SRS WATCH

Savannah River Site Watch

August 20, 2020

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Comments on the U.S. Nuclear Regulatory Commission's Scoping Related to Preparation of an Environmental Impact Statement on the Westinghouse Fuel Plant in Richland County, South Carolina - Docket ID NRC–2015- 0039

I hereby submit these comments on behalf of Savannah River Site Watch (SRS Watch) for the record of the scoping for the preparation of an Environmental Impact Statement related to the review of the request by Westinghouse Electric Company, LLC's (WEC) to renew its operating license for its Columbia Fuel Fabrication Facility (CFFF) located near Columbia, South Carolina.

SRS Watch, based in Columbia, SC, is a non-profit public-interest organization that primarily monitors activities and projects at the U.S. Department of Energy's Savannah River Site (SRS) but the organization also monitors other nuclear activities in South Carolina and elsewhere.

All of these comments are for the record and must be included in a scoping comment summary and responded to in any draft EIS that might be prepared.

Given the brevity of the scoping comment period and the inexplicable lack of a scoping meeting, SRS Watch signed on to an August 10, 2020 letter spearheaded by the Sierra Club asking for a 90-day extension of the comment period. As of the submission of these comments on August 20, I am not aware of any response to that request. I hereby complain about the lack of response by the NRC and underscore my organization's request for the 90-day comment period extension. As discussed in item number 3 below, the 90-day extension comports with the review by the South Carolina Department of Health and Environmental Control of key "remedial investigation" documents at the fuel facility site.

Likewise, the schedule presented in the NRC's August 10 letter with the subject "U.S. NUCLEAR REGULATORY COMMISSION'S SCHEDULE UPDATE FOR THE LICENSE RENEWAL REVIEW OF THE WESTINGHOUSE COLUMBIA FUEL FABRICATION FACILITY" must be adjusted for each listed item to reflect any extension of the comment period that should be granted.

Given the seriousness of the matter at hand and chronic problems with soil and groundwater contamination and on-going concerns with operation of the Westinghouse facility, it is very unclear how dates for issuance of the final EIS, issuance of a Record of Decision and a license-extension determination can be made according to a schedule fixed over a year in advance. In preparing the draft EIS and reviewing information from the NRC, Westinghouse and the South Carolina Department of Health and Environmental Control, it is unknown if new and important information will be revealed that would impact the schedule and decision-making process. It appears that the NRC has assumed the EIS will be a pro forma matter and that the schedule will likely not be impacted.

Item 1. Documents and comments in draft Environmental Assessment must be include in EIS process.

All comments submitted by SRS Watch and other individuals and entities on the U.S. Nuclear Regulatory Commission's Draft "Environmental Assessment for the Renewal of SNM-1107 Columbia Fuel Fabrication Facility in Richland County, South Carolina" must be made part of the scoping record and be considered in preparation of the draft EIS. Likewise, the draft EA itself and all documents referenced in it must be made part of the scoping record and draft EIS record.

Item 2. Documents and information in Consent Agreement process must be included in the draft EIS preparation.

The South Carolina Department of Health and Environmental Control has entered into a "Consent Agreement" with Westinghouse "to assess and address releases of pollutants into the environment at the Site." The consent agreement goes on to affirm that "Westinghouse will comply with all environmental laws."

The document discusses Volatile Organic Compounds at the site and the release of uranium compounds and hydrofluoric acid at Spiking Station #2 in 2018. These issues must be analyzed in the draft EIS and documents related to them under the Consent Agreement must be reviewed.

The Consent Agreement notes that a Remedial Investigation Work Plan, to evaluate both on-site and off-site groundwater, surface water, sediment and soils will be prepared and that it must include assessments of the source, nature and extent of contamination. A Remedial Investigation Report shall be prepared to determine risk and extent of contamination

A Feasibility Work Plan shall be prepared under the Consent Agreement to determine next steps to protect the environment and human health. A Record of Decision shall be issued on

specific remedies chosen and a Remedial Designgn/Remedial Action plan to implement the ROD shall be produced, including timelines and reports.

The above-named documents and others under the Consent Agreement, including "consent progress reports," must be reviewed as part of the draft EIS. How will those documents and reporting under the consent agreement comport with findings in the draft EIS?

Item 3. To be more specific concerning the Consent Agreement, the *Final Interim Remedial Investigation Data Summary Report Westinghouse Columbia Fuel Fabrication Facility*, must be made part of the EIS record and reviewed in the draft EIS, along with subsequent documents and documents on remedial actions.

The AECOM document prepared for Westinghouse, revised in July 2020, *Final Interim Remedial Investigation Data Summary Report Westinghouse Columbia Fuel Fabrication Facility* must be made part of the scoping record and considered in preparation of the draft EIS. This document was prepared as part of the Consent Agreement with SC DHEC.

As discussed in the document, Volatile Organic Compounds, uranium and technetium in groundwater, soils and sediments, are reviewed. The draft EIS must review this document and matters it discusses and review any subsequent "remedial investigation" documents.

Any updates to this document also must be made part of the EIS record and considered in preparation of the draft EIS. Any subsequent DHEC responses and subsequent data summaries and work plans and execution of them must be reviewed in the draft EIS. Yet, according to a July 20, 2020 letter from Westinghouse to DHEC, *WESTINGHOUSE RESPONSE TO SCHEDULE UPDATE FOR THE LICENSE RENEWAL REVIEW* (at https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML20202A678) the schedule for further documentation does not fit with the NRC's EIS schedule, which is a problem. Below is the DHEC schedule concerning remedial investigation:

The following schedule provides tentative due dates for key milestones in the Phase II Remedial Investigation activities between Westinghouse and SCDHEC. If activities are completed, faster than outlined below, it is expected that the schedule moves up accordingly.

Tentative Phase II Remedial Investigation Schedule

Milestone	Completion Date
Westinghouse submits Remedial Investigation Phase II Work Plan	09/14/2020
SCDHEC reviews and provides comments on the Work Plan	11/2020
Westinghouse resolves comments and submits Final Work Plan	12/2020
SCDHEC approves Phase II Final Work Plan	01/2021
Westinghouse executes Work Plan and submits Phase II Interim Report	09/2021
SCDHEC reviews and provides comments on the Phase II Interim Report	11/2021
Westinghouse resolves comments and submits Final Phase II Interim Report	12/2021
SCDHEC approves Final Phase II Remedial Investigation Interim Report	01/2022

Given the importance of the series of "Phase II Remedial Investigation" reports to be delivered to DHEC, it is difficult to understand how the information that will be contained in these documents and the results of subsequent work can be left out of the EIS. Yet the EIS schedule is out of whack with what DHEC is doing in cooperation with Westinghouse and must be adjusted to coincide with the DHEC schedule. Below is the schedule communicated by the NRC to Westinghouse on August 10, 2020 (ten days after the Federal Register notice on the EIS, of July 31, 2020, so the public was not aware of the full schedule at that time):

Milestone	Anticipated Date
Notice of Intent to prepare an environmental impact statement (EIS) and begin the scoping process published in the *Federal Register*, 85 FR 46193	July 31, 2020 (completed)
Start of scoping comment period	July 31, 2020 (completed)
End of 30-day scoping comment period	August 31, 2020
Issuance of Requests for Additional Information to Westinghouse	September 2020
Publication of Draft EIS[1] [2] for a 45-day comment period	April 2021
Publication of the Final EIS[3]	November 2021
Licensing Decision and Record of Decision[4]	December 2021

Thus, the EIS schedule must be shifted by the NRC for a minimum of 90 days, as requested by the Sierra Club and SRS Watch and other public interest organizations. Issuance of the draft EIS with a 45-day comment period does not fit with the DHEC schedule for approval of key documents related to the remedial investigation and must be adjusted accordingly.

Item 4. 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."

Before any final EIS is issued, the source of the technetium must be identified. As technetium is produced during irradiation of uranium in a reactor, how is it possible that a facility supposedly only handling fresh enriched uranium could have technetium at the site? (Could the source be due to the re-enrichment of reprocessed uranium – a by-product of commercial spent fuel reprocessing to remove weapon-suable plutonium - at one of the US enrichment plants that were operated in Paducah, KY or Piketon, OH?) Was Tc-99 brought in at a single time or on multiple occasions? Is it still coming in?

As technetium is soluble in water and has a 211,000-year half-life it could pose a special risk. The NRC must explain how the Tc-99 plume will be delineated and remediated. How fast is the plume moving?

It is troubling that the NRC allows the technetium question to remain unresolved in issuance of the draft EA. Definitive answers to the Tc-99 mystery, including not only its source but how and why it was brought to the Westinghouse site, must be given in the draft EIS.

Item 5: Review of incineration of "combustible wastes" and associated aerial discharge and disposal of incinerated wastes.

The draft EA documents reveals on page 3-14 that Westinghouse operates an incinerator to recover uranium: "Combustible wastes are generated through the manufacturing process. Combustible wastes containing uranium are either incinerated and leached to recover the uranium or shipped offsite to other licensed facilities for recovery."

There is no discussion in the draft EA of the incineration process and its aerial discharge. This must be discussed and explained in the draft EIS. Quantities of by-product waste and their make-up that are incinerated and/or shipped off site must be discussed and disposal sites stated.

On page 3-14 in the draft EA, it is also stated: "Noncombustible wastes and selected combustible wastes are packaged in compatible containers, compacted when appropriate, measured to verify the uranium content, and placed in storage to await shipment for further treatment, recovery, or disposal (WEC 2019b)."

What are those "further treatment, recovery or disposal" options, where would they take place and how much waste material is involved?

Item 6. East Lagoon leak must be evaluated, including its impacts and remediation.

In a document, related to off-site disposal of low-level waste, entitled *COLUMBIA FUEL FABRICATION FACILITY EVALUATION IN SUPPORT OF 10 CFR 20.2002 REQUEST FOR ALTERNATE WASTE DISPOSAL DOCKET NO. 70-1151*, a leak in the liner at the bottom of the East Lagoon is assumed, with associated radioactive contamination of sludge below the liner. The report states that "It can be inferred that if the underlying soil is contaminated that the source of the contamination would be the East Lagoon sludge, via a leak in the liner. Based on operational

experience and process knowledge there is no reason to expect underlying soil to have higher concentrations than what is in the East Lagoon sludge. Rather, site operations history indicates that the underlying soil should have only minor contamination. This submittal makes the conservative assumption that a similar volume of material must be removed from the underlying soil to what is physically in the East Lagoon. This is viewed as a conservative assumption from both an activity and volume perspective. The additional soil volume requested in this submittal is meant to cover contingencies in waste volume for the East Lagoon and underlying soil should the soil be found to be contaminated."

The draft EIS must discuss an assessment of possible contamination of the sludge below the East Lagoon. If a radioactive or chemical plume exists, removal and remediation efforts of the soil and sludge under the liner and data on possible contamination of ground water below the lagoon and remediation of it must be discussed.

Item 7: Recent issues of concern, as noted in NRC "event reports" on the fuel plant and other NRC documents must be reviewed in the draft EIS.

For example, items reported by the WISE Uranium Project (https://www.wise-uranium.org/epusaf.html) must be reviewed in the draft EIS. Those include:

> **Individual radiation doses of workers at Westinghouse Electric Co. Columbia nuclear fuel plant still twice average - and rising**
>
> According to NRC's report on occupational radiation exposure at NRC-licensed facilities in 2018, the workers receiving the highest individual doses in the U.S. nuclear fuel industry are those employed at Westinghouse Electric Co.'s Columbia nuclear fuel plant. In 2018, the individual TEDE (total effective dose equivalent) annual dose of workers with measurable dose was 1.95 mSv (2017: 1.74 mSv) at this plant, while the average for all five fuel facilities covered was 0.089 mSv (2017: 0.088 mSv).
> > Download: Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities 2018, Fifty-First Annual Report, NUREG-0713 Vol. 40, U.S. NRC, March 2020
>
> **NRC identifies two undisclosed safety violations at Columbia nuclear fuel plant**
>
> Download: NRC Inspection Report and Notice of Violation, Jan. 10, 2020
>
> **NRC issues Notice of Violation to Westinghouse for overlooking surface contamination on UF_6 cylinder shipped from Columbia nuclear fuel plant**
>
> "[...] on September 5 and 10, 2019, the licensee failed to perform surveys of areas to comply with the regulations in this part and were reasonable under the circumstances to evaluate the magnitude and extent of radiation levels, concentration, and the potential radiological hazards of the radiation levels detected, to comply with the requirements of 10 CFR 20.1501(a). Specifically, two

cylinders containing UF_6 heels were shipped by the licensee with non-fixed contamination on and near the valve cover that were above NRC requirements in 10 CFR 71.87(i), and Department of Transportation requirements in 49 CFR 173.443(a)." (NRC Inspection Report and Notice of Violation, Nov. 22, 2019)

Violation of criticality rules at WEC Columbia nuclear fuel plant

"As part of a review to revalidate the design of passive safety controls, on October 16, 2019 an engineering calculation was completed which demonstrates that one of two independent and redundant passive overflow devices used in the Solvent Extraction (SOLX) process was undersized for its credited safety function. This passive overflow device is an Item Relied On For Safety (IROFS), designated as SOLX-115. The IROFS prevents the potential backflow of uranium bearing solution from the SOLX process into the commercially-provided, chemical supply drums. These drums are non-favorable geometry (NFG) containers used to add chemicals to the batch process.[...]"
> View: NRC Event Notification Report for October 17, 2019, Event No. 54335
> Download: Follow-up report, Nov. 15, 2019 (PDF)

Uranium-laden water leaks from refuse container at Westinghouse Electric Co. Columbia nuclear fuel plant

When nuclear plant workers looked in a huge, 40-foot long shipping container at an atomic fuel factory two months ago, they discovered a hole in the roof that allowed rainwater to leak inside, where barrels full of radioactive trash were stacked. Then, the workers discovered water had dripped onto some of the drums, causing uranium to trickle out and into the soil below the Westinghouse atomic fuel rod plant southeast of Columbia, according to state and federal regulatory agencies. (The State July 26, 2019)

Waste drum damaged due to over pressurization at Westinghouse Electric Co. Columbia nuclear fuel plant

""On July 12, 2019, at approximately 0152 EDT operations personnel in the Uranium Recycle and Recovery area of the plant reported an incident. Production packaged wet recoverable material on July 12 (3rd shift) into a closed drum at the designated drum loading station, performed the required assay measurement and placed the drum into storage. Shortly afterward, the drum pressurized forcing the lid off and some contents to disperse into the immediate vicinity. The drum contents were smoldering, smoke was observed and the smoke detector activated. Dry paper in the drum created a small fire, which was promptly extinguished without use of a water hose or a fire extinguisher. A small portion of the drums content was impacted. [...]"
> View NRC Event Notification Report for July 15, 2019, Event No. 54161

"The causal analysis determined the likely cause was an exothermic reaction from mixing of incompatible chemicals. The heat generated increased pressure in the sealed drum. Once exposed to air, the heat ignited dry paper material that was placed into the 'wet' collection drum."
> Download: Westinghouse Reported Event # EN54161 Follow-up Report, Aug. 8, 2019 (PDF)

Citizens frustrated, distrusting after Westinghouse cleans up uranium contamination at Columbia nuclear fuel plant

Dangerous equipment malfunctions and environmental contamination from an atomic fuel factory near Columbia have been fixed, federal regulators and officials from the factory say. But those fixes have done little to quell the outrage of citizens and residents who say they've been left in the dark about the plant's progress and who question its dedication to environmental safety.
At a Tuesday (May 7) meeting, officials with the Westinghouse nuclear fuel factory on Bluff Road said they've completed fixes and clean-up of an air pollution control device known as a "scrubber" that once had three times the uranium build-up allowed by federal safety standards. Agents with the federal Nuclear Regulatory Commission discovered the issue in 2016 and said the problem could have caused a nuclear reaction or burst that would impact workers but not the Lower Richland area.
The Tuesday meeting at a banquet room in the South Carolina State Museum focused on the NRC's 2018 assessment of the plant.
Lower Richland residents said Westinghouse officials have promised for three years they would improve communications to the community but haven't done so. (The State May 8, 2019)

Workers at Westinghouse Electric Co. Columbia nuclear fuel plant still receive individual radiation doses twice average

According to NRC's report on occupational radiation exposure at NRC-licensed facilities in 2017, the workers receiving the highest individual doses in the U.S. nuclear fuel industry are those employed at Westinghouse Electric Co.'s Columbia nuclear fuel plant. In 2017, the individual TEDE (total effective dose equivalent) annual dose of workers with measurable dose was 1.74 mSv at this plant, while the average for all five fuel facilities covered was 0.088 mSv.
> Download: Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities 2017, Fiftieth Annual Report, NUREG-0713 Vol. 39, U.S. NRC, March 2019

NRC issues Notice of Violation to Westinghouse for non-compliance to safety rules at Columbia nuclear fuel plant that lead to hydrofluoric acid spill

"[...] the licensee failed to establish adequate management measures to ensure that two engineered controls identified as IROFS [items relied on for safety] were

designed and implemented such that they were available and reliable to perform their function. Specifically, **for a minimum of three years** prior to June 16, 2018, established management measures failed to ensure IROFS ADUHFS-502 and ADUHFS-902 were available and reliable to perform their intended function when needed in order to comply with the performance requirements of 10 CFR 70.61. As a result, on June 16, 2018, **hydrofluoric acid (HF) solution was spilled** from HF Spiking Station #2 and spilled from the diked area. [...]" (emphasis added)
(NRC Inspection Report and Notice of Violation, Oct. 5, 2018)

Violation of criticality rules at Westinghouse Columbia nuclear fuel plant

On November 8, 2016, the licensee failed to remove LOTO [lockout/tagout] and restart nozzles. Specifically, the licensee failed to reestablish process water flow to the spray nozzles for the front of the S-1030 scrubber packing section. The failure to reestablish process water flow resulted in a degradation to the ability of IROFS [items relied on for safety] VENTS1030-105 to perform its intended safety function of preventing excess uranium accumulation for approximately 23 hours. (NRC Integrated Inspection Report and Notice of Violation, Jan. 27, 2017)

Unexpected accumulation of uranium-bearing material in air scrubber of Westinghouse Columbia nuclear fuel plant (*merits special review in the draft EIS*)

More uranium accumulation found in scrubber at Westinghouse Columbia nuclear fuel fabrication facility: "On August 17, 2017 at 11:17 a.m., it was reported to the Environment, Health and Safety (EH&S) department that additional residual material located within the out of service S-1056 scrubber was found. Material in this out of service system was previously reported on August 7, 2016. The material was removed and placed into favorable geometry storage. The material has been quantified and determined to contain less than 80 grams of uranium, which is well within safety margins." (NRC Event Notification Report for August 21, 2017, Event Number 52090)

NRC issues Confirmatory Order on uranium accumulation in scrubber and ventilation systems at Westinghouse Columbia nuclear fuel fabrication facility:
> Federal Register Volume 82, Number 155 (Monday, August 14, 2017) p. 37903-37908 (download full text)
> Download: NRC release Aug. 11, 2017 (PDF)
> Download: NRC cover letter · Confirmatory Order, Aug. 9, 2017
> Access Docket ID NRC-2017-0176

NRC issues report on lessons learned from uranium accumulation in scrubber and ventilation systems at Westinghouse Columbia nuclear fuel fabrication facility:
> Download NRC report, Jan. 30, 2017

Unexpected accumulation of uranium-bearing material in air scrubber of Westinghouse Columbia nuclear fuel plant rated INES Level 2:

"[...] For this event, the maximum potential consequences were Level 3 or 4 because, 'The main hazard from a criticality excursion is exposure of personnel due to high radiation fields from direct neutron and gamma radiation,...' The number of remaining safety layers were zero because all of the controls relied on to prevent criticality were compromised. Therefore, this event is rated a Level 2. While there were significant failures in safety provisions, there were no actual consequences." (NRC INES Event Rating Dec. 7, 2016)

NRC Augmented Inspection Team report scathes management of criticality hazards at Westinghouse Columbia nuclear fuel plant: "The Augmented Inspection Team (AIT) was established to inspect and assess the facts and circumstances surrounding the failure to meet the performance requirements of 10 CFR 70.61 due to exceeding the nuclear criticality safety (NCS) mass limit in a process off-gas scrubber. The team reviewed the record of activities that occurred, interviewed personnel, and conducted facility walkdowns. [...]
The AIT determined that items relied on for safety (IROFS) for the S-1030 scrubber did not ensure that a criticality accident was highly unlikely. The IROFS were not sufficient to prevent exceeding the NCS mass limit of the CSE. Westinghouse incorrectly assumed that only minor amounts of uranium were expected to accumulate in the S-1030 transition and scrubber vessel packing; that low uranium concentration would be present within the scrubber vessel; minimal amounts of small uranium particles were entrained within the intake ductwork; and that the scrubber would constantly dilute the uranium concentration with the addition of makeup water during normal operation and anticipated upsets. As a result, the controls and measures to protect against a criticality were not sufficient to assure subcriticality conditions. The AIT also determined that Westinghouse did not establish adequate management measures to ensure IROFS related to ventilation systems were designed, implemented, and maintained such that they were available and reliable to perform their function when needed.
The AIT also concluded that Westinghouse failed to provide adequate levels of oversight, enforcement, and accountability to the organizations directly involved with configuration management, operations, and maintenance of the wet ventilation systems. Specifically, the management team did not enforce procedure compliance and did not promote the importance of problem identification and resolution, even though established inspection criteria and procedure actions were available. Management did not drive corrective actions to be taken when action limits were exceeded, did not display accountability for monitoring criticality safety controls through management measures, and had a less than adequate questioning attitude that led to non-conservative decision making."
> Download: NUCLEAR REGULATORY COMMISSION AUGMENTED INSPECTION TEAM REPORT NO. 70-1151/2016-007, Oct. 26, 2016 (23.3 MB PDF)

NRC allows restart of operations at Westinghouse Columbia nuclear fuel plant: On Oct. 20, 2016, NRC authorized Westinghouse to restart conversion area process equipment and the S-1030 scrubber system.

NRC issues Information Notice requesting nuclear fuel facility operators to consider potential for uranium accumulation in off-gas ventilation and scrubber systems:
> View here

Westinghouse concedes "long-standing deficiencies" led to accumulation of uranium in air scrubber of Westinghouse Columbia nuclear fuel plant: An internal review of a Columbia nuclear fuel factory has identified multiple problems with how the site has been managed for atomic safety through the years. The report, compiled by plant operator Westinghouse, says the company wasn't always tough-minded enough about safety and it didn't ensure employees knew enough about nuclear safety while operating some of the factory's equipment.
Westinghouse's report cited "long standing deficiencies" that led to a buildup of uranium in excess of federal nuclear safety standards in part of the Bluff Road plant. The 47-year-old plant employs about 1,000 people, but at least 170 have been laid off temporarily while Westinghouse and the Nuclear Regulatory Commission separately investigate why uranium built up in apparent violation of federal standards.
Buildups of atomic material are of concern because they can lead to nuclear accidents, although that did not occur in this case. Nuclear safety advocates say Westinghouse needs to redouble its efforts to make sure other, more serious problems don't arise.
"There were no actual safety-related consequences as a result of the accumulation, but the potential for such consequences may have existed," the NRC said in a recent news release. The NRC has scheduled a public meeting Tuesday night [Sep. 27] in Columbia to discuss problems identified this past summer at Westinghouse. (The State Sep. 22, 2016)
> Download: Westinghouse Reported Event #EN52090 60-Day Follow-Up Report, Sep. 12, 2016 (3MB PDF)
> Download: NRC release Sep. 19, 2016 (161k PDF)

Inspectors find another unexpected accumulation of uranium-bearing material in air scrubber of Westinghouse Columbia nuclear fuel plant: An atomic safety investigation at a Columbia nuclear fuel factory uncovered additional problems this week as inspectors discovered more radioactive material had built up in the plant than they previously knew about.
An air pollution control system pipe potentially contained enough uranium to cause a nuclear accident at the Westinghouse plant on Bluff Road, records show. The amount of uranium found in the pipe might have exceeded a federal safety limit, according to a federal event notification report.
The U.S. Nuclear Regulatory Commission became aware of the problem Tuesday

(Aug. 23), about five weeks after Westinghouse notified the agency that uranium had built up in another part of the air pollution scrubber system, records show. In that case, the amount of uranium found in the scrubber was three times higher than federal safety limits, the notification report says.
This week's discovery, like the uranium buildup that surfaced in July, did not pose any danger to the surrounding community and no workers at the factory were harmed, according to the NRC. But buildups of nuclear material are a concern.
A buildup of atomic material can cause accidents that could endanger plant employees working nearby. Too much uranium in one place can increase chances of a "critical event," which federal officials say is one of the most serious problems at a nuclear fuel plant. (The State Aug. 26, 2016)
> View NRC Event Notification Report for August 24, 2016, Event No. 52090

Westinghouse voluntarily shuts down part of Columbia nuclear fuel plant as NRC investigates cause of unexpected accumulation of uranium-bearing material in air scrubber: The U.S. Nuclear Regulatory Commission recently dispatched a special inspection team to the plant after learning that enough uranium had been found in an air scrubber to raise concerns. The buildup did not result in any "safety related consequences" or injuries, but the NRC said "the potential for such consequences may have existed." Records indicate that the amount of uranium exceeded a limit of 29 kilograms. While the NRC investigation is ongoing, the plant's operator, Westinghouse, voluntarily shut down part of the facility and began notifying some employees this week of a "temporary workforce reduction," said company spokeswoman Courtney Boone.
NRC spokesman Roger Hannah said nuclear materials can cause an atomic reaction if not handled carefully, which is why the agency is taking the matter seriously. "In a fuel facility, probably the biggest safety issue is getting either too much material or material in the wrong configuration so that you could potentially have criticality - basically a chain reaction that could cause some kind of flash explosion," Hannah said Thursday (Aug. 11). "It's not as much of an off-site risk as it is to employees and workers in the area."
(The State Aug. 11, 2016)

NRC sends Augmented Inspection Team to assess unexpected accumulation of uranium-bearing material in air scrubber of Westinghouse Columbia nuclear fuel plant: The Nuclear Regulatory Commission today is sending an Augmented Inspection Team to the Westinghouse nuclear fuel fabrication plant in Columbia, S.C., to assess the unexpected accumulation of an excessive amount of uranium-bearing material in a plant component.
An air scrubber, which removes unwanted material from a number of processes at the plant, was undergoing an annual inspection and cleanout. During that work, an unexpectedly large amount of material was found inside the scrubber. Initially, it was thought the material did not contain a significant amount of uranium, but upon analysis, it was found that the uranium levels were higher in that area than allowed under NRC requirements in the facility license.

> The initial problem was reported to the NRC July 14, agency records show. A report provided Thursday by the NRC said a limit of 29 kilograms of uranium was exceeded. The material found contained 87 kilograms of uranium, agency records show. (NRC Aug. 1, 2016)

Item 8: Safety Evaluation Report (SER) must be made public along with the draft EIS and the public must be allowed to comment on it.

The introduction to the U.S. Nuclear Regulatory Commission's *Draft Environmental Assessment for the Renewal of SNM-1107 Columbia Fuel Fabrication Facility in Richland County, South Carolina* states that "The NRC's safety review is still ongoing and will be published at a later date."

Later, on page 1-1 in the draft EA, it is stated: "The NRC staff's safety analysis will be documented in a separate Safety Evaluation Report (SER). The NRC decision whether to renew the WEC license as proposed will be based on the results of the NRC staff's review as documented in the SER and the final environmental document."

The "Safety Evaluation Report" must be made a part of the record so the public can see it and comment on it as part of the draft EIS review process, before any final EIS is issued. Release of the safety review and the NRC's assessment of it after the public period has closed would be a denial of the public's rights to have proper input into the draft EIS review process.

Item 9: 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.

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.

The risks and impacts of the "insider threat" to safe operations of the facility and impact on spill and leaks and potential criticalities must be discussed.

Item 10: **Lengthy half-live of radioisotopes dictate environmental and health impact analysis far into the future.**

Given the enormous half-lives of uranium isotopes, including 700 million years for uranium-235 and 211,000 years for technetium-99, the draft EIS must consider the impact of all isotopes in soil and groundwater for a period of 10 half-lives (rule of thumb for time period at which they become harmless).

Thus, not only must the facility's decontamination and decommissioning plan be discussed but impacts of materials left behind for the 10 half-life period must be addressed.

The huge length of half-life of the isotopes in question underscores that the past, current and future leaks and accidents at the facility will remain some form of threat essentially forever. How will this be dealt with in the draft EIS?

Impacts of the isotopes over time to down-gradient wells and the nearby Congaree River must be discussed in the draft EIS.

Additionally, as the area around the Westinghouse facility in Lower Richland is a predominantly Africa-American community, environmental justice (EJ) issues must be analyzed include to local wells and due to aerial release during normal operations and in case of accidents.

Item 11: Impact of bankruptcy of Westinghouse and takeover must be discussed.

Brookfield Business Partners stated in a January 4, 2018 news release that it had acquired 100% of Westinghouse, which had declared bankruptcy (in part due to the failed AP1000 nuclear reactor construction project at the V.C. Summer site in Fairfield County, South Carolina).

The news release states: "Westinghouse is a high-quality business that has established itself as a leader in its field, with a long-term customer base and a reputation for innovation," said Cyrus Madon, CEO of Brookfield Business Partners. "We look forward to bringing our significant expertise and reputation as a long-term owner and operator of critical infrastructure in the U.S. and globally, as well as our deep facilities management capabilities, to enhance the Company's position as a leading global infrastructure services provider to the power generation industry."

Possible cost-cutting by the new owner of Westinghouse could impact operations at the fuel plant. Or, there could be a positive impact on plant operations. Despite the takeover of

Westinghouse, which could yet hold impacts on plant operation now and in the future, this issue was omitted from discussion in the draft EA but must not be overlooked in the draft EIS.

As finances impact both operational issue and decommissioning, the draft EIS must discuss the bankruptcy and takeover issues and what may happen with the ownership and management of the plant and associated potential risks as they apply to plant operation and health and environmental impacts.

Likewise, as it directly affects clean-up of the site once operations have halted, impacts to the decommissioning fund and the status of the fund over time must be discussed in the draft EIS.

Item 12: Climate change over time must be taken into account.

In an August 18, 2020 article in S&P Global Platts, the risk of climate change and rising flood waters to nuclear power plants was highlighted**:**

> Jennifer Uhle, vice president, generation and suppliers at NEI and a former senior official at the US Nuclear Regulatory Commission, said in an Aug. 18 statement provided to S&P Global Platts: "All US nuclear plants are required to be protected from extreme natural phenomena far more severe than other parts of the nation's critical infrastructure and this design philosophy provides significant safety margin. As the report points out — and as is true for much of our nation's infrastructure — nuclear power plant operators will need to assess and adapt to changing environmental conditions arising from a changing climate."
>
> "All operating nuclear plants in the US have recently updated assessments of flooding hazards using modern methods and data, which explicitly account for the potential future impacts of climate change and implemented flexible mitigation strategies as a backup to the designed physical protections, providing an additional layer of safety for all plants," she added.

Though the above comment relates to nuclear power plants, given that the Westinghouse fuel plant is in the Atlantic coastal plain on low ground close to the Congaree River the draft EIS must analyze near-term, medium-term and long-term climate-change impacts of both flooding and ground saturation at the fuel plant site.

Increased flooding at the site and potential inability of soils to absorb rain water and flood water must be reviewed, including climate-change models of NOAA and other reputable climate-change research organizations

Item 13: WesDyne nuclear weapons role at Westinghouse fuel plant - who regulates? - and environmental discharges must be discussed.

A part of the Westinghouse facility, operated by subsidy WesDyne, makes tritium rods that are irradiated in the Watts Bar unit 1 reactor - and perhaps soon in unit 2. The highly radioactive irradiated rods are taken to DOE's Savannah River Site, where radioactive tritium gas is

removed and placed into small reservoirs for insertion into US nuclear weapons. Tritium gas is used during detonation of a nuclear warhead to boost the explosive power of the device.

The unirradiated Tritium-Producing Burnable Absorber Rods (TPBARs) assembled at the Westinghouse /WesDyne facility don't contain nuclear materials but it is unknown what waste may be generated during their fabrication and how those waste are managed and if they are transferred to overall Westinghouse facility waste-management operations. It is also unknown if WesDyne staff are on the Westinghouse payroll or work on the Westinghouse side of operations. What time of formal, legal agreement or contract exists between WesDyne and Westinghouse and what are the obligations of the parties in any such agreement?

Likewise, it is unknown if WesDyne uses the same water and sewer systems as the overall Westinghouse facility, thus impacting disposal operations. This must be discussed in the draft EIS.

See article on tritium production for nuclear weapons at the Watts Bar unit 1 commercial reactor, owned by the Tennessee Valley Authority*: Twenty tons of uranium could be used to produce tritium for nuclear weapons*, in Oak Ridge Today, September 14, 2018: https://oakridgetoday.com/2018/09/14/twenty-tons-uranium-used-produce-tritium-nuclear-weapons/ The article states that "Tritium is produced there by irradiating lithium-aluminate pellets with neutrons in rods known as tritium-producing burnable absorber rods, or TPBARs."

The NRC claims it doesn't regulate the WesDyne facility as it is a nuclear weapons facility under the oversight of DOE's National Nuclear Security Administration but no documentation to that effect has been released by the NRC or the NNSA. The relationship of WesDyne operations to the uranium fuel side of the facility is unknown and must be revealed. As NNSA is not a regulatory agency which government entity regulates WesDyne operations and waste-management activities? The draft EIS must clarify this matter.

Item 14: License extension for 40 years is not justified.

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.

On page 1-2 in the draft EA, the NRC states: "The WEC's license (SNM-1107) was renewed in 2007 by the NRC for 20 years and will expire in 2027. The license renewal application, if granted, would extend WEC's license for 40 years from the date the NRC approves the renewal." On page 1-3 in the draft EA it is stated: "This EA evaluates the environmental impacts of the proposed action—continuing the currently licensed operations through the 40-year license renewal period."

No reason is given why a 40-year period, twice the length of the 20-year license period for the current license, should be considered. The reason for a 40-year license request and the NRC's consideration for that period of time must be given in the draft EIS.

In reality, an evaluation for a 40-year period of time that accurately predicts impacts is impossible and to some degree boils down to mere speculation. If anything, the future impacts or unknown impacts, which are deemed by the NRC to be of little concern, mandate that caution must be the watchword and that the 40-year period for review is unrealistic and would be based only speculated risks and speculated impacts.

As the earlier EA - and resulting FONSI - which preceded the second draft EA - was withdrawn due to incidents that occurred after the EA was issued is reason alone to reject a 40-year licensing period. As we have seen in circumstances around preparation of the EAs, events are sure to happen, which the NRC admits, and the public will have no future opportunity to review them and comment on them in the context of an environmental review connected to license extension if a 40-year license is granted.

Issuance of a 40-year license takes away rights of citizens to have input in an environmental-impact-review process like the current license review over the next 40 years and that's unacceptable.

Thus, the "proposed action" to renew the license for 40 years must be rejected.

Likewise, no Finding of No Significant Impact (FONSI) on the 40-year license extension should be issued if such a FONSI were to be considered.

Conclusion

Giving on-going soil and groundwater contamination and likely accidents in the near future, the license for the Westinghouse facility has not been justified by the NRC to be extended for 40 years. The NRC must hold the draft EIS open and require that the company show it can operate the facility for a period of one year without any problems that might impact public health and safety. After a trouble-free one-year period of time, the draft EIS should be revised and opened again for comment, and a time period of no more than 10 years for the license extension must be considered.

This concludes my scoping comments. Thank you for consideration of them.