

United States Environmental Protection Agency / Region 4

**Risk Management Program Inspection Report**

**Eastman Chemical Company**

Kingsport, Tennessee

April 23-25, 2024

**1.0 Introduction**

The U.S. Environmental Protection Agency's efforts to reduce the likelihood and severity of chemical accidents include planning and legislative initiatives such as the National Contingency Plan, the Emergency Planning and Community Right-to-Know Act (EPCRA), and the Accidental Release Prevention requirements under Section 112(r) of the Clean Air Act (CAA), as amended in 1990. This report outlines an inspection of the Risk Management Program (RMP) as mandated by Section 112(r)(7) of the CAA.

The focus of this inspection was to assess the RMP for the chemical manufacturing process at the Eastman Chemical Company (the Facility, or Eastman) located in Kingsport, Sullivan County, Tennessee. This facility was selected for inspection because it hadn't been inspected under the RMP within the last five years and is an agency priority due to the use of hydrofluoric acid. The inspection, which was conducted on April 23-25, 2024, consisted of an examination of program documentation, as well as site reviews of various aspects of Facility operations. Personnel from the Facility participated throughout the inspection. Requested program documents were provided for further review off-site. This report will provide a background of the Facility and a listing of observations.

**2.0 Background**

The Eastman Chemical Company was originally founded in 1920 as the Tennessee Eastman Corporation, a subsidiary of Eastman Kodak. The Facility in Kingsport, TN originally produced raw materials for Kodak's photographic chemicals and products and expanded to produce non-flammable X-ray film and charcoal briquettes. Eastman spun off from Kodak in 1994 to become an independent corporation. The Facility covers approximately 900 acres with more than 500 buildings and employs about 4,300 manufacturing employees and 3,000 contractors. The Kingsport location has four manufacturing divisions: Chemicals and Acetates, Cellulose Esters, Specialty Chemicals and Material Handling, and Specialty Plastics and Polymers. Each chemical is regulated under its own program level and the processes are regulated as program level 3. The Facility also manufactures bleach by mixing chlorine with sodium hydroxide. The chemical manufacturing process at the Facility is subject to the RMP requirements of 40 C.F.R. Part 68 and EPCRA Section 302. The Facility reported five covered processes subject to the requirements of EPA's RMP regulations in its most recent risk management plan submission, dated March 14, 2022, which are listed in Table 1, below. The Facility considers all five of these covered processes to be RMP Program 3 processes.

**Table 1. RMP Covered processes for the Facility**

| Process ID | Process Name      | Program Level | Chemical                                                        | Quantity (lbs.) | Category  |
|------------|-------------------|---------------|-----------------------------------------------------------------|-----------------|-----------|
| 1000117204 | Ammonia           | 3             | Ammonia (conc. 20% or greater)                                  | 151,000         | Toxic     |
| 1000117205 | Acetaldehyde      | 3             | Acetaldehyde                                                    | 3,000,000       | Flammable |
| 1000117206 | 2-Methylpropene   | 3             | 2-Methylpropene [1-Propene, 2-methyl-]                          | 346,000         | Flammable |
| 1000117207 | Propylene         | 3             | Propylene [1-Propene]                                           | 40,000          | Flammable |
| 1000117209 | Hydrofluoric Acid | 3             | Hydrogen fluoride (conc. 50% or greater)<br>[Hydrofluoric acid] | 1,300           | Toxic     |

The background specifics are summarized as follows in Table 2.

TABLE 2: Inspection Information Summary

Inspection Team

Lead Inspector: Anthony Gaglione, Eastern Research Group (ERG)

Inspector: Leta Kent, ERG

Inspector: Parker Hendrick, ERG

Date of Facility Visit: April 23-25, 2024

Facility Identification

Name: Eastman Chemical Company

Street Address: 100 North Eastman Road

City: Kingsport      County: Sullivan      State: Tennessee      Zip: 37662

EPA Facility ID No: 100000072805

Dun & Bradstreet (D&B) No: 808898381

Latitude: 36.522222

Longitude: -82.541667

Name, address and phone of corporate parent company:

Owner/Operator: Eastman Chemical Company

Mailing Address: 100 North Eastman Road

City: Kingsport      State: Tennessee      Zip: 37662

Name, title, and email of person responsible for 40 C.F.R. Part 68 implementation:

Name: Mark Bogle

Title: TNO Site Manager

Phone: not provided

Email: jmbogle@eastman.com

Name and title of emergency contact:

Name: Dail Blalock

Title: Manager, TNO Emergency Services

Day phone: (423) 229-1158

24-hour Phone: (423) 229-2000

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Name and titles of stationary source personnel involved in site inspection (*accompanied site tours, provided documents and explanations*):

| Name               | Title                           | Phone          | Email                          |
|--------------------|---------------------------------|----------------|--------------------------------|
| Jaime Bray         | Chemical Engineer               | (423) 229-3704 | jbray@eastman.com              |
| Tracy Venett       | Manager, Environmental Ops.     | (423) 229-5230 | tvenett@eastman.com            |
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| Andy Hiester       | Director, Global Process Safety | (423) 229-1044 | ahiester@eastman.com           |
| Michelle Caveness  | VP, TNO Site Leader             | (423) 229-2572 | michelle@eastman.com           |
| Steven Clark       | Director, Functional Products   | (423) 229-6461 | sclark@eastman.com             |
| Scott Cowan        | Director, Gasification          | (423) 229-1217 | scowan@eastman.com             |
| Shawn Pace         | Director, Design Services       | (423) 229-3000 | snpace@eastman.com             |
| Eric Kent          | Training Officer, Emerg. Serv.  | (423) 229-1011 | rekent@eastman.com             |
| John Emery         | Asset Integrity Manager         | (423) 229-8281 | jfemery@eastman.com            |
| Tucker Begley      | Chief Piping Inspector          | (423) 229-1252 | tbegley@eastman.com            |
| Doug Giles         | Process Safety Engineer         | (423) 229-8438 | dgiles@eastman.com             |
| Robert Layne       | A.I. Lead Vessels/Tanks         | (423) 229-2986 | roblayne@eastman.com           |
| Kendal Brown       | Director GHSE TN Operations     | (423) 229-6609 | kendal@eastman.com             |
| Brian Long         | VP, GHSE                        | (423) 428-4946 | brian.long@eastman.com         |
| Rebecca Fourspring | Technical Manager               | (423) 229-9253 | rebecca.demarco@eastman.com    |
| Aaron Stokes       | Master Trainer                  | (423) 229-4748 | richardstokes@eastman.com      |
| Joey Birchfield    | Senior Chemical Engineer        | (423) 229-2843 | josephw.birchfield@eastman.com |
| Tony Bowery        | Mfg. Technologist Associate     | (423) 229-5127 | tonybowery@eastman.com         |
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| Brandi Walters     | Maintenance Coordinator         | (423) 229-3712 | brandilawson@eastman.com       |
| Michelle Ireson    | Area Manager, B267              | (423) 229-8756 | mpireson@eastman.com           |

|                 |                                                        |                |                            |
|-----------------|--------------------------------------------------------|----------------|----------------------------|
| Neal Whitten    | Group Leader – Environmental Operations                | (423) 229-5868 | bwhitten@eastman.com       |
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| Jeremy Forren   | Principal Chemical Engineer                            | (423) 229-5807 | jeremys.forren@eastman.com |
| Roscoe Carter   | 1 <sup>st</sup> Operator/Instructor/Relief Maintenance | (423) 229-4552 | jrcarter@eastman.com       |
| Bill Brinkley   | Contractor HSE                                         | (423) 229-2814 | bbrinkley@eastman.com      |
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| John Kelly      | Group Leader PSSD                                      | (423) 229-8691 | jkelly@eastman.com         |
| Marissa Wilson  | Staff Engineer                                         | (423) 229-9820 | marissa.wilson@eastman.com |
| Michael James   | Principal Chemical Engineer                            | (423) 229-1890 | mjames@eastman.com         |
| Danaca Jordan   | Digital Mfg. Center of Excellence Engineer             | (423) 229-0424 | djordan@eastman.com        |

*Note: This is not a union facility.*

Date of initial submission: June 17, 1999

Date of most recent submissions: November 18, 2021

### **3.0 Observations**

The inspection of Eastman evaluated various sections of the RMP regulations (40 C.F.R. Part 68, Program Level 2/3) and the inspection checklist included in “Guidance for Conducting Risk Management Programs Inspections under Clean Air Act Section 112(r).” The inspection began with an opening discussion of facility operations. The discussion was followed by a tour of the Facility’s chemical manufacturing process area. EPA inspectors then requested paperwork associated with the Facility’s Risk Management Plan (RMPlan). The documents were reviewed by EPA inspectors on-site and provided for review off-site. An inspection out-brief was conducted where EPA inspectors described their observations. Observations from the RMP inspection at the Facility are discussed below:

1. 40 C.F.R. § 68.65(c)(1)(i) requires the owner or operator to include a block flow diagram or simplified process flow diagram in the process safety information (PSI).
  - The Facility provided a process flow diagram (PFD) for the portion of the ammonia covered process in which ammonia is used in the HQ process for acid neutralization. This PFD states that anhydrous ammonia is fed to an ammonia vaporizer and then mixed with water to form aqueous ammonia. However, the Facility no longer uses anhydrous ammonia. According to personnel statements during the inspection, the Facility switched from receiving and storing anhydrous ammonia to aqueous ammonia in 2019. The Facility’s current risk management plan, submitted on March 14, 2022, states the ammonia covered process only contains aqueous ammonia

(concentration 20% or greater) and anhydrous ammonia is not reported in the risk management plan.

2. 40 C.F.R. § 68.65(c)(1)(iv) requires the owner or operator to include safe upper and lower limits for such items as temperatures, pressures, flows or compositions in the process safety information.
  - The Facility provided the relief system design and design basis documentation for pressure safety valves (PSVs) PSV HB-19 and PSV HB-20 on the acetaldehyde storage sphere HS-C-102. This documentation includes the sizing information for the nitrogen control valve PV-289, which supplies nitrogen into the headspace of the storage sphere. This documentation states: *“PV-289 is a 1” Valtek Mark One control valve that is connected to pressure controller PC-289, which is set at 12 psig.”* The PV-289 instrument datasheet states that the PV-289 inlet pressure is 25 psig and the pressure drop is 13 psi, which results in an outlet pressure of 12 psig. Additionally, the piping and instrument diagram (P&ID) of the storage sphere states PV-289 is set at 12 psig. However, the safe operating limits documentation for HS-C-102 and the unloading stations (CMD-MS-MSS-WCH-021; states that the nitrogen pressure control setpoint, as set by PC-289, is 11 psig.
3. 40 C.F.R. § 68.65(d)(1)(ii) requires the owner or operator to include P&ID's in the process safety information.
  - While doing field P&ID walkdowns, the EPA Inspection Team had the following observations regarding the P&IDs for the acetaldehyde covered process (Process ID 1000117205).
    - The EPA Inspection Team had the following observations of the P&ID for the acetaldehyde spherical tank HS-C-102:
      - a) The P&ID shows level transmitter (LT)-564 installed on an 8-inch nozzle on top of the sphere. However, the EPA Inspection Team observed LT-564 to be installed on a 3-inch nozzle on top of the sphere.
      - b) The P&ID shows LT-9128 installed on a 3-inch nozzle on top of the sphere. However, the EPA Inspection Team observed LT-9128 installed on an 8-inch nozzle on top of the sphere.
      - c) The P&ID shows the block valve upstream of local pressure indicator (PI) HB-34 as locked open. However, the EPA Inspection Team observed that this block valve was not locked open in the field.
      - d) The P&ID does not show the block valve on the ¼-inch tubing for high- and low-pressure switches PSH-563 and PSL-563 to be locked open. However, the EPA Inspection Team observed this block valve to be locked open in the field.

- The EPA Inspection Team had the following observations of the P&ID for the acetaldehyde tank car unloading stations 90 and 91 (drawing number 406-9T-030, Rev. 18):
  - a) The P&ID shows a 3-inch-to- ½-inch reducer present on the line of piping identified as LS90PL-165-1/2"-S156 downstream of where this line branches off of the LS-G-90 pump discharge line. However, the EPA Inspection Team did not observe a reducer on this line and observed this line to be a consistent diameter between the block valve and the welded branch connection at the pump discharge line.
  - b) The P&ID does not show any block valves upstream of pressure transmitters PT-9135A and PT-9135B. However, the EPA Inspection Team observed a block valve under each of PT-9135A and PT-9135B in the field.
- While doing field P&ID walkdowns, the EPA Inspection Team had the following observations regarding the P&ID for the ammonia covered process (Process ID 1000117204).
  - The P&ID for the ammonia tanks MH-D-01 and MH-D-02 (drawing number 1500-9T-3000, Rev. 13) shows the block valve on nozzle D-2" (valve number 2"-312C) and the block valve for pressure transmitter PT-MH-2481 (valve number 2"-311X) on MH-D-02 to be car-sealed open. However, the EPA Inspection Team observed both of these valves to be locked open.
- The Facility provided interlock narratives for the HF enclosure, caustic scrubber, and Unit 48. The EPA Inspection Team observed the following discrepancies between the interlock narratives and the P&ID for the HF supply system and enclosure (drawing number 267A-9T-3188, Revision 8).
  - Tag DI-3722 on density transmitter DT-3722 on the P&ID only identifies that DI-3722 is an input to safety interlock HF-S15. However, the HF enclosure interlock narrative states that DI-3722 is an input (a bypass defeat) for safety interlocks HF-S13, HF-S14, and HF-S15.
  - Tag HS-15425A on enclosure outlet air damper PV-15425 on the P&ID only identifies that the solenoid for PV-15425 (HY-15425A) is an action for safety interlocks CS-S11, HF-S11, and HF-S21. However, the HF enclosure interlock narrative states that process interlock HF-P61 also deenergizes solenoid HY-15425A.
  - Tag HS-3722 on vaporizer control valve FV-3722 on the P&ID does not identify the solenoid for FV-3722 (FY-3722B) as an action for any safety or process interlocks. However, the HF enclosure, caustic scrubber, and Unit 48

interlock narratives state that the process interlocks HF-P61, HF-P62, HF-P63, HF-P65, HF-P66, HF-P71, CS-P61, CS-P62, 48-P63, 48-P66, 48-P67, and 48-P82 deenergize solenoid FY-3722B.

- Tag HS-7156 on steam flow valve TV-7156 is identified as “HS-7156A” in the HF enclosure interlock narrative. Additionally, tag HS-7156 on the P&ID only identifies that the solenoid for TV-7156 (HY-7156) is an action for safety interlocks HF-S14 and HF-S16. However, the HF enclosure interlock narrative states that process interlocks HF-P61, HF-P62, HF-P64, HF-P66, and HF-P71 also deenergize solenoid HY-7156.
  - Tag HS-3721 on primary HF feed valve HV-3721 and tag HS-15442 on HF valve HV-15442 both identify process interlock HF-P73 as an action for their solenoids (HY-3172 and HY-15442, respectively). Process interlock HF-P73 is not included in the HF enclosure interlock narrative.
  - Tag HS-3728 and safety interlock HF-S22 on valve HV-3728 are designated as process interlocks (white square) on the P&ID but are listed as safety interlocks in the HF enclosure interlock narrative. All other safety interlocks use a black square.
  - Tag XS-15425 on enclosure inlet air damper HV-15424 on the P&ID is identified as “XS-15424” in the HF enclosure interlock narrative for safety interlocks HF-S11 and HF-S21.
  - Tag XS-15425 on exhaust air to scrubber valve PV-15425 in the HF enclosure interlock narrative for safety interlocks HF-S11 and HF-S21 is identified as “XS-15425A” in the P&ID and the caustic scrubber interlock narrative for safety interlock CS-S11.
4. 40 C.F.R. § 68.65(d)(2) requires the owner or operator to document that equipment complies with recognized and generally accepted good engineering practices (RAGAGEP). The following observations were made with respect to RAGAGEP:
- While doing field P&ID walkdowns at the acetaldehyde railcar unloading stations, the EPA Inspection Team observed a slip-on flange used to install the sight glass FO LS-90-001 to the 3-inch piping on the discharge from unloading pump LS-G-90. The EPA Inspection Team observed that this slip-on flange was not back welded (meaning the back of the flange was not welded to the outside circumferential surface of the pipe). A visible gap was observed between the slip-on flange and the outside of the pipe, which could allow water or other contaminants to enter between the flange and the pipe. In cold weather, water between the flange and the pipe could potentially freeze and expand. Section 308.2.1 on *Slip-On Flanges* in American Society of Mechanical Engineers (ASME) B31.3 (2014) states the following:

*“(a) A slip-on flange shall be double-welded as shown in Fig. 328.5.2B when the service is*

- *(1) subject to severe erosion, crevice corrosion, or cyclic loading*
- *(2) flammable, toxic, or damaging to human tissue*
- *(3) under severe cyclic conditions*
- *(4) at temperatures below -101 °C (-150 °F)”*

Acetaldehyde is a flammable substance (it is a flammable RMP regulated substance and is a Class IA flammable liquid). Additionally, the acetaldehyde unloading operation subjects the unloading piping to cyclic loading (forces) due to the intermittent unloading operation. Therefore, the acetaldehyde unloading station meets two criteria under ASME B31.3 Section 308.2.1(a) to require any slip-on flanges to be double welded. A double welded slip-on flange is welded at both the front or face of the flange and the back of the flange. Therefore, the slip-on flange observed on the acetaldehyde unloading liquid piping is not double welded as required by ASME B31.3.

5. 40 C.F.R. § 68.67(e) requires the owner or operator to establish a system to promptly address the team's findings and recommendations; assure that the recommendations are resolved in a timely manner and that the resolution is documented; document what actions are to be taken; complete actions as soon as possible; develop a written schedule of when these actions are to be completed; and communicate the actions to operating, maintenance and other employees whose work assignments are in the process and who may be affected by the recommendations or actions.
  - The Facility conducted a Process Hazard Analysis (PHA), with the final report dated June 26, 2019, for the portion of the ammonia covered process within the Material Handling Section, which includes the aqueous ammonia storage tanks MH-D-01 and MH-D-02. The EPA Inspection Team observed the following missing documentation of completion dates and completion details in relation to the PHA recommendations identified as part of the June 2019 PHA.
    - In response to question Q10.1, scenario number 3, the Facility identified recommendation number 1. The recommendation states that the “recommendation should be resolved prior to startup of the permanent process” and the resolution plan provides a completion target date of June 16, 2019. However, no actual completion date or completion details are provided in the respective fields.
    - In response to question Q20.16, scenario number 1, the Facility identified recommendation number 1. The recommendation states that the “recommendation should be resolved prior to startup of the permanent process” and the resolution plan provides a completion target date of June 16, 2019. However, no actual completion date or completion details are provided in the respective fields.

- In response to question Q20.16, scenario number 2, the Facility identified recommendation number 1. The recommendation states that the “recommendation should be resolved prior to startup of the permanent process” and the resolution plan provides a completion target date of June 16, 2019. However, no actual completion date or completion details are provided in the respective fields.
- In response to question Q20.17, scenario number 1, the Facility identified recommendation number 1. The recommendation states that the “recommendation should be resolved prior to startup of the permanent process” and the resolution plan provides a completion target date of June 16, 2019. However, no actual completion date or completion details are provided in the respective fields.
- In response to question Q60.15, scenario number 1, the Facility identified recommendation number 1. The recommendation states that the “recommendation should be resolved prior to startup of the permanent process.” Resolution plan number 1 for this recommendation provides a completion target date of June 16, 2019. However, no actual completion date or completion details are provided in the respective fields. Resolution plan number 2 for this recommendation provides a completion target date of March 29, 2019. However, no actual completion date or completion details are provided in the respective fields.
- In response to question Q120.20, scenario number 1, the Facility identified recommendation number 1. The recommendation states that the “recommendation should be resolved prior to startup of the temporary process” and the resolution plan for this recommendation provides a completion target date of March 18, 2019. However, no actual completion date or completion details are provided in the respective fields.
- In response to question Q200.53, scenario number 1, the Facility identified recommendation numbers 1 and 2. Recommendation number 1 states that it is “to be completed prior to the startup of the temporary, transitional part of the process project” and the resolution plan provides a completion target date of March 20, 2019. However, no actual completion date or completion details are provided in the respective fields. Recommendation number 2 states that it is “to be completed prior to the startup of the permanent part of the process project” and the resolution plan provides a completion target date of March 20, 2019. However, no actual completion date or completion details are provided in the respective fields.
- In response to question Q200.54, scenario number 1, the Facility identified recommendation number 2. Recommendation number 2 states “[c]onsider ensuring the P&IDs for Part 2, the temporary, transitional part of this process project, are sufficiently complete and accurate prior to startup” and the

resolution plan provides a completion target date of June 16, 2019. However, no actual completion date or completion details are provided in the respective fields.

- In response to question Q200.61, scenario number 1, the Facility identified recommendation number 1. The recommendation states “[c]onsider reviewing and updating the Facility Siting Study and relevant LOPAs for aqueous ammonia process to ensure that all occupied buildings or portions of buildings have been evaluated before startup of the permanent part of this process project” and the resolution plan provides a completion target date of June 1, 2019. However, no actual completion date or completion details are provided in the respective fields.
- The Facility conducted a PHA, with final report dated August 27, 2018, for the portion of the acetaldehyde covered process within the Materials & Shipping Services Section, which covers unloading acetaldehyde from railcars at unloading stations 90 and 91 and storing acetaldehyde in the spherical tank HS-C-102. In response to question Q30.60 (“*What are the potential consequences if PSI for this process is not adequately documented?*”) under node 30 on global issues, the PHA report identifies the following scenario number 1: “*If Process Safety Information (PSI) is not adequately documented for this process, the potential exists for hazards to not be fully understood, critical safety components not to be tested, or inaccurate procedures to exist, leading to consequences previously discussed in this study.*” In response to this scenario, the PHA report identifies recommendation number 1, which identifies seven different actions. In the Facility’s subsequent PHA conducted on this process, with final report dated June 4, 2023, the Facility identified the exact same recommendation with the same seven actions in response to the same question in node 3.46.1 (“*What are the potential consequences if the PSI is missing or inadequate?*”). The Facility identified the same recommendation to resolve the same safety gap between the 2018 and 2023 PHAs.
- The Facility conducted a PHA, with final report dated April 25, 2017, for HF receiving, movement, and temporary storage. The EPA Inspection Team observed the following recommendations with missing completion dates, completion details that were unclear as to how the recommendation was resolved, or recommendations marked as completed but the recommendation was included as a recommendation in the 2022 HF receiving, movement, and temporary storage PHA.
  - Question Q20.2, Scenario number 1, Recommendation 3: For the checklist question regarding potential consequences of a forklift operator mishandling the HF container, a team member recommended considering “...additional controls such as ensuring that all warehouse operators get a chance to practice with the empty cylinder - receiving the cylinder, moving it to the 3rd floor and back, and moving it to Cubicle 16 and back.” This recommendation was marked complete on April 6, 2017, with completion details stating “Brock personnel have been invited to all 4 Crew Trainings and will be a part of the

mock receiving and connecting practice as recommended. The last training date for Operations / Brock (mock cylinder connections, general workshop) is 4/19". A similar recommendation was provided in the HF receiving, movement, and temporary storage PHA, final report dated May 3, 2022, for Items 2.2.1.1, 3.2.1.1, and 4.2.1.1, which also address potential consequences of a forklift operator mishandling the HF container. This recommendation was listed as in progress as of May 9, 2024, and has a due date of May 1, 2024.

- Question Q40.3, Scenario number 1, Recommendation 1: The resolution plan for this recommendation has a completion target date of December 31, 2017. However, no actual completion date is provided. The completion details indicate this recommendation is still in progress. Item 5.8.1.2 in the HF receiving, movement, and temporary storage PHA, final report dated May 3, 2022, provided a different recommendation for the same scenario.
  - Question Q50.10, Scenario number 1, Recommendation 1: This recommendation was marked closed on April 6, 2017. However, the completion details provided indicate the resolution was still in progress at the time the completion details were provided. The Facility's PHA procedure SOP-GHSES-03-12 states that completion details should be validated, which includes "verification that the action was taken such as reviewing the procedure to ensure recommended updates have been completed, capital work is complete, or relief setting has been changed."
  - Question Q50.38, Scenario number 1, Recommendation 1: There is no completion date listed for this recommendation. The completion details indicate the recommendation was still in progress at the time the completion details were provided with a due date of May 8, 2017.
  - The PHA for HF receiving, movement, and temporary storage, with final report dated May 3, 2022, provided a recommendation for Item 4.2.1.1, which was not listed in the PHA action tracking sheet provided by the Facility on May 9, 2024. The same recommendation is provided for Items 2.2.1.1 and 3.2.1.1, which are listed in the PHA action tracking sheet.
6. 40 C.F.R. § 68.69(a) requires the owner or operator to develop and implement written operating procedures that provide clear instructions for safely conducting activities involved in each covered process consistent with the process safety information.
- The Facility provided a procedure for receipt, handling, and storage of HF cylinders in Building 267 (HF Handling Procedure) and a procedure for preparation of PM13132-C, which includes a checklist with steps for setting up and connecting the HF cylinder in Building 267 (HF Cylinder Checklist). Step B.7 in the HF Handling Procedure states: "When necessary checks are complete and approval (if required) is received, unload the cylinder from the truck at B267B Dock." It is not clear what the "necessary checks" are, who is responsible for providing approval, or when approval

is required. The HF Cylinder Checklist includes some steps listed in the HF Handling Procedure in addition to steps to prepare for transporting the HF cylinder. The HF Handling Procedure does not reference the HF Cylinder Checklist or its associated operating procedure to indicate that these are the “necessary checks” that should be completed prior to moving the HF cylinder. The HF Cylinder Checklist only states that “[p]artner personnel will follow their procedure to transport the cylinder.”

7. 40 C.F.R. § 68.69(c) requires the operating procedures to be reviewed as often as necessary to assure that they reflect current operating practice, including changes that result from changes in process chemicals, technology, and equipment, and changes to stationary sources. The owner or operator shall certify annually that these operating procedures are current and accurate.
  - The Facility provided six operating procedure and the annual operating procedure certification records for 2021, 2022, and 2023. The procedure for receipt, handling, and storage of HF cylinders in Building 267 was not included in any of the annual operating procedure certification records provided.
8. 40 C.F.R. § 68.71(c) requires the owner or operator to ascertain that each employee involved in operating a process has received and understood the training required by 40 C.F.R. § 68.71. The owner or operator shall prepare a record which contains the identity of the employee, the date of training, and the means used to verify that the employee understood the training.
  - The Facility provided training records for a selection of employees qualified for HF receipt, handling, and storage; acetaldehyde tank car unloading; and ammonia unloading. The training records for HF receipt, handling, and storage included employee names, name of the training, and date of the training. The record did not include the means used to verify that the employee understood the training, as required.
9. 40 C.F.R. § 68.73(b) requires the owner or operator to establish and implement written procedures to maintain the on-going integrity of process equipment.
  - The Facility maintains Emergency Shutdown Devices and Interlock Testing Procedure for Aqueous Ammonia (PM-2043) (CMD-MS-MSS-WES-001-2043, Revision 1) for the aqueous ammonia storage tanks. Section 9 of this procedure provides the prerequisites to be completed prior to performing the interlock testing. Step 2 in the Section 9 table states: *“Verify that all initiating instruments listed in the table below have been calibrated and are tagged with a valid calibration sticker dated within the last 1 year. Please note the last calibration date in the table below.”* The subsequent table in Section 9 provides the list of Safety Instrumented System (SIS) initiating instrumentation to be calibrated as part of the prerequisites. The documentation of the 2023 interlock testing indicates that Step 2 of Section 9 was completed on May 15, 2023. However, the table of SIS initiating instrumentation to

be calibrated does not show any calibration date for flow transmitters FT-MH-2495, FT-MH-2496, and FT-MH-2497.

- The Facility maintains Emergency Shutdown Devices and Interlock Testing Procedure for Aqueous Ammonia (PM-2043) (CMD-MS-MSS-WES-001-2043, Revision 1) for the aqueous ammonia storage tanks. Section 9 of this procedure provides the prerequisites to be completed prior to performing the interlock testing. The documentation of the 2022 interlock testing documents that only Step 5 of Section 9 was completed on April 28, 2022. Steps 1 through 4 of Section 9 are not documented as completed.
- The Facility maintains Emergency Shutdown Devices and Interlock Testing Procedure for Acetaldehyde (PM 160) (CMD-MS-MSS-WES-008-00160, Revision 8) for the acetaldehyde storage and unloading parts of the acetaldehyde covered process. Section 9 of this procedure provides the prerequisites to be completed prior to performing the interlock testing. Step 2 in the Section 9 table states: *“Verify that all initiating instruments listed in the table below have been calibrated and are tagged with a valid calibration sticker[.] Please note the last calibration date in the table below.”* The subsequent table in Section 9 provides the list of SIS initiating instrumentation to be calibrated as part of the prerequisites. The documentation of the 2024 interlock testing indicates that Step 2 of Section 9 was completed on April 17, 2024. However, the table of SIS initiating instrumentation to be calibrated does not show any calibration date for pressure switches PSH-454, PSH-455, PSH-456, and PSH-457.
- The list of changes in Section 1 of Revision 8 of the Emergency Shutdown Devices and Interlock Testing Procedure for Acetaldehyde (PM 160) states that the calibration and testing of nitrogen low-pressure switches PSL-456 and PSL-457 was added to the annual interlock procedure. However, the table of SIS initiating instrumentation to be calibrated in Section 9 of the procedure identifies the nitrogen pressure switches as high-pressure switches PSH-456 and PSH-457 rather than low-pressure switches PSL-456 and PSL-457.
- The Facility conducted an external visual inspection of the piping between the acetaldehyde railcar unloading stations and the acetaldehyde storage sphere on February 28, 2019. The Facility identified inadequate structural support for the piping directly above the LS-G-90 unloading pump. The Facility noted: *“Vibration to line up to 1/4” in lateral movement during pump operation. Not enough support. Location directly above pump G-90 at loading station 90. 4’ above pump”*. The Facility planned a target completion date of May 17, 2020, for this finding (REC-111586) but did not resolve this finding until August 14, 2022. The Facility’s site procedure and work practice for Asset Integrity – Piping (EKS-0760-0020, Rev. 3) states: *“Piping deficiencies that are outside safe operating limits will be reviewed to ensure mitigation of critical consequences while repairs are being organized and executed. These and all other deficiencies will be addressed and repaired in a safe and timely manner”*. The Facility planned on a completion deadline of May 17, 2020, to repair

the inadequate support and mitigate the lateral vibrational movements of the piping but did not complete the repairs until August 14, 2022.

10. 40 C.F.R. § 68.73(d)(1) requires the owner or operator to perform inspections and tests on process equipment.

- The Facility failed to calibrate three flow transmitters (FT-MH-2495, FT-MH-2496, and FT-MH-2497) at the ammonia transfer pumps for ammonia tanks MH-D-01 and MH-D-02 as required by Revision 1 of its Emergency Shutdown Devices and Interlock Testing Procedure for Aqueous Ammonia (PM-2043) when performing the testing procedure on May 15, 2023.
- The Facility failed to calibrate four pressure switches (PSH-454, PSH-455, PSH-456, and PSH-457) as required by Revision 8 of its Emergency Shutdown Devices and Interlock Testing Procedure for Acetaldehyde (PM 160) when performing the testing procedure on April 17, 2024.

11. 40 C.F.R. § 68.73(d)(4) requires the owner or operator to document each inspection and test that has been performed on process equipment. The documentation shall identify the date of the inspection or test, the name of the person who performed the inspection or test, the serial number or other identifier of the equipment on which the inspection or test was performed, a description of the inspection or test performed, and the results of the inspection or test.

- The Facility provided piping inspection reports for the past 10 years for the piping circuit that includes the HF line from the HF cylinder to the 48-C-RX reactor. The EPA Inspection Team observed the following:
  - Radiographic testing was conducted on December 5, 2022. The Facility provided copies of the X-rays, which included the date of the inspection and identification of the test locations but did not include the name of the person who performed the inspection or the results of the inspection (such as whether the observed indications were acceptable).
  - An external visual inspection was conducted on July 13, 2023. The Facility provided documentation listing which pipes were inspected, who performed the inspection, and the results of the inspection but did not include a description of what inspections were performed. During the Facility's April 28, 2021, external visual inspections of the same piping circuits, the Facility's inspection documentation included a checklist that identified the components of the piping circuits included in the external visual inspection and the types of deficiencies for which the inspector was investigating. This checklist was not included in the July 13, 2023, external visual inspection.

12. 40 C.F.R. § 68.73(f)(2) requires appropriate checks and inspections shall be performed to assure that equipment is installed properly and consistent with design specifications and the manufacturer's instructions.

- The Facility provided the relief system design and design basis documentation for PSVs PSV HB-19 and PSV HB-20 on the acetaldehyde storage sphere HS-C-102. This documentation states that each PSV is to have a setpoint pressure of 38 psig with one PSV in service to provide relief at a time and the other PSV installed as an in-place spare. The documentation also states that the rupture disk underneath each PSV is to have a burst pressure of 40 psig at 72 °F. The P&ID for HS-C-102 also states that the set pressure for both PSV HB-19 and PSV HB-20 is 38 psig. However, during the facility walkthrough, the EPA Inspection Team observed both PSV HB-19 and PSV HB-20 to have nameplates that state their set pressure is 40 psig. The nameplates on both PSVs indicate the PSVs have a set pressure of 40 psig and a cold differential test pressure of 40 psig. Therefore, PSVs HB-19 and HB-20 as installed are not at the setpoint required by the relief system design and design basis.

13. 40 C.F.R. § 68.75(a) requires the owner or operator to establish and implement written procedures to manage changes (except for “replacements in kind”) to process chemicals, technology, equipment, and procedures; and, changes to stationary sources that affect a covered process.

- The Facility provided a checkout procedure for HF Feed System interlocks, Revision 7, dated April 1, 2024. The Facility also provided a completed checkout procedure for the HF Feed System interlocks dated April 9, 2024, which used the Revision 7 checkout procedure. The checkout procedure completed on April 9, 2024, included a significant amount of redlining that added details to steps and removed other steps. The HF Feed System interlock checkout procedure (dated April 1, 2024) provided appeared to already be updated with the redline edits from the completed checkout procedure. However, there was no update to the revision record indicating the Facility’s MOC procedure was not followed to manage this change.

14. 40 C.F.R. § 68.79(d) requires the owner or operator to promptly determine and document an appropriate response to each of the findings of the compliance audit, and document that deficiencies have been corrected.

- The Facility provided the findings of its 2018 to 2019 RMP compliance audit. Finding number 3.2.1 states “[t]he process to ensure that there is clear understanding regarding expectations and responsibilities related to site-wide contractor management is not fully implemented. For instance, a site procedure that addresses contractor management issues was not available for review at the time of the audit.” The corrective action item 3.2.1 states a “[d]raft procedure Contractor Safety Management is completed and out for final review/approval by Site Support Services Management” and was marked as completed on May 31, 2022. However, the 2021 to 2022 RMP compliance audit findings summary identified the same finding (finding number 3.2.1) and the same action item (action item number 3.2.1).

The action item progress notes field indicates that the procedure was completed on August 16, 2022, and then routed for final approvals. The final completion date is indicated as September 15, 2022.

- The 2018 to 2019 RMP compliance audit findings summary identified finding number 4.11.1, which states “[t]he process to ensure that target dates are established for all PHA action items is not fully implemented in the AA1 area with respect to anhydrous ammonia operations.” The action item progress notes field states “[t]his will be properly addressed in the PHRA software” and a completion date of January 14, 2020, is provided. However, this response to the finding does not establish how the process to ensure target dates are established for all PHA action items will be fully implemented.

15. 40 C.F.R. § 68.93(b) requires coordination to include providing to the local emergency planning and response organizations: The stationary source's emergency response plan if one exists; emergency action plan; updated emergency contact information; and other information necessary for developing and implementing the local emergency response plan. For responding stationary sources, coordination shall also include consulting with local emergency response officials to establish appropriate schedules and plans for field and tabletop exercises required under § 68.96(b). The owner or operator shall request an opportunity to meet with the local emergency planning committee (or equivalent) and/or local fire department as appropriate to review and discuss those materials.

- In response to the EPA’s request for documentation on emergency response coordination activities, the Facility provided a timeline showing the dates of mutual aid emergency exercise drills and meetings; emails, meeting invites, and presentations from drills and tabletop exercises, mutual aid agreements with the Kingston Fire Department and procedures for requesting mutual aid, and meeting minutes from six LEPC meetings. Finding 3.3.20ES from the 2021 – 2022 Compliance Audit noted that “at the time of the audit Emergency Services was not completing the following...Providing the Emergency Response Plan and Emergency Action Plan to local emergency planning and response organizations.” In response to this finding, the Facility stated that “[t]hese plans are available upon request; to-date we have not had a request.”

## Inspection Report,

Prepared by:

**JORDAN  
NOLES**

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Jordan Noles, Inspector  
North Air Enforcement Section  
U.S. EPA Region 4

Approved by:

**JASON  
DRESSLER**

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Jason Dressler, Section Chief  
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