

CAA 112(r) INSPECTION REPORT

Name: Landus Cooperative	
Address: 1095 T Avenue, Boone, IA	Date of Inspection: March 3, 2023
County: Boone	Case No: 23IA0303
Phone: 515-817-2100	RMP No: 1000 0005 6672
High Risk: No	FRS No: 1100 0051 3427
CAA Title V: No	Program Level: Program 2
Mailing Address: 1095 T Avenue, Boone, IA	
Process: Agronomy business, including retail sale of anhydrous ammonia	

SUMMARY OF OBSERVATIONS

A review of documents pertaining to the Landus Cooperative (Landus) at 1095 T Avenue, Boone, IA (facility), and an inspection at that facility—both with focus on Chemical Accident Prevention Provisions (Title 40 Code of Federal Regulations [CFR] Part 68)—did not identify any preliminary findings.

INTRODUCTION

I, Robert Monnig, Tetra Tech, Inc. (Tetra Tech), as a representative of U.S. Environmental Protection Agency (EPA) Region 7, inspected the Landus facility in Boone, Iowa on March 3, 2023. Ms. Amelia Papajohn of Tetra Tech also attended for training purposes. On March 1, 2023, I had called Mr. Jay Sturtz and Mr. Kevin Brandt to notify them of an inspection planned for March 3, 2023. I then sent an email outlining the nature of the inspection and the date and time Ms. Papajohn and I would be arriving.

The intent of the inspection was to determine if the facility complies with Section 112(r) of the Clean Air Act (CAA), as amended in 1990. EPA's regulations describing implementation of this law are included in 40 CFR 68 (CAA). I referenced these regulations throughout the inspection by using the Program 2 Process Checklist and Supplemental Checklist for Ammonia Fertilizer Sector Inspections (Attachment 1). All attachments cited in this inspection report (Attachments 1 through 5) are also in a folder on the accompanying CD. Folder numbers on the CD correspond to attachment numbers.

HISTORY OF BUSINESS

The facility and its covered process is at 1905 T Avenue in Boone, Iowa. The Landus facility is a cooperative that stores grain from local farmers in the area and supplies fertilizer product, anhydrous ammonia, an RMP-covered substance. The facility stores a maximum of 830,000 pounds (lbs) of anhydrous ammonia on site—nurse tanks, bulk storage tanks, and transport trucks (disconnected from power) contain 520,200; 260,100; and 45,084 lbs of anhydrous ammonia, respectively. These tanks and trucks are on the western side of the facility, away from the road.

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

	Quantity (pounds)
	Anhydrous Ammonia
Quantity at the Time of Inspection (bulk storage tanks only)	181,152 ^(a)
Quantity listed in 2022 RMP Submission	830,000 ^(b)
Quantity in Maximum Inventory Documentation	830,000 ^(c)

Notes:

- (a) On March 3, 2023, the inspector observed the fill gauges of the two anhydrous ammonia storage tanks. The fill gauges indicated 61 percent on the 30,000-gallon tank (Tank 2701), 82 percent on the 12,000-gallon tank (Tank 2700), and 41 percent on the 18,000-gallon tank (Tank 2699). Using an anhydrous ammonia density of 5.1 pounds per gallon, the inspector estimated a quantity of 181,152 pounds.
- (b) See facility's 2022 RMP Submission (Attachment 2). This quantity assumes that all nurse tanks are also full.
- (c) See facility's maximum inventory calculations for documentation of safety information (Attachment 3).

PERSONS INTERVIEWED AND INDIVIDUAL RESPONSIBILITIES

I interviewed the following persons as part of the inspection process:

Ahad Mujeeb.....EHS Director, Landus
Jay Sturtz..... Area Lead, Landus
Kevin Brant.....Hub Superintendent, Landus
Chase Hunter..... EHS Manager, Landus
Chad Johnson.....Landus

OPENING CONFERENCE

Ms. Papajohn and I arrived at the Landus facility at 1905 T Avenue, Boone, IA at approximately 8:30 am on March 3, 2023. We signed in at the office and met with facility personnel in a conference room. I explained that I was conducting the inspection under authority of the CAA's Chemical Accident Prevention Provisions, and that the inspection would include walking through the facility, reviewing relevant documents, and taking photographs. 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. Mujeeb signed the Notice of Inspection Form.

After the introduction, Mr. Mujeeb presented the facility's RMP binder to me that contained relevant documents for our review. I began to page through the binder to examine the facility's off-site consequence analysis, safety information, hazard reviews, operating procedures, training records, maintenance records and compliance audits, asking questions when necessary.

HAZARD ASSESSMENT

I reviewed the Landus facility's hazard assessment, which consisted of worst case and alternative release scenarios, calculated in Degadis (see Folder 6). Under its worst-case scenario, Landus predicted a 130,000-lb anhydrous ammonia release at 13,152 lbs/minute for 10 minutes—with the 130,000-lb release accounting for the complete loss of contents of one anhydrous ammonia storage tank. Assuming a rural topography, the release was predicted to reach 90 people in the area, including schools, residences, correctional facilities, and recreational areas.

The facility's alternative release scenario presumed failure of the shutoff valve in the 1-inch hose at the loadout riser. The facility's hazard assessment (Folder 6) indicates availability of remote accesses of the following: a manual shutoff valve, an automatic in-line shutoff valve, and the loadout breakaway system. This scenario assumed a release rate of 2,900 lbs/minute for 2 minutes. Shutoff valves would close the line before release of 5,800 lbs; instead, only approximately 1,450 lbs would be emitted from the riser, per the facility's estimates.

Landus's hazard assessment for its worst-case scenario appears to meet the requirements in 40 CFR 68.25.

PROCESS SAFETY INFORMATION

I reviewed the facility's process safety information, including its anhydrous ammonia Safety Data Sheet (SDS), codes and engineering practices invoked, equipment diagrams, and safe operating upper and lower limits and consequences of deviation (see Folder 3).

The anhydrous ammonia SDS includes physical and chemical information, as well as first aid procedures should an exposure occur.

Landus follows American National Institute of Safety (ANSI) and Compressed Gas Association (CGA) guidance for all its piping and process equipment. Specifically, it follows requirements for storage and handling of anhydrous ammonia. Additionally, facility personnel indicated that they adhere to state anhydrous ammonia regulations, as well as Occupational Safety and Health Administration (OSHA) 1910.111. The facility provided diagrams of its anhydrous ammonia storage tanks with associated piping, valves, and labels.

Safe upper and lower limits for transfer of anhydrous ammonia are defined for atmospheric and product temperatures, product pressures, and product flows. Consequences of deviation are not stated explicitly; instead, a table lists concentrations of anhydrous ammonia and corresponding effects of these on human health.

The facility's process safety information appeared to meet the requirements stipulated in 40 CFR 68.48.

HAZARD REVIEW

I obtained copies of the facility's 2019 and 2022 Hazard Reviews (Folder 7). Both Hazard Reviews involved checklists regarding design, maintenance, and operation of equipment involved in the process—including pumps, compressors, storage tanks, electrical equipment, piping and safety equipment. In the documents were a what-if checklist and a general list of health hazards associated with the job. The facility did not document any deficiencies in either Hazard Review, and thus did not need to resolve any issues.

OPERATING PROCEDURES

I reviewed Landus's standard operating procedures (SOP), which include instructions for initial start-up, normal operations, temporary operations, emergency shutdown, normal shutdown, and start-up following a shutdown per 40 CFR 68.52(b). Consequences of deviation appear in italics throughout the operating procedures. The facility has made no major changes to the process, and correspondingly, no updates to the SOP (see Folder 8).

TRAINING

Employees receive yearly refresher training that is documented at the facility office. Training is accomplished through workbooks, handouts, power points, videos, lectures, demonstrations, and hands-on experience (see Folder 9). Those with specialized tasks undergo additional training, and contractors receive the same training orientation as employees when conducting work on site.

Supervisors evaluate employees before and after training to determine its effectiveness and competence of the employees.

MAINTENANCE

Landus had documentation of its process equipment inspections and maintenance procedures (Folder 10). A contractor, Judson Tank Company, conducts inspections of the Landus anhydrous ammonia storage tanks. The 2018 inspection relied upon the CGA Standard for Storage and Handling of Anhydrous Ammonia, and resulted in a passing score after the contractor had found the maximum allowable working pressure adequate. Additionally, Landus had documentation of evaluation of its underground piping indicating compliance of it with American Society of Mechanical Engineers (ASME) and ANSI guidelines.

Annual evaluations of the facility's nurse tanks and storage tanks, and their associated pop-off valves, hydrostatic relief valves, piping, valves, gauges, and pumps conform to the maintenance schedule. Repair of pop-off valves on the storage tanks (manufactured in 2022) is scheduled for 2027.

COMPLIANCE AUDITS

I asked for the last two compliance audits the facility had conducted. Mr. Mujeeb showed me

three compliance audits completed in 2017, 2020, and 2022, and I reviewed the most recent one (see Folder 11). The most recent compliance audit resulted in no findings; the document appeared to meet the requirements of 40 CFR 68.58.

INCIDENT INVESTIGATION

I asked if any incidents at the facility had resulted in or could reasonably have resulted in a catastrophic release of anhydrous ammonia. Mr. Mujeeb reported no incidents at the facility within the last 5 years. He provided me documentation pertaining to a 2014 anhydrous ammonia release at one of the nurse tanks, to which the Des Moines Hazmat Team and Fire Department had responded (see Attachment 4). The documentation indicates cause of the release as movement of the valve a half turn instead of the normal quarter turn. I noted inclusion of the release in the Five-Year Accident History of the facility's RMP submission (see Attachment 2).

Ms. Papajohn and I also reviewed the facility's OSHA 300 logs and found no incidents related to the covered process.

EMERGENCY RESPONSE

Mr. Mujeeb told us the facility is not a responding facility and therefore relies on the local fire department and hazmat team in Des Moines in the event of an accidental release. He stated that the fire department conducts an annual walk-through of the facility, and that Landus has an Emergency Action Plan (EAP). According to its EAP (see Folder 12), the facility had submitted its 2022 Emergency Planning and Community Right-to-Know Act (EPCRA) Tier II report to the Boone County Local Emergency Response Commission.

MANAGEMENT

Mr. Brandt and Mr. Mujeeb oversee many RMP-related tasks. Mr. Mujeeb showed me a document that included an organizational chart depicting responsibilities for implementation of the facility RMP program.

PHOTOGRAPHS

During the site walk-through, I took 47 digital photographs. All of these are in Folder 5 of the CD, and selected photographs appear in a photographic log in Attachment 5.

CLOSING CONFERENCE

After I had finished reviewing the facility's binder, and Ms. Papajohn and I had completed the site walk-through, I explained to Mr. Mujeed and Landus personnel that I did not have any preliminary findings. I indicated that findings could be identified during post-inspection reviews of the documents collected. I provided the Confidentiality Notice and the completed Receipt for Samples and Documents form (Attachment 1). Mr. Mujeeb reviewed and signed both documents, indicating that the document copies provided to me did not contain confidential business information.

Ms. Papajohn and I departed from the Landus facility at approximately 2:00 pm on March 3, 2023.

This report concludes my inspection activities regarding the Landus facility in Boone, IA.



Robert Monnig
Compliance Inspector

ATTACHMENTS

- 1 – Inspection Forms and Checklists
- 2 – 2022 RMP Submission
- 3 – Maximum Intended Inventory
- 4 – Incident Investigation
- 5 – Photographic Log

CD – Attached to Report