

United States Environmental Protection Agency / Region 4

Risk Management Program Inspection Report

AFH Logistics Services

Birmingham, Alabama

September 29, 2021

1.0 Introduction

The U.S. Environmental Protection Agency's efforts to reduce the likelihood and severity of chemical accidents includes 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 ammonia refrigeration process at the AFH Logistics facility located in Birmingham, Jefferson County, Alabama. This facility was selected for inspection because it had never been inspected under the RMP. The inspection, which was conducted on September 29, 2021, 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. 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 AFH Logistics facility is located in Birmingham, Alabama. The facility uses anhydrous ammonia as a refrigerant to store food products for distribution. The process is regulated as program level 3. According to facility records, the facility has a maximum of 30,000 pounds of ammonia (anhydrous) on site. The ammonia refrigeration process at the facility is subject to the RMP requirements of 40 C.F.R. Part 68 and EPCRA Section 302. The background specifics are summarized as follows in Table 1.

TABLE 1: Inspection Information Summary

Inspection Team

Lead Inspector-In-Training: Bethany Terpin, EPA

Inspector: Jordan Noles, EPA

Inspector: Zachary Good, Eastern Research Group

Date of Facility Visit: September 29, 2021

Facility Identification

Name: AFH Logistics Services
Street Address: 400 Industrial Drive
City: Birmingham County: Jefferson State: Alabama Zip: 35211
EPA Facility ID No: 1000 0003 1397
Dun & Bradstreet (D&B) No: N/A
Latitude: 33.441333
Longitude: -086.855222

Name, address and phone of corporate parent company:
Owner/Operator: True North Logistics
Mailing Address: 3000 Woodcreek Drive, Suite 300
City: Downers Grove State: Illinois Zip: 60515
Phone: (877) 319-3504

Name, title, and email of person responsible for 40 C.F.R. Part 68 implementation:
Name: Britt Sherbet
Title: Site Manager
Phone: (205) 405-1902
Email: britt.sherbet@tru-nor.com

Name and title of emergency contact:
Name: Britt Sherbet
Title: Site Manager
Day phone: (205) 405-1902
24-hour Phone:
Email: britt.sherbet@tru-nor.com

Name and titles of stationary source personnel involved in site inspection (*accompanied site tours, provided documents and explanations*):
Name: Britt Sherbet
Title: Site Manager
Phone: (205) 405-1902
Email: britt.sherbet@tur-nor.com

Name: Chris Roden
Title: Divisional Vice President (Uni-Temp Refrigeration, Inc.)
Phone: (205) 504-3178
Email: croden@unitempref.com

Name: Greg Pike
Title: Service Manager (Uni-Temp Refrigeration, Inc.)
Phone: (205) 913-0166
Email: gpik@unitempref.com

Note: This is not a union facility.

Date and Program Levels of Submitted Risk Management Plan

Date of initial submission: January 23, 2017

Date of most recent submissions: January 23, 2017

Process: Ammonia Refrigeration

Process ID: 1000077043

Program Level as reported in RMP: 3

NAICS code: 49312 (Refrigerated Warehousing and Storage)

3.0 Observations

The inspection of the AFH Logistics facility evaluated various sections of the RMP regulations (40 C.F.R. Part 68, Program Level 3) and the inspection checklist included in “Guidance for Conducting Risk Management Programs Inspections under Clean Air Act Section 112(r).” The inspection included an opening conference where EPA inspectors reviewed documents associated with the facility’s Risk Management Plan. The discussion was followed by a tour of the facility’s ammonia refrigeration process areas. An inspection out-brief was conducted where EPA inspectors described their observations. Observations from the RMP inspection at the AFH Logistics facility are discussed below:

1. 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).
 - At the time of the inspection, corrosion, rusting, and degradation damage were observed on inlet piping to the RC1 High Side Compressor, on water piping in the ammonia machine room (AMR), and on piping near the low side compressors.

Section 4.7.4 of IIAR Bulletin 109 (1997) states “*Uninsulated refrigerant piping should be examined for signs of corrosion. If corrosion exists, the pipe should be cleaned down to bare metal and painted with a rust preventive paint. Badly corroded pipe should be replaced.*”

Section 11.1 of ANSI/IIAR 6 (2019) states, “*ITM tasks shall be performed on carbon steel and stainless-steel piping at the indicated frequencies set forth in Table 11.1 or per manufacturers' instructions, unless a different frequency is justified in accordance with Section 5.2.1.*”

- At the time of the inspection, not all piping was labeled to indicate contents, direction of flow, physical state, or pressure level, particularly on long ammonia piping runs located on the roof of the facility.

ANSI/IIAR 2-2014 section 5.14.5 states, *“Ammonia piping mains, headers, and branches shall be identified with the following information:*

- 1. “AMMONIA.”*
- 2. Physical state of the ammonia.*
- 3. Relative pressure level of ammonia, being low or high as applicable.*
- 4. Pipe service, which shall be permitted to be abbreviated.*
- 5. Direction of flow.”*

“The marking system shall either be one established by a recognized model code or standard or one described and documented by the facility owner.”

Section 3.1 of ASME A13.1 (2015) states, *“Positive identification of the contents of a piping system shall be by lettered legend, giving the name of the contents in full or abbreviated form ... Arrows shall be used to indicate direction of flow. Where flow can be in both directions, arrows in both directions shall be displayed. Contents shall be identified by a legend with sufficient additional details such as temperature, pressure, etc., as are necessary to identify the hazard.”*

Section 4.7.6 of IIAR Bulletin 109 (1997) states, *“All ammonia piping should have appropriate pipe markers attached to indicate the use of the pipe and arrows to indicate the direction of flow, such as in IIAR Bulletin 114, “Guidelines for: Identification of Ammonia Refrigeration Piping and System Components.”*

Section 4.2.1 of IIAR Bulletin 114 (2014) states, *“Component markers will be approximately 3-1/2” wide and long enough to accommodate the name of the component leaving a 2-1/2” margin at either end of the name to allow room for the pressure level designation. ... Lettering on component markers will be 2-1/2” high.”*

Section 7.2.9.4 of ANSI/IIAR 9 (2020) states, *“Ammonia piping mains, headers, and branches shall be identified with the following information”:*

- 1. “AMMONIA.”*
- 2. Physical state of the ammonia.*
- 3. Relative pressure level of ammonia, being low or high as applicable.*
- 4. Pipe service, which shall be permitted to be abbreviated.*
- 5. Direction of flow.”*

- At the time of the inspection, heavy ice buildup was observed on uninsulated inlet piping to the RB1 Low Side Compressor and to the RC1 High Side Compressor, and on uninsulated piping at the base and leading into Accumulator 2 (ACC-2), as well as around the ACC-2 nameplate.

Section 4.10.7 of IIAR Bulletin No. 109 (1997) states, *“Ice formations that could endanger refrigerant piping or other components should be removed and the condition(s) that cause the ice buildup corrected.”*

Section 5.6.8 of ANSI/IIAR 6 (2019) states, *“Equipment and piping shall be kept free from excessive ice buildup.”*

1. *Ice buildup shall not interfere with the operation of emergency shut-off valves.*
2. *Ice accumulation shall not be permitted to deflect or bend pipes, displace components, or negatively impact the system's structural integrity."*

Section 7.2.6.1 of ANSI/IIAR 9 (2020) states, "*Piping and equipment surfaces not intended for heat exchange shall be insulated, treated, or otherwise protected to mitigate condensation and excessive frost buildup where the surface temperature is below the dew point of the surrounding air during normal operation and in an area where condensation and frost could develop and become a hazard to occupants or cause damage to the structure, electrical equipment, or refrigeration system."*

- At the time of the inspection, maintenance equipment and combustible materials (e.g., ladders, equipment carts, wooden pallets, cardboard boxes) were staged in the AMR, partially obstructing access to ammonia refrigeration equipment in the AMR.

Section 6.3.1 of ANSI/IIAR 2 (2014) states, "*Equipment installed in machinery rooms shall be located in such a manner as to allow egress from any part of the room in the event of an emergency, as required by Section 5.17.7, and to provide clearances required for maintenance, operation, and inspection according to manufacturer's instructions."*

Section 6.4 of ANSI/IIAR 2 (2014) states, "*Combustible materials shall not be stored in machinery rooms outside of approved fire-rated storage containers.*

EXCEPTION: This provision shall not apply to spare parts, tools, and incidental materials necessary for the operation and maintenance of the refrigeration system.

Section 7.3.4 of ANSI/IIAR 9 (2020) states, "*Combustible materials shall not be stored in machinery rooms outside of approved fire-rated storage containers."*

Section 605.11 of the International Fire Code (IFC; 2018) states, "*Flammable and combustible materials shall not be stored in machinery rooms for refrigeration systems having a refrigerant circuit containing more than 220 pounds (100 kg) of Group A1 or 30 pounds (14 kg) of any other group refrigerant. Storage, use or handling of extra refrigerant or refrigerant oils shall be as required by Chapters 50, 53, 55 and 57.*

Exception: This provision shall not apply to spare parts, tools and incidental materials necessary for the safe and proper operation and maintenance of the system."

- At the time of the inspection, an open electrical box with exposed wiring and electrical connections was observed in the AMR near the high-stage compressors.

Section 110.27(B) of NFPA 70 (2011) states, "*In locations where electrical equipment is likely to be exposed to physical damage, enclosures or guards shall be so arranged and of such strength as to prevent from damage."*

Section 604.6 of the International Fire Code (IFC; 2018) states, *“Open junction boxes and open-wiring splices shall be prohibited. Approved covers shall be provided for all switch and electrical outlet boxes.”*

- At the time of the inspection, the low-level visible and audible alarm set points for the ammonia sensors located in the AMR were not consistent with industry standards. Ammonia sensors in the AMR are set to visibly and audibly alarm at a detection level of 50 parts per million (ppm) of ammonia, with a high-alarm level at 125 ppm of ammonia and an automatic compressor shutdown level set at 200 ppm of ammonia.

Section 6.13.1 of ANSI/IIAR-2 (2014) states, *“Machinery rooms shall be provided with ammonia detection and alarm in accordance with Sections 17.2-17.6 and the following features: 2. The detector shall activate an alarm that reports to a monitored location so that corrective action can be taken at an indicated concentration of 25 ppm or higher.”*

Section 6.13.2.2 of ANSI/IIAR-2 (2014) states, *“Detection of ammonia concentrations equal to or exceeding 25 ppm shall activate visual indicators and audible alarms as specified in Section 6.13.1. The visual indicator and audible alarm shall be permitted to automatically reset if the ammonia concentration drops below 25 ppm.”*

Section 17.7 of ANSI/IIAR-2 (2014) states *“Level 1, 2, and 3 ammonia detection and alarm systems shall activate at 25 ppm so that a corrective action can be taken if ammonia concentrations are detected above that level.”*

2. 40 C.F.R. § 68.65(f) requires the owner or operator to update and revalidate the process hazard analysis (PHA) at least every five years after the completion of the initial PHA to assure that the PHA is consistent with the current process.
 - At the time of the inspection, AFH Logistics had not updated and revalidated the PHA for the ammonia refrigeration system at least every five years. The most recent PHA revalidation was completed in September 2016 by the previous owners of the ammonia refrigeration system, C&S Wholesale Grocers.
3. 40 C.F.R. § 68.65(g) requires the owner or operator to retain PHAs and updates or revalidations for each process, as well as the documented resolution of the recommendations for the life of the process.
 - At the time of the inspection, AFH Logistics did not retain PHA updates or revalidations, or the documented resolutions of recommendations for the life of the process. The September 2016 PHA does not include any documented resolutions for the identified recommendations, nor actual end dates for when resolutions were completed.

4. 40 C.F.R. § 68.69(c) requires the owner or operator to certify annually that the operating procedures are current and accurate.
 - At the time of the inspection, AFH Logistics was unable to demonstrate whether it was certifying its ammonia refrigeration system operating procedures annually between 2017 and 2020.
5. 40 C.F.R. § 68.73(d)(2) requires inspection and testing procedures to follow RAGAGEP.
 - At the time of the inspection, AFH Logistics was not able to provide documentation to demonstrate that they are conducting ammonia system safety checks annually for the past five years, though they are completing various ammonia refrigeration system maintenance and inspection tasks on a periodic basis. Section 5.1.1.3 of ANSI/IIAR 6 (2019) states, “*Each inspection and test performed shall be documented and include the following information:*
 - *Date of the inspection or test;*
 - *Name of the individual or individuals who performed the inspection or test;*
 - *Serial number or other identifier of the equipment on which the inspection or test was performed;*
 - *Description of the inspection or test performed;*
 - *Recommended corrective action(s) for each deficiency identified;*
 - *Description of corrective action(s) for each deficiency identified;*
 - *Identification of each designated responsible person assigned and authorized to remedy each deficiency identified;*
 - *Results based on the conditions at commencement of the inspection or test, including instrumentation readings;*
 - *Expected activation set points (+/-) including a functional description of the control logic;*
 - *Results based on the conditions after completion of the inspection or test, including instrumentation readings;*
 - *Expected completion date(s); and*
 - *Actual completion date(s). ”*

Section 5.3.2 of ANSI/IIAR 6 (2019) “*requires inspection, testing, and maintenance records to be readily accessible*”, and Table 5.3.7 of ANSI/IIAR 6 (2019) requires the most current five (5) years of annual inspection records to be retained by the facility.

- At the time of the inspection, AFH Logistics was not conducting ammonia sensor testing according to manufacturers’ recommendations. Facility personnel indicated that the ammonia sensors used at the facility were manufactured by Calibration Technologies, Inc. (CTI) and are model number GG-NH3 Ammonia Gas Sensors. AFH Logistics calibrates these ammonia sensors annually. However, maintenance guidelines developed by CTI for the Model Number GG-NH3 sensor type state that owners/operators should “*Calibrate the detector at least once every 6 months.*”

Section 605.6.1 of IFC (2018) states, “*The following emergency devices or systems shall be periodically tested in accordance with the manufacturer’s instructions and as required by the fire code official. 4. Detection and alarm systems.*”

Section 17.3 of ANSI/IIAR-2 (2014) states, “*A schedule for testing ammonia detectors and alarms shall be established based on manufacturers' recommendations, unless modified based on documented experience. Where manufacturers' recommendations are not provided, ammonia detectors and alarms shall be tested at least annually.*”

6. 40 C.F.R. § 68.73(d)(3) requires the frequency of inspections and tests of process equipment to be consistent with applicable manufacturers’ recommendations and good engineering practices.
 - At the time of the inspection, annual ammonia system safety inspections were not being conducted. ANSI/IIAR Bulletin 109 (1997) states, “*Each owner should ensure an ammonia system safety check is conducted annually.*” The “Summary of Maintenance Work” completed by technicians at AFH Logistics does not include Inspection, Testing, and Maintenance tasks required by the various sections of ANSI/IIAR-6 (2019) such as the annual visual inspection requirements applicable to Compressors (Table 6.1), Refrigerant Pumps (Table 7.1), Condensers (Table 8.1), Evaporators (Table 9.1), Pressure Vessels (Table 10.1), Piping (Table 11.1), and Ammonia Refrigeration Valves (Table 11.1.6).
7. 40 C.F.R. § 68.73(e) requires the owner or operator to correct deficiencies in equipment that are outside acceptable limits before further use or in a safe and timely manner when necessary means are taken to assure safe operation.
 - At the time of the inspection, an ammonia odor was observed in sections of the AMR, which increased in intensity near the intercooler and accumulators. Though facility personnel indicated that they had recently discovered a leak associated with the Accumulator 1 (ACC-1) sight-glass and had ordered a replacement part to address the ongoing leak, the presence of a persistent ammonia odor in the AMR presents a hazard to facility staff and indicates that the facility does not have a system in place to correct deficiencies in ammonia refrigeration equipment that are outside acceptable limits (e.g., a leaking component) before further use or in a timely manner to assure safe operations.
8. 40 C.F.R. § 68.93(a) requires the owner or operator to coordinate with local emergency planning and response organizations at least annually, and more frequently if necessary, to address changes: At the stationary source; in the stationary source's emergency response and/or emergency action plan; and/or in the community emergency response plan.

- At the time of the inspection, facility personnel were unable to produce documentation of annual coordination of response needs with local emergency planning and response organizations.
9. 40 C.F.R. § 68.195(b) requires the owner or operator to submit corrected emergency contact information within thirty days of a change.
- At the time of the inspection, the emergency contact in the most recent RMP submission was “Mike Baker,” who is no longer in this role at the facility and was replaced by Britt Sherbet. The emergency contact information had not been changed within thirty days of this change.

Inspection Report,

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