



REGION 5

CHICAGO, IL 60604

MEMORANDUM

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Afton Chemical Corp, Sauget, IL

FROM: Karyn DeFranco
AECAB (MN/OH)

THRU: Brian Dickens, Section Supervisor
AECAB (MN/OH)

TO: File

BASIC INFORMATION

Facility Name: Afton Chemical Corp

Facility Location: 501 Monsanto Ave. Sauget, IL 62206

Date of Inspection: November 1, 2023

EPA Inspector(s):

1. Karyn DeFranco, Physical Scientist
2. Tess Russell, Environmental Engineer

Other Attendees:

1. Edward Cox, Sr. EHS Manager, Afton Chemical Corp
2. Dana Neely, Sr. EHS Specialist, Afton Chemical Corp
3. Lauren Clark, Unit Production Engineer, Afton Chemical Corp
4. Todd Gill, Unit 270b Production Engineer, Afton Chemical Corp

Contact Email Address: ed.cox@aftonchemical.com and dana.neely@aftonchemical.com

Purpose of Inspection: To investigate Unit 258, Unit 270, Unit 290, and wastewater compliance with applicable VOC and HAP emission limits.

Facility Type: Chemical manufacturing facility

Date of Inspection: November 1, 2023

Regulations Central to Inspection: The CAAPP permit including, but not limited to: Condition 5.5.2; Condition 5.5.3; Condition 7.1.3; Condition 7.1.9; and Condition 7.15.5. The Illinois SIP including, but not limited to: 35 IAC Part 219 Subpart V ; 35 IAC Part 202; 35 IAC Part 203; and 35 IAC Part 214. The National Emission Standards for Organic Hazardous Air Pollutants (NESHAP) from Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater (Part 63, Subpart G) including, but not limited to, § 63.132(a).

Arrival Time: 2:30 pm

Departure Time: 6:35 pm

Inspection Type:

- ☒ Unannounced Inspection
- ☐ Announced Inspection

OPENING CONFERENCE

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

The following information was obtained verbally from Afton Chemical Corp unless otherwise noted.

Process Description:

Afton Chemical Corp (Afton) is a chemical manufacturing facility, with approximately 330 employees, that produces a range of lubricant additive products for use in the gasoline and diesel engine-powered vehicle industry at the Sauget, IL facility (the Facility). The chemicals that Afton processes at the Facility include, but are not limited to, methanol, n-hexane, benzene, and olefin.

Unit 258. Unit 258 has two main processes: the Unit 258 alkylbenzene (AB) process and the Unit 258 alkylbenzene sulfonic acid (ABSA) process. The Unit 258 AB process uses benzene, olefin, and aluminum chloride catalyst in batch reactors to make alkylbenzene. The Unit 258 ABSA process uses the alkylbenzene to make ABSA. Unit 258 consists of: batch reactor trains condensers, a wet scrubber and a flare; drum washing station, controlled by a venturi scrubber; sulfonator, controlled by a wet scrubber and an electrostatic precipitator; ABSA receiver tank; neutralizer and still, controlled by condensers; and filter aid weigh bins, controlled by a baghouse.

Unit 270. Unit 270 has two main processes: Unit 270A process and Unit 270B process. Unit 270A makes detergents and Unit 270B makes specialty materials. The Unit 270 process as a whole uses the product created in Unit 258 (ABSA) and other raw materials to make various lubricating oil products or intermediates including calcium sulfonates, barium sulfonates, and antioxidants. Unit 270 consists of: batch reactor trains, condensers, scrubbers, and flare; storage tanks, controlled by condensers; and silos and weigh bins, controlled by a baghouse. A solvent separator helps recover and allow for the

reuse of solvents. Solvent tanks have vents which are controlled by a condenser, flare knock-out pot, and flare.

Unit 290. The Unit 290 process uses caustic, peroxide, mercaptan, carbon disulfide (CS₂), and hydrazine to make a “sodium DMDT” (or a copper corrosion inhibitor). Unit 290 consists of: tanks; batch reactor trains, controlled by condensers, scrubbers and a flare; and carbon disulfide tank, controlled by the CS₂ recovery system and a flare.

Wastewater. Multiple processes at the Facility generate wastewater, including but not limited to: cooling tower blow down; Unit 258; Unit 270; and Unit 290. Wastewater from Unit 258 is treated so that benzene can be recovered and reused. Unit 258 has a wastewater benzene storage tank less than 40,000 gallons in capacity equipped with a benzene recovery system. The Facility operates one wastewater hold tank for Unit 290 wastewater (emission unit 35-0300) where bleach is used to neutralize the thiadiazole wastewater and carbon drums are used for odor control. The Facility stated that all other wastewater directly enters the sewer system and is discharged to a publicly owned treatment works. The Facility stated it has no Group 1 wastewater streams under Part 63, Subpart G.

Staff Interview:

- The Facility operates 24 days, seven days per week, 365 days per year;
- The Facility stated that they plan to stop one of the Unit 270B specialty product production by the end of 2023 and plan to completely stop operation of Unit 270B by the end of 2024;
- The Facility stated that Unit 258a and Unit 270a operate as closed-vent systems that route to flares;
- The Facility operates an oxidation tower (emission unit 05-8033) as part of the Unit 258 ABSA process to convert sodium sulfite to sulfate for odor control;
- The Unit 258 emission units vent to the Flare number 36-0219;
- The Unit 270 emission units vent to Flare number 36-0090;
- Facility stated that the Unit 290 product runs all the time and operates as a closed-vent system that routes to the Flare number 36-0090;

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:

At the time of the tour, Unit 258 and Unit 270 were down for scheduled maintenance and were not operating.

EPA observed the Unit 258 building from the outside and through the FLIR. EPA saw emissions through the FLIR from the Unit 258 wash oil tank (#T555). EPA observed the Unit 270 building from the outside and through the FLIR. EPA saw emissions through the FLIR from the Unit 270 building heated tank vents. Pursuant to CAAPP Conditions 5.5, 7.15.5, and 7.19.6, Afton is required to comply with source-wide production and emission limitations and additional unit-specific production and emission

limitations for Units 290 and Unit 270. EPA requested copies of internal air emissions calculations for all emission units in Unit 258, Unit 270, and Unit 290 from 2019-2022.

EPA observed the 36-0219 and 36-0090 Flares (the Flares) on the tour. Pursuant to CAAPP Condition 7.1 and 7.19 Afton is required to comply with applicable provisions and regulations for Unit 258 and Unit 270. For Unit 258 and Unit 270, these applicable provisions include, but are not limited to: reducing uncontrolled VOC emissions from single unit operations by an overall efficiency, on average of at least 90 percent, or 20 ppmv, per batch cycle. EPA requested copies of the most recent performance test, pursuant to CAAPP Conditions 7.1.5 and 7.19.5, 40 C.F.R. § 60.18, 40 C.F.R. § 63.11, and 35 IAC 219 Subpart V.

EPA observed the Unit 290 wastewater hold tank (emission unit 35-0300) on the tour with the FLIR. Pursuant to CAAPP Condition 5.2.7(b), the Facility is subject to source-wide applicable provisions and regulations which include, among other things, Subpart G regulations for wastewater streams within the affected process. EPA requested copies of the Facility's Subpart G wastewater Group 1/Group 2 determinations and supporting documents, pursuant to 40 C.F.R. § 63.132.

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

Field Measurements: were not taken during this inspection.

CLOSING CONFERENCE

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

Requested documents:

- Internal air emissions for the last three years including supporting documents and calculations for all emission units in Unit 258, Unit 270, and Unit 290;
- Process flow diagrams for Unit 258, Unit 270, and Unit 290;
- Provide the following information for any applicable materials listed below: 1) what materials Afton uses; 2) what units the materials are used in; and 3) at what quantities (lbs/year).
 - Soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials;
- Copy of the most recent performance test for each flare (pursuant to 40 C.F.R. §§ 60.18 and 63.11);
- Calorimeter and molecular weight parameter data from the Flare (emission number 36-0090) from 10/01/23-10/31/23;
- Copy of wastewater Subpart G Group 1/Group 2 determinations and supporting documents; and
- Information regarding the Building 270 tanks observed with the FLIR on inspection including: ID number; capacity; temperature; how the tanks are heated; and SDS sheets for all materials in the tanks.

Concerns: EPA noted concern over the emission plume observed with the FLIR near the Unit 270 heated tanks.

DIGITAL SIGNATURES

Report Author: **KARYN
DEFRANCO**  Digitally signed by KARYN
DEFRANCO
Date: 2023.12.27 10:53:09
-06'00'

Section Supervisor: **PATRICK
MILLER**  Digitally signed by PATRICK
MILLER
Date: 2023.12.27 11:56:58
-06'00'

Facility Name: Afton Chemical Corp
Facility Location: 501 Monsanto Ave, Sauget, IL
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APPENDICES AND ATTACHMENTS

1. Appendix A: Digital Image Log

Facility Name: Afton Chemical Corp

Facility Location: 501 Monsanto Ave, Sauget, IL

Date of Inspection: November 1, 2023

CONFIDENTIAL BUSINESS INFORMATION ATTACHMENT

Facility Name: Afton Chemical Corp

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Date of Inspection: November 1, 2023

None.

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APPENDIX A: DIGITAL IMAGE LOG

1. Inspector Name: Tess Russell	2. Archival Record Location: <i>Electronic Records Center</i>
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Image Number	File Name	Date and Time (incl. Time zone and DST)	Description of Image
1	FLIR0003.mp4	11/1/2023 16:52	Video of emissions from Unit 270 building
2	FLIR0004.mp4	11/1/2023 17:02	Video of Unit 270 building lab hood stack
3	FLIR0005.mp4	11/1/2023 17:17	Video of solvent tank roofs (methanol and hexane)
4	FLIR0006.mp4	11/1/2023 17:28	Video of Unit 270 storage tanks and T stack
5	FLIR0007.mp4	11/1/2023 17:31	Video of Unit 270 storage tanks and T stack
6	FLIR0008.mp4	11/1/2023 17:43	Video of Unit 270 storage tanks and T stack
7	FLIR0009.mp4	11/1/2023 17:51	Video of Unit 258 "wash oil" tank #T555
8	FLIR0010.mp4	11/1/2023 17:54	Video of #280 Flare