RCRA Inspection Report

1) Inspector and Author of Report

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2) Facility Information

George C. Marshall Space Flight Center
(MSFC)
Marshall Space Flight Center- ASIO Bld
Huntsville (Madison County), AL 35812
EPA ID: AL1800013863
NAICS Code(s): 92711

3) Responsible Officials

Farley Davis
Director, Directorate of Risk Management

4) Inspection Participants

Dan Adams – MSFC
Kristin Casmer – MSFC Contractor Lead
William Carter – MSFC Contractor
Adrian Corbitt – Alabama Department of Environmental Management (ADEM)
Nereida Hernandez Morales – US EPA
Raj Aiyar – US EPA

5) Date of Inspections

May 4, 2023, 9:00 a.m.

6) Applicable Regulations[1]

Alabama Hazardous Waste Management and Minimization Act of 1978 (AHWMMA), Ala. Code § 22-30-1 *et seq.*, [Resource Conservation and Recovery Act (RCRA) Sections 3002 - 3005, (42 U.S. Code - Annotated U.S.C.A. 6925 and 6927)] and rules 335-14-1 to 335-14-17 (2016 and 2018) of the Alabama Department of Environmental Management (ADEM) Administrative Code (ADEM Admin. Code) [40 Code of Federal Regulation (C.F.R.) Parts 260-270, 273 and 279].

[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.

Pursuant to ADEM Admin. Code r. 335 14-1-.02-(1)(a)111. [40 C.F.R. § 260.10], a large quantity generator (LQG) of hazardous waste 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 ADEM Admin. Code r. 335-14-11-.02(a)(a)244. [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 ADEM Admin. Code r. 335-14-3-.01(5)(a) [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 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 22-30-12(b) of the Alabama Hazardous Wastes Management and Minimization Act (AHWMMA), Ala. Code § 22-30-12(b) [Section 3005 of RCRA, 42 U.S.C. § 6925], and without complying with ADEM Admin. Code r. 335-14-3-.01(6)(b) or 335-14-3-.01(7)(a) [40 C.F.R. § 262.16(b) or § 262.17(a)], except as required in ADEM Admin. Code r. 335-14-3-.01(5)(a)7. and 8. [40 C.F.R. § 262.15(a)(7) and (8)], provided that the generator complies with the satellite accumulation area conditions listed in ADEM Admin. Code r. 335-14-3-.01(5)(a) [40 C.F.R. § 262.15(a)] (hereinafter referred to as the "SAA Permit Exemption").

Pursuant to ADEM Admin. Code r. 335-14-3-.01(7) [40 C.F.R. § 262.17], a LQG may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, as required by Section 22-30-12(b) of the AHWMMA, Ala. Code § 22-30-12(b) [Section 3005 of RCRA, 42 U.S.C. § 6925], provided that the generator complies with the conditions listed in ADEM Admin. Code r. 335-14-3-.01(7) [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 the Marshall Space Flight Center's (Marshall, MSFC, the facility) compliance with the applicable requirements of RCRA, corresponding ADEM regulations and the facility's Hazardous Waste Permit. This inspection was conducted jointly with a representative of ADEM.

8) Facility Description

MSFC was founded on July 1, 1960, to support a national program for exploration of space. MSFC is used to design, fabricate, and test rocket vehicles, engines, and spacecraft components. MSFC encompasses approximately 1,840 acres and has a total workforce of nearly 7,000 employees. Some of the support activities at MSFC includes propellant handling, process development and conducting basic research in related aerospace activities.

In its most recent notification of regulated waste activity (ADEM Form 8700-12, dated December 2021) MSFC identified itself as a large quantity generator of hazardous waste, a small quantity handler of universal waste and as a used oil generator. The hazardous waste codes for

the waste generator include D001-D011, D018, D019, D022, D028, D035, D039, D040, F001-F003, F005, U134, U154, U210 and U239. The quantity of hazardous waste shipped in CY2021 was approximately greater than 5,000 kilogram (kg) and in CY2022, it exceeded over 900,000 kg.

9) Previous Inspection History

MSFC was last inspected by EPA in 2017. There were no violations observed during the inspection. ADEM's last inspection was conducted in 2022. There was one labeling violation observed during the inspection conducted in July 2022. The facility returned to compliance in October 2022.

10) Opening Conference

On May 4, 2023, inspectors from the U.S. EPA and ADEM arrived at MSFC to inspect the facility to determine its compliance status with both RCRA and the State of Alabama hazardous waste regulations. MSFC was represented by Dan Adams, RCRA Contingency Coordinator and Kristin Castner, Hazardous Waste Supervisor. Upon entering the facility, the inspectors introduced themselves, showed their credentials, stated the purpose of the visit, and discussed the scope of the inspection. The EPA inspector 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 facility did not assert a business confidentiality claim during the inspection.

The Small Business Regulatory Enforcement Fairness Act's (SBREFA) classification of a "small business" is generally set by the Small Business Administration. 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 inspectors described the anticipated use of equipment a digital camera during the inspection and requested a list of records to be reviewed as part of the inspection.

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

11) Inspection Observations

Please note, that unless otherwise noted in this report, all containers accumulating and storing hazardous waste were observed to be labeled with the words "Hazardous Waste," marked with accumulation or storage start date, and closed: all satellite accumulation area (SAA) containers of up to 55 gallons of hazardous waste were observed to be labeled with the words " Hazardous Waste" or words which identified the contents of the container(s) and closed: all containers of used oil were labeled with the words "Used Oil", and all container(s) of Universal Waste were managed within containers which are marked with appropriate universal waste language, marked with accumulation start date and managed with intact and nonleaking containers which were

closed. There were no leaks and spills observed in the satellite accumulation areas (SAAs), storage buildings and the bays inside the storage buildings unless otherwise noted in this report.

Less than 90-day Storage Areas

Building 4635-1

This building contains four aboveground, bulk storage tanks. These include two vertical, high-density polyethylene tanks for storing nonregulated wastewaters (typically investigation-derived waste (IDW)) and two horizontal, carbon steel tanks for storage of used oil or oily wastewaters (Photo-1). At the time of inspection, the tanks and containers were observed to be empty (Photo-2).

Building 4635-2
The building is used for storing ignitable and reactive waste. The storage area contained several 5, 10 and 55-gallon containers. This area is also used for the puncturing spent aerosol cans. At the time of inspection, the inspectors observed three 55-gallon containers labeled "Paint Waste", five 55-gallon containers labelled "Aerosol Waste" and two 55-gallon satellite containers for spent aerosol cans. The inspectors stated to the facility personnel to update their containers to include the words "Toxic" in lieu of Miscellaneous 9 labels. The inspectors also recommended to use larger indication of hazards of the contents for better visibility. The containers for spent aerosol cans were updated to include the words "Toxic".

Building 4635-3
This building is divided into six bays (Photo-3). This building is used for storing hazardous waste and universal waste batteries.

Bay #1
This bay contained a used oil filter crusher (Photo-4) and one 55-gallon drum containing used oil filters. Used oil from the spent filter is collected in a 5-gallon container.

Bay #2
This bay contained waste acid and spent lead acid batteries. There were two 15-gallon containers in this bay. One 15-gallon contained "Corrosive Waste Brine" and the other 15-gallon contained "Corrosive Waste Brine".

Bay #3
This bay is used for storing PCB waste. There was no hazardous waste stored in this area.

Bay #4
This bay is used for storage of spent batteries for recycling purposes. (Photo-5). The inspectors observed one 55-gallon container labeled "Used Alkaline Dry Cell Batteries"; one 55-gallon container labeled "Waste Alkaline Solution"; one 30-gallon container labeled "Universal Waste Batteries Ni-Cad"; two 10-gallon containers labeled "Universal Waste Batteries-Rechargeable Lithium; 10-gallon labeled "Waste Alkaline Solution"; one 5-gallon container labeled "Waste

Alkaline Solution"; three 5-gallon containers labeled "Hazardous Waste-Non-Rechargeable Lithium".

Bay #5
This bay is used for storing solid waste. There were fifty-four 55-gallon drums in this bay. The containers were labeled "Waste Paint Chips". In addition, there were three 15-gallon containers labeled "Waste wipes/Toxic"; one 30-gallon containers labeled "Spent Solvent Rags", and three 5-gallon containers labeled "Spent Solvent Rags". The inspectors stated to the facility personnel to update their containers to include the words "Toxic" in lieu of Miscellaneous 9 labels. The inspectors also recommended to use larger indication of hazards of the contents for better visibility. The containers were updated to include the words "Toxic".

Bay #6
This bay is for used oil accumulation. There were fifteen 55-gallon containers of Used Oil and two 55-gallon containers labeled "Pending Analysis". The inspectors recommended the facility to use labels as "Hazardous Waste Pending Analysis." (Photo-6).

Building 4635-4
This building is used primarily for storage of empty, used, new drums, and packaging materials. Spent lead-acid batteries are also stored in this building.

Bay# 2
This bay was marked as "Corrosive" and "Caustic" with appropriate diamond shaped hazard symbols placards (Photo-7). There was a sign indicating "Spent Lead-Acid Batteries Being Reclaimed" (Photo-8). There were approximately five pallets of waste lead-acid batteries in this bay. Two pallets were observed to be shrink-wrapped for shipment (Photo-9). All sumps and secondary containment in this bay were intact, continuous, and impervious.

Bay #5
This bay was marked with a DOT label "Miscellaneous 9" had several 55-gallon drums stored no more than two containers high on the pallets (Photo-10). The inspectors stated to the facility personnel to update their containers to include the words "Toxic" in lieu of Miscellaneous 9 labels. The inspectors also recommended to use larger indication of hazards of the contents for better visibility. The containers were updated to include the words "Toxic".

Building 4621 (Universal Waste Storage Area)
This building is used for storing universal waste primarily universal waste lamps (Photo-11). There were two 6-foot corrugated boxes; six yellow plastic totes, six 8-foot corrugated boxes; one 6-foot wooden box and twelve 4-foot corrugated boxes containing spent universal waste lamps. Since the 4-foot boxes were stacked, it was difficult for the inspectors to read the labels. The facility personnel were recommended to store and label the containers such that one could verify the integrity of the containers and the labels. The facility personnel agreed to the recommendation made by the inspectors and made a note to label the containers such that it is easily accessible during inspection and shipping.

Building 4707 (3D Printing Operations)
All wastes in this building are stored in satellite accumulation areas (SAAs), unless otherwise specified. There were three satellite containers staged on pallets in this area. All the containers had Miscellaneous 9 label as indication of hazards of the contents. The inspectors stated to the facility personnel to update their containers to include the words "Toxic" in lieu of Miscellaneous 9 label.

A temporary paint booth has been constructed in the front half of Building 4707. Thermal foam is being added to Mars rocket section. Due to the thermal nature of the foam separate component materials are segregated. Filters from this operation have come back as a Non-regulated waste. There were three 55-gallon satellite containers on pallets (Photo-12) and one 5-gallon satellite container with a D007 waste code. One 55-gallon was labeled for component "A" contaminated material with hazard indication as "Miscellaneous Label 9", the other 55-gallon was labeled for component "B" contaminated materials (D001) and the third 55-gallon container was labeled for "Other" contaminated materials. The inspectors stated to the facility personnel to update their container to include the words "Toxic" in lieu of Miscellaneous 9 label.

Area 142A
There were several SAA containers in this area. There was one 5-gallon container of metal powder (D001); one 55-gallon container labeled "Wipes/Rags/Debris Waste"; one 12-gallon spent aerosol container, and one 15-gallon Acetone waste container.

Area East side of 100 (Room-119)
There was one 55-gallon satellite container labeled "Wipes/Rags/Debris Waste"; one 15-gallon satellite container labeled "Aerosol" and one 5-gallon container containing universal waste batteries.

Paint Booth
This paint booth was recently added to Building 4707. Filters have not been changed yet to determine the waste stream. Filter procedures were reviewed during the inspection. There was one 55-gallon satellite container labeled "Paint contaminated/Wipes/Rags/Debris. In addition, there was one 15-gallon satellite container with D001 waste code and one 15-gallon Non-RCRA Regulated Waste.

Building 4487 (Engineering)

All wastes in this building are in SAA containers, unless otherwise specified.

Lab 101B X-ray and Optical-Instrumentation

Wastes in this lab are generated from the manufacturing and polishing of various lenses. There was one 30-gallon container of spent alkaline waste solution. The waste code on the container was noted to be D002, D006, D008 and D010; one 5-gallon container containing waste paint with indication of hazards as "Toxic"; one 20-gallon container of waste acid solution; one 20-

gallon container labeled “Wipes/Rags/Debris Waste.” With indication of hazards of the contents as “Miscellaneous 9” and one 5-gallon step-can that was observed to be empty, labeled as “Toxic”.

Record Review

Once the inspectors completed the walkthrough of the facility, they were escorted to a conference room to conduct a review of the required documentation. The records reviewed included the following:

- Facility’s Current Permit
- Contingency Plan
- Personnel Training
- Weekly Hazardous Waste Inspection Log for the Hazardous Waste Storage Complex and Less than 90-day Area
- Hazardous Waste Manifests
- Documents showing emergency arrangement with local authorities
- Waste Profiles
- Waste Analysis Plan
- Quick Reference Guide and Updated Emergency Coordinators list

Based on the review of the records, the records appeared to be complete.

12) Closing Conference

An exit briefing was conducted at the conclusion of the inspection with Dan Adams and Kristin Casmer . The observations made during the inspection were discussed and the inspection was concluded.

13) Signed

RAJAGOPAL AIYAR

Digitally signed by RAJAGOPAL AIYAR
Date: 2023.07.26 08:34:29 -04'00'

Raj Aiyar
Environmental Engineer

Date

Concurrence

ARACELI CHAVEZ

Digitally signed by ARACELI CHAVEZ
Date: 2023.07.26 12:05:32 -04'00'

Araceli B. Chavez, Chief
RCRA Enforcement Section

Date

Attachment A
Photographs of Marshall Space Flight Center
EPA ID# AL1800013863
Photos-USEPA
Kodak PIXPRO
Model No: M037489087

Photo-1 Building 4635-1 storing bulk storage tanks

Photo-2 Building 4635-2 Empty Containers

Photo-3 Building 4635-3 Building used for storing hazardous waste and universal waste batteries

Photo-4 Building 4635-3, Oil Filter Crusher

Photo-5 Universal Waste Batteries on a Pallet

Photo-6 Containers pending waste analysis

Photo-7 Building 4635-4, Bay 2 Corrosive and Caustic

Photo-8 Building 4635-4, Bay 2-Spent Lead-Acid Batteries Reclamation Area

Photo-9 Building 4635-4, Bay 2, Waste Batteries awaiting shipment

Photo-10 Building 4635-5, Placard labeling as Miscellaneous 9

Photo-11 Building 4621 Universal Waste Storage

Photo-12 Building 4707 (3D Printing Operations), Satellite Containers