

**FINDING OF NO SIGNIFICANT IMPACT
FOR THE ENVIRONMENTAL ASSESSMENT FOR
THE TRITIUM FINISHING FACILITY AT THE
SAVANNAH RIVER SITE**



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U.S. DEPARTMENT OF ENERGY
NATIONAL NUCLEAR SECURITY ADMINISTRATION
FINDING OF NO SIGNIFICANT IMPACT FOR THE
ENVIRONMENTAL ASSESSMENT FOR THE TRITIUM FINISHING
FACILITY AT THE SAVANNAH RIVER SITE

AGENCY: Department of Energy, National Nuclear Security Administration

ACTION: Finding of No Significant Impact

SUMMARY: The National Nuclear Security Administration (NNSA), a semi-autonomous agency within the United States (U.S.) Department of Energy (DOE), has the primary responsibility to maintain and enhance the safety, security, and effectiveness of the U.S. nuclear weapons stockpile. Tritium is an essential component of every weapon in the current and projected U.S. nuclear weapons stockpile. Unlike other nuclear materials used in nuclear weapons, which have half-lives of thousands of years, tritium decays at a rate of 5.5 percent per year. Accordingly, as long as the nation relies on a nuclear deterrent, the tritium in each nuclear weapon must be replenished periodically. In accordance with the Council on Environmental Quality (CEQ) regulations at 40 Code of Federal Regulations (CFR) Parts 1500–1508 and the DOE National Environmental Policy Act (NEPA) implementing procedures at 10 CFR Part 1021, NNSA has prepared an environmental assessment (EA) (DOE/EA-2151) to analyze the potential environmental impacts from constructing and operating the Tritium Finishing Facility (TFF) at the Savannah River Site (SRS). The TFF would be used to inspect, store, finish, assemble, and package the gas transfer systems (GTSs), which contain the tritium reservoirs used in a nuclear weapon.

NNSA's Proposed Action is to construct and operate the TFF at SRS. The primary component of the proposal includes construction of two new buildings within the existing Tritium Area in H-Area: Building 1 (249-12H) would be a hazard category (HC)-2 nuclear facility and Building 2 (249-13H) would be an HC-3 nuclear facility. The TFF Proposed Action includes transfer of capabilities (inventory, processes, and limited equipment) from the H-Area Old Manufacturing facility (HAOM) to the new TFF complex. TFF construction activities, including site preparation, are estimated to take approximately three years, followed by three years of startup preparations, testing, and operational readiness reviews.

In accordance with DOE's NEPA implementing procedures at 10 CFR 1021.301(d), on January 21, 2021, DOE provided the SRS TFF Draft EA to stakeholders with the State of South Carolina and the State of Georgia for a 21-day review. The South Carolina Department of Health and Environmental Control (SCDHEC) submitted comments on the Draft EA on February 10, 2021. The Final EA, published in March 2021, considers all comments received on the Draft EA.

The NNSA Acting Manager of the NNSA Savannah River Field Office has determined that the construction and operation of the TFF at the proposed site is not a major Federal action that significantly affects the quality of the human environment within the meaning of NEPA. Therefore, preparation of an environmental impact statement (EIS) is not required.

ADDRESS: The SRS TFF Final EA and this Finding of No Significant Impact have been prepared and are available to the general public on the NNSA NEPA web page (<https://www.energy.gov/nnsa/nnsa-nepa-reading-room>) and/or the DOE NEPA web page (<https://www.energy.gov/nepa/doe-environmental-assessments>). Requests for additional information may be submitted via regular mail to Jennifer Nelson, NEPA Document Manager, NNSA, Savannah River Field Office, P.O. Box A, Aiken, SC 29802; phone: (803)-557-6372 or (803)-557-NEPA; or via email at *NEPA-SRS@srs.gov*.

SUPPLEMENTARY INFORMATION: As described in Section 1.2 of the Final EA, the TFF and associated support facilities would allow NNSA to relocate mission-critical tritium operations from original 1950s vintage buildings to more modern buildings. The new TFF complex would reduce both annual and overall lifecycle costs and ensure the safety and security of the ongoing Tritium Mission at SRS. The classified nature of the work requires TFF to be located within the Tritium Limited Area at H-Area of SRS. The TFF complex would consist of approximately 36,000 square feet of new facilities.

ENVIRONMENTAL IMPACTS: Development of the TFF would require site preparation work, construction of two process buildings and an external corridor, removal of three nonradiological warehouses, construction of one warehouse, and upgrades and infrastructure to support these facilities. Construction of the TFF would disturb approximately 2.5 acres within H-Area. This represents approximately 0.001 percent of the total land at SRS. The affected land has been previously disturbed and no new land disturbance would occur. The use of the land for the TFF would be consistent with the H-Area mission and historic uses of SRS. Once operational, long-term impacts from the TFF facilities on land use at SRS would be similar to existing development within H-Area.

H-Area is about 5.3 miles from State Highway 125 and 5.8 miles from U.S. Highway 278. Public views of the facilities within H-Area are screened by heavily wooded areas and the nature of the terrain bordering segments of State Highway 125 and U.S. Highway 278. Moreover, facilities are not visible from the Savannah River, which is about 8.2 miles from H-Area. Once the TFF is operational, H-Area would remain a highly developed area with an industrial appearance.

Construction of the TFF would occur on previously disturbed land and would not constitute additional impacts to geological resources. Additionally, there are no faults located within SRS that intersect the ground surface; therefore, ground displacement near the Tritium Area is highly unlikely. To minimize the potential hazards associated with earthquakes, the new facilities would be designed and constructed to meet applicable code requirements related to geological hazards. Buildings 249-12H and 249-13H would be constructed to ensure continuation of all required functions even after a design-basis earthquake.

During construction, disturbances involving excavation (i.e., new building foundations and underground utility connections and changes) would generate areas with lower runoff rates due to more permeable surfaces and increased potential for loose soil particles being carried away by runoff. Because areas of excavation and disturbed (more permeable) soils would be temporary and small in comparison to the size of the affected watershed, and because most of the area is relatively flat, adverse impacts would not be expected from runoff quantity changes. SRS has

permits, plans, and procedures in place to minimize the potential for stormwater runoff to carry contaminants away from construction areas.

Water use during construction and operations would be approximately 1,300–4,300 gallons per day and is expected to come from groundwater sources. The 1,300–4,300-gallon-per-day usage represents about 0.004–0.01 percent of the groundwater typically used each day in the three-county area of Aiken, Barnwell, and Allendale.

The area is in attainment for all National Ambient Air Quality Standards. During construction, nonradiological emissions (e.g., nitrogen oxides, carbon monoxide, sulfur dioxide) from heavy equipment would be minor and would temporarily affect air quality. Fugitive dust emissions from site grading would be minimal due to the small area of land disturbance (less than 2.5 acres) and use of water suppression or other dust control methods. Because the Proposed Action would transfer functions from HAOM to the proposed TFF with no net increase in production, mobile source emissions from waste transportation would not increase over existing levels. Employee staffing levels would also remain the same as existing levels except for a small increase during startup; therefore, any small increase in mobile source emissions associated with personnel commuting would be minor and temporary.

Radiological air emissions (consisting primarily of tritium) would continue to be measured via in-stack monitoring and would comply with the NESHAP radionuclide requirements. The proposed operation of the TFF would not result in measurable tritium releases during normal operations. During operations at the TFF, very small amounts of tritium gas could be released from the metal matrix of returned reservoirs or tritium-contaminated materials. Any tritium released would be exhausted via gloveboxes, hoods, or local exhausts into the stack. These very small amounts (estimated to be less than 1 curie annually) would not measurably contribute to increased health impacts to the offsite public.

Construction noise from heavy equipment such as backhoes and excavators would be temporary and confined to the construction site. The nearest site boundary to H-Area is more than six miles away, to the west. Facilities in H-Area are far enough from the site boundary that noise levels from sources in this area would not be measurable or easily distinguishable from background levels. No distinguishing noise characteristics would increase during operation of the proposed TFF. The cooling tower replacement would be an in-kind replacement of an existing unit and would not affect noise.

Because no vegetation communities on or surrounding the proposed TFF would be disturbed, impacts to wildlife species from habitat loss would not occur. During construction, presence of human activity and associated construction noise can cause wildlife species to avoid habitats surrounding a construction site; however, no new impacts to wildlife species are expected from human presence and noise from TFF construction. Several threatened or endangered and protected species occur on SRS, but none occurs in the vicinity of the proposed TFF. No critical habitat designated for threatened or endangered species would be affected by project construction as no critical habitat is located on SRS.

No wetlands occur within the footprint of the proposed TFF, and the potential for adverse impacts to surface water, including wetlands, is low. Therefore, impacts to wetland habitats would be

unlikely. No construction activity would occur within a floodplain; therefore, floodplains would not be affected.

All construction-related activities would occur on previously disturbed lands, and no impacts to archaeological resources or historic-era buildings or structures would be expected. Activities observed from Cold War-era historic properties in H-Area would be similar to activities that currently occur and thus would not introduce visual elements that conflict with the historic setting.

Construction of the TFF would have minimal impacts on infrastructure capacity. The capacity of the existing infrastructure at SRS would be adequate to support the TFF. Because the peak construction workforce (170 persons) and operational workforce (75 persons) would be negligible compared to the projected population in the region of influence, socioeconomic impacts, although beneficial, are expected to be negligible. The number of operational workers, including security personnel, would not change from that currently employed at HAOM.

Environmental impacts from most projects tend to be highly concentrated at the actual project site and tend to decrease as distance from the project site is increased. There are 82 census tracts that meet the definition of minority populations, which includes 15 census tracts that also exceed the threshold for low-income populations. During construction and operation of the proposed TFF, it is anticipated that environmental, health, and occupational safety impacts would be minimal, temporary, and confined to the Tritium Area. Based on the impacts analysis for resource areas, no high and adverse effects are expected from construction or operation of the TFF.

The volume of construction and demolition (C&D) waste expected from demolition of the three existing warehouses and the existing cooling tower would be approximately 1,500 tons. This amount would not impact the existing operational capacity of area landfills. No low-level radioactive waste (LLW), mixed LLW (MLLW), or hazardous waste would be expected to be generated during construction. As a standard measure to protect construction workers, SRS would monitor work areas, including soil areas to be disturbed, as appropriate to ensure no unexpected contamination is encountered. The proposed TFF is being designed as a clean facility. Its operation is expected to produce no LLW, hazardous waste, or MLLW. Work in the TFF would be performed in glovebox settings and LLW, such as personal protective equipment, would typically not be generated during normal operations. This type of waste could be produced in the event of plant upset conditions, but overall generation of LLW, hazardous waste, and MLLW from the entire Tritium Area operations would be expected to decrease as a result of the Proposed Action.

The TFF is a replacement facility for HAOM performing the same activities. As a clean facility, any processes with the potential for tritium off-gassing would be performed in gloveboxes or ventilation hoods. Therefore, measurable worker doses are not expected during TFF normal operations. The analysis in the EA indicates that some of tritium emissions from the facilities in the Tritium Area are expected to decrease with time. These decreases are not associated with the construction or future operation of the TFF; they are associated with less off-gassing from older facilities as residual tritium decays over time. As mentioned above, the only potential for release of tritium from TFF operations is from the diffusion of tritium from the metal matrixes of returned reservoirs or tritium-contaminated materials. This diffusion would occur when these used reservoirs or materials are in TFF. The amount of tritium that could be released from these

operations would be very small (estimated to be less than 1 curie annually) and not be measurable on the stack air monitors. Therefore, public exposures are not expected to change as a result of construction or operation of the TFF.

In the event of a radiological accident at the TFF, workers and the public could be impacted. The EA estimates the doses and health consequences (e.g., latent cancer fatalities [LCFs]) to three receptors: (1) a maximally exposed individual (MEI, a hypothetical member of the public located at the closest site boundary); (2) a noninvolved worker (a worker located 0.06 mile from the TFF); and (3) the projected 2030 surrounding population within 50 miles of the TFF. The accident analysis for the TFF considered the following types of accidents: (1) fires, (2) explosions, (3) loss of confinement, (4) direct exposure–radiological, (5) direct exposure–chemical, (6) criticality, (7) external events, and (8) natural phenomena. None of the accidents evaluated would result in an LCF to the MEI, a noninvolved worker, or offsite population.

With regard to intentional destructive acts, the TFF would be constructed and operated within the highly secure Tritium Limited Area, under a high level of security. If an intentional destructive act involving the TFF occurred, the potential consequences would be dependent on the material-at-risk of the facility and would be similar to the unmitigated accidents evaluated in the Preliminary Hazards Analysis that was prepared for the TFF.

Because of the small, temporary increase in worker commuting traffic, transport of construction materials from off site, and the disposal of construction debris on site, NNSA expects that there would be no impact to the level-of-service of the roads and highways in the region surrounding the SRS. NNSA also concludes that the impact to onsite traffic would be minimal. Existing parking lots can sufficiently serve the construction workers. Because the number of operational workers, including security personnel, would not change from that currently employed at HAOM, operation of the TFF would not impact the level-of-service of the roads and highways in the region surrounding the SRS or within the site. The TFF would not affect the number of tritium shipments to and from SRS, therefore, the Proposed Action would not change the potential radiological impacts associated with transportation.

DETERMINATION: Based on the analysis in the EA, I conclude that the construction and operation of the TFF at the proposed site does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of NEPA. Therefore, preparation of an EIS is not required.

Issued in Aiken, South Carolina, this _____ day of March 2021.

Jeffrey M. Allison
Acting Manager, NNSA Savannah River Field Office