

RCRA Inspection Report

1) Inspector and Author of Report

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U.S. Environmental Protection Agency (USEPA),
Region 4
Enforcement and Compliance Assurance Division
Chemical Safety and Land Enforcement Branch
RCRA Enforcement Section
61 Forsyth Street, S.W.
Atlanta, Georgia 30303

2) Facility Information

Axon Circuits, Inc.
424 S. Ware Blvd
Tampa, FL 33619

EPA ID#: FLD984174706
NAICS #: 334412 – Bare Printed Circuit Board
Manufacturing

3) Responsible Officials

Chandra Patel
President
Axon Circuits, Inc.
424 S. Ware Blvd
Tampa, FL 33619
CEO@axoncircuit.com

4) Inspection Participants

Chandra Patel, Axon Circuits, Inc.
Manish Patel, Axon Circuits, inc.
Pramod Ray, Axon Circuits, Inc.
Digant Solanki, Axon Circuits, Inc.

Warren McNelley, Florida Department of
Environmental Protection (FDEP)
Leslie Pedigo, FDEP
Brandon Miller, FDEP
Sean Lynch, FDEP
Avery Ghirghi, FDEP
Kayla Acosta, USEPA

5) Date of Inspection

March 14, 2024, at 8:33 A.M.

6) Applicable Regulations¹

Resource Conservation and Recovery Act (RCRA) Sections 3002 (42 U.S. Code – Annotated U.S.C.A. 6925 and 6927), and 40 Code of Federal Regulation (C.F.R.) Parts 260 - 270, 273, 278, &

¹ As the State's authorized hazardous waste program operates in lieu of the federal RCRA program, the citations of those authorized provisions will be to the authorized State program. However, for ease of reference, the federal citations will follow in brackets.

279; Chapter 403 of the Florida Statutes, Fla. Stat. § 403.702 et seq., and rules 62.710.210 -.901, and 62-730 et seq. of the Florida Administrative Code Annotated (Fla. Admin. Code Ann.)

Pursuant to Fla. Admin. Code Ann. r. 62-730.020(1) [40 C.F.R. § 260.10], a large quantity generator of hazardous waste (LQG) is a generator who generates greater than or equal to 1,000 kilograms (2,200 pounds) of non-acute hazardous waste in a calendar month.

Pursuant to Fla. Admin. Code Ann. r. 62-730.185(1) [40 C.F.R. § 273.9], a small quantity handler of universal waste (SQHUW) is a universal waste handler who does not accumulate 5,000 kilograms or more of universal waste (batteries, pesticides, mercury-containing equipment, lamps, or aerosol cans, calculated collectively) at any time.

Pursuant to Fla. Admin. Code Ann. r. 62-730.160(1) [40 C.F.R. § 262.15(a)], a generator may accumulate as much as 55 gallons of non-acute hazardous waste in containers at or near any point of generation where wastes initially accumulate, which is under the control of the operator of the process generating the waste, without a permit or without having interim status, as required by Section 403.722 of the Florida Statutes, Fla. Stat. § 403.722 [Section 3005 of RCRA, 42 U.S.C. § 6925], and without complying with Fla. Admin. Code Ann. r. 62-730.160(1) [40 C.F.R. § 262.16(b) or § 262.17(a)], except as required in Fla. Admin. Code Ann. r. 62-730.160(1) [40 C.F.R. § 262.15(a)(7) and (8)], provided that the generator complies with the satellite accumulation area conditions listed in Section 403.722 of the Florida Statutes, Fla. Stat. § 403.722 [40 C.F.R. § 262.15] (hereinafter referred to as the “SAA Permit Exemption”).

Pursuant to Section 403.722 of the Florida Statutes, Fla. Stat. § 403.722 [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 Section 403.722 of the Florida Statutes, Fla. Stat. § 403.722 [Section 3005 of RCRA, 42 U.S.C. § 6925], provided that the generator complies with the conditions listed in Section 403.722 of the Florida Statutes, Fla. Stat. § 403.722 [40 C.F.R. § 262.17] (hereinafter referred to as the “LQG Permit Exemption”).

7) Purpose of Inspection

The purpose of this inspection was to conduct an unannounced compliance evaluation inspection to determine Axon Circuits, Inc.’s compliance with the applicable requirements of RCRA and the corresponding Florida regulations. This was an EPA lead inspection.

8) Facility Description

Axon Circuits, Inc. (known hereinafter as “Axon” or “the facility”) is a manufacturer of printed circuit boards. The facility began operations in 1989. According to their website the facility serves the following industries: Communications, Instrumentation and Controls, Consumer, Medical, Automotive, and Military. The manufacturing process includes drilling, photo imaging, electroplating, etching, and quality assurance testing.

Axon operates inside of a warehouse building located on 1.09 acres of land. The facility operates Monday through Thursday from 8:00 AM to 4:00 PM. Fridays are mainly for cleaning with limited operating hours. The facility employs 25 workers and operates on city water and

sewer. Axon also has a Wastewater Discharge Permit No. 1071 from the City of Tampa for an onsite wastewater treatment plant.

Axon first notified FDEP of its regulated waste activities on June 18, 1990, as a small quantity generator of hazardous waste (SQG). The Facility then notified as a LQG of hazardous waste and submitted a 1991 Biennial Report on March 26, 1992, and most recently notified on February 28, 2022, along with their submission of their 2021 biennial report. The facility generates wastewater treatment sludge from electroplating operations (EPA Waste Code F006) and spent cyanide plating bath solutions (EPA Waste Code F007 and D003). The facility does not generate used oil or universal waste. There is LED lighting throughout the facility.

9) Previous Inspection History

FDEP has conducted one RCRA CEI at the subject facility between 2019 and 2024 and found one violation during the 2019 inspection for container labeling for a satellite accumulation container. The violation was resolved without formal enforcement.

10) Opening Conference

On March 14, 2024, EPA inspector Kayla Acosta, accompanied by FDEP inspectors Warren McNelly, Leslie Pedigo, Sean Lynch, Avery Ghirghi, and Brandon Miller FDEP Environmental Manager, arrived at Axon Circuits, Inc. at approximately 8:33 A.M. Digant Solanki, Sales Support, immediately received the inspectors. The inspectors were later joined by Chandra Patel, President; Manish Patel, Engineering and IT Manager; Pramod Ray, Lab Technician; and Jay Sanghani, for the opening conference. The inspectors introduced themselves, showed their credentials, and explained the purpose of the visit.

The inspectors described the anticipated use of equipment (iPad) during the inspection and provided a request for records. The EPA inspector explained that the Small Business Regulatory Enforcement Fairness Act's classification of a "small business" is generally set by the Small Business Administration using the business' SIC/NAICS code and annual receipts or number of employees. A copy of the EPA's information sheet for small businesses can be found at <https://www.epa.gov/sites/production/files/2017-06/documents/smallbusinessinfo.pdf>. The EPA inspector also discussed the company's ability, pursuant to 40 C.F.R. § 2.203, to assert a business confidentiality claim for information submitted to EPA. The company did not assert a business confidentiality claim.

The facility representatives provided an overview of the facility's history and current operations during the opening conference. The inspection participants also discussed health and safety protocols and required personal protective equipment before Pramod Ray led the inspectors on a tour of the Facility operations.

11) Inspection Observations

Fabrication Department:

The process begins with laminate panels comprised of fiberglass fitted in between two sheets of copper. Aluminum plates are placed on the panels and used as protection as drilling

machines drill holes into the laminate panels. The drilling machines are programed for customer specifications. Scrap aluminum is collected for recycling. No hazardous waste was observed in this area.

Photoresist Department:

Photoresist is then applied onto both sides of the panels based on customer designs. The panels are then exposed to UV light in a printer machine, burning photoresist onto the panels and penetrating the light areas of the design. A developer machine is used to remove photoresist from dark areas of the customer design with the use of soda ash. The panels will return to the photoresist department after undergoing copper plating treatment. No hazardous waste was observed in this area.

Panel Plating Lines:

Panels go through copper plating where the drilled holes on the panels are covered in copper, allowing for electrical connection. The copper plating lines consists of a cleaner bath, several rinse baths, a chemical micro-etching bath, 10% sulfuric acid baths, copper sulfate baths, and a tin bath. Plating line filters from process baths are disposed of as hazardous waste when they need to be replaced. The panels are then sent to a photoresist stripper and etcher machine to remove exposed copper that did not get coated from the tin bath. A tin stripper machine uses nitric acid solution to remove tin from the panels. Waste etch is sent for reclamation of precious metals by Micronutrients located in Indiana (now owned by Selko USA). Rinse baths and chemical baths are sent to the wastewater treatment plant. No hazardous waste was observed in this area.

Solder Mask Department:

The panels are taken to the Solder Mask Department after plating where a non-metallic solder mask is applied to the panels through a silk-screening process. The panels then return to the Photoresist Department to go through the printer machine and developer to bond the solder mask to the panel. No hazardous waste was observed in the Solder Mask Department.

Panel Finishing Department:

The panels will then be processed through a hot air leveler, nickel-gold plating, or silver plating. This depends on a customer's specification. In the hot air leveler process, panels are dipped into tin and lead solder and introduced to hot air jets to remove excess solder. Next to the hot air leveler is a satellite accumulation area (SAA) for waste flux contaminated with lead, generated from the hot air leveler (Photo 1). The inspectors observed one 55-gallon container D008 waste flux. The container was closed and labeled "Hazardous Waste—Liquid Lead (D008)". The container did not have an indication of the hazard of the contents.

Pursuant to Fla. Admin. Code Ann. r. 62-730.160(1) [40 C.F.R. § 262.15(a)(5)(ii)], a generator must mark or label its container with the following: (ii) An indication of the hazards of the contents (examples include, but are not limited to, the applicable hazardous waste characteristic(s) (i.e., ignitable, corrosive, reactive, toxic); hazard communication consistent with the Department of Transportation requirements at 49 CFR part 172 subpart E (labeling)

or subpart F (placarding); a hazard statement or pictogram consistent with the Occupational Safety and Health Administration Hazard Communication Standard at 29 CFR 1910.1200; or a chemical hazard label consistent with the National Fire Protection Association code 704).

This was corrected during the inspection and facility representatives placed a “Toxic” label on the container (Photo 2).

Panels processed through the nickel-gold line go through a cleaner bath, several rinse baths, a chemical micro-etch bath, a 10% sulfuric acid bath, a pre-dip bath, a palladium bath for activation, a nickel bath, gold immersion bath, and dead rinse bath before two final rinse baths. Panels processed through the silver-plating line enter a cleaner bath, several rinse baths, chemical micro-etch bath, 10% sulfuric acid bath, silver bath, and two final rinse baths. Rinse baths and chemical baths are sent to the wastewater treatment plant except for the dead rinse bath which is being collected for future gold reclamation. Like the other plating lines, waste etch is sent for precious metal recovery.

The panels then return to the Fabrication Department to be cut into individual circuit boards or V-scored which allows the circuit boards to be split but are kept intact as panels.

Quality Assurance (QA) Laboratory:

The QA laboratory is used to conduct wet chemistry and assess the quality of the plating bath solutions and the wastewater treatment plant. Waste generated in the QA laboratory is disposed of into the laboratory sink which is plumbed straight to the on-site wastewater treatment system. The plumbing under the sink was inspected to ensure waste is indeed being directed to the wastewater treatment plant. No hazardous waste was observed in this area.

Wastewater Treatment Plant:

The wastewater treatment plant is used to treat waste from rinse baths and chemical baths from the plating lines, and laboratory waste. The wastewaters are first sent to an equalization tank. The wastewater is then pH adjusted in a separate tank and sent to another tank to separate heavy metals from the wastewater using flocculant and ferric sulfate. A clarifying tank is then used to separate the heavy metal-containing sludge from the wastewater. The wastewater is then discharged to the city’s sewer system. The wastewater is tested monthly.

A filter press is used to produce hazardous waste filter cake. The inspectors observed a 5-gallon SAA container of F006 filter cake (Photo 3). The container was in-use actively accumulating filter cake, labeled “Hazardous Waste—Filter Cake”, but missing an indication of the hazard of the contents.

Pursuant to Fla. Admin. Code Ann. r. 62-730.160(1) [40 C.F.R. § 262.15(a)(5)(ii)], a generator must mark or label its container with the following: (ii) An indication of the hazards of the contents (examples include, but are not limited to, the applicable hazardous waste characteristic(s) (i.e., ignitable, corrosive, reactive, toxic); hazard communication consistent with the Department of Transportation requirements at 49 CFR part 172 subpart E (labeling) or subpart F (placarding); a hazard statement or pictogram consistent with the Occupational

Safety and Health Administration Hazard Communication Standard at 29 CFR 1910.1200; or a chemical hazard label consistent with the National Fire Protection Association code 704).

The facility representatives corrected this onsite by placing a toxic label on the container.

Central Accumulation Area (CAA):

The CAA is located in between the QA laboratory and the wastewater treatment plant. Axon manages toxic hazardous waste in this CAA. The entire building is equipped with an alarm system capable of summoning emergency assistance from local police departments, fire departments, or state or local emergency response teams, portable fire extinguishers, spill control equipment, and decontamination equipment; and it is equipped with water to supply water hose streams.

The inspectors observed one cubic yard sack of hazardous waste filter cake. The closed cubic yard sack is contained inside of a wooden container. The cubic yard sack was labeled with the words "Hazardous Waste—Filter Cake (F006)", and indication of the hazard of the contents, and dated 02/08/2024. The hazardous waste label on the cubic yard sack could not be viewed easily since it is covered by the wooden container. The inspectors requested that a hazardous waste label be placed on the wooden container itself also, in order to identify the hazardous waste contained inside the cubic yard sack (Photo 4).

12) Records Review

Contingency Plan and Quick Reference Guide (QRG):

The actions that facility personnel should take in response to an emergency are described in the facility's contingency plan, which was last updated on 01/25/2024.

The plan describes actions facility personnel must take in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility. The plan describes arrangements agreed to with the local police department, fire department, other emergency response teams, emergency response contractors, equipment suppliers, local hospitals, or the Local Emergency Planning Committee. The plan lists the names and emergency telephone numbers for persons identified as emergency coordinators identified as Pramod Ray and Manish Patel as an alternate.

The plan includes a list of all emergency equipment at the facility. The list includes fire extinguishing systems, spill control equipment, communications and alarm systems, and decontamination equipment. The list appears to be up to date. The plan includes the location and a physical description of each item on the list, and a brief outline of its capabilities. The plan includes an evacuation plan for personnel. This plan [describes signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes.

A copy of the contingency plan (and its quick reference guide) was most recently submitted to the Tampa Bay Regional Planning Council, Hillsboro County Fire Department, Brandon Regional Hospital, and Hillsboro Sheriff's Office on 01/30/2024.

The quick reference guide includes the types/names of hazardous waste in layman's terms and the associated hazard associated with each hazardous waste present at any one time; the estimated maximum amount of each hazardous waste that may be present at any one time; the identification of any hazardous wastes where exposure would require unique or special treatment by medical or hospital staff; a map of the facility showing where hazardous wastes are generated, accumulated and treated and routes for accessing these wastes; a street map of the facility in relation to surrounding businesses, schools and residential areas; the locations of water supply; the identification of on-site notification systems; and the name of the emergency coordinator(s) and emergency telephone number(s).

Training Records:

The inspectors reviewed facility job descriptions available for employees working in the plating lines and laboratory. Each description included the requisite skill, education, or other qualifications, and duties of facility personnel assigned to that position. The inspectors reviewed records of employee hazardous waste training completed in within the last three years. Pramod Ray recently started his role as the new laboratory technician (less than six months) and will be completing hazardous waste training within the six months of his employee start date and provide training records to the inspectors via email.

Waste Manifest and Land Disposal Restriction (LDR) Records:

The inspectors reviewed available hazardous waste manifest records and land disposal restriction forms for shipments of hazardous waste sent since 2021. Hazardous waste manifest records show that hazardous wastes are routinely shipped to World Resources Company in Pottsville, PA (EPA ID PAD981038227), and the most recent shipment was made on 01/09/2024. No issues were observed with hazardous waste manifests. It does appear that the facility is generating quantities below that of a LQG (less than 2,200 pounds of hazardous waste a month) based on their manifests and biennial report. The facility did inquire about changing their generator status to a SQG.

Shipping Documents for Precious Metal Recovery:

Records for the waste etch sent for reclamation was available for review. Waste etch is sent to Micronutrients in Indianapolis, IN. The last shipment was on 01/17/2024.

Weekly Inspection Records:

The inspectors reviewed Axon's available records of inspections of the hazardous waste central accumulation area (CAA) since January 2021. The inspection log includes a checklist to record observations about leaking containers and for deterioration of containers caused by corrosion or other factors. The records include the date and time of the inspection and the name, signature and initials of the employee conducting the inspection. Employees do routinely record inspection observations and subsequent follow-up actions on the inspection log.

13) Closing Conference

The inspectors conducted the exit meeting with Chandra Patel, Manish Patel, and Pramod Ray. During this meeting, the inspectors stated their preliminary conclusions of the inspection. Facility agreed to provide Pramod Ray's training records via email once complete.

14) List of Attachments

Attachment 1 – Photo Log:

15) Signed

**KAYLA
ACOSTA**

Digitally signed by KAYLA
ACOSTA
Date: 2024.05.21 12:54:44
-04'00'

Kayla Acosta
Physical Scientist

16) Concurrence

**ALAN
NEWMAN**

Digitally signed by ALAN
NEWMAN
Date: 2024.05.21 13:26:07
-04'00'

Alan R. Newman
RCRA Enforcement Section

Attachment 1 – Photo Log

[4] Photos taken on: March 14, 2024

Photos taken by: Kayla Acosta

Photos taken with: iPad

EPA Property Tag: SS8386



Photo 1	IMG-2024031410334633462492451.jpg
03/14/2024 10:33 AM (ET)	Photographer: Kayla Acosta
Hot Air Leveler	27.94456126, -82.34672959



Photo 2	IMG-2024031410424942492126238.jpg
03/14/2024 10:42 AM (ET)	Photographer: Kayla Acosta
Building 1/Hot air leveler	27.94462827, -82.3467926
55-gallon container D008 waste flux.	



Photo 3	IMG-2024031410555555551369151.jpg
03/14/2024 10:55 AM (ET)	Photographer: Kayla Acosta
Building 1—Wastewater Treatment	27.9442703, -82.34614242
5-gallon SAA container of F006 filter cake.	



Photo 4	IMG-202403141101391391281213.jpg
03/14/2024 11:01 AM (ET)	Photographer: Kayla Acosta
Building 1—Wastewater Treatment	27.94458799, -82.34631156
Cubic yard sack of hazardous waste filter cake.	