



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

February 6, 2019

Mr. Joseph W. Shea
Vice President, Nuclear Regulatory Affairs
and Support Services
Tennessee Valley Authority
1101 Market Street, LP 4A
Chattanooga, TN 37402-2801

**SUBJECT: WATTS BAR NUCLEAR PLANT, UNITS 1 AND 2 – ENVIRONMENTAL
ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT RELATED TO
APPLICATION TO REVISE WATTS BAR UNIT 2 TECHNICAL SPECIFICATION
4.2.1, "FUEL ASSEMBLIES," AND WATTS BAR UNITS 1 AND 2 TECHNICAL
SPECIFICATIONS RELATED TO FUEL STORAGE (EPID L-2017-LLA-0427)**

Dear Mr. Shea:

Enclosed is a copy of the Environmental Assessment and Finding of No Significant Impact related to your application for amendment dated December 20, 2017, as supplemented on February 15, April 9, and October 4, 2018. The proposed amendment would revise Technical Specification (TS) 4.2.1, "Fuel Assemblies," for Watt Bar Nuclear Plant (WBN), Unit 2, to allow up to 1,792 tritium producing burnable absorber rods in the reactor; and revisions to the WBN Units 1 and 2 TSs related to fuel storage.

The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,

A handwritten signature in black ink, appearing to read "John G. Lamb", is written over a printed name block.

John G. Lamb, Senior Project Manager
Special Projects and Process Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-390 and 50-391

Enclosure:
Environmental Assessment

cc: Listserv

ENCLOSURE

FEDERAL REGISTER NOTICE

NUCLEAR REGULATORY COMMISSION

Docket Nos. 50-390 and 50-391; NRC-2019-0046

Tennessee Valley Authority;

Watts Bar Nuclear Plant, Units 1 and 2

AGENCY: Nuclear Regulatory Commission.

ACTION: Environmental assessment and finding of no significant impact; issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of amendments to licenses held by Tennessee Valley Authority (TVA, the licensee) for the operation of Watts Bar Nuclear Power Plant (WBN), Units 1 and 2. The proposed amendments would revise the WBN, Unit 2 Technical Specification (TS) 4.2.1, Fuel Assemblies, to add a limit on the number of tritium producing burnable absorber rods (TPBARs) that can be irradiated. This license amendment request also provides proposed changes to the WBN, Units 1 and 2 TSs related to the new criticality analyses performed for the spent fuel storage racks. The NRC is issuing an environmental assessment (EA) and finding of no significant impact (FONSI) associated with the proposed license amendments.

DATES: The EA and FONSI referenced in this document is available on **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Please refer to Docket ID **NRC-2019-0046** when contacting the NRC about the availability of information regarding this document. You may obtain publicly-available information related to this document using any of the following methods:

- **Federal Rulemaking Web Site:** Go to <http://www.regulations.gov> and search for Docket ID **NRC-2019-0046**. Address questions about NRC Docket IDs in Regulations.gov to Krupskaya Castellon; telephone: 301-287-9221; e-mail: Krupskaya.Castellon@nrc.gov. For technical questions, contact the individual listed in the **FOR FURTHER INFORMATION CONTACT** section of this document.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly-available documents online in the ADAMS Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "[Begin Web-based ADAMS Search.](#)" For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr.resource@nrc.gov. The ADAMS accession number for each document referenced (if it is available in ADAMS) is provided the first time that it is mentioned in this document. In addition, for the convenience of the reader, the ADAMS accession numbers are provided in a table in the "Availability of Documents" section of this document.

- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

FOR FURTHER INFORMATION CONTACT: John G. Lamb, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-3100; e-mail: John.Lamb@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Introduction

The NRC is considering issuance of amendments to Facility Operating License Nos. NFP-90 and NFP-96, issued to TVA for operation of the WBN, Units 1 and 2, located in Rhea County, Tennessee.

In accordance with section 51.21 of title 10 of the *Code of Federal Regulations* (10 CFR), the NRC prepared the following EA that analyzes the environmental impacts of the proposed licensing action. Based on the results of this EA, and in accordance with 10 CFR 51.31(a), the NRC has determined not to prepare an environmental impact statement for the proposed licensing action, and is issuing a FONSI.

II. Environmental Assessment

Description of the Proposed Action

The proposed action would revise the WBN, Unit 2 TS 4.2.1, Fuel Assemblies to allow up to 1,792 TPBARs to be irradiated in the reactor core. The proposed action would also revise the WBN, Units 1 and 2 TS 3.7.15, Spent Fuel Assembly Storage, to simplify the fuel storage limitations on fuel assemblies by eliminating the burnup-related criteria; TS 3.9.9, Spent Fuel Pool Boron Concentration, to modify the minimum fuel storage pool boron concentration during refueling operations when fuel is stored in the pool; and TS 4.3, Fuel Storage, to replace the storage limitations on fuel assembly burnup and storage with a single requirement to maintain a specified boron concentration in the spent fuel pool. The proposed action would also add the WBN, Units 1 and 2 TS 3.7.18, Fuel Storage Pool Boron Concentration, to specify the minimum fuel storage pool boron concentration when fuel is stored in the pool, and TS 5.7.2.21, Spent Fuel Storage Rack Neutron Absorber Monitoring Program, to monitor the

condition of the neutron absorber material used in the spent fuel pool storage racks to ensure it will continue to perform its assumed design functions.

The proposed action is also described in the licensee's application dated December 20, 2017 (ADAMS Accession No. ML17354B282), as supplemented by letters dated February 15, 2018 (ADAMS Accession No. ML18047A181), April 9, 2018 (ADAMS Accession No. ML18100A953) and October 4, 2018 (ADAMS Accession No. ML18283A107).

Need for the Proposed Action

The U.S. Department of Energy (DOE) and TVA are cooperating in a program to produce tritium for the National Security Stockpile by irradiating TPBARs at the WBN site. Tritium is produced when the neutrons produced by nuclear fission in the core are absorbed by the lithium target material of the TPBAR. A solid zirconium metal cladding covering the TPBAR (called a getter) captures the tritium produced. Most of the tritium is contained within the TPBAR, however, some tritium permeates through the TPBAR cladding and is released into the reactor coolant system.

This proposed action is needed to support the DOE, National Nuclear Security Administration, national security stockpile needs in accordance with Public Law (PL) 106-65. Section 3134 of PL 106-65 directs the Secretary of Energy to produce new tritium at TVA's WBN site. By letter dated June 23, 2016 (ADAMS Accession No. ML18283A107), the NRC approved a similar amendment to irradiate 1,792 TPBARs in the WBN, Unit 1 reactor core. The EA and FONSI for that licensing action was completed June 23, 2016, and can be found in ADAMS (Accession No. ML16138A045).

Environmental Impacts of the Proposed Action

The proposed action consists of revising the WBN, Unit 2 TSs to allow and limit the number of TPBARs that can be irradiated in the reactor core. This license

amendment request also provides proposed changes for both the WBN, Units 1 and 2 TSs related to the new criticality analyses performed for the spent fuel storage racks to allow the proper safe handling and storage of spent fuel, including TPBARs, at the WBN site.

The radiological and nonradiological impacts on the environment that may result from the proposed action are summarized below.

Non-Radiological Impacts

The proposed changes would have no direct impacts on land use or water resources, including terrestrial and aquatic biota, as they involve no new construction or modification of plant operational systems. There would be no changes to the quality or quantity of nonradiological effluents and no need to change the plant's National Pollutant Discharge Elimination System permit. There would be no changes in air pollutant emissions or ambient air quality from the proposed changes. In addition, there would be no noticeable effect on socioeconomic conditions in the region, no environment justice impacts, and no impacts to historic and cultural resources from the proposed TS changes. Therefore, there are no significant nonradiological environmental impacts associated with the proposed action.

Radiological Impacts

Radioactive Gaseous and Liquid Effluents and Solid Waste

The WBN, Units 1 and 2, utilize waste treatment systems to collect, process, recycle, and dispose of gaseous and liquid effluents and solid wastes that contain radioactive material in a safe and controlled manner within NRC and U.S. Environmental Protection Agency's radiation safety standards. Implementation of the proposed action would result in allowing the WBN, Unit 2, to irradiate up to 1,792 TPBARs, per cycle in the reactor core. This is the same number of TPBARs authorized by the NRC for the

WBN, Unit 1 reactor core. This would also affect the quantities of radioactive material generated from WBN, Unit 2 as some tritium permeates through the TPBAR cladding and is released into the reactor coolant system. The average observed TPBAR tritium permeation rate for the WBN, Unit 1 tritium production is approximately 3 Curi per TPBAR per year (Ci/TPBAR/year), with the maximum observed permeation rate being approximately 4.8 Ci/TPBAR/year. For the purposes of assessing the environmental impacts and regulatory compliance of this proposed action for the WBN, Unit 2 tritium production, TVA assumed a core load of 1,792 TPBARs with a permeation rate of 5.0 Ci/TPBAR/year of tritium, which is a conservative source term that bounds the observed and maximum TPBAR tritium permeation rate. While the quantity of tritium generated during plant operations will increase under the proposed action, current radioactive waste treatment systems will be able to handle that increase according to TVA.

Radioactive Gaseous Effluents

The WBN, Unit 2, maintains a gaseous waste management system (GWMS) that is designed to process and control the release of radioactive gaseous effluents into the environment in accordance with the requirements of 10 CFR 20.1301, Dose limits for individual members of the public, and to ensure consistency with the as low as reasonably achievable (ALARA) dose objectives set forth in appendix I to 10 CFR part 50.

As stated above relative to TVA's license amendment request, TVA assumed a core load of 1,792 TPBARs with a permeation rate of 5.0 Ci/TPBAR/year of tritium, which is a conservative source term that bounds the observed and maximum TPBAR tritium permeation rate as seen from the WBN, Unit 1 tritium production.

To determine whether the gaseous effluents would fall within the requirements of 10 CFR 20.1301, TVA calculated the sum of the ratios of each isotope concentration (C)

to its corresponding gaseous Effluent Concentration Limit (ECL, as listed in 10 CFR part 20, appendix B, Table 2, Column 1). Consistent with the requirements of 10 CFR 20.1302(b)(2)(i), a C/ECL sum of less than 1.0 indicates that the annual average effluent release is within the limits of 10 CFR 20.1301. Tables 4.1-31 and 32 of the license amendment request demonstrate that TVA's calculated C/ECL sums for gaseous effluent releases at the WBN, Unit 2 from an assumed core load of 1,792 TPBARs for containment purge without filtration would be 4.52×10^{-1} and would be 4.01×10^{-1} with continuous filtration. TVA's calculated C/ECL sums for gaseous effluent releases for both of the WBN, Units 1 and 2 (dual operation) for containment purge without filtration would be 9.12×10^{-1} and would be 8.02×10^{-1} with continuous filtration. Both sets of numbers are within the maximum C/ECL limit of 1.0 according to TVA.

To determine whether the gaseous effluents are consistent with the ALARA dose objectives set forth in appendix I to 10 CFR part 50 (which are per-unit numbers) TVA calculated bounding public doses from the applicable plant effluent dose pathways with the tritium release attributable to TPBAR permeability. These doses were based on an assumed core load of 1,792 TPBARs and the methods and assumptions in the current WBN Offsite Dose Calculation Manual (ODCM), (documented in the Watts Bar Nuclear Plant 2017, Annual Radioactive Effluent Release Report (ADAMS Accession No. ML18120A138). TVA calculated that the Whole Body dose to a Maximally Exposed Individual from the WBN, Unit 2 would be 0.63 millirem (mrem) (0.0063 millisievert (mSv)), which is much less than the Whole Body dose objective in appendix I to 10 CFR part 50 of 5.00 mrem (0.05 mSv). TVA also calculated that the Organ Dose (Thyroid) to the Maximally Exposed Individual from the WBN, Unit 2 would be 8.30 mrem (0.083 mSv), which is less than the Organ dose objective in appendix I to 10 CFR part 50 of 15.00 mrem (0.15 mSv).

Doses would be assumed to double (1.26 mrem or 0.0126 mSv Whole Body and 16.6 mrem or 0.166 mSv Organ Dose (Thyroid)) for dual reactor tritium production at both the WBN, Units 1 and 2, which would be within the appendix I to 10 CFR part 50 dose objective as they are per-unit numbers as stated above, and would also double according to TVA.

Based on the above, the NRC staff finds that the TVA's analyses have demonstrated that WBN, Unit 2, can be operated with the proposed maximum core loading of 1,792 TPBARs and that the current GWMS can maintain the gaseous effluents within the Effluent Concentration Limits listed in 10 CFR part 20, appendix B to meet the dose limit requirements to members of the public in 10 CFR 20.1301, as well as maintain doses to the public ALARA as per the dose objectives set forth in appendix I to 10 CFR part 50. Therefore, the NRC staff concludes that there would be no significant radiological impact from gaseous effluents under the proposed action.

Radioactive Liquid Effluents

The WBN, Unit 2 liquid radioactive waste system (LRWS) is used to collect and process radioactive liquid wastes to reduce radioactivity and chemical concentrations to levels acceptable for discharge to the environment according to TVA. The LRWS maintains sufficient processing capability so that liquid waste may be discharged to the environment below the regulatory limits of 10 CFR 20.1301 and consistent with the ALARA dose objectives in appendix I to 10 CFR part 50. The WBN, Units 1 and 2 share three large storage tanks in the LRWS, which includes a Tritiated Water Storage Tank with a capacity of 500,000 gallons. This storage tank supports managing large volume/high tritium concentrations in the reactor coolant system for both Units 1 and 2. These storage tanks can be used for liquid effluent holdup, dilution, and timing of releases to ensure that regulatory requirements are met. Release of radioactive liquids

from the LRWS only occurs after laboratory analysis of the storage tank contents. If the activity is found to be above ODCM limits, the liquid waste streams are returned to the system for further processing by a mobile demineralizer. If the activity is found to be below the ODCM limits, the liquid waste stream is pumped to a discharge pipe where it is monitored for radiation levels and flowrate before it enters the Cooling Tower Blowdown line, where it can ultimately be discharged by permit into the Tennessee River.

To determine whether the liquid effluents are within the requirements of 10 CFR 20.1301, TVA calculated the sum of the ratios of each isotope concentration (C) to its corresponding liquid Effluent Concentration Limit (ECL as listed in 10 CFR part 20, appendix B, Table 2, Column 2). Consistent with the requirements of 10 CFR 20.1302(b)(2)(i), a C/ECL sum of less than 1.0 indicates that the annual average effluent release is within the limits of 10 CFR 20.1301. Tables 4.1-28 through 30 of the license amendment request show TVA's calculated C/ECL sums for liquid effluent releases from an assumed core load of 1,792 TPBARs. Table 4.1-28 indicates that extended effluent releases, without processing the liquid radioactive waste streams through the mobile demineralizer or allowing for sufficient dilution of the radioactive waste stream, would not meet the regulatory requirements of 10 CFR 20.1301. The calculated C/ECL for the WBN, Unit 2 in this scenario is 5.23, which is greater than the maximum allowable C/ECL of 1.0. Dual operation of both the WBN, Units 1 and 2 in this scenario would yield a C/ECL of 10.5.

To ensure that the effluent concentration limits of 10 CFR 20.1301 are met, Section 11.2.6.5 of the Final Safety Analysis Report states that "No untreated wastes are released unless they are below the Lower Limit of Detection." Table 4.1-29 of the license amendment request demonstrates that TVA's calculated C/ECL sum for liquid

effluent releases for the WBN, Unit 2 processed through the mobile demineralizer would be 4.18×10^{-1} . Dual operation of both the WBN, Units 1 and 2 in this scenario would yield a C/ECL of 8.35×10^{-1} . Table 4.1-30 demonstrates that TVA's calculated C/ECL for liquid effluents not processed through the mobile demineralizer, but sufficiently diluted before release, would be 4.23×10^{-1} . Dual operation of both the WBN, Units 1 and 2 in this scenario would yield a C/ECL of 8.47×10^{-1} . All numbers for both scenarios are within the maximum C/ECL limit of 1.0.

To determine whether the liquid effluents are consistent with the ALARA dose objectives set forth in appendix I to 10 CFR part 50, TVA calculated bounding public doses from the applicable plant effluent dose pathways with the tritium release attributable to TPBAR permeability. These doses were based on an assumed core load of 1,792 TPBARs and the methods and assumptions in the current ODCM. TVA calculated that the Whole Body dose to a Maximally Exposed Individual from liquid effluents would be 0.37 mrem (0.0037 mSv), which is much less than the Whole Body dose objective in appendix I to 10 CFR part 50 of 3.00 mrem (0.03 mSv). TVA also calculated that the Organ Dose (Liver) to the Maximally Exposed Individual from liquid effluents would be 0.49 mrem (0.0049 mSv), which is much less than the Organ dose objective in appendix I to 10 CFR part 50 of 10.00 mrem (0.15 mSv).

Doses would be assumed to double (0.74 mrem or 0.0074 mSv Whole Body and 0.98 mrem or 0.098 mSv Organ Dose (Liver)) for dual reactor tritium production at both the WBN, Units 1 and 2, which would be within the appendix I to 10 CFR part 50 dose objective as they are per-unit numbers as stated above, and would also double according to TVA.

The NRC staff finds that TVA has demonstrated that WBN, Unit 2, can be operated with the proposed maximum core loading of 1,792 TPBARs, and that with

processing of the liquid radioactive waste streams through the demineralizer, or allowing for proper dilution of the liquid radioactive waste streams, the current LRWS can maintain the liquid effluents within the Effluent Concentration Limits listed in 10 CFR part 20, appendix B. Specifically, doses from liquid effluents would meet the requirements regarding members of the public in 10 CFR 20.1301 as well as maintain the public ALARA dose objectives set forth in appendix I to 10 CFR part 50. Therefore, the NRC staff concludes that there would be no significant radiological impact from gaseous effluents under the proposed action.

Solid Radioactive Wastes

Solid radioactive wastes generated by nuclear power plant operations at WBN, Units 1 and 2, are processed, packaged, and stored until they are shipped offsite to a vendor for further processing or to a licensed facility for permanent disposal, or both. The storage areas have restricted access and shielding to reduce radiation rates to plant workers. Solid radioactive wastes are packaged and transported in compliance with NRC's regulations in 10 CFR parts 61, Licensing Requirements for Land Disposal of Radioactive Waste, and 71, Packaging and Transportation of Radioactive Material, and the U.S. Department of Transportation regulations in 49 CFR parts 170 through 179; and to maintain the dose limits of 10 CFR 20.1201, 10 CFR 20.1301, and design objectives in appendix I to 10 CFR part 50.

Implementation of the proposed action would increase the activity and volume of solid radioactive waste due to the irradiation of the TPBAR base plates and thimble plugs, which remain after TPBAR consolidation activities. For the consolidation process, plant operators will remove the irradiated TPBAR assemblies from the spent fuel assemblies, disassemble all the irradiated TPBARs for consolidation, and place them into consolidation canisters. Operators will return the loaded consolidation canisters to

the spent fuel racks, where they will remain until removed from the site. Offsite shipment and ultimate disposal would be conducted in accordance with agreements between TVA and DOE. The disposal volume of the TPBAR base plates and thimble plugs is estimated to be 33.3 cubic feet (0.942 cubic meters) per year. This additional volume represents a slight increase in the WBN, Units 1 and 2, annual estimated solid waste generation from 65,640 cubic feet (1859 cubic meters) per year to 65,706 cubic feet (1861 cubic meters) per year. This projected increase in volume can be handled by the existing equipment and plant procedures that control radioactive solid waste handling without modification. The estimated increase in activity inventory attributable to the handling of the TPBAR base plates and thimble plugs ranges from approximately 3,600 Ci/yr (1.33×10^{14} Bq/yr) to 11,060 Ci/yr (4.09×10^{14} Bq/yr). While there would be increased activity associated with implementation of the proposed action, the existing equipment and plant procedures that control radioactive solid waste handling will continue to be used to maintain plant personnel exposures within the dose limits of 10 CFR 20.1201, 10 CFR 20.1301, and design objectives in 10 CFR part 50, appendix I. Based on the above, the NRC staff concludes that there would be no significant radiological impact from solid radioactive waste management under the proposed action.

Spent Fuel Generation, Storage, and Handling

The number of spent fuel bundles would increase by approximately four per cycle with implementation of the proposed action. WBN, Units 1 and 2, currently store spent fuel in spent fuel pools on site and in an independent spent fuel storage installation. There will be adequate spent fuel storage available on site, therefore, the NRC staff concludes that there would be no significant radiological impact from spent fuel generation and storage under the proposed action.

As stated above in Section II of this document, the proposed action would also revise the WBN, Units 1 and 2 TS 3.7.15, Spent Fuel Assembly Storage, to simplify the fuel storage limitations on fuel assemblies by eliminating the burnup-related criteria; TS 3.9.9, Spent Fuel Pool Boron Concentration, to modify the minimum fuel storage pool boron concentration during refueling operations when fuel is stored in the pool; and TS 4.3, Fuel Storage, to replace the storage limitations on fuel assembly burnup and storage with a single requirement to maintain a specified boron concentration in the spent fuel pool. The proposed action would also add the WBN, Units 1 and 2 TS 3.7.18, Fuel Storage Pool Boron Concentration, to specify the minimum fuel storage pool boron concentration when fuel is stored in the pool, and TS 5.7.2.21, Spent Fuel Storage Rack Neutron Absorber Monitoring Program, to monitor the condition of the neutron absorber material used in the spent fuel pool storage racks to ensure it will continue to perform its assumed design functions. These proposed changes would have no direct radiological environmental impacts. There would be no change to the types or amounts of radioactive effluents that may be released and, therefore, no change in occupational or public radiation exposure from the proposed changes. No changes would be made to plant buildings or the site property from these proposed changes. Therefore, there would be no significant radiological environmental impacts associated with these TS changes.

Occupational Radiation Doses

At WBN, Units 1 and 2, TVA maintains a radiation protection program to monitor radiation levels throughout the nuclear power plant to establish appropriate work controls, training, temporary shielding, and protective equipment requirements so that worker doses will remain within the dose limits of 10 CFR part 20, subpart C, Occupational Dose Limits. Implementation of the proposed action would affect the

quantities of radioactive material generated during plant operations since some tritium permeates through the TPBAR cladding and is released into the reactor coolant system, as previously described.

Separate from the environmental review for this EA, the NRC staff is evaluating the licensee's technical and safety analyses provided in TVA's license amendment request to ensure the licensee continues to meet NRC regulatory requirements for occupational dose. The results of the NRC staff's safety review and conclusion will be documented in a safety evaluation that will be made publicly available following issuance of the EA. If the NRC staff concludes in the safety evaluation that the requested number of 1,792 TPBARs that can be irradiated, per cycle, in the WBN, Unit 2 core and the proposed changes related to the new criticality analyses performed for the spent fuel storage racks comply with NRC regulations for occupational dose, then granting the proposed license amendments will not have a significant radiological impact to workers.

Design-Basis Accidents

Design-basis accidents are evaluated by both TVA and the NRC staff to ensure that WBN, Units 1 and 2, can withstand the spectrum of postulated accidents without undue hazard to public health and safety and ensure the protection of the environment.

The NRC staff is evaluating the licensee's technical and safety analyses provided in the proposed license amendments to ensure the licensee continues to meet the NRC regulatory requirements for safe operation. The results of the NRC staff's safety review and conclusion will be documented in a safety evaluation that will be made publicly available following issuance of the EA. If the NRC staff concludes in the safety evaluation that 1,792 TPBARs irradiated, per cycle, in the WBN, Unit 2 core and the proposed changes related to the new criticality analyses performed for the spent fuel storage racks comply with NRC regulations, and there is reasonable assurance that

public health and safety will not be endangered, then granting the proposed license amendments will not have a significant environmental impact.

Radiological Impacts Summary

Based on the radiological evaluations presented in this EA, with the exception of the impacts associated with occupational dose and design-basis accidents, which the NRC staff are evaluating separately, implementation of the proposed action would not result in any significant radiological impacts. If the NRC staff concludes in the safety evaluation that 1,792 TPBARs irradiated, per cycle, in the WBN, Unit 2 core and the proposed changes related to the new criticality analyses performed for the spent fuel storage racks comply with NRC regulations, and there is reasonable assurance that public health and safety will not be endangered, then granting the proposed license amendments will not have a significant radiological impact to workers or the environment.

Environmental Impacts of the Alternatives to the Proposed Action

As an alternative to the proposed action, the NRC staff considered denial of the license amendment request (i.e., the no-action alternative). Denial of the license amendment request would result in no change in current environmental impacts. Accordingly, the environmental impacts of the proposed action and the no-action alternative are similar.

Alternative Use of Resources

There are no unresolved conflicts concerning alternative uses of available resources under the proposed action.

Agencies and Persons Consulted

An official of the State of the Tennessee was notified about the environmental assessment and the state official had no comments.

III. Finding of No Significant Impact

The licensee has requested license amendments pursuant to 10 CFR 50.90, Application for amendment of license, construction permit, or early site permit, to revise the WBN, Unit 2 TSs to allow up to 1,792 TPBARs to be irradiated in the reactor core. The license amendments also provide proposed changes for both the WBN, Units 1 and 2 TSs related to the new criticality analyses performed for the spent fuel storage racks to allow the proper safe handling and storage of spent fuel, including TPBARs, at the WBN site. The NRC is considering issuing the requested amendments. The proposed action would not significantly affect plant safety, would not have a significant adverse effect on the probability of an accident occurring, and would not have any significant radiological or nonradiological impacts. The reason the environment would not be significantly affected is because while the proposed changes would result in increased radiological plant effluents and offsite doses, those numbers would still be within the regulatory limits as stated in 10 CFR part 20 and design objectives in appendix I to 10 CFR part 50. This FONSI incorporates by reference the EA in Section II of this notice. Therefore, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined there is no need to prepare an environmental impact statement for the proposed action.

Previous considerations regarding the environmental impacts of operating Watts Bar, Units 1 and 2, in accordance with their operating licenses, are described in NUREG-0498, Final Environmental Statement Related to Operation of Watts Bar Nuclear Plant, Units 1 and 2, dated December 1978, and NUREG-0498, Supplement 1, dated April 1995, and NUREG-0498, Supplement 2, Final Environmental Statement Related to Operation of Watts Bar Nuclear Plant, Unit 2, dated May 2013 (ADAMS Package Accession Nos. ML082540803, ML081430592, and ML13144A092).

This FONSI and other related environmental documents may be examined, and/or copied for a fee, at the NRC's PDR, located at One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852. Publicly-available records are also accessible online in the ADAMS Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS should contact the NRC's PDR reference staff by telephone at 1-800-397-4209 or 301-415-4737, or by e-mail to pdr.resource@nrc.gov.

IV. Availability of Documents

The documents identified in the following table are available to interested persons through ADAMS.

DOCUMENT	ADAMS ACCESSION NO.
NUREG-0498 - Final Environmental Statement Related to Operation of Watts Bar Nuclear Plant, Units 1 and 2, dated December 1978.	ML082540803
NUREG-0498 - Final Environmental Statement Related to the Operation of Watts Bar Nuclear Plant, Units 1 and 2, Supplement 1, dated April 1995.	ML081430592
NUREG-0498 - Final Environmental Statement Related to the Operation of Watts Bar Nuclear Plant, Unit 2, Supplement 2, dated May 2013.	ML13144A092
Watts Bar Nuclear Plant, Unit 1: Environmental Assessment and Finding of No Significant Impact Related to License Amendment Request to Revise Technical Specification 4.2.1, Fuel Assemblies, dated June 23, 2016.	ML16138A045
TVA letter to NRC, Application to Revise Watts Bar Unit 2 Technical Specification 4.2.1, Fuel Assemblies, and Watts Bar Units 1 and 2 Technical Specifications Related to Fuel Storage (WBN-TS-17-028), dated December 20, 2017.	ML17354B282

TVA letter to NRC, Correction to Application to Revise Watts Bar Unit 2 Technical Specification 4.2.1, Fuel Assemblies, and Watts Bar Units 1 and 2 Technical Specifications Related to Fuel Storage (WBN-TS-17-028), dated April 9, 2018.	ML18100A953
TVA letter to NRC, Response to Request for Additional Information Regarding Application to Revise Watts Bar Unit 2 Technical Specification 4.2.1, Fuel Assemblies, and Watts Bar Units 1 and 2 Technical Specifications Related to Fuel Storage (WBN-TS-17-028) (EPID L-2017-LLA-0427), dated October 4, 2018.	ML18283A107
WBN Offsite Dose Calculation Manual, as documented in the Watts Bar Nuclear Plant Annual Radioactive Effluent Release Report - 2017, dated April 30, 2018.	ML18120A138

Dated at Rockville, Maryland, this 6th day of February 2019.

For the Nuclear Regulatory Commission.

/RA/

John G. Lamb, Senior Project Manager,
Special Projects and Process Branch,
Division of Operating Reactor Licensing,
Office of Nuclear Reactor Regulation.

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ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT RELATED TO
APPLICATION TO REVISE WATTS BAR UNIT 2 TECHNICAL SPECIFICATION
4.2.1, "FUEL ASSEMBLIES," AND WATTS BAR UNITS 1 AND 2 TECHNICAL
SPECIFICATIONS RELATED TO FUEL STORAGE (EPID L-2017-LLA-0427)
DATED FEBRUARY 6, 2019

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ADAMS Accession Nos.: Letter: ML18332A014

FRN: ML18332A013

*via email

OFFICE	NRR/DORL/LSPB/PM	NRR/DORL/LPL2-2/LA	NRR/DMLR/MENB/BC (A)*
NAME	JLamb	BClayton	JRikhoff
DATE	11/27/18	12/7/18	11/21/18
OFFICE	OGC – NLO*	NRR/DORL/LPL2-2/BC	NRR/DORL/LSPB/PM
NAME	AWilson	UShoop	JLamb
DATE	12/7/18	2/1/19	2/6/19

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