



Savannah River Site Watch

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**Comments Submitted by Savannah River Site Watch (SRS Watch) for
Versatile Test Reactor (VTR) EIS Record;
Request that No Record of Decision (ROD) be Issued for Zombie VTR Reactor Project**

**Is there a DOE Source to Meet VTR Fuel Fabrication-Demands or is there a Plutonium
Shortage for the VTR and Key DOE trPlutonium Projects?**

Concerning Federal Register notice, May 20, 2022, DEPARTMENT OF ENERGY,
“Notice of Availability of Final Versatile Test Reactor Environmental Impact Statement,”
<https://www.govinfo.gov/content/pkg/FR-2022-05-20/pdf/2022-10692.pdf>

It is indeed strange that the final Environmental Impact Statement on the Versatile Test Reactor was issued after the project was terminated by Congress. The strategy with that approach is unclear and should be explained by the Office of Nuclear Energy.

VTR Project has been Terminated, Issuance of the EIS Improperly Issued after Termination

On Tuesday, March 15, 2022, President Biden signed into law: H.R. 2471, the Consolidated Appropriations Act for Fiscal Year 2022. In that legislation, Congress zeroed out funding for the VTR. The removal of funding for the project by Congress means that the VTR was terminated.

Omnibus spending, as approved by Congress and signed into law: VTR receives no funding (see page 133 pdf):

DIVISION D—ENERGY AND WATER DEVELOPMENT AND RELATED AGENCIES
 APPROPRIATIONS ACT, 2022

	Final Bill				
Versatile Test Reactor Project:					
Other Project Costs	43,000	55,000	---	-43,000	-55,000
21-E-200 VTR Project	2,000	90,000	---	-2,000	-90,000
Subtotal, Versatile Test Reactor Project	45,000	145,000	---	-45,000	-145,000

The VTR “FY 2022 March Status” update, obtained via a Freedom of Information Act request by Savannah River Site Watch, confirms the project’s termination:

On March 15, 2022, President Biden signed into law: H.R. 2471, the “Consolidated Appropriations Act, 2022,” which provides full-year funding through September 30, 2022, for projects and activities of the Federal Government. Unfortunately, no funding was provided for VTR, which is especially disappointing noting that the Energy Act of 2020, passed with the Consolidated Appropriations Act, 2021, fully authorized VTR.

The VTR update goes on to say:

With no new FY 2022 funding, the project initiated completion of all hold and restart documentation. The goal is to bring all on-going activities to a reasonable stopping point and archive all work in an easily retrievable way by the end of April 2022. All FY 2022 activities, including graduate student expenses under the Experiments Technical Integration scope, will be covered by uncosted funds carried over from prior year funding.

This is the final monthly report for the VTR project in FY 2022.

In other words, the VTR project accepts that the project has been terminated. Even if they are afraid to say anything publicly about project termination it is now dead.

While the DOE budget request for Fiscal Year 2023 includes \$45 million for the VTR, in an attempt to revive the project, the fact remains that the VTR has been terminated. Given lack of sufficient private funding the chances of the project being revived may be slim.

Yet, the final EIS was issued as if the project remains alive. Issuance of the EIS is an abuse of the National Environmental Policy Act as the project no longer exists and will thus have no impacts.

I request that documentation of the fact that VTR funding was terminated by Congress and signed into law be included as part of the EIS record.

Request that No Record of Decision(s) be Issued on the VTR or Fuel Fabrication

Given that the project has been terminated, I request that no Record of Decision (ROD) be issued on the project. Thus, no “preferred alternative” of siting the reactor at the Idaho National Lab must not be embodied in a ROD. As the project no longer exists, the selection of a preferred alternative and issuance of a ROD is a wasted exercise.

Likewise, I request that selection of INL or the Savannah River Site as the location of a VTR fuel fabrication facility likewise not be embodied in a ROD.

VTR Project Withholding Important Information

Requests of both INL and the Office of Nuclear Energy (NE) as to the status of the VTR post-termination have gone unanswered. It's as if silence about the fact that funding for the project was eliminated will somehow change the reality that the project has been terminated.

Additionally, the DOE's Freedom of Information Act office in headquarters, likely at NE's urging, is refusing to provide a copy of the report required by Congress about a public-private partnership for the project. Failure to provide the document or reveal that it doesn't exist may well reveal the reason for project termination: that no private partner exists.

Excerpt from SRS Watch FOIA request of July 23, 2021:

The following language on the Versatile Test Reactor (VTR) was passed on December 27, 2020 along with the FY21 Appropriations Act - in "DIVISION D-ENERGY AND WATER DEVELOPMENT AND RELATED AGENCIES APPROPRIATIONS ACT, 2021," page 86, <https://docs.house.gov/billsthisweek/20201221/BILLS-116RCP68-JES-DIVISION-D.pdf>:

VERSATILE TEST REACTOR

The Department is directed to submit to the Committees on Appropriations of both Houses of Congress not later than 30 days after enactment of this Act a plan for executing the Versatile Test Reactor project via a public-private partnership with an option for a payment-for-milestones approach.

Where is the congressionally required report and why is it being withheld?

While TerraPower may funnel a small amount of money to the VTR project that would fall far short of public-private funding necessary to construct the reactor and associated fuel fabrication and TRU waste facilities.

I request that the public-private partnership document required by Congress be made public and made be part of the VTR EIS record.

Information Lacking about Source of Plutonium for Fuel Fabrication – Must be Clarified

The Final EIS on the Versatile Test Reactor summary (<https://www.energy.gov/sites/default/files/2022-05/final-eis-0542-versatile-test-reactor-summary-2022-05.pdf>) states in footnote #15 on page S-13 that “up to 34 metric tons of plutonium would be needed for VTR fuel fabrication:

The cited quantities are those for finished fuel as it is placed in the reactor and correspond to fuel that is from 20 to 27 percent plutonium. Accounting for additional material that ends up in the waste during the reactor fuel production process, up to 34 metric tons of plutonium could be needed for startup and 60 years of VTR operation.

While the EIS states that excess U.S. plutonium would be used for fuel - “Excess plutonium includes pit and non-pit plutonium that is no longer needed for U.S. national security purposes.” – it is not clearly stipulated where this plutonium for VTR fuel would come from. It’s assumed to primarily be from plutonium pits stored at Pantex.

Given that the VTR fuel fabrication is in competition for use of surplus plutonium, the source of plutonium for the VTR must be detailed. As the plutonium blenddown program would use 34+ metric tons of surplus plutonium and the plutonium pit program could use over 10 MT of plutonium - most of the plutonium for those two projects would be from pits stored at DOE’s Pantex site - there is competition for plutonium for the three major plutonium-use projects.

As SRS is a site being considered for plutonium fuel fabrication, it is unclear how the Office of Nuclear Energy would carry out that project. SRS is an Environmental Management site, along with various NNSA programs. NE doesn’t have a role of consequence at SRS and it is unclear if NE would have the ability and funds to establish a VTR fuel fabrication project at SRS, or INL.

I request that for the public record and EIS record that the source of plutonium for VTR fuel be explained in detail. And, I request clarification about that how the share of plutonium for the VTR fuel fabrication would be assigned (in comparison to plutonium assignment to the other large-use plutonium projects).

Is DOE Facing a Plutonium Shortage and Lack of Space for TRU Disposal from the Big Plutonium-Use Projects?

The Federal Register notice of December 16, 2020, “Notice of Intent To Prepare an Environmental Impact Statement for the Surplus Plutonium Disposition Program” - <https://www.federalregister.gov/documents/2020/12/16/2020-27674/notice-of-intent-to-prepare-an-environmental-impact-statement-for-the-surplus-plutonium-disposition> - states

Following the end of the Cold War, the United States in 1994 declared 52.5 metric tons of plutonium surplus to the defense needs of the Nation. In 2007, an additional 9 metric tons of plutonium was declared surplus.

Thus, it appears that 61.5 MT are surplus to “defense needs.”

The Federal Register notice, when discussing the plutonium downblending method, dilute and dispose, for disposal of the material in WIPP, states:

This same dilute and dispose process is being proposed to disposition the full 34 MT of surplus plutonium that is the responsibility of the Surplus Plutonium Disposition Program.

and:

Since the end of the Cold War in the early 1990s and the Presidential declarations of surplus fissile materials, NNSA has been charged with dispositioning surplus plutonium. Over the last two and a half decades, NNSA has studied many alternative technologies and locations for surplus plutonium disposition. There is a need for NNSA to implement a disposition process and strategy that can be safely executed in a reasonable time at a cost consistent with fiscal realities.

It is believed that more than 34 MT could be processed via dilute & dispose at SRS. Ramping up the project, via funding by Congress is on-going.

If there were to be 20,000 pits stored at Pantex, using an average of 3 kg of plutonium per pit, that means 60 MT of so of plutonium are stored there. Downblending and the VTR could use this entire amount and there would still be a shortfall. Or not? Thus, it appears that 68MT or more of plutonium should be surplus to defense needs in order to satisfy the downblending and VTR projects. Please explain the amount and source of plutonium for VTR fuel in the final comments for the EIS record.

If the plutonium downblending programs is nominally dealing with 34 MT and the VTR needs around 34 MT for fuel fabrication, the projects are facing a plutonium shortage without even considering how much plutonium would go into new pits for new nuclear weapons and ultimately replacing all pits in all weapons.

Could the source of plutonium for VTR fuel be from the reprocessing of irradiated nuclear fuel, processed in a new reprocessing plant? If this is an option, the costs of such a facility - base cost of \$25 billion, perhaps? - and management of waste streams must be discussed. In addition a nuclear non-proliferation risk assessment of such a facility must be prepared.

While the VTR project, recognizing the plutonium-supply problem, may have initiated steps to reduce the amount of plutonium required for fuel, such as using higher burn-up fuel, the large amount of plutonium needed for fuel could challenge supplies. Please clarify efforts to reduce plutonium need for VTR fuel.

Likewise, the amount of transuranic waste from fuel fabrication must be fully explained. How TRU waste will be disposed of, along with TRU from pit production and the downblending program, must be fully explained as those three big plutonium-use projects and existing TRU

waste is leading to oversubscription of the legally capped volume of the Waste isolation Pilot Plant (WIPP).

It has been indicated that TRU from VTR fuel fabrication could not go into WIPP as the transference of the plutonium from NNSA to NE removed it as a defense material. By law, only defense-related materials can be disposed of in WIPP. Therefore, what are the plans of NE, DOE and the VTR project for TRU disposal and/or for a new TRU waste facility to dispose of VTR fuel fabrication TRU waste? What would the cost be of such a new facility and what is the schedule for it? When will an EIS on such a monumental project be prepared?

I request that a copy of any Memorandum of Understanding (MOU) between the VTR project (and or NE) and DOE's National Nuclear Security Administration (NNSA) as to the source of plutonium that would have been used for fuel fabrication be made public and made part of the EIS record.

I further request that the public be informed and the EIS record contain information on the method of disposal of TRU waste from VTR fuel fabrication and how much volume this would take up in WIPP.

I request that the nuclear non-proliferation risk assessment prepared on the VTR be made part of the public and EIS record. The December 2021 VTR monthly update confirms preparation of this document: "Comments on the draft report prepared by the nonproliferation assessment (NPA) team from the Office of Defense Nuclear Nonproliferation (DNN) were submitted and should lead to productive discussions with the National Nuclear Security Administration (NNSA) that further support their conclusions."

Finally, and to reiterate given this issue's importance, I request that the question "Is DOE Facing a Plutonium Shortage" be addressed in the EIS record and that where the plutonium for VTR fuel fabrication would come from be explained in detail and in light of the other DOE programs set to use large amounts of plutonium.

All above comments, request and inquiries should be addressed in future VTR notices published in the Federal Register. As stated earlier, I request that it be stated by DOE that no ROD will be issued on any aspect of the terminated VTR project.

As many things concerning the VTR - from lack of private funding to questions about plutonium supply and TRU waste disposal, these comments are also being copied to DOE's Office of Inspector General. I encourage the OIG to assess the viability of the VTR project and potential inconsistencies with it.

Cc: DOE OIG

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