

CAA112(r) INSPECTION REPORT

Name: Tyson Fresh Meats	
Address: 16198 Highway 70 North, Columbus Junction, Iowa, 52738	Date of Inspection: 9/15/23
County: Louisa	Case No: 23IA0915
Phone: 319-728-5201	RMP No: 1000 0008 7755
High Risk: No	FRS No: 1100 4421 0831
CAA Title V: No	Program Level: Program 3
Mailing Address: 16198 Highway 70 North, Columbus Junction, Iowa, 52738	
Process: Anhydrous ammonia refrigeration and storage	

SUMMARY OF OBSERVATIONS

A review of documents pertaining to the Tyson Fresh Meats facility at 16198 Highway 70 North, Columbus Junction, Iowa (facility), and an inspection at that facility—with focus on Chemical Accident Prevention Provisions (Title 40 *Code of Regulations* [CFR] Part 68)—revealed the following preliminary finding:

- 1. The facility didn't submit an update to its RMP after a reportable incident with substantial on-site property damage, as required by 40 CFR 68.195(b).**

INTRODUCTION

I, Amelia Papajohn, Tetra Tech, Inc. (Tetra Tech), as a representative of U.S. Environmental Protection Agency (EPA) Region 7, inspected the Tyson Fresh Meats (Tyson) facility in Columbus Junction, Iowa, on September 15, 2023. On September 7th, I called Mr. Mike Berry to notify him of the upcoming inspection. I sent a follow-up email with further details and was asked by Ms. Amanda Huxley, plant safety manager, what triggered the inspection. I responded that the 2020 incident at the facility was of interest to EPA.

The intent of the inspection was to determine if the facility complies with Section 112(r) of the CAA, as amended in 1990. EPA's regulations describing implementation of this law are included in 40 CFR 68. Throughout the inspection, I referenced these regulations throughout the inspection by using the Program 3 Process Checklist (Folder 1, Attachment 1). All attachments cited in this inspection report (Attachments 1 through 17) are also in a folder on the accompanying compact disc (CD). Folder numbers on the CD correspond to attachment numbers.

HISTORY OF BUSINESS

Tyson is a meat packing and storage facility that utilizes anhydrous ammonia for its refrigeration system. Based on the facility's inventory calculations and Tier II report (Attachment 2), there were approximately 80,600 pounds of anhydrous ammonia on site. The facility's RMP estimated a maximum of 86,000 pounds of anhydrous ammonia are in circulation (Attachment 3). I inquired about the chlorine listed on the RMP and Tier II report. Facility personnel said Tyson uses chlorine for its wastewater system and, typically, only a couple of 150-pound chlorine cylinders are on site, which is less than the RMP threshold quantity of 2,500 pounds. Because the listed inventory calculations were above the threshold quantity, facility personnel contacted the employee who calculated inventories and confirmed that 4,750 pounds of chlorine was the correct maximum. I asked to see RMP-related documents for the chlorine wastewater treatment process but was denied access due to Department of Homeland Security concerns.

A summary of the facility's inventory is as follows:

	Quantity (pounds)	Quantity (pounds)
	Anhydrous Ammonia	Chlorine
Maximum Intended Inventory ¹	80,600	4,750
Risk Management Plan Quantity ²	86,000	6,000

¹ See facility's 2022 Tier II report and inventory calculations (Attachment 2)

² See facility's 2019 Risk Management Plan Submission (Attachment 3)

PERSONS INTERVIEWED AND INDIVIDUAL RESPONSIBILITIES

During the inspection, I interviewed the following:

Adrienne Allison Director of Safety, Tyson
Amanda Huxley Plant Safety Manager, Tyson
Bill Bright Plant Process Safety Management (PSM) Coordinator, Tyson
Kevin Sizemore PSM Area Manager, Tyson
Tim Wilson Wastewater Manager, Tyson
Mike Berry Plant Engineer, Tyson
Brent McElory Plant Manager, Tyson
Alex Berry Engineer Supervisor, Tyson

OPENING CONFERENCE

At approximately 8:30 a.m., on Friday, September 15, 2023, I arrived at the Tyson facility at 70 Highway North, Columbus Junction, Iowa. I signed in at the office building, met with Mr. Brent McElory, plant manager, and proceeded to a conference room in which were the seven other individuals listed above. There, I explained that I was conducting the inspection under authority of CAA Chemical Accident Prevention Provisions, which would consist of a facility walk-through, review of relevant documents, and photographic documentation. I also stated that I would conduct an exit interview to review and explain my findings, provide a receipt for any requested document copies, and answer questions. I presented my inspection credentials to facility personnel, filled out a Notice of Inspection Form (Folder 1), and explained that my inspection was for enforcement purposes and that enforcement actions could result from the inspection.

After the introduction, I asked to see the facility's RMP documentation, including hazard assessment, process safety information, process hazard analyses, operating procedures, training records, maintenance records, compliance audits, and emergency response procedures.

Due to Department of Homeland Security concerns, the facility would not permit me to collect documentation on chlorine.

HAZARD ASSESSMENT

I asked to view the facility's hazard assessment, including its worst-case and alternative-release scenarios. Calculations of distance to endpoint depended on the RMP*Comp model (Attachment 4).

Tyson's worst-case scenario was complete loss of ammonia from its high temperature recirculator, the largest vessel on site (capacity 39,035 pounds), at release rate of 3,900 pounds per minute over 10 minutes. A calculation indicated an affected radius of 3.6 miles and population of approximately 3,171.

The facility's alternative-release scenario involved activation of a pressure relief valve, the most common release cause across company reports. The estimated time for Tyson personnel to bring the situation under control was 10 minutes, resulting in a 728-pound release at 72.8 pounds per minute, affecting the population within a 0.2-mile radius.

Tyson's hazard assessment for its worst-case and alternative-release scenarios appears to meet the requirements in 40 CFR 68.25.

PROCESS SAFETY INFORMATION

I asked to view the facility's process safety information, including the Safety Data Sheet (SDS) for anhydrous ammonia, process/block flow diagrams, safe upper and lower limits, consequences of deviation, Piping and Instrumentation Diagrams (P&IDs), relief, ventilation and safety system design, and material and energy balances (see Folder 5, Attachment 5).

The anhydrous ammonia SDS included physical and chemical information, as well as first aid procedures in the event of an exposure.

I reviewed P&IDs for the refrigeration system as well as design information for compressors, vessels, and the relief system. I was also shown documentation of the facility's load analysis and consequences of deviation. Tyson abides by International Institute of Ammonia Refrigeration (IIAR) and American Society of Mechanical Engineers (ASME) guidelines.

PROCESS HAZARD ANALYSES

I inquired if Tyson had undertaken a Process Hazard Analysis (PHA); facility personnel showed me the most recent PHA, which was dated December 14, 2021, and appeared to satisfy the requirements of 40 CFR 68.67 (see Attachment 6). I asked how findings are tracked. Ms. Allison said findings are assigned through Tyson's SharePoint, and the assignee is notified via email.

STANDARD OPERATING PROCEDURES (SOP)

I asked to see SOPs for the refrigeration process. Tyson personnel provided SOPs for normal shutdown/emergency shutdown, startup following an emergency shutdown, temporary operations Management of Change (MOC), and parts replacement (see Attachment 7). Consequences of deviation were present in SOPs. The facility runs 24-hours, 7 days a week, and there are night and day shift technicians. Most of the refrigeration system parts have a backup, but should a part fail, technicians fill out the temporary operations MOC and a work order. SOPs are accessible to employees on Tyson's SharePoint.

TRAINING

I inquired about training provided to employees. Ms. Allison and Mr. Sizemore said that refrigeration technicians review SOPs, receive on-the-job training, and undergo initial 24-hour and annual 8-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training. To adequately prepare technicians for work, on the job training consists of discussion, simulation, and operation phases (see Attachment 8).

MECHANICAL INTEGRITY

I asked facility personnel how often they replace equipment, who conducts changeouts, and how maintenance tasks are tracked. Mr. Berry explained that technicians conduct daily rounds and, when deficiencies are found, the replacement of equipment conforms to manufacturer specifications. I was presented documentation on maintenance schedules for all process equipment, which included recording temperature readings for compressors and inspection of bearings (see Folder 9, Attachment 9).

Mr. Berry said that equipment underwent and passed a pressure test, for which I was shown documentation. I asked who conducts equipment tests; he said that a contractor, All Temp, replaces the refrigeration parts, and All Temp and GEA conduct temperature and vibration screenings.

I asked how Tyson keeps track of maintenance tasks and was told by personnel that tasks are tracked online through Maintenance Management System (MMS).

During the facility walk-through, refrigeration process equipment appeared to be in adequate condition.

MANAGEMENT OF CHANGE (MOC)

I asked to see the facility's MOC document, outlining procedures should major changes occur to the refrigeration system. Mr. Berry and Ms. Huxley showed me Tyson's MOC for the replacement of the screw compressor #14, valves, and pump following the engine room fire. The document appeared to meet the requirements of 40 CFR 68.75 (see Attachment 10).

PRE-STARTUP SAFETY REVIEW (PSSR)

I asked to see a PSSR from after the 2020 incident repairs had been completed. Facility personnel showed me documentation that appeared to satisfy the conditions specified in 40 CFR 69.77(a) (see Attachment 11).

COMPLIANCE AUDIT

I asked facility personnel if a compliance audit had been performed, and they showed me records of the two most recent audits. I reviewed the one dated December 14, 2021 (see Attachment 12). I noticed findings on the compliance audit and inquired how those findings are resolved and how employees know they've been assigned. Ms. Allison explained that employees receive an email notifying them of the tasks they've been assigned, which is triggered through Tyson's online SharePoint.

INCIDENT INVESTIGATION

I asked if there had been any incidents at the facility in the past 5 years. Mr. Alex Berry showed me the incident report (Attachment 13) and explained that, on December 15, 2020, there had been an incident, which began when a motor shaft bearing heated to approximately 1,350 degrees Fahrenheit, melting the shaft and dislodging the compressor coupler. The coupler struck and damaged an oil line, producing an oil mist. When the mist encountered the hot bearing, a fire started, causing approximately 938 pounds of ammonia to be released. Tyson personnel said the release was discovered by refrigeration technicians, who called responders. The fire and ammonia release caused significant on-site property damage.

I asked what caused the bearing to overheat; Ms. Allison said the cause was unknown, but the plant installed a control that automatically shuts down operations if bearings exceed 150 degrees Fahrenheit and replaced the affected equipment.

After the incident, the plant managers and the Tyson corporate office met to communicate findings and discuss MOC and PSSR.

EMPLOYEE PARTICIPATION

I asked to examine a written program regarding employee participation. Ms. Allison and Ms. Huxley presented a document that outlined procedures for employee participation and awareness as well as an employee sign off sheet (see Attachment 14), which appeared to meet the requirements of 40 CFR 68.83.

HOT WORK PERMIT

I asked to see a hot work permit and was shown one which appeared to satisfy the requirements of 29 CFR 1910.0252(a).

CONTRACTORS

I asked how Tyson evaluates adequacy and ensures safety of maintenance contractors. Ms. Allison said that Tyson uses ISN, an online platform which evaluates and grades contractor performance. The ISN entry for refrigeration parts replacement contractor All Temp indicates that it has a grade of A and no Occupational Safety and Health Administration (OSHA) citations.

Contractors are made aware of evacuation routes during the safety orientation required by the facility.

EMERGENCY RESPONSE

I asked if the facility was a responding facility, to which personnel answered yes. I reviewed the Emergency Response Plan (ERP), which contained contact information for local responders, including the Louisa County ambulance, Columbus Junction fire and police department, and plant managers (see Attachment 15). The response plan also indicates that, annually, refrigeration technicians receive 24-hour, initial HAZWOPER training as well as an 8-hour refresher and are taught about the chemical hazards at the facility, namely anhydrous ammonia and chlorine. Safety information was included in the ERP as well as instruction on response activities and a personal protective equipment (PPE) inventory.

I inquired if Tyson conducts tabletop exercises, and reviewed an example provided to me by Ms. Huxley. Mr. Bill Bright conducts the field exercises, which consist of various scenarios in different parts of the facility, PPE try on, fire hydrant hook ups, and a review of past incidents. I retained a copy of the signature list (see Folder 15).

MANAGEMENT SYSTEM

When I inquired about how Tyson manages its RMP program, I was presented with a document outlining personnel responsibilities and titles (see Attachment 16). Mr. McElory is the plant manager, Mr. Seth Schwarzkopf oversees RMP/PSM implementation, and Ms. Huxley is the plant safety manager and implements the safety aspects of RMP/PSM. Mr. Mike Berry is the plant engineer, and Mr. Alex Berry manages and delegates refrigeration system maintenance tasks. Mr. Tim Wilson and Mr. Jimmi Berry are wastewater treatment operators, and Mr. Bill Bright is the plant's PSM coordinator.

RISK MANAGEMENT PLAN

I asked to see Tyson's most recent RMP submission. The document shown to me was dated May 13, 2019; Tyson hadn't submitted an update to include the 2020 incident. Because the reportable incident was not included in the RMP, I noted the following preliminary finding:

- 1. The facility didn't submit an update to its RMP after a reportable incident with substantial on-site property damage, as required by 40 CFR 68.195(b).**

PHOTOGRAPHS

During the site walk-through, I took 30 digital photographs, which are in Folder 17 of the CD. Selected photographs appear in a photographic log in Attachment 17.

CLOSING CONFERENCE

After I finished reviewing all applicable documents and completed the site walk-through, I explained to facility personnel that the following preliminary finding had been identified:

- 1. The facility didn't submit an update to its RMP after a reportable incident with substantial on-site property damage, as required by 40 CFR 68.195(b).**

I indicated that additional findings could be identified during post-inspection review of the documents collected. I provided the Confidentiality Notice and the completed Receipt for Samples and Documents form (Folder 1), and Mr. McElroy reviewed and signed the receipt for samples document and the confidentiality notice, indicating that the provided documents did not contain confidential business information.

I departed the facility at approximately 5:45 p.m. on September 15, 2023.

This report concludes my inspection activities regarding the Tyson facility in Columbus Junction, IA.



Amelia Papajohn
Compliance Inspector

ATTACHMENTS

- 1 Inspection Forms and Checklists
- 2 Maximum Intended Inventory
- 3 RMP Submission
- 4 Hazard Assessment
- 5 Process Safety Information
- 6 Process Hazard Analysis
- 7 Standard Operating Procedures
- 8 Training
- 9 Mechanical Integrity
- 10 Management of Change
- 11 Pre-Startup Safety Review
- 12 Compliance Audit
- 13 Incident Investigation
- 14 Employee Participation
- 15 Emergency Response
- 16 Management System
- 17 Photographic log

CD – Attached to Report