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

September 3, 2021

Brigid Lowery, Director
Assessment and Remediation Division
Office of Superfund Remediation
and Technology Innovation
U.S. Environmental Protection Agency
M.S. 5201P
1200 Pennsylvania Avenue, NW
Washington, DC 20004

SUBJECT: COMPLETION OF SCHEDULED DECOMMISSIONING ACTIVITIES AT THE LA CROSSE BOILING WATER REACTOR SITE IN GENOA, WISCONSIN (LICENSE NO. DPR-45)

Dear Ms. Lowery:

I am writing to inform you of the completion of the active onsite decommissioning activities at the La Crosse Boiling Water Reactor (LACBWR) site in Genoa, Wisconsin. The U.S. Nuclear Regulatory Commission (NRC) staff has completed the review of LACBWR's final status survey (FSS) reports for the remediated portions of the site. The data in the FSS reports demonstrate that the site meets the radiological criteria for unrestricted use in Subpart E, "Radiological Criteria for License Termination," of Part 20, "Standards for Protection Against Radiation," to Title 10 of the *Code of Federal Regulations* (10 CFR). Currently, we are coordinating the actions to terminate the NRC license and release the site for unrestricted use with the State of Wisconsin. We expect to complete these actions within several months.

In a letter dated December 17, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17047A604), the NRC notified the U.S. Environmental Protection Agency (EPA) that the license termination plan (LTP) for the LACBWR site contained proposed Derived Concentration Guideline Levels (DCGLs) that exceeded the consultation trigger values for three radionuclides (Cobalt-60, Cesium-137, and Strontium-90) related to the industrial use scenario. Specifically, these radionuclides exceed the soil concentration levels from Table 1 of the Memorandum of Understanding (MOU), "Consultation and Finality on Decommissioning and Decontamination of Contaminated Sites," dated October 9, 2002 (ADAMS Accession No. ML022830208). However, the residual radioactivity at the site was expected to be much lower than the proposed DCGL values because meeting the "not to exceed 25 millirem per year (mrem/yr)" criteria of 10 CFR 20.1402, "Radiological criteria for unrestricted use," must be demonstrated using an all pathways, sum of fractions (SOF) approach. Each individual DCGL represents a concentration level corresponding to 25 mrem/yr. Thus, in applying the SOF requirement, the actual cleanup values were reduced to ensure that the potential dose from all residual radioactivity at the site from all media is less than 25 mrem/yr.

The consultation letter (termed a Level 1 consultation by the NRC) also stated that the NRC would review LACBWR's FSS reports following completion of site remediation and initiate a second consultation, as discussed in Section V.C.2 of the EPA MOU (termed a Level 2

consultation), if the actual residual soil contamination levels exceeded the consultation trigger values in Table 1 of the MOU. The EPA responded to the Level 1 consultation by letter dated March 13, 2018 (ADAMS Accession No. ML18303A311). As discussed below, the NRC staff has concluded that a Level 2 consultation is not required based on the residual radioactivity remaining at the LACBWR site at this time.

After completion of decommissioning activities, including soil, structure, and buried piping removal, LACBWR conducted their FSS in accordance with the guidance in the Multi-Agency Radiological Survey and Site Investigation Manual (MARSSIM) and their approved LTP (dated May 21, 2019; see ADAMS Accession No. ML19008A079). LACBWR partitioned the approximately 36.5 acre site into 41 individual survey units, consisting of two basement survey units, eight above-grade building survey units, 21 land survey units (including seven below grade excavation survey units), and ten buried piping survey units ranging in size from 17 to more than 28,000 square meters. Using the MARSSIM guidance, LACBWR collected and analyzed a total of more than 1600 systematic and judgmental soil samples in the 41 survey units. In accordance with the FSS plan, LACBWR also performed radiological scanning measurements of the soil surfaces within each of the survey units using handheld equipment.

The NRC staff reviewed the data in the LACBWR FSS reports and compared the residual radioactivity levels to the trigger values for soil in Table 1 of the EPA MOU related to the industrial use scenario. Table 1 states that, except for Radium-226, Thorium-232, or total uranium, soil concentrations should be aggregated using an SOF approach to determine the site-specific consultation trigger concentrations. Consistent with the MOU, the residual radioactive material concentrations for Cobalt-60, Cesium-137, and Strontium-90 (as determined from the sample analyses) were aggregated using the SOF approach to determine the site-specific consultation trigger values for each of the 41 LACBWR survey units.

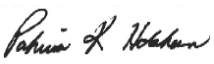
Using the MARSSIM guidance, the analytical results from the LACBWR soil samples were used to calculate the average SOF values for the 41 survey units. Although the LACBWR site intends to implement the industrial use scenario, the NRC staff also compared the average SOF values for each survey unit to the residential use scenario soil concentrations. The NRC staff determined that none of the survey unit average concentrations exceeded the SOF trigger value of 1.0 when compared to Table 1 of the EPA MOU for either the industrial use or the residential use dose scenarios. In addition, although not required by the MOU, when comparing the actual LACBWR FSS radionuclide analysis results to the MOU trigger levels for soil concentration in picocuries per gram (pCi/g), the NRC did not identify any measurement of soil concentration that exceeded the MOU trigger levels. The maximum Cesium-137 concentration is 1.04 pCi/g (trigger level = 6 pCi/g for the residential scenario and 11 pCi/g for the industrial scenario) and the maximum Cobalt-60 concentration is 2.01 pCi/g (trigger level = 4 pCi/g for the residential scenario and 6 pCi/g for the industrial scenario). The Strontium-90 concentration in the LACBWR soil samples did not exceed the surrogate cesium to strontium ratio determined by the NRC staff to remain below the MOU trigger levels. After evaluating this information, the NRC determined that a Level 2 consultation with the EPA under the MOU is not required.

The NRC staff is currently conducting a final review of the LACBWR FSS reports in support of a partial site release that will terminate the NRC license outside the boundary of the remaining onsite independent spent fuel storage installation, which encompasses approximately 39 acres. The NRC expects to issue a license termination decision within the next several months.

In accordance with 10 CFR 2.390, a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's ADAMS. ADAMS is accessible from the NRC Web site at https://www.nrc.gov/reading-rm/adams.html.

If you or your staff have any questions regarding this letter, or the ongoing license termination activities at the LACBWR site, please contact Bruce Watson, CHP at 301-415-6221 or via email at bruce.watson@nrc.gov or David Hills at 630-829-9733 or via email at david.hills@nrc.gov.

Sincerely,


Signed by Holahan, Patricia
on 09/03/21

Patricia K. Holahan, Director
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

Docket Nos.: 50-409 and 72-046
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Letter to B. Lowery from P. Holahan - La Crosse Boiling Water Reactor, EPAPhase 2 Closeout DATE September 3, 2021

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