

RCRA COMPLIANCE EVALUATION INSPECTION REPORT

1) Inspector and Author of Report

Daryl R. Himes
Environmental Engineer
RCRA Compliance Section

2) Facility Information

U.S. Department of Energy, Savannah River Site
Aiken, Barnwell and Allendale Counties
Aiken, South Carolina
EPA ID Number SC1 890 008 989

Owner Mailing Address: U. S. Department of Energy
P.O. Box A
Aiken, South Carolina 29808

Operator Mailing Address: Savannah River Nuclear Solutions
Building 730-4B
Aiken, South Carolina 29808

3) Primary Contact

For the Owner: James DeMass, Manager
Environmental Quality Management Division
U. S. Department of Energy, Savannah River Operations Office

For the Operator: Amy Meyer, Manager
Savannah River Nuclear Solutions
Environmental Compliance
Savannah River Site

4) Inspection Participants

Angela Pizzino	Savannah River Nuclear Solutions, LLC
Scott Kuhn	Savannah River Nuclear Solutions, LLC
Gerald Shealy	SCDHEC - Central Office
Alan Risa	SCDHEC - Central Office
Daryl Himes	US EPA, Region 4
Armanda Hemingway	DOE

5) Dates of Inspection

December 1 & 2, 2021

6) Applicable Regulations

40 Code of Federal Regulations (C.F.R.) Parts 260 - 270, Solid Waste Disposal Act Sections 3005 and 3007, (42 US Code - Annotated U.S.C.A. 6925 and 6927), 40 C.F.R. 300.440 (CERCLA Off-Site Rule; South Carolina Hazardous Waste Management Regulations (SCHWMR) R61-79.260-270 and Permit Number SC1 890 008 989. August 16, 1993 Federal Facility Compliance Agreement

South Carolina Hazardous Waste Management Act, S.C. Code Ann. § 44-56-10 et seq., and South Carolina Hazardous Waste Management Regulations, 25 S.C. Code Ann. Regs. 61-79.260-270, 61-79.273 and 61-79.279.

As the State's authorized hazardous waste program operates in lieu of the federal RCRA program, the citations of those authorized provisions alleged herein 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 the inspection was to conduct a Resource Conservation and Recovery Act (RCRA) compliance evaluation inspection (CEI) to determine the facility's compliance with the applicable regulations and hazardous waste permit.

8) Facility Description

- Location

The Savannah River Site (SRS, facility, or company) encompasses approximately 310 square miles (198,344 acres) in the southwest area of South Carolina. The Savannah River, which constitutes most of the border between South Carolina and Georgia, forms the facility's southwestern boundary for 35 river miles. The facility is located approximately 15 miles southeast of Augusta, Georgia.

- History

SRS was established in 1950 by the U.S. Atomic Energy Commission to produce plutonium and tritium for national defense purposes, and to produce additional special nuclear materials for other governmental and civilian uses. These nuclear materials were produced in five separate nuclear reactors at SRS for more than 40 years. The first of these reactors achieved operating status on December 28, 1953. All five reactors are currently inactive.

E.I. du Pont and Company designed, constructed and operated the facility until March 31, 1989 at which time Westinghouse Savannah River Company (WSRC) became the primary operating contractor. At the time of this inspection, Savannah River Nuclear Solutions, LLC (SRNS) was the operator of the facility which uses other companies to perform various operations at the site. As of July 2009, the Savannah River Remediation (SRR) began conducting liquid waste operations at the facility. The other contractors on site for the DOE include: 1) Parsons which is currently operating a new Salt Waste Processing facility; 2) Centerra which operates site security; 3) the University of Georgia which operates the Savannah River Ecology Laboratory;

4) Ameresco which operates a steam and electricity facility; Batelle Savannah River Alliance which operates the Savannah River National Laboratory; Dominion Energy which operates a public utility and the US Forest Service. There are approximately 11,000 employees that work on the site.

- Current Activities

The facility's objectives are threefold: (1) to maintain the nuclear weapons stockpile, (2) to maintain the nuclear materials, and (3) to manage the waste. These three activities include recycling, delivering, and managing tritium resources; managing components from dismantled nuclear weapons, residues from processing nuclear weapons, spent nuclear fuel, and legacy materials; and managing, treating, and disposing of radioactive waste, mixed waste, and hazardous waste from past, present, and future activities.

- Environmental Setting

The SRS site is underlain by 500 to 1,400 feet of sands, clays and limestone of Tertiary and Cretaceous age. These sediments contain several productive aquifers. Five separate streams on SRS property feed into the Savannah River. The Savannah River is used as a drinking water supply source, for commercial and sport fishing, and other recreational activities. SRS is approximately 160 miles from the Atlantic Ocean.

- Site Areas

SRS is divided into several areas based on major facilities, operations and activities. These areas are: Reactor Areas (C, K, L, P, and R); Reactor Materials Area (M); Heavy Water Reprocessing Area (D); Separations Areas (F and H); Waste Management Areas (E, F, H, S and Z); Administration Area (A); and Other Areas (B, N, TNX and G).

9) Findings

The inspection team was met by Angela Pizzano at the facility's security office to assist the inspection team in obtaining visitor badges at 9 a.m. on December 1, 2021. The EPA presented its credentials to Angela Pizzano at the time it obtained its visitor badge. The areas to be inspected were provided to the facility were selected after conversations with SCDHEC personnel.

Opening Conference

At 9 a.m., an opening conference with the facility representatives listed above, the EPA inspector, and the SCDHEC inspectors was held to discuss the areas that would be inspected and a schedule was discussed to insure facility personnel would be available for individual area inspections. An inspection of the following areas of the facility was then conducted:

Morning of Wednesday December 1, 2021

- **Area E**

Area E consists of structures constructed on concrete pads which consist of metal frames covered by a rubberized fabric forming the walls and roof of the buildings at each location within Area E. The buildings are designed for the storage of various hazardous and mixed wastes in preparation for their safe disposal. Cheyanne Rivera and Jacob Mims of the Environmental Compliance Authority joined the inspection team for this part of their inspection.

Permitted Area 643-43E Hazardous Waste/Mixed Waste Building

This building was managing five 55-gallon drums of newly generated mixed and twelve 55-gallon drums of newly generated low level mixed hazardous wastes at the time of the inspection.

Permitted Area 643-29E

Three concrete cylinders (culverts) (8 feet high and 8 feet in diameter) and one metal standard waste box (6ft x 6ft x 8ft) (SWB) were observed in this building. Various tritium mixed hazardous wastes were being stored within the cylinders. Based upon the current radioactivity levels of the materials within the cylinders, the materials in this building will be stored in this area until 2082 as there are no off-site disposal facilities capable of receiving, treating, and disposing of the mixed hazardous wastes in this area.

One 55-gallon drum of mixed waste was also observed in this area. The drum was labeled with the words “Hazardous Waste” and marked with an accumulation start date of less than one year.

Trans Uranic (TRU) Pad 1

No wastes were observed on this pad at the time of the inspection. The building structure previously used on this pad has been removed. According to facility personnel, this pad has been clean closed.

TRU Pad 2

No wastes were observed on this pad at the time of the inspection. The building structure previously used on this pad has been removed. According to facility personnel, this pad has been clean closed.

TRU Pad 3

This Tru Pad was located within a metal building constructed on a concrete pad. According to facility personnel, this area is used for loading materials onto trucks for shipping purposes. Two drums of mixed waste with PCBs and two drums of Tru-Waste were observed on the pad at the time of the inspection.

TRU Pad 4

Several SWBs containing mixed wastes were observed in TRU pad building in this area. Approximately thirty 55-gallon drums of mixed hazardous waste were also observed in this area. The containers which could be viewed appeared to be labeled with the words hazardous waste.

TRU Pad 5

Four concrete culverts managing nonhazardous transuranic waste were observed in TRU pad building in this area.

TRU Pad 6

Numerous drums of highly radioactive mixed waste drums were observed on pallets in this area which appeared to be in good condition.

TRU Pad 16

No hazardous wastes were being accumulated or stored on this pad at the time of the inspection. A previous leak of material from a drum of mixed waste containing Pl-238 resulted in all wastes previously managed on this pad to be moved to other TRU Pads with a cleanup being performed. The pad was then coated with a concrete sealing material as an interim closure method of the area.

TRU Pad 26

Mixed wastes were being stored in 4 standard large boxes, 29 concrete culverts and 39 standard waste boxes in this area at the time of the inspection.

Afternoon of Wednesday December 1, 2021

Area 105 C-Reactor

This area housed a nuclear reactor building which operated at this location from the 1940s until 1984 when it was shut down. Currently the building is used only for site training purposes. Small amounts of universal wastes are generated in the building, as are hazardous waste from the collection of hazardous paint chips and other miscellaneous hazardous wastes from training exercises.

The universal waste collection area was empty at the time of the inspection.

Hazardous wastes were being collected within two separate satellite accumulation areas (SAAs) at the time of the inspection. These areas were designated at SAAs Number 067 and 071.

One 55-gallon satellite accumulation container was observed within SAA Number 067 to be closed and labeled with the words "Hazardous Waste" and an indication of type of hazard within the container at the time of the inspection.

Two 30-gallon, one 15-gallon and one 5-gallon containers were each observed within SAA Number 071 to be closed and labeled with the words “Hazardous Waste” and an indication of type of hazard within the container. The total quantity of hazardous waste within the four containers was less than 55 gallons.

Site Services

The Site Services operations at the SRS facility includes operations for site infrastructure, site maintenance, safety operations, business support and engineering operations. Hazardous wastes are generated in two locations within the Site Services area as listed below.

Area 704-16G – The facility’s wastewater treatment facility is located in this area. One 10-gallon container of mercury waste from broken thermostats were observed in this area. The container was closed and labeled with the words “Hazardous Waste” and an indication of the hazard contents of the container.

Area 704-C – One building of the facility’s custodial operations manages one SAA for the collection of small amounts of hazardous waste from the collection of paint chips. One 10-gallon container of hazardous lead waste from the collection of paint chips was observed in this area. The container was closed and labeled with the words “Hazardous Waste” and an indication of the hazard contents of the container. No universal wastes were observed in this area at the time of the inspection.

Area 722-4A - One building of the facility’s maintenance operations manages one SAA for the collection of hazardous waste bead blast from a small plastic media blasting machine. The collection of the contaminated bead blast was being done in a 30-gallon container at the time of the inspection. The container was closed and labeled with the words “Hazardous Waste” and an indication of the hazard contents of the container.

Morning of Thursday December 2, 2021

Ecology Laboratory

This building contains an ecology research facility operated by the University of Georgia. Tests are performed in this lab on various animals to determine the effects that radiation has on them. Hazardous, mixed and universal wastes are generated at the facility. Up to eleven SAAs may be operated at the facility and one central 90-day accumulation area. The SAAs which had waste within their area at the time of the inspection were as follows:

Location SRELW058 - Room 127 – Twelve small containers of hazardous waste from spent standard solutions were observed in this area. The containers were closed and labeled with the words “Hazardous Waste” and an indication of the hazard contents of the containers.

Location SRELW059 -Building 26A – Broken thermometers were observed in a small plastic container in this area. The container was closed and labeled with the words “Hazardous Waste” and an indication of the hazard contents of the container.

Location SRELW060 -Building 737-A Room 135 – A one gallon container of hazardous waste corn which had been spiked with mercury was observed in this area. The container were closed and labeled with the words “Hazardous Waste” and an indication of the hazard contents of the containers.

Room 149 – Two boxes of nickel anhydride Universal Waste batteries were observed in this area. Each of the boxes was closed and label with appropriate universal waste language and an accumulation start date.

Location SRELW061 Building 737-A Room 113 – A one gallon and two-quart containers of hazardous waste corn which had been spiked with mercury was observed in this area. The containers were closed and labeled with the words “Hazardous Waste” and an indication of the hazard contents of the containers

Location SRELW062 – Building 737-26A – Three bins of excess chemicals which had been determined to be hazardous waste was observed in this area. The containers were closed and labeled with the words “Hazardous Waste” and an indication of the hazard contents of the containers

Location SRELW063 Room 118 – Four containers of miscellaneous hazardous waste containing mercury were observed in this area. The containers were closed and labeled with the words “Hazardous Waste” and an indication of the hazard contents of the containers

Location SRELW064 - Building 737A Room 207 (Walk-in Cooler) – One 30-gallon container of turtle carcasses injected with selenium in a had been determined to be hazardous waste was observed in this area. The container was closed and labeled with the words “Hazardous Waste” and an indication of the hazard contents of the containers.

Room 207 (Walk-in Cooler) – One 30-gallon container of turtle carcasses injected with selenium in a had been determined to be hazardous waste was observed in this area. The container was closed and labeled with the words “Hazardous Waste” and an indication of the hazard contents of the containers.

Central Accumulation Area 737-26A – Twelve 55-gallon, one 45-gallon and four 5-gallon containers of hazardous waste animal feed containing 2H-1-Benzopyran-2-one (U248 listed hazardous waste) was observed in this area. The containers were closed and labeled with the words “Hazardous Waste,” an indication of the hazard contents of the containers and an accumulation start date of less than 90 days.

Centerra

This area houses the on-base offices and training facilities for the on-site security forces. Three satellite accumulation areas were observed in the area of the building used for maintenance activities on weapons used by the facility’s security forces. Two of the SAAs contained 55-gallon drums of D005/D008 characteristic hazardous waste. Each of the containers were closed and labeled with the words “Hazardous Waste” and an indication of the hazard associated with the waste in the container and closed at the time of the inspection.

A third area contain two shop vacuums used for floor cleaning activities. Dirt collected during floor cleaning activities is placed into one of the 55-gallon containers when the vacuums are emptied. At the time of the inspection, the vacuums were not labeled with the words “Hazardous Waste” or an indication of the hazard associated with the waste.

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.262.15(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 44-56-60(a)(2) and (b)[4]of the SCHWMA, S.C. Code Ann. § 44-56-60(a)(2) and (b) [Section 3005 of RCRA, 42 U.S.C. § 6925], and without complying with 25 S.C. CODE ANN. REGS. 61-79.262.16(b) or 25 S.C. CODE ANN. REGS. 61-79.262.16(b) or 262.17(a) [40 C.F.R. § 262.16(b) or §262.17(a)], except as required in 25 S.C. CODE ANN. REGS. 61-79.262.15(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 25 S.C. CODE ANN. REGS. 61-79.262.15(a) [40 C.F.R. § 262.15(a)] (hereinafter referred to as the “SAA Permit Exemption”).

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.262.15(a)(5) [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 (i) with the words “Hazardous Waste.” and (ii) with an indication of the hazards of the contents.

Closing Conference

At the conclusion of the walkthrough inspection and record review, a brief closing conference was conducted with each of the facility participants identified above. During the conference, the areas of concern identified during facility walkthrough and also during the record review were identified and discussed.

Facility representatives were informed that reports summarizing findings of the inspection would be forwarded to the facility representative by both the US EPA and SCDHEC.

Record Review

Hazardous waste manifests and inspection logs since SCDHEC’s last compliance evaluation inspection in June of 2021 were reviewed, no discrepancies were noted.

10) Signed

Daryl R. Himes
Environmental Engineer

Date

11) Concurrence

for Araceli B. Chavez
Chief
RCRA Enforcement Section

Date