



Savannah River Site Watch

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Office of Administration
Mail Stop: TWFN-7-A60M
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
ATTN: Program Management
Announcements and Editing Staff
WEC_CFFF_EIS@nrc.gov

Comments of Savannah River Site Watch on the Draft EIS on 40-Year License Extension Request for the Westinghouse Electric Company, LLC; Columbia Fuel Fabrication Facility

Is the NRC Protecting Unregulated, Secretive Nuclear Weapons-Related Activities at the WEC?

The Federal Notice on the release of the draft EIS was posted on August 6, 2021 (Hiroshima 76th anniversary) at: <https://www.govinfo.gov/content/pkg/FR-2021-08-06/pdf/2021-16595.pdf>

The Draft EIS - "Environmental Impact Statement for the License Renewal of the Columbia Fuel Fabrication Facility in Richland County, South Carolina" - was publicly released on July 30, 2021 and posted here:

<https://www.nrc.gov/docs/ML2120/ML21209A213.pdf>

The following comments are being formally submitted via mail and email by Savannah River Site Watch, located in Columbia, South Carolina, for the formal record of the Draft Environmental Impact Statement prepared by the Nuclear Regulatory Commission on the 40-year license renewal request for the Westinghouse nuclear fuel plant. A full response to each comment is expected.



Westinghouse fuel plant with Columbia, SC downtown in background. Courtesy of ©High Flyer

Comments on “Executive Summary”

Of paramount importance, the draft EIS totally fails to justify preparation of a document on a 40-year license extension. While the NRC has accepted the license application by Westinghouse Electric Company, LLC (WEC), no reason is given in the draft EIS justifying the 40-year period of time that is under consideration.

For nuclear power plants, license renewal is limited to 20 years by 10 CFR 54.31(b). The NRC says on its “Fuel Cycle Facilities Licensing” web page (<https://www.nrc.gov/materials/fuel-cycle-fac/licensing.html>) that “Fuel cycle material facility licenses can be renewed for up to 40 years if certain conditions are met. The review of the renewal applications includes evaluation of safety, safeguards, and environmental impact.” But no adequate explanation is given for why a 40-year license extension for a fuel cycle facility is allowed or justified. Where is this written in regulations or law? It is clear that regulations allow for a 10-year extension, correct?

Likewise, no reason is given for the draft EIS coming to the “preliminary” conclusion in support of the 40-year license extension before public comments are accepted, reviewed and considered. The beginning of the draft EIS states: “the NRC staff preliminarily recommends that the WEC’s license SNM-1107 for the operation of the CFFF be renewed for an additional 40 years.” At best, this determination is premature and is reached absent any public stakeholder comments on the draft EIS.

Based on observation of performance over the last decade and numerous accidents and releases of nuclear materials into groundwater and the admission by the NRC of anticipated future problems, it remains the case that SRS Watch believes that only a 10-year license extension should be reviewed. The draft EIS totally ignores earlier “stakeholder” input submitted for the record that called for a review of a 10-year license renewal. Impacts of a 10-year license renewal must be analyzed.

Oral comments during the NRC’s webinar of the draft EIS on August 26, 2021 were unanimously against a 40-year license extension. Are those comments being taken into account? Nobody spoke in favor of a 20-year license extension.

The narrative on page xiii fails to fully present the record about environmental review of the license renewal. It fails to present the fact that members of the public were calling for preparation of an EIS well before the NRC made the determination that it would do so. Members of the public were well aware of the uranium scrubber event, leakage of uranium into ground under the facility and chronic groundwater contamination at the plant site. For example, in written and oral comments on the second Environmental Assessment draft at an NRC public meeting on November 14, 2019, SRS Watch called for an EIS to be prepared and that a license period of no more than 10 years be considered. Similar public requests were ignored for over six months until the NRC agreed to prepare the EIS. I did not hear anyone at public meetings voice support for a 20-year license extension, for which limited justification is

presented in the draft EIS. Why is consideration of a 10-year license extension, which has public support, not being considered and reviewed?

The EIS “Scoping Process Summary Report,” February 2021, includes the following (on page 9):

Comment Summary: A number of comments requested that the NRC consider the alternative to renew the CFFF license for a period less than the requested 40 years. Some commenters requested that the NRC not renew WEC’s license for more than 10 years or consider a shorter license with WEC demonstrating safe operations before renewing the license for a longer period.

Comments: (2-1) (7-1) (15-4) (16-1) (16-5) (17-3)

Response: *The October 2019 draft EA assessed the impacts of the no-action alternative and Alternative 1 – License Renewal for Less than 40 Years (NRC 2019-TN6472). The EIS is the next step in the NRC staff’s environmental review. In the EIS, the NRC staff will also evaluate the no-action alternative and the alternative of renewing the license for less than 40 years.*

Likewise, in the SRS Watch EIS scoping comments of August 20, 2020, we objected to a 40-year license and said that a 10-year licensed should be analyzed. Our comment, repeated here, was ignored in the draft EIS: “Given that an extension of the operating license for 40 years would mean that unpredictable events having environmental and health impacts could occur at any point during that period of time, I request that a much shorter period of time be analyzed. I request that the license extension be analyzed for only an additional 10-year period of time and that conditions be attached to that period of time, such as accomplishment of clean-up milestones, no significant health or environmental problems or events and no discovery of old, yet unknown problems or contamination.”

The request by “stakeholders” to consider a 10-year license extension has been ignored and “the alternative of renewing the license for less than 40 years” does not mean that a 10-year license is actively being considered. Is it? If not, why not?

While claiming to base its “preliminary” support of the 40-year license extension on, in part, “input from other stakeholders,” which is the category for the public, I now wonder if the NRC will ignore public input on the draft EIS. By already supporting a 40-year license extension before draft EIS comments are received may well reveal a disturbing and potentially harmful bias by the NRC. Citizen requests for review of a 10-year license extension have been summarily dismissed with no explanation, which is troubling.

The draft EIS states (on page xiii) the following : “This draft EIS also describes avoidance of potential adverse impacts and mitigation measures for the reduction of potential adverse impacts, including the new conditions that the WEC agreed to add to the license, if renewed, new commitments from the WEC that would be incorporated into the LRA, and additional measures that the NRC staff identified as having the potential to further reduce environmental

impacts, but that the licensee did not commit to in its application.” The licensee has not agreed to stated “additional measures” in a modified license application and the draft EIS can’t hold the licensee to those “additional measures.” Thus, there is no guarantee that the licensee will take steps that the NRC might require for tougher license conditions. The Westinghouse-SC Department of Health and Environmental Control “consent agreement” is outside the scope of NRC regulation and is not enforceable by the NRC, which essentially has observer status related to the Consent Agreement.

The draft EIS states (on page xiv) that “Future discharges to the Congaree River would continue in accordance with the NRC license and National Pollutant Discharge Elimination System (NPDES) permit and, thus, would have minor effects on water quality.” This claim of “minor impacts” is totally speculative and has no basis in fact as it is possible that harmful levels of discharges could occur into on-site water resources and into the Congaree River. The draft EIS analysis must be bound by large, unplanned releases of contaminants.

What is the basis for the determination of “minor” impacts? What does this mean? Is the term “minor” based in law or regulation? The document seems to use a small-moderate-large scale of impacts but on page iv the term “minor” is used. Where did this come from and what is the basis of its use? What is the relationship of the use of “minor” to the “small-moderate-large” scale?

On page xiv it is stated that “Additionally, the current groundwater contamination is not likely to travel beyond the CFFF site boundary during the period of the proposed action. However, there are significant uncertainties that affect the evaluation of fate and transport of contaminants in groundwater. Based on these findings, the NRC staff concluded that impacts on groundwater from the proposed action would be SMALL to MODERATE.” Given that the NRC admits “significant uncertainties” concerning groundwater contaminants, it is unknown how a “small to moderate” impact can be determined. The impact could as well be large.

On page xv, it is stated that “the WEC has committed to submit the environmental monitoring and sampling program to the NRC for review and approval, again, at the completion of the implementation of the CA; specifically, within 90 days of the submittal of the CA final written report to SCDHEC.” What does “committed” mean? Is this a license condition or legally binding? What are the repercussions if the “monitoring and sampling program” is not submitted or if it’s faulty? What regulation, if any, does the NRC have over terms of the Consent Agreement? Why doesn’t the NRC enter into a similar Consent Agreement with WEC, with milestones that are legally enforceable?

Again on page xv, it is stated “the NRC staff concluded that the cumulative impacts to groundwater and surface water from past and current CFFF operations are MODERATE. Although the proposed continued operation of the CFFF for an additional 40 years could noticeably alter onsite groundwater quality, the continued operation would not destabilize or

significantly affect the groundwater resource because there is a low potential for contaminants to move offsite.” While admitting that groundwater resources could be significantly impacted no reason is given as to why the claim is made that “there is a low potential for contaminants to move offsite.” What models were used to support this claim? We have already been surprised by significant movement of groundwater contaminants onsite and discharge plumes are spreading. And, the NRC’s “moderate” may be large for others or to impacted aquatic life. What is the scientific, quantifiable definition of “moderate?”

Also on page xv it is stated “The NRC staff also considered as an alternative approving the WEC’s a license renewal request with a shorter license renewal term, i.e., a renewal term of 20 years. The NRC staff found that the potential environmental impacts from this alternative would be similar to the potential impacts from the proposed action except that the impacts would occur over a shorter timeframe.”

This claim of essentially the same impacts over 40 years or 20 years makes no sense. If the facility operated for a full 40 years, there would be unpredictable and perhaps serious impacts for the last 20 years of operation. Given the nature of past accidents, it is all but assured that impacts for that additional 20 years would be greater than for operation of only 20 years. It appears that the NRC is alleging that after the first 20 years of additional operation that there would be no further discharge or new impacts. Such an assertion is ludicrous and the data and plant record do not support such a claim. And, the NRC elsewhere admits that there will be “future inadvertent releases,” belying the claim that impacts for the two periods of time under consideration would be similar.

On page xvi, the NRC reviews why it is recommending a 40-year license, based on cost and benefits. Stakeholders do not agree with this conclusion. The NRC analysis fails to take into account the negative social, economic, environmental and health impacts of a serious design-basis or beyond-design-basis accident or of a serious leak of radioactive and chemicals to the environment, especially in the last 20 years of an additional 40 years of operation.

Comments on “Introduction”

Please clarify that the facility produces uranium fuel for foreign and domestic commercial reactors.

How much uranium is handled at any one time? In what forms?

Does the facility hold any uranium in reserve for any type of national security or other special reasons? If so, what are potential environmental, health and security impacts of any such stored stocks?

What happened to fuel designated to replace MOX fuel in the event that the US Department of Energy's plutonium fuel (MOX) program faltered after it started and was not able to provide MOX to any utility that had signed up to use MOX? (Note: no utilities signed up to use MOX before the bungled NRC-regulated project was terminated.)

Do other agencies, such as DOE's National Nuclear Security Administration, have a role with any materials or equipment stored, handled or operated at the facility?

On August 11, the USA Department of Energy published a Federal Register notice entitled "Request for Information Regarding Establishment of the Department of Energy Uranium Reserve Program." It states that "The Department is considering options to acquire natural uranium and convert this uranium into uranium hexafluoride that would be stored at commercial facilities in the United States." Could WEC have a role in this program? If so, what could be the environmental and health risks and impacts?

What is the "insider threat" to public health, safety and the environment? As there could be a host of impacts, this is clearly inside the scope of things analyzed in the EIS. The NRC has not attempted to explain why it determined that the "insider threat" is outside the scope of the draft EIS. Why and what is the basis for that determination?

The NRC says that a separate Safety Evaluation Report (SER) will be prepared. It is imperative that the SER be provided to the public well before the end of the draft EIS comment period. If it is not, the draft EIS comment period must be extended. Any policy not to release the SER during the draft EIS comment period must be reconsidered. Where is this written into law or NRC policy that a SER will not be released for comment, especially during an EIS process?

Could the facility handle or process High Assay Low Enriched Uranium (HALEU)? What if that is proposed in the future? Would that require a license amendment? Given the current promotion of HALEU for use as fuel in "advanced reactors" this should not be beyond the scope of the EIS.

The draft EIS fails to analyze "reasonable" alternatives, such as a license extension for 10 years. No reason is given for not analyzing the 10-year-license alternative. A 10-year license extension, as recommended by stakeholders, must be analyzed. Why was it not?

The NRC does not adequately explain its role in the DHEC-Westinghouse Consent Agreement or how the NRC can base decisions on information in a non-NRC document. Why doesn't the NRC have a similar CA with Westinghouse or why isn't the NRC party to the Westinghouse-DHEC CA?

Were scoping comments or comments on the draft EIS solicited from the Pine Hill Indian Tribe, as promised? If not, comments from them must be solicited and the comment period extended.

Were scoping comments or comments on the draft EIS solicited from the Native American Studies Center at University of South Carolina Lancaster or from any other institute of higher learning in South Carolina? If not, comments from them must be solicited and the comment period extended.

Were comments solicited by property owners adjacent to the facility?

The draft EIS mentions the Scoping Process Summary Report but the response to comments that were captured are inadequate. For example, things related to WesDyne (Westinghouse Government Services, LLC) were determined to be “outside of scope” of the EIS. Why? No explanation for that determination was given. The draft EIS concludes that WesDyne is outside the scope of the EIS and says this has been excluded: “concerns regarding regulation and oversight of dual-use facilities, including the relationships to U.S. Department of Energy’s National Nuclear Security Administration.” Documents on any agreement between the NRC and Westinghouse Government Services and/or WesDyne and/or between the NRC and Westinghouse fuel plant as it pertains to fabrication of Tritium Producing Burnable Absorber Rods (TPBARs) must be presented for the EIS record.

Documents must be presented to back up the NRC’s unsubstantiated claim that WesDyne operations are “outside the scope” of the EIS. On this matter, DOE’s National Nuclear Security Administration must be engaged as a cooperating federal agency in preparing the draft EIS. More on the WesDyne matter will be presented later and in a separate comment.

“Issues Studied in Detail” must include avian and insect populations, which can move long distances, and their potential exposure to radioactive materials or chemical contaminants in surface waterways and lagoons. Likewise, movement of terrestrial creatures such as frogs, lizards and mice, between contaminated and non-contaminated areas must be analyzed.

Has the Remedial Investigation Work Plan and the Consent Agreement between DHEC and Westinghouse been made a part of the licensing record? Are these documents outside the scope of NRC involvement? If so, what action would formalize the information and requirements under them to be made part of the NRC licensing requirements? The NRC includes much discussion of these non-NRC documents but it does not seem they are up for formal review and assessment in the NRC’s EIS process. Please include them for the EIS record.

Comments on “PROPOSED ACTION AND ALTERNATIVES”

Again, a discrete 10-year license-renewal period must be considered in this section. No reason has been given for not considering 10 years. Significant detrimental events have occurred at the facility in the last five years, a predictor of what could happen over 40 years.

Please explain what wildlife would have access, including birds, to the various lagoons on the site, especially near to the facility. Would contamination be encountered by such visiting wildlife?

What are disposal pathways for used ammonium hydroxide?

How is waste from fuel pellet grinding managed and how is it disposed of?

What goes up the stacks from “power production” and “powder processing/pellet manufacturing?”

Please provide a diagram and explanation of where the uranium scrubber that caused problems is located. How has it been modified so as not to cause a release or near-criticality accident?

Where is the incinerator that processes uranium-bearing and other materials located? Is this inside or outside the main processing facility?

What is the status of the “contaminated wastewater (CWW) line” installed in 1978? Is it accessible and can it be inspected?

What are the “approved” low level waste sites to which such waste is shipped and how is it packaged and transported? What are the impacts of waste disposal at those LLW disposal facilities? Are LLW shipping casks inspected and fully certified?

Since discovery of problems at WEC facilities, have there been any further issues with the Hydrofluoric Spiking Station (HFSS) #2, or intermodal container storage? Are UF6 cylinders in good condition and stored safely?

The draft EIS says (on page 2-13) that “operations at CFFF generate gaseous and liquid effluents.” Are there no particulate discharges or could there be in the event of an accident? Particulate release, whether routine or through accident, could be of concern to local inhabitants in Lower Richland. What assurance is that such releases won’t occur and there that they will not be impacts to the public at some distance from the facility? What happens if particulate filters fail to function properly?

The scrubber incident could have resulted in release of solid uranium particles, so future release of such material is possible. Please include a discussion and analysis of potential aerial release of uranium particles or other solid contaminants. Could there be pathways into the environment without filtration (such as a broken HEPA filter or scrubber)? [I note that “particulates” are mentioned on page 2-17, so there must be such discharge: “A significant change is the direct analysis for uranium and Tc-99 for all media, except air particulates, instead of the analysis of gross alpha and gross beta activity as surrogates.” Likewise, “air particulates”

are listed in Table 2-4.] What is the potential environmental and health impact of such particulates? What do these particulates consist of?

On page 2-14, the draft EIS seems to base information on the status of waste lagoons on information provided by Westinghouse, such as “The WEC stated that additional inspection is also performed to observe signs of erosion, cracks or bulges, seepage, or wet or soft soil in the dams, dikes, and toe areas. The additional inspection also includes observation of changes in geometry...” Did the NRC itself not make any observations on the status of the lagoons and inspection of them? If not, why not? Please elaborate in the EIS.

On page 2-15 it is stated that “WEC sends the calcium fluoride offsite for reuse in concrete, if uranium concentrations are less than 30 pCi/g.” To which concrete facilities is this material shipped and what are potential impacts to the public of those materials? Who regulates this off-site shipment of the calcium fluoride waste?

On page 2-17 it says: “If renewed, a new license condition would require the WEC to submit its environmental monitoring and sampling program to the NRC for review and approval upon either SCDHEC’s approval of the Remedial Investigation Report (SCDHEC/WEC 2019-TN6554); as required by the CA (see Section 1.5.2.2.1 of this EIS), or within 5 years of 20 the license renewal, whichever comes first.” Where did the five-year period of time come from? Is this NRC review stipulated by regulation or not? Given that accidental releases could occur at any time, why isn’t review of WEC’s environmental monitoring more frequent?

On 2-18, it is stated that “During the proposed license renewal period, the WEC will collect four co-located soil and vegetation samples annually and evaluate them for uranium and Tc-99 content (WEC 2019-8 TN6423).” Does this imply that Tc-99 could be mobilized from the soil into vegetation or that aerial release of Tc-99 could occur? Likewise, what would be the source of uranium deposited on vegetation?

Concerning groundwater sampling, the draft EIS says on page 2-21: “Going forward, the WEC will sample these groundwater wells and analyze for uranium and Tc-99 to determine (1) whether the source of the current shallow groundwater contamination is leaks from plant operation and/or (2) if existing contamination of uranium or Tc-99, from a known or unknown source, is moving offsite.” Is it unknown if Tc-99 is still leaking? What is the original source of Tc-99, a by-product of the fission reaction? Is the Tc-99 from experiments of “Reprocessed Uranium” that was imported, perhaps from Russia, and fed into the enrichment plants in Paducah and Piketon, contaminating the facilities as well as the enriched uranium product?

I reiterate an EIS scoping comment that SRS Watch submitted in August 2020:

Source of technetium-99 must be definitively identified and how Tc-99 got in groundwater must be further identified and remediated must be addressed.

The Westinghouse-DHEC Consent Agreement document *Technetium (Tc-99) Source Investigation Work Plan* must be made part of the EIS record. The analysis of that document on the source of the technetium must be assessed in the draft EIS.

On “page i” of the draft Environmental Assessment it is stated: “Nonradiological and radiological contamination exists in the groundwater in the shallow aquifer and in the surface water onsite. In December 2018, WEC sampled all groundwater wells and found uranium and technetium-99 in the groundwater, onsite, above drinking water standards. The source of the uranium is believed to be from operations in the main facility, whereas the source of the technetium-99 is still being investigated.” The source of the uranium and the associated contamination must be determined. On page 4-5 of the draft EA it is stated: “There is also a plume of Tc-99 in the lower portion of the shallow groundwater aquifer based on recent groundwater sampling results. The source and extent of the Tc-99 plume has not been fully delineated. The likely source of the Tc-99 is the recertification building and/or the WWTP lagoons, but the RI Work Plan identifies additional investigations to determine the source of the Tc-99 contamination.”

I note that on page 3-40 it says this about the source of the Tc-99 contamination: “The WEC evaluated potential sources and mechanisms for Tc-99 releases to the environment and determined that a liquid release from the cylinder recertification building was the most likely source of the Tc-99 releases (WEC 2019-TN6510).” How did the Tc-99 leave the named building? Is the building contaminated with Tc-99? Where did the Tc-99 originally come from and why did it end up at WEC?

It is not encouraging to read (on page 3-45) about unknowns related to Tc-99: “With little information about the timing, location, duration, volume, and inventory of past Tc-99 releases, it is difficult to draw conclusions about the processes that have resulted in the observed Tc-99 behavior at the site.” How will these unknowns be addressed by WEC and the NRC?

The *Columbia Fuel Fabrication Facility Tc-99 Source Investigation Report*, by Westinghouse and dated July 30, 2020, should be made part of the EIS record. The report, unfortunately, does not clarify where the Tc-99 at the WEC site came from and leaves the reader thinking it might be from reprocessed uranium (RepU) solely from U.S. Government material that inexplicably ended up in the “nuclear fuel cycle.” The report states:

Tc-99 was introduced into the commercial nuclear fuel cycle beginning in 1956, when high enriched U from U.S. Government military reactors was reprocessed (e.g. down-blended) into low enriched U fuel. Reprocessed U was used in the commercial nuclear fuel cycle until 1977; however due to residual impacts, Tc-99 remains in the nuclear fuel cycle to this day.

This explanation is incomplete and misleading. RepU, including from foreign sources, was evidently also introduced into DOE’s enrichment plants. This material contained fission products that contaminated the process lines, exposed workers and made its way into enriched

uranium product. That enriched material containing fission products including Tc-99 evidently contaminated shipping containers. Likewise, internal equipment at WEC that processed this material could have been contaminated. The draft EIS must discuss where the RepU containing Tc-99 came from, if Tc-99 contaminated equipment at the WEC facility and if other contaminants from RepU, such as uranium isotopes, are present in equipment at WEC.

The report *Columbia Fuel Fabrication Facility Tc-99 Source Investigation Report* was provide to DHEC by Westinghouse as part of the Consent Agreement. Thus, what NRC regulatory role does this report play? If it has no regulatory status then is this report and other things provided under the Consent Agreement only of informational value from a NRC perspective? Again, why isn't the NRC a party to the Consent Agreement such that the terms of it are binding as far as NRC regulation of WEC goes?

On page 2-21 of the draft EIS there is a discussion of monitoring wells, including plumes that are moving toward the site boundary. Is it possible that such plumes will move beyond the plant boundary? At current plume movement rates, when could this happen? Can the plumes be remediated?

Please describe details of "Environmental Remediation" of groundwater plumes, a LRA matter mentioned on page 2-24. Would there be such remediation while the plant is still operating or only on decommissioning?

Again, why has the "License Renewal for 20 Years" alternative been considered (page 2-25) but, given groundwater contamination, 10-year license extension has not been reviewed despite numerous request from stakeholders for this alternative?

The draft EIS makes this claim (on page 2-26): "The nature/type of potential environmental impacts from continued licensed operations for an additional 20 years would be similar to those from the proposed action (i.e., proposed 40 years of continued operation)." As stated earlier and bearing stating again, this statement is ludicrous as more leaks and accidents could well occur in the second 20 years of a 40-year license extension. The NRC's statements seems to assume no further discharge into the environment from the facility. Back up this claim.

The "preliminary recommendation" (page 2-28) of a 40-year license extension is of concern given the NRC's acknowledgement of "moderate" impacts to groundwater. That reason alone should result in a denial of a 40-year license extension.

As I commented in the EIS scoping, dated August 20, 2020, the NRC said more leaks and spill were "likely." Now, it appears the NRC is saying that "future inadvertent releases" could occur. What's the difference between a release and a spill or accident? Is this still the opinion of the NRC that future leaks and spill are likely? My scoping comment for the draft EIS record:

NRC admits it is “likely” that accidents will occur in the future.

On “page ii” of the draft EA the NRC says that “Due to past releases, the uncertainty of the migration pathways for contamination, and because it is likely that there will be leaks and spills in the future, the NRC determined that there could be noticeable impacts to the soil, surface water, and groundwater, however the impacts will be adequately monitored and mitigated.”

The NRC’s initial evaluation preliminarily concluded that continued operations for an additional 40 years would not have a significant impact on the environment. This is absurd as the NRC has no idea about the magnitude of future incidents and has no clue if future impacts will be significant or not or if they can be mitigated. The draft EIS cannot take this same approach.

While the NRC must state that it has no idea what the size of future leaks and spills might be or if they can be “adequately mitigated” - please present proof of that claim - it must present bounding options for the size of accidents and releases, including those of a grave or “significant” nature. Likewise, the NRC must explain that it cannot accurately predict anything about the magnitude or impact of any accidents (including criticalities) that might occur and that it has no ability to predict anything about extent of any “mitigation” that might be attempted after an accident, spill or leak.

I note that the term “noticeable” was used in the draft - how does this fit into The NRC’s small-moderate-large scale, or has this term now been discarded?

The admission by the NRC that more leaks and spills - and perhaps accidents or deliberately instigated events (such as from a currently unknown insider threat) - will occur should alone preclude any consideration of a 40-year license extension.

Other comments

Does the applicant, Westinghouse Electric Company LLC (WEC), have subsidiaries engaged in any activities at the Westinghouse facility that should be regulated by the NRC? Are the entities WesDyne International, LLC, Westinghouse Government Services or Westinghouse Government Environmental Services Company LLC or any other subsidiary engaged in any activities at the Westinghouse fuel plant that require Richland County business licenses, NRC licenses or SC DHEC licenses? Do any of these companies produce or manage any type of waste that is or should be covered in the draft EIS? If such waste are not covered by the draft EIS, why not? If the WEC facility is relicensed, will any WEC subsidiaries be required or should be required to seek similar relicensing or licensing by the NRC and state and county authorities?

What is the role of Brookfield Business Partners in relation to WEC and any WEC subsidiaries? If Brookfield is the owner of the WEC facility, why isn’t Brookfield seeking an NRC licenses for operation of the fuel plant? What would be the impact to environmental and health impacts if WEC is sold by Brookfield?

The NRC admits (on page 3-27) that “The proposed continued operation of CFFF could result in additional inadvertent releases of contaminants. For example, future episodes of significant rainfall, such as the rain event in October 2015, could again cause the lagoons to overflow, possibly resulting in an uncontrolled release of their contents into groundwater or into nearby surface water bodies.” What could be the impact of future “inadvertent releases” of large magnitude (as large as the October 2015 rain event or larger)?

And, on page 3-28: “The proposed continued operation of the CFFF for an additional 40 years could result in future inadvertent releases that may contribute additional contaminants to the onsite surface water bodies.” Why would such “inadvertent release” occur and could they come from the plant itself?

The above statements are of concern as they confirm that the magnitude of future inadvertent releases and contamination is unpredictable and could be LARGE or VERY LARGE.

On page 3-45 it is stated that “The Feasibility Study will be provided to SCDHEC within 90 days of SCDHEC’s approval of the final Remedial Investigation Report.” I request that the draft EIS comment period remain open until the public has had a chance to review both the Feasibility Study and the final Remedial Investigation Report. If this will not be the case, why not?

Of concern is the threat to wells in Lower Richland near to the facility. On page 3-48, it is confirmed that such a threat exists: “The offsite, private wells that were identified by the WEC (see Figure 3-13) are located in the general direction of groundwater flow from the CFFF site and could be affected by the existing and any potential future contamination from CFFF activities during the proposed license renewal period if contaminants were transported to these wells.” Granting a license beyond 10 years of time will mean a much longer period of potential additional releases and groundwater movement to private wells. This concern is amplified as WEC is currently only in an investigative phase of the Consent Agreement.

What monitoring program is in place or will be put in place by the NRC or under its direction to monitor potential off-site impacts to private wells in Lower Richland? Given this admission (on page 3-50), off-site groundwater impacts are of concern despite claims that steps will be taken to prevent them: “Based on the existing data and history of the site, the NRC staff expects future inadvertent releases of contaminants to the subsurface to be reasonably foreseeable, and that any future releases may result in groundwater contamination that exceeds the MCLs. With the exception of uranium, all of the contaminants currently present in groundwater at levels above their MCLs are expected to be mobile in groundwater.” This is of great concern.

The draft EIS states (on page 3-82) that: “The WEC has proposed to conduct a cultural resource survey within the CFFF site to identify historic properties in a manner that would further avoid or minimize potential future impacts (WEC 2021-TN7077). The cultural resource survey would be developed in coordination with the South Carolina SHPO.” Please provide the “cultural

resource survey” as part of the draft EIS record and keep the comment period open on the draft EIS until the survey is finalized and released and the public has had a chance to review and comment on it. Will professional archaeologists be involved in any cultural resource surveys? If not, why not?

Concerning the Denley Cemetery, located near to the main processing building: please discuss above-ground and groundwater contaminants at this site and how measurement of such contaminants might impact identified and as-of-now-unidentified graves. Please explain how unmarked graves at or near the defined cemetery boundaries will be identified. Will ground-penetrating radar or other such techniques be used to identify graves? Are any monitoring wells inside the area of burials? If so, why, and what is the impact of them to the cemetery?

We note that the Nuclear Regulatory Commission is conducting a systematic review of how its programs, policies, and activities address environmental justice, as recently posted in the Federal Register: *Systematic Assessment for How the NRC Addresses Environmental Justice in Its Programs, Policies, and Activities*, (Federal Register /Vol. 86, No. 129 / Friday, July 9, 2021). But the draft EIS belies that fact. The draft EIS, inexplicably, contains the briefest of “discussions” about Environmental Justice despite the fact that the facility is located in a predominantly and locally well-known African-American community known as “Lower Richland.”

Here’s the main, very limited EJ discussion from the draft EIS:

3.17.1.15 Environmental Justice 9

The CFFF site is located in and surrounded by census block groups that have minority and low-income populations exceeding the criteria described in Section 3.16 of this EIS. Therefore, the NRC staff closely evaluated the identified health and environmental impacts to determine if pathways could be established linking these effects with the locally affected populations. All the health and environmental impacts identified for the no-action alternative would be similar to the potential impacts from the proposed action and, thus, would be SMALL. Although MODERATE socioeconomic impacts would be expected under the no-action alternative, noticeable impacts would be felt by the existing workforce and businesses in the wider economic region. Only minimal socioeconomic effects on the immediate vicinity of the site would be expected because few workers or businesses are located in the vicinity, therefore socioeconomic impact pathways to minority or low-income populations were not identified. While the NRC staff found that potential impacts on groundwater resources can range from SMALL to MODERATE, there is low potential for known onsite contamination to move offsite. Further, as discussed in Section 3.16.3 of this EIS, the staff could not establish pathways linking these impacts on the local population. Thus, no disproportionately high and adverse health or environmental effects could be identified for this alternative.

And on page 3-124, concerning a 20-year license extension alternative the brevity continues:

3.17.2.15 Environmental Justice 1

The CFFF site is located in and surrounded by census block groups that have minority populations exceeding the criteria described in Section 3.16. Therefore, the NRC staff closely evaluated the identified health and environmental impacts to determine whether pathways could be established linking these effects with the locally affected populations. All the health and environmental impacts identified for the proposed action were SMALL. While the NRC staff found that potential impacts on groundwater resources can range from SMALL to MODERATE, there is low potential for known onsite contamination to move offsite. Further, as discussed in Section 3.16.3, the NRC staff could not establish pathways linking these impacts on the local population. Thus, EJ impacts for the 20-year license renewal alternative are bounded by the proposed action and no disproportionately high and adverse health or environmental effects could be identified for this alternative.

On page 3-126, the NRC concludes this on Environmental Justice: “The NRC staff could not establish pathways linking these impacts locally affected population.” And, further, the draft EIS says “No disproportionately high and adverse health or environmental effects on low-income or minority populations.” Does this determination indicate that NRC monitoring of impacts to Lower Richland populations will be downplayed in the future? Are risks to the Lower Richland population the same as populations much further from the site?

A NRC staffer, Mr. Gregory Suber, working on the EJ review recently met with residents of Lower Richland. How will comments about Westinghouse made at the semi-public meeting with Mr. Suber and from an EJ virtual meetings on July 15, 2021 be incorporated into the EIS?

The draft EIS lists some avenues whereby WEC is supposedly engaged in some interaction with some in the Lower Richland community, something not in place until recently, and for which there is no binding agreement over a 40-year license extension. Has the NRC assessed the effectiveness and sincerity of these WEC programs or are they window dressing? The main question now before us is how the NRC is engaging the community? What person-to-person surveys or engagement in Lower Richland did the NRC engage in? Beyond the usual avenues to the wider Columbia, SC community, that is unknown. In spite of my engagement on Westinghouse issues for many years, I would add that I have never been made aware by WEC of any community meetings held by WEC.

Of great importance, the NRC must indicate in the EIS process how it is complying with the Executive Order of President Biden on Environmental justice in relationship to WEC, how this draft EIS process complies with the current NRC review of EJ policies and outline interactions toward that end with White House Environmental Justice Interagency Council and the White House Environmental Justice Advisory Council.

In the May/June 2021 “Key Developments, Highlights and News,” by WEC, this is stated:

“CFFF will begin the remaining defined Remedial Investigation (RI) fieldwork in July. It is believed this field work will complete the RI data collection and initiate the start of the Final RI report, a comprehensive summary that includes a risk assessment. The Final RI report is tentatively scheduled for submission to DHEC Spring 2022. Some of our RAI responses would be incorporated into the Final RI report, while others will be included in the Feasibility Study (FS). The FS will be completed after DHEC approves the Final RI Report. If the fieldwork identifies additional data collection needs, Westinghouse will continue to work with DHEC on additional work scope to close all data gaps to meet the requirements of the Consent Agreement.”

Given the importance of the above-mentioned documents to environmental impacts and remediation at the WEC site, I request that the draft EIS remain open for comment until the above-mentioned Remedial Investigation Final Report has been made public and the public has had a chance to review it. Likewise, the draft EIS should remain open until the Feasibility Study has been publicly released and the public has had an opportunity to review them and comment for the EIS record. I further request that the named documents be made part of the EIS record.

Concerning the public WEBEX meeting on the draft EIS on August 26, 2021

Predictably of Accidents, Review of Aging of Equipment in EIS?

The slides used for the August 26, 2021 NRC draft EIS webinar included this statement on the page labeled “groundwater”:

“Future inadvertent releases to the subsurface are reasonably foreseeable considering the uncertainties about past leaks and the potential for the risk of leaks to increase with the age of plant components.”

The draft EIS says this on page xiv: “While actions taken by the WEC in response to past contaminant releases have reduced the likelihood of future inadvertent releases with continued operation of the CFFF, future inadvertent releases of contaminants to the subsurface are reasonably foreseeable considering the uncertainties about past leaks and the potential for the risk of leaks to increase with the age of plant components.”

It is of concern that the NRC admits that “future inadvertent releases” will take place. How large could they be? It is impossible to predict the magnitude of any such events or their impact?

Impacts could be sizable, yet the NRC concludes that “The NRC staff found that impacts to groundwater would be small to moderate.”

How is such a conclusion possible? What was the scientific method used to determine that no future impacts would be “large” or of greater magnitude? It’s as if the NRC can gaze into the future and know that impacts will not be large. I challenge that conclusion and request this be addressed further in the EIS.

The draft EIS says this about the “small-moderate-large” impact scale, used for groundwater impacts and all predicted environmental impacts:

The NRC’s *Environmental Review Guidance for Licensing Actions Associated with Office of Nuclear Materials Safety and Safeguards (NMSS) Programs* (NUREG–1748) categorizes the significance of potential environmental impacts as follows:

SMALL: The environmental effects are not detectable or are so minor that they would neither destabilize nor noticeably alter any important attribute of the resource.

MODERATE: The environmental effects are sufficient to alter noticeably but not destabilize important attributes of the resource.

LARGE: The environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

What is the scientific basis of this scale? Is this “guidance” incorporated in law or regulation? Is the scale applied in a way so as to be interpreted in the same manner concerning past, present and future impacts?

Concerning the aging of plant components, the above statement about “aging” implies that risks increase with component aging. What analysis has been conducted as part of the EIS on the impacts of aging component, equipment and facilities? Impacts could be worse with equipment or fixtures that can’t be moved or can’t be or won’t be removed and replaced. How has the EIS taken this into account? Please include any aging-impact reviews as part of the EIS process. I request that an “aging analysis” be conducted and that the public be allowed to comment on it as part of the EIS record.

Concerning concrete durability in facility structures – EIS needs to address building aging

Have the condition, status or aging of buildings and facilities been taken into account in the draft EIS? If not, that needs to be analyzed.

I note that this article - *The problem with reinforced concrete* - <https://theconversation.com/the-problem-with-reinforced-concrete-56078> – reviews problems with reinforced concrete using steel rebar:

However, when embedded in concrete, steel is hidden but secretly active. Moisture entering through thousands of tiny cracks creates an electrochemical reaction. One end of the rebar becomes an anode and the other a cathode, forming a “battery” that powers the transformation of iron into rust. Rust can expand the rebar up to four times its size, enlarging cracks and forcing the concrete to fracture apart in a process called spalling, more widely known as “concrete cancer”.

Have the potential environmental and health impacts of potentially degraded buildings, especially those made of concrete, been reviewed? If not, why not? Are buildings more subject to tornado or hurricane damage with age? Has this been reviewed?

NRC “Event” Reported on August 24, 2021 – Contaminated Worker

I filed into the EIS scoping record a list of “events” reported by the NRC on a daily basis. I reaffirm my scoping comments and note a new event on August 17, 2021:

“Current Event Notification Report for August 24, 2021”

<https://www.nrc.gov/reading-rm/doc-collections/event-status/event/en.html>

“Fuel Cycle Facility

Event Number: 55412

Facility: Westinghouse Electric Corporation

RX Type: Uranium Fuel Fabrication

Comments: Leu Conversion (Uf6 To Uo2)

Commercial Lwr Fuel

Region: 2

City: Columbia **State:** SC

County: Richland

License #: SNM-1107

Docket: 07001151

NRC Notified By: Elise Malek

HQ OPS Officer: Kerby Scales

Notification Date: 08/17/2021

Notification Time: 19:15 [ET]

Event Date: 08/17/2021

Event Time: 02:30 [EDT]

Last Update Date: 08/17/2021

Emergency Class: Non Emergency

10 CFR Section:

70.50(b)(3) - Med Treat Involving Contam

Person (Organization):

NMSS_EVENTS_NOTIFICATION (EMAIL)

MILLER, MARK (R2DO)

GOTT, WILLIAM (IR)

Event Text

EN Revision Imported Date: 8/24/2021

EN Revision Text: MEDICAL TREATMENT WITH CONTAMINATION

"On August 17, 2021, at approximately 0230 [EDT], a Westinghouse employee was washing piping over a container of nitric acid in the Conversion Decontamination Area. The piping fell

into the container of nitric acid and employee reached into the container to retrieve the piping and received nitric acid burns to hands and left wrist. Appropriate treatment for exposure to nitric acid was provided by on-site medical response staff. With an abundance of caution, after review with on-site medical, the employee was transported to an off site medical facility [Prisma Hospital]. Per procedure the employee's hands and arm were wrapped in plastic, and the employee was transported to an off site medical facility accompanied by plant health physics personnel for evaluation.

"Contamination was detected on the exposed area of the employee's skin during Health Physics surveys. Direct survey results were 1500 dpm/100 cm squared alpha for the left hand and 900 dpm/100 cm squared alpha for the right hand. All smear results of the exposed area were below clean area limits (<200 dpm/100 cm squared). Contamination surveys were performed in the ambulance and at the hospital and all results were below clean area limits indicating no spread of contamination during care for the employee. All potentially contaminated materials associated with the issue were collected and returned to the [Commercial Fuel Fabrication Facility] CFFF for disposal. Operator was provided with over the counter medication and released.

"The task that the employee was performing required a chemical suit, chemical gloves, fresh air bubble hood, chemical boots, and required taping the gloves to the sleeve of the acid suit jacket with chemical tape. After inspection of employee's personal protective equipment, it was noted that chemical tape was not applied to the gloves which enabled the nitric acid solution to enter the left glove and acid suit sleeve when employee reached into the nitric acid container."

NRC Regional staff was notified."

Will this event be reviewed by the NRC?

Will the NRC make comments to Westinghouse or prepare a written report for public review?

What does the event say about the ease by which workers can be exposed without proper PPE?

Will the myriad of pathways to worker exposure, including the one in the event, be reviewed in the final EIS?

Will the impacts of proper and improper use of duct tape (or other tape) be reviewed?

Concerning the recently released NRC document *Audit of the NRC's Material Control and Accounting Inspection Program for Special Nuclear Material*

As the documents, released in March 2021, states: "The audit objective was to assess the effectiveness of the NRC's inspection program for the accounting and control of special nuclear material at fuel fabrication facilities."

The document states that “Starting in 2021, the inspection frequency at Cat III facilities will decrease from once a year to once every 2 years.” This reduction in inspections is of concern and must be addressed in the draft EIS as reduced inspections could have implications for the MC&A program at WEC, which is a Category III facility.

The document says: “The Nuclear Regulatory Commission (NRC) is responsible for protecting the health and safety of the public and the environment by licensing and regulating the civilian uses of radioactive materials.” What is the connection between MC&A and safe operation of the WEC facility? Can this be accomplished with only one MC&A inspection n every two years? The draft EIS must discuss this.

Given their oversight of WEC’s MC&A program, what role does the NRC’s Office of Nuclear Material Safety and Safeguards (NMSS) have in the EIS process? What is coordination with Region II’s Division of Fuel Facility Inspection (DFFI)?

Ignored & Avoided: Role and waste production of of WesDyne/Westinghouse Government Services LLC in TPBAR

I will expound on this issue in another document submitted for the public and EIS record, but to summarize - all items below can be documented - with a clear understanding that what is known about TPBAR production is not clear and could appear to be contradictory. Entities involved in any aspect of TPBAR work at the Westinghouse facility, including waste management, appear to be hiding under a NNSA claim that the work is “classified.”

- It appears that WesDyne International LLC fabricates Tritium-Producing Burnable Absorber Rods (TPBARs) for production of tritium in the military-commercial Watts Bar unit 1 reactor (known as the Watts Bar Nuclear Bomb Reactor) operated by the Tennessee Valley Authority;
- It appears that WesDyne, which has evidently absorbed Westinghouse Government Services LLC, is registered with the South Carolina secretary of state;
- Though operating in Richland County, South Carolina, WesDyne is not on the registered business list of businesses operating in Richland County;
- WesDyne appears to pay no business taxes in Richland County and the list of amounts of taxes paid does not include WesDyne (or Westinghouse Government Services);
- At various public meetings, in response to my oral questions from the floor, NRC officials have said that activities of WesDyne are regulated by DOE’s National Nuclear Security Administration (NNSA);
- NNSA, the nuclear weapons part of DOE, is not a regulatory agency;
- The NNSA-WesDyne contract, part of which has been obtained by a Freedom of Information Act request, states that the contractor is “responsible for ultimate disposal of waste products;”
- BUT, there are indications from DHEC that the TPBAR work has been taken over by Westinghouse Electric Company (WEC) and that the TPBAR work is covered under existing WEC permits;

- Though being asked by stakeholders to analyze the operation of WesDyne in the draft EIS, the NRC has totally ignored the matter and in the Scoping Process Summary Report claims, without a single word of justification or explanation and with no documentation, that WesDyne is “outside of scope” of the draft EIS;
- Waste from WesDyne operations are therefore not covered in the draft EIS;
- The South Carolina Department of Health & Environmental Control (DHEC) says that WesDyne produces hazardous waste and that it goes to the fuel fabrication side of the Westinghouse facility. Thus, what is the role of WEC in managing that waste?
- DHEC affirms that neither WesDyne nor Westinghouse Government Services have no stand-alone air permit and no National Pollutant Discharge Elimination System (NPDES) permit, both of which are required, and says that TPBAR fabrication is being done under the WEC environmental permits. Is this the case?
- Irradiated TPBARs are transported to the DOE’s Savannah River Site, where tritium gas is removed from the highly radioactive rods;
- NNSA currently conducts about 2 processing campaigns per year of TPBARs but that is planned to go up to 8 to 10 “extractions” per year by 2026 which means TPBARs production at WesDyne will increase dramatically, meaning more waste will be produced. How will this waste be managed?
- Tritium gas is packaged in reservoirs and shipped to the DOE’s Pantex facility in Texas or Department of Defense facilities for insertion into nuclear warheads. TPBAR waste at SRS is handled as low-level nuclear waste and “disposed of” in the “E-Area Intermediate Level Vaults;”
- Irradiation of TPBARs in Watts Bar units 1 & 2 is an NRC-licensed activity;
- It appears that there is no NRC inspection of TPBAR fabrication work - perhaps being done under some form of generic Quality Assurance program - no accounting for management and disposal of TPBAR waste and thus no NRC reports of any kind about TPBAR activities taking place under the roof of the WEC facility. How is this possible and why aren’t these activities covered in the EIS?
- The draft EIS must clarify who regulates TPBAR operations and what wastes it produces and how that waste is managed. This information must not be classified and must be included in the EIS record.

Something is very fishy about TPBAR fabrication and waste streams from that part of the WEC facility. The TPBAR issue and waste from it demands explanation from the NRC.

It thus appears that WesDyne is essentially unregulated and its operation for nuclear-weapons related activities inside WEC facilities makes the Westinghouse facility a dual-use civilian-military facility. Does the NRC allow such dual use civilian-military activities at facilities it regulates? If so, under what law or regulation? Please discuss and provide document for the EIS record.

Even if some form of confidential agreement is in place between NNSA, Westinghouse, WesDyne and/or the NRC, such operation clearly crosses the imaginary red line between civilian and military nuclear operations and poses a risk to international nuclear non-

proliferation norms. Thus, what NRC non-proliferation policy allows TPBAR fabrication, a nuclear-weapons related activity, in a civilian facility?

It is inexplicable that waste from the TPBAR operation are unregulated. If the TPBAR production is operating under WEC air and NPDES permits and if the waste from TPBAR production goes to WEC, the TPBAR operation and its wastes **MUST BE ANALYZED IN THE DRAFT EIS.**

It's time for the NRC to come clean about the part of the WEC facility engaged in the secretive TPBAR production. The amount of hazardous waste generated, air discharges and discharge of any form of waste water must be revealed and quantified. How those waste are processed and disposed of must be discussed and documented in the EIS.

Given that the NRC has dodged the issue of TPBAR production and associated waste production, I request that the EIS be left open until such time as waste streams from Westinghouse Government Services/WesDyne are revealed and the public has had time to review and comment about them as part of the draft EIS..

Conclusion: The draft EIS provides ample information to deny a 40-year license extension. I request that the 10-year license-extension alternative be analyzed and that any license extension be no longer than 10 years. As discussed, the NRC must address the waste streams produced by TPBAR fabrication at the Westinghouse facility. Based on various comments of mine about the comment period in the text above, I request that the comment period be extended as appropriately requested.

Thank you for consideration of these comments and for a full response to them in any final EIS that might be issued.

Tom Clements
Director, Savannah River Site Watch
Columbia, SC
<https://srswatch.org/>
srswatch@gmail.com