



Savannah River Site Watch

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Radioactive Mouse Found in High-Level Radioactive Waste Tank Area at Savannah River Site; Mouse Reported to have Radioactive Surface Contamination More than 10 Times Levels in Regulations

Radioactive Mouse Incident Rises to Level of being only “Occurrence” Reported in SRS “Quarterly Legacy Contamination Report, January 2018 Through March 2018”

Columbia, South Carolina – A mouse contaminated with a high level of radioactive material was found in a building located in the midst of tanks storing highly radioactive waste at the Savannah River Site, prompting a response by SRS on the matter.

After a radiological survey, it was determined that the captured mouse, which was killed, had a contamination level of 160,000 radioactive disintegrations per minute (dpm). This is more than 10 times the level of surface contamination in federal regulations - 5000 dpm - that are, according to federal regulations, to be “used in identifying the need for posting of contamination and high contamination areas in accordance...and identifying the need for surface contamination monitoring and control.”

The discovery of the mouse has prompted a report into the Department of Energy’s reporting system as the high surface level of contamination requires responsive action.

It is unknown how the mouse entered the H-Area tank farm, how long it had been there, where the radioactive contamination came from or if there are other similar problems with “biological vectors” in the tank farm or elsewhere at SRS.

“I would hope that the discovery of the radioactive mouse is a unique incident and does not indicate that other wildlife or workers can pick up contamination in the waste tank areas,” said Tom Clements, director the public interest organization Savannah River Site Watch. “I congratulate Savannah River Remediation personnel for realizing the mouse needed to be surveyed and expect that steps will be taken to prevent other such radiation-exposure occurrences. Just how a mouse wandering on the surface in the tank farm area would be contaminated needs to be explained by SRS,” Clements added.

According to the report in the DOE's incident reporting system, the mouse was discovered by Savannah River Remediation personnel on February 24, 2018 in a support building in the H-Area tank "farm." The "occurrence report" on the contamination levels is dated April 5, 2018.

The report state that no further contamination was found in the building: "The mouse was bagged/tagged for disposition. Extent of condition surveys were performed in the Building 241-82H Motor Control Center and adjacent offices, with no contamination detected."

The Occurrence Report of April 5 states:

Occurrence Description: A mouse was discovered in Building 241-82H, a Radiological Control Office located adjacent to a posted Radiological Buffer Area. Once exterminated, the mouse was surveyed by a Radiological Control Inspector. Survey results identified probe reading of 160,000 disintegrations per minute (dpm) beta-gamma, no detectable (ND) alpha, and no transferable contamination.

The Shift Operations Manager (SOM) and Radiological Control Operations (RCO) were notified about the radioactive mouse and the incident was significant enough so as to be included in the "Quarterly Legacy Contamination Report, January 2018 Through March 2018." The incident is listed as being the only "occurrence" in that quarterly report for SRS. The decision to include the mouse incident in the quarterly contamination report is described in the Occurrence Report:

On April 4, 2018, Savannah River Remediation (SRR) reported legacy contamination for the first quarter of fiscal year 2018, including those involving biological vectors (e.g., mice, birds, animal excretions, etc.), identified during routine radiological monitoring program activities. SRR will report this type of contamination events on a quarterly basis, using ORPS criterion 6B(4)-I for the onsite identification of legacy contamination. Only those events that exceed the levels referenced under this criterion will be reported. A single report will be filed at the end of each calendar quarter, listing each event for that calendar quarter from all SRR facilities. There was only one event for this quarter. A mouse was discovered in Building 241-82H, a Radiological Control Office located adjacent to a posted Radiological Buffer Area. Once exterminated, the mouse was surveyed by a Radiological Control Inspector. Survey results identified probe reading of 160,000 disintegrations per minute beta-gamma, no detectable alpha, and no transferable contamination. The mouse was bagged/tagged for disposition. Extent of condition surveys were performed in the Building 241-82H Motor Control Center and adjacent offices, with no contamination detected. Notifications were made.

Approximately two years ago, SRS Watch called attention to reports of pigeons and haws entering the Mixed Oxide Fuel Fabrication Facility through Temporary Construction Openings (TCOs). Pigeon excrement has reported to have been dropped on equipment. As the partially constructed MOX building does not handle radioactive material such entrance of birds appears not to be reportable under DOE regulations but installed components may have been negatively impacted due to droppings. As far as is known by SRS Watch, neither DOE nor the National Nuclear Security

Administration nor contractor CB&I AREVA MOX Services have publicly commented about this alleged bird intrusion.

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Figure 2-1. Aerial photo of H-Tank farm, with LIDAR elevations (light green contours) around Tank 40 (Ref. 2).

(Photo with Building 281-82H in DOE document “Mercury Dispersion Modeling and Purge Ventilation Stack Height Determination for Tank 4H, Savannah River National Laboratory, May 2017, page 4, <https://sti.srs.gov/fulltext/SRNL-STI-2017-00298.pdf>)

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Notes:

Occurrence report of April 5, 2018 – Report number “EM-SR--SRR-LWOGEN-2018-0001” – radioactive mouse in Building 241-2H in H-Area Tank Farm

<https://orpspublic.doe.gov/orps/reports/displayReport2.asp?crypt=%87%C3%95%9Ba%8Eui%5E%8D%80%A1%B6%BF%92e%B1%C0%C9%D1ac%7BY%A0j%B0%A5%7E%9EZ%9F%B1m%AD%B3%A7%B3n%AAu%8F%95sn%85%81l%95%8A%7B%5FX%94V%7D%AF%9C%B3%A9S%8D%5F%9B%80s%A9Vhi%7F%5Fk%91V%7CqscjcgXQ%7Cf%BA%89y%86%BF%91%BAy%94%A8%C3%C5%CC%A4%A6%C7%BC>

Occurrence Reporting and Processing System (ORPS)

<https://data.doe.gov/asp/Main.aspx>

DOE O 232.2, OCCURRENCE REPORTING AND PROCESSING OF OPERATIONS INFORMATION

<https://www.directives.doe.gov/directives-documents/200-series/0232.2-BOrder-admchg1/@@images/file>

6B(4): “Identification of onsite legacy radioactive contamination greater than 10 times the total contamination values in 10 CFR Part 835 Appendix D, exclusive of footnote 3 to Appendix D, and that is found outside of the following locations: areas routinely posted, controlled and monitored for contamination, and areas controlled in accordance with 10 CFR Section 835.1102(c), and, per Section 835.604(a), any non-posted area that is under the continual observation and control of an individual empowered to implement access and exposure control measures. For tritium, the reporting threshold is 10 times the removable contamination values in 10 CFR Part 835, Appendix D.” (page 16)

10 CFR Part 835 Appendix D – “SURFACE CONTAMINATION VALUES”

<https://www.gpo.gov/fdsys/pkg/CFR-2011-title10-vol4/pdf/CFR-2011-title10-vol4-part835-appD.pdf>

<https://www.gpo.gov/fdsys/granule/CFR-2011-title10-vol4/CFR-2011-title10-vol4-part835-appD>