

RCRA Inspection Report

1) Inspector and Author of Report

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U.S. Environmental Protection Agency, Region 4
Enforcement and Compliance Assurance Division
Chemical Safety and Land Enforcement Branch
RCRA Enforcement Section
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2) Facility Information

Arnold Engineering Development
Complex
100 Kindel Drive, Suite B-322
Arnold AFB, Tennessee 37389-2322

EPA ID#: TN8570024044
NAICS #: 928110 - NATIONAL SECURITY

3) Responsible Officials

William Carpenter
AEDC Environmental Compliance
Manager
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4) Inspection Participants

Stephanie Short, AEDC
Shannon Allen, AEDC
Cody Bailey, AEDC
Rachel Chumley, AEDC NAS
Chase Willis, AEDC FSS
Christina Norman, AEDC
John Grisham, AEDC
Ronald Silver, AEDC NAS
Steve Lowe, AEDC NAS
Doug Seals, AEDC
Gary Fulmer, AEDC
Chris Hughes, AEDC

Donovin Mulvaney, TDEC
Rita Swett, TDEC
Roger Donovan, TDEC
Steven Wintheiser, TDEC
Tarin Tischler, USEPA

5) Date of Inspection

May 7 - 8, 2024 at 8:42 AM

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, & 279; and Tennessee Permit # TNHW-179.

Tennessee Hazardous Waste Management Act of 1977, Tennessee Code Annotated (Tenn. Code Ann.) § 68-212-101 *et seq.*, and Chapter 0400-12-01 of the Rules and Regulations of the State of Tennessee (Tenn. Comp. R. & Regs.)

Pursuant to Tenn. Comp. R. & Regs. 0400-12-01-.03(4)(e)2. [40 C.F.R. § 262.34(a) (2016)], a large quantity generator (LQG) may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, as required by Section 68-212-108 of the THWMA, Tenn. Code Ann. § 68-212-108 [Section 3005 of RCRA, 42 U.S.C. § 6925], provided that the generator complies with the conditions listed in Tenn. Comp. R. & Regs. 0400-12-01-.03(4)(e)2.(i)-(v) [40 C.F.R. § 262.34(a)(1)-(4) (2016)] (hereinafter referred to as the “LQG Permit Exemption”).

Pursuant to Tenn. Comp. R. & Regs. 0400-12-01-.03(4)(e)5.(i) [40 C.F.R. § 262.34(c)(1)], a generator may accumulate as much as 55 gallons of hazardous waste in containers at or near the 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 68-212-108 of the THWMA, Tenn. Code Ann. § 68-212-108 [Section 3005 of RCRA, 42 U.S.C. § 6925], and without complying with Tenn. Comp. R. & Regs. 0400-12-01-.03(4)(e)2. [40 C.F.R. § 262.34(a) (2016)], provided that the generator complies with the satellite accumulation area (SAA) conditions listed in Tenn. Comp. R. & Regs. 0400-12-01-.03(4)(e)5.(i)(I)-(II) [40 C.F.R. § 262.34(c)(1)(i)-(ii)] (hereinafter referred to as the “SAA Permit Exemption”).

Pursuant to Tenn. Comp. R. & Regs. 0400-12-01-.02(1)(d) b.18 [40 C.F.R. § 261.4(b)(18)], solvent-contaminated wipes, except for wipes that are hazardous waste due to the presence of trichloroethylene, that are sent for disposal are not hazardous wastes from the point of generation, provided that the conditions listed in Tenn. Comp. R. & Regs. 0400-12-01-.02(1)(d) [40 C.F.R. § 261.4(b)(18)] are met (hereinafter referred to as the “Solvent-Contaminated Disposable Wipe Exclusion”).

Pursuant to Tenn. Comp. R. & Regs. 0400-12-01-.02(1)(d) a.26 [40 C.F.R. § 261.4(a)(26)], solvent-contaminated wipes that are sent for cleaning and reuse are not solid wastes from the point of generation, provided that the conditions listed in Tenn. Comp. R. & Regs. 0400-12-01-.02(1)(d) a.26 [40 C.F.R. § 261.4(a)(26)] are met (hereinafter referred to as the “Solvent-Contaminated Reusable Wipe Exclusion”).

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.

7) **Purpose of Inspection**

The purpose of this inspection was to conduct an unannounced compliance evaluation inspection to determine Arnold Engineering Development Complex's compliance with the conditions of its RCRA Hazardous Waste Facility Operating Permit Number: TNHW-179, and the applicable requirements of RCRA and the corresponding Tennessee regulations. This was an EPA lead inspection.

8) **Facility Description**

The Arnold Engineering and Development Complex (hereinafter "AEDC" or "facility") is an aerospace research and testing facility owned and operated by the U.S. Air Force. AEDC is an Air Force Materiel Command facility and operates more than 68 aerodynamic and propulsion wind tunnels, rocket and turbine engine test cells, environmental chambers, arc heaters, ballistic ranges, sled tracks, centrifuges and other specialized units. The facility conducts research and testing on aircraft, missiles, satellites, and space systems for the Department of Defense (DoD), National Aeronautics and Space Administration (NASA), private industry, and academic institutions. Although the facility government owned, most testing and facility operations, including waste management, are conducted by on site civilian contractors under the supervision of U.S. Air Force personnel.

AEDC was first authorized by congress in 1950 as the Arnold Engineering and Development Center and later reinstated in 2012 as the Arnold Engineering and Development Complex. Prior to 1950, the facility operated as Camp Forrest, a U.S. Army training base during World War II.

Arnold Air Force Base occupies a total of 39,000 acres, with the engineering development complex occupying 4,000 acres. 1,000 of the 4,000 acres are developed. AEDC operates 24 hours a day, seven days a week with approximately 2200 people employed on base.

AEDC is notified as a large quantity generator of hazardous waste, large quantity handler of universal waste, and operates under permit #TNHW-179 for one-year storage of hazardous waste.

Waste is generated and accumulated in initial accumulation points (IAP) throughout the AEDC buildings. IAPs refer to satellite accumulation containers located near points of waste generation. The facility maintains the following IAPs across the facility:

- Two Chemistry Laboratory IAPs
- One Model Shop IAP
- Two Motor Pool IAP
- Three Paint Shop IAPS

AEDC also manages four central accumulation areas with a 90-day accumulation time limit for waste storage and one permitted accumulation area with a one-year time limit for waste storage. Facility representatives informed inspectors that the 90-day storage areas are primarily used for storage of used oil containers and most of the time waste is brought directly to the permitted storage areas from the IAPs. The volume of used oil generated at AEDC is much

greater than the amount of hazardous waste the facility generates. The used oil requires more storage space.

AEDC has personnel trained to manage hazardous waste as well as two contractors to support waste management. Employees contracted under Facility Support Services (FSS) provide test operation sustainment contractors that operate the test facilities on base.

AEDC also contracts employees through National Aerospace Solutions (NAS). NAS provides contractor unionized storekeepers. These storekeepers manage the permitted storage facility and transfer waste from IAPs to the permitted storage unit.

9) Previous Inspection History

The Tennessee Department of Environment and Conservation (TDEC) conducted six RCRA CEIs at the subject facility between 2019 and 2024 and found nine violations during those inspections.

On March 29, 2023, TDEC conducted the most recent RCRA CEI at the subject facility and found two apparent violations of RCRA's requirements for failure to properly label a universal waste and hazardous waste container. This was corrected without an enforcement action and the facility was returned to compliance via a follow up inspection on May 24, 2023.

10) Opening Conference

On May 7, 2024, EPA inspector Tarin Tischler, accompanied by TDEC inspectors Donovan Mulvaney, Rita Swett, Roger Donovan, and Steven Wintheiser arrived at Arnold Engineering Development Complex at approximately 8:45 AM. William Carpenter, AEDC Environmental Compliance Manager, immediately received the inspectors. William Carpenter and the inspectors were joined by Stephanie Short, Restoration Program Manager, and Shannon Allen, Installation Management Flight Chief for the opening conference. The inspectors introduced themselves, showed their credentials to the facility representatives, and explained the purpose of the visit.

The inspectors described the anticipated use of equipment (digital camera) 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.

William Carpenter 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 Facility representative led the inspectors on a tour of the Facility operations.

11) **Inspection Observations**

Chemistry Laboratory:

The AEDC Chemistry Laboratory, or chemistry lab, conducts oil and jet fuel testing for product oil and fuel used in aircraft on the base. The chemistry lab consists of two areas designated as the oil lab and the particle lab. Wastes generated in the chemistry lab include oil and solvents mixed with various laboratory chemicals. This waste is managed as ignitable hazardous waste. Jet fuel used in the particle laboratory is brought to the on-site fuel farm and burned as product jet fuel. Inspectors were greeted in this area by Cody Bailey, Senior Chemist, and Christina Norman, Environmental Specialist.

Outside of the chemistry lab, inspectors observed two IAP cabinets surrounded by a locked chain link fence (Photo 1). The fence was equipped with a “Danger: No Smoking” sign. One cabinet held a 55-gallon container of ignitable waste marked with the words “hazardous waste, ignitable, Oil, Solvents, Mixed Chemicals.” The second cabinet held one 5-gallon container labeled “Hazardous waste, corrosive, acid samples.” Waste is brought to the IAP cabinets from the individual laboratory rooms at the end of each shift. The IAP containers are managed as satellite accumulation area containers. Facility representatives informed inspectors that the 55-gallon container is emptied approximately twice a year.

Oil Lab

Inside the warehouse, inspectors observed two waste containers, one 3-gallon container labeled as nonhazardous waste oil and one 5-gallon metal container of ignitable waste in a chemical hood marked with the words “pending determination” (Photo 2). The nonhazardous container held oil only and the hazardous container held a mixture of oil and solvents. These containers are consolidated in the IAP cabinets after each shift. Facility representatives informed inspectors that a waste determination based on generator knowledge of what is in each container is made at the end of each shift.

Particle Lab

Inspectors observed one 5-gallon waste container labeled “oil, solvents, flammable.” Inspectors recommended that personnel label the waste container as “hazardous waste pending analysis” prior to consolidation in the IAP.

Chemistry Laboratory CAA:

The chemistry laboratory 90-day central accumulation area is in a small concrete storage room outside of the chemistry lab (Photo 3). Facility representatives informed inspectors that this area was established to store hazardous waste generated in the chemistry lab, however this and the other CAAs across the facility are now primarily used for used oil storage due to the high volume of used oil waste generated on site. Facility representatives informed inspectors

that used oil is managed in 55-gallon containers due to the limited spacing around testing areas where these containers are managed. The facility previously operated an oil recycling unit, but this has been closed and out of service for over 20 years.

The facility CAAs are equipped with danger signs and emergency equipment that included a fire alarm, fire extinguisher, and spill kit. Facility representatives informed inspectors that the first alarm is a direct line to the Fire Department. All CAAs and IAPs are inspected weekly. Weekly inspections were reviewed during the records review.

Inspectors were greeted in the Chemistry Laboratory CAA by Chase Willis, Hazardous Waste Compliance for FSS, and Rachel Chumley of National Aerospace Solutions (NAS). At the time of the CEI, inspectors observed 68 55-gallon containers labeled “used oil” in the chemistry lab CAA. Facility representatives informed inspectors that the majority of waste stored here is used oil, and occasionally containers of oily mats are stored here as well. Hazardous waste is typically brought directly from the chemistry lab IAP to the permitted storage unit. Laboratory personnel date the IAP container, fill out a form, and place the form on a facility storekeeper’s desk when an IAP container becomes full. The storekeeper then transports the appropriate waste containers to the permitted storage area.

Model Shop:

The AEDC Model Shop conducts the planning and building of model subjects used for testing tunnels across the facility. The model shop staffs 200 employees. Inspectors were greeted in this area by John Grisham, Outside Lead Machinist, and Ronald Silver, Safety Professional of NAS. Waste generated at the model shop includes nickel penetrate black oxide and sodium hydroxide waste which is managed in the Model Shop IAP. Product black oxide is managed in a tank at the model shop and is used as an anti-rusting agent that treats metals of oils and makes the metal porous. At the time of the CEI, the Model Shop IAP consisted of a 55-gallon container on a secondary containment pallet segregated by a chain around the area. Inspectors observed one 55-gallon container in this area labeled with the words “Contains hazardous waste or Toxic Waste, Sodium Hydroxide, Sodium Nitrate Residue” (Photo 4). Inspectors requested that facility personnel label this container with a corrosive indication of hazards. This was corrected on site.

Pursuant to Tenn. Comp. R. & Regs. 0400-12-01-.03(1)(f)1.(v) [40 C.F.R. § 262.15(a)(5)], which is a condition of the SAA Permit Exemption, a generator is required to mark or label its containers (ii) with an indication of the hazards of the contents.

Other wastes generated at the model shop include solvent contaminated wipes generated from cleaning parts throughout the model shop and metal shavings generated in the areas of the shop where welding is conducted. Metal shavings generated during welding operations are collected in a hopper container observed on site and sent for recycling. Inspectors observed several wipes containers across the facility labeled “Excluded Solvent Contaminated Wipes.” Facility representatives informed inspectors that these solvent contaminated wipes are laundered and returned to the facility by Airmark every two weeks. Documentation of wipes laundering was requested in the records review.

Inspectors observed one 15-gallon and one 5-gallon container labeled “Excluded Solvent Contaminated Wipes” in the model shop. Both appeared to be clear of free liquids, however the 5-gallon container was overfilled with rags and could not be closed (Photo 5).

Pursuant to Tenn. Comp. R. & Regs. 0400-12-01-.02(1)(d)2. [40 C.F.R. § 261.4(a)(26)(i)], which is an exclusion for materials which are not solid wastes, the solvent-contaminated wipes, when accumulated, stored, and transported, are contained in non-leaking, closed containers.

During the walk through of the model shop, inspectors observed four containers labeled “used oil” on a secondary containment pallet. Facility representatives informed inspectors that these containers were staged to be brought to the chem lab CAA. Inspectors observed eye wash stations and fire extinguishers throughout the model shop.

Facility representatives informed inspectors that universal waste aerosols are generated throughout the base. A large portion of the base has switched to LED lamps, but some universal waste lamps are still generated as they are phased out. Lamps are placed in cardboard cylinders in the permitted storage area for shipment and disposal. Facility representatives informed inspectors that aerosol cans are typically stored in a flammable cabinet, and when empty, personnel contact a storekeeper to come pick up the cans. If the storekeeper determines the aerosols cannot be reused anywhere else on base, they are brought to a container in the permitted storage area for shipment and disposal. At the time of the CEI, inspectors observed a closed 30-gallon plastic garbage container labeled “aerosol cans only”. This container was not labeled with the words “Universal Waste”. Facility representatives informed inspectors that this container held aerosol cans destined to be managed as universal waste, and model shop personnel had incorrectly placed this in a waste container instead of calling the storekeeper for pick up. Photo documentation of the model shop aerosol cans in a flammable cabinet awaiting pick up was submitted following the walk through.

Pursuant to Tenn. Comp. R. & Regs. 0400-12-01-.12(3)(e)1 [40 C.F.R. § 273.34(f)], Universal waste aerosol cans (i.e., each aerosol can), or a container in which the aerosol cans are contained, must be labeled or marked clearly with any of the following phrases: “Universal Waste—Aerosol Can(s)”, “Waste Aerosol Can(s)”, or “Used Aerosol Can(s)”.

Propulsion Wind Tunnel:

The AEDC propulsion wind tunnel (PWT) consists of large-scale metal tunnels used to test engine parts in a scale model of wind propulsion. The equipment is tested at high wind conditions at different atmospheric pressures. Different tunnels are used to measure the different pressures. Inspectors were greeted in this area by Steve Lowe, PWT Safety Rep. The PWT and testing is operated by the contractor NAS, but waste generated in this area is officially DOD waste. Waste generated in this area includes PCB waste, used oil, and oily water.

Inspectors observed multiple 55-gallon containers of PCB waste thorough the PWT area. These containers were closed and labeled “Caution contains PCBs.” Facility representatives informed inspectors that the entire PWT structure is PCB contaminated, and AEDC has authorization from EPA Region 4 to manage PCB contaminated water under their NPDES permit. Under the facility

NPDES permit, water is taken in from local waterbodies, used for cooling in the PWT, and consolidated in a retention pond. This pond is located on the base and is a permitted unit, not a US body of water. Contaminated settlement settles in the pond and the water flows back into the river. AEDC has booms in the retention pond to prevent settlement from escaping with the water, as well as sampling points in the creek between the pond and river. The water in the tunnel is collected and placed in the 55-gallon containers, however it is not ultimately managed as PCB waste. Inspectors requested the documentation of this agreement with EPA in the records review.

At the time of the inspection, inspectors observed a water pump pouring water into a drain under the PWT. Facility representatives said that this was a leak to be repaired, and the drain collected water to be recirculated throughout the system. Inspectors observed a 55-gallon container labeled "PPE PCB Contaminated" and four 55-gallons containers labeled "Used oil and water" in the PWT. Two of the oily water containers were located under the wind tunnel and two were inside of a clamshell container that was also labeled as oil and water (Photo 6).

The PWT has an air circulation system for the engine testing. Inspectors asked the PWT personnel if waste air filters were generated in the PWT. No air filters are generated because the drier system is just flowing air through and not filtering anything out.

PWT CAA

Inspectors observed twenty-four (24) 55-gallon containers in the PWT CAA. All the containers in the PWT CAA were closed and marked with nonhazardous "used oil" or "oily water" labels.

Motor Pool:

The motor pool is the auto shop on base used for conducting air force vehicle maintenance. Inspectors were greeted in this area by Doug Seals, Vehicle Maintenance Supervisor. The motor pool includes two auto shop warehouses, the automotive shop for small vehicles, and the heavy shop for large vehicles and heavy-duty equipment such as bulldozers and cranes. The motor pool employs eight staff in both the small and large vehicle area. Operations conducted in the motor pool include oil and vehicle battery changes. No paint operations are conducted in the motor pool. Waste generated here includes spent lead acid batteries, used oil, aerosol cans, and used oil filters. Government owned contractor vehicles are now managed by a third-party dealer under warranty, so the motor pool has a lower volume of work. Inspectors observed eye wash stations, fire blankets, and fire extinguishers in the motor pool.

The motor pool has a filter crusher attached to a 55-gallon container labeled "Used oil." Filters are crushed, drained into the containers, and then moved to a container labeled "Crushed filters." Inspectors observed oil caddies throughout the facility labeled "Used oil." A 5-gallon container outside of the motor pool was labeled "used antifreeze". The motor pool previously punctured aerosol cans and managed the liquid as hazardous waste, aerosol cans are stored in the flammable cabinet until they are collected by a shopkeeper to be used somewhere else on base or disposed of. Lead acid batteries are on a contract for recycling and are collected quarterly.

The motor pool IAP consists of two clamshell plastic containers each holding 55-gallon waste containers. One clamshell contained two 55-gallon containers labeled “Nonhazardous Pig mats and oil dry absorbent” and one container was labeled “Hazardous waste, waste fuel.” Inspectors requested that this container be labeled with a flammable indication of hazard. This was corrected on site.

Pursuant to Tenn. Comp. R. & Regs. 0400-12-01-.03(1)(f)1.(v) [40 C.F.R. § 262.15(a)(5)], which is a condition of the SAA Permit Exemption, a generator is required to mark or label its containers (ii) with an indication of the hazards of the contents.

Motor Pool CAA:

The motor pool CAA is in a covered area surrounded by a fence adjacent to the motor pool. This area was locked and marked with appropriate signage. No waste was stored in the motor pool CAA at the time of the inspection (Photo 7).

Paint Shop:

The AEDC paint shop performs painting and paint removal for signs and equipment throughout the base (Photo 8). The paint shop operates a sand blaster. The sand blasting does not generate waste because the sand is continually recirculated. Inspectors were greeted in this area by Gary Fulmer, Lead Painter.

The paint shop manages the following three IAPs.

Inside paint shop: One 55-gallon container on a wood pallet labeled “Hazardous waste, Paint chips, Tyvek, Plastic Vacuum Filters, Toxicity.” Inspectors observed weekly inspections of this IAP in the paint shop.

Outside paint shop: One 55-gallon container labeled “nonhazardous latex paint” and one 55-gallon container labeled “Hazardous Waste, Oil paint thinner epoxy, Flammable” (Photo 9). Both containers in the outside IAP were closed with funnels attached. The outside IAPs were stored in a closed and locked trailer.

Old Salvage Yard

The old salvage yard is an area used to paint large equipment. At the time of the inspection, inspectors observed three cabinets for storage. These cabinets were marked with a flammable placard. One was empty, one held three cans of product gasoline, and one held one partially full 55-gallon container labeled “Hazardous waste, Flammable.” Inspectors observed spill kits and fire equipment in this area.

Building 1456: Permitted Hazardous Waste Storage

The permitted storage building consists of a concrete warehouse with seven bays separated by block walls. The building was marked with “Danger: Unauthorized Personnel Keep Out,” “Warning Hazardous Material Storage,” and “No smoking” signage. Bays are designated by

waste characteristic and each bay has a door and lock. Inspectors verified that the facility had all required emergency equipment in this area per the facility permit.

Each container throughout the base is marked with a barcode with an ID number specific to each container. The ID number specifies the type of container, not the waste in the container, and the barcode is placed on the container before it is used for waste collection. The barcode ID number is then used as the identification of the waste info placed in that container in a separate system.

Each Bay door is marked with the corresponding DOT placard for the type of waste stored there. Inspectors observed the following containers in each bay:

Bay 1 – Class 3: Flammable, Class 4.1: Flammable Solid, Class 2.1: Flammable Gas

- Six closed 55-gallon containers of nonhazardous used oil and therminol heat
- Three pallets of smaller hand sanitizer containers. Inspectors requested a waste determination on the hand sanitizer as these containers were not labeled as hazardous waste.
- Three closed 30-gallon containers labeled as nonhazardous waste
- One closed 55-gallon container labeled with the words “Hazardous waste, 7/11/2023” and a DOT flammable placard.
- One closed 5-gallon container labeled “Hazardous Waste, Waste Diethyl Ether, 7/11/2023.”

Bay 2 – Class 6: Toxic, Class 4.3: Dangerous When Wet, Class 5.1 Oxidizer

- 47 containers of nonhazardous waste
- One 5-gallon container labeled “Hazardous waste, D001, D003, Dangerous When Wet, Lithium, 7/11/2023”. Facility representatives informed inspectors that this container stored lithium rods. This container was missing a flammable indication of hazards (Photo 10). This was corrected on site.

Pursuant to Permit TNHW-179 III(d)(1) [40 CFR 262.17(5)(i)], the permittee must mark or label its containers with the following: the words “Hazardous Waste”; an indication of the hazards of the contents; and the date upon which each period of accumulation begins clearly visible for inspection on each container.

Bay 3 – Class 8: Corrosives

- One 35-gallon container labeled “Hazardous Waste, 7345A, sulfuric acid residue, corrosive, 1/8/2-24.

- 10 4-ft cylinders labeled “Universal waste lamps”. The oldest cylinder was dated December 2023 (Photo 11).

- One 5-gallon container labeled “Universal Waste Mercury Equipment”

- Twelve 55-gallon containers labeled as nonhazardous waste

Bay 04 – Universal Waste, Class 2.2: Nonflammable Gas:

- Four closed 5-gallon containers of universal waste lithium-ion batteries. One container was dated April 2024 and three were dated March 2024.

- Nine 55-gallon containers of nonhazardous dry used oil and mineral oil.

Bay 5 – Product/HAZMAT Equipment Storage

Bay 6 - Class 9: Miscellaneous Hazardous Materials

- Thirty-three 55-gallon containers labeled as nonhazardous waste. The oldest container was dated 2022.

- Three 15-gallon containers labeled as nonhazardous waste.

Waste pickups and other military logistics are managed by Defense Logistics Agency (DLA). DLA has a contract with the tristate area. They schedule semi-trailer pickups and try to coordinate between generators to consolidate like items. The pickups are not on a set schedule but based on demand. There is typically a two-week turnaround time between submitting a waste pickup request and when the pickup occurs.

Bay 7 – PCBs:

- Seventeen 55-gallon containers labeled as nonhazardous waste.

- One 30-gallon container labeled as nonhazardous waste.

- One 55-gallon container labeled “PCBs, 8/15/2023.”

Inspectors reviewed the inspections of the permitted storage area during the walkthrough. The permitted hazardous waste storage unit is inspected weekly by airforce personnel and daily by FSS contractors when in operation. There were no missing inspection dates observed at the time of the CEI.

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 in 2019 with the facility’s permit renewal.

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. Christina Norman is listed as the primary emergency coordinator, and the other individuals are listed in the order in which they will assume responsibility as alternates.

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 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 signals to be used to begin evacuation, evacuation routes, and alternate evacuation routes.

Inspectors reviewed certified mail receipts documenting that a copy of the contingency plan (and its quick reference guide) was submitted to the local authorities.

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 and employee names that were provided for the following job titles:

Installation Management Section: Air Force HW Program Manager

Hazardous Waste Operations Group: Hazardous Waste Manager, Solid Waste Manager

Logistics support: Storekeeper

Each description included the requisite skill, education, or other qualifications, and duties of facility personnel assigned to that position.

AEDC provided a written description of the type and amount of both introductory and continuing training to be given to each person filling the positions listed above. The inspectors reviewed records of employee hazardous waste training completed since January 2019. DOT training was reviewed for the employees authorized to sign the uniform hazardous waste manifests.

Weekly Inspection Records:

AEDC inspects both the IAPs and CAAs on base weekly. The inspectors reviewed AEDC's available records of inspections of the hazardous waste central accumulation area (CAA) since the last TDEC inspection. The inspection log includes a checklist to record observations about leaking containers and for deterioration of containers caused by corrosion or other factors.

The following IAP locations are inspected:

- C3 – Paint Shop
- C4 – Old Salvage Yard
- C10 - Chem Lab Storage
- C15 – Paint Shop Outside
- C16 – Heat Treat Area (Model Shop)
- C17 – Vehicle Maintenance
- C18 – Heavy Vehicle Maintenance

The IAP inspection log includes a checklist to record observations about container labels, container headspace, closed containers, container condition, container cleanliness, spill kits, training for personnel operating IAPs, and segregation of incompatible wastes. The IAP manager performs the weekly inspection for that area, and William Carpenter conducts quarterly inspections of all IAPs to verify compliance. Inspectors reviewed the documentation of each IAP inspection during the facility walk through.

The following CAAs are inspected:

- Chemistry lab CAA
- Motor Pool CAA
- PWT CAA

The CAA inspection log includes a checklist to record observations about emergency equipment, sump area conditions, container count, and corrective action required.

AEDC's permit includes corrective action remedy requirements which include Solid Waste Management Units (SWMUs) and Areas of Concern (AOC).

On May 3, 2024, in an e-mail to the Tennessee Division of Solid Waste Management (DSWM), AEDC self-reported AEDC failed to inspect the facility for malfunctions and deterioration, operator errors, and discharges for SWMUS 1 & 2.

Pursuant to Permit TNHW-179 II(e)(1), The permittee shall inspect the facility for malfunctions and deterioration, operator errors, and discharges which may be causing or may

lead to (1) a release of hazardous waste or hazardous constituents to the environment or (2) a threat to human health.

Waste Determination Records:

Inspectors reviewed the following waste determination records in the records review:

22236 - Nonhazardous Paint Chips observed in the permitted storage area

Inspectors observed a TCLP for the paint chips conducted by NAS chemistry lab on base. Facility representatives informed inspectors that Waypoint Analytical is contracted for all other analytical determination testing. Waste that is regularly generated at the facility that requires additional testing is sent to a third-party lab, while analytical testing for new waste is characterized in house. The third-party NAS lab conducts appropriate testing for flash points, metals, etc for new waste.

The TCLP analytical for the paint chips was conducted 6/1/2023. These results indicated that the paint chips was not toxic for RCRA metals over the regulatory limit.

0632 – Boric Acid Lab Pack

Inspectors also reviewed the waste determination records for a lab pack containing Boric Acid. The documentation demonstrated that the lab pack contained lubricant oil, soap, safe stripper, rare earth oxide/ sulfide, and boric acid in water. The documentation included the safety data sheets (SDS) of the material within the lab pack. The SDS for Boric acid indicated that it has a pH of 3-4 and is not RCRA corrosive.

Pallet of Hand Sanitizer in Permitted Storage Area

Inspectors reviewed the safety data sheets for the FoamyIQ Lemon Blossom Hand Sanitizer observed on a pallet in the permitted storage area. The SDS's indicated the sanitizer exhibits a flash point of >212 degrees Fahrenheit was not RCRA ignitable.

Waste Manifest and Land Disposal Restriction (LDR) Records:

Facility representative informed inspectors that aside from hazardous material generated from the corrective action operations of the facility, such as contaminated soil, no hazardous waste is shipped directly from a CAA or non-permitted waste storage area. All other hazardous waste is brought to permitted hazardous waste storage area for shipment.

The inspectors reviewed available hazardous waste manifest records and land disposal restriction forms for shipments of hazardous waste sent since 2020. Hazardous waste manifest records are stored with the associated packing slips, SDS's, and invoice receipts. The AEDC manifest records show that hazardous waste is routinely shipped to US Ecology Sulligent [EPAID: ALD983177015] and Chemical Waste Management, Inc. [EPAID: ALD000622464] by Tri-State [EPAID: TNR000021550].

Universal Waste Records:

Shipments of universal waste are documented on a uniform hazardous waste manifest. During the records review, inspectors observed uniform hazardous waste manifest number 024047089JJK demonstrating aerosol cans were shipped as hazardous waste exhibiting the hazardous characteristic of ignitability on 3/15/2024. Facility representatives informed inspectors that all waste aerosol cans generated on base are managed as Universal Waste, and the hazardous waste transporter incorrectly designated the waste as hazardous.

Inspectors requested documentation of universal waste shipments for the last three years following the inspection. The manifests demonstrate shipments of universal waste lamps, batteries, and aerosol cans.

Manifest Tracking #	Date Shipped	Waste Description	Quantity	Destination
017102346JJK	6/15/2021	Universal Waste Lamps	510 lbs	Lamp Environmental Industries LAR000055467
017102346JJK	6/15/2021	Universal Waste Lithium ion batteries	210 lb	Lamp Environmental Industries LAR000055467
017102346JJK	6/15/2021	Universal Waste NiCad Batteries	90 lb	Lamp Environmental Industries LAR000055467
017102350JJK	6/15/2021	Universal Waste Lamps	1080 lbs	Lamp Environmental Industries LAR000055467
017102418JJK	12/30/2021	Universal Waste Lithium Ion Batteries Universal Waste NiCad Batteries Universal Waste lamps	150 lb 100 lbs 195 lbs	
017102421JJK	12/30/2021	Waste Paint Waste Flammable Liquids	460 lbs 810 lbs	US Ecology Sulligent, Inc. ALD983177015

NH Manifest 450023084501	11/22/2022	Lithium batteries Mercury equipment Dry batteries		
024047017JJK	12/12/22	Waste Paint Waste Flammable Liquids	55 lbs 770 lbs	Clean Earth of Alabama (ALD981020894)
018800176FLE	9/6/2023	Waste Aerosols, Flammable	1360 lbs	Clean Harbors Reidsville LLC
NH Manifest 450024115301	11/30/2023	Universal Waste Lamps Universal Waste Batteries	1255 lbs 200 lbs	
024047089JJK	3/15/2024	Waste Aerosols Flammable	665 lbs	Clean Earth of Alabama (ALD981020894)

Pursuant to Tenn. Comp. R. & Regs. 0400-12-01-.03(3)(a)1 [40 C.F.R. § 262.20(a)(1)], a generator who transports, or offers for transport a hazardous waste for offsite treatment, storage, or disposal, must prepare a Manifest according to the instructions included in the appendix to Tenn. Comp. R. & Regs. 0400-12-01-.03 [40 C.F.R. Part 262].

Excluded solvent contaminated wipes:

Inspectors reviewed the documentation demonstrating solvent contaminated rags are regularly laundered and returned to the facility by Airmark.

PCB Waste Agreement:

Inspectors reviewed the notice from US EPA Region 4 for the authorization of the management of PCB waste dated 7/27/2020. The notice was signed by Casar Zapata, Acting Director of Land and Chemical Remediation Division. The notice included approval of risk-based cleanup and disposal of polychlorinated biphenyl remediation waste generated in the PWT.

Container Tracking System:

Inspectors reviewed the container barcode tracking system to understand how waste is tracked throughout the base. When waste is added into a container with a barcode, the barcode is scanned to log the ID number with the waste that was added. This system then associated the barcode ID with waste container and records the site the waste was generated, the waste profile number, the hazardous characteristics of the waste, the date the waste is moved from the IAP to the permitted storage, container weight, and waste description.

13) Closing Conference

The inspectors conducted the exit meeting at 2:07 PM with William Carpenter, Stephanie Short, Shannon Allen, Rachel Chumley, Chase Willis, Chistina Norman, and Chris Hughes. During this meeting, the inspectors stated their preliminary conclusions of the inspection. AEDC agreed to provide the requested records. On May 14, 2024 and June 6, 2024, William Carpenter provided records in an email to Tarin Tischler and Donovan Mulvaney.

14) List of Attachments

Attachment 1 – Photo Log:

15) Signed

**TARIN
TISCHLER**

Digitally signed by
TARIN TISCHLER
Date: 2024.07.17
12:28:43 -04'00'

Tarin Tischler
Life Scientist

16) Concurrence

**ALAN
NEWMAN**

Digitally signed by ALAN NEWMAN
Date: 2024.07.17 14:31:31 -04'00'

Alan R. Newman
Acting Chief
RCRA Enforcement Section

Attachment 1 – Photo Log

11 Photos taken on: 5/7/2024 and 5/8/2024

Photos taken by: Tarin Tischler

Photos taken with: EPA iPad

EPA Property Tag: SS8852



Photo 1 – IAP outside if chemistry laboratory

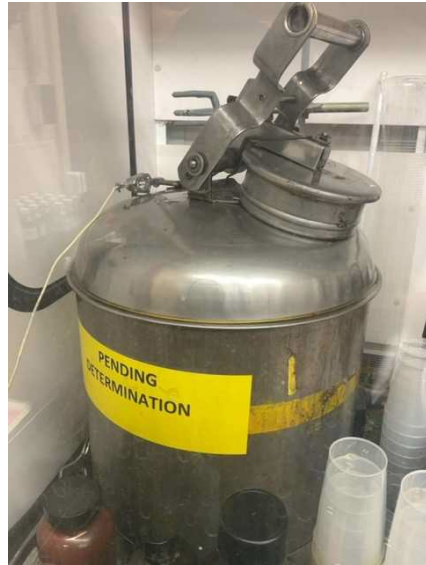


Photo 2 – Pending analysis Container in the oil lab area of the chemistry laboratory.



Photo 3 – Chem Lab CAA.



Photo 4 – Model Shop IAP container.



Photo 5 – Excluded Solvent Contaminated Rags container overfilled and unable to close.



Photo 6 – PWT IAP container.



Photo 7 – Motor Pool CAA.

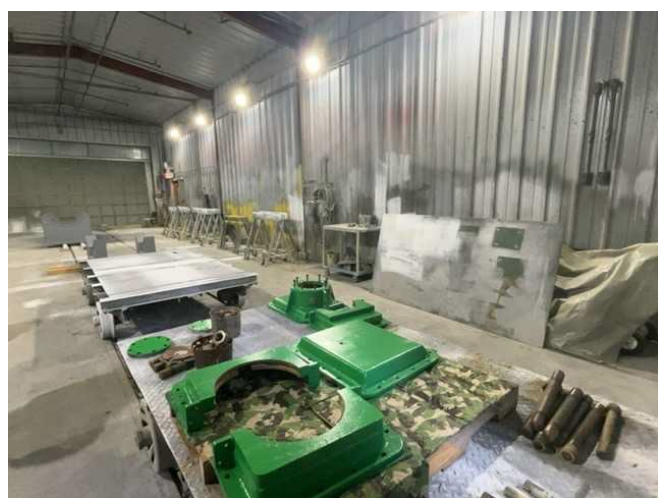


Photo 8 - Paint Shop.



Photo 9 – Paint Shop IAP container

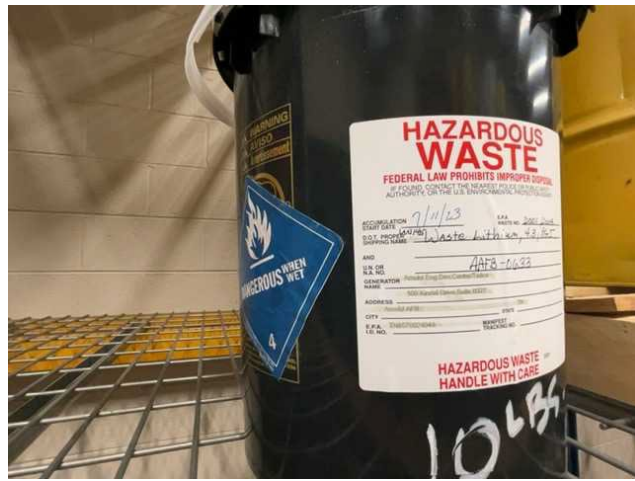


Photo 10 – Ignitable waste in the permitted hazardous waste storage unit not marked with an ignitable indication of hazards.



Photo 11 – Universal Waste lamps stored in the permitted hazardous waste storage unit.