west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-2656D
Plant ID No.:	051-00113
Applicant:	CertainTeed Gypsum WV, Inc.
Facility Name:	Moundsville Facility
Location:	Marshall County
NAICS Code:	327420
Application Type:	Modification
Received Date:	October 29, 2012
Engineer Assigned:	Steven R. Pursley, PE
Fee Amount:	$2,000.00
Date Received:	October 31, 2012
Complete Date:	March 20, 2013
Due Date:	June 18, 2013
Applicant Ad Date:	October 30, 2012
Newspaper:	*Moundsville Daily Echo*
UTM's:	Easting: 516 km Northing: 4408 km Zone: 17
Description:	Installation of new silos, feeders, and a paper roll stand. Additionally, the applicant is proposing to process recycled material in Kettles K10 and K20. **With this application, the facility is becoming a PSD major source of CO.**

DESCRIPTION OF PROCESS

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 then dried, cut and stacked for delivery.

As part of this project, CertainTeed will be adding 2 new storage silos, 2 feeder bins,

and a paper roll stand. Additionally, CertainTeed has implemented a change to allow for the processing of recycled product in Kettles K10 and K20. Recent stacktesting performed by the company revealed that processing the recycled product increases CO emissions.

SITE INSPECTION

A site inspection of the facility was performed by the writer on November 19, 2009. The facility is located on the eastern side of Route 2 approximately five miles south of Moundsville along Fish Creek adjacent to the McElroy Coal Company's preparation plant and near AEP's Mitchell and Kammer Power Plants. There are numerous private residences near the facility along with an Ohio River public access area.

The most recent inspection of the facility was performed on September 6, 2012, by Steven Sobutka of the DAQs Northern Panhandle Regional Office. The facility was found to be out of compliance because of a failed CO stack test. This application was submitted, in part, to address that issue.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions from the current facility (taken directly from permit R13-2656C) are as follows:

Source	$PM_{2.5}$		PM_{10}[3]		NO_x		CO		SO_2		VOC		HAPs[4]	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EU02	0.99	4.32	1.97	8.63	--	--	--	--	--	--	--	--	--	--
EU03	0.3	1.31	0.60	2.63	--	--	--	--	--	--	--	--	--	--
EU05	6.0	26.3	6.0	26.3	2.29	10.1	2.65	11.6	0.03	0.13	0.27	1.18	0.09	0.40
EU06	0.12	0.51	0.23	1.01	--	--	--	--	--	--	--	--	--	--
EU07	0.39	1.72	0.79	3.44	--	--	--	--	--	--	--	--	--	--
EU08	0.07	0.28	0.13	0.57	--	--	--	--	--	--	--	--	--	--
EU12	3.23	14.1	3.23	14.1	6.80	29.8	6.06	26.6	0.02	0.08	0.17	0.75	0.06	0.26
EU13	3.23	14.1	3.23	14.1	6.80	29.8	6.06	26.6	0.02	0.08	0.17	0.75	0.06	0.26
EU14	0.09	0.38	0.17	0.75	--	--	--	--	--	--	--	--	--	--
EU16	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU17	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU18	0.26	1.15	0.52	2.30	--	--	--	--	--	--	--	--	--	--
EU20	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--

EU21	0.05	0.22	0.10	0.44	--	--	--	--	--	--	--	--	--	--
EU22	0.11	0.5	0.23	0.99	--	--	--	--	--	--	--	--	--	--
EU23	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU24	0.15	0.66	0.30	1.33	--	--	--	--	--	--	--	--	--	--
EU25	0.06	0.27	0.12	0.53	--	--	--	--	--	--	--	--	--	--
EU27	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU29	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU30	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU31	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU33	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU34	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU36[1]	2.15	9.4	2.15	9.4	4.65	20.4	13.9	60.8	0.07	0.3	14.3	62.5	0.22	1.0
EU36[2]	1.49	6.5	1.49	6.5	3.01	13.2	10.4	45.4	0.02	0.1	0.18	0.8	0.05	0.2
EU37	0.02	0.07	0.02	0.07	0.18	0.76	0.08	0.33	0.01	0.01	0.01	0.05	0.01	0.02
EU40	0.55	2.4	3.41	14.9	--	--	--	--	--	--	--	--	--	--
EU42	--	--	--	--	--	--	--	--	--	--	0.01	0.01	--	--
EU43	--	--	--	--	--	--	--	--	--	--	0.01	0.01	--	--
EU44	0.01	0.04	0.02	0.08	--	--	--	--	--	--	--	--	--	--
EU45	0.01	0.04	0.02	0.08	--	--	--	--	--	--	--	--	--	--
EU46	0.01	0.04	0.02	0.08	–	--	--	--	--	--	--	--	--	--
EU47	0.01	0.04	0.02	0.08	--	--	--	--	--	--	--	--	--	--
EU48	0.01	0.04	0.02	0.08	--	--	--	--	--	--	--	--	--	--
EU49	--	--	--	--	--	--	--	--	--	--	3.0	13.0	--	--
additives	--	--	--	--	--	--	--	--	--	--	--	--	--	22.6
Total	**19.61**	**85.49**	**25.29**	**110.59**	**23.73**	**104.06**	**39.15**	**171.33**	**0.17**	**0.70**	**18.12**	**79.05**	**0.49**	**24.74**

[1]Zones 1 and 2
[2]Zone 3
[3]All PM_{10} emission limits are also total PM limits except for emissions from EU40.
[4]From combustion of natural gas only (excludes HAP emissions from additive, inks and foaming agents)

With this application, emissions from EU12, EU13 (CO) and EU36(Zone 3) (PM) will change. Additionally, new units EU50-53 will emit PM.

The new CO emissions from EU12 and EU13 are based on stack testing performed at the facility in March of 2012. The testing was performed while operating at a 3.5% recycle rate and compared to testing performed at the facility in August of 2008 with no

recycle. The results were then extrapolated to 7.7% recycle.

The new $PM/PM_{10}/PM_{2.5}$ emission rate from EU36 2011 stack testing for "Moisture Resistant" board. Annual emissions from EU36 (Zone 3) will now be based on 594 hours per year processing moisture resistant board and 8,166 hours per year processing regular board.

$PM/PM_{10}/PM_{2.5}$ emission rates from the new equipment (EU50-53) are based on grain loading and design flow rates from the associated baghouses.

Source	$PM_{2.5}$		PM_{10}[3]		NO_x		CO		SO_2		VOC		HAPs[4]	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EU02	0.99	4.32	1.97	8.63	--	--	--	--	--	--	--	--	--	--
EU03	0.3	1.31	0.60	2.63	--	--	--	--	--	--	--	--	--	--
EU05	6.0	26.3	6.0	26.3	2.29	10.1	2.65	11.6	0.03	0.13	0.27	1.18	0.09	0.40
EU06	0.12	0.51	0.23	1.01	--	--	--	--	--	--	--	--	--	--
EU07	0.39	1.72	0.79	3.44	--	--	--	--	--	--	--	--	--	--
EU08	0.07	0.28	0.13	0.57	--	--	--	--	--	--	--	--	--	--
EU12	3.23	14.1	3.23	14.1	6.80	29.8	25.62	112.22	0.02	0.08	0.17	0.75	0.06	0.26
EU13	3.23	14.1	3.23	14.1	6.80	29.8	25.62	112.22	0.02	0.08	0.17	0.75	0.06	0.26
EU14	0.09	0.38	0.17	0.75	--	--	--	--	--	--	--	--	--	--
EU16	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU17	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU18	0.26	1.15	0.52	2.30	--	--	--	--	--	--	--	--	--	--
EU20	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU21	0.05	0.22	0.10	0.44	--	--	--	--	--	--	--	--	--	--
EU22	0.11	0.5	0.23	0.99	--	--	--	--	--	--	--	--	--	--
EU23	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU24	0.15	0.66	0.30	1.33	--	--	--	--	--	--	--	--	--	--
EU25	0.06	0.27	0.12	0.53	--	--	--	--	--	--	--	--	--	--
EU27	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU29	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU30	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU31	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--

EU33	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU34	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU36[1]	2.15	9.4	2.15	9.4	4.65	20.4	13.9	60.8	0.07	0.3	14.3	62.5	0.22	1.0
EU36[2]	32.03	19.32	32.03	19.32	3.01	13.2	10.4	45.4	0.02	0.1	0.18	0.8	0.05	0.2
EU37	0.02	0.07	0.02	0.07	0.18	0.76	0.08	0.33	0.01	0.01	0.01	0.05	0.01	0.02
EU40	0.55	2.4	3.41	14.9	--	--	--	--	--	--	--	--	--	--
EU42	--	--	--	--	--	--	--	--	--	--	0.01	0.01	--	--
EU43	--	--	--	--	--	--	--	--	--	--	0.01	0.01	--	--
EU44	0.01	0.04	0.02	0.08	--	--	--	--	--	--	--	--	--	--
EU45	0.01	0.04	0.02	0.08	--	--	--	--	--	--	--	--	--	--
EU46	0.01	0.04	0.02	0.08	–	--	--	--	--	--	--	--	--	--
EU47	0.01	0.04	0.02	0.08	--	--	--	--	--	--	--	--	--	--
EU48	0.01	0.04	0.02	0.08	--	--	--	--	--	--	--	--	--	--
EU49	--	--	--	--	--	--	--	--	--	--	3.0	13.0	--	--
additives	--	--	--	--	--	--	--	--	--	--	--	--	--	22.6
EU50	0.06	0.27	0.12	0.53	--	--	--	--	--	--	--	--	--	--
EU51	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
EU52	0.06	0.27	0.12	0.53	--	--	--	--	--	--	--	--	--	--
EU53	0.03	0.11	0.05	0.22	--	--	--	--	--	--	--	--	--	--
Total	**50.33**	**99.07**	**56.17**	**124.91**	**23.73**	**104.06**	**78.27**	**342.57**	**0.17**	**0.70**	**18.12**	**79.05**	**0.49**	**24.74**

[1]Zones 1 and 2

[2]Zone 3. Hourly emissions based on processing Moisture Resistant board. Annual emissions based on 594 hours per year processing MR board and 8,166 hours per year processing regular board.

[3]All PM_{10} emission limits are also total PM limits except for emissions from EU40.

[4]From combustion of natural gas only (excludes HAP emissions from additive, inks and foaming agents)

Note that the facility is now a major source of CO.

Therefore, the change in PTE from the facility will be as follows.

	$PM_{2.5}$		PM_{10}[3]		NO_x		CO		SO_2		VOC		HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Change	30.72	13.58	30.88	14.32	--	--	39.12	171.24	--	--	--	--	--	--

REGULATORY APPLICABILITY

The facility is subject to the following state and federal rules:

STATE RULES

45CSR7: To Prevent and Control Particulate Matter Air Pollution From Manufacturing Processes and Associated Operations.

Pursuant to 45CSR7, Section 3.1, no person shall cause, suffer, allow, or permit emissions of smoke and/or particulate matter into the open air from any process source operation greater than twenty (20) percent opacity, except as noted in subsections 3.2, 3.3, 3.4, 3.5, 3.6, and 3.7. Proper maintenance and operation of the baghouses and enclosures (along with the use of only natural gas in the combustion units) should keep the opacity of the units far below 20%.

Pursuant to 45CSR7 Section 4.1, no person shall cause, suffer, allow, or permit particulate matter to be vented into the open air from any type source operation or duplicate source operation, or from all air pollution control equipment installed on any type source operation or duplicate source operation in excess of the quantity specified under the appropriate source operation type in Table 45-7A. Since NSPS requirements for the applicable sources are more stringent than rule 7, compliance with the federal requirements ensures compliance with 45CSR7.

Pursuant to 45CSR7 Section 5.1**,** 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. CertainTeed will meet this requirement through a system of enclosures and baghouses.

45CSR10: To Prevent and Control Air Pollution from the Emission of Sulfur Oxides.

Since all combustion sources within the facility burn only pipeline quality natural gas, all requirements of 45CSR10 will be met.

45CSR13: Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation

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CertainTeed was required to apply for this permit modification because stack testing indicated that they exceeded the CO emission limits in the existing permit. Additionally, uncontrolled PM emissions from the new equipment would exceed 6 pounds per hour and 10 tons per year.

As required under §45-13-8.3, CertainTeed placed a Class I legal advertisement in a "newspaper of general circulation in the area where the source is . . . located." The ad ran on October 30, 2012 in *The Moundsville Daily Echo* and the affidavit of publication for this legal advertisement was submitted on November 14, 2012.

45CSR30: Requirements for Operating Permits.

The facility is an existing major Title V source with an issued Title V permit. This modification does not change that status.

40 CFR 60 Subpart OOO: Standards of Performance for Nonmetallic Mineral Processing Plants.

Subpart OOO regulates PM emissions from specific operations at Nonmetallic Mineral Processing Plants.

Because two of the new sources (storage silo EU 52 and feeder bin EU53) store vermiculite they are subject to the requirements of the rule. Pursuant to 40 CFR §60.672(f), the silo and feeder bin are exempt from stack PM concentration limits and associated performance testing because the emissions from each storage bin are controlled by separate fabric filters. The silo and bin are, however, required to meet the applicable stack opacity limit of seven (7) percent for dry control devices.

40 CFR 60 Subpart UUU: Standards of Performance for Calciners and Dryers in Mineral Industries.

Subpart UUU regulates PM emissions from calciners and dryers at mineral processing plants. The CertainTeed facility is subject to the rule because gypsum processing is included in the definition of mineral

processing plants. Kettles K-10 and K-20 are subject to Subpart UUU. However, Subpart UUU only regulates PM emissions from the Kettles. PM emissions from the Kettles will not be effected by this modification. Therefore, this project does not impact CertainTeed's compliance with Subpart UUU.

NOT APPLICABLE

45CSR14: Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration.

It should be noted that the before this modification, the facility was not an existing major source. However, with this modification, the facility is becoming a major source of CO as defined in 45CSR14.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There is no increase in the emissions of non-criteria regulated pollutants associated with this modification.

AIR QUALITY IMPACT ANALYSIS

Since the facility is not an existing major source (as defined in 45CSR14) and because the modification is not in and of itself major (again, as defined in 45CSR14) no modeling was performed.

MONITORING OF OPERATIONS

In addition to the monitoring already required by R13-2656C, the permit will require monitoring and recordkeeping of the following:

* The amount of recycled material (as a percent of total material) introduced into Kettles K10 and K20 (EU12 and EU13 respectively) on a monthly basis.

* The number of hours dryer EU36 is ran with "moisture resistant" board.

CHANGES TO PERMIT R13-2656C

The following changes were made to R13-2656C:

* The permit was put into the most recent boiler plate.

* The new equipment was added to Table 1.0.

* Table 4.1.1 was updated to reflect the new emission rates and new equipment. Additionally, the hourly PM limit for EU36 was split into a “moisture resistant” limit and a “regular” limit.

* New conditions 4.1.26 and 4.1.27 were added.

* Old condition 4.1.26 was renumbered to 4.1.28.

* New conditions 4.2.9 and 4.2.10 were added.

* Condition 4.3.1.1 was modified to require testing one of the calcining kettles at 7.7% recycle (or as close as possible). It was also modified to require testing for $PM_{2.5}$ to be performed while the dryer is processing moisture resistant board and again while the dryer is processing regular board.

RECOMMENDATION TO DIRECTOR

Information supplied in the application indicates that compliance with all applicable regulations will be achieved. Therefore it is the recommendation of the writer that permit R13-2656D for the modification of a wall board manufacturing plant at the Moundsville Plant be granted to CertainTeed Gypsum WV, Inc.

Steven R. Pursley, PE
Engineer

April 15, 2013