United States Environmental Protection Agency / Region 4

Risk Management Program Inspection Report
Sanders Lead Company

Troy, Alabama
April 30, 2024

1.0 Introduction

The U.S. Environmental Protection Agency's efforts to reduce the likelihood and severity of chemical accidents includes planning and legislative initiatives such as the National Contingency Plan, the Emergency Planning and Community Right-to-Know Act (EPCRA), and the Accidental Release Prevention requirements under Section 112(r) of the Clean Air Act (CAA), as amended in 1990. This report outlines an inspection of the Risk Management Program (RMP) as mandated by Section 112(r)(7) of the CAA.

The focus of this inspection was to assess the RMP for the ammonia refrigeration process at the Sanders Lead Company located in Troy Alabama of Pike County. This facility was selected for inspection because it had never been inspected under the RMP. The inspection, which was conducted on April 30, 2024, consisted of an examination of program documentation as well as site reviews of various aspects of facility operations. Personnel from the facility participated throughout the inspection. Numerous documents were provided for review off-site. This report will provide a background of the facility and a listing of observations.

2.0 Background

The Sanders Lead facility is located in Troy, Alabama. This facility receives spent lead acid batteries by truck from various commercial sources throughout the United States and crushes the batteries to remove lead, sulfuric acid and plastic. Lead removed from batteries is smelted and molded to produce 60-pound lead ingots that are resold to battery manufactures. Plastic from the battery casing is shredded and provided as feedstocks to a sister company co-located on the same property as Sanders Lead where it is pelletized and used to make plastic paint containers. The sulfuric acid from the crushed batteries is combined with anhydrous ammonia in the flue gas desulfurization (FGD) process to create an ammonium sulfate product that is sold to the fertilizer industry. Anhydrous ammonia used in the FGD process is stored on site in two 30,000-gallon pressure vessels. The maximum amount of anhydrous ammonia stored at Sanders Lead is 262,650 pounds based on the tanks not exceeding 85% of their total storage capacity. Liquid anhydrous ammonia leaving the pressure vessels is heated in one of two electrically powered vaporizers and transferred as a gas through stainless steel piping to the FGD scrubber where it combines with sulfuric acid from spent batteries to produce ammonium sulfate. The system was originally installed in early 2019 and began operation in late 2019.

Anhydrous ammonia is supplied to the facility by Specialty Products (Airgas). Both pressure vessels, the two vaporizers, and the piping associated with the pressure vessels and vaporizers are leased by Sanders Lead from Airgas, and facility personnel indicated that this equipment is

supposed to be maintained by Airgas according to a maintenance agreement with Sanders Lead. Stainless steel piping transferring anhydrous ammonia from the pressure vessels and vaporizers to the sulfuric acid scrubber is owned and maintained by Sanders Lead. Safety systems associated with the anhydrous ammonia storage and delivery system include ammonia detectors, an automatic shutdown (E-stop) system to close valves within the pressure vessels and piping, and an automatically activated water deluge system surrounding the storage tanks that will remove an ammonia vapor cloud if a release occurs. The facility operates 24 hours per day, 7 days per week with a total workforce of 496 employees. There is no labor union at Sanders Lead. The process is regulated as program level 3. According to facility records, the facility has a maximum of 262,650 pounds of ammonia on site. The ammonia refrigeration process at the facility is subject to the RMP requirements of 40 C.F.R. Part 68 and EPCRA Section 302. The background specifics are summarized as follows in Table 1.

TABLE 1: Inspection Information Summary

Inspection Team

Lead Inspector: Mark Briggs, Eastern Research Group, Inc. (ERG)
Inspector: Brendan Scher (ERG)
Date of Facility Visit: April 30, 2024

Facility Identification

Name: Sanders Lead Company
Street Address: 1 Sanders Road
City: Troy County: Pike State: Alabama Zip: 36079
EPA Facility ID No: 100000241687
Dun & Bradstreet (D&B) No: 046481032
Latitude: 31.788862
Longitude: -85.978614

Name, address and phone of corporate parent company:
Owner/Operator: Sanders Lead Company
Mailing Address: 1 Sanders Road
City: Troy State: Alabama Zip: 36079
Phone: N/A

Name, title, and email of person responsible for 40 C.F.R. Part 68 implementation:
Name: Chris Rutherford
Title: Environmental Affairs Manager
Day phone: (334) 566-1563
24-hour Phone: (334) 372-0176
Email: chris-rutherford@sanderslead.com

Name and title of emergency contact:
Name: Andrew Womack
Title: Safety and Health Manager
Day phone: (334) 566-1563
24-hour Phone: (334) 566-1563
Email: andrew-womack@sanderslead.com

Name and titles of stationary source personnel involved in site inspection *(accompanied site tours, provided documents and explanations):*
Name: Chris Rutherford
Title: Environmental Affairs Manager
Phone: (334) 372-2507
Email: chris-rutherford@sanderslead.com

Name: Andrew Womack
Title: Safety and Health Manager
Phone: (256) 717-4524
Email: andrew-womack@sanderslead.com

Name: Ethan Bollenbacher
Title: N/A
Phone: (251)-809-4105
Email: ebollenbacher@sanderslead.com

Name: Terrance Leberfinger
Title: N/A
Phone: (334) 304-0167
Email: tleberfinger@sanderslead.com

Name: Justin Prescott
Title: N/A
Phone: (334) 672-0898
Email: jprescott@sanderslead.com

Name: Korey Price
Title: N/A
Phone: (865) 340-8116
Email: kprice@sanderslead.com

Date and Program Levels of Submitted Risk Management Plan (RMP)

Date of initial submission: September 24, 2019
Date of most recent submissions: September 24, 2019
Process: Ammonia Refrigeration
Process ID: 1000056189

Program Level as reported in RMP: 3
NAICS code: 331492 (Secondary Smelting, Refining, and Alloying of Nonferrous Metal)

3.0 Observations

The inspection of the Sanders Lead Company facility evaluated various sections of the RMP regulations (40 C.F.R. Part 68, Program Level 3) and the inspection checklist included in "Guidance for Conducting Risk Management Programs Inspections under Clean Air Act Section 112(r)." The inspection began with an opening discussion of facility operations. The discussion was followed by a tour of the facility's ammonia refrigeration process areas. EPA inspectors then requested paperwork associated with the facility's Risk Management Plan (RMP). The documents were reviewed by EPA inspectors on site and provided for review off-site. An inspection out-brief was conducted where EPA inspectors described their observations. Observations from the RMP inspection at the Sanders Lead facility are discussed below:

1. 40 C.F.R. §§ 68.65(d)(2)-(3) require the owner or operator shall ensure and document that the process is designed and maintained in compliance with recognized and generally accepted good engineering practices. For existing equipment designed and constructed in accordance with codes, standards, or practices that are no longer in general use, the owner or operator shall determine and document that the equipment is designed, maintained, inspected, tested, and operating in a safe manner (RAGAGEP).

    - The ammonia storage tanks do not have National Fire Protection Association (NFPA) diamonds on each side and the ends. NFPA diamonds are not present on the entry gates to the ammonia storage tanks.

        - Section 6.1.8.2.1 of NFPA 400 (2022) states, "Visible hazard identification signs in accordance with NPFA 704 shall be placed at the following locations, except where the Authority Having Jurisdiction (AHJ) has received a hazardous materials inventory statement and has determined that omission of such signs is consistent with such safety: 1) on stationary aboveground tanks, 2) on stationary aboveground containers, 3) at entrances to locations where hazardous materials are stored, dispensed, used, or handled in quantities requiring a permit, 4) at other entrances and locations designated by the AHJ.

        - NFPA 704, Standard System for the Identification of the Hazards of Materials for Emergency Response (2022), Section 9.1 states, "Symbol Arrangement. One of the systems delineated in Figure 9.1(a), Figure 9.1(b), or Figure 9.1(c) shall be used for the implementation of this standard."

        - Section 17.8.3 of Compressed Gas Association (CGA) G-2 (2021) referring to Section 6.6.2 of CGA G-2.1 which states, "Each container or group of containers shall be conspicuously marked with a hazard warning label complying with 20 C.F.R. 1910.1200."

- The inspectors observed areas of localized corrosion and protective coating loss (paint chipping) or areas with a concern of future corrosion risk, on ammonia storage tanks, around tank nameplates, vaporizers, piping, and valves.

    - Section 17.14.2.2 of CGA G-2 (2021) states, "The tank shell and heads, all appurtenances including piping, valves, excess flow valves, backpressure check valves, remote closing devices, pressure relief devices, pressure regulating devices, gaskets, liquid level gauges, pressure gauge devices, and any tank closure device should be examined and found free of corroded or abraded areas, dents, distortions, defects, leakage, or any other condition that could cause the storage container system to be unsafe or otherwise unsatisfactory for continued service."

- Inspectors observed unsupported ammonia piping is protruding from the bottom of the ammonia vaporizer.

    - Section 18.2.1.3 of CGA G-2 (2021) states, "All piping shall be supported and provisions shall be made to protect piping from effects of expansion, contraction, impact, vibration, settling, and external corrosion."

- The discharge from pressure relief valves (PRVs) on ammonia storage Tank B are approximately 18 inches above the grated catwalk while the discharge from PRVs on ammonia storage Tank A are approximately 10 feet above the grated catwalk. Personnel conducting inspections of ammonia storage Tank B and associated piping from the catwalk are directly above the discharge from the PRVs.

    - Section 17.4.1.9 of CGA G-2 (2021) states, "The discharge from pressure relief valves shall be away from the container, upward and unobstructed to atmosphere unless connected to a control device."

- PRVs on ammonia storage Tanks A and B, ammonia vaporizers, and hydrostatic reliefs were installed in September 2018 and scheduled for replacement in September 2023 (see Mechanical Integrity Maintenance Agreement documentation). The PRVs were still in place in April 2024.

    - Section 17.4.1.9 of CGA G-2 (2021) states, "No pressure relief valve is to be continued in service after the replacement date marked on the device by the manufacturer. If no date is specified, a pressure relief valve shall be replaced no later than 5 years following the date of its manufacture or last repair unless it is first disassembled, inspected, repaired, and tested by the manufacturer, or by a quailed repair organization."

- Ammonia piping and ammonia vaporizers associated with the ammonia storage tanks and ammonia piping adjacent to the scrubber are not labeled with the contents, physical state, and direction of flow. Valves associated with the oxidation air injection system and listed

as V-241A, V-242A, V-243A, and V-244A in the operating procedure are not labeled or tagged.

- American National Standards Institute/American Society of Mechanical Engineers (ANSI/ASME) A13.1 (2015) specifies the most common pipe conventions in the United States for identifying pipe content, as well as the size, color, and placement of the identification device.

- An anhydrous ammonia alarm in the outdoor storage tank area is not labeled stating the alarm purpose.

  - Section 9.1.1.2 of CGA G-2 (2021) states, "Electronic instrumentation is available to detect an ammonia leak and activate an alarm. Detectors can be placed in strategic locations at the facility to monitor the air so corrective action can be taken in the event of a leak."

2. 40 C.F.R. § 68.67(a) requires the owner or operator to perform an initial process hazard analysis (hazard evaluation) on processes covered by this part. The process hazard analysis shall be appropriate to the complexity of the process and shall identify, evaluate, and control the hazards involved in the process. The owner or operator shall determine and document the priority order for conducting process hazard analyses based on a rationale which includes such considerations as extent of the process hazards, number of potentially affected employees, age of the process, and operating history of the process. The process hazard analysis shall be conducted as soon as possible, but not later than June 21, 1999. Process hazards analyses completed to comply with 29 C.F.R. 1910.119(e) are acceptable as initial process hazards analyses. These process hazard analyses shall be updated and revalidated, based on their completion date.

   - The facility prepared an initial Process Hazard Analysis (PHA) in 2019 prior to startup of the FGD system using a hybrid technique that consisted of a What-if/Checklist technique for the ammonia storage tanks and vaporizers and the Hazard and Operability Analysis (HAZOP) technique for the downstream process (see PHA for Ammonia System Sanders Lead Company Document Review 6). The PHA included a risk analysis matrix, a recommendations summary table, and worksheets that evaluated various scenarios, consequences and hazards, controls, the risk ranking and recommendations, if any.

     - Worksheets provided in the PHA include item 1.1.3 which asks, "What if there is high pressure in the storage tank due to overheating" and the PHA states the controls include "PRV is inspected by the vendor every three months visual inspection and replaced every five years or as warranted." Mechanical integrity inspection documentation provided by the facility indicates inspections are occurring on an annual basis and that PRVs were scheduled for replacement in September 2023 after being in service for five years but were still in service in April 2024. Not replacing the PRVs within five years removes the engineering controls referenced in the PHA to alleviate the hazards as required by 40 C.F.R. § 68.67(c)(3).

- The recommendations summary table included in the PHA (see pg. 15 of the 2019 Initial PHA Report) included the risk ranking, actions to be taken, a responsible individual for each action item, and a due date. Each of the PHA recommendations shown in the table have due dates prior to May 31, 2019, but the facility could not provide documentation to determine if, and when, the action items associated with each recommendation were completed. EPA inspectors noted that at least one of the recommendations in the table that was scheduled for completion in April 2019 had not been completed. Item 1.1.40 SIGNAGE in the recommendations table recommends "Confirm valve tags are installed for all covered process valves and piping." EPA inspectors noted the valves associated with the flush water into the oxidation air injection piping were not labeled indicating this PHA recommendation has not been completed even though the due date was nearly 5 years prior. 40 C.F.R. § 68.67(e) states the owner or operator shall establish a system to assure recommendations are addressed in a timely manner and that the resolution is documented. By not providing records showing what actions were taken for each PHA recommendations, the facility cannot verify PHA recommendations were addressed.

3. 40 C.F.R. §§ 68.69(a)(2)(i)-(ii) state that the owner or operator shall develop and implement written operating procedures that provide clear instructions for safely conducting activities involved in each covered process consistent with the process safety information and shall address at least the following elements: (i) Operating limits; (ii) Consequences of deviation; and (iii) Steps required to correct or avoid deviation.

   - EPA inspectors reviewed operating procedures on site, requested the ASFGD Oxidation Air Injection Lines/Lances Flush SOP, discussed operating procedures with scrubber system operators, and observed operational set points and alarms on the electronic control system. Inspectors found operating limits are included in the written SOPs and integrated into the electronic control system with appropriate alarms settings. The facility was not able to provide documentation showing the consequences of deviations and steps necessary to correct or avoid consequences of deviations when operating parameters our outside the operating limits, as required by 40 C.F.R. § 68.69(a)(2)(i)-(ii).

4. 40 C.F.R. § 68.73(b) requires the owner or operator to establish and implement written procedures to maintain the ongoing integrity of process equipment.

   - EPA inspectors requested the maintenance agreement between the facility and Airgas for the two 30,000-gallon anhydrous ammonia storage tanks, vaporizers, and piping, but no maintenance agreement was provided.

   - EPA inspectors requested the facility to provide their hose management program and were provided with an audit/checklist form from the Safety Department that includes a question that asks if hoses/cables are rolled up (see Hose Management Sanders Lead Company Document Review 11). The audit/checklist questions do not address the hose

management requirements referred to in Section 18.2.6 of CGA G-2 (2021), which references conformance with Section 5.7 of CGA G-2.1 (2014), that include requirements for hose specifications, identification, maximum service period, daily inspections, documented visual inspections and annual pressure testing.

- The ASFGD Oxidation Air Injection Lines/Lances Flush SOP includes a photograph showing the valves, hose connection location, and hose used to flush water into the system. This photograph is different than what was observed during EPA's physical inspection of the equipment. The photograph in the operating procedure shows butterfly valves with a handwheel but the photograph taken by the EPA inspectors of the same equipment shows gate valves with a lever and no handwheel.

- The ASFGD Oxidation Air Injection Lines/Lances Flush standard operating procedure (SOP) photograph shows a solid rubber hose with a quick connect fitting to attach to the down-stream portion of the valve. The photograph taken during the physical inspection shows a different type of hose being used. The hose in use during the inspection is a Parker WildCatter 7216E transfer hose used for petroleum products including biodiesel, diesel, ethanol, gasoline, oil.[1] This hose could be exposed to anhydrous ammonia for a short period when the valves are opened during flushing.

5. 40 C.F.R. § 68.75(a) requires the owner or operator shall establish and implement written procedures to manage changes (except for "replacements in kind") to process chemicals, technology, equipment, and procedures; and changes to stationary sources that affect a covered process.

    - EPA inspectors requested a management of change (MOC) procedure and were provided the MOC form (see Management of Change Sanders Lead Company). The Facility provided a statement with EPA's document request stating "As of 05.03.2024 there is no formal Standard Operating Procedure for Management of Change(s). The protocol is handled by the Scrubber's Process Technician and has to be signed off by management BEFORE the work can occur, be procured, or put into action. There is a meeting scheduled this June for a Standard Operating Procedure to be written."

    - During EPA's inspection, it was noted that butterfly valves operated by a handwheel and included in the ASFGD Oxidation Air Injection Lines/Lances Flush SOP had been changed to gate valves that are operated with a lever. The ASFGD Oxidation Air Injection Lines/Lances Flush SOP showing the butterfly valves and handwheels has an origin date of February 1, 2020, and no additional revision dates. The change from butterfly valves operated by a handwheel to gate valves operated by a lever should have resulted in an update to the SOP according to the MOC form provided by the facility.

[1] https://www.mfcp.com/product/industrial-hose/petroleum-transport-hose/translite-7216e

Inspection Report

Prepared by:

CALLIE SOTOLONGO

Digitally signed by CALLIE SOTOLONGO
Date: 2024.09.13 13:13:52 -04'00'

Callie Sotolongo, Inspector-In-Training
South Air Enforcement Section
U.S. EPA Region 4

Approved by:

CARRIE GRIFFITH

Digitally signed by CARRIE GRIFFITH
Date: 2024.09.09 14:36:28 -04'00'

for Todd Groendyke, Chief
South Air Enforcement Section
U.S. EPA Region 4