

CAA112(r) INSPECTION REPORT

Name: Iowa Fertilizer Company	
Address: 3550 180 th Street Wever, Iowa 52658	Date of Inspection: February 13-15, 2024
County: Lee	Case No: 24IA0213
Phone: (319) 376-4500	RMP No: 1000 0022 9246
High Risk: Yes	FRS No: 110055072424
CAA Title V: Yes	Program Level: Program 3
Mailing Address: 3550 180 th Street Wever, Iowa 52658	
Process: NAICS 325311 Description: Nitrogenous Fertilizer Manufacturing	

SUMMARY OF OBSERVATIONS

A review of the Iowa Fertilizer Company documents and facility revealed the following deficiency:

1. Iowa Fertilizer Company failed to promptly document response and resolution of compliance audit and incident investigation findings, per 40 CFR Part 68.79(d) and 81(e).
2. Iowa Fertilizer Company failed to updated and revalidated process hazard analysis at least every five (5) years after the completion of the initial process hazard analysis, per 40 CFR 68.67(f) (identified during post inspection document review)

INTRODUCTION

I, Dave Hensley, a Compliance Inspector with the U.S. Environmental Protection Agency (EPA), Region VII, accompanied by Tim Evans and Christina Gallick, Inspectors in Training with the U.S. Environmental Protection Agency (EPA), Region VII, inspected Iowa Fertilizer Company (Iowa Fertilizer) located in Wever, Iowa on February 13-15, 2024.

I arranged for the inspection via email on February 9, 2024, with Mr. Mickey McHale, Plant Director and Dr. Amber Conlee, Environmental Manager. We asked that employees be notified of the inspection and informed they are allowed to participate. Iowa Fertilizer Company was selected for inspection because of the five-year accident history accidents on September 15 and 16, 2023. This inspection was part of the FY 2024-2027 National Enforcement and Compliance Initiatives (NEIC) for Chemical Accident Risk Reduction.

We conducted the inspection to determine if the facility complies with Section 112(r) of the Clean Air Act (CAA), as amended in 1990. The inspection also included reporting provisions of the Emergency Planning and Community Right to Know Act (EPCRA) and the release reporting provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

EPA's regulations describing how these laws are to be implemented are found in the Code of Federal Regulations, Title 40, Part 68 (CAA), 355, 370, and 372 (EPCRA). The law and the implementing regulations 40 CFR 68, Chemical Accident Prevention Program (CAPP) require that the facilities must submit a complete Risk Management Plan (RMP) to the EPA for those regulated chemicals they process in amounts above the applicable threshold quantities after June 21, 1999, and to implement the program described in the RMP.

The finalized inspection report as well as the photos and photo locations (Appendix #4) will be transmitted via e-mail to the facility owner/ operator. A copy of this inspection report, documents obtained, photographs taken during the inspection, checklists and completed forms will be maintained in the EPA facility file. Materials claimed Confidential Business Information (CBI) or identified as Personal Identifiable Information (PII) will be maintained according to applicable laws and regulations, and will not be transmitted back to the facility, unless requested.

HISTORY OF BUSINESS

The Iowa Fertilizer Company facility is located south of Wever, Iowa. The town of Wever is in southeast Iowa and has a population of 101 according to the 2020 census. The facility produces anhydrous ammonia and various nitrogenous fertilizer for agricultural use. The facility's parent company is OCI Fertilizers NV, a company based in the Netherlands. The facility began production in 2017. The facility has 264 FTE onsite. The facility has 4, 12 hour shifts a day. According to the facility RMP (Appendix #1), the facility has a maximum inventory of 120,000 pounds of anhydrous ammonia in its Urea Synthesis process. The facility has 23,000 pounds of a flammable mixture containing more than 1% methane, ethane, and propane in its Anhydrous Ammonia process. The facility also has a maximum inventory of 220,000,000 pounds of anhydrous ammonia and 170,000 pounds of a flammable mixture containing more than 1% hydrogen and methane in its Anhydrous Ammonia process. The facility is over the 10,000 pound threshold amount listed in 40 CFR 68.130 for anhydrous ammonia. The facility assigned all of its processes as program level 3, which I agreed with.

PERSONS INTERVIEWED AND INDIVIDUAL RESPONSIBILITIES

Amber Conlee – Environmental Manager
Sammie Lee Jones Jr. – Process Safety Engineer
Kevin Arnett – Inspection Superintendent
Eric Greene – Health & Safety Superintendent
Charles Ireland – Operations Manager
Jeff Deacon – TAR Manager
Mark Smith – HSEQ Manager
Mickey McHale – Plant Director
Michelle Windsor – Business Procurement Manager
Kevin Hancock – Asset Integrity Manager
Janelle Bonding – PSM Specialist
Hany Rezekallan – I&E Superintendent
Keegan Dunn – Incident investigator
Heidi Knight – Outside Council Beveridge & Diamond
Julius Redd - Outside Council Beveridge & Diamond

OPENING CONFERENCE

Tim Evans, Christina Gallick, and I arrived at Iowa Fertilizer in Wever, Iowa at 8:30 am on February 13, 2024. We watched a short safety video in the guard shack before being provided access to the plant. Security directed us to a conference room where we met with Iowa Fertilizer employees (Ms. Janelle Bonding – PSM Specialist, Mr. Mark Smith – HSEQ Manager, Mr. Mickey McHale – Plant Director, Mr. Charles Ireland – Operations Manager, Dr. Amber Conlee – Environmental Manager, Mr. Sammie Lee Jones Jr. – Process Safety Engineer, and Mr. Eric Greene – Health & Safety Superintendent) and outside counsel (Ms. Heidi Knight and Mr. Julius Redd) I passed around a sign in sheet (Appendix #2). Ms. Gallick, Mr. Evans, and I presented our credentials to Iowa Fertilizer personnel and exchanged business cards. I explained that I would be conducting the inspection under the authority of the CAA's Chemical Accident Prevention Provisions. I explained that we would begin by discussing incidents at the facility that resulted in injuries. After that we would conduct a walk-through of the facility's RMP covered process. I explained that this would include taking photographs. I also stated that after completing the walk-through and reviewing all applicable documents, I would conduct an exit interview to explain my findings, provide a receipt for any requested document copies, and answer questions. I then filled out a Notice of Inspection Form (Appendix #2) which was signed by Mr. Mark Smith – HSEQ Manager.

Following the introductions, I explained to the group that the facility had the right to claim Confidential Business Information (CBI). I provided the attorneys present during the inspection a copy of the United States Environmental Protection Agency Proprietary and Confidential Business Information Form on February 13, to provided them time to review and make CBI determinations.

INCIDENT INVESTIGATION

We began the inspection by discussing the facility's incident investigation procedures. The facility investigates all incidents in the facility and has a goal of entering all incidents in their electronic tracking system within 24 hours and major incidents immediately. This system is used to document the investigation and to assign and track action items. The facility also uses a spreadsheet for root cause mapping. Recommendations for major incidents are developed through the root cause analysis. The facility sends one pagers about incidents to employees via email to communicate findings. All departments have signed training documents to show that all employees reviewed the one pagers.

I reviewed the September 15, 2023, injury accident that is part of the facility's 5-year accident history. I reviewed the incident investigation documentation and action items in the electronic tracking system and cause mapping spreadsheet (Appendix #3-CBI). I observed that 5 of the 18 action items for this incident were closed. The documentation appeared to meet the requirements 48 CFR 68.81. This incident occurred during a first line break event. The purge procedures and decontamination plan failed to identify the potential for ammonia to be trapped in between a check and control valve, which resulted in a release during the work, sending two contractors to hospitals. Charles Ireland stated that there are 10 or fewer check valves this close to another valve in the entire plant.

Next, I reviewed an ammonia release occurring on September 13-14, 2023, that was over the reportable quantity for EPCRA 304 and CERCLA 103. The root cause analysis is still in draft, so recommendations have not been approved. The plant shutdown unexpectedly on September 13, 2023. Ammonia in the refrigeration system was sent to the flare. The logic of the level indicator of the backend knockout drum was incorrect and indicated the vessel was 70% full when it was completely full. The heater used to evaporate ammonia was not functional, contributing to the liquid build up. Steam was used to heat the knockout drum. We discussed this incident later with Keegan Dunn.

Then we discussed the September 16, 2023, injury accident that is the most recent event of the facility's 5-year accident history. This incident was investigated within 48 hours, but the root cause analysis was incomplete. As a result of the event, PPE worn during first line break events is now more protective.

I followed up with open action items for event involving RMP chemicals on February 14. I was told there were 22 action items open that were from incidents involving RMP chemicals. 19 of these items were late, with the oldest being 6 months late. The facility told me that the longer than expected turnaround and number of upsets following the turnaround impacted how many action items were open. I asked for a list of action items incident report action items that were overdue related to RMP chemicals. I was provided a spread sheet 03.2 - Action Associated with RMP Chemicals.pdf (Attachment #5)

1.A. Iowa Fertilizer Company failed to promptly document response and resolution of incident investigation findings, per 40 CFR Part 68.81(e).

Field Tour

After discussion with Iowa Fertilizer, their outside counsel, and amongst EPA inspectors, I decided to take photos using the Process Safety Engineer's phone, which was preapproved to be present in the process units. After the inspection we created a photo log that is Appendix #4, excluding one photo that was claimed CBI. During the field tour, we visited the locations of the 3 incidents we discussed. To go into the process units we needed to sign an entry log and obtain a hot work permit and gas monitor to take photos. This was done in explosion resistant structures near the process units used for this purpose and some process specific office and training space. First, we went to the backend knockout drum. I noted that the drum was missing insulation on the bottom half and took a picture, Photos 1 (IMG_5936.jpg) and 2 (IMG_5937.jpg). Ms. Gallick, Mr. Evans, and Heidi Knight noted an ammonia smell that they were told was coming from a pit. I asked the facility personnel where the closest safety shower to the knockout drum was. The facility pointed out two and I took a picture of one of the safety showers, Photo 3 (IMG_5940.jpg). I also took a photo of a strategically placed escape respirator that was near the safety shower, Photo 4 (IMG_5941.jpg). I took a photo of a heat exchanger that had grease marker writing indicating its last inspection, Photo 5 (IMG_5942.jpg). I took photos of a vessel data plate, Photos 6 and 7 (IMG_5943.jpg and IMG_5944.jpg) and a valve with some ice accumulation, Photo 8 (IMG_5945.jpg). I took two photos of an ammonia sensor, flammable gas sensor, and alarms near the refrigeration system, Photos 9 and 10 (IMG_5946.jpg and IMG_5947.jpg).

After checking out of the ammonia area, we signed into the Urea area and received a new hot work permit. We entered a urea process building. This building had a strong ammonia smell because one of the high-pressure carbonate pumps was getting preventative maintenance, Photo 11 (IMG_5948.jpg). We went upstairs to where the September 15, 2023, injury accident occurred. In our discussion there, it sounded like it was known that a check valve next to another valve could trap ammonia. I took a photo, which was claimed CBI, of the piping system where this release occurred, Photo 12 (CBI IMG_5949.jpg). The facility personnel pointed out the closest eyewash to the incident location. This photo is not included in the photo log. We finished our tour looking at the larger ammonia storage tanks which I took a photo of Photo 13 (IMG_5950.jpg).

MECHANICAL INTEGRITY

On February 14, I interviewed Kevin Arnett and Kevin Hancock about mechanical integrity. I asked them what industry standards the facility uses. They told me the facility is part of the Joint Industry Program which is a master list from multiple other ammonia businesses worldwide. They explained that they follow American Petroleum Institute (API) 510 and National Board Inspection Code (NBIC) 573 and 663 for inspection frequency. The timeline for

some equipment inspections has been accelerated to get more data and switch to risk based inspections sooner. Iowa Fertilizer inspectors are at minimum certified under API 510 and contract inspectors are at least level 2. The Facility uses an inspection database to manage inspection cycles and due dates. The facility currently has no overdue inspections. The facility uses a different system to track maintenance work orders.

I reviewed the most recent inspection for the heat exchanger that I took a photo of. The inspection used eddy current to check the thickness of some of the tubes. The inspection report appeared to meet the requirements in 40 CFR 68.73(d)(4). I asked why the heat exchanger was missing insulation. I was told that lots of equipment need reinsulated because of inspections during the turnaround. The facility determined that it would not cause harm to workers or the process if the heat exchanger was insulated after plant startup.

I also reviewed the most recent inspection of the backend knockout drum. This was an internal inspection looking for pitting. The broken heater was not inspected. The facility personnel explained that the insulation was removed from the knockout drum to apply heat through steam hoses to evaporate ammonia.

We discussed instrumentation with Hany Rezekallah, the I&E Superintendent. I asked about the level indicator on the backend knockout drum. When the level indicator was trouble shot, personnel determined that the part had incorrect logic when it was designed. I was told that the facility has not checked if other level indicators have the same design problem.

I asked the facility how they ensure that maintenance parts are appropriate for the equipment. They explained that maintenance stops work if the wrong part is ordered until the correct one arrives. The facility has multiple warehouses with spare parts. The level indicator logic was original to the facility design.

EPCRA TIER II

Prior to the inspection I reviewed the three most recent EPCRA Tier II reports. I asked Dr. Conlee how they calculate their EPCRA Tier II quantities. She explained that they have an inventory system that they use to pull the max and average quantities annually. She went on to explain that they improved their calculation for Nitric Oxide and will report 7000 pounds for 2023 instead of the 19,000 pounds reported in 2022 in an effort to be more accurate.

MANAGEMENT OF CHANGE (MOC)

The facility uses a digital system to track its MOCs. I asked about MOCs involving the backend knockout drum and its broken heater. I was told there was an MOC for not having a functioning heater but not for using steam heat in place of the electric heater. The MOC included a hazard review checklist that also examined if a PHA was required and verification questions that may require action items. A common action item is to update PSI.

The facility has procedures for emergency, temporary and permanent MOCs. I reviewed an MOC for the back end knock out drum being out of service until the next turnaround. It was created on October 13, 2023, a month after the ammonia release occurring on September 13-14, 2023.

PRE-STARTUP SAFETY REVIEW (PSSR)

The facility always does PSSRs when an MOC results in a field change. Employees receive training for MOC/PSSR changes.

PROCESS HAZARD ANALYSIS (PHA)

In the email announcing this inspection I asked for the last two PHAs conducted and resolution of the findings including the dates completed. Iowa Fertilizer provided PHA HAZOP revalidations for Unit 10 Ammonia Front End, Unit 10 Ammonia Back End, Urea, Full Urea, Ammonia Upstream, and Ammonia Plat Downstream, and claimed them CBI they are in Appendix #3 – CBI with further discussion of the review of these PHAs.

I asked how the facility manages PHA recommendations. I was told that management has a spreadsheet of recommendations they review. The approved recommendations are entered into an electronic tracking system and the rejected recommendations have closure comments in the spreadsheet. A total of 335 PHA recommendations are entered in their digital tracking system of which 323 are closed. Only one of the 12 open PHA recommendations involves an RMP covered process. This recommendation is not overdue. PHA findings are communicated via a slide show for impacted employees.

Post inspection I compared the end dates from the PHAs provided with the date of the inspection some where more than 5 years.

- 2. Iowa Fertilizer Company failed to updated and revalidated process hazard analysis at least every five (5) years after the completion of the initial process hazard analysis, per 40 CFR 68.67(f)**

COMPLIANCE AUDIT

Ms. Gallick reviewed Iowa Fertilizer's compliance audits. The facility had compliance audits from January 2020 finalized on March 20, 2020, and November 2022 finalized on March 7, 2023 (Appendix #3 CBI). Neither of these reports were certified. The primary Iowa fertilizer employee working on the audit was the Process Safety Engineer who is knowledgeable in the process. A third-party contractor led the audit. While looking through the 2022 compliance audit, the facility explained that 8 Compliance audit findings were inadequately addressed findings from the 2020 compliance audit. The final report had a total of 43 findings. These recommendations were put into digital tracking system on February 12, 2024, over 10 months from when the report was finalized. 40 findings are currently open, but some of these may not be RMP covered (Appendix #5). Because 8 findings of the previous audit were not adequately

addressed, and it took over 10 months to determine and document an appropriate response to each of the compliance audit findings, I identified the following preliminary finding:

1.B. Iowa Fertilizer Company failed to promptly document response and resolution of compliance audit, per 40 CFR Part 68.79(d).

EMPLOYEE PARTICIPATION

I had asked for the Employee Participation Plan in the email announcing the inspection. We reviewed it on the conference room screen, and it met the requirements of regulation.

HOT WORK PERMIT

In the email announcing this inspection I asked for a small selection of recent hot work permits. I was provided about a dozen hard copy hot work permits from the last couple of days. I reviewed several of these and they met the requirements of 40 CFR Part 68.85.

CONTRACTORS

Iowa Fertilizer had a large turnover that began in September 2023. The contract company was selected based on safety and skills. Michelle Windsor told me that ISN was used to help determine the safety rating of contractor companies. Contractors for the turnaround received a 4-hour orientation training that was created by facility and contractor staff. I was told that Iowa Fertilizer did field audits on the quality of contractor work and provided their safety policy to contractor safety leads.

STANDARD OPERATING PROCEDURES (SOPs)

I discussed SOPs with Charles Ireland. He explained that the SOPS have improved greatly since 2017 as knowledge of the process has increased. The SOPs at Iowa Fertilizer can be changed due to a MOC. Procedures are reviewed and certified annually. Operators review a subset of the procedures in their unit each month based on a yearly schedule.

The first page of each SOP describes the properties and hazards of the chemicals and the PPE employees are required to wear. Charles stated that safety systems and their functions are covered in training, not in the SOPs. The SOPs contain operating limits. Further PSI is in Safe Operating Control Limit documents termed SOCLs. Digital control system alarm limits are set based on the SOCLs. Operators can access SOPs through an internal computer based document sharing system and have to print out a copy each time they perform a procedure.

I reviewed the SOPs before and after they were updated due to the September 15, 2023 incident (Appendix #3 CBI). Procedures appear to meet the requirements of 40 CFR Part 68.69.

HAZARD ASSESSMENT

The facility hazard review and offsite consequence analysis was modeled using RMP*Comp and potentially impacted population was determined using Marplot. The facility had written descriptions accompanying all scenarios. The worst-case scenario for flammable liquids involved synthesis gas, a gas mostly composed of hydrogen according to the SDS we viewed. The composition of the flammable mix documented on the RMP*Comp printout was predominately methane. The facility stated this mixture was more representative of their natural gas. I ran RMP*Comp for the amount released in the worst-case scenario using the composition from the provided SDS and determined that the distance to endpoint increased from 0.1 to 0.2 miles. I plotted this on marplot and determined there would still be no offsite impacts.

EMERGENCY RESPONSE

On February 15, 2024, I began the day by discussing the Emergency Response Plan with the facility. Iowa Fertilizer is a responding facility. Their Emergency Response Plan is updated annually and provided to the LEPC and local responders. I observed certified mail receipts with a copy of the 2021 emergency response plan. The facility is licensed as an EMR responder. Members of the response team have additional roles in the plant. There is weekly emergency response training. The facility sends responders to offsite locations for additional training. There are no contractors on the emergency response team.

The facility showed an example of a large coordination response event that included local responders occurring on May 17, 2022. The facility tries to have large scale coordination events annually. We reviewed records of the February 8, 2024, drill. This documentation had more details than the 2022 drill.

I was told that a third party tests the water cannons and fire extinguishers. The fire system is electric with a diesel backup. The Lee County LEPC has a system to let affected community members know if an event occurred. The facility currently relies on the Lee County LEPC's relationship with Hancock County if an event impacts Illinois. During the inspection the facility personnel stated they would work on improving coordination with Hancock County in Illinois.

TRAINING

I discussed training at Iowa Fertilizer with Nathan Beck. He explained that an employee's first week covers orientation, HR, and safety training. Following this there are different on the job training checklists for each department. Employees take unit specific hazard awareness training before they enter the unit. Employees take both written and verbal test to demonstrate they are aware of hazards and how to operate equipment. In addition, the facility does a walk through test as part of employee certification. Board operators have training simulators to learn with. Refresher training occurs every three years.

I requested and review training records of two Iowa Fertilizer employees who were closest to the September 15, 2023 incident. I was provided with their training files that appeared to have

personal identifiable information (Appendix #6). The records contained the information described above and appeared to meet the requirements of 40 CFR 68.71.

RISK MANAGEMENT PLAN

I reviewed the most recent RMP submission with facility personnel. The facility is aware the five year RMP update is due on October 7, 2024 and discussed plans they have to meet this deadline. The RMP met the requirements.

MANAGEMENT SYSTEM

I reviewed a copy of the facility's management system. It appeared to meet the requirements of 40 CFR 68.15.

PROCESS SAFETY INFORMATION (PSI)

The Facility showed me the file sharing page where PSI is stored. Documents are locked to prevent editing. Piping and instrumentation diagrams P&ID is required to be redlined if a MOC revises or modifies PSI. It becomes an action item to finalize PSI. This page also holds Safety Data Sheets (SDS) for all hazardous substances, which are checked annually for updates. We reviewed several SDS, and they appeared to meet the requirements of 40 CFR 68.65(b). I viewed a block flow diagram, maximum intended inventory calculations, and SOCLs which contained information including safe operating limits.

During the inspection facility staff showed a familiarity with the documentation systems used to store and maintain process safety information.

CLOSING CONFERENCE

Before the closing conference began, Dr. Amber Conlee came into the conference room and showed the file of requested documents so Ms. Gallick could fill out the Receipt for Samples and Documents. I signed this form. Around 3pm on February 15, 2024, I held the closing conference. This was attended in person by Iowa Fertilizer staff and virtually by inside counsel and outside counsel. I began the conference by passing around a sign in sheet (Appendix #2). We then reviewed the list of requested documents with everyone present and looked through the images. Iowa Fertilizer had previously determined which documents were CBI with their counsel. These documents were clearly labeled as CBI and documented as CBI on the Proprietary/Confidential Business Information Notice. I signed this form. I discussed what we covered throughout the inspection. I explained the one preliminary finding of the inspection. Dr. Conlee virtually shared the requested documents with me and confirmed that I was able to view them. At the end of the closing conference. Mickey McHale, the Plant Manager, signed the Receipt for Samples and Documents, CBI on the Proprietary/Confidential Business Information Notice, and the Notice of Preliminary Findings (Appendix #2).

We departed the Wever, Iowa facility.

This report concludes inspection activities regarding Iowa Fertilizer Company located in Wever, Iowa.

DAVE HENSLEY Digitally signed by DAVE HENSLEY
Date: 2024.04.23 19:17:55 -05'00'

Dave Hensley
Compliance Inspector
Chemical Accident Preventions Section
Air Branch
Enforcement Compliance Assurance Division
Region 7 Environmental Protection Agency

TRACEY CASBURN Digitally signed by TRACEY CASBURN
Date: 2024.04.24 15:28:51 -05'00'

Tracey Casburn
Air Branch Chief
Enforcement Compliance Assurance Division

APPENDICES

1. Facility RMP
2. Inspection Forms
3. Confidential Business Information
4. Photo Log
5. Action Item Tracking
6. Training (personal identifiable information)

NOTICE OF PRELIMINARY FINDINGS

FIRM NAME: Iowa Fertilizer Company

RMP/TRI NO: 1000 0022 9246

FIRM ADDRESS: 3550 180th Street

Wever, IA 52658

INSPECTOR: Dave Hensley

DATE: 02/15/2024

An inspection of the above facility has just been completed. The purpose of the inspection was to determine compliance with the requirements of the Clean Air Act Section 112r and Emergency Planning Community Right-to-Know Act. The following potential violations were identified:

CITATION	DESCRIPTION
1 40 CFR 68.79(d)+81(e)	Not Promptly documenting response and resolution of compliance audit and incident investigations

This Notice is provided to call your attention to those areas of potential noncompliance at the earliest possible time. This Notice does not constitute a Notice of Violation, Order, or Civil Action pursuant to the Emergency Planning Community Right-to-Know Act of 1986 (SARA Title III) or Section 113 of the Clean Air Act (CAA), and may not be a complete listing of all violations which may be identified as a result of this inspection.

You are encouraged to take corrective action to address these preliminary findings. Please submit the actions you take and/or a schedule of the actions to EPA in writing as soon as possible.

Dave Hensley

Phone: 913-551-7768

U.S. Environmental Protection Agency
11201 Renner Blvd.
Lenexa, Kansas 66219

Corrective actions you have taken may be considered in any subsequent U.S. EPA enforcement follow-up, to the extent allowed by Agency regulations, guidance, and policies.

The undersigned hereby acknowledges receipt of a copy of this Notice.

PRINTED NAME: Mickey McHale

TITLE: Plant Director

SIGNATURE: mchale

DATE: 2/15/24