

Savannah River Site Watch

February 7, 2020

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Comments on "Draft Environmental Assessment for the Commercial Disposal of Defense Waste Processing Facility Recycle Wastewater From the Savannah River Site"

(For non-DOE readers: pertinent documents linked at: <u>https://www.energy.gov/nepa/doeea-2115-</u> commercial-disposal-defense-waste-processing-facility-recycle-wastewater-savannah)

To Whom it Concerns:

These comments are formally submitted to the U.S. Department of Energy on behalf of the nonprofit public-interest organization Savannah River Site Watch (SRS Watch), based in Columbia, South Carolina.

These comments are informed by monitoring SRS high-level waste issues for 30 years, including the start-up of the Defense Waste Processing Facility (DWPF) in 1996 and its subsequent operation, the passage of the U.S. law related to Waste Incidental to Reprocessing (WIR) in 2005, monitoring tank closure activities and much-delayed efforts to construct and operate the Salt Waste Processing Facility (SWPF) and efforts by some to illegally (under German law) import and reprocess and dump highly radioactive German experimental reactor graphite spent fuel at SRS.

I request that every point or citation that is raised in these comments be addressed both in any final Environmental Assessment (EA) and in any associated Record of Decision (ROD), if such documents can indeed be issued in spite of insufficiencies in the draft EA and the overall proposal.

Thank you for extending the comment period so that SRS Watch, a key public interest organization working on SRS issues, and others might submit comments. I underscore that unlike DOE contractors that would carry out any "proposed action" in the draft EA, SRS Watch has absolutely no financial interest in any SRS or DOE projects or proposals.

1. Of prime concern is that "need" for the proposed action has not been established.

The draft EA outlines various options for disposal of the 10,000 gallons of liquid waste, via disposal of grouted material in a commercial low-level waste facility, but no case is made for why there is a "need" to do this, especially at this time.

The document does not establish that operations of the HLW system are dependent on the "proposed action" or that a need for proposed disposal options currently exist. The draft EA fails to make a case that the "proposed action" will enable more efficient HLW management and clean-up at SRS.

Likewise, no reasons have been given as to why the "no action" option can't continue to be utilized. There appears to be no urgency, reason or need to vary from the status quo.

Is the proposed disposal of the 10,000 gallons in an off-site commercial facility an action that could have implications for "need" for disposal of similar grouted liquid waste materials at other DOE sites, such as the Idaho National Lab or Hanford?

Why can't the volume of the 10,000 gallons be reduced via "volume reduction by evaporation" at SRS?

Is cost a factor in the "need" for the proposed action? Would off-site disposal be cheaper than processing the waste into a grouted form on site and how that might figure into decision making?

Thus, please more fully explain why there is a "need" for this action and why that "need" must be determined now.

2. No time-line for processing the 10,000 gallons of waste is mentioned and no time is given for when this waste could be processed under current operational methods.

The document states that "Under the No-Action Alternative, DOE would not conduct the Proposed Action. Instead, the up-to-10,000 gallons of DWPF recycle wastewater would remain in the SRS liquid waste system until disposition occurs..." Further, the documents states that "To analyze capabilities of a potential alternative treatment and disposal method at the end of the liquid waste mission life..."

Yet, DOE has affirmed that "the current practice of returning the DWPF recycle wastewater to the tank farm for reduction by evaporation or reuse in saltcake dissolution or sludge washing" is the guiding procedure. Thus, the 10,000 gallons in question would seem to have other uses and/or undergo evaporation, and be replaced as necessary as time goes on for reuse.

The draft document makes it look like the very same 10,000 gallons would be present at time of DWPF closure in the 2031-2034 timeframe. Is the 10,000 gallons "fungible," or mutually

interchangeable with liquid that will actually be present at the end of DWPF operations? Please clarify.

After the 10,000 gallons in question comes in contact with high-level waste forms and possibly becomes highly radioactive, does it, or any portion of it, become classified at any point as high level nuclear waste, especially when dumped into a tank with other liquid waste that may be HLW?

The document calls the 10,000 gallons of "DWPF recycle wastewater" as "reprocessing waste," which may be, by definition, be HLW. Please clarify. What is the current definition per DOE regulations and U.S. law applied to the 10,000 gallons of waste water?

Would any solids in the 10,000 gallons settle to the bottom of Tank 22? How is waste at the bottom of the tank classified? Would any solids be in the chosen 10,000 gallons?

I note that DOE states in the document that a "the sample profile of the DWPF recycle wastewater in Tank 22 would not exceed Class C limits, in accordance to NRC waste classification tables (10 CFR 61.55)." How has this determination been made? Is any waste in Tank 22 defined as HLW?

The draft document states that "As stated in the supplemental notice, DOE will continue its current practice of managing all its reprocessing wastes as if they were HLW unless and until a specific waste is determined to be another category of waste based on detailed assessments of its characteristics and an evaluation of potential disposal pathways." Thus, it is unclear as DOE either defines the liquid waste as HLW or not. The language "managing all its reprocessing wastes as if they were HLW" is vague and needs clarification in order to make a definitive statements as to what the current definition of the waste is.

Would the 10,000 gallons continue to be managed as HLW until such time it's extracted from Tank 22 for disposal via the proposed action?

If DOE does not define the waste water as HLW and it is <u>all</u> Class C waste, then, after volume reduction, why can't the waste water either be removed and grouted for disposal on site at SRS or remaining residue grouted in place in Tank 22?

3. Waste incidental to Reprocessing (WIR)

DOE states in "Liquid Waste System Plan Revision 21," of January 2019, (<u>https://www.energy.gov/sites/prod/files/2019/05/f62/SRS-Liquid-Waste-System-Plan-January-2019-0.pdf</u>), the following about Waste Incidental to Reprocessing (WIR):

The Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (NDAA) Section 3116 (NDAA §3116) allows determinations by the Secretary of Energy, in consultation with the NRC, that certain radioactive waste from reprocessing is not high-level waste and may be disposed of in South Carolina pursuant to a State-approved closure plan or State-issued permit. For salt waste, DOE contemplates removing targeted fission products and actinides using a variety of technologies and combining the removed fission products and actinides with the metals being vitrified in DWPF. NDAA §3116 governs solidifying the remaining low-activity salt stream into saltstone for disposal in the SDF. For tank removal from service activities, NDAA §3116 governs the Waste Determinations for the Tank Farms that demonstrate that the tank residuals, the tanks, and ancillary equipment (evaporators, diversion boxes, etc.) at the time of removal from service and stabilization can be managed as non-high-level waste. (page 9)

Concerning "Waste Incidental to Reprocessing" (WIR), see NRC website at https://www.nrc.gov/waste/incidental-waste.html):

The U.S. Nuclear Regulatory Commission (NRC) has a non-regulatory role in WIR as defined in Section 3116 of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (NDAA). The NDAA covers the DOE sites in Idaho and South Carolina (i.e., NDAA-Covered States). The NRC has two functions under the NDAA. Under NDAA Section 3116(a), the DOE must consult with the NRC prior to making the final waste determination. Under NDAA Section 3116(b), following the Secretary of Energy's final determination that the waste is WIR, the NRC monitors the DOE disposal actions in coordination with the NDAA-Covered State. The NRC and NDAA-Covered State assesses the DOE disposal actions to determine compliance with the performance objectives set forth in Subpart C of Title 10, Part 61, of the *Code of Federal Regulations* (<u>10 CFR Part 61</u>, "Licensing Requirements for Land Disposal of Radioactive Waste." Also under NDAA Section 3116(b), if the NRC considers any disposal actions taken by the DOE under the NDAA to be not in compliance with those performance objectives, then the NRC must, as soon as practicable after discovery of the noncompliant conditions, inform the DOE, NDAA-Covered State, and specific committees in Congress.

Is the proposal to send 10,000 gallons to a commercial low-level waste facility being informed in any way by Section 3116 mentioned above?

Even though this "reprocessing waste" addressed in the draft EA would be disposed of outside the boundaries of South Carolina, would the waste be determined to be WIR, or something legally equivalent to WIR when at SRS? If not, why not? If the waste were stabilized at SRS before off-site shipment, the WIR definition could apply and the NRC would then have an oversight and monitoring role when at SRS, correct?

What is the legal justification that the waste water in question if it is not determined not to be HLW or WIR? Why is "reprocessing waste" not HLW?

If the material in question is WIR, either in a liquid or grouted form, what would it become once it has passed the Georgia or North Carolina borders (to the west and northwest of SRS)?

I note that in the "Acronyms and Abbreviations" section in the draft EA that WIR is not mentioned. Why is WIR left out and not discussed in the document?

4. The draft EA mentions that for the named low-level waste disposal facilities that the applicable regulations, license requirements and Waste Acceptance Criteria will apply. What would be the role of the NRC in monitoring on-going disposal of this waste and its long-term status?

As the waste may be determined to be WIR when still at SRS and within South Carolina, what laws allow such WIR-like waste to be shipped out of state for disposal? As the NRC would likely have an observational role while the waste is at SRS, what Nuclear Regulatory Commission (NRC) oversight would apply in transport and disposal?

Also, have the named facilities agreed to accept this waste form and does it, in fact, comply with all licensee requirements, performance objectives and NRC and state regulations that apply to the facilities in question? Please provide documentation.

If the waste acceptance and regulatory criteria above are not now met at what point would the chosen disposal facility make the required analysis for acceptance of the waste? What would happen if the facilities do not accept the grouted waste form or the grouted form does not meet regulatory requirements for those facilities? Likewise, what would happen if the grouted waste was rejected for receipt before all of it was disposed of?

If "Alternative 2: Treatment and Disposal at a Commercial LLW Facility" is chosen what ability do the disposal sites have to manage the liquid waste and grout it? Would this be an NRC-licensed operation and not covered by the general facility license?

The documents states "DOE on-site (i.e., E Area) and off-site (e.g., Nevada Nuclear Security Site) radioactive waste disposal facilities are not included in the alternatives analysis." Why not consider those options now?

The draft document says that "several treatment facilities in the United States permitted and/or licensed to receive liquid LLW and stabilize it." Please name them and please name those that would agree to accept the liquid waste in question and stabilize it.

5. Segmentation under NEPA?

The document states that "Any proposal to dispose of more than 10,000 gallons of DWPF recycle wastewater would be evaluated in a separate NEPA review." The document goes on to reveal that "According to the System Plan (SRR 2019, p. 41), this value is approximately 380,000 gallons, or approximately 38 times the volume considered in this EA."

And, on page 4-4, it is stated that processing of larger amounts of waste is the goal: "Therefore,

it is reasonably foreseeable that, depending on the outcome of this proposal, DOE could elect to implement commercial treatment and disposal of a larger volume of DWPF recycle wastewater in the future."

Given that DOE has admitted that it might consider disposing of 380,000 gallons in a similar manner as proposed in the draft EA, please explain why the matter is not being "segemented," which is not allowed under NEPA.

Likewise, as disposal of the liquid waste in question from SRS may have implications for disposal of liquid tank waste at other DOE sites - Hanford and Idaho National Lab. Please explain if DOE is already looking at the same disposal techniques for those other sites. If DOE is looking at disposal of Hanford or INL liquid waste as grouted material at a commercial facility or DOE disposal site, please explain why "segmentation" of NEPA analyses concerning HLW disposal issues at Hanford and/or INL would not be occurring.

If, at such time in the future DOE proposes disposal of much more HLW liquid by grouting and dumping in a LLW facility the issue of segmentation could become an active legal point.

6. Please clarify the status of the 10,000 gallons now, over time and at the end of DWPF operation.

On Page 2-11, under "2.2 No-Action Alternative," it is stated that "Under the No-Action Alternative, the up-to-10,000 gallons of DWPF recycle wastewater would remain in the SRS liquid waste system until disposition occurs using the systems described in Section 2.1.1. The No-Action Alternative would require another, as yet determined, process to handle the DWPF recycle wastewater during the final years of the DWPF mission (2031–2034), when DOE will no longer have the option of returning DWPF recycle wastewater to the SWPF for processing."

The above statement is confusing and unclear. Given the admission that 380,000 gallons of similar liquid would exist, please clarify how the 10,000 gallons, which the draft EA calls a "representative volume," proposed for initial treatment can be isolated or considered to be separate from the larger volume. If 10,000 gallons would be needed to be processed after DWPF is out of operation, why is this proposal being made now and not 10-15 years from now?

After evaporation (and subsequent disposal of concentrates) or other volume reduction techniques - not discussed in this document in that they may become known in the future - why can't the liquid waste streams be reduced in volume and vitrified in DWPF, even if SWPF is out of operation? Is this a cost issue to avoid making more vitrified canisters and to avoid geologic disposal?

If this 10,000 gallons discussed in the draft EA is only a representative of liquid recycle wastewater at the end of DWPF operations, please explain how 10,000 gallons will be chosen to be processed to go to a LLW facility.

Please clarify at what point in time the 10,000 gallons in questions were created or when will it be created. And, if HLW and Class C liquid waste were to exist together in Tank 22, how will DOE select liquid that does not meet a HLW or WIR definition?

What is the relationship to the "proposed action" and the larger issue of DOE's effort to reclassify HLW, as presented in a Federal Register notice of June 10, 2019 (Vol. 84, No. 111) and entitled "Supplemental Notice Concerning U.S. Department of Energy Interpretation of High-Level Radioactive Waste?" If the new DOE interpretation of HLW is not fully implemented or is overturned, what impact will that have on the "proposed action?"

7. What is the Status of the Salt Waste Processing Facility (SWPF)?

The document says on page 4-3, in section "4.2.5 Initial Operations of SWPF," that "DOE is currently completing the tie-ins and testing associated with processing salt waste through the SWPF. According to the System Plan (SRR 2019), the SWPF is scheduled to begin hot commissioning in March 2020."

The March 2020 date may well be inaccurate as there seems to be problems with completing the hot operations phase of SWPF start-up. As is well known, SWPF has run far over budget and far behind schedule and it would be no surprise if there were more delays. DOE has rebaselined the cost and schedule of SWPF and attempts to act like the cost overruns and delays as not being as extensive as they are but the record shows otherwise.

We note that the delays are well documented, in this document, for example: "SWPF Design, Procurement, and Construction Lessons Learned and Best Practices P-RPT-J-00031, Rev. 0," dated February 10, 2017. The following is stated: "The DNFSB continued to raise concerns over the geotechnical investigation and the structural design's capacity to meet PC-3 standards. Enhanced Final Design addressed these concerns by increasing the thickness of the base mat. Enhanced Final Design completion was announced in December 2008. CD-3, Start of Construction, was approved on January 19, 2009 by the Deputy Secretary. The <u>approved Total Project Cost increased from</u> <u>\$900 million to \$1,330 million</u> and extended CD-4, <u>Project Completion from November 2013 to</u> <u>October 2015</u>. Delays thereafter were due primarily to supplier quality problems and late deliveries of equipment and materials."

The DOE's "Project Dashboard" for January 2020 lists a current "project budget" of \$2.322 billion for SWPF, underscoring the large costs overruns from the "approved Total Project Cost" of \$900 million. Correct? (See Project Dashboard, January 2020: https://www.energy.gov/sites/prod/files/2020/01/f70/January%202020%20Project%20Dashboard

Thus, it appears that SWPF start-up is approaching 7 years beyond the original schedule and at least \$1.4 billion over the original cost estimate, correct?

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Will the March 2020 start date for SWPF hold? If not, what is the new date? What will be the actual cost of SWPF construction and start-up testing?

Will the final EA and/or ROD be issued if SWPF has not started up or has operational problems once it has started up?

Various recent Defense Nuclear Facilities Safety Board (DNFSB) reports for SRS underscore SWPF issues that should be addressed and clarified in the final EA:

Savannah River Site Activity Report for Week Ending November 29, 2019:

Salt Waste Processing Facility (SWPF): Last Friday the contractor concluded the contractor Operational Readiness Review (CORR) and identified certain criteria that were not fully met. Notably, in their outbrief to SWPF personnel, the CORR team identified pre-start findings related to:

- lack of detail in the plan governing the startup of hot operations
- lack of technical basis for the radiological monitoring
- lack of plans and measures for applying the As Low as Reasonably Achievable concept
- improper Unreviewed Safety Question screening of changes
- lack of full implementation of activity-level hazards and controls as part of work planning and control

The demonstrations for the CORR did not include the Alpha Strike Process, Alpha Finishing Facility and transfers from SWPF to Saltstone or the Defense Waste Processing Facility. The issuance of the final CORR report is expected this week.

Savannah River Site Activity Report for Week Ending December 6, 2019

Salt Waste Processing Facility (SWPF): In the final report for the contractor Operational Readiness Review (ORR), three objectives (fire protection, radiation protection, work planning and control) were graded Not Met. These three objectives contain six criteria that were Not Met and three that were Partially Met. In addition to ten findings the report describes several dozen additional negative observations, many of which appear to be significant and several of which are related to Integrated Safety Management guiding principles and core functions. The report does not explain why these were not considered to be findings, but the ORR team used criteria in DOE-HDBK-3012, Team Leader's Good Practices for Readiness Review, and these tend to have a high threshold (e.g., unacceptable impact on safety of facility). Two days after approving the final report, Parsons declared to DOE that they were ready to start the DOE ORR. This was highly unusual since they had only completed 5 of the 21 pre-start corrective actions from their ORR and many of the open prestart corrective actions are not due until the day before the DOE ORR or after it. The scope of the planned corrective actions are also very narrowly focused (e.g., revise two radiation protection plans). DOE management has expressed serious concerns with the above and plans to issue direction to Parsons imminently.

Savannah River Site Activity Report for Week Ending December 13, 2019

Salt Waste Processing Facility (SWPF): DOE returned the Readiness to Proceed letter to Parsons without acceptance and for additional action. DOE noted that the contractor Operational Readiness Review (ORR) final report identified four key programs that had not yet been developed and implemented (Radiation Protection, Work Planning and Control, Fire Protection, and Emergency Preparedness) and weaknesses in the Integrated Safety Management System which must be address prior to the Declaration of Readiness for the DOE ORR. DOE directed Parsons to submit and execute a comprehensive Corrective Action Plan (CAP), including schedules and effectiveness reviews. In addition, DOE stated that the CAP must also provide sufficient time for DOE to assess the effectiveness and closure of the CAP actions. Parsons subsequently replied stating that they disagreed with DOE's conclusions and that they stand by their Declaration of Readiness. Parsons and DOE agreed to meet next week to develop a list of issues to address prior to the DOE ORR.

What is the confirmed schedule for long-term SWPF operations at the time of any final EA or ROD?

8. Tank 22 and closure plans & plans presented in 2019 "System Plan"

In DOE's "Liquid Waste System Plan Revision 21," January 2019, the most recent such plan that is public and that is mentioned in the draft EA, the estimated closure dates for Tank 22 are presented.

The plan for removal of an ill-defined 10,000 gallons for disposal off site is not clearly presented in the system plan document. Will it be discussed in the next revision of the system plan? When will that revision be made public? Will these system plan items be coordinated and presented in the final EA?

On page 24 in the system plan it is stated that "All tanks are operationally closed (FY37)." This would include Tank 22 and this indicates that there is indeed a plan to empty and close Tank 22 though details of that plan are not presented. Do such plans to empty Tank 22 exist or not?

In the system plan document, in "Appendix C—Bulk Waste Removal Complete" (page 42), emptying of Tank 22 is indicated for the end of FY 30. In "Appendix D—Tank Removal from Service," (page 43), Tank 22 is fully out of service - does this mean that the tank has been grouted by the end of FY 33? As far as the EA goes, are the FY 30 and FY 33 dates correct?

On pages 22-23 in the system plan there is the bulk of discussion in the system plan about Tank 22: "It is assumed that the 2H Evaporator will undergo a cleaning prior to being put in service as a general-purpose evaporator. Tank 22 will be depleted of the silica rich solution sent from the DWPF. The spent wash water from Tank 51 will be decanted to Tank 22 and either used for salt dissolution or sent for evaporation. Tank 22 contents will undergo evaporator feed qualification before processing in the evaporator. Since the system will no longer be receiving silica there should not be any concerns regarding sodium-aluminum-silicate formation within the evaporator vessel and there should not be any solids formation related criticality concerns." As far as the draft EA goes, is this still correct?

The system plan does not indicate unique issues with Tank 22 closure. If such issues exist, why are they not more clearly discussed in the draft EA?

On page 2-2 of the draft EA it is stated that "The treated DWPF recycle wastewater is then pumped to Tank 22 for storage and future processing." Once in the tank is any of the recycle wastewater removed or does it under volume reduction?

On page 3-16, in the draft EA, in section "3.5.5 No-Action Alternative Impacts," it is stated: "Under the No-Action Alternative, DOE would not conduct the Proposed Action. Instead, the up to-10,000 gallons of DWPF recycle wastewater would remain in the SRS liquid waste system until disposition occurs using the systems described in Section 2.1.1. Under the No-Action Alternative, DOE would not provide alternative treatment and disposal options for up to 10,000 gallons of DWPF recycle wastewater at an off-site, licensed commercial facility. As a result, the No-Action Alternative would impact planning activities to develop a disposal capability for DWPF recycle wastewater for the three years between the completion of the SWPF mission (estimated 2031) and the DWPF mission (estimated 2034) (SRR 2019), when DOE will no longer have the option of returning DWPF recycle wastewater to the SWPF for processing. The potential accident consequences of the No-Action Alternative would still include the possible transfer error DBA that was analyzed in the SRS HLW Tank Closure EIS (DOE 2002)."

As Tank 22 closure issues were well known in January 2019, date of the most recent system plan, why haven't impacts to planning activities for this tank been discussed in the system plan? Will they be discussed in any new system plan and that information coordinated in the final EA?

To repeat, is the assumed closure of Tank 22 in FY33, the date in the system plan, been assumed in the draft EA? Would removal of an ill-defined 10,000 gallons from Tank 22 impact tank closure plans and dates as presented in "Liquid Waste System Plan Revision 21?" Why isn't management of the 380,000 gallons in Tank 22 at some point in the future not discussed in the system plan and why isn't a system plan discussion about this coordinated in the draft EA?

What is the relationship between the system plan and the 10,000 gallons covered in the draft EA and the 380,000 gallons and proposed for possible future off-site disposal (via grout)?

Also, please discuss the current condition of Tank 22 as well as its current volume and volume over time. When was the last time the tank was surveyed for leaks, cracks and stability? What was found? Is there a back-up tank that can be used if Tank 22 develops problems?

Other points to consider:

On page 2-5 & 6 it is stated that the actual volume of grouted waste is twice the liquid volume: volume: "The analysis in this EA assumes that the volume of the waste in the stabilized matrix would be no larger than twice the volume of the liquid, prior to stabilization. Therefore, 600

gallons of DWPF recycle wastewater would be grouted in each 1,200-gallon transportation and disposal container." Thus, the draft EA is really about the volume of grouted waste and not just the 10,000 gallons mentioned early in the document.

In footnote 2, page 1-1, it is stated that "grout is a proven safe and effective technology." Yet, there is contamination of ground water in the Z-Area at SRS, where grout is placed in "cells" at ground level. Please discuss the impacts of grouted waste disposed on SRS to ground water. Please clarify and justify the claim that grout is "safe and effective." Does this claim apply to grout fabrication only or also to transport and disposal of it?

As DOE's budget request for Fiscal Year 2021 may terminate pursuit of the Yucca Mountain HLW dump, what impact might that have on the proposed action in the draft EA? Geologic disposal of HLW will still be the law even if Yucca Mountain is terminated.

What will the role of the Defense Nuclear Facilities Safety Board (DNFSB) be in carrying out its oversight role of this project?

- In conclusion, as no need for the proposed action has been established, as many questions remain about the proposed action and given that the draft document is confused in its description of the proposed action and final closure of Tank 22, I request that the No-Action Alternative be adopted at this point and that the No-Action Alternative be embodied in any final EA and in any Record of Decision, if issued.
- Additionally, given that what is presented in the draft EA does not clearly comport with the "Liquid Waste System Plan Revision 21" of January 2019, the proposed actions must not at this time be considered given this fact.

Please confirm receipt of these comments and that they have been entered into the formal EA record. And, please add me to any email list on this matter: srswatch@gmail.com.

Submitted via email and mail by: Tom Clements, Director, Savannah River Site Watch, 1112 Florence Street, Columbia, SC 29201, <u>srswatch@gmail.com</u>. These comments will also be posted on the SRS Watch website: <u>www.srswatch.org</u>.



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