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

July 10, 2015

Mr. Heinz Mueller
U.S. Environmental Protection Agency
Region 4
NEPA Program Office
61 Forsyth Street, SW
Atlanta, GA 30303

SUBJECT: RESPONSE TO U.S. ENVIRONMENTAL PROTECTION AGENCY REGION 4 COMMENTS ON FINAL PLANT-SPECIFIC SUPPLEMENT 53 TO THE GENERIC ENVIRONMENTAL IMPACT STATEMENT FOR LICENSE RENEWAL OF NUCLEAR PLANTS REGARDING SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

Dear Mr. Mueller:

This letter is in response to your letter dated May 18, 2015, which provided comments on final plant-specific Supplement 53 to the Generic Environmental Impact Statement for license renewal of nuclear plants regarding Sequoyah Nuclear Plant (SQN), Units 1 and 2. Our responses to your comments are provided in the enclosure to this letter.

If further information is required, please contact Mr. David Drucker, Senior Project Manager for the environmental review of the SQN license renewal application, by telephone at 301-415-6223 or by e-mail at david.drucker@nrc.gov.

Sincerely,

/RA/

James G. Danna, Chief
Projects Branch 2
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-327 and 50-328

Enclosure:
As stated

cc w/encl: Listserv

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DATE	6/05/15	6/23/15	7/9/15	7/10/15

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Letter from J. Danna to H. Mueller dated July 10, 2015

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DDrucker
JDanna
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U.S. NUCLEAR REGULATORY COMMISSION STAFF RESPONSES TO
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION 4 COMMENTS ON
FINAL PLANT-SPECIFIC SUPPLEMENT 53 TO THE GENERIC ENVIRONMENTAL IMPACT
STATEMENT FOR LICENSE RENEWAL OF NUCLEAR PLANTS REGARDING
SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

U.S. Environmental Protection Agency (EPA) Comment 1: Climate Change: We recognize that TVA, in accordance with Executive Order 131514 (Federal Leadership in Environmental, Energy, and Economic Performance), has developed a Strategic Sustainable Performance Plan that identifies the actions and measures to reach GHG emission reduction targets by 2020 for its facilities. We recommend that additional information on measures that are specifically related to operation of SQN be documented. In addition, we recommend including a discussion of how SQN will ensure consideration of any appropriate climate adaption measures during the relicensing period.

Response: *Tennessee Valley Authority (TVA)'s Strategic Sustainability Performance Plan provides a comprehensive plan that identifies the actions to reduce greenhouse gas (GHG) emissions from TVA operations as a whole and does not provide actions specific to Sequoyah Nuclear Plant (SQN). The intent of identifying that TVA, in accordance with Executive Order 13514, has developed a Strategic Sustainability Performance Plan in the Cumulative Impacts section of the SQN Supplemental Environmental Impact Statement (SEIS) (Section 4.16.11) was to identify efforts that can result in a reduction of GHG emissions of global significance to climate change, not to suggest that SQN GHG emissions specifically would decrease. Furthermore, the SEIS did not examine SQN GHG emission reductions because as discussed in Section 4.15.3.1 of the SEIS, GHG emissions from operation of SQN are substantially lower than the natural gas combined-cycle and supercritical pulverized coal alternatives. GHG emissions from SQN are below EPA's threshold of 25,000 metric tons of carbon dioxide equivalents (CO_2eq), which requires certain facilities to report GHG emissions to the EPA annually in accordance with Title 40 of the Code of Federal Regulations Part 98. Additionally, GHG emissions from SQN are orders of magnitude smaller relative to various GHG inventories presented in Section 4.16.11. Section 4.16.11 concludes that the incremental impacts from the contribution of GHG emissions from continued operation of SQN on climate change would be SMALL.*

As discussed in response to comments on the SQN Draft SEIS provided by EPA Region 4 related to climate change adaptation, all currently operating nuclear power plants are located in consideration of site-specific environmental conditions. This siting analysis included consideration of meteorological and hydrologic siting criteria set forth in Title 10 of the Code of Federal Regulations (10 CFR) Part 100, as applicable, and nuclear power plants were designed and constructed in accordance with 10 CFR Part 50, Appendix A, General Design Criteria. If new information or operating experience becomes available, the U.S. Nuclear Regulatory Commission (NRC) staff evaluates the new information to determine if any changes are needed at existing plants through its oversight process. Adaptation measures in response to climate change impacts on the environment are discussed in the SEIS, as applicable. For instance, the surface water cumulative impacts section (Section 4.16.3.1) discusses actions that may occur as a result of rising river water temperatures. These include power reductions and decreases in water withdrawals in order to maintain Chickamauga Reservoir temperatures in accordance with SQN's National Pollutant Discharge Elimination System permit. Plant operations are dictated by

NRC-issued operating license technical specifications which ensure that plants operate safely at all times. For instance, technical specifications and operating procedures exist for ensuring that optimal cooling water is maintained to ensure safe operation of the facility. Otherwise, a plant must reduce power or shut down. Where licensees propose physical alterations to their plants or propose changes in operating conditions contrary to operating license technical specifications, the NRC must conduct both safety and environmental reviews of any such license amendment requests, which is a separate process from the license renewal environmental review.

EPA Comment: Flooding: We recommend clarification and documentation of the status of SQN's flood re-evaluation which was requested by NRC (pages A-38 – A-39).

Response: *Pages A-38 and A-39 of the SQN SEIS state: "For instance, as part of the Japan lessons-learned activities resulting from the 2011 earthquake and tsunami, the NRC has used its regulatory authority under 10 CFR 50.54 to request flood re-evaluations of existing nuclear power plants (see ADAMS No. ML12053A340). Licensees of operating nuclear power plants have been asked to reevaluate the flooding hazards that could affect their sites using present-day information. These newly reevaluated hazards, if worse than what the plant had originally calculated upon initial licensing, will be analyzed to determine whether plant structures, systems, and components need to be updated to protect against the new hazards."*

TVA submitted a Flooding Hazard Reevaluation Report (FHRR) to the NRC on March 12, 2015. NRC staff has begun review of the document and plans to issue a Staff Assessment by September 2017. This assessment will identify those areas of the FHRR that the NRC staff find acceptable and those that require further information from TVA or action by TVA. Updates on the status of SQN's flood re-evaluation is found on the "Implementation Status" page under the Japan Lessons Learned section of the NRC public Web site at:
http://www.nrc.gov/reactors/operating/ops-experience/japan-dashboard/japan-plants.html

EPA Comment: Seismic Hazards: Appendix A provides additional information responsive to our comment regarding seismic hazard maps. However, it is unclear how recently the seismic characterization independent of USGS characterization took place for the earthquake zone near Sequoyah. We recommend that the status of the NRC's most recent assessment of seismic hazards be clarified and documented.

Response: *The seismic source characterization used for evaluating seismic risk for SQN is the Central and Eastern United States Seismic Source Characterization model (CEUS SSC) documented in NUREG-2115, "Central and Eastern United States Seismic Source Characterization for Nuclear Facilities", along with the appropriate Electric Power Research Institute seismic ground motion models. The CEUS SSC was developed over the period from April 2008 to December 2011 to provide a regional seismic source model for use in probabilistic seismic hazard analyses for nuclear facilities. NUREG-2115 is available at http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr2115/. Please note that NUREG-2115 provides a regional seismic source model and nuclear power plant licensees need to review their source model to see if there are updates or local sources to be included in their source characterization.*

The most recent NRC seismic hazard assessment not only includes seismic source characterization, but also ground motion prediction and site response analysis. All three of these seismic hazard components need to be implemented by licensees following current NRC standards and criteria. The NRC issued a staff assessment of the SQN reevaluated seismic

hazard by letter dated April 27, 2015. This assessment is available at http://pbadupws.nrc.gov/docs/ML1509/ML15098A641.pdf.

As discussed in response to EPA Region 4 comments related to seismic issues on the SQN Draft SEIS, the NRC's assessment of seismic hazards for existing nuclear power plants is a separate and distinct process from license renewal reviews. As such, decisions and recommendations concerning seismic risk at nuclear power plants are outside the regulatory scope of the license renewal environmental review.