



Savannah River Site Watch

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**Comment for Scoping of Draft EIS on Versatile Test Reactor**

To Whom it Concerns:

I hereby submit these comments for the scoping of the draft Environmental Impact Statement on the Versatile Test Reactor and ask they be made part of the official record. I am submitting these comments on behalf of Savannah River Site Watch, a non-profit public-interest organization that monitors issues at DOE's Savannah River Site. All comments, observations and questions herein are to be taken as scoping comments meriting a response in any draft EIS.

I ask that receipt of these comments be confirmed. Further, I ask that I be added to any email list related to the EIS on the VTR and be notified via email when documents are available- at [srswatch@gmail.com](mailto:srswatch@gmail.com).

**Schedule Unrealistic; Lessons Learned from Other Complex, Costly, Complex Projects?**

The schedule established for completion and start of the reactor is totally unrealistic. DOE has demonstrated that it is not able to properly manage large, complex, costly projects. The VTR project will likely fall within that category. We have just seen an extreme case of DOE project management failure with the Mixed Oxide Fuel Fabrication facility (MFFF) at the Savannah River Site in South Carolina, a project terminated after \$5 billion was wasted on construction. That project was long on the list of high-risk projects by the Government Accountability Office (GAO) and subject to waste, fraud, abuse and mismanagement.

It is of concern that the VTR project could follow the path of mismanagement of the MOX project as there have been no investigations into the MOX debacle and no "lessons learned" that have

been publicly presented. Such “lessons learned” would have application to other large, complex DOE undertakings such as any VTR project. Will any MOX “lessons learned” be applied to the VTR program?

As the 2025 date of start of operations will likely not be met, the draft EIS must address the impacts of delay to the cost and construction schedule for the reactor project and to its overall viability. Further, the draft EIS must discuss challenges to DOE’s ability to manage large, costly, complex projects and how the VTR project will be different from the MOX debacle or other DOE projects that have run over budget and behind schedule.

Would the VTR be licensed by the U.S. Nuclear Regulatory Commission or not? If not, why not? What DOE regulations would apply to operation of the reactor and will DOE self-regulate the reactor’s operation? If the NRC would not provide oversight of the reactor’s design and operation how will such oversight, either within or outside DOE, be accomplished? Are DOE standards less than those of the NRC? Will the Defense Nuclear facilities Safety Board (DNFSB) have an oversight role during design, construction and operation?

If private entities plan on using the VTR and will be allowed to do so, what are these entities and how much will they pay during construction and operation of the reactor and management and disposal of waste? Will the public foot the bill for any private use of the reactor, including by contractor-managed DOE labs? Will private entities be liable for any negligence in using the VTR?

### Fuel Materials

The Federal Register notice on the VTR scoping is lacking in information about both the fuel(s) that would power the reactor and in what facilities such fuel(s) would be manufactured.

The draft EIS must include details of the VTR driver fuel, including if it be made from High Assay LEU, a mix of LEU and plutonium, a plutonium-depleted uranium mix or any other materials. Likewise, if reuse of the Zero Power Physics Reactor (ZPPR) fuel is being considered for use in the VTR that must be discussed as well.

What would be the enrichment level of any LEU fuel? What would be the isotopic mixture of any plutonium used as fuel? What would be the source of LEU or plutonium to be used as fuel? Would surplus weapon-grade plutonium now stored in the K-Area at SRS be considered for use as fuel material? If reactor-grade plutonium would be used, where would it come from?

Concerning the fuel materials, the origin of any HALEU must be discussed. Any associated environmental impacts associated with HALEU production as well as fabrication of any associated fuel form must be discussed. Environmental and proliferation risks of transport of raw fuel materials and the fabricated fuels themselves must be discussed. What is the relationship

between the VTR and the *Environmental Assessment for Use of DOE-Owned High-Assay Low-Enriched Uranium Stored at Idaho National Laboratory*?

Would the aging H-Canyon reprocessing plant at SRS be considered for HALEU production? If so, what are the associated risks and what are the waste streams and how would they be managed?

Under any operating or testing scenario, would the VTR be used to help develop reprocessing techniques (whereby plutonium or uranium or other materials would be removed from the spent VTR fuel)?

Is there a difference between “start-up fuel” and fuel used for post start-up operation?

What type of control rods would be used and where does DOE propose these be fabricated?

### Fuel Fabrication

The notice of intent simply mentions that the Idaho National Laboratory and the Savannah River Site are where it is anticipated that the driver fuel could be fabricated (from ingots produced at an unnamed site). Where would such ingots be made and in what facilities? If new facilities would be needed at INL or SRS please give details, including cost and construction and operation schedules.

Since the production reactors at the Savannah River Site ceased operation in the late 1980s, SRS has for decades had no large-scale experience in reactor fuel fabrication. While fuel fabrication research may have been carried out by Savannah River National Lab that research is far below industrial scale fabrication that might be needed for the VTR driver fuel.

At SRS, where would fuel fabrication take place? As is obvious, such fabrication would not be co-located next to any VTR reactor, necessitating significant transport and associated risks.

Can existing facilities at SRS, including the abandoned MOX plant, be used for fuel fabrication?

If DOE is considering new facilities at SRS, would they be located in the K-Area or elsewhere at SRS and how much would they cost? K-Area is the only permanent Category 1 facility at SRS. Would a second Category 1 facility be created at SRS and at what expense?

How would staff be trained for fuel fabrication and how many staff would be employed for such a role? SRS has no trained staff who could carry out this mission so how expertise would be developed and how reliable it would be must be discussed in the draft EIS.

As it lacks fuel fabrication experience and, with the failure of the MOX boondoggle, lacks a clear future mission beyond clean-up of nuclear and chemical waste (still the king of jobs and funding at

SRS), is SRS being considered simply because of the issue of jobs and spreading DOE work around? If so, is this valid justification for the fuel-fabrication project?

#### Potential Breeder Reactor, More Plutonium Produced?

While the notice of intent states that the “VTR would not be used as a breeder reactor,” is there any legal or regulatory constraint prohibiting such use? Under what conditions might the VTR be operated as a breeder reactor? If operated in breeder mode – and in non-breeder mode as well – how much plutonium would be produced in the driver and any blanket fuel? (Is there room for a blanket in the VTR?) If breeder mode is chosen as an option in the future, how would spent fuel be reprocessed, for what reasons and where? If the VTR spent fuel were not to be reprocessed and simply stored, what are the methods of “conditioning for disposal” and where would it be disposed?

Under any scenario, would thorium be considered as a fuel, with possible separation of U-233 from that irradiated fuel?

Given that the reactor would be sodium cooled, what are risks of a sodium leak or sodium fire? Recognizing the disastrous fire in 1995 at Japan’s problem-plagued Monju breeder reactor, is a similar accident possible?

#### VTR at Savannah River Site? Role of SRNL?

Though the scoping notice says that only two sites – Idaho National Lab and Oak Ridge National Lab – are being considered for the VTR, is there still any possibility of it being pursued for SRS?

In the past, contractor Savannah River Nuclear Solutions (SRNS) promoted a now-failed and half-baked “Energy Park” scheme (also presented as the “U.S. Energy Freedom Center”) with experimental reactors (and reprocessing) at SRS. One option included the “General Electric PRISM” reactor at the core of the concept. The VTR project is now hinged on that design.

Various SRS booster groups supported the Energy Park scheme, also pitched as part of a failed proposal called “Enterprise SRS.” And, former SRS site manager Dave Moody promoted “small modular reactors” at the site and even diverted clean-up money to SMR promotion, until his hand was slapped for that by the Office of Management and Budget. (It remains unclear if the diverted funds were duly restored to the Environmental Management account.) Would DOE contractors or DOE itself revive the Energy Park scheme or location of the VTR at SRS?

And, what role would the Savannah River National Laboratory (SRNL) have in VTR reactor development and/or development of VTR fuel?

For the record, I submit the enclosed April 5, 2019 article by the Union of Concerned Scientists – ***There are Faster, Cheaper, Safer and More Reliable Alternatives to the Energy Department’s Proposed Multibillion Dollar Test Reactor*** – and request a response in any draft EIS to all the points raised in the article, designated Attachment A.

I request that all documents cited in the draft EIS be publicly posted.

Given a host of unanswered questions about the reactor and lack of clear presentation that spending of tax payer money on this project is justified, I support the “no action alternative” and request the NEPA process on the reactor be terminated.

Sincerely,

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Attachments to be considered as scoping comments:

- A. Union of Concerned Scientists article, ***There are Faster, Cheaper, Safer and More Reliable Alternatives to the Energy Department’s Proposed Multibillion Dollar Test Reactor***, April 5, 2019
  
- B. **SRS Energy Park**, by Savannah River Nuclear Solutions, to SRS Citizens Advisory Board, September 28, 2010; Note: As the presentation was controversial and possibly being pursued with diverted EM money, it was pulled from listing of presentations on the SRS CAB website for the September 2010 CAB meeting but as a public service it has been archived by SRS Watch at:  
[http://www.srswatch.org/uploads/2/7/5/8/27584045/srsenergypark\\_9.28.2010.pdf](http://www.srswatch.org/uploads/2/7/5/8/27584045/srsenergypark_9.28.2010.pdf)