Marquardt, Marcie M - DNR

From: Gray, Ashley P - DNR
Sent: Wednesday, June 6, 2018 1:48 PM
To: mmeurette@mmm.com; Adam Driscoll
Cc: Wulk, Richard J - DNR; Dix, Deborah S - DNR
Subject: 3M Stack Test and Efficiency Data P31
Attachments: 20180606132448979.pdf; 20180606132407232.pdf; 20180606132358500.pdf; 20180606132234530.pdf; 20180606132228805.pdf; 20180606132206567.pdf

Adam and Mark,

Attached are data from the 1992 and 1995 stack tests that were requested to be emailed during the enforcement conference this morning. In addition, as requested, attached are the 1992 permit application sheet on the multiclone stating 93% efficiency, and an operational permit P01 application update that states actual control of the multiclone is 96.5%. This P01 application states that the new baghouse will be 99% efficient, however, the preliminary determination states that it will be 99.9% efficient. I also attached the preliminary determination for the most recent renewal which shows a value of 99% is used in the MTE/PTE calculation. The value of 99.6% mentioned today is broad language discussing all baghouses noted in general throughout the historic file review. The information attached is specific to P31. Upon reviewing the data, depending on efficiency selected, the actual uncontrolled emissions appear to range between 65 and 650#/hr.

Please let me know if you have questions.

Ashley

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Ashley Gray
Air Management Engineer – Division of Environmental Management
Wisconsin Department of Natural Resources
5301 Rib Mountain Drive
Wausau, WI 54401
Phone: (715) 355-9474
Cell: (715) 218-0471
Fax: (715) 355-5253
ashley.gray@wisconsin.gov

dnr.wi.gov

Criteria Pollutant Emissions

Pollutant	Maximum Theoretical Emissions		Potential to Emit	
	lb/hr	ton/yr	lb/hr	ton/yr
Particulate Matter	298	1,305	2.98	13.1
PM10	298	1,305	2.98	13.1
PM2.5	298	1,305	2.98	13.1

Hazardous Air Pollutant Emissions

No hazardous air pollutants are emitted from this process.

Process P31, Stack S18, Control Device C18 - Finished Granule Storage

Criteria Pollutant Emissions

Pollutant	Maximum Theoretical Emissions		Potential to Emit	
	lb/hr	ton/yr	lb/hr	ton/yr
Particulate Matter	274	1,200	2.74	12.0
PM10	274	1,200	2.74	12.0
PM2.5	274	1,200	2.74	12.0
Volatile Organic Compound	8.85E-02	3.88E-01	8.85E-02	3.88E-01

Hazardous Air Pollutant Emissions

Pollutant	CAS	Maximum Theoretical Emissions		Potential to Emit			Federal Listed HAP	State Listed HAP
		lb/hr	lb/yr	lb/hr	lb/yr	ton/yr		
Antimony and compounds, as Sb	7440-36-0	0.211	1,848	2.11E-03	18.5	9.24E-03	Yes	Yes
Arsenic	7440-38-2	4.80E-05	4.20E-01	4.80E-07	4.20E-03	2.10E-06	Yes	Yes
Cadmium and cadmium compounds, as Cd	7440-43-9	2.40E-05	2.10E-01	2.40E-07	2.10E-03	1.05E-06	Yes	Yes
Carbon Black	1333-86-4	0.343	3,005	3.43E-03	30.0	1.50E-02	No	Yes

3M Industrial Mineral Products
Wausau, Wisconsin
PACE Project No. 920825.404

PACE Incorporated
October 13, 1992
3M Lab Req. No. K2559

TABLE 11
RESULTS OF PARTICULATE LOADING DETERMINATIONS
TEST 1

Finished Granule Storage Multicone Stack

Parameter	**Run 1**	**Run 2**	**Run 3**
Date of Run	9/15/92	9/15/92	9/15/92
Time of Run	751-854	916-1018	1035-1136
Sample Duration (Min.)	60.0	60.0	60.0
Average Flue Gas Temperature (°F)	110.5	116.0	116.3
Moisture Content of Flue Gas (%v/v)	2.08	3.20	2.17
		AVE = 2.48	
Particulate Collected (Mg)*			
Wet Catch	0.6 — OK	1.4 — OK	0.1 — OK
Dry Catch	126.4 — OK	189.8 — OK	~~247.1~~ 246.9
Total	127.0 —	191.2 —	~~247.2~~ 247.0 —
Volumetric Flow Rate			
ACFM	9,060	8,800	8,800
SCFM	8,130	7,820	7,820
DSCFM	7,960	7,570	7,650
Sample Volume (Cubic Feet)			
Meter Conditions	36.96	35.69	35.62
Dry Standard	35.50	34.13	33.99
Isokinetic Variation (%)	99.2	100.2	98.8
Particulate Concentration*			
Wet Catch, GR/DSCF	0.0003	0.0006	0.0000
Dry Catch, GR/DSCF	0.055	0.086	0.112
Total, GR/DSCF — AVE = 0.085	0.055 —	0.086 —	0.112 —
Particulate Emission Rate*			
Total, LB/HR	3.77	5.61	7.36

Ave = 5.58 #/hr

*Dry catch plus organic/residual wet catch

3M Industrial Mineral Products
Wausau, Wisconsin
PACE Project No. 951023.401

Pace Analytical Services
December 11, 1995
3M Lab Req. N3467

TABLE 10
RESULTS OF PARTICULATE LOADING DETERMINATIONS
TEST 1

FGS Baghouse Stack

Parameter	**Run 1**	**Run 2**	**Run 3**
Date of Run	11/15/95	11/15/95	11/15/95
Time of Run	1610-1711	1740-1842	1906-2008
Sample Duration (Min.)	60.0	60.0	60.0
Average Flue Gas Temperature (°F)	61.5	60.8	61.1
Moisture Content of Flue Gas (%v/v)	0.86	0.86	1.20
Particulate Collected (Mg)*			
Wet Catch	2.8	2.8	4.5
Dry Catch	4.7	2.7	5.7
Total	~~7.5~~ 9.2	~~5.5~~ 7.6	~~10.2~~ 12.9
Volumetric Flow Rate			
ACFM	25000	24860	25920
SCFM	24290	24180	25200
DSCFM	24080	23970	24900
Sample Volume (Cubic Feet)			
Meter Conditions	48.62	48.84	50.18
Dry Standard	48.90	48.91	50.26
Isokinetic Variation (%)	100.0	100.5	99.5
Particulate Concentration*			
Wet Catch, GR/DSCF	0.0009	0.0009	0.0014
Dry Catch, GR/DSCF	0.0015	0.0009	0.0018
Total, GR/DSCF	0.0024	0.0017	0.0031
Particulate Emission Rate*			
Total, LB/HR	~~0.49~~ 0.60	~~0.36~~ 0.49	~~0.67~~ 0.85

*Dry catch plus organic/residual wet catch

A.R. 1/16/96

State of Wisconsin
Department of Natural Resources

CONTROL EQUIPMENT
AIR POLLUTION CONTROL PERMIT APPLICATION
Section 144.391, Wisconsin Statues
Form 4500-1C Rev. 12-86

1. Facility Name
3M, Wausau

2. This data is for control equipment #C 18 (Existing Equipment)

3. Which will exhaust through stack(s) #S 18 (Finished Granule Storage) Use # from appropriate Form 4500-1S.)

4. And will reduce emissions from source(s) (Use # from appropriate Form 4500-1B, 1D, 1P or 1T.)

#B _____ #I _____ #T _____

#D _____ #P 31

5. Type of control equipment (check appropriate item and provide the specification identified in the instructions on the back).

- [ ] Settling Chamber
- [ ] Cyclone
- [X] Multiple-Cyclone
- [ ] Filter(s)
- [ ] Electrostatic Precipitator
- [ ] Baghouse
- [ ] Scrubber (specify) _____
- [ ] Adsorption
- [ ] Condensation (specify) _____
- [ ] Incineration
- [ ] Water Wall
- [ ] Other (specify) _____

6. Attach a blueprint or diagram of this equipment.

7. Manufacturer and model number	8. Operating pressure drop range (inches w.g.)
Western Precipitation Multiclone 9VM (existing)	3
9. Maximum inlet gas flow rate (ACFM)	**10. Maximum inlet gas temperature (°F)**
7,000 ACFM	175

11. List pollutant(s) to be controlled by this equipment and the expected control efficiency for each pollutant.

Pollutant	Inlet Pollutant Concentration (gr/acf or ppm)	Hood Capture Efficiency (%) if appropriate	Efficiency (%)
Mineral Fines	0.05 - 0.1 gr / acf	NA	93 %

12. Attach sufficient documentation to verify the stated capture and control efficiency for this equipment. This may include actual design calculations or emission tests verifying the effectiveness of this equipment for this specific air pollution control application. Provide equipment performance guarantees, if available.

13. Attach a malfunction prevention and abatement plan for this control equipment.

This plan should include:

A. An identification of the individual(s), by name and title resonsible for inspecting, maintaining and repairing the air pollution control device.
B. The maximum intervals for inspection and routine maintenance.
C. A description of the items or conditions that will be inspected.
D. A listing of materials and spare parts that will be maintained in inventory.
E. An identification of the source and air pollution control equipment operation variables that will be monitored in order to detect a malfunction or failure; the correct operating range of these variables; and a description of the method of monitoring or surveillance procedure or a reference to specific pages containing this information in manuals or other documents kept by the owner or operator.

14. Discuss how collected effluent will behandled for reuse or disposal.
Collected mineral fines are transported by closed truck to the 3M Greystone Quarry, where they are placed for disposal an land reclamation

SEE INSTRUCTIONS ON REVERSE SIDE