	0.11
K-10 Conical Kettle Dust Collector[3]	FF12	O	35,000	UUU	0.01		8,760	N/A	N/A	N/A	N/A
K-20 Conical Kettle Dust Collector[3]	FF13	O	35,000	UUU	0.01		8,760	N/A	N/A	N/A	N/A
K-20 Transfer Screw DCL	FF48	I	200	OOO	0.01		8,760	0.02	0.08	0.01	0.04
K-10 Supply Screw DCL	FF44	I	200	OOO	0.01		8,760	0.02	0.08	0.01	0.04
K-20 Bad Batch Return Screw #1 DCL	FF45	I	200	OOO	0.01		8,760	0.02	0.08	0.01	0.04
Stucco Cooler Bypass Screw #2 DCL	FF46	I	200	N/A	0.01		8,760	0.02	0.08	0.01	0.04
Stucco Cooler Nuisance Dust Collector	FF14	I	2,000	N/A	0.01		8,760	0.17	0.75	0.09	0.38
HRA Landplaster Bin Vent	FF16	I	588.58	OOO	0.01		8,760	0.05	0.22	0.03	0.11
HRA Dextrose Bin Vent	FF17	O	588.58	N/A	0.01		8,760	0.05	0.22	0.03	0.11
HRA Ball Mill Dust Collector	FF18	I	6121.21	OOO	0.01		8,760	0.52	2.30	0.26	1.15
Stucco Silo Bin Vent	FF20	I	589	N/A	0.01		8,760	0.05	0.22	0.03	0.11
Stucco Metering Dust Collector	FF22	I	2,649	N/A	0.01		8,760	0.23	0.99	0.11	0.50
Mixer & Additives Dust Collector	FF21	I	1,177	N/A	0.01		8,760	0.10	0.44	0.05	0.22
Intermediate Stucco Silo Bin Vent	FF23	I	589	N/A	0.01		8,760	0.05	0.22	0.03	0.11
Stucco Ball Mill Dust Collector	FF24	I	3,531	N/A	0.01		8,760	0.30	1.33	0.15	0.66
Starch Bulk Silo Bin Vent	FF25	O	1,413	N/A	0.01		8,760	0.12	0.53	0.06	0.27
Semi-Bulk Transfer Station Bin Vent	FF27	I	589	N/A	0.01		8,760	0.05	0.22	0.03	0.11
Boric Acid Feeder Bin Vent	FF29	O	589	N/A	0.01		8,760	0.05	0.22	0.03	0.11
Potash Feeder Bin Vent	FF30	I	589	N/A	0.01		8,760	0.05	0.22	0.03	0.11
Dextrose Feeder Bin Vent	FF31	O	589	N/A	0.01		8,760	0.05	0.22	0.03	0.11
Starch Feeder Bin Vent	FF33	O	589	N/A	0.01		8,760	0.05	0.22	0.03	0.11
HRA Feeder Bin Vent	FF34	I	589	N/A	0.01		8,760	0.05	0.22	0.03	0.11
Ethylated Starch Silo Bin Vent	FF50	O	1,413	N/A	0.01		8,760	0.12	0.53	0.06	0.27
Ethylated Starch Feeder Bin Vent	FF51	O	589	N/A	0.01		8,760	0.05	0.22	0.03	0.11
Vermiculite Silo Bin Vent	FF52	O	1,413	OOO	0.01		8,760	0.12	0.53	0.06	0.27
Vermiculite Feeder Bin Vent	FF53	O	589	OOO	0.01		8,760	0.05	0.22	0.03	0.11
Total								**11.05**	**48.39**	**8.39**	**36.77**

Notes:
1. Emissions from the Cage Mill are accounted for in the emissions from the fabric filter.
2. With the exception of FF02 and FF05, $PM_{2.5}$ is assumed to be 50% of PM based on stack test results of a similar source for non-combustion related fabric filters. Filterable $PM_{2.5}$ emissions from FF05 are assumed to be 100% of PM, and filterable $PM_{2.5}$ emissions from FF02 are based on August 2013 stack test data.
3. Emissions are based on the results from the August 6-9, 2013 stack test data.

Table 5. DSG Dryer - Combustion Emissions of Criteria Pollutants
CertainTeed Gypsum, Moundsville, WV

Fuel Combustion Unit: **DSG Dryer**
Fuel Fired: **Natural Gas**

Operational Data:

Firing Rate	(MMBtu/hr)	50.00
Firing Rate	(MMscf/hr)	0.05
Potential Operating Rate	(hr/yr)	8,760
Average Fuel Heat Content[1]	(Btu/scf)	1,025

Notes:
1. Heat content based on vendor data for the Moundsville area.

Emission Factors:

Pollutant	Factor	Unit	Source
PM-Condensable[1]	5.7	lb/MMscf	AP-42
Sulfur Dioxide[2]	0.6	lb/MMscf	AP-42
Nitrogen Oxides[3]	0.05	lb/MMBtu	Stack Test 8/25-29/08
Carbon Monoxide[3]	0.05	lb/MMBtu	Stack Test 8/25-29/08
Volatile Organic Material[2]	5.5	lb/MMscf	AP-42
GHG:			
Carbon Dioxide (CO_2)[4]	53.06	kg/MMBtu	Table C-1 of 40 CFR Part 98, Subpart C
Methane (CH_4)[5]	0.001	kg/MMBtu	Table C-2 of 40 CFR Part 98, Subpart C
Nitrous Oxide (N_2O)[5]	0.0001	kg/MMBtu	
Hydrofluorocarbons (HFC)	N/A		
Perfluorocarbons (PFC)	N/A		
Sulfur Hexafluoride (SF_6)	N/A		

Notes:
1. Emissions of PM, PM_{10}, and $PM_{2.5}$ are accounted for in the fabric filter emissions calculations.
2. Emission factor obtained from AP-42, Chapter 1.4, Natural Gas Combustion, Table 1.4-2 (July 1998).
3. Emission factor based on August 25-29, 2008 stack test with a 98% confidence interval.
4. CO_2 emissions factor obtained from Table C-1 40 CFR Part 98, Subpart C.
5. CH_4 and N_2O emissions factor obtained from Table C-2 of 40 CFR Part 98, Subpart C.

Potential Emissions:

	Emissions	
Pollutant	(lb/hr)	(tpy)
PM-Condensable	0.28	1.22
Sulfur Dioxide	0.03	0.13
Nitrogen Oxides	2.29	10.05
Carbon Monoxide	2.65	11.61
Volatile Organic Material	0.27	1.18
GHG:		
Carbon Dioxide (CO_2)	5848.86	25618.02
Methane (CH_4)	1.10E-01	4.83E-01
Nitrous Oxide (N_2O)	1.10E-02	4.83E-02
Hydrofluorocarbons (HFC)	--	--
Perfluorocarbons (PFC)	--	--
Sulfur Hexafluoride (SF_6)	--	--

Table 6. DSG Dryer - HAP Calculations
CertainTeed Gypsum, Moundsville, WV

Fuel Combustion Unit: **DSG Dryer**
Fuel Fired: **Natural Gas**

Operational Data:

Firing Rate	(MMBtu/hr)	50.0
Fuel Type	(grade)	Natural Gas
Average Fuel Heat Content[1]	(Btu/scf)	1,025
Default Heat Content	(Btu/scf)	1,020
Potential Fuel Usage	(MMscf/hour)	0.05
Potential Fuel Usage	(MMscf/yr)	427
Potential Operating Rate	(hr/yr)	8,760

Notes:
1. Heat content based on vendor data for the Moundsville area.

Emission Factors:
Speciated Organics Source: AP-42, 5th Edition, Table 1.4-3, dated 7/98.
Metals Source: AP-42, 5th Edition, Tables 1.4-2, 1.4-4, dated 7/98.

Pollutant	CAS Number	(lb/MMscf)	Rating	Potential Emissions (tpy)
Speciated Organics				
2-Methylnaphthalene	91-57-6	2.4E-05	D	5.15E-06
3-Methylchloranthrene	56-49-5	1.8E-06	E	3.86E-07
7,12-Dimethylbenz(a)anthracene	57-97-6	1.6E-05	E	3.44E-06
Acenaphthene	83-32-9	1.8E-06	E	3.86E-07
Acenaphthylene	203-96-8	1.8E-06	E	3.86E-07
Anthracene	120-12-7	2.4E-06	E	5.15E-07
Benz(a)anthracene	56-55-3	1.8E-06	E	3.86E-07
Benzene	71-43-2	2.1E-03	B	4.51E-04
Benzo(a)pyrene	50-32-8	1.2E-06	E	2.58E-07
Benzo(b)fluoranthene	205-99-2	1.8E-06	E	3.86E-07
Benzo(g,h,i)perylene	191-24-2	1.2E-06	E	2.58E-07
Benzo(k)fluoranthene	205-82-3	1.8E-06	E	3.86E-07
Chrysene	218-01-9	1.8E-06	E	3.86E-07
Dibenzo(a,h) anthracene	53-70-3	1.2E-06	E	2.58E-07
Dichlorobenzene	25321-22-6	1.2E-03	E	2.58E-04
Fluoranthene	206-44-0	3.0E-06	E	6.44E-07
Fluorene	86-73-7	2.8E-06	E	6.01E-07
Formaldehyde	50-00-0	7.5E-02	B	1.61E-02
Hexane	110-54-3	1.8E+00	E	3.86E-01
Indo(1,2,3-cd)pyrene	193-39-5	1.8E-06	E	3.86E-07
Napthalene	91-20-3	6.1E-04	E	1.31E-04
Phenanthrene	85-01-8	1.7E-05	D	3.65E-06
Pyrene	129-00-0	5.0E-06	E	1.07E-06
Toluene	108-88-3	3.4E-03	C	7.30E-04
Metals				
Arsenic	7440-38-2	2.0E-04	E	4.27E-05
Beryllium	7440-41-7	1.2E-05	E	2.56E-06
Cadmium	7440-43-9	1.1E-03	D	2.35E-04
Chromium	7440-47-3	1.4E-03	D	2.99E-04
Cobalt	7440-48-4	8.4E-05	D	1.80E-05
Lead	7439-92-1	5.0E-04	D	1.07E-04
Manganese	7439-96-5	3.8E-04	D	8.12E-05
Mercury	7439-97-6	2.6E-04	D	5.56E-05
Nickel	7440-02-0	2.1E-03	C	4.49E-04
Selenium	7782-49-2	2.4E-05	E	5.13E-06
Total HAP				**0.41**

Table 7. Kettle 1 - Combustion Emissions of Criteria Pollutants
CertainTeed Gypsum, Moundsville, WV

Fuel Combustion Unit: **Kettle 1**
Fuel Fired: **Natural Gas**

Operational Data:

Firing Rate	(MMBtu/hr)	31.7
Firing Rate	(MMscf/hr)	0.03
Potential Operating Rate	(hr/yr)	8,760
Average Fuel Heat Content[1]	(Btu/scf)	1,025

Notes:
1. Heat content based on vendor data for the Moundsville area.

Emission Factors:

Pollutant	Factor	Unit	Source
Particulate Matter/PM_{10}/$PM_{2.5}$[1]	0.10	lb/MMBtu	Stack Test 8/25-29/08
Particulate Matter - Condensable[5]	0.03	lb/MMBtu	Stack Test 8/6-9/2013
Sulfur Dioxide[2]	0.6	lb/MMscf	AP-42
Nitrogen Oxides[1]	0.21	lb/MMBtu	Stack Test 8/25-29/08
Carbon Monoxide[1]	0.19	lb/MMBtu	Stack Test 8/25-29/08
Carbon Monoxide[5]	0.49	lb/MMBtu	Stack Test 8/6-9/2013
Volatile Organic Material[2]	5.5	lb/MMscf	AP-42
GHG:			
Carbon Dioxide (CO_2)[3]	53.06	kg/MMBtu	Table C-1 of 40 CFR Part 98, Subpart C
Methane (CH_4)[4]	1.00E-03	kg/MMBtu	Table C-2 of 40 CFR Part 98, Subpart C
Nitrous Oxide (N_2O)[4]	1.00E-04	kg/MMBtu	
Hydrofluorocarbons (HFC)	N/A		
Perfluorocarbons (PFC)	N/A		
Sulfur Hexafluoride (SF_6)	N/A		

Notes:
1. Emission factor based on stack test for Kettle 2 with a 98% confidence interval (without burning recycled paper). Filterable PM based on total PM EF and then ratioed based on particulate and condensable PM measured during the 2008 stack test.
2. Emission factor obtained from AP-42, Chapter 1.4, Natural Gas Combustion, Table 1.4-2 (July 1998).
3. CO_2 emissions factor obtained from Table C-1 of 40 CFR Part 98, Subpart C.
4. CH_4 and N_2O emissions factor obtained from Table C-2 of 40 CFR Part 98, Subpart C.
5. Emission factors based on August 6-9, 2013 stack test for Kettle 1 with a 98% confidence interval (burning recycled paper). Filterable PM based on total PM EF and then ratioed based on particulate and condensable PM measureed during the 2013 stack test.

Potential Emissions:

Pollutant	Emissions (lb/hr)	Emissions (tpy)
Particulate Matter/PM10/PM2.5[1]	3.07	13.43
PM - Condensables	0.92	4.03
Sulfur Dioxide	0.02	0.08
Nitrogen Oxides	6.80	29.79
Carbon Monoxide	15.58	68.23
Volatile Organic Material	0.17	0.75
GHG:		
Carbon Dioxide (CO_2)	3707.01	16236.70
Methane (CH_4)	6.99E-02	3.06E-01
Nitrous Oxide (N_2O)	6.99E-03	3.06E-02
Hydrofluorocarbons (HFC)	--	--
Perfluorocarbons (PFC)	--	--
Sulfur Hexafluoride (SF_6)	--	--

Notes:
1. $PM_{2.5}$ is assumed to be 100% of PM/PM_{10} for Kettle 1.

Table 8. Kettle 1 - HAP Calculations
CertainTeed Gypmsum, Moundsville, WV

Fuel Combustion Unit: **Kettle 1**
Fuel Fired: **Natural Gas**

Operational Data:

Source Type (utility, ind, com, res)		industrial
Firing Configuration (normal or tang.)		normal
Firing Rate	(MMBtu/hr)	31.7
Fuel Type	(grade)	Natural Gas
Average Fuel Heat Content[1]	(Btu/scf)	1,025
Default Heat Content	(Btu/scf)	1,020
Potential Fuel Usage	(MMscf/hour)	0.031
Potential Fuel Usage	(MMscf/yr)	271
Potential Operating Rate	(hr/yr)	8,760

1. Heat content based on vendor data for the Moundsville area.

Emission Factors:
Speciated Organics Source: AP-42, 5th Edition, Table 1.4-3, dated 7/98.
Metals Source: AP-42, 5th Edition, Tables 1.4-2, 1.4-4, dated 7/98.

Pollutant	CAS Number	(lb/MMscf)	Rating	Potential Emissions (tpy)
Speciated Organics				
2-Methylnaphthalene	91-57-6	2.4E-05	D	3.27E-06
3-Methylchloranthrene	56-49-5	1.8E-06	E	2.45E-07
7,12-Dimethylbenz(a)anthrace	57-97-6	1.6E-05	E	2.18E-06
Acenaphthene	83-32-9	1.8E-06	E	2.45E-07
Acenaphthylene	203-96-8	1.8E-06	E	2.45E-07
Anthracene	120-12-7	2.4E-06	E	3.27E-07
Benz(a)anthracene	56-55-3	1.8E-06	E	2.45E-07
Benzene	71-43-2	2.1E-03	B	2.86E-04
Benzo(a)pyrene	50-32-8	1.2E-06	E	1.63E-07
Benzo(b)fluoranthene	205-99-2	1.8E-06	E	2.45E-07
Benzo(g,h,i)perylene	191-24-2	1.2E-06	E	1.63E-07
Benzo(k)fluoranthene	205-82-3	1.8E-06	E	2.45E-07
Chrysene	218-01-9	1.8E-06	E	2.45E-07
Dibenzo(a,h) anthracene	53-70-3	1.2E-06	E	1.63E-07
Dichlorobenzene	25321-22-6	1.2E-03	E	1.63E-04
Fluoranthene	206-44-0	3.0E-06	E	4.08E-07
Fluorene	86-73-7	2.8E-06	E	3.81E-07
Formaldehyde	50-00-0	7.5E-02	B	1.02E-02
Hexane	110-54-3	1.8E+00	E	2.45E-01
Indo(1,2,3-cd)pyrene	193-39-5	1.8E-06	E	2.45E-07
Napthalene	91-20-3	6.1E-04	E	8.30E-05
Phenanthrene	85-01-8	1.7E-05	D	2.31E-06
Pyrene	129-00-0	5.0E-06	E	6.80E-07
Toluene	108-88-3	3.4E-03	C	4.63E-04
Metals				
Arsenic	7440-38-2	2.0E-04	E	2.72E-05
Beryllium	7440-41-7	1.2E-05	E	1.63E-06
Cadmium	7440-43-9	1.1E-03	D	1.50E-04
Chromium	7440-47-3	1.4E-03	D	1.91E-04
Cobalt	7440-48-4	8.4E-05	D	1.14E-05
Lead	7439-92-1	5.0E-04	D	6.80E-05
Manganese	7439-96-5	3.8E-04	D	5.17E-05
Mercury	7439-97-6	2.6E-04	D	3.54E-05
Nickel	7440-02-0	2.1E-03	C	2.86E-04
Selenium	7782-49-2	2.4E-05	E	3.27E-06
Total HAP				**0.26**

Table 9. Kettle 2 - Combustion Emissions of Criteria Pollutants
Certain Teed Gypsum, Moundsville, WV

Fuel Combustion Unit: **Kettle 2**
Fuel Fired: **Natural Gas**

Operational Data:

Firing Rate	(MMBtu/hr)	31.7
Firing Rate	(MMscf/hr)	0.03
Potential Operating Rate	(hr/yr)	8,760
Average Fuel Heat Content[1]	(Btu/scf)	1,025

1. Heat content based on vendor data for the Moundsville area.

Emission Factors:

Pollutant	Factor	Unit	Source
Particulate Matter/PM10/PM2.5[1]	0.10	lb/MMBtu	Stack Test 8/25-29/08
Particulate Matter - Condensable[5]	0.03	lb/MMBtu	Stack Test 8/6-9/2013
Sulfur Dioxide[2]	0.6	lb/MMscf	AP-42
Nitrogen Oxides[1]	0.21	lb/MMBtu	Stack Test 8/25-29/08
Carbon Monoxide[5]	0.49	lb/MMBtu	Stack Test 8/6-9/2013
Volatile Organic Material[2]	5.5	lb/MMscf	AP-42
GHG:			
Carbon Dioxide (CO_2)[3]	53.06	kg/MMBtu	Table C-1 of 40 CFR Part 98, Subpart C
Methane (CH_4)[4]	1.00E-03	kg/MMBtu	Table C-2 of 40 CFR Part 98, Subpart C
Nitrous Oxide (N_2O)[4]	1.00E-04	kg/MMBtu	
Hydrofluorocarbons (HFC)	N/A		
Perfluorocarbons (PFC)	N/A		
Sulfur Hexafluoride (SF_6)	N/A		

1. Emission factor based on stack test for Kettle 2 with a 98% confidence interval (without burning recycled paper). Filterable PM based on total PM EF and then ratioed based on particulate and condensable PM measured during the 2008 stack test.
2. Emission factor obtained from AP-42, Chapter 1.4, Natural Gas Combustion, Table 1.4-2 (July 1998).
3. CO_2 emissions factor obtained from Table C-1 of 40 CFR Part 98, Subpart C.
4. CH_4 and N_2O emissions factor obtained from Table C-2 of 40 CFR Part 98, Subpart C.
5. Emission factors based on August 6-9, 2013 stack test for Kettle 1 with a 98% confidence interval (burning recycled paper). Filterable PM based on total PM EF and then ratioed based on particulate and condensable PM measured during the 2013 stack test.

Potential Emissions:

Pollutant	(lb/hr)	(tpy)
Particulate Matter/PM10/PM2.5[1]	3.07	13.43
PM - Condensables	0.92	4.03
Sulfur Dioxide	0.02	0.08
Nitrogen Oxides	6.80	29.79
Carbon Monoxide	15.58	68.23
Volatile Organic Material	0.17	0.75
Carbon Dioxide (CO_2)	3707.01	16236.70
Methane (CH_4)	6.99E-02	3.06E-01
Nitrous Oxide (N_2O)	6.99E-03	3.06E-02
Hydrofluorocarbons (HFC)	--	--
Perfluorocarbons (PFC)	--	--
Sulfur Hexafluoride (SF_6)	--	--

1. $PM_{2.5}$ is assumed to be 100% of PM/PM_{10} for Kettle 2.

Table 10. Kettle 2 - HAP Calculations
CertainTeed Gypsum, Moundsville, WV

Fuel Combustion Unit: **Kettle 2**
Fuel Fired: **Natural Gas**

Operational Data:

Source Type (utility, ind, com, res)		industrial
Firing Configuration (normal or tang.)		normal
Firing Rate	(MMBtu/hr)	31.7
Fuel Type	(grade)	Natural Gas
Average Fuel Heat Content[1]	(Btu/scf)	1,025
Default Heat Content	(Btu/scf)	1,020
Potential Fuel Usage	(MMscf/hour)	0.031
Potential Fuel Usage	(MMscf/yr)	271
Potential Operating Rate	(hr/yr)	8,760

1. Heat content based on vendor data for the Moundsville area.

Emission Factors:
Speciated Organics — Source: AP-42, 5th Edition, Table 1.4-3, dated 7/98.
Metals — Source: AP-42, 5th Edition, Tables 1.4-2, 1.4-4, dated 7/98.

Pollutant	CAS Number	(lb/MMscf)	Rating	Potential Emissions (tpy)
Speciated Organics				
2-Methylnaphthalene	91-57-6	2.4E-05	D	3.27E-06
3-Methylchloranthrene	56-49-5	1.8E-06	E	2.45E-07
7,12-Dimethylbenz(a)anthracene	57-97-6	1.6E-05	E	2.18E-06
Acenaphthene	83-32-9	1.8E-06	E	2.45E-07
Acenaphthylene	203-96-8	1.8E-06	E	2.45E-07
Anthracene	120-12-7	2.4E-06	E	3.27E-07
Benz(a)anthracene	56-55-3	1.8E-06	E	2.45E-07
Benzene	71-43-2	2.1E-03	B	2.86E-04
Benzo(a)pyrene	50-32-8	1.2E-06	E	1.63E-07
Benzo(b)fluoranthene	205-99-2	1.8E-06	E	2.45E-07
Benzo(g,h,i)perylene	191-24-2	1.2E-06	E	1.63E-07
Benzo(k)fluoranthene	205-82-3	1.8E-06	E	2.45E-07
Chrysene	218-01-9	1.8E-06	E	2.45E-07
Dibenzo(a,h) anthracene	53-70-3	1.2E-06	E	1.63E-07
Dichlorobenzene	25321-22-6	1.2E-03	E	1.63E-04
Fluoranthene	206-44-0	3.0E-06	E	4.08E-07
Fluorene	86-73-7	2.8E-06	E	3.81E-07
Formaldehyde	50-00-0	7.5E-02	B	1.02E-02
Hexane	110-54-3	1.8E+00	E	2.45E-01
Indo(1,2,3-cd)pyrene	193-39-5	1.8E-06	E	2.45E-07
Napthalene	91-20-3	6.1E-04	E	8.30E-05
Phenanthrene	85-01-8	1.7E-05	D	2.31E-06
Pyrene	129-00-0	5.0E-06	E	6.80E-07
Toluene	108-88-3	3.4E-03	C	4.63E-04
Metals				
Arsenic	7440-38-2	2.0E-04	E	2.72E-05
Beryllium	7440-41-7	1.2E-05	E	1.63E-06
Cadmium	7440-43-9	1.1E-03	D	1.50E-04
Chromium	7440-47-3	1.4E-03	D	1.91E-04
Cobalt	7440-48-4	8.4E-05	D	1.14E-05
Lead	7439-92-1	5.0E-04	D	6.80E-05
Manganese	7439-96-5	3.8E-04	D	5.17E-05
Mercury	7439-97-6	2.6E-04	D	3.54E-05
Nickel	7440-02-0	2.1E-03	C	2.86E-04
Selenium	7782-49-2	2.4E-05	E	3.27E-06
Total HAP				**0.26**

Table 11. Board Dryer - Combustion Emissions of Criteria Pollutants
Certain Teed Gypsum, Moundsville, WV

Fuel Combustion Unit: **Board Dryer (Zones 1, 2, and 3)**
Fuel Fired: **Natural Gas**
Operational Data:

Firing Rate (total)	(MMBtu/hr)	147.0
Zones 1 & 2	(MMBtu/hr)	121.0
Zone 3	(MMBtu/hr)	26.0
Firing Rate (total)	(MMscf/hr)	0.14
Potential Operating Rate	(hr/yr)	8,760
Max Production Rate[1]	(tons/hr)	110
Average Fuel Heat Content[2]	(Btu/scf)	1,025
Default Heat Content	(Btu/scf)	1,020
Default HHV from Subpart C	(Btu/scf)	1,026

1. Max production rate increased 10%
2. Heat content based on vendor data for the Moundsville area.

Emission Factors:

Pollutant	Emission Factor Zones 1 & 2 WAX	Emission Factor Zones 1 & 2 Non-Wax	Unit	Source	Emission Factor Zone 3 WAX	Emission Factor Zone 3 Non-Wax	Unit	Source
Particulate Matter/PM10/PM2.5[1]	0.07	0.04	lb/MMBtu	Stack Test 8/6-9/2013	0.05	0.02	lb/ton	Stack Test 8/6-9/2013
					0.01	0.01	lb/MMBtu	AP-42
Particulate Matter - Condensable[7]	0.013		lb/ton	Stack Test 8/6-9/2013	0.0178		lb/ton	Stack Test 8/6-9/2013
Sulfur Dioxide[2]	0.6		lb/MMscf	AP-42	0.6		lb/MMscf	AP-42
Nitrogen Oxides[4]	0.04	0.04	lb/MMBtu	Stack Test 8/6-9/2013	0.24	0.13	lb/MMBtu	Stack Test 8/6-9/2013
Carbon Monoxide[4]	0.11		lb/MMBtu	Stack Test 8/25-29/2008	0.40		lb/MMBtu	Stack Test 8/25-29/2008
Volatile Organic Material[2]	7.2		lb/MMscf	AP-42	7.2		lb/MMscf	AP-42
GHG:								
Carbon Dioxide (CO_2)[5]	53.06		kg/MMBtu	Table C-1 of 40 CFR Part 98, Subpart C	53.06		kg/MMBtu	Table C-1 of 40 CFR Part 98, Subpart C
Methane (CH_4)[6]	1.00E-03		kg/MMBtu		1.00E-03		kg/MMBtu	
Nitrous Oxide (N_2O)[6]	1.00E-04		kg/MMBtu	Table C-2 of 40 CFR Part 98, Subpart C	1.00E-04		kg/MMBtu	Table C-2 of 40 CFR Part 98, Subpart C
Hydrofluorocarbons (HFC)	N/A				N/A			
Perfluorocarbons (PFC)	N/A				N/A			
Sulfur Hexafluoride (SF_6)	N/A				N/A			

1. PM emissions for Zone 1 & 2 are based on August 6-9, 2013 stack test with a 98% confidence interval. PM emissions for Zone 3 are based on August 6-9, 2013 stack test with a 98% confidence interval and AP-42 emission factor.
2. Emission factor based on AP-42 Chapter 1.4 Natural Gas Combustion, Table 1.4-2 (July 1998)
3. Emission factor based on August 6-9, 2013 stack test with a 98% confidence interval.
4. Emission factor based on August 25-29, 2008 stack test with a 98% confidence interval.
5. CO_2 emissions factor obtained from Table C-1 of 40 CFR Part 98, Subpart C.
6. CH_4 and N_2O emissions factor obtained from Table C-2 of 40 CFR Part 98, Subpart C.
7. PM Condensable emissions based on August 6-9, 2013 stack test.

Potential Emissions: **Zones 1 & 2**

Pollutant	Emissions (lb/hr)	Emissions (tpy)
Particulate Matter/PM10/PM2.5[1]	8.08	35.41
Particulate Matter - Condensable	1.43	6.26
Sulfur Dioxide	0.07	0.31
Nitrogen Oxides[3]	5.29	23.16
Carbon Monoxide[3]	13.31	58.30
Volatile Organic Material[2]	0.87	3.79
GHG:		
Carbon Dioxide (CO_2)	14,174	62,080
Methane (CH_4)	0.27	1.17
Nitrous Oxide (N_2O)	0.03	0.12
Hydrofluorocarbons (HFC)	--	--
Perfluorocarbons (PFC)	--	--
Sulfur Hexafluoride (SF_6)	--	--

1. $PM_{2.5}$ is assumed to be 100% of PM/PM_{10} for the board dryer.
2. VOC emissions are due to fuel combustion and additives usage.
3. Worst case: assumes that all processed material were moisture resistant.

Potential Emissions: **Zone 3**

Pollutant	Emissions (lb/hr)	Emissions (tpy)
PM/PM10/PM2.5[1]	5.73	25.08
Particulate Matter - Condensable	1.96	8.58
Sulfur Dioxide	0.02	0.07
Nitrogen Oxides[2]	6.32	27.68
Carbon Monoxide[2]	10.40	45.55
VOC	0.18	0.79
GHG:		
CO_2	3046	13340
CH_4	0.06	0.25
N_2O	0.01	0.03
HFC	--	--
PFC	--	--
SF_6	--	--

1. $PM_{2.5}$ is assumed to be 100% of PM/PM_{10} for the board dryer.
2. Worst case: assumes that all processed material were moisture resistant.

Table 12. Board Dryer Zones 1 2 - HAP Calculations
CertainTeed Gypsum, Moundsville, WV

Fuel Combustion Unit: **Board Dryer**
Fuel Fired: **Natural Gas**

Operational Data:

Source Type (utility, ind, com, res)		industrial
Firing Configuration (normal or tang.)		normal
Firing Rate (Zones 1 & 2)	(MMBtu/hr)	121.0
Fuel Type	(grade)	Natural Gas
Average Fuel Heat Content[1]	(Btu/scf)	1,025
Default Heat Content	(Btu/scf)	1,020
Potential Fuel Usage	(MMscf/hour)	0.118
Potential Fuel Usage	(MMscf/yr)	1,035
Potential Operating Rate	(hr/yr)	8,760

1. Heat content based on vendor data for the Moundsville area.

Emission Factors:
Speciated Organics Source: AP-42, 5th Edition, Table 1.4-3, dated 7/98.
Metals Source: AP-42, 5th Edition, Tables 1.4-2, 1.4-4, dated 7/98.

Pollutant	CAS Number	(lb/MMscf)	Rating	Potential Emissions (tpy)
Speciated Organics				
2-Methylnaphthalene	91-57-6	2.4E-05	D	1.25E-05
3-Methylchloranthrene	56-49-5	1.8E-06	E	9.35E-07
7,12-Dimethylbenz(a)anthrace	57-97-6	1.6E-05	E	8.31E-06
Acenaphthene	83-32-9	1.8E-06	E	9.35E-07
Acenaphthylene	203-96-8	1.8E-06	E	9.35E-07
Anthracene	120-12-7	2.4E-06	E	1.25E-06
Benz(a)anthracene	56-55-3	1.8E-06	E	9.35E-07
Benzene	71-43-2	2.1E-03	B	1.09E-03
Benzo(a)pyrene	50-32-8	1.2E-06	E	6.24E-07
Benzo(b)fluoranthene	205-99-2	1.8E-06	E	9.35E-07
Benzo(g,h,i)perylene	191-24-2	1.2E-06	E	6.24E-07
Benzo(k)fluoranthene	205-82-3	1.8E-06	E	9.35E-07
Chrysene	218-01-9	1.8E-06	E	9.35E-07
Dibenzo(a,h) anthracene	53-70-3	1.2E-06	E	6.24E-07
Dichlorobenzene	25321-22-6	1.2E-03	E	6.24E-04
Fluoranthene	206-44-0	3.0E-06	E	1.56E-06
Fluorene	86-73-7	2.8E-06	E	1.45E-06
Formaldehyde	50-00-0	7.5E-02	B	3.90E-02
Hexane	110-54-3	1.8E+00	E	9.35E-01
Indo(1,2,3-cd)pyrene	193-39-5	1.8E-06	E	9.35E-07
Napthalene	91-20-3	6.1E-04	E	3.17E-04
Phenanthrene	85-01-8	1.7E-05	D	8.83E-06
Pyrene	129-00-0	5.0E-06	E	2.60E-06
Toluene	108-88-3	3.4E-03	C	1.77E-03
Methanol	67-6-1			1.96E-02
Metals				
Arsenic	7440-38-2	2.0E-04	E	1.04E-04
Beryllium	7440-41-7	1.2E-05	E	6.24E-06
Cadmium	7440-43-9	1.1E-03	D	5.72E-04
Chromium	7440-47-3	1.4E-03	D	7.27E-04
Cobalt	7440-48-4	8.4E-05	D	4.36E-05
Lead	7439-92-1	5.0E-04	D	2.60E-04
Manganese	7439-96-5	3.8E-04	D	1.97E-04
Mercury	7439-97-6	2.6E-04	D	1.35E-04
Nickel	7440-02-0	2.1E-03	C	1.09E-03
Selenium	7782-49-2	2.4E-05	E	1.25E-05
Total HAP				**1.00**

1. Assumes fuel usage ratio based on the maximum rating of Zones 1, 2, and 3 as follows:
Zones 1 & 2 fraction of total: 0.90
Zone 3 fraction of total: 0.10

Table 13. Board Dryer Zone 3 - HAP Calculations
CertainTeed Gypsum, Moundsville, WV

Fuel Combustion Unit: **Board Dryer**
Fuel Fired: **Natural Gas**

Operational Data:

Source Type (utility, ind, com, res)		industrial
Firing Configuration (normal or tang.)		normal
Firing Rate	(MMBtu/hr)	26.0
Fuel Type	(grade)	Natural Gas
Average Fuel Heat Content[1]	(Btu/scf)	1,025
Default Heat Content	(Btu/scf)	1,020
Potential Fuel Usage	(MMscf/hour)	0.025
Potential Fuel Usage	(MMscf/yr)	222
Potential Operating Rate	(hr/yr)	8,760

1. Heat content based on vendor data for the Moundsville area.

Emission Factors:
Speciated Organics Source: AP-42, 5th Edition, Table 1.4-3, dated 7/98.
Metals Source: AP-42, 5th Edition, Tables 1.4-2, 1.4-4, dated 7/98.

Pollutant	CAS Number	(lb/MMscf)	Rating	Potential Emissions (tpy)
Speciated Organics				
2-Methylnaphthalene	91-57-6	2.4E-05	D	2.68E-06
3-Methylchloranthrene	56-49-5	1.8E-06	E	2.01E-07
7,12-Dimethylbenz(a)anthrace	57-97-6	1.6E-05	E	1.79E-06
Acenaphthene	83-32-9	1.8E-06	E	2.01E-07
Acenaphthylene	203-96-8	1.8E-06	E	2.01E-07
Anthracene	120-12-7	2.4E-06	E	2.68E-07
Benz(a)anthracene	56-55-3	1.8E-06	E	2.01E-07
Benzene	71-43-2	2.1E-03	B	2.34E-04
Benzo(a)pyrene	50-32-8	1.2E-06	E	1.34E-07
Benzo(b)fluoranthene	205-99-2	1.8E-06	E	2.01E-07
Benzo(g,h,i)perylene	191-24-2	1.2E-06	E	1.34E-07
Benzo(k)fluoranthene	205-82-3	1.8E-06	E	2.01E-07
Chrysene	218-01-9	1.8E-06	E	2.01E-07
Dibenzo(a,h) anthracene	53-70-3	1.2E-06	E	1.34E-07
Dichlorobenzene	25321-22-6	1.2E-03	E	1.34E-04
Fluoranthene	206-44-0	3.0E-06	E	3.35E-07
Fluorene	86-73-7	2.8E-06	E	3.13E-07
Formaldehyde	50-00-0	7.5E-02	B	8.37E-03
Hexane	110-54-3	1.8E+00	E	2.01E-01
Indo(1,2,3-cd)pyrene	193-39-5	1.8E-06	E	2.01E-07
Napthalene	91-20-3	6.1E-04	E	6.81E-05
Phenanthrene	85-01-8	1.7E-05	D	1.90E-06
Pyrene	129-00-0	5.0E-06	E	5.58E-07
Toluene	108-88-3	3.4E-03	C	3.80E-04
Metals				
Arsenic	7440-38-2	2.0E-04	E	2.23E-05
Beryllium	7440-41-7	1.2E-05	E	1.34E-06
Cadmium	7440-43-9	1.1E-03	D	1.23E-04
Chromium	7440-47-3	1.4E-03	D	1.56E-04
Cobalt	7440-48-4	8.4E-05	D	9.38E-06
Lead	7439-92-1	5.0E-04	D	5.58E-05
Manganese	7439-96-5	3.8E-04	D	4.24E-05
Mercury	7439-97-6	2.6E-04	D	2.90E-05
Nickel	7440-02-0	2.1E-03	C	2.34E-04
Selenium	7782-49-2	2.4E-05	E	2.68E-06
Total HAP				**0.21**

1. Assumes fuel usage ratio based on the maximum rating of Zones 1, 2, and 3 as follows:
Zones 1 & 2 fraction of total: 0.90
Zone 3 fraction of total: 0.10

Table 14. Paper Heaters - Combustion Emissions of Criteria Pollutants
CertainTeed Gypsum, Moundsville, WV

Fuel Combustion Unit: **Paper Heaters**
Fuel Fired: **Natural Gas**

Operational Data:

Firing Rate	(MMBtu/hr)	1.9
Firing Rate	(MMscf/hr)	1.84E-03
Flue Gas Density	(lb/scf)	0.075
Potential Operating Rate	(hr/yr)	8,760
Average Fuel Heat Content[1]	(Btu/scf)	1,025
Default HHV from Subpart C	(Btu/scf)	1,028

1. Heat content based on vendor data for the Moundsville area.

Emission Factors:

Pollutant	Factor[1]	Unit	Source
Particulate Matter/PM10/PM2.5[1]	7.6	lb/MMscf	AP-42
PM-Condensables	5.7	lb/MMscf	AP-42
Sulfur Dioxide	0.6	lb/MMscf	AP-42
Nitrogen Oxides	94.0	lb/MMscf	AP-42
Carbon Monoxide	40.0	lb/MMscf	AP-42
Volatile Organic Material	5.5	lb/MMscf	AP-42
GHG:			
Carbon Dioxide (CO_2)[2]	53.06	kg/MMBtu	Table C-1 of 40 CFR Part 98, Subpart C
Methane (CH_4)[3]	1.00E-03	kg/MMBtu	Table C-2 of 40 CFR Part 98, Subpart C
Nitrous Oxide (N_2O)[3]	1.00E-04	kg/MMBtu	
Hydrofluorocarbons (HFC)	N/A		
Perfluorocarbons (PFC)	N/A		
Sulfur Hexafluoride (SF_6)	N/A		

1. Emission factor source: AP-42, Chapter 1.4, Natural Gas Combustion, Table 1.4-1 and Table 1.4-2 (July 1998).
2. CO_2 emissions factor obtained from Table C-1 of 40 CFR Part 98, Subpart C.
3. CH_4 and N_2O emissions factor obtained from Table C-2 of 40 CFR Part 98, Subpart C.

Potential Emissions:

Pollutant	Emissions (lb/hr)	Emissions (tpy)
Particulate Matter/PM10/PM2.5[1]	1.40E-02	6.13E-02
PM - Condensables	1.05E-02	4.60E-02
Sulfur Dioxide	1.11E-03	4.84E-03
Nitrogen Oxides	1.73E-01	7.59E-01
Carbon Monoxide	7.37E-02	3.23E-01
Volatile Organic Material	1.01E-02	4.44E-02
GHG:		
Carbon Dioxide (CO_2)[2]	221.59	970.55
Methane (CH_4)[3]	4.18E-03	1.83E-02
Nitrous Oxide (N_2O)[3]	4.18E-04	1.83E-03
Hydrofluorocarbons (HFC)	--	--
Perfluorocarbons (PFC)	--	--
Sulfur Hexafluoride (SF_6)	--	--

1. $PM_{2.5}$ is assumed to be 100% of PM/PM_{10} for the paper heaters.

Table 15. Paper Heaters - HAP Calculations
CertainTeed Gypsum, Moundsville, WV

Fuel Combustion Unit: **Paper Heaters**
Fuel Fired: **Natural Gas**

Operational Data:

Source Type (utility, ind, com, res)		industrial
Firing Configuration (normal or tang.)		normal
Firing Rate	(MMBtu/hr)	1.9
Fuel Type	(grade)	Natural Gas
Average Fuel Heat Content[1]	(Btu/scf)	1,025
Default Heat Content	(Btu/scf)	1,020
Potential Fuel Usage	(MMscf/hour)	1.84E-03
Potential Fuel Usage	(MMscf/yr)	16.14
Potential Operating Rate	(hr/yr)	8,760

1. Heat content based on vendor data for the Moundsville area.

Emission Factors:
Speciated Organics Source: AP-42, 5th Edition, Table 1.4-3, dated 7/98.
Metals Source: AP-42, 5th Edition, Tables 1.4-2, 1.4-4, dated 7/98.

Pollutant	CAS Number	(lb/MMscf)	Rating	Potential Emissions (tpy)
Speciated Organics				
2-Methylnaphthalene	91-57-6	2.4E-05	D	1.95E-07
3-Methylchloranthrene	56-49-5	1.8E-06	E	1.46E-08
7,12-Dimethylbenz(a)anthrace	57-97-6	1.6E-05	E	1.30E-07
Acenaphthene	83-32-9	1.8E-06	E	1.46E-08
Acenaphthylene	203-96-8	1.8E-06	E	1.46E-08
Anthracene	120-12-7	2.4E-06	E	1.95E-08
Benz(a)anthracene	56-55-3	1.8E-06	E	1.46E-08
Benzene	71-43-2	2.1E-03	B	1.70E-05
Benzo(a)pyrene	50-32-8	1.2E-06	E	9.73E-09
Benzo(b)fluoranthene	205-99-2	1.8E-06	E	1.46E-08
Benzo(g,h,i)perylene	191-24-2	1.2E-06	E	9.73E-09
Benzo(k)fluoranthene	205-82-3	1.8E-06	E	1.46E-08
Chrysene	218-01-9	1.8E-06	E	1.46E-08
Dibenzo(a,h) anthracene	53-70-3	1.2E-06	E	9.73E-09
Dichlorobenzene	25321-22-6	1.2E-03	E	9.73E-06
Fluoranthene	206-44-0	3.0E-06	E	2.43E-08
Fluorene	86-73-7	2.8E-06	E	2.27E-08
Formaldehyde	50-00-0	7.5E-02	B	6.08E-04
Hexane	110-54-3	1.8E+00	E	1.46E-02
Indo(1,2,3-cd)pyrene	193-39-5	1.8E-06	E	1.46E-08
Napthalene	91-20-3	6.1E-04	E	4.95E-06
Phenanthrene	85-01-8	1.7E-05	D	1.38E-07
Pyrene	129-00-0	5.0E-06	E	4.05E-08
Toluene	108-88-3	3.4E-03	C	2.76E-05
Metals				
Arsenic	7440-38-2	2.0E-04	E	1.62E-06
Beryllium	7440-41-7	1.2E-05	E	9.73E-08
Cadmium	7440-43-9	1.1E-03	D	8.92E-06
Chromium	7440-47-3	1.4E-03	D	1.14E-05
Cobalt	7440-48-4	8.4E-05	D	6.81E-07
Lead	7439-92-1	5.0E-04	D	4.05E-06
Manganese	7439-96-5	3.8E-04	D	3.08E-06
Mercury	7439-97-6	2.6E-04	D	2.11E-06
Nickel	7440-02-0	2.1E-03	C	1.70E-05
Selenium	7782-49-2	2.4E-05	E	1.95E-07
Total HAP				**1.53E-02**

Table 16. Paved Road PM/PM_{10}/$PM_{2.5}$ Emissions[1,2]
CertainTeed Gypsum, Moundsville, WV

Description	Empty Weight (tons)	Load (tons)	Mean Vehicle Weight (tons)	Material Net (tons)	Round Trip Distance[2] (mi)	Potential Average Trips per Day	Potential Trips per Year	Potential Mileage per Year	Control Eff. (%)	Emission Factors (lb/VMT)			Potential Emissions (tpy)		
										PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
Finished Wallboard Goods	16.0	40.0	28.0	24.0	0.86	112	41,000	35,260	0	0.21	0.04	0.01	3.28	0.66	0.17
Paper Trucks	16.0	40.0	28.0	24.0	0.45	6.0	2,190	986	0	0.21	0.04	0.01	0.09	0.02	0.00
Misc. Raw Materials	16.0	40.0	28.0	24.0	0.45	3.0	1,095	493	0	0.21	0.04	0.01	0.05	0.01	0.00
Gypsum Supply Trucks	16.0	40.0	28.0	24.0	0.86	0.0	0	0	0	0.21	0.04	0.01	0.00	0.00	0.00
Reject Material to Reclaim Pile - Front-End Loaders	26.1	31.1	28.6	5.0	0.38	4.0	1,460	555	0	0.21	0.04	0.01	0.05	0.01	0.00
Ground Reclaim Pile to Main Process Area	20.0	40.0	30.0	20.0	1.00	14.8	5,400	5,400	0	0.22	0.04	0.01	0.54	0.11	0.03
Totals													**4.01**	**0.81**	**0.20**

1. Emissions calculated updated for RY 2010 in accordance with AP-42 Section 13.2.1, dated January 2011.
2. Based on route lengths provided by the truck traffic calculator.

Paved Roads (AP-42 Section 13.2.1) (January 2011) $E = [k(sL)^{0.91}(W)^{1.02}+C]*[1-p/(4N)]$

$PM_{2.5}$ "k" factor	0.00054	lb/VMT	Table 13.2.1-1 (January 2011)
PM_{10} "k" factor	0.0022	lb/VMT	Table 13.2.1-1 (January 2011)
PM "k" factor	0.011	lb/VMT	Table 13.2.1-1 (January 2011)
Silt Loading, sL	0.6	g/m^2	Table 13.2.1-2 (January 2011)
Number of Rain Days, p	150		Figure 13.2.1-2 (January 2011)
Number of Days in Averaging Period, N	365	days	
$PM_{2.5}$ "C" factor	0.00036	lb/VMT	Section 13.2.1 - (11/06)
PM_{10} "C" factor	0.00047	lb/VMT	Section 13.2.1 - (11/06)
PM "C" factor	0.00047	lb/VMT	Section 13.2.1 - (11/06)

Table 17. Storage Pile PM/PM_{10}/$PM_{2.5}$ Emissions
CertainTeed Gypsum, Moundsville, WV

Description	Material	Height of Stockpile (ft)[1]	Radius of stockpile (ft.)	Size (acres)	Silt Content (s)[2] (%)	Days with > 0.01 in. Precipitation (p)[3]	% Time Wind Speed Greater Than 12 mph[4]	Enclosure Control (%)	Emission Factor (lb/hr/acre)	PM_{10}/PM Ratio	$PM_{2.5}$/PM Ratio	Potential Emissions (tpy)		
												PM	PM_{10}[5]	$PM_{2.5}$[6]
Gypsum Storage Pile - Shed	Gypsum	40	126.2	1.20	20	150	10.12	25	0.58	0.5	0.075	2.31	1.15	0.17
Gypsum Storage Pile - Outside	Gypsum	70	244.1	4.47	20	150	10.12	0	0.58	0.5	0.075	11.42	5.71	0.86
Reclaim Board Pile	Wallboard	30	69.1	0.38	20	150	10.12	0	0.58	0.5	0.075	0.96	0.48	0.07
Reclaim Ground Material Pile	Wallboard	30	97.7	0.72	20	150	10.12	0	0.58	0.5	0.075	1.84	0.92	0.14
Total												**16.52**	**8.26**	**1.24**

Emission Factor (storage pile wind erosion):

$$E = 1.7\left(\frac{s}{1.5}\right)\left(\frac{(365-p)}{235}\right)\left(\frac{f}{15}\right)\left(\frac{1}{24}\right)(\text{lb / hr /acre})$$

1. Height of stockpile increased by 10% to account for potential 10% increase in production throughput.
2. Silt content estimated based on synthetic gypsum from other sites.
3. Per AP-42 Chapter 13, Section 13.2.1 Paved Roads, Figure 13.2.1-2 (January 2011).
4. Percentage of time wind speed greater than 12 mph calculated based on met data from Moundsville, WV for years 1990, 1992, and 1997-2001.
5. TSP emission factor for wind erosion of storage piles from Kinsey, J. S and Cowherd, C., Jr., "Fugitive Emissions", in Buonicore, A. J. and Davis, W. T. , Air Pollution Engineering Manual, 1992.
6. PM_{10} emission factor is 0.5 times PM emission factor based on the aerodynamic particle size multipliers published in AP-42, Chapter 13.2.5, Industrial Wind Erosion (November 2006).
7. $PM_{2.5}$ emission factor is 0.075 times PM emission factor based on the aerodynamic particle size multipliers published in AP-42, Chapter 13.2.5, Industrial Wind Erosion (November 2006).

Table 18. Material Handling $PM/PM_{10}/PM_{2.5}$ Emissions
CertainTeed Gypsum, Moundsville, WV

Description		Type	Maximum Throughput (tph)[1]	AP-42 Emission Factor (lb/ton)[2]			Potential Emissions (tpy)		
				PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
Outdoor Transfers									
AEP Conveyor to Shuttle Conveyor	AA70-001COB to A75-001COB	Synthetic Gypsum	1,100	0.00111	0.00052	0.00008	5.331	2.521	0.382
Shuttle Conveyor to Stockpile Conveyor	A75-001COB to AA75-002COB	Synthetic Gypsum	1,100	0.00111	0.00052	0.00008	5.331	2.521	0.382
Stockpile Conveyor to Outdoor Stockpile	A75-002COB to Stockpile	Synthetic Gypsum	1,100	0.00111	0.00052	0.00008	5.331	2.521	0.382
Shuttle Conveyor to Storage Shed	A75-001COB to Storage Shed	Synthetic Gypsum	1,100	0.00111	0.00052	0.00008	5.331	2.521	0.382
Storage Shed to Front-end Loader	Indoor Stockpile to Front-end Loader	Synthetic Gypsum	330	0.00111	0.00052	0.00008	1.599	0.756	0.115
Front-end Loader to WTW Feeder (Recycle)	Front-end Loader to AA85-018C08	Synthetic Gypsum	36	0.00111	0.00052	0.00008	0.176	0.083	0.013
Front-end Loader to Steele Feeder	AA85-018COB to AA85-020COB	Synthetic Gypsum	330	0.00111	0.00052	0.00008	1.599	0.756	0.115
WTW Feeder to Reclaim Conveyor		Synthetic Gypsum	36	0.00111	0.00052	0.00008	0.176	0.083	0.013
Steele Feeder to Reclaim Conveyor		Synthetic Gypsum	330	0.00111	0.00052	0.00008	1.599	0.756	0.115
Reclaim Conveyor to Mill Feed Conveyor	AA85-020COB to AA85-023COB	Synthetic Gypsum	330	0.00111	0.00052	0.00008	1.599	0.756	0.115
Front-end Loader transfer to Broken Board Pile	Front-end Loader to AA85-018C08	Wallboard	6	0.00111	0.00052	0.00008	0.027	0.013	0.002
Broken Board Grinder[2,3]	Grinder	Wallboard	138	0.04040	0.03390	0.01210	0.808	0.678	0.242
Grinder to Ground Reclaim Pile		Wallboard	138	0.00111	0.00052	0.00008	0.666	0.315	0.048
Ground Reclaim Material to Process		Wallboard	22	0.00111	0.00052	0.00008	0.107	0.050	0.008
Indoor Transfers[5]									
Mill Feed Conveyor to New Cage Feed Silo	AA85-023COB to AB05-001SIL	Synthetic Gypsum	330	0.00111	0.00052	0.00008	1.599	0.756	0.115
Total							**31.28**	**15.09**	**2.42**

1. Throughput increased 10% to account for potential 10% increase of facility-wide throughput.
2. Emission factors are calculated using AP-42 Section 13.2.4 (November 2006).

$$E = k(0.0032)\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}(lb/ton)$$

k =	0.74	PM - (AP-42, Section 13.2.4, for Particle Size < 30 mm)
	0.35	PM_{10} - (AP-42, Section 13.2.4, for Particle Size < 10 mm)
	0.053	$PM_{2.5}$ - (AP-42, Section 13.2.4, for Particle Size < 2.5 mm)
Mean Wind Speed (mph): U =	7.47	Average wind speed (mph) for Moundsville, WV based on 1990, 1992, and 1997-2001 met years.

Type of Material	Moisture (%)	PM Emission Factor (lb/ton)	PM10 Emission Factor (lb/ton)	PM2.5 Emission Factor (lb/ton)
Synthetic Gypsum	5	0.00111	0.00052	0.00008

3. Emissions factors for the broken board grinder obtained from AP-42 Table 11.19.2-4 for Grinding (dry with fabric filter control) and assuming control efficiency of inherent moisture content of handling primarily wet boards is equivalent to fabric filter control.
4. Portable equipment operated by an on-site contractor. Annual throughput estimated to be a maximum of 40,000 tons per year.
5. All other indoor transfers are assumed to be controlled or enclosed. Therefore, emissions are negligible.

Table 19. Calculation of VOC Emissions from the Board Dryer and Dunnage Machine Due to Additives
CertainTeed Gypsum, Moundsville, WV

Additive Type	Maximum Usage Rate[1] (lbs/hr)	Pollutant	VOC Content (percent)	Potential Emissions[2] (lbs/hr)	(tpy)
Board Dryer					
DTPA NA5 40%	--	N/A	--	--	--
Gypsum Adhesive Caraustar V2 - Board		VOC	0.01%	0.003	0.01
Dryer	48.4	Methanol	0.01%	0.003	0.01
Soap Cedepal GFA-02	81.4	VOC	0.02%	0.02	0.07
Wet Chop Glass Fibers	--	N/A	--	--	--
Clintose Brand Dextrose	--	N/A	--	--	--
Board Dryer Total VOC				**0.020**	**0.086**
Board Dryer Total Methanol				**0.003**	**0.015**
Dunnage Machine					
Gypsum Adhesive Caraustar V2 - Dunnage		VOC	0.01%	0.001	0.005
Machine	15.4	Methanol	0.01%	0.001	0.005
Dunnage Total VOC				**0.001**	**0.005**
Dunnage Total Methanol				**0.001**	**0.005**

1. Usage rates updated to reflect updated maximums.
2. All emissions are assumed to be emitted during the drying process from the Board Dryer stack serving zones 1 and 2.

Emissions Calculations:

$$\textit{Hourly Emissions}$$

$$\frac{lbs}{hr}_{material} \; x \; \% = \frac{lbs}{hr}_{pollutant}$$

$$\textit{Annual Emissions}$$

$$\frac{lbs}{hr}_{pollutant} \; x \; \frac{8760 \; hr}{yr} \; x \; \frac{ton}{2000 \; lbs} = \frac{tons}{yr}$$

Table 20. Calculation of Fugitive VOC Emissions from Inks
CertainTeed Gypsum, Moundsville, WV

Ink Type	Maximum Usage Rate[1] (lbs/hr)	Pollutant	VOC Content (percent)	Potential Emissions[2] (lbs/hr)	(tpy)
TSO-1 Black Ink	3	VOC	90%	2.70	11.83

1. Usage rates updated to reflect updated maximums.
2. All emissions are assumed to be emitted as fugitives at the time the ink is applied.

Emissions Calculations

Hourly Emissions

$$\frac{\text{lbs}}{\text{hr}_{\text{material}}} \times \% = \frac{\text{lbs}}{\text{hr}_{\text{pollutant}}}$$

Annual Emissions

$$\frac{\text{lbs}}{\text{hr}_{\text{pollutant}}} \times \frac{8760\,\text{hr}}{\text{yr}} \times \frac{\text{ton}}{2000\,\text{lbs}} = \frac{\text{tons}}{\text{yr}}$$

Table 21. Emissions from Stationary Engines
CertainTeed Gypsum, Moundsville, WV

Stationary Engine	Engine Rating (hp)[1]	Hours of Operation (hrs/year)[2]
Lift Station Generator 1 (Office)	37	100
Lift Station Generator 2 (South)	27	100
Lift Station Generator 3 (North)	27	100
Fire Pump	252	100

Emission Factors for Stationary Engines[3]:		
Pollutant	**Lift Station Engines (lb/hp-hr)**	**Fire Pump (lb/hp-hr)**
NO_X	0.0044	0.0164
CO	0.0029	0.0019
SO_X	0.0021	0.0021
PM	0.0013	0.0004
VOC[4]	0.0001	0.0006
GHG:		
CO_2	1.15	1.15

Control Efficiency:	0.00%

Potential Emissions:

Engine	NO_X	CO	SO_X	PM	VOC	CO_2
	(tpy)					
Lift Station Generator 1 (Office)	0.008	0.005	0.004	0.002	0.000	2.128
Lift Station Generator 2 (South)	0.006	0.004	0.003	0.002	0.000	1.553
Lift Station Generator 3 (North)	0.006	0.004	0.003	0.002	0.000	1.553
Fire Pump	0.206	0.024	0.026	0.005	0.008	14.490
Total Stationary Engine	**0.227**	**0.037**	**0.035**	**0.011**	**0.008**	**19.723**

Notes:

1. Based on information provided by client via email.

2. Three lift station generators aand fire pump can potentially operate for 100 hrs/year; based on 40 CFR 60 §60.4211(f)(2) - emergency stationary ICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section may be operated for a maximum of 100 hours per calendar year.

3. Based on emission factors provided in emergency generator specifications and emissions data; except for SO_X and CO_2 emissions factors are obtained from Diesel Industrial IC Engines, AP-42, Chapter 3.3.

4. All hydrocarbon (HC) emissions are assumed to be VOC emissions.

Table 22. HAP Emissions from Stationary Engines
CertainTeed Gypsum, Moundsville, WV

Stationary Engine	Engine Rating (hp)[1]	Hours of Operation (hrs/year)[2]
Lift Station Generator 1 (Office)	37	100
Lift Station Generator 2 (South)	27	100
Lift Station Generator 3 (North)	27	100
Fire Pump	252	100

Control Efficiency:	0.00%

Potential HAP Emissions

Pollutant	Emission Unit		Lift Station Generator 1 (Office)	Lift Station Generator 2 (South)	Lift Station Generator 3 (North)	Fire Pump	Total
	(lb/MMBtu)[3]	(lb/hp-hr)[4]	(tpy)				
Benzene	9.33E-04	6.53E-06	1.21E-05	8.82E-06	8.82E-06	8.23E-05	1.12E-04
Toluene	4.09E-04	2.86E-06	5.30E-06	3.87E-06	3.87E-06	3.61E-05	4.91E-05
Xylene	2.85E-04	2.00E-06	3.69E-06	2.69E-06	2.69E-06	2.51E-05	3.42E-05
Propylene	2.58E-03	1.81E-05	3.34E-05	2.44E-05	2.44E-05	2.28E-04	3.10E-04
1,3-Butadiene	3.91E-05	2.74E-07	5.06E-07	3.69E-07	3.69E-07	3.45E-06	4.69E-06
Formaldehyde	1.18E-03	8.26E-06	1.53E-05	1.12E-05	1.12E-05	1.04E-04	1.42E-04
Acetaldehyde	7.67E-04	5.37E-06	9.93E-06	7.25E-06	7.25E-06	6.76E-05	9.21E-05
Acrolein	9.25E-05	6.48E-07	1.20E-06	8.74E-07	8.74E-07	8.16E-06	1.11E-05
Naphthalene	8.48E-05	5.94E-07	1.10E-06	8.01E-07	8.01E-07	7.48E-06	1.02E-05
Acenaphthylene	5.06E-06	3.54E-08	6.55E-08	4.78E-08	4.78E-08	4.46E-07	6.07E-07
Acenaphthene	1.42E-06	9.94E-09	1.84E-08	1.34E-08	1.34E-08	1.25E-07	1.70E-07
Fluorene	2.92E-05	2.04E-07	3.78E-07	2.76E-07	2.76E-07	2.58E-06	3.51E-06
Phenanthrene	2.94E-05	2.06E-07	3.81E-07	2.78E-07	2.78E-07	2.59E-06	3.53E-06
Anthracene	1.87E-06	1.31E-08	2.42E-08	1.77E-08	1.77E-08	1.65E-07	2.24E-07
Fluoranthene	7.61E-06	5.33E-08	9.85E-08	7.19E-08	7.19E-08	6.71E-07	9.14E-07
Pyrene	4.78E-06	3.35E-08	6.19E-08	4.52E-08	4.52E-08	4.22E-07	5.74E-07
Benzo(a)anthracene	1.68E-06	1.18E-08	2.18E-08	1.59E-08	1.59E-08	1.48E-07	2.02E-07
Chrysene	3.53E-07	2.47E-09	4.57E-09	3.34E-09	3.34E-09	3.11E-08	4.24E-08
Benzo(b)fluoranthene	9.91E-08	6.94E-10	1.28E-09	9.36E-10	9.36E-10	8.74E-09	1.19E-08
Benzo(k)fluoranthene	1.55E-07	1.09E-09	2.01E-09	1.46E-09	1.46E-09	1.37E-08	1.86E-08
Benzo(a)pyrene	1.88E-07	1.32E-09	2.43E-09	1.78E-09	1.78E-09	1.66E-08	2.26E-08
Indeno(1,2,3-cd)pyrene	3.75E-07	2.63E-09	4.86E-09	3.54E-09	3.54E-09	3.31E-08	4.50E-08
Dibenz(a,h)anthracene	5.83E-07	4.08E-09	7.55E-09	5.51E-09	5.51E-09	5.14E-08	7.00E-08
Benzo(g,h,i)perylene	4.89E-07	3.42E-09	6.33E-09	4.62E-09	4.62E-09	4.31E-08	5.87E-08
Total HAP			**8.36E-05**	**6.10E-05**	**6.10E-05**	**5.69E-04**	**7.75E-04**

Notes:

1. Based on information provided by client via email.

2. Three lift station generators aand fire pump can potentially operate for 100 hrs/year; based on 40 CFR 60 §60.4211(f)(2) - emergency stationary ICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section may be operated for a maximum of 100 hours per calendar year.

3. HAP emission factors obtained from Diesel Industrial IC Engines, AP-42, Chapter 3.3.

4. Based on information in AP-42, Chapter 3.3. When necessary, an average brake-specific fuel consumption (BSFC) of 7,000 Btu/hp-hr was used to convert from lb/MMBtu to lb/hp-hr.