



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 14, 2022

MEMORANDUM TO: Jacob I. Zimmerman, Chief
Fuel Facility Licensing Branch
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

FROM: Jenny Tobin, Project Manager /RA/
Fuel Facility Licensing Branch
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

SUBJECT: SUMMARY OF SITE VISIT TO WESTINGHOUSE COLUMBIA FUEL
FABRICATION FACILITY IN HOPKINS, SOUTH CAROLINA
REGARDING THE LICENSE RENEWAL APPLICATION (DOCKET NO.
70-1151)

DATE: January 19–20, 2022

PLACE: Westinghouse Columbia Fuel Fabrication Facility in Hopkins, South
Carolina and South Carolina Department of Health and Environmental
Control in Columbia, South Carolina

PURPOSE:

The purpose of the site visit was for U.S. Nuclear Regulatory Commission (NRC) staff to: (1) tour the Westinghouse Electric Company, LLC's (WEC's) Columbia Fuel Fabrication Facility (CFFF) and grounds, (2) discuss the status of the remedial investigations WEC is conducting under a Consent Agreement with the South Carolina Department of Health and Environmental Control (SCDHEC), including the results of the most recent site sampling activities, and (3) discuss site flood hazards in support of the NRC staff's review of the WEC's proposed license renewal for Special Nuclear Material License SNM-1107 to continue to operate the CFFF for an additional 40 years. On January 20, 2022, the NRC staff also met with SCDHEC staff at their office in Columbia, SC to discuss their comments on the NRC staff's draft environmental impact statement (EIS) and the status of the Consent Agreement with the WEC and air permit renewal process.

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ATTENDEES:

NRC:

Jessie Quintero, Jenny Tobin, Tom Vukovinsky, Philip Meyer (Pacific Northwest National Laboratory Contractor)

SCDHEC:

Ken Taylor, Kim Kuhn, Lucas Berreford (site visit and meeting at SCDHEC)
Keith Frost, Steve McClia, and Christopher Hardee (meeting at SCDHEC only)

WEC:

Doug Weaver, Ed Wills, Diana Joyner (site visit only)

SUMMARY:

On January 19, 2022, the WEC provided a tour of the CFFF's site area. SCDHEC staff were also in attendance. The NRC staff walked across the Southern Storage Area to the location of well W-11 with a view back toward well W-6 and the former location of the East Lagoon. Wells W-11 and W-6 have elevated technetium-99 (Tc-99) activity in groundwater. The NRC staff walked back along the southern and eastern sides of the Chemical Area, viewing the locations of groundwater sampling wells adjacent to the CFFF's main building, where elevated uranium concentrations in groundwater have been observed (wells W-77, W-55, and W-56). The NRC staff walked the area where the former East Lagoon was located and observed the North, South, Sanitary, and West (1) Lagoons. The WEC described the process used for the East Lagoon closure.

During a van tour of the site, the NRC staff visited the West Lagoon while WEC described the overtopping of the lagoon berm during the October 2015 precipitation event. The NRC staff observed the site drainage ditches and the location of the C-valve where site drainage enters the ditch draining into upper Sunset Lake. The NRC staff also visited Denley Cemetery, observing the new groundwater well located outside the cemetery's fence (W-98), and the proximity and height of the bluff. The NRC staff then observed upper Sunset Lake from the entrance dike on Mill Creek. The WEC explained that the valve between Mill Creek and upper Sunset Lake was normally closed. The NRC staff also observed upper and lower Sunset Lakes from the causeway/dike between them. A small channel at the southern end of the causeway provides a route for water flow from the upper to lower portion of the lake. The WEC pointed out the location of sediment sampling in upper Sunset Lake where elevated uranium concentration has been observed in the sediments. The NRC staff observed the sampling stations used to obtain water samples from Sunset Lake.

The NRC staff also observed Gator Pond. The WEC stated that the pond has no prominent overflow discharge (which would indicate that discharge from the pond occurs as groundwater flow). The NRC staff observed lower Sunset Lake from the lower dike (which controls the elevation and outflow from the lake into Mill Creek upstream from the exit dike). The SCDHEC staff described how the understanding of the site's hydrology has evolved as a result of the data gathered through the WEC's remedial investigations including the recent pressure transducer data. The NRC staff has not reviewed the pressure transducer data, which will be made publicly available in the final remediation investigation (RI) report being prepared by the WEC.

The NRC staff then observed the upper end of the canal that diverts flow from the natural channel of Mill Creek and that forms the southern boundary of the CFFF site. A cutoff channel that diverts the majority of Mill Creek flow into the canal was viewed. The NRC staff observed a dike across the entrance to the canal; water was flowing over the dike, but WEC stated that the water level in Mill Creek does not typically exceed the dike elevation. The NRC staff also observed Mill Creek from the exit dike at the lower end of the canal. There is an uncontrolled outlet through the exit dike where Mill Creek discharges from the WEC's property and joins the larger discharge from the canal to reform the natural Mill Creek channel/flow. See map in the enclosure.

The NRC staff discussions with the WEC covered the data collected by the WEC during the RI Phase II field investigations. The WEC described October 2021 groundwater sampling results, which have not been made public, and the interpretation and use of the plume analytics evaluation publicly available as part of WEC's 2020/2021 Annual Groundwater Monitoring Report. The WEC described the gas survey and soil sampling results, and results from the new

groundwater wells installed as part of the RI Phase II activities. The WEC reported that these results establish a connection to the CFFF operations for the elevated perchloroethylene (PCE) levels observed west of the CFFF buildings. This data and the updated conceptual site model (CSM) will be included in the final RI report. The WEC also described results from the RI Phase II groundwater wells located east of Gator Pond and used (along with the pressure transducer data) to update the CSM description of plume locations and transport of contaminants to the east. These data and updated plume maps will be included the final RI report.

The NRC staff discussed with the WEC the evaluation of flood hazard under the applicable flooding mechanisms (river flooding, dam failure, and flooding resulting from local intense precipitation) as part of the safety review of the license renewal application (LRA). Based on the NRC staff's review of the LRA, the site and structure integrated safety analysis, and the site emergency plan, the NRC staff described additional information needed for the evaluation of flood hazard.

The NRC staff met with SCDHEC staff at their offices on January 20, 2022. Discussions related to water resources centered around data from the RI Phase II investigations that the WEC has submitted to SCDHEC but is not yet available to the NRC staff and the public (and with current final RI report schedule would not be available to NRC staff until after publication of the final EIS). The SCDHEC staff discussed the investigation of the PCE plume to the west of the CFFF facilities and the WEC's conclusion that the western contamination is a result of past CFFF operations. The SCDHEC staff also discussed their current understanding of the surface water-groundwater interaction. The SCDHEC staff also discussed their current understanding of recent groundwater contaminant data (including Tc-99) to the east of Gator Pond, as observed in the newest wells completed as part of RI Phase II activities. The SCDHEC staff also discussed their current understanding of the source of the uranium observed in the sediments of Sunset Lake. The SCDHEC staff provided additional information regarding their comments on the draft EIS related to their oversight of the WEC's operating air quality permit.

Docket No.: 70-1151

License No.: SNM-1107

Enclosure:

1. USGS National Map base map

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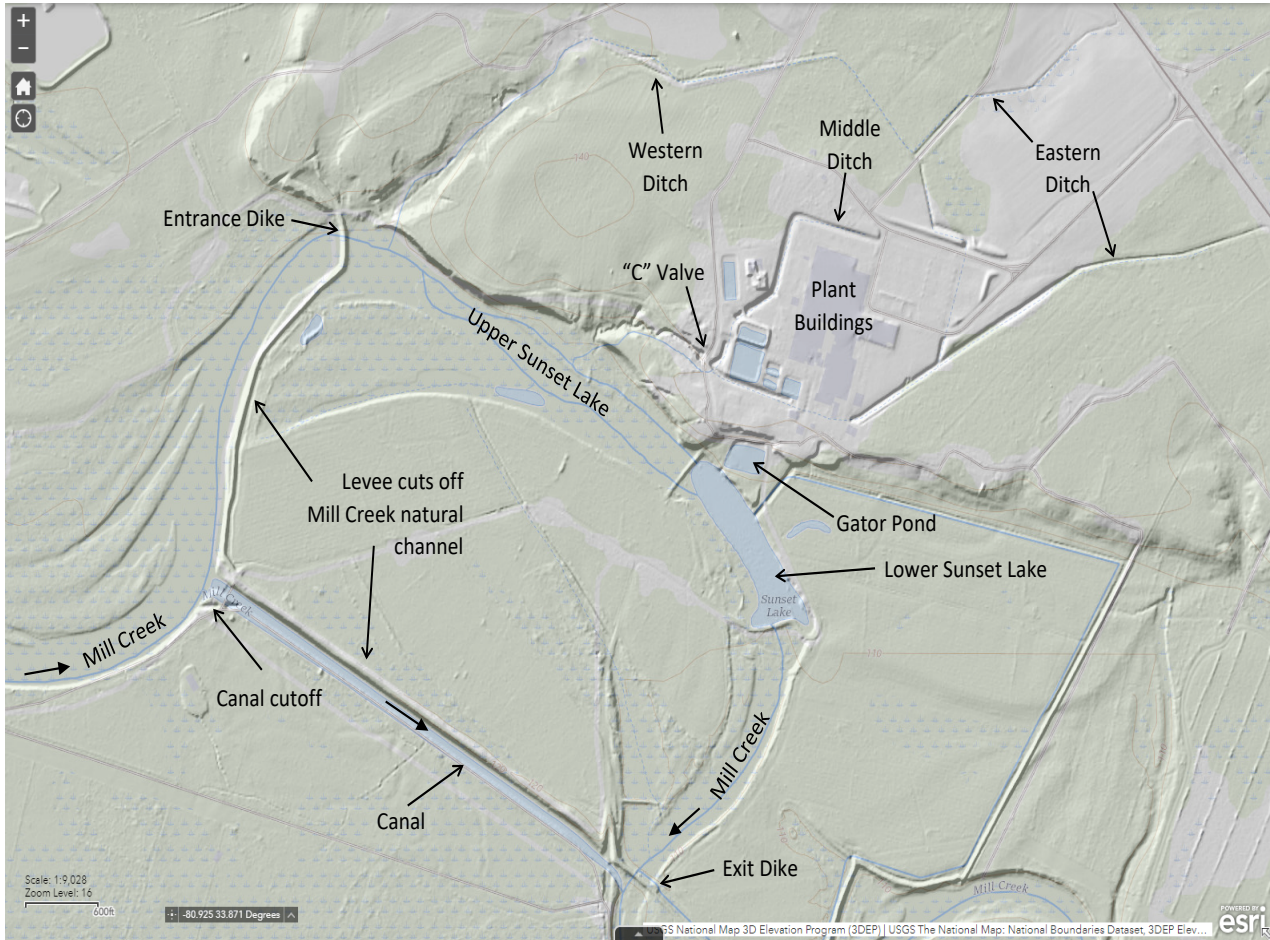
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OFFICE	NMSS/REFS/	NMSS/DFM/FFLB	
NAME	JQuintero	JPiotter acting for JZimmerman	
DATE	3/3/22	3/8/22	

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Source: USGS National Map basemap with 3D Elevation Program Elevation Hillshade Stretched at 50% transparent. Labels added by NRC staff.