



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604**

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
3M Co Greystone Plant, Wausau, Wisconsin

FROM: Laura Neudorf, Environmental Engineer
AECAB (MI/WI)

THRU: Sarah Marshall, Section Supervisor
AECAB (MI/WI)

TO: File

BASIC INFORMATION

Facility Name: 3M Co Greystone Plant (3M Greystone)

Facility Location: 410 Decatur Drive, Wausau, Wisconsin 54401

Date of Inspection: March 15, 2023

EPA Inspector(s):

1. Laura Neudorf, Environmental Engineer
2. Erin DuMontelle, Environmental Engineer

Other Attendees:

1. Mark Meurette, EHS Engineer
2. Shelley Koehn, Senior Environmental Engineer
3. Mario Diaz, Plant Director
4. Joe Baregi, EHS Manager
5. Luis Sanchez, Continuous Improvement Lead
6. Eddy Rentmeester, Process Engineer

Contact Email Address: Mark Meurette – mmeurette@mmm.com

Purpose of Inspection: To assess compliance with the Clean Air Act and the facility's current air operation permit

Facility Type: Non-metallic mineral processing facility

Facility Name: 3M Co Greystone Plant
Facility Location: 410 Decator Drive, Wausau, WI 54401
Date of Inspection: March 15, 2023

Regulations Central to Inspection: Active air operating permit; Standards of Performance for Nonmetallic Mineral Processing Plants at 40 C.F.R. Part 60, Subpart OOO; and National Emission Standards for Hazardous Air Pollutants for Gasoline Dispensing Facilities at 40 C.F.R. Part 63, Subpart CCCCCC

Arrival Time: 8:30 AM CST, left facility from approximately 12:15 PM to 1:00 PM
Departure Time: 4:30 PM CST

Inspection Type:

- ☐ Unannounced Inspection
- ☒ Announced Inspection

OPENING CONFERENCE

- ☒ Presented Credentials
- ☒ Stated authority and purpose of inspection
- ☐ Provided Small Business Resource Information Sheet
- ☒ Small Business Resource Information Sheet not provided. Reason: Not a small business
- ☒ Provided CBI warning to facility

The following information was obtained from facility personnel unless otherwise noted.

Process Description:

3M Greystone operates a surface mining quarry that primarily mines rhyolite, along with volcanic breccia, lahar, and greywacke. Rock is blasted from the sides of an open pit, loaded into trucks, and fed into a crusher circuit (includes the gyro, P35). A backup crusher (P42) can be used in lieu of the gyro. The gyro and backup crusher feed a crude stockpile that is conveyed to the remainder of the crusher circuit. Material is then fed to a mineral separator (P33) where material crushed to a desired size is separated out. Material that is crushed smaller than the desired size (fines) drops out of the separator, and material that remains larger is sent back through the crusher circuit until it reaches the desired size. Material typically goes through several crushing and separating cycles. Once material has reached the desired size, it is sent to a natural gas-fired dryer for moisture removal (P32), a roll crusher that grinds the material to a smaller size (P30), and a screening building that separates additional fines from the product (P34). A legacy roll crusher is used in lieu of the newer roll crusher approximately 10 to 15% of the time. The final product is held in a holding bin before it is shipped on trucks to 3M's downtown Wausau facility for further processing. Fines from the process are collected and hauled to the pugmill on facility property. Pugmills add water to fines before they are planted in an on-site landfill (F05).

Twelve baghouses control the process points listed in Table 1 below. A continuous opacity monitoring system (COMS) monitors opacity from stack S14.

Facility Name: 3M Co Greystone Plant
Facility Location: 410 Decator Drive, Wausau, WI 54401
Date of Inspection: March 15, 2023

Staff Interview: 3M Greystone operates 24 hours Monday through Friday and 16 hours on Saturday and Sunday (two 8-hour shifts from 6 AM to 10 PM). The facility has approximately 175 employees. Approximately 12 employees on-site are certified to perform Method 9. Baghouse pressure drops are continuously monitored and recorded once per shift. If any of the baghouse pressure drops are outside their setpoint range, alarms sound and an interlocking system shuts down both the baghouse and the associated process the baghouse is controlling. Magnehelic pressure drop gauges are calibrated twice per year. New hire training and annual training for employees consists of a combination of online training and on-the-job training.

The facility refers to the baghouses listed in their permit as follows:

Table 1: Baghouse Nomenclature and Associated Process Units

Baghouse Permit ID	Baghouse Facility ID	Associated Process Unit(s)
C10	1	P35
C12	7	P33
C13	2	P30, P31
C14	3	P32
C15	5	P36
C16	6	P37
C17	8	P38
C18	14	P34, P40
C19	15	P42
C20	16	P43
C21	17	P44
C22	9	P33, P43

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:

The COMS malfunctioned between 12 PM and 1 PM, and the facility (excluding the gyro) was shut down for the remainder of the inspection. A significant amount of fugitive dust was observed from the conveyor belt fed by the gyro to crude stockpile transfer point (see Appendix B, Video 2).

The natural gas-fired boiler monthly fuel usage log between February 1, 2020 to January 1, 2023 was reviewed. The lowest monthly fuel usage observed was 0 million cubic feet, and the highest monthly fuel usage observed was 2,052.6 million cubic feet. Facility representatives stated that it is typical for the boiler to burn approximately 1,000 million cubic feet per month in the winter. The gasoline throughput records for each gasoline storage tank indicated that no months between 2020 and the present had a throughput of more than 10,000 gallons. The records reviewed for the backup crusher (P42) showed that this crusher is infrequently operated. Baghouse C20 was

Facility Name: 3M Co Greystone Plant
Facility Location: 410 Decator Drive, Wausau, WI 54401
Date of Inspection: March 15, 2023

observed to operate at a pressure drop as high as 7.0 to 7.6 inH₂O. The Malfunction, Prevention, and Abatement Plan was reviewed, and F04 was not included.

Technical drawings showing the height of each stack above ground level were reviewed and show the following:

Table 2: Stack Heights Above Ground Level

Stack Permit ID	Height
S10	15 feet
S12	50 feet, 1 inch
S13	52 feet, 1 inch
S14	52 feet, 1 inch
S15	54 feet
S16	71 feet
S17	50 feet, 10 inches
S18	150 feet
S19	20 feet, 6 inches
S20	33 feet
S21	33 feet

The height of stack S11 above ground level was not reviewed.

Photos and/or Videos: were taken during the inspection.

Field Measurements: were not taken during this inspection.

RECORDS REVIEW

1. Monthly baghouse inspection log including the date and initials of the inspector and a list of items inspected for the following permitted emission units:
 - P35 (March 2021, April 2021, July 2021, October 2021)
 - P30/P31 (March 2021, October 2021)
 - P42 (March 2021, October 2021)
 - P43 (March 2021, October 2021)
 - P33 (March 2021, April 2021, July 2021, October 2021)
 - P36 (March 2021, October 2021)
 - P37 (March 2021, October 2021)
 - P34/P40 (March 2021, October 2021)
 - P44 (October 2021)
 - P32 (March 2021, April 2021, July 2021, October 2021)
 - P38 (March 2021, April 2021, July 2021, October 2021)
2. Daily qualitative Method 22 visible emission observations for the following permitted emission units:
 - P35 (March 2021, April 2021, July 2021, October 2021, March 2022)

- P30/P31 (October 2021, March 2022)
 - P42 (October 2021, March 2022)
 - P43 (October 2021, March 2022)
 - P33 (March 2021, April 2021, July 2021, October 2021, March 2022)
 - P36 (March 2021, October 2021, March 2022)
 - P37 (March 2021, October 2021, March 2022)
 - P34/P40 (March 2021, October 2021, March 2022)
 - P44 (April 2021, July 2021, October 2021, March 2022)
3. Weekly Method 9 readings for the following permitted emission units:
- P35 (October 2021, March 2022)
 - P30/P31 (March 2022)
 - P42 (March 2022)
 - P43 (October 2021)
 - P33 (October 2021, April 2021, July 2021, March 2022)
 - P36 (October 2021, March 2022)
 - P37 (October 2021, March 2022)
 - P34/P40 (October 2021, March 2022)
 - P44 (April 2021, July 2021, October 2021)
4. Pressure drop logs for baghouses associated with the following permitted emission units:
- P30/P31 (March 2021, October 2021, March 2022)
 - P43 (March 2021, October 2021)
 - P33 (March 2021, April 2021, July 2021, March 2022)
 - P36 (March 2021, October 2021, March 2022)
 - P37 (March 2021, October 2021, March 2022)
 - P34/P40 (March 2021, March 2022)
 - P32 (March 2021, April 2021, July 2021, October 2021, March 2022)
 - P38 (March 2021, April 2021, July 2021, October 2021, March 2022)
5. Quarterly 30-minute visible emission observation records for P35 (Q3 2021 and Q1 2023) and P44 (Q3 2021)
6. Work order for annual baghouse interlock system testing (June 7, 2022)
7. Monthly log for the type and amount of fuel combusted in boiler B20 (February 1, 2020 to January 1, 2023)
8. Water flowrate into each pugmill (March 2021, October 2021)
9. Gasoline throughput records for each gasoline storage tank (2012 to present)
10. Monthly dryer fuel usage log
11. Downtime records (spot checked)
12. Process historian (spot checked from 2021 to the present)
13. Current Malfunction, Prevention, and Abatement Plan (updated June 2022)
14. Current fugitive dust control plan
15. Technical drawings or blueprints that show the height of stacks S10, S12, S13, S14, S15, S16, S17, S18, S19, S20, and S21 above ground level
16. Performance test using Methods 1 through 5 on stacks S10, S13, S14, S15, S16, and S22 (1993)

CLOSING CONFERENCE

☒ Provided U.S. EPA point of contact to the facility

Requested documents:

- Current air operating permit.
- All air permit applications submitted to WI DNR in the last 5 years.
- Initial performance test(s) for PM emissions and fugitive dust emissions from P30/31, P35, P33, P36, P37, P34/40, P42, P43, and P44 with their associated control device(s).
- Initial performance test for fugitive dust emissions from F06.
- Any subsequent performance tests for PM from P35, P42, P43, P44, and F06, and dates of the next test(s), if planned.
- Pressure drop logs for baghouses C20 and C21 for the past 6 months.
- Quarterly 30-min Method 22 observations for P35, P42, P43, and P44 for the last 3 years.
- Records of all startups, shutdowns, and malfunctions for P32, P33, P34-40, P42, P43, and P44 and their associated baghouses for the last 3 years.
- Work orders associated with the repair of any baghouse that correlates with baghouse downtime in the last 3 years.
- Annual interlock and system testing records for all system interlocks and protective devices on baghouse C19, C20, and C21 for the last 3 years.
- COMS system data records for the last 3 years.
- COMS downtime log for the last 3 years.
- Work orders associated with the repair of the COMS system that correlates with COMS downtime in the last 3 years.
- Quarterly excess emission reports from COMS readings for the last 3 years.
- Calibration records for the COMS for the last 3 years.
- Calibration records for the water flowrate monitoring device on the north and south pugmills for the last 3 years.
- Calibration records for the pressure drop gauges on the baghouses associated with P30/31, P32, P33, P35, P36, P37, P38, P34/40, P42, P43, and P44 for the last 3 years.
- Daily records of the number of loads applied by the water truck that services haul roads, stockpiles, and the landfill for the last 3 years.
- Daily records of the precipitation amount for May through October of the last 3 years.
- Safety data sheet for the dust suppressant applied to quarry haul roads with the water truck.
- Monthly records of the amount of chemical stabilizer used as a dust suppressant for processes F01-03 and F05-06 for the last 3 years.
- Pictures of each speed limit sign on all unpaved haul roads. For each sign, state whether it is posted on a landfill haul road or a quarry haul road.
- A statement of whether all trucks hauling minerals or fines are equipped with tarps prior to exiting the facility.
- Semi-annual monitoring reports submitted to WI DNR for the last 3 years.
- Annual certifications of compliance with permit requirements submitted to WI DNR for the last 3 years.
- COMS QA/QC plan.

Facility Name: 3M Co Greystone Plant
Facility Location: 410 Decator Drive, Wausau, WI 54401
Date of Inspection: March 15, 2023

- Current malfunction, prevention, and abatement plan.
- All prior versions of the malfunction, prevention, and abatement plan used in the last 3 years and the date range each version was used.
- Current fugitive dust plan.
- All prior versions of the fugitive dust plan used in the last 3 years and the date range each version was used.
- Current Compliance Assurance Monitoring (CAM) plan.
- All prior versions of the CAM plan used in the last 3 years and the date range each version was used.
- Technical drawing or blueprint showing the height above ground of stack S11 (connected to the natural gas boiler, B20).
- Technical drawing or blueprint showing whether each stack (S10-21) is equipped with a rainhat or another device that impedes the upward flow of exhaust gas.
- Emission inventory submittals to WI DNR for the last 3 years.
- Calculation methodology for each pollutant included in the emission inventory submittals.

DIGITAL SIGNATURES

Report Author: Laura Neudorf
Digitally signed by Laura Neudorf
Date: 2023.04.12 09:31:57 -05'00'

Section Supervisor: SARAH MARSHALL
Digitally signed by SARAH MARSHALL
Date: 2023.04.14 10:56:42 -05'00'

Facility Name: 3M Co Greystone Plant
Facility Location: 410 Decator Drive, Wausau, WI 54401
Date of Inspection: March 15, 2023

APPENDICES AND ATTACHMENTS

1. Confidential Business Information Attachment
2. Appendix A: Digital Image Log
3. Appendix B: Digital Video Log

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Facility Location: 410 Decator Drive, Wausau, WI 54401

Date of Inspection: March 15, 2023

CONFIDENTIAL BUSINESS INFORMATION ATTACHMENT

Facility Name: 3M Co Greystone Plant

Facility Location: 410 Decator Drive, Wausau, WI 54401

Date of Inspection: March 15, 2023

RECORDS REVIEW

1. Process flow diagrams for the wet process and dry process (paper copy obtained)
2. Facility map (paper copy obtained)

APPENDIX A: DIGITAL IMAGE LOG

1. Inspector Name: Laura Neudorf	2. Archival Record Location: R5 Electronic Records Center
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Image Number	File Name	Date and Time (CST)	Description of Image
1	IMG_0406.JPG	3/15/23 3:01 PM	Records organization
2	IMG_0408.JPG	3/15/23 3:22 PM	Gyro baghouse pressure drop
3	IMG_0410.JPG	3/15/23 3:48 PM	Baghouse 7 pickup points
4	IMG_0411.JPG	3/15/23 3:49 PM	Baghouse 7 loadout pickup points
5	IMG_0412.JPG	3/15/23 3:51 PM	Baghouse 16 ductwork
6	IMG_0413.JPG	3/15/23 3:52 PM	Baghouse 17 ductwork and stack
7	IMG_0414.JPG	3/15/23 3:53 PM	Baghouse 9 ductwork and stack
8	IMG_0415.JPG	3/15/23 3:55 PM	Baghouse 3 stack equipped with COMS (red)
9	IMG_0416.JPG	3/15/23 3:58 PM	Beneath collection bin for baghouse 3
10	IMG_0417.JPG	3/15/23 4:00 PM	Conveyor 13B and baghouse 3 pickup
11	IMG_0418.JPG	3/15/23 4:04 PM	Baghouse 14 and stack
12	IMG_0419.JPG	3/15/23 4:04 PM	Baghouse 2 and stack
13	IMG_0420.JPG	3/15/23 4:07 PM	Baghouse 6
14	IMG_0421.JPG	3/15/23 4:07 PM	Baghouse 5

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Date of Inspection: March 15, 2023

APPENDIX B: DIGITAL VIDEO LOG

1. Inspector Name: Laura Neudorf	2. Archival Record Location: R5 Electronic Records Center
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Video Number	File Name	Date and Time (CST)	Description of Video
1	MVI_0407.MP4	3/15/23 3:10 PM	Loading of rock in quarry
2	MVI_0409.MP4	3/15/23 3:27 PM	Conveyor belt from Gyro feeding into the crude stockpile