



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

April 30, 2018

10 CFR 50.4

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Watts Bar Nuclear Plant, Units 1 and 2
Facility Operating License Nos. NPF-90 and NPF-96
NRC Docket Nos. 50-390 and 50-391

Subject: **Watts Bar Nuclear Plant - Annual Non-Radiological Environmental
Operating Report - 2017**

In accordance with Section 5.4.1, "Routine Reports," of Appendix B, "Environmental Protection Plan (Non-Radiological)," to the Watts Bar Nuclear Plant (WBN) Units 1 and 2 Operating Licenses, enclosed is the 2017 Annual Non-Radiological Environmental Operating Report for WBN. This report is required to be submitted to the Nuclear Regulatory Commission (NRC) within 90 days following the anniversary of the issuance of the WBN Unit 1 operating license (i.e., February 7, 1996). This report addresses the period from February 7, 2017 through February 6, 2018.

There are no new regulatory commitments in this letter. If you have any questions concerning this matter, please contact Kim Hulvey, WBN Licensing Manager, at (423) 365-7720.

Respectfully,

A handwritten signature in black ink, appearing to read 'Paul Simmons', with a long horizontal flourish extending to the right.

Paul Simmons
Site Vice President
Watts Bar Nuclear Plant

U.S. Nuclear Regulatory Commission

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April 30, 2018

Enclosure:

Tennessee Valley Authority Watts Bar Nuclear Plant Annual Non-Radiological
Environmental Operating Report February 7, 2017 Through February 6, 2018

cc (Enclosure):

NRC Regional Administrator - Region II
NRC Project Manager - Watts Bar Nuclear Plant
NRC Senior Resident Inspector - Watts Bar Nuclear Plant
U.S. Fish and Wildlife Service



TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT

**ANNUAL NON-RADIOLOGICAL
ENVIRONMENTAL OPERATING
REPORT**

FEBRUARY 7, 2017 THROUGH FEBRUARY 6, 2018

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I. INTRODUCTION

The Tennessee Valley Authority (TVA) Watts Bar Nuclear Plant (WBN) Annual Non-Radiological Environmental Operating Report is provided for the period of February 7, 2017 through February 6, 2018. This report was prepared in accordance with Appendix B to facility operating licenses NPF-90 and NPF-96, "Environmental Protection Plan (EPP)," Section 5.4.1, "Routine Reports." This report includes a summary of:

- A. Reports previously submitted as specified in the WBN National Pollutant Discharge Elimination System (NPDES) Permit Number TN0020168.
- B. All special reports submitted per EPP Section 4.1, "Environmental Monitoring."
- C. All EPP noncompliances and the corrective actions taken to remedy them.
- D. Changes made to applicable state and federal permits and certifications.
- E. Changes in station design or operation that could involve a significant environmental impact or changes to the findings of the Final Environmental Statement (FES).
- F. Non-routine reports submitted per EPP Section 4.2, "Unusual or Important Environmental Events."
- G. Changes in the approved EPP.

II. REPORTS PREVIOUSLY SUBMITTED AS SPECIFIED IN THE WBN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT

The following reports were submitted as specified in the WBN NPDES Permit Number TN0020168 and the Tennessee Storm Water Multi-Sector General Permit (TMSP) Numbers TNR051343 and TNR050000:

- A. As required by the NPDES permit, Discharge Monitoring Reports (DMRs) were completed and submitted monthly to the Tennessee Department of Environment and Conservation (TDEC) no later than 15 days after the completion of the reporting period.
- B. WBN submitted to the TDEC the "Compliance Survey for Watts Bar Nuclear Plant Outfall 113 Passive Mixing Zone" for "Summer 2016", "Winter 2016" and "Summer 2017". As summarized in the reports, the compliance surveys confirm the adequacy of the passive mixing zone and the adequacy of the thermal model to evaluate the operation of Outfall 113.
- C. The annual Biocide/Corrosion Treatment Report was completed and submitted to TDEC prior to the February 15, 2018 deadline.
- D. The annual sampling and analysis required by the 2017 and 2018 TMSP for storm water was performed and the annual reports were submitted to the TDEC within 30 days after the sample results were obtained.

II. REPORTS PREVIOUSLY SUBMITTED AS SPECIFIED IN THE WBN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT (continued)

- E. DMR Quality Assurance (QA) Laboratory Performance Evaluation Study 37 was completed by and submitted to Environmental Resource Associates, the TDEC, and the Environmental Protection Agency (EPA) prior to the September 1, 2017 deadline. The copper value for DMR-QA Study 37 analysis performed and reported by our contract analytical laboratory - Environmental Science Corporation, was "Not Acceptable". The lab completed corrective actions and reanalysis of the failed parameter was completed with acceptable results.

III. SPECIAL BIOLOGICAL MONITORING REPORTS

A. EPP Section 4.1.1, "Aquatic Monitoring"

1. Routine semi-annual Whole Effluent Toxicity (WET), a.k.a. chronic biotoxicity tests, were conducted on plant effluents and the appropriate reports were submitted as part of the DMR for Outfall Serial Numbers (OSNs) 101 and 113, in June and October 2017 as required by the NPDES permit. All TVA test results were valid for all sampling outfalls and dates and for both IC25 tests (*P. promelas* and *C. dubia*).
2. A report on the "Biological Monitoring of the Tennessee River near the Watts Bar Nuclear Plant 2012" is not required in accordance with Part III, Section I of the WBN NPDES Permit, but was a recommendation in the "Watts Bar Nuclear Plant Supplemental Condenser Cooling Water System Fish Monitoring Program, 2001" report to be consistent with other required annual reporting programs at Tennessee and Alabama nuclear plants. TVA determined in January 2013 that these reports, or an equivalent, would be submitted with the permit renewals versus the historical annual basis (last submitted December 29, 2015 as a component of the NPDES permit renewal application).
3. In accordance with the provisions of Tennessee Code Annotated Section 69-7-301 et seq., the Water Resources Information Act, WBN submitted the Water Withdrawal Registration Form for Calendar Year (CY) 2017 to the TDEC prior to the February 15, 2018 deadline. Although federal agencies are not subject to laws and regulations promulgated by state governments unless Congress has clearly waived the federal government's sovereign immunity, in 2003 TVA voluntarily agreed as a matter of policy to provide the registration information in order to assist both TVA and TDEC in carrying out their water management responsibilities.
4. On July 27, 2017, TVA submitted 316(b) Compliance Study Reports as required under 40 CFR § 122.21 paragraphs (r)(2), (r)(4), through (r)(8) to the TDEC.

III. SPECIAL BIOLOGICAL MONITORING REPORTS (continued)

B. EPP Section 4.1.2, "Maintenance of Transmission Line Corridors"

Listed below are the 500 kV transmission lines associated with WBN and information regarding the maintenance that was performed on each line:

500 kV Line Identifier	Maintenance Performed
Bull Run - Watts Bar (Note Below)	No chemical or herbicide was utilized on these lines within the period.
Watts Bar - Roane	No chemical or herbicide was utilized on these lines within the period.
Watts Bar - Volunteer	No chemical or herbicide was utilized on these lines within the period.
Watts Bar - Sequoyah 1 (Note Below)	No chemical or herbicide utilized on these lines within the period.
Watts Bar - Sequoyah 2 (Note Below)	No chemical or herbicide utilized on these lines within the period.
Note: The transmission line designated as Bull Run - Sequoyah in previous versions of this report has been split into the following transmission lines: 1) Watts Bar - Sequoyah 1, and 2) Bull Run - Watts Bar.	

IV. ENVIRONMENTAL PROTECTION PLAN NONCOMPLIANCES

WBN received zero Notice of Violations (NOVs) from February 2017 to February 2018.

In accordance with the NPDES permit, the following noncompliances were reported to the TDEC.

- A. WBN did not record valid temperature readings at outfall 101 from November 23, 2017 through November 25, 2017. The NPDES permit requires the station to monitor for temperature daily at outfall 101. Temperature element 0-TE-27-99 is used to monitor temperature continuously at outfall 101. There is also a battery powered backup monitor that can monitor temperature if needed in order to comply with the NPDES permit. From November 23, 2017 through November 25, 2017, 0-TE-27-99 was not recording valid temperature readings. At the same time, the battery power backup monitor lost power. Therefore, no temperature data was recorded for that period. Corrective Actions: (1) Enhance site procedures; (2) Verify operation of battery powered backup monitor daily whenever 0-TE-27-99 is not recording valid temperature readings.

V. CHANGES MADE TO APPLICABLE STATE AND FEDERAL PERMITS AND CERTIFICATIONS

A. NPDES Permit Number TN 0020168

1. In accordance with 40 CFR 122.22, TVA updated the NPDES signatory authority authorizing the positions of WBN Plant Manager and the Chemistry and Environmental Senior Manager as the duly authorized persons for signing reports required under the permit as well as other WBN compliance reports.
2. TVA submitted a request for a waiver of the Section (§) 122.21 (r)(9) through (13) of the § 316(b) rule on September 5, 2017. This request was based largely on the flow reductions associated with the facility's closed-cycle recirculating cooling water system, as augmented by a supplemental cooling water system, and upon the unique use of two distinct waterbodies as cooling water sources.

B. Air Permits Number 463822

1. In accordance with 1200-03-09-.02(11)(b)21(i) of the Tennessee Air Pollution Control Regulations, TVA updated the Air signatory authority authorizing the position of WBN Plant Manager as the duly authorized persons for signing reports required under the permit as well as other WBN compliance reports.
2. TVA applied for the Air permit to include the DG-8 Construction Permit for a TSOB Building Replacement Emergency Generator Diesel Engine in March, 2016. The TDEC finalized the approval in March 2017.

VI. CHANGES IN FACILITY DESIGN OR OPERATION

In accordance with EPP Section 3.1, "Plant Design and Operation," facility design and operational changes were reviewed for potential effect on the environment as described below. A review of facility design and operational changes proposed from February 7, 2017, through February 6, 2018, was performed. Projects considered as having potential impact on the environment included those that:

- Could have caused waste stream generation/alteration.
- Required the acquisition/modification of permits.
- Involved the use of hazardous material.
- Required physical construction.

The review, performed in accordance with the guidelines of TVA's National Environmental Policy Act (NEPA) Program, documented that design and operational changes did not involve an unreviewed environmental question. The following criteria were used to identify those projects with a potential for environmental effects:

- A. Waste stream generation/alteration:
Air, Hazardous Waste, Solid Waste, Polychlorinated Biphenyls, Asbestos, or Wastewater
- B. Permit Acquisition/Modification:
NPDES, Air, Inert Landfill, or Other
- C. Hazardous Materials:
Hazardous Materials that are environmentally unfriendly and are likely to generate a Resource Conservation and Recovery Act (RCRA) hazardous or Toxic Substances Control Act (TSCA) waste.
- D. Physical Construction Involved:
Erosion/Sedimentation Effects, Transportation Effects, Noise Effects, Groundwater Effects, Surface Water Effects, Floodplain Effects, Wetland Effects, Prime Farmland Effects, Unique Natural Features Effects, Aquatic Ecology Effects, Terrestrial Ecology Effects, Protected Species Effects, Sensitive Habitat Effects, Visual Effects, Historical, Cultural and Archeological Effects, Changes in Site Land Use, or Controversy.
- E. Temporary Alterations:
There were no temporary alterations conducted during this period that met the environmental impact criteria.

Design and Operational Changes

Most of the design and operational changes conducted during this period did not meet the environmental impact criteria. There were 7 facility design and operational changes made during this reporting period with a potential impact on the environment. The appropriate environmental reviews were completed and all changes were found to be within the scope of existing environmental permits and in compliance with NEPA regulations.

VI. CHANGES IN FACILITY DESIGN OR OPERATION (continued)

The following Environmental Assessments (EAs) written to document the review of site changes are as follows:

- (1) Watts Bar Nuclear Plant Unit 2 Steam Generator Replacement , December 5, 2017

Those Categorical Exclusion Checklists (CECs) written to document the review of site changes are as follows:

- (1) 36515 Clean 11 Replacement Thimbles Tubes for installation during the WBN Unit 1 Refueling Outage
- (2) 37073 WBN Water Treatment Plant Refurbishment
- (3) 37110 Watts Bar Nuclear Plant FLEX Ramp Modification
- (4) 37356 FP610429, Feed Water Heater/Heater Drain Tank, Digital Control System upgrade. Single Point Vulnerability (SPV) elimination
- (5) 37436 Installation of new Auxiliary Control Air Subsystem (ACAS) swing air compressor and air dryer skid
- (6) 37854 Replacement of the system 030 Control Rod Drive (CRD) Equipment Room Air Conditioning Units 1A, 1B, 2A and 2B located in the Auxiliary Building on EL. 782.0

All other facility design and operational changes made during this reporting period with a potential impact on the environment were found to be within the scope of existing environmental permits and in compliance with regulations.

In summary, there were no facility designs or operational changes from February 7, 2017 to February 6, 2018, which resulted in an unreviewed environmental question.

VII. NON-ROUTINE REPORTS

No non-routine reports for EPP Section 4.2 were issued during this reporting period.

VIII. CHANGES IN APPROVED ENVIRONMENTAL PROTECTION PLAN SPECIFICATIONS

No changes were made to the WBN operating license, Appendix B, EPP during the reporting period.