



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

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

FROM: Brittany Cobb, Environmental Engineer
AECAB (MI/WI)

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

TO: File

BASIC INFORMATION

Facility Name: Afton Chemical Corporation

Facility Location: 501 Monsanto Avenue, Sauget, IL 62201

Date of Inspection: 11/16/2021 – 11/18/2021

EPA Inspector(s):

1. Brittany Cobb, Environmental Engineer
2. Danny Nguyen, Environmental Engineer

Other Attendees:

1. Ben Caudill, Plant Manager
2. Corey Whelehon, Process Safety Program Manager
3. Tyler Wills, EHS Specialist
4. Jenniffer Villalobos, Global Process Safety Manager

Contact Email Address: Ben.Caudill@aftonchemical.com

Purpose of Inspection: RMP Level 3 Process Inspection

Facility Type: Petroleum Lubricating Oil and Grease Manufacturer

Regulations Central to Inspection: Clean Air Act Section 112(r)

Arrival Time: 11/16/2021 8:30 AM

Departure Time: 11/18/2021 4:00 PM Not a small business

- ☒ Provided CBI warning to facility

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

Process Description:

Afton Chemical Corporation (Afton or Facility) develops and manufactures lubricant components and petroleum additives, including driveline, engine oil, fuel and industrial additives. There are 13 batch production operations on site. The Facility has one regulated flammable substance (2-methylpropene, commonly referred to as isobutylene) and two regulated toxic substances (chlorine and carbon disulfide). Carbon disulfide and isobutylene are offloaded from railcars into storage tanks, there are two isobutylene storage tanks and one carbon disulfide tank. Chlorine is kept in a railcar on site. From the storage tanks or railcar, the regulated substances are routed to three covered reactors for batch production.

Staff Interview:

Afton Chemical Corporation operates 24 hours per day, 7 days per week. The Facility is located on 27 acres (plus buffer space) and has been manufacturing chemicals at this site since the 1960's. There are 335 employees, 174 employees being union, and numerous contractors (50 – 100 onsite at a time).

1. Applicability
 - a. Afton has more than the threshold quantity of three regulated substances.
 - b. The covered processes meet the eligibility requirements of Program 3.
2. Management
 - a. Afton developed a management system to oversee the implementation of OSHA-PSM elements, the facility updated the document during the inspection to include RMP elements.
3. Off-site consequence and release scenario analysis
 - a. Afton used EPA's OCA Guidance Reference Tables/Equations to determine off-site consequences of worst and alternative release scenarios. The analysis was performed over 25 years ago and reevaluated periodically. For ease of evaluation, EPA recommended updating the analysis.
4. Five-year accident history
 - a. Afton has not had an accident in the past 5 years.
5. Process Safety Information (PSI)
 - a. Afton has an SDS for both regulated substances.
 - b. Afton provided design codes and standards and piping instrumentation diagrams.
 - c. Afton did not provide materials of construction, relief system design, or ventilation system design during the inspection.
6. Process Hazard Analysis (PHA)
 - a. team Afton performed a Hazard and Operability Study (HAZOP) and addressed the required elements of the PHA.
 - b. The PHA was performed by a team with expertise in the required elements and the established a system to address the recommendations.
7. Mechanical Integrity (MI)

- a. Afton has established and implemented written procedures for maintaining on-going integrity of the process equipment.
 - b. Afton is transitioning their mechanical integrity program to an online system that autogenerates work orders for inspections and test. EPA found that certain components are not being added to the system and therefore Afton is failing to inspect them.
 - c. The pressure safety valve (280-89-PSV-0201-C) has not been inspected since 10/15/2014, two rupture disks for the carbon disulfide system are overdue, and the pressure transmitter (280-ISB-35-0113) has never been calibrated.
 - d. Afton has a rotating schedule for nondestructive testing of pipelines. The inspection schedule was missing certain pipelines in the database, for example the corroded pipeline to the seal pod was shown in their system as never being inspected.
8. Operating Procedures (SOP)
- a. Afton did not provide copies of the operating procedures the first two days of the inspection. Once they were provided, EPA noted the procedures did not match with the procedures initially seen in the manager's office on the first day of the inspection. EPA could not determine if the procedures are readily accessible to operators and are still being reviewed.
9. Training
- a. Afton trains employees initially and provides refresher trainings at least every three years. After training, employees take multiple choice tests. Up until one year ago, the Facility was not grading the tests to assure that the employees had a passing score, and to assert that they understood the training.
10. Management of Change
- a. Afton has established written procedures to manage changes in the process equipment. The procedures address the technical basis, impacts on safety and health, operating procedures, time-period, and authorization requirements.
11. Pre-startup safety review
- a. Afton performs pre-startup safety reviews when modifications are made.
12. Compliance Audits
- a. Afton performs self-audits with at least one person knowledgeable in the process and documents the findings.
13. Incident Investigation
- a. Afton provided documentation for three incidents in the past five years.
 - b. Afton did not initiate an investigation within 48 hours of the chlorine incident that occurred April 18, 2019.
14. Employee participation, hot work permit and contractors
- a. EPA reviewed documents and discussed each of these programs with Afton personnel. These programs have been developed and implemented at the Facility.
15. Emergency Response
- a. Afton has developed an emergency response program which includes procedures to inform the public, training and use of emergency response equipment.
 - b. Afton did not provide documentation of coordinating with the local emergency planning committee or documentation of necessary emergency medical treatment in their emergency response plan.

- c. Afton did not have a list of all required emergency response equipment, which is necessary to ensure you have all of the proper equipment in order to inspect, test and maintain all of it.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:

EPA toured the facility with staff, EPA had the following observations:

- EPA observed a failed sensor on the chlorine system when there was no flow, it should have indicated zero flow.
- There was no chemical content and flow direction labels on the chlorine pipelines on the overhead rack.
- The pipeline going to the pressure relief valve on vessel 113 (isobutylene storage tank) was significantly vibrating.
- The nitrogen/ isobutylene ventilation line was excessively corroded on vessel 113 (isobutylene storage tank).
- There was a lot of corrosion on the isobutylene pipeline to the pressure relief valves from the reactor.
- There was an unattached clamp on the isobutylene pipeline from the storage tank to the reactor.
- There was a rusting and significantly vibrating pipeline with a hanging bracket going to the seal pod.
- Multiple pressure relief valves and rupture disks were missing inspection date tags.
- There was a large tarp on the carbon disulfide pipeline obstructing view and causing an unnecessary load on the pipeline.
- Many of the pipelines near the reactor for carbon disulfide are missing chemical content and flow direction labels.

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

Field Measurements: were not taken during this inspection.

RECORDS REVIEW

EPA reviewed documents for the following RMP Level 3 Requirements:

1. Applicability
2. Management
3. Off-site consequence analysis
4. Worst-case release scenario analysis
5. Alternative release scenario analysis
6. Hazard Assessment Documentation
7. Five-year accident history
8. Process Safety Information (PSI)
9. Process Hazard Analysis (PHA)

10. Mechanical Integrity (MI)
11. Operating Procedures (SOP)
12. Training
13. Management of Change
14. Pre-startup safety review
15. Compliance Audits
16. Incident Investigation
17. Employee Participation
18. Hot Work Permit
19. Contractors
20. Emergency Response
21. Risk Management Plan

CLOSING CONFERENCE

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

Requested documents:

- Piping and instrumentation drawings
- Materials of construction
- Relief system design
- Ventilation system design

Concerns:

EPA was concerned that certain components of the covered process were not being inspected on a regular schedule.

DIGITAL SIGNATURES

Brittany Cobb Digitally signed by
Brittany Cobb
Date: 2022.01.13
16:12:11 -06'00'

Report Author: _____

**SARAH
MARSHALL** Digitally signed by
SARAH MARSHALL
Date: 2022.01.14
08:45:02 -06'00'

Section Supervisor: _____

APPENDICES AND ATTACHMENTS

A. Digital Image Log

Facility Name: Afton Chemical Corporation

Facility Location: 501 Monsanto Avenue, Sauget, IL 62201

Date of Inspection: November 16, 2021 – November 18, 2021

APPENDIX A: DIGITAL IMAGE LOG

1. Photographer's name: Corey Whelehon	2. Archival Record Location: <i>EPA's OneDrive</i>
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Image Number	File Name	Date and Time (incl. Time zone and DST)	Latitude and Longitude	Description of Image
1	WIN_20211117_09_28_46_Pro.jpg	17 Nov 2021/9:28AM	N/A	Unattached clamp on ISB pipeline from storage tank to reactor
2	WIN_20211117_09_33_03_Pro.jpg	17 Nov 2021/9:33AM	N/A	Rust on the Reactor 201 line
3	WIN_20211117_09_33_55_Pro.jpg	17 Nov 2021/9:33AM	N/A	Rust on the ISB Reactor 201 line
4	WIN_20211117_09_38_01_Pro.jpg	17 Nov 2021/9:38AM	N/A	Rusted and vibrating pipe into ISB 603 Seal Pod
5	WIN_20211117_09_39_02_Pro.jpg	17 Nov 2021/9:39AM	N/A	Rusted and vibrating pipe into ISB 603 Seal Pod
6	WIN_20211117_09_40_25_Pro.jpg	17 Nov 2021/9:40AM	N/A	Loose bracket on ISB Pipe into 603 Seal Pod
7	WIN_20211117_10_31_54_Pro.jpg	17 Nov 2021/10:31 AM	N/A	CS2 Pipe from tank into reactor (no labeling)
8	WIN_20211117_10_39_23_Pro.jpg	17 Nov 2021/10:39AM	N/A	Tarp on CS2 pipe from storage tank to reactor
9	WIN_20211117_11_10_07_Pro.jpg	17 Nov 2021/11:10AM	N/A	CL2 pipe from storage to reactor with no labeling
10	Tarp removal from CS2 line.jpeg	17 Nov 2021/12:07PM	N/A	Follow-up picture of tarp removed from CS2 line