

CAA112(r) INSPECTION REPORT

Name: Cargill Meat Solutions	
Address: 2601 Industrial Road, Nebraska City, Nebraska	Date of Inspection: August 22, 2023
County: Otoe County	Case No: 23NE0822
Phone: (402) 873-8425	RMP No: 1000 0008 7176
High Risk: No	FRS No: 1100 0055 0001
CAA Title V: No	Program Level: Program 3
Mailing Address: PO Box 760, Nebraska City, Nebraska 68410	
Process: Anhydrous ammonia used for refrigeration	

SUMMARY OF OBSERVATIONS

A review of documents pertaining to the Cargill Meat Solutions Plant at 2601 Industrial Road, Nebraska City, Nebraska (facility), and an inspection at that facility—with focus on Chemical Accident Prevention Provisions (Title 40 *Code of Federal Regulations* [CFR] Part 68)—revealed the following deficiency:

- 1. The facility failed to update or revalidate the process hazard analysis (PHA) at least once every 5 years, as required by 40 CFR 68.67(f).**

INTRODUCTION

I, Heather Wood, Tetra Tech, Inc. (Tetra Tech), as a representative of U.S. Environmental Protection Agency (EPA) Region 7, inspected the Cargill Meat Solutions facility (Cargill) in Nebraska City, Nebraska, on August 22, 2023. On August 15, 2023, I had left a voicemail message for Mr. Maynor Gonzalez, Environmental Health and Safety (EHS) Manager at Cargill, notifying him that I planned to conduct an RMP inspection on Tuesday, April 22. He confirmed that he and relevant facility personnel would be available that day for the inspection. I then sent a follow-up email outlining the basis for the inspection and specifying the date and time I would arrive.

HISTORY OF BUSINESS

Cargill is a meat packing facility that uses an anhydrous ammonia refrigeration system. The facility began operation in the mid-1990s and significantly expanded in 2000. The facility uses a single anhydrous ammonia engine room that hosts six vessels, the largest being the high-stage (H.S.) accumulator with a maximum capacity of 28,440 pounds.

The following summarizes reported amounts of anhydrous ammonia at the facility:

	Quantity (pounds)
	Anhydrous Ammonia
Risk Management Plan Process Quantity ^a	96,000
Tier II Maximum Daily Amount ^b	50,000 – 74,999

^a See facility's Risk Management Plan Update documentation dated March 1, 2022 (Attachment 2). The facility has claimed its more exact maximum operational inventory as confidential business information (CBI Folder 10).

^b See facility's 2022 Tier II report (Attachment 3)

PERSONS INTERVIEWED AND INDIVIDUAL RESPONSIBILITIES

The following personnel participated in the opening conference and participated in interviews as part of the inspection process:

Maynor Gonzalez.....EHS Manager, Cargill
 Andrew RussellSafety Administrator, Cargill
 Brent KobrigerEHS Lead, Cargill
 Roberto Polanco.....EHS Supervisor, Cargill
 Russell LinthicamWastewater Operator and Union Representative, Cargill
 Frank MedeirosSupervisor, Cargill
 Roger NortonUtilities Reliability Supervisor, Cargill
 Nate Meyer.....Plant Manager, Cargill
 Kenny PearsonProcess Safety, Cargill
 Paige La Due.....Process Safety, Cargill
 Justin Meyer.....Maintenance Manager, Cargill
 Michael Lacher (by telephone)Process Safety, Cargill

OPENING CONFERENCE

I arrived at the Cargill Meat Solutions facility at 2601 Industrial Road, Nebraska City, Nebraska, on August 22, 2023, at approximately 8:30 a.m. I signed in at the front desk and was escorted to a conference room by Mr. Gonzalez, where we were joined by the team listed in the previous section (the Cargill team).

I explained that I was conducting the inspection under authority of the CAA's Chemical Accident Prevention Provisions, and that the inspection would consist of a facility walk-through, review of relevant documents, and photography of equipment items and their environs. 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 (Attachment 1), and explained that my inspection was for enforcement purposes and that enforcement actions could result from the inspection. Mr. Gonzalez signed the Notice of Inspection Form. After the introduction, I asked to see the facility RMP documentation, including the off-site consequence analysis, process safety information, process hazard analyses, operating procedures, training records, maintenance records, compliance audits, and emergency response procedures. As I reviewed available documents, I directed any questions I had to

facility personnel, and I noted my findings on the Region 7 Checklist for Risk Management Plan Investigations or Audits at Program Level 3 Stationary Sources (Attachment 1). Photographs that I took during the walk-through are in the photographic log in Attachment 4 and in Folder 4 of the compact disc (CD).

Following inspection of the facility, Mr. Kobriger notified me that the facility considered a number of documents I had collected as confidential business information (CBI). That list is in Attachment 1. My finding did not rely on any document considered to be CBI, and no CBI is in this report. Copies of the CBI documents I collected during the inspection will be on a separate CD to be managed as CBI.

HAZARD ASSESSMENT

I asked to see the facility's hazard assessment and off-site consequence analysis, including its worst-case and alternative-release scenarios. These were included in the 2022 RMP update documentation (Attachment 2). Cargill Meat Solutions's worst-case scenario involved emptying of the largest anhydrous ammonia vessel, the high stage accumulator at the full quantity load at 100% capacity fill. Approximately 30,000 pounds of anhydrous ammonia would be released to the surrounding community (7,800 people) with a distance-to-end point of 3.1 miles from the facility. The facility's alternative-release scenario was a truck collision with the intermediate stage accumulator that would release an estimated 2,500 pounds of ammonia in 10 minutes, affecting a population of 120 people within a 0.3-mile radius. These amounts and distances were calculated by use of RMP*Comp, and population was estimated by use of population data from the Missouri Census Data Center Circular Area Profiles (CAPS). CAPS still was using the 2010 census data as of the date of writing of this report. Both the worst-case and alternative-release scenarios had been most recently calculated in March 2022.

PROCESS SAFETY INFORMATION

I inquired if the facility could show me its process safety information, including a Safety Data Sheet (SDS) for anhydrous ammonia, diagrams and schematics, design codes and standards in place, and material and energy balances. I was shown the SDS for anhydrous ammonia, and Cargill Meat Solutions provided diagrams of its ventilation system and a block flow diagram of its entire process (CBI Folder 10). I also reviewed a maximum operational inventory (CBI Folder 10) and the facility's safe operating limits (Folder 6).

The facility abides by standards and guidelines of the International Institute of Ammonia Refrigeration (IIAR); National Fire Protection Association (NFPA); American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE); and American National Standard Institute (ANSI)—and by recommendations from the manufacturer of equipment at the facility, and applicable local, state, and federal codes. The facility provided documentation of the design codes and standards used by the facility (Folder 6). Facility personnel showed me materials of construction documentation, piping and instrumentation diagrams, ventilation system design, and other documents related to process safety of technology and equipment.

PROCESS HAZARD ANALYSES

Facility personnel showed me the process hazard analysis (PHA) (called the Process Risk Assessment or PRA by the facility) conducted in early 2022 (CBI Folder 10). The PHA involved

application of a hazard and operability study (HAZOP) methodology, and I observed that recommendations and actions therein had been signed off as completed. Cargill Meat Solutions uses Enablon, an online maintenance system, to track all work orders and PHA actions.

I also reviewed PHAs performed in 2006, 2012, and 2017, which followed a what-if/checklist approach. The facility also showed me a list of revision dates for early PHAs in 1998 and 2002 (Attachment 5). Based on these dates, it appeared that the facility had not conducted a PHA between 2006 and 2012. The Cargill team confirmed a 6-year gap between PHAs. Based on this, I made the following finding:

- 1. The facility failed to update or revalidate the process hazard analysis (PHA) at least once every 5 years, as required by 40 CFR 68.67(f).**

STANDARD OPERATING PROCEDURES

I asked facility personnel how employees access SOPs. Ms. La Due responded that these are electronic, can be viewed by all employees via Microsoft Teams, and are updated annually or following any changes to the process. I reviewed a selection of SOPs and noted that these addressed various operating phases, including initial startup, normal operations, temporary operations, emergency shutdown, emergency operations, normal shutdown, and startup following a shutdown. Also in those documents was information regarding operating limits and safety and consequences of deviation. According to Ms. La Due, SOPs are reviewed annually and updated as needed. The most recent revision date is tracked on the SOP. An example SOP is in Folder 7.

TRAINING

I asked how employees are onboarded and trained at the facility, and how training completion is tracked. The Cargill team described a 6-month probationary period for all refrigeration personnel, followed by off-site training at the Garden City Ammonia Program (GCAP). Some personnel also go on to receive Refrigerating Engineers and Technicians Association (RETA) certification. At least once every 3 years, refrigeration personnel go to GCAP or an Interstate Technology and Regulatory Council (ITRC) course for refresher training. Operators also participate in weekly meetings to review SOPs and task procedures, conducted by Mr. Norton.

Training is tracked on spreadsheets, and certificates are filed by employee name. Mr. Norton reviews training documentation after weekly meetings. During the inspection, I reviewed training documentation.

MECHANICAL INTEGRITY

I inquired if the facility had a mechanical integrity program. Ms. La Due showed me the facility's mechanical integrity program description (CBI Folder 10). The document provided an inventory of covered ammonia equipment, maintenance and inspection requirements, quality assurance procedures, and training and expertise required to perform maintenance duties. The facility abides by IIAR standards (Folder 6). If any deficiencies are identified during these inspections, a work order is created, tracked in Maximo asset management flow software, and

promptly addressed. In addition to the IIAR inspections, mechanical integrity inspections by a third-party contractor occur every 5 years.

During the facility walk-through, I observed the compressors, accumulator vessels, and their associated piping that appeared to be in good condition, with minimal to no frosting thereon. Piping was labeled as anhydrous ammonia, and equipment was tagged with serial numbers, manufacture date, and pressure within.

MANAGEMENT OF CHANGE (MOC)

During the inspection, I reviewed the facility's MOC procedures and documentation. According to Ms. La Due, the facility tracks the steps of the MOC process in Enablon. The MOC register documentation shows the nature and purpose of the change, reviews by a team of subject matter experts from across facility operations, an assessment of risk, and sign-off by the appropriate change request approvers. The facility provided an example of a MOC register (CBI Folder 10).

PRE-STARTUP SAFETY REVIEW (PSSR)

Following any MOC or system restart, the facility conducts a PSSR, also tracked in Enablon. The PSSR checklist is documented on the MOC register and in operational readiness checklists, both of which the facility provided (CBI Folder 10).

COMPLIANCE AUDIT

I asked to see the facility's most recent compliance audit. Ms. La Due showed me a compliance audit from March 2021 (CBI Folder 10). I reviewed the report findings and noted that the facility's action items had been checked off with respective completion dates, and the steps taken to satisfy recommendations had been documented. Ms. La Due confirmed that the facility also uses Enablon to track compliance audit findings. The compliance audit was conducted by an internal team that included Nebraska City personnel familiar with local operations. The Cargill team also showed me compliance audits performed in 2015 and 2018.

INCIDENT INVESTIGATION

I inquired about a release of anhydrous ammonia at the facility documented in the RMP submission. Facility personnel explained that the accident on February 13, 2021, had occurred during replacement of a valve on a condenser system outside the building. According to Mr. Gonzalez, the morning was extremely cold; he estimated that the temperature was well below 0 degrees Fahrenheit (°F). The contractor thought that the line on which he was working had been completely evacuated of anhydrous ammonia, and he continued to drill holes in the piping. Late in the morning, he completed a hole saw cut, and then heard air rushing from the hole he had just cut. He covered the hole with his gloved hand and, at that moment, was splashed with a liquid/vapor mix. He became confused, but assisted by coworkers, left the area. The worker was decontaminated on site, and then taken to the emergency room. A copy of the incident report is in Folder 8.

According to the Cargill team, the immediate cause of the incident was determined to be the very cold temperature, which prevented complete evacuation of ammonia from the line. Root causes were determined to be inadequate risk assessment in work or task planning, inadequate

understanding of work stop criteria, and a work environment that caused confusion (noise, lighting, cold/heat, poor ergonomics). The incident report stated that the contractor “had all required PPE for the task of completing the line break (PPE included: personal ammonia meter, apron, gloves, goggles, hard hat with face shield and full-face respirator on hand).” According to the Cargill team, he had not been wearing a full-face respirator because the crew had assumed the lines had been completely evacuated and because a backup team was available for response. According to the Cargill team, the facility subsequently implemented a new task procedure for work on this system that prevents any maintenance requiring pump-out of a low stage control station/evaporator when the temperature is less than 0°F (CBI Folder 10).

CONTRACTORS

According to the Cargill team, the facility uses Avetta, a contractor screening platform that allows the facility to filter through a company’s safety and incident history and to examine individual performance. The facility onboards contractors for facility-specific tasks, provides them a general anhydrous ammonia awareness orientation, and gives each of them a copy of the facility’s safety plan.

EMERGENCY RESPONSE

The Cargill facility is a responding facility, and has developed and implemented an emergency response program. I examined the facility’s emergency action plan and emergency planning and response program documentation (CBI Folder 10). These documents identify the emergency response team, describe roles of each team member to aid incident command, outline how incidents should be reported, and specify evacuation procedures. All responders receive 24-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training, and complete refresher training every year.

Emergency response equipment is available in a trailer on the west end of the facility near the engine room, as well as in a hallway adjacent to the engine room for easy access. The trailer contained respirators, self-contained breathing apparatuses (SCBA), harnesses, Tyvek suits, and chemical-resistant boots. The facility most recently conducted a training exercise in May 2023.

The facility has the local fire department tour the facility once a year, and meets with the local emergency planning committee (LEPC) every 3 months.

MANAGEMENT SYSTEM

During the inspection, I reviewed the documents that constitute the facility’s RMP management system. The Cargill team uses Enablon, Maximo, and Avetta software to support its management procedures.

RISK MANAGEMENT PLAN

The facility gave me the RMP submission dated March 1, 2022. The facility’s RMP submission appeared to satisfy the requirements of 40 CFR 68.150-68.195.

PHOTOGRAPHS

During the site walk-through, I took eight digital photographs. All of these are in Folder 4 of the CD, and selected photographs appear in a photographic log in Attachment 4.

CLOSING CONFERENCE

At the end of the inspection, I reviewed my observations and the preliminary findings with the Cargill team. I explained that additional findings could be identified via post-inspection review of the documents obtained. I provided the Confidentiality Notice and the completed Receipt for Samples and Documents form (Attachment 1). Mr. Gonzalez reviewed the receipt for documents first, signed it, and completed the Confidentiality Notice, indicating that the facility wished to take 5 days to determine if any materials were CBI. I then filled out the Notice of Preliminary Findings form (Attachment 1) and provided it to Mr. Gonzalez for review and signature.

I departed the facility around 4:00 p.m. on August 22, 2023. On August 25, 2023, the facility notified me that it wished to claim certain documents I had collected as CBI. A list of those documents is in Attachment 1. Copies of email correspondence between me and the facility is in Folder 9; email correspondence that contained material claimed as CBI is in CBI Folder 11.

This report concludes my inspection activities regarding the Cargill facility in Nebraska City, Nebraska.

 Digitally signed by
Heather Wood
Date: 2023.09.29
11:32:16 -05'00'

Heather K. Wood
Compliance Inspector

ATTACHMENTS

- 1 Inspection Forms and Checklists
- 2 2022 Risk Management Plan Update
- 3 2022 Tier II Report
- 4 Photolog
- 5 PHA Revision Dates

FOLDERS

- 6 Process Safety Information
- 7 Standard Operating Procedures
- 8 Incident Investigation
- 9 Emails

CBI FOLDERS

- 10 CBI Documents
- 11 CBI Emails

CDs (2) – Attached to Report