



**OFFICE OF INSPECTOR GENERAL**  
U.S. Department of Energy

# AUDIT REPORT

DOE-OIG-19-40

July 2019

**RESPIRATORY EQUIPMENT  
MAINTENANCE AT  
SAVANNAH RIVER SITE**



**Department of Energy**  
Washington, DC 20585

July 2, 2019

MEMORANDUM FOR THE MANAGER, SAVANNAH RIVER OPERATIONS OFFICE

*Michelle Anderson*  
FROM: Michelle Anderson  
Deputy Inspector General  
for Audits and Inspections  
Office of Inspector General

SUBJECT: INFORMATION: Audit Report on “Respiratory Equipment  
Maintenance at Savannah River Site”

BACKGROUND

The Savannah River Site is a Department of Energy industrial complex responsible for disposition of nuclear materials, waste management, environmental cleanup, and environmental stewardship. As such, the Savannah River Site processes and stores nuclear materials in support of national defense and U.S. nuclear nonproliferation efforts.

The Respiratory Protection Program was one of the largest safety and health programs at the Savannah River Site. The Savannah River Respiratory Protection Program provided technical support to respiratory users and equipment issuers; evaluated new respiratory equipment technologies; and maintained respiratory equipment. From January 1, 2015, through September 30, 2018, over 88,000 respiratory protection equipment items were issued to workers at the Savannah River Site, such as full face pieces (masks) and plastic suits. The Occupational Safety and Health Standards contained in 29 Code of Federal Regulations 1910.134, *Respiratory Protection*, required employers to develop and implement a written respiratory protection program with worksite-specific procedures and elements for required respirator use.

We initiated the audit to determine whether the Savannah River Site was adequately maintaining respiratory protection equipment to protect workers from exposure to hazardous materials. This report is one in a series of reports at select Office of Environmental Management sites.

RESULTS OF AUDIT

We did not identify any instances during our review where the Savannah River Site did not adequately maintain respiratory protection equipment to protect workers from exposure to hazardous materials. Specifically, Savannah River Site’s Respiratory Protection Program established maintenance procedures, which were performed by Respiratory Equipment Facility

personnel to adequately assemble, inspect, and test equipment. For example, we observed that the Respiratory Equipment Facility personnel performed inspections of respirators for damage (such as tears, holes, and missing components); monitored respirator cartridges for flow, breathing resistance, and efficiency for reuse or disposal; and conducted airflow checks on certain types of respirators to ensure that the units provided adequate air supply to meet worker needs. In addition, we observed that Savannah River Site's laundry services contractor cleaned respirator masks following an established cleaning procedure.

We also determined that employees were up-to-date on their respiratory protection training requirements as of the date of our review. For example, the Respiratory Protection Program established a Management Guide that required training on the respiratory hazards to which workers could potentially be exposed and on the equipment workers would be using. Our review of employee training records revealed that the employees were medically cleared and trained to use the various types of respirators for protection from airborne contaminants.

We are not making any recommendations or suggestions since nothing came to our attention to indicate that the Savannah River Site had not adequately maintained respiratory protection equipment.

#### Attachments

cc: Deputy Secretary  
Chief of Staff  
Under Secretary of Energy  
Under Secretary for Science  
Associate Under Secretary for Environment, Health, Safety and Security  
Principal Deputy Assistant Secretary for Environmental Management

## **OBJECTIVE, SCOPE, AND METHODOLOGY**

### OBJECTIVE

We initiated the audit to determine whether the Savannah River Site was adequately maintaining respiratory protection equipment to protect workers from exposure to hazardous materials. This report is one in a series of reports at select Office of Environmental Management sites.

### SCOPE

This audit was conducted between June 2018 and May 2019 at the Savannah River Site in Aiken, South Carolina. We focused on respiratory protective equipment maintenance, training, and qualifications between 2015 and 2018. This audit was conducted under Office of Inspector General project number A18AL037.

### METHODOLOGY

To accomplish our audit objective, we:

- Reviewed applicable policies, procedures, laws, and regulations pertaining to respiratory protective equipment.
- Reviewed reports issued by the Office of Inspector General, Government Accountability Office, and other entities, such as external audit firms.
- Interviewed key personnel from the Department of Energy's Savannah River Site and Savannah River Operations Office.
- Assessed Savannah River Site's processes to ensure protection of its employees from respiratory hazards.
- Conducted a limited review of respiratory equipment maintenance activities, inventory tracking systems for equipment issuances, and respirator training for compliance with laws, regulations, policies, and procedures. As part of our review, we:
  - Selected a judgmental sample of seven respiratory protection equipment items (welding helmets) from the H Tank Farm Respirator Issue Station to check against the information contained in the Respirator Issuance Tracking System.
  - Sampled five respiratory protection hoods.
  - Tested inspection records for nine Self-Contained Breathing Apparatus masks that we physically observed at Fire Station #2.
  - Reviewed employee training records for a judgmental sample of six employees who had been assigned respiratory protection.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. Accordingly, we assessed significant internal controls and compliance with laws and regulations necessary to satisfy the audit objective. In particular, we assessed the implementation of the *GPRM Modernization Act of 2010* and found that the Department had established performance measures related to employee safety and health. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of this audit. We conducted a reliability assessment of computer-processed data relevant to our audit objective by comparing the data to source documents. We deemed the data to be sufficiently reliable for our purposes.

Management waived an exit conference on March 13, 2019.

## PRIOR REPORT

- Special Report on [Department of Energy's Actions to Address Worker Concerns Regarding Vapor Exposures at the Hanford Tank Farms](#) (OIG-SR-17-01, November 2016). The report disclosed that 7 of 52 workers interviewed indicated that they had concerns with reporting, communicating, reprisal, or fear of retaliation related to potential vapor exposures. While a number of actions were underway to address the risks posed by vapors, such as evaluating technologies in the tank farms, the Office of Inspector General (OIG) found that improvements in communication are needed to inform workers about the status of actions and to ameliorate continuing fear of retaliation on the part of some workers. In addition, although not directly related to respiratory maintenance, the report also stated that a labor union president had some concerns about a few management officials at the Hanford Site who may react negatively to workers who want to voluntarily upgrade to full self-contained breathing apparatus gear in the Tank Farms. However, the union president did not volunteer specific information regarding the union's concerns with specific management officials. Management concurred with the OIG recommendations and committed to (1) taking steps to strengthen the tracking and closure of vapor issues using the Washington River Protection Solutions' corrective action management system, (2) working with Washington River Protection Solutions to summarize prior and ongoing engineering control evaluation reports and to share these with the workforce and the public, and (3) continuing to develop and sustain a strong safety culture by using the Chemical Vapors Solution Team and numerous mechanisms for employees to raise safety concerns.

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Washington, DC 20585

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