CLEAN AIR ACT § 112(r) & EMERGENCY PLANNING AND COMMUNTIY RIGHT-TO-KNOW ACT §§ 312 AND 313 INSPECTION REPORT

Thatcher Company
Salt Lake City, Utah

Facility Name and Address: Thatcher Company 1900 West Fortune Road Salt Lake City, Utah 84104 **Telephone:** 801.972.4587 **Program Level:** 3 (chlorine, sulfur dioxide, anhydrous ammonia, ammonia with concentration of 20% or greater)	**Date of Initial Inspection:** 2/12/2010 **Date of Follow-up Inspection:** 4/08-9/2010 **EPA ID #:** n/a **TRI #:** 84127THTCH1905F **RMP #:** 1000 0015 0383 **SIC/NACIS:** 32512 **# Employees this location:** 200

INTRODUCTION

This report presents the findings of the Clean Air Act (CAA) § 112(r)/EPCRA §§ 312 and 313 inspections conducted by Greg Bazley and Jeff Meyer. This two-part inspection was conducted on February 12, 2010 and April 8 and 9, 2010 at the Thatcher Company (Thatcher) facility in Salt Lake City, Utah. The purpose of this inspection was to determine compliance with the Risk Management Plan (RMP) requirements as required by CAA § 112(r)(7), the Tier II reporting requirements as required by § EPCRA 312, and the Toxic Release Inventory (TRI) reporting requirements as required by § EPCRA 313. The inspections were announced by certified mail prior to the inspections.

FACILITY OVERVIEW

Nature of Business: Thatcher is a chemical manufacturer and distributor located in Salt Lake City, Utah where several RMP covered chemicals are in a process, including: ammonia (anhydrous), ammonia (concentration of 20% or greater), chlorine, and sulfur dioxide (anhydrous).

FACILITY DESCRIPTION

Thatcher repackages chlorine for sale to the western U.S. market. Primary customers are water treatment facilities. The chlorine is shipped into Thatcher via rail car from Magcorp, less than 4 miles away. Three chlorine off-load stations are located along the railroad track that provide access to the railcars (picture #1). Transfer hosing is used to transport chlorine from the rail car into the manifold piping and then into containers. The chlorine is directly repackaged (no storage vessel) into 2000 lb and/or 150 lb containers. Once filled, the chlorine containers are stored onsite and then transported by Thatcher

trucks. Residual chlorine gas from the railcar or piping is purged into a "t-chlor" reactor. T-chlor is Thatcher's proprietary bleach solution that consists of 12-13% chlorine mixed with water and NaOH.

A reconstruction project involving the building that houses the one-ton filling station and the t-chlor reactor was near completion at the time of the inspection. David Merrell, the structural engineer that led the project, claimed the project took two months to replace the vertical columns, footing of the building, sheathing (metal siding), purlins, and the roof. The chlorine process continued during construction. Four chlorine sensors are located on facility grounds and are located approximately 12 feet above ground level.

Sulfur dioxide is delivered to Thatcher via railcar and is then repackaged in 2000 lb and/or 150 lb containers. The sulfur dioxide process is similar to the chlorine process.

Two anhydrous ammonia pressure vessels are located on-site. The "R-Grade" vessel stores product that is directly repackaged and sold. The "Tech-Grade" vessel stores product that is mixed to make other products such as aqua ammonia.

ENFORCEMENT HISTORY

- A CAA 112(r) Finding of Violation (FOV) was issued in April of 2008 (See attachment)

INSPECTION FINDINGS

Inspector(s): Greg Bazley, EPCRA/CAA 112(r) Enforcement Program
Jeff Meyer, EPCRA/CAA 112(r) Enforcement Program

Person(s) interviewed:

Dave Lindsey, EHS Manager, Thatcher Company
Darren Bauer, Safety Manager, Thatcher Company
Larry Dietrick, Process Engineer, Thatcher Company
John Peterson, Process Engineer, Thatcher Company

CAA 112(r)7 Chemicals:

Chlorine	2,000,000 lbs max on-site
Sulfur Dioxide	720,000 lbs max on-site
Ammonia (anhydrous)	720,000 lbs max on-site
Ammonia (conc 20% or greater)	390,000 lbs max on-site

An opening conference was held with Mr. Lindsey and Mr. Bauer; they provided an overview of the chlorine process. After the opening conference a tour of the facility was led by Mr. Bauer. Although the focus of the February inspection was the chlorine process, during the tour

two ammonia (anhydrous) storage vessels were observed and inspected. After the tour a document review of the chlorine process and ammonia vessels was conducted. Two engineers, John Peterson and Larry Dietrick, were present during the document review to provide information. Two additional tours were taken with Mr. Bauer to address matters identified during the document review.

The facility has two nitric acid storage tanks. Documentation was provided indicating that the concentration of nitric acid the facility purchases is either 53% or 60% concentration; both below the 80% concentration criteria for regulated toxic substances under RMP requirements. (A follow up call to the nitric acid supplier was made to confirm the concentration supplied to Thatcher.)

CONCLUSION

CAA 112(r)7 (RMP) VIOLATIONS:

1. **Requirement found at Subpart D – Prevention Program – Safety Information [68.65(c)(1)]:** Does the information concerning the technology of the process incl~~ude maximum intended in~~ventory (iii), safe upper and lower limits for such items as temperatures, pressures, flows or compositions (iv), and, an evaluation of the consequences of deviations (v)?

   - *Information concerning the technology of the process was not available for anhydrous ammonia vessels.*

2. **Requirement found at Subpart D – Prevention Program – Safety Information [68.65(d)(1)]:** Does the information concerning the equipment in the process include materials of construction (i), relief system design basis (iv), and design codes (vi)?

   - *Tank 10-TK-09 (anhydrous ammonia "R-Grade" storage tank) is a stationary storage tank that was converted by placing an old railcar on skids. There is no name plate on 10-TK-09 and no information on the design of the vessel.*

3. **Requirement found at Subpart D – Prevention Program – Safety Information [68.65(d)(2)]:** Has the owner or operator documented that equipment complies with recognized and generally accepted good engineering practices?

   - *Tank 10-TK-09 has no documentation for compliance with industry standards or good engineering practices*
   - *A name plate marked with a National Board registration number was not present on 10-TK-09 as required by ANSI K61.1 Storage and Handling of Anhydrous Ammonia section 5.4.2.2.*

4. **Requirement found at Subpart D – Prevention Program – Safety Information [68.65(d)(2)]:** Has the owner or operator documented that equipment complies with recognized and generally accepted good engineering practices?

   - *No documentation for placement of gas detecting sensors, referencing good engineering practices. Gas sensors are improperly placed. For example, chlorine sensors are approximately 12 feet above ground level. Chlorine, with a vapor density of 2.49, will migrate towards the ground in the event of a release. Proper placement of the sensor is essential to its operation. In accordance with the Chlorine Institute (CI) Pamphlet 73 section 5.4, several considerations should be taken into account when placing sensors such as: location where a maximum concentration of gas would concentrate, close to a potential source of release, etc.*

5. **Requirement found at Subpart D – Prevention Program – Operating Procedures [68.69(a)]:** Has the owner or operator implemented written operating procedures?

   - *Operating Procedures for piping inspections were not followed:*
     1. *Operating procedures dated April 10, 2001 state the following: "If any data is in question, spot checks will be rechecked.* ***This should be done if any pipe segment appears to have gained thickness over the previous year****. Once the data has been corrected and reviewed, the engineer will determine the expected life for the pipe based on the amount of deterioration observed on the spreadsheet."*
     2. *Multiple test points show an increase in thickness from the previous year. Operating procedures were not followed and no spot checks were rechecked.*
     3. *Point (location) 43 on the Cl_2 lines had a measured thickness of 0.133" inches 2008. Thatcher's operating procedures call for pipe with wall thickness of 0.134" or less to be replaced. This test point was not addressed.*
     4. *Subsequent to the February inspection Thatcher modified the operating procedures for their inspection and testing procedures. The modified operating procedures removed the section stating "this should be done if any pipe segment appears to have gained thickness over the previous year."*

6. **Requirement found at Subpart D – Prevention Program – Operating Procedures [68.69(c)]:** Has the owner or operator reviewed procedures as often as necessary to assure that they reflect the current operating practice?

   - *Operating procedures not updated. The root cause of a 35lb release of Cl2 on 04-16-07 was determined to be "cylinder threads worn beyond*

acceptable contact levels for valve threads to seal." Follow up safety review notes stated that a gauge has been provided to measure thread depth. If they are worn out, then the cylinder will be decertified. Measurement of thread depth could not been updated in operating procedures for General Packaging Procedures for Chlorine. (See attachment 3 "Facility email 1")

7. **Requirement found at Subpart D – Prevention Program – Mechanical Integrity – [68.73(c)]:** Has the owner or operator trained each employee involved in maintaining the on-going integrity of the process equipment in procedures applicable to the employee's job tasks?

   - *Documentation of training for employees performing thickness testing was not available.*
     1. *From the verbal description provided during the inspection and the email from Thatcher personnel, employees are not adequately trained. Interns perform the thickness testing (See attachment 4 "facility email 2")*
     2. *Instrument used to conduct thickness testing: Krautkramer Branson DM2E. Under the Operator Training section of the Operating Manual specific training requirements are listed for the use of ultrasonic test equipment. This training was not completed for employees performing testing.*

8. **Requirement found at Subpart D – Prevention Program – Mechanical Integrity – [68.73(d)(2)]:** Has the owner or operator ensured that testing procedures follow recognized and generally accepted good engineering practices?

   - *Testing procedures do not follow recognized and generally accepted good engineering practices, including:*
     ANSI B31.3 (Process Piping)
     ANSI K61.1 (Safe Handling of Anhydrous Ammonia)
     NBIC NB-23 (In-Service Testing of Pressure Vessels)
   - *Standards were incorrectly referenced and do not apply to the facility, including:*
     ANSI B31.1 (for service piping systems for electric generation stations, industrial institutional plants, central and district heating plants (Power Piping).[Chlorine Institute Pamphlet 60 (Chlorine Pipelines)]. The applicable standard for piping at Thatcher is ANSI B31.3 (Process Piping)
   - *Corrosion and pitting was observed in several areas of process piping. In accordance with the CI Pamphlet 6 section 12.3.1, any significant observed pitting or wall loss should be investigated further, and should be corrected as necessary. Paint condition should be check periodically and corrected as needed in accordance with CI Pamphlet 6 section 12.2. Corrosion caused a piping failure and subsequent release of 7.3 pounds of chlorine (not a RQ) in January of 2009. No action has been taken to*

evaluate corrosion issues at the facility since this release.

- *Visual inspections were not performed and not documented.*

9. **Requirement found at Subpart D – Prevention Program – Mechanical Integrity [68.73(d)(3)]:** Has the owner or operator ensured the frequency of inspection and tests of process equipment is consistent with applicable manufacturers' recommendations, good engineering practices, and prior operating experience?

   - *No records of testing for pressure relief valves (PRVs) located on either ammonia (anhydrous) vessel was available for review.*
   - *Manufacturer's recommendations: ten year change out but note it is essential to establish a periodic retesting and preventive maintenance program for pressure relief valves.*

10. **Requirement found at Subpart D – Prevention Program – Management Of Change [68.75(a)]:** Has the owner or operator implemented written procedures to manage changes to process chemicals, technology equipment, and procedures, and changes to stationary sources that affect a covered process?

    - *No MOC for changing the eduction system and scrubber in February 2008.*

11. **Requirement found at Subpart D – Prevention Program – Compliance audits [68.79(a)]:** Has the owner or operator certified that they have evaluated compliance with the provisions of this subpart at least every three years to verify that procedures and practices under the Prevention Program are adequate and are being followed?

    - *Compliance audits not conducted at least every three years.*
    - *Thatcher chose to perform individual compliance audits (CA) that were process specific. The last CA dates are provided below:*
      SO2 process – February of 2006
      NH3 process – June of 2004

12. **Requirement found at Subpart D – Prevention Program – Incident Investigation [68.81(e)]:** Has the owner or operator documented resolutions and corrective actions from the incident report?

    - *Corrective actions ("Follow up safety review notes") from a 35 pound chlorine release on 4/16/07 state "Change in procedure – any Chlorine containers found to be leaking will be immediately evacuated." No change was made to operating procedures.*
    - *Thatcher personnel referenced operating procedures for General Packaging for Chlorine that state, "If the problems cannot be easily corrected, then the cylinder must be evacuated and reworked according to procedures stated above and in NM-01." These procedures were in place*

at the time of the incident and no subsequent change was made. Furthermore, speaking with Thatcher personnel, tightening a leaking valve was seen as an "easy correction" for a leak, which caused the valve to pop releasing chlorine on 4/16/07.

CAA 112(r)7 (RMP) RECOMMENDATIONS:

1. Evaluate the placement of sulfur dioxide and ammonia gas monitoring sensors.

EPCRA § 312:

No deficiencies were noted during the inspection.

EPCRA § 313 Violations:

1. Requirement found at Toxic Chemical Release Reporting: Community Right-To-Know [40 CFR § 372]:
   - Data quality issues were discovered during the EPCRA 313 inspection. The data from the aqua ammonia process was sampled and inspected. The facility chose to only include "batches" over 9000 gallons in their calculation of emissions. Thatcher personnel were unable to explain the logic behind this methodology. For example, omitting any "batch" under 9000 gallons neglected 132,635 gallons for aqua ammonia (28-30% HI PURITY) in the facility's 313 calculations.

Greg Bazley, EPCRA/CAA 112(r) Enforcement Program

Attachments:
1) Photographs of chlorine process equipment
2) FOV from April 2008
3) Facility email 1
4) Facility email 2