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Nuclear Licensing

May 7, 2010

10 CFR 50.4

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

Watts Bar Nuclear Plant, Unit 1
Facility Operating License No. NPF-90
NRC Docket No. 50-390

Subject: **2009 Annual Non-Radiological Environmental Operating Report**

In accordance with Section 5.4.1 of Appendix B, "Environmental Protection Plan," of the Watts Bar Nuclear Plant Operating License, provided in the enclosure is the 2009 Annual Non-Radiological Environmental Operating Report for Watts Bar Nuclear Plant. This report addresses the period from February 7, 2009 through February 6, 2010. This report is required to be submitted within 90 days following each anniversary of issuance of the operating license. The due date falls on Saturday, May 8, 2010. Therefore, this report is due May 10, 2010.

There are no regulatory commitments in this letter. Please direct any questions concerning this matter to Kevin Casey, Senior Project Manager, at (423) 751-8523.

Respectfully,

R. M. Krich

Enclosure:
2009 Annual Non-Radiological Environmental Operating Report

cc (Enclosure):
NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Watts Bar Nuclear Plant

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NRR

Enclosure

2009 Annual Non-Radiological Environmental Operating Report

TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT

ANNUAL NON-RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

FEBRUARY 7, 2009 THROUGH FEBRUARY 6, 2010

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I. INTRODUCTION

The Watts Bar Nuclear Plant (WBN) Annual Non-Radiological Environmental Operating Report is provided for the period of February 7, 2009 through February 6, 2010. This report was prepared in accordance with Appendix B to facility operating license NPF-90, "Environmental Protection Plan (EPP)", Section 5.4.1, and "Routine Reports." This report includes a summary of:

A. Reports previously submitted as specified in the Watts Bar Nuclear Plant 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 that could involve a significant environmental impact or change 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 approved EPP.

II. REPORTS PREVIOUSLY SUBMITTED AS SPECIFIED IN THE WATTS BAR NUCLEAR PLANT (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) Number TNR051343:

A. The annual sampling and analysis required by the TMSP TR050000 for storm water was performed and the annual report was submitted on February 27, 2009 (March 31, 2009 deadline).

B. As required by the NPDES permit, Discharge Monitoring Reports (DMRs) were completed and submitted monthly prior to the 15th of the month deadline to the Tennessee Department of Environment and Conservation (TDEC).

C. DMR Quality Assurance (QA) Laboratory Performance Evaluation Study 29 was completed by and submitted to Environmental Resource Associates, the TDEC, and the Environmental Protection Agency (EPA) on October 13, 2009 (October 29, 2009, deadline). In accordance with the EPA's announcement letter, WBN informed the TDEC of the corrective action taken as a result of a "Not Acceptable" performance evaluation relating to the total suspended solids value.

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

The reported value was above the acceptable limits of the study. This analysis was performed and reported by Tennessee Valley Authority's (TVA's) contract analytical laboratory - Environmental Science Corporation (ESC). ESC analyzed a follow-up sample with an acceptable result.

D. The annual Biocide/Corrosion Treatment Plan (B/CTP) was completed and submitted to the TDEC on February 2, 2009 (February 15, 2009, deadline).

E. On February 18, 2009 WBN requested a temporary suspension of part of the monitoring requirements for Outfall 113 due to no periods of zero flow from Watts Bar Dam to contain the effects of the ash spill at the Kingston Fossil Plant located upstream of WBN. TVA expected that these special operations would allow no opportunities to perform passive mixing zone surveys for Outfall 113. Therefore as required by the NPDES permit, compliance with the temperature requirements for Outfall 113 would be monitored by the active mixing zone and the corresponding permanent instream stations. TVA agreed to resume surveys of the passive mixing zone for Outfall 113 when periods of zero flow resumed at Watts Bar Dam as specified in the NPDES permit. The TDEC Chattanooga Field Office denied this request on March 23, 2009. As a result, TVA's River Operations made special compensation for performance of the passive mixing zone surveys. The "Summer 2008 Compliance Survey for Watts Bar Nuclear Plant Outfall 113 Passive Mixing Zone" was submitted to the TDEC, Division of Water Pollution Control on June 1, 2009. The "Winter 2009 Compliance Survey for Watts Bar Nuclear Plant Outfall 113 Passive Mixing Zone" was completed and submitted to the TDEC on August 7, 2009.

F. The TDEC issued a new TMSP on May 15, 2009 with an effective date of June 1, 2009 and an expiration date of May 14, 2014. In accordance with the TMSP TNR051343 requirements, WBN submitted a Notice of Intent (NOI) for Sector L and O as well as a topographical map on June 24, 2009 for the re-issued permit.

G. TVA conducted a study of the NPDES outfall OSN 113 discharge and receiving stream area on September 25, 2008. The study followed a visit by EPA and the TDEC on August 26, 2008 (without site personnel). Inspectors verbally reported that there was "objectionable foam" at the outfall. The "Foam Study Report" concluded that since WBN did not add synthetic detergents or surfactants to the SCCW or other process waters with which the Supplemental Condenser Cooling Water (SCCW) system comes into contact, that the source of the foaming materials is naturally occurring and that agitation or currents are able to cause persistent foaming on a recurring basis. The "Foam Study" was sent to EPA and the TDEC on February 24, 2009. To date, WBN has not received a response from EPA or the TDEC regarding the "Foam Study Report" or the inspection 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 in April [Outfall Serial Number (OSN) 113, performed side-by-side with the TDEC's Chattanooga Field Office], May (OSNs 101 and 112), and November (OSNs 101, 112 and 113) 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*). To date, WBN has not received the TDEC's Chattanooga Field Office test results.

2. An annual report on the "Biological Monitoring of the Tennessee River near the Watts Bar Nuclear Plant 2008" was submitted to the TDEC on June 4, 2009 indicating no adverse impact to aquatic life due to WBN operation. This report 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 SCCW system Fish Monitoring Program, 2001" report to be consistent with other required annual reporting programs at Tennessee and Alabama nuclear plants.

3. In accordance with the provisions of Tennessee Code Annotated Section 69-8-301 et seq., the Water Resources Information Act, WBN submitted the Water Withdrawal Registration Form for Calendar Year 2009 to the TDEC on February 4, 2009 (February 15, 2010 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 the TDEC in carrying out their water management responsibilities.

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

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

500 kV Line Identifier	Maintenance Performed
Bull Run - Sequoyah	No major clearing was performed on these line corridors using herbicides.
Watts Bar - Roane	
Watts Bar - Volunteer	
Sequoyah - Watts Bar	

IV. ENVIRONMENTAL PROTECTION PLAN NONCOMPLIANCES

WBN did not receive a Notice of Violation (NOV) from February 2009 to February 2010. In accordance with the NPDES permit, the following noncompliances were reported to the TDEC.

1. On April 14, 2009, in accordance with Part II.C.2.b, WBN reported in the March 2009 DMR a phosphorus (P) value for a batch release of the Unlined Pond (ULP) at IMP 107 which exceeded the internal monitoring point permit limit. The sample collected on March 11, 2009 yielded an average value of 5.5 mg/L with a permit limit of 1.0 mg/L. IMP 107 is an internal monitoring point for the Yard Holding Pond (YHP) which discharges to the Tennessee River via NPDES outfall OSN 101 (diffusers). The effluent volume of 2.55 million gallons was released from ULP IMP 107 to the 22 acre YHP which has a capacity of 40 million gallons. The NPDES Lead analysis indicated that the P would have been sufficiently diluted to ensure the protection of water quality in the receiving stream as the engineering calculation yielded a worst-case estimate of 0.425 mg/L in the receiving stream. WBN did not receive an NOV from the TDEC. The corrective actions were: (1) a review of governing procedure, 0-PI-ENV-3.2; (2) an investigation revealed the P was from a reverse osmosis (RO) cleaning chemical from General Electric (G.E.) mobile water. These chemicals were removed from the Approved Chemical List (ACL) and replaced with P free chemicals.

2. During an Erosion Control walk down on July 31, 2009 the NPDES Lead observed that the pedestrian bridge constructed over a wet weather conveyance to allow Unit 2 (U2) personnel access to the North Portal from the new parking lot in the former ball field area was not constructed in the location flagged for the environmental review Categorical Exclusion Checklist (CEC) Number 20518 or as described in the TDEC approved Aquatic Resource Alteration Permit (ARAP). Problem Evaluation Report (PER) Number 178337, U2 Pedestrian Bridge, was written to document the issue and a corrective action plan was developed. For one immediate action the WBN National Environmental Policy Act (NEPA) Lead contacted the responsible U2 personnel to question the change in location rationale as the new location abutted a designated wetland and a permit was not obtained from the Corp of Engineers. The NEPA Lead also contacted a TVA wetlands media expert to determine if the bridge impinged upon the wetland. The situation was discussed with WBN Chemistry/Environmental management and at the monthly Storm Water Pollution Prevention Team meeting as a U2 representative was in attendance. In late September 2009 wetland and botany contractors with TVA Biological and Historic Resources confirmed that the bridge was constructed on 8-10 cubic yards of gravel that was placed in a jurisdictional wetland on the south side of the wetland. It was determined in the professional opinion of TVA's Wetland Biologist, TVA's Water Compliance Manager, and the WBN NEPA Lead that the most favorable environmental action would be to remove the bridge and the gravel (approximately 8 cubic yards) and then replace

IV. ENVIRONMENTAL PROTECTION PLAN NONCOMPLIANCES (continued)

the bridge with an extended span (approximately 23 -24 feet) so that the bridge completely spanned the wetland (the total area impacted is about 144 square feet). The justification was that while the area has already been impacted, it would recover when the bridge was no longer needed and was removed after U2 construction. To move the bridge to another location would simply cause unnecessary, additional disturbance and impact more wetland and upland habitat. As long as the bridge is in place and in use there will be minor, temporary effects to wetland vegetation under and adjacent to the bridge span. Once the bridge and path are removed and reclaimed, the native wetland vegetation would be restored at the former bridge site. Initial restoration of the wetland included: approximately 200 willow oak acorns were sowed, 30 silky dogwood and six black willow live stakes were planted, and the restoration area was mulched with deciduous tree leaves. A "Wetland Restoration Report for WBN Pedestrian Bridge" was written to document the issue and the restoration actions. This report was sent to TVA's Water Compliance Manager who determined there was a very minor impact to the wetland and based on this, submittal of the report to state or federal regulatory agencies was not required.

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

A. NPDES Permit TN 0020168

1. The NPDES permit renewal application packet consisting of EPA Form 1, site map, Form 2C, Form 2C addendum, flow schematic, Form 2E, and a permit address form submitted to the State of Tennessee on May 3, 2006 is still pending. Sampling for permit renewal occurred in December 2005 and historical data was compiled from the period of October 1, 2004, through September 30, 2005.

2. On April 8, 2009, WBN submitted an Application Addendum - TMSP TNR051343 - Revised Notice of Intent (NOI) to the TDEC Nashville office. Since the time of the renewal application's submittal on May 3, 2006, several changes have occurred at WBN that TVA requested be incorporated into the reissued permit. These are the elimination of NPDES outfalls Internal Monitoring Point (IMP) 111 and removal of Outfall Serial Number (OSN) 112 from the NPDES permit. Previously, OSN 112 received treated sanitary wastewater flow from IMP 111 as well as flows from the Training Center cooling tower blowdown. The sanitary wastewater treatment plant was decommissioned in 2008 and the Cooling tower blowdown from the Training Center was re-routed to the yard holding pond that discharges via NPDES permitted OSN 101. TVA believes coverage under the TMSP is now appropriate for OSN 112 as process wastewater discharges have been terminated there. WBN submitted a completed NOI and location map for TMSP coverage of Storm Water Outfall SW-11 (formerly designated OSN 112),

V. CHANGES MADE TO APPLICABLE STATE AND FEDERAL PERMITS AND CERTIFICATIONS (continued)

a modified EPA Form 1, EPA Form 2C (pages 1-4 only), flow schematic, and permit address form to describe the current flows in support of our request. These forms would supersede the previous matching permit application forms submitted to the State of Tennessee on May 3, 2006. To date, TVA has not received the TDEC approval for the NPDES permit renewal.

3. In accordance with the NPDES permit, Part III, G, on April 15, 2009 WBN requested an amendment to the B/CTP (a.k.a. the current raw water treatment plan) to include a change in suppliers of our water treatment products. Chemicals previously approved under the former vendor may continue to be used. The new suppliers' products are "similar" products containing "essentially the same chemical" as products previously approved by the Division. The processes and frequencies of applying the products would not change. In addition, the discharge concentrations of the replacement chemicals would remain the same as the currently approved chemicals to ensure the same high level of protection for aquatic life in the Tennessee River while increasing the flexibility of plant equipment options. WBN enclosed the following tables: (1) the Raw Water Chemical Additives, proposed chemicals as well as those currently in use (depicted in parenthesis and/or footnote), (2) the Raw Water Application Guide, (3) Calculations Showing the Worst Case Scenario, and (4) Product Toxicity Data Summary and Comparison with Maximum Instream Wastewater Concentrations (IWC), a summary of the Raw Water Treatment Programs, a Treatment Plan Overview, Toxicity Summaries, and an MSDS for each product with an accompanying Product Bulletin. The TDEC approved WBN's proposed revisions on May 26, 2009.

4. A request to Spring City was made on April 23, 2009 for acceptance of asbestos shower/laundry effluent fitted with in-line five micron filter under the utility agreement (contract # 60043) between the town of Spring City, Tennessee and TVA. The asbestos removal project is in support of Unit 2 construction. TVA's review of the asbestos filter product specifications concluded per Article IV(g) that the contract requirement for pretreatment to an acceptable condition prior to discharge to the town's waste water system would be met. The discharge from the asbestos shower and laundry fitted with an in-line five (5) micron filtration system would be in the form of ordinary wastewater per Article IV(e) of the subject agreement. Under Article X Compensation, of the subject, Spring City would be informed of any significant change in the notification. The Town of Spring City submitted their approval on May 21, 2009.

5. WBN submitted to the TDEC an application for a general ARAP along with the requested supporting documentation on May 21, 2009. The application was for a General Permit for construction and removal of a minor road crossing at two discrete wet weather conveyance locations and maintenance activities at one wet weather conveyance location. Approval of the ARAP would allow U2 personnel

V. CHANGES MADE TO APPLICABLE STATE AND FEDERAL PERMITS AND CERTIFICATIONS (continued)

access to the U2 parking areas via the Heavy Equipment Division (HED) Access Road, a pedestrian bridge from the ball field parking lot to the North Portal, and restoration of proper drainage to ensure the integrity of a jurisdictional wetland downstream of the pedestrian bridge. The TDEC approved ARAP - NRS09.163 with an effective date of June 15, 2009 and an expiration date of June 14, 2012.

B. Air Permits

WBN is currently operating under Air Permit Number 448529. No changes to this permit were made during the reporting period.

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, 2009 through February 6, 2010, 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 the 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, PCB's, Asbestos, Wastewater)

B. Permit Acquisition/Modification
[NPDES, Air, Inert Landfill, Other (316b, 404, etc.)]

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]

VI. CHANGES IN FACILITY DESIGN OR OPERATION (continued)

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, and Controversy)

E. Special Tests
There were no special tests conducted during this period that met the environmental impact criteria.

F. Temporary Alterations
There were no temporary alterations conducted during this period that met the environmental impact criteria.

G. Design and Operational Changes
Most of the design and operational changes conducted during this period did not meet the environmental impact criteria. There were eight facility design and operational changes made during this report 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. Those Categorical Exclusion Checklists (CECs) written to document the site changes reviewed are as follows:

(1) 19869 - Generic Nuisance Tree Removal
(2) 19929 - Installation of Power & Communications Fiber Optic Line & Fence repositioning at the U1 Staging Area
(3) 20094 - Grating Along North Steam Valve Vault
(4) 20230 - Generic WBN - Surface Preparation Using Pressure Washer
(5) 20500 - Boric Acid Mixing Building (BAMB) Addition
(6) 20518 - Pedestrian & Vehicular Access for U2 Parking
(7) 20550 - Replace NPDES Diffuser (OSN 101) Building
(8) 21203 - Provide 1GB Wavelength for Information Systems
(9) 20964 - U2 Sewage Lift Station at Interim Office Building (IOB) Pad
(10) 21238 - WBN Moisture Separator Reheater (MSRs) & Low Pressure Rotor (LPR) Replacements
(11) Uninterruptible Power Supplies Building (UPS) Ballistic Barrier
(12) Central Alarm Station (CAS)/Secondary Alarm Station (SAS) Protected Area (PA) Camera Replacement Modification

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

VI. CHANGES IN FACILITY DESIGN OR OPERATION (continued)

In summary, there were no facility designs or operational changes from February 7, 2009 to February 6, 2010, 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 Appendix B, EPP, of the WBN operating license during the reporting period.