

RCRA Inspection Report

1) Inspector and Author of Report

Laurie Benton DiGaetano, Environmental Engineer
RCRA Enforcement Section
Chemical Safety and Land Enforcement Branch
Enforcement and Compliance Assurance Division
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street, S.W. (404) 562-8948
Atlanta, Georgia 30303 benton-digaetano.laurie@epa.gov

2) Facility Information

Sonoco Hickory EPA ID# NCD003224235
1246 Main Avenue SE
Hickory, North Carolina 28602

3) Responsible Officials

Paul Douglas, Quality Assurance Manager
paul.douglas@sonoco.com

4) Inspection Participants

Paul Douglas, Sonoco Hickory	Nick Guglielmi, NCDEQ
Leslie Bauer, Sonoco Hickory	Laurie Benton DiGaetano, USEPA
Christine Brenk, Kleinfelder	

5) Date of Inspection

October 12, 2021

6) Applicable Regulations

Resource Conservation and Recovery Act (RCRA) Sections 3002 (42 U.S. Code-Annotated U.S.C.A. 6925 and 6927), Title 15A of the North Carolina Administrative Code (NCAC), Chapter 13; and 40 Code of Federal Regulation (C.F.R.), Parts 260 - 270, 273, 278, & 279.

Pursuant to 15A NCAC 13A .0106 [40 C.F.R. § 261.4(a)(8)], secondary materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process are not solid wastes provided that only tank storage is involved, and the entire process through completion of reclamation is closed by being entirely connected with pipes or other comparable enclosed means of conveyance; reclamation does not involve controlled flame combustion (such as occurs in boilers, industrial furnaces, or incinerators); the secondary materials are never accumulated in such tanks for over twelve

months without being reclaimed; and the reclaimed material is not used to produce a fuel, or used to produce products that are used in a manner constituting disposal (hereinafter referred to as the “Closed-Loop Recycling Exemption”).

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17], an LQG may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, as required by 130A-294(c) and (g) of the NCSWML, N.C.G.S. § 130A-294(c) and (g) [Section 3005 of RCRA, 42 U.S.C. § 6925], provided that the generator complies with the conditions listed in 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17] (hereinafter referred to as the “LQG Permit Exemption”).

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(2)], which incorporates 15A NCAC 13A .0110 [40 C.F.R. § 265.1050(e)], and is part of the LQG Exemption, equipment that contains or contacts hazardous waste with an organic concentration of at least 10 percent by weight for less than 300 hours per calendar year is excluded from the requirements of 15A NCAC 13A .0110 [40 C.F.R. §§ 265.1052 through 265.1060] if it is identified, either by list of location (area or group), as required in 15A NCAC 13A .0110 [40 C.F.R. § 265.1064(g)(6)] (hereinafter referred to as the “Less than 300-hour Monitoring Exemption”).

7) Purpose of Inspection

The purpose of this inspection was to conduct an announced case development inspection to observe how clean and spent solvents are used, transferred, stored, and recycled at the subject facility and to determine Sonoco Hickory’s compliance with the applicable requirements of RCRA and the corresponding NCDEQ regulations. This was an EPA-lead inspection.

8) Previous Inspection History

The NCDEQ and the EPA conducted a RCRA Compliance Evaluation Inspection at the subject facility on 03/18/2021 and sent the facility an inspection report and an Opportunity to Show Cause letter on 04/20/2021. Facility representatives sent the EPA a written response to the inspection report on 05/28/2021, and the parties met to discuss the inspection observations and findings on 06/23/2021.

9) Facility Description

Sonoco Products Company is a global provider of consumer packaging, industrial products, and packaging supply chain services. The company has 185 facilities in 85 countries worldwide, and the company’s headquarters are located in South Carolina. The subject facility in Hickory, North Carolina is one of fifteen facilities within this division of the Sonoco Products Company. The Sonoco Hickory plant (“Sonoco” or “the facility”) operates four flexographic printing lines for polyethylene, poly propylene, and polyester film rolls used in packaging of such items as packaged foods, tobacco products, specialty products and other consumer goods. Finished products may be shipped to customers as a roll of printed plastic, or they may be converted into bags or pouches here before they are shipped to customers. The facility operates under the NAICS Codes 326112 for Plastics Packaging Film and Sheet (Including Laminated)

Manufacturing and 323111 for Commercial Printing (except Screen and Books). Sonoco has approximately 128 employees at this location, and operations run 24 hours per day, five days per week using three work shifts.

The physical layout of the subject facility includes three levels. The upper-level houses office space, manufacturing operations, and warehousing for hazardous materials and work in progress. The middle level houses warehousing of raw materials such as unprinted plastic film and non-flammable adhesives, and finished goods. Manufacturing operations on the upper level include one 8-color printing press, three 10-color printing presses, one solvent-based laminating machine, one solvent-less laminating machine, four slitting machines and eighteen bagging machines. Warehouse space on this level is used to store hazardous materials such as inks, solvents, flammable adhesives, and waste.

Sonoco generates waste solvents and inks in the cleanup and/or changeover of inks in the printing press lines and generates waste solvents and adhesives in the cleanup and/or changeover of laminator units. These wastes have been identified as D001/F003 ignitable hazardous waste. While in operation, the printing press units generate D001/F003 hazardous waste ink sludge, which drains onto a tray within each printing press unit. Employees routinely drain the contents of these trays into 5-gallon buckets, and then transfer the waste ink sludge into a 55-gallon drum. This waste is managed as D001/F003 hazardous waste ink sludge. Spent solvents and inks are also generated as employees manually clean the printing presses using a 5-gallon bucket of solvent and shop rags. After cleaning, the spent solvents remaining in these 5-gallon buckets are poured into another 55-gallon drum. The spent solvents generated at the printing presses are managed as D001/F003 hazardous waste inks and solvents.

As the solvent-based laminator unit is running, solvent and adhesive is continuously recirculated from a storage vessel through the laminator system and back to the vessel. At the end of each run, any excess solvent and adhesive in the vessel is removed and accumulated in a 55-gallon drum. Spent solvents and adhesives are also generated as employees manually clean both laminator units using a 5-gallon bucket of solvent and shop rags. After cleaning, the spent solvents remaining in these 5-gallon buckets are poured into the 55-gallon drum with the spent solvents and adhesives. The waste generated at the laminator units and accumulated in this 55-gallon drum is managed as D001/F003 hazardous waste solvents and adhesives.

Employees at Sonoco use both lint-free paper rags and reusable cloth rags during cleaning activities. After use, the lint-free paper rags are disposed of as D001/F003 hazardous waste, and the cloth rags are managed under the Solvent-Contaminated Reusable Wipe Exclusion. Used cloth rags are primarily accumulated in containers with a capacity of 20-gallons or less, which are staged in multiple locations throughout the production areas of the plant. These solvent-soaked used rags are transferred from the accumulation containers into one of two 55-gallon draining drums, which are equipped with a metal mesh screen positioned approximately 24-inches above the bottom of each container. The rags remain in this first drum for a total of eight hours, while liquid solvent drains from the rags into the bottom of the drum beneath the mesh screen. After eight hours, the rags are transferred into the second 55-gallon draining drum, where they remain for an additional eight hours so that any remaining liquid can continue to drain from the rags. At the end of the total sixteen hours, the rags should no longer contain free liquids, and

they are placed into containers for transport to a laundry facility as excluded solvent-contaminated reusable wipes. The accumulation containers, the draining drums, and the shipping containers are all managed under the Solvent-Contaminated Reusable Wipes Exclusion. In 2015, Pace Analytical performed a paint liquid filter test on a sample of the solvent rags and determined that the sample did not contain any free liquids.

Spent solvents and inks are also generated during an automated cleaning cycle used to clean the printing presses. Between print jobs that use different color inks, a blend of clean propanol and ethyl acetate solvent is pumped to the printing press and circulated through the unit to flush-out press equipment and to clean/purge the ink lines. Employees estimated that some printing jobs may last a few hours, and others may last a week. Each cleaning cycle takes approximately 3-6 minutes to complete; and each printing press generates approximately 50 gallons of spent solvents and inks per cycle. Spent solvents and inks generated in the automated cleaning cycle are pumped into a 2,000-gallon tank and stored as hazardous waste until it is recycled.

The facility operates a solvent distillation system on-site to recycle spent solvents and inks generated in manual and automated cleaning activities. Spent solvents and inks generated in manual cleaning activities are stored in 55-gallon drums before they are pumped into the 2,000-gallon hazardous waste storage tank, and spent solvents and ink generated in automated cleaning activities are pumped directly from the printing presses to this storage tank. Neither spent solvents and adhesives generated at the laminator units nor ink sludge are recycled in the distillation system. Spent solvents and inks are pumped from the 2,000-gallon hazardous waste storage tank into the 400-gallon distillation unit approximately once (sometimes twice) each week for recycling. Distillation occurs using a batch process, which takes approximately 16 hours to complete. The clean solvent generated during the distillation process is transferred to a 60-gallon clean solvent holding tank and is then transferred to one of three 600-gallon clean solvent tanks for storage until it is reused on-site. After the process is complete, hazardous waste still bottoms generated during the distillation process are pumped from the distillation unit into a 4,000-gallon hazardous waste storage tank. Personnel estimated that the contents of the sludge tank are pumped out and shipped offsite as hazardous waste approximately once every 4-6 weeks.

Sonoco Hickory has been operating as a large quantity generator (LQG) of hazardous waste at this location since November 1, 2016. Prior to that, Plastic Packaging, Inc. operated as an LQG at the 1246 Main Avenue facility for over 25 years. Sonoco Hickory most recently notified as an LQG of hazardous waste as part of the biennial report on February 24, 2020. Hazardous wastes identified in the report include: D001/F003 liquid still bottoms, D001 sludge, D001/F003 solvent and adhesive, D001/F003 solvents, inks and absorbents, and D001 obsolete material.

10) Opening Conference

On October 12, 2021, the EPA inspector Laurie Benton DiGaetano, accompanied by the NCDEQ inspector Nick Guglielmi, arrived at the Sonoco Hickory facility at approximately 10:00 a.m. Mr. Paul Douglas, Quality Assurance Manager, Ms. Leslie Bauer, Plant Manager, and Ms. Christine Brenk, Consultant, immediately received the inspectors.

The inspection participants discussed how the Air Emission Standards for Equipment Leaks set forth in 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(2)], which incorporates 15A NCAC 13A .0110 [40 C.F.R. § 265 Subpart BB] and is part of the LQG Exemption, apply to the use, transfer, storage, and recycling of clean and spent solvents on-site. Specifically, the participants discussed potential available options for the facility to meet the conditions of the Closed-Loop Recycling Exemption or the Less than 300-hour Exemption, and how each of those exemptions affect the regulatory requirements of the Air Emission Standards for Equipment Leaks.

The inspection participants discussed health and safety protocols and required personal protective equipment before Mr. Douglas and Ms. Brenk led the inspectors on a tour of the Facility operations.

11) Observations

Press Room: The inspection participants visited the Press Room where Mr. Douglas explained the automated cleaning system. At Press 13, the inspectors observed two small tanks used in the automated cleaning process. The smaller tank is used to store clean solvent that has been reclaimed in the on-site distillation unit. The Press 13 clean solvent tank is equipped with a level sensor that automatically triggers the pump to re-fill the unit with clean solvent when the volume falls below a minimum level. The larger tank is used to accumulate dirty solvent that has been used to clean the ink lines. Dirty solvent is accumulated and stored at the Press so that it can be used again in the cleaning process. The first step in the cleaning process is to flush the lines with dirty solvent from the larger tank, and the second step is to flush the lines with clean solvent from the smaller tank. The Press 13 dirty solvent tank is equipped with a level sensor that automatically triggers the pump to transfer dirty solvent from the unit when the volume of dirty solvent reaches the maximum level. Dirty solvent is pumped from this tank to the 2,000-gallon hazardous waste storage tank on-site.

Several pumps are used at the Press to pump inks and cleaning solvent through the unit. The pumps are housed together in an enclosed cabinet next to the Press. This cabinet also holds one pump that is dedicated to pumping spent solvents from the Press 13 dirty solvent tank to the 2,000-gallon hazardous waste storage tank. Mr. Douglas explained that this pump runs when it is triggered until there is no more pressure in the line to continue pumping. The pump is idle between dirty solvent transfer events.

The inspection participants also observed a large parts-washing sink next to Press 13. Mr. Douglas explained that employees use reclaimed solvent to manually clean parts and equipment in this sink. Dirty solvents that are generated in the sink are pumped into a 55-gallon drum, which is transferred to the Central Accumulation Area (CAA) when it is full.

Finally, the inspection participants observed Press 12, which was not in operation at the time of the inspection. This press had been taken out of service for cleaning and maintenance, and the inspection participants were able to observe the configuration of unit and its components.

Press #15: The inspection participants visited Press 15, which uses a single tank in the automated cleaning process. The tank is covered with a hinged lid, which revealed two separate

compartments within the unit. The smaller compartment inside the tank is used to store clean solvent that has been reclaimed in the on-site distillation unit, and the larger compartment is used to store dirty solvent that has been used to clean the ink lines. Like the other presses, the first step in the cleaning process for Press 15 is to flush the lines with dirty solvent from the larger compartment, and the second step is to flush the lines with clean solvent from the smaller compartment. One pump is dedicated to pumping spent solvents from the Press 15 dirty solvent compartment to the 2,000-gallon hazardous waste storage tank. Mr. Douglas explained that following the 03/18/2021 CEI, the facility began running this pump continuously, so that air flows through the lines between dirty solvent transfer events.

Spent Solvent Transfer Lines: Mr. Douglas identified the piping and ancillary equipment used to transfer spent solvents from the Presses to the spent solvent storage tank, and the inspection participants walked through the facility to observe the lines. The inspectors noted that connections in the piping included welded joints and vertical and horizontal 90° turns.

Recycling System: The facility operates a solvent distillation system to recycle spent solvents and inks on-site. The entire solvent system includes the 2,000-gallon dirty solvent storage tank, the distillation unit, the 4,000-gallon sludge storage tank, one 60-gallon clean solvent holding tank, three 600-gallon clean solvent storage tanks, and the associated piping, pumps and secondary containment dike. As discussed in the 04/30/2021 CEI Report, Sonoco is currently managing two hazardous waste storage tanks at the facility: the 2,000-gallon hazardous waste dirty solvent tank and the 4,000-gallon hazardous waste distillation bottoms storage tank.

12) Closing Conference and Follow-Up

The inspectors conducted the exit meeting with Ms. Leslie Bauer, Mr. Paul Douglas, and Ms. Christine Brenk, Consultant. During this meeting, the participants discussed the potential advantages and required conditions for operating under the Closed Loop Recycling Exemption or the Less than 300-hour Monitoring Exemption.

Under the Closed Loop Recycling Exemption, the spent solvents contained within the solvent system would not be solid wastes because they would be reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process according to the conditions listed in the Closed-Loop Recycling Exemption. As a result of this exemption, the 2,000-gallon dirty solvent storage tank and the ancillary equipment transferring spent solvents from the Presses to this dirty solvent tank would not be storing or contacting a solid waste or a hazardous waste.

The inspection participants discussed the conditions required to meet the Closed Loop Recycling Exemption. Specifically, Mr. Douglas and Ms. Brenk indicated that Sonoco has contemplated redesigning the spent solvent management system at Press #15 to enclose the solvent system. The inspectors explained that spent solvents cannot be added to the system and reclaimed solvents cannot be removed from the system under the Closed Loop Recycling Exemption. In addition to redesigning the spent solvent management system at Press #15, the facility would need to revise any standard operating procedures that return spent solvents to the system or remove reclaimed solvents from the system in order to meet the conditions of the Closed Loop

Recycling Exemption. If, for example, spent solvents generated in the parts washing sinks is added to the solvent recycling system, or reclaimed solvent is used for any manual cleaning activities, the solvent recycling system would no longer meet the conditions for the Closed Loop Recycling Exemption, and all spent solvents managed within the system would be solid and hazardous waste.

Under the Less than 300-hour Monitoring Exemption, identified equipment that contains or contacts hazardous waste with an organic concentration of at least 10 percent by weight for less than 300 hours per calendar year is excluded from certain air monitoring requirements. As a result of this exemption, Sonoco would not be required to conduct air monitoring of equipment used to transfer spent solvents on-site if it is shown that the equipment contains or contacts the spent solvents for less than 300-hours per calendar year.

The inspection participants discussed the conditions required to meet the Less than 300-hour Monitoring Exemption. Specifically, the facility must demonstrate that the lines used to transfer spent solvents do not contain or contact spent solvents or spent solvent residuals between transfer events in order to meet the conditions of the Less than 300-hour Monitoring Exemption. The inspectors explained that a best management practice for demonstrating that the lines no longer contain, or contact spent solvents is to pump clean or reclaimed solvent through the equipment at a volume that is sufficient to displace the spent solvents and flush the lines. This practice is described in the attached EPA Enforcement Alert from June 2020 (Appendix 1). Page 5 of the EPA Enforcement Alert describes the types of recordkeeping necessary to demonstrate that the requirements for the exemption have been met: the waste that had been present in the equipment, the times the equipment is operated, the routine methods of cleaning or flushing the equipment, and the date and time of cleaning or flushing. The EPA Enforcement Alert also states that a best practice to ensure that the equipment is no longer containing or contacting hazardous waste residue is to clean or flush the piece of equipment with solvent and dry it with an air or nitrogen purge or other non-hazardous waste material (or water) capable of removing the liquid and gas. Following the best practice procedures is especially valuable to show that residual spent solvent does not accumulate or remain in pumps or in welded connections or 90° turns within the piping system.

13) List of Appendices

Appendix 1 – EPA Enforcement Alert: National Compliance Initiative Focus on RCRA Air Emissions (EPA 300-F-20001), June 2020

14) Signed

Laurie Benton DiGaetano
Senior Enforcement and Compliance Specialist

Concurrence

Araceli B. Chavez
Chief
RCRA Enforcement Section