

Nuclear Regulatory Commission Paves Way for Increase in Production in Commercial Reactors of Tritium for Nuclear Weapons

Expansion of Tritium Gas Production for DOE in TVA's Commercial Nuclear Reactors Undermines Nuclear Non-Proliferation Norms, Keeps U.S. on Nuclear War Footing

COLUMBIA, SOUTH CAROLINA, US, February 27, 2024 /EINPresswire.com/ -- The U.S. Nuclear Regulatory Commission has taken a big step forward in allowing expansion of production of tritium, a radioactive gas used to boost the explosive power of all U.S. nuclear weapons. Increased tritium production would take place in the Tennessee Valley Authority's Watts Bar nuclear power reactors, further undermining nuclear nonproliferation norms by allowing continued production of nuclear weapons materials in commercial nuclear power reactors.



Savannah River Site Watch

SRS Watch is a non-profit public-interest organization located in Columbia, South Carolina, that monitors policies and programs of the U.S. Department of Energy, with a focus on the Savannah River Site (SRS) located near Aiken, SC. See <https://srswatch.org/>.

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Tom Clements, Director, SRS Watch

The [NRC published a notice in the Federal Register on February 23, 2024](#) that supports the decision to dramatically increase the production of tritium in the Watts Bar units 1 and 2 reactors in Tennessee. The NRC, a civilian regulatory agency, recommends that the licenses for both reactors be amended to allow for an increase in irradiation of special tritium-producing rods from 1,792 to 2,496 for each reactor in a single operating cycle of about 18 months.

The significant increase in irradiation of Tritium Producing Burnable Absorber Rods (TPBARs) in the reactors' cores would result in production of much greater amounts of

tritium, as requested by the U.S. Department of Energy's National Nuclear Security Administration (NNSA) for its client, the Department of Defense. According to NNSA's 2023 "Stockpile Stewardship and Management Plan," the goal is "to reach maximum tritium production in each of the two Watts Bar reactors by FY 2025."

"Expansion of tritium production for use in all nuclear warheads reveals that the U.S. aims to keep a massive nuclear weapons stockpile far beyond any level of deterrence," said Tom Clements, director the public interest group Savannah River Site Watch, Columbia South Carolina. "For the sake of global security, the U.S. must adopt a policy to reduce and eliminate nuclear weapons and in parallel halt the production of weapons tritium in civilian nuclear reactors," added Clements. (See sources here linked in [SRS Watch news, Feb. 23, 2024.](#))

The apparent objective with this larger tritium supply is for the NNSA to fill the tritium "reservoirs" in all warheads to maximum capacity, which could be up to around 5 grams of tritium per warhead. This would allow the weapons to operate with greater flexibility, including at their highest explosive yield, thus keeping the U.S. on a footing to "fight" a nuclear war with maximum destructive effect. Russia and China could react to this US decision, possibly stimulating a "tritium race," underscoring the risks of enduring reliance on nuclear weapons, according to SRS Watch.

The NRC has documented in an "environmental assessment" (EA) that radiation exposure, tritium release into the environment and nuclear waste production would all increase due to the action but has declined preparation of an in-depth "environmental impact statement" (EIS). The NRC claims the impacts are within earlier-considered bounds and has thus issued a "Finding of No Significant Impact" (FONSI) and recommends that a license amendment be issued by the NRC to allow more tritium rods to be irradiated. The NRC declined to review both the proliferation impacts of the decision and the impacts on a brewing nuclear arms race.



Commercial reactors being used for military purposes: Watts Bar commercial nuclear power reactors, units 1 and 2, Tennessee Valley Authority (TVA), Spring City, TN; photo by Nuclear Regulatory Commission (NRC)



Tritium Extraction Facility, where weapons tritium is extracted and placed into small "reservoirs" that are inserted into nuclear warheads; TEF is located at DOE's Savannah River Site, Aiken, SC; DOE photo

Both the EA and FONSI are included in the text of the short Federal Register notice, revealing that an inadequate analysis was conducted of the proposed action of dramatically increasing TPBAR irradiation. According to SRS Watch, an in-depth EIS, with public meetings, should have been prepared, especially given that tritium leakage from TPBAR irradiation has been documented, with diluted tritium-contaminated water being discharged into the Tennessee River from the "tritiated water storage tank with a capacity of 500,000 gallons."

TVA submitted a license amendment request (LAR) on March 20, 2023, requesting that the NRC allow the increase in TPBAR irradiation. The request was accepted by the NRC on April 21, 2023. NRC has informed Savannah River Site Watch that their review of the LAR should be finished by April 21, 2024.

In a February 22, 2023 presentation to the NRC, TVA stated that the proposed license-amendment review schedule "supports a planned increase of TPBAR inventory in the WBN Unit 1 Cycle 19 refueling outage (U1R19) in fall 2024 and WBN Unit 2 U2R6 in spring 2025 to support DOE requests." The uranium in the fuel used in the reactors is required to be of domestic origin, or "unobligated" of any restrictions that a foreign supplier might place on such use for military related purposes. In a 2015 document ("Tritium and Enriched Uranium Management Plan Through 2060") NNSA identified ways to extend the unobligated low-enriched uranium fuel supply to around 2040. In 2014, the Government Accountability Office recommended review of the policy to use only unobligated uranium for tritium production.

On September 14, 2023, NNSA issued a decision that it will not expand tritium production to TVA's Sequoyah reactors located near Chattanooga, Tennessee and that it will only use the Watts Bar reactors for the military mission. TVA is owned by the federal government and thus compliant in doing the nuclear weapons work, which is far outside its commercial energy-production mission.

Highly radioactive TPBARs removed from the reactors would be transported to DOE's Savannah River Site (SRS) near Aiken, South Carolina for processing in tritium facilities that are now being expanded. At SRS, tritium "reservoirs" would be filled and shipped to other sites for loading into nuclear warheads. The processed TPBARs, not classified as high-level nuclear waste under U.S. law, would be placed into concrete bunkers on the surface in E-Area, where they have been observed to leak tritium into the environment. The NRC neglected to analyze the TPBAR disposal at SRS. DOE is an independent agency not regulated by the NRC.

Due to increased tritium production, TPBAR manufacture at the Westinghouse uranium fuel plant near Columbia, SC would also expand. Production in that commercial nuclear facility of TPBARs used to produce tritium for military use exposes the reality that the Westinghouse facility is a dual use military-commercial facility, thus crossing the imaginary line between civilian and military uses of nuclear technology, as documented by SRS Watch in the 2021 report ["Crossing the Line: South Carolina Nuclear Weapons Secrets Exposed."](#)

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