



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION II  
245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

July 30, 2010

Mr. Ashok S. Bhatnagar  
Senior Vice President  
Nuclear Generation Development  
and Construction  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

SUBJECT: BELLEFONTE NUCLEAR PLANT - NRC INSPECTION REPORT NOS.  
50-438/2010-601 AND 50-439/2010-601

Dear Mr. Bhatnagar:

On June 30, 2010, the NRC completed an inspection at your Bellefonte 1 & 2 reactor facilities. The results of the inspection were discussed with Mr. D. Pratt and other members of your staff on June 30, 2010. The enclosed report presents the results of that inspection.

The purpose of the inspection was to determine whether activities authorized by the construction permits were conducted safely and in accordance with NRC requirements. Areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observation of activities in progress.

Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS).

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Sincerely,

**/RA/**

Robert C. Haag, Chief  
Construction Projects Branch 3  
Division of Construction Projects

Docket Nos. 50-438, 50-439  
License Nos. CPPR-122, CPPR-123

NRC Inspection Report 50-438/2010601 AND 50-439/2010601  
w/Attachment - Supplemental Information

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**/RA/**

Robert C. Haag, Chief  
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w/Attachment - Supplemental Information

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cc w/encl:

Mr. Gordon P. Arent, Manager  
New Generation Licensing  
Nuclear Generation Development  
and Construction  
Watts Bar Nuclear Plant  
P.O. Box 2000  
Spring City, Tennessee 37381

Mr. William R. Campbell  
Senior Vice President, Fleet Engineering  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, Tennessee 37402-2801

Mr. Preston D. Swafford  
Chief Nuclear Officer  
and Executive Vice President  
Tennessee Valley Authority  
3R Lookout Place  
1101 Market Place  
Chattanooga, Tennessee 37402-280

General Counsel  
Tennessee Valley Authority  
6A West Tower  
400 West Summit Hill Drive  
Knoxville, Tennessee 37902  
Nashville, TN 37243-1532

Mr. Robert J. Whalen  
Vice President, Nuclear Engineering  
3R Lookout Place  
Tennessee Valley Authority  
1101 Market Street  
Chattanooga, Tennessee 37402-2801

Mr. Michael J. Lorek  
Vice President, Nuclear Engineering &  
Projects  
Tennessee Valley Authority  
3R Lookout Place  
1101 Market Street  
Chattanooga, Tennessee 37402-2801

Chairman  
Jackson County Commission  
Courthouse  
Scottsboro, AL 35768

Mr. Frederick C. Mashburn  
Acting Manager, Corporate Nuclear  
Licensing & Industry Affairs  
Tennessee Valley Authority  
4K Lookout Place  
1101 Market Street  
Chattanooga, Tennessee 37402-2801

Mr. Michael A. Purcell  
Senior Licensing Manager  
Tennessee Valley Authority  
4K Lookout Place  
1101 Market Street  
Chattanooga, Tennessee 37402-2801

State Health Officer  
Alabama Dept. of Public Health  
RSA Tower- Administration  
Suite 1552  
P.O. Box 303017  
Montgomery, AL 36130-3017

TVA

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cc email distribution w/encl:  
Zachary Rad  
Tennessee Valley Authority  
Electronic Mail Distribution

Daniel Pratt  
Tennessee Valley Authority  
Electronic Mail Distribution

Letter to Ashok S. Bhatnagar from Robert Haag dated July 30, 2010.

SUBJECT: BELLEFONTE NUCLEAR PLANT - NRC INSPECTION REPORT NOS.  
50-438/2010-601 AND 50-439/2010-601

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-438 and 50-439  
Construction Permit Nos: CPPR-122 and CPPR-123

Report No: 50-438/2010601 and 50-439/2010601

Applicant: Tennessee Valley Authority (TVA)

Facility: Bellefonte Nuclear Plant, Units 1 & 2

Location: Bellefonte Road  
Hollywood, AL 35752

Dates: June 28 - 30, 2010

Inspector: J. Baptist, Senior Project Inspector, Division of  
Construction Projects, Construction  
Projects Branch 3, Region II (RII)  
J. Seat, Construction Inspector, Division of Construction  
Inspection, Construction Inspection Branch 2, RII

Approved by: Robert C. Haag, Chief  
Construction Projects Branch 3  
Division of Construction Projects

Enclosure

## **EXECUTIVE SUMMARY**

Bellefonte Nuclear Plant, Units 1 and 2  
NRC Inspection Report 05000438,439/2010601

The inspection included aspects of engineering and construction activities, performed by Tennessee Valley Authority (TVA), associated with the Bellefonte Nuclear Plant (BLN), Units 1 and 2 project. This report covered a three-day period of inspections in the areas of quality assurance (QA); identification and resolution of problems; maintenance activities; engineering activities; access controls; and control of documents and records. The inspection was performed primarily under the guidance of NRC inspection procedure (IP) 92050, "Review of Quality Assurance for Extended Construction Delay."

The inspection evaluated if TVA had properly implemented the NRC-approved QA program, adequately identified the status and quality of currently installed and stored equipment, and established processes and controls necessary to comply with regulatory requirements associated with its construction permits. The inspection evaluated the status of the applicable program areas, specified in Section III.A, "Deferred Plant", of the Commission Policy Statement on Deferred Plants, through examination of procedures and representative records, interviews with personnel, equipment status verification, and observations of programs and processes. The inspection concluded that TVA activities remain within the guidelines established for a plant in deferred status, consistent with the Commission Policy Statement for Deferred Plants. The inspection results are discussed in detail below.

### Inspection Results:

- Protection and preservation of plant assets through housekeeping efforts was appropriate for the status of the equipment. (Section 1)
- Proper procedural controls were developed for work and inspection activities conducted under the preventative maintenance (PM) program. These activities were performed by qualified personnel using approved procedures. Associated documentation was found to be properly prepared, reviewed, approved, and distributed. (Section 2)
- The corrective action program (CAP) procedures were properly established. Audits and self-assessments to evaluate plant programs and processes were properly conducted and were of good quality. (Section 3)



## **Report Details**

### **Summary of Plant Status**

During the inspection period, BLN Units 1 and 2 remained in a "deferred plant" status, as defined by the Commission Policy Statement on Deferred Plants (52 FR 38077)

## **1.0 Plant Walkdowns**

### **a. Inspection Scope (92050)**

Systems, structures, and components (SSCs) at BLN remain in an indeterminate status. Therefore, the consideration of the safety classification of each individual SSC does not apply. However, certain assets that are typically considered important to safety were reviewed to evaluate the effectiveness of preservation efforts. The inspectors toured selected portions of the main control room, auxiliary building, reactor building, turbine building, and Unit 1 diesel generator rooms to review the condition of plant equipment. During these tours, the inspectors reviewed the protection and preservation efforts including, control of groundwater intrusion, installation of protective coverings, weather protection, fire protection, proper housekeeping practices, and rodent control measures. The following areas were inspected:

- Unit 1 and 2 Turbine Building
- Unit 1 and 2 Main Control Room
- Unit 1 and 2 Reactor Building
- Unit 1 Primary Containment Tendon Gallery
- Unit 1 and 2 Diesel Fire Pump Room
- Unit 1 Diesel Generator Rooms, 1A and 1B
- Unit 1 and 2 Auxiliary Building

Additional documents reviewed are listed in the attachment.

### **b. Observations and Findings**

No findings of significance were identified. The inspectors did observe significant humidity and ground water intrusion into the Unit 1 Primary Containment Tendon Gallery. Upon discussions with the licensee, it was identified that this is seasonal and various mitigation techniques are being implemented to control this issue until a permanent solution can be implemented.

## **2.0 Preventive Maintenance Program**

### **a. Inspection Scope (92050)**

The inspectors reviewed the PM program to determine the adequacy of the program for asset preservation and procedural compliance. Implementation of the preservation program relies on performance of many PMs that have been identified as necessary to protect plant assets. Examples of PMs performed under this program include system piping flushes, motor and pump lubrication verification, engine checks, component external inspections, and containment penetration pressure checks and humidity checks.

The inspectors reviewed specific PM requirements in the Bellefonte Maintenance Code Book, Revision (Rev). 94, and observed personnel performing PM activities. The inspectors reviewed procedural guidance and implementation of PM activities to ensure that procedures were readily available, current, approved, and followed. Additionally, when measuring and test equipment was required for PM performance, the inspectors reviewed the specific equipment requirements, including equipment checks, calibration, and use.

The inspectors reviewed documentation associated with various PM requirements that were completed by site personnel during the period January 2009 - June 2010. This included a review of applicable portions of the Bellefonte Maintenance Code Book which specified the PM requirements. The inspectors then reviewed the records for completed PMs to verify that procedural requirements had been satisfied and that actions had been initiated to address any discrepancies which were identified during performance of the PMs. Additionally, the inspectors reviewed documentation for selected PM inspection intervals to verify that they were performed at the appropriate frequency. The following PM activities were observed:

| PM item number  | PM Codes | Work performed   |
|-----------------|----------|--|
| 1NI-EPEN-034-A  | 177      | Verify adequate nitrogen pressure and recharge if needed |
| 1NI-EPEN-065-B  | 177      | Verify adequate nitrogen pressure and recharge if needed |
| 1NI-EPEN-027-B  | 177      | Verify adequate nitrogen pressure and recharge if needed |
| 1NI-EPEN-069-G  | 177      | Verify adequate nitrogen pressure and recharge if needed |
| 1NI-EPEN-061-B  | 177      | Verify adequate nitrogen pressure and recharge if needed |
| 1NI-EPEN-068-F  | 177      | Verify adequate nitrogen pressure and recharge if needed |
| 1NI-EPEN-059    | 177      | Verify adequate nitrogen pressure and recharge if needed |
| 1NI-EPEN-028-B  | 177      | Verify adequate nitrogen pressure and recharge if needed |
| ORF-VAAD-R49    | 614      | Semi-annual standpipe system flush                       |
| ORF-VAAD-R50    | 614      | Semi-annual standpipe system flush                       |
| ORF-MDSL-008/04 | N/A      | Weekly Inspection Diesel Fire Pump                       |

|               |     |  |
|---------------|-----|--|
| 1NS-NAOH-SUMP | 535 | 3 month inspection Sump NaOH tank room |
| ONC-MCRS-001  | 284 | Unit 1/Unit 2 Rx Vessel Inspection     |

Additional documents reviewed are listed in the attachment.

b. Observations and Findings

No findings of significance were identified. Site personnel have approximately 5000 scheduled PM items on an annual basis, with a majority of these PM items focusing on fire protection. The inspectors verified that proper procedural controls were used when performing PM activities and work was performed by qualified personnel. The inspectors also verified that adequate controls were implemented on measuring and test equipment to ensure that the equipment was properly controlled and calibrated. The inspectors did identify instances where verbatim compliance of certain PM activities, as prescribed by the Bellefonte Maintenance Code Book, was not possible due to the current status of the plant. While this does not violate regulatory requirements, the licensee acknowledged these observations in PER 237053 and is currently evaluating the resolution.

### 3.0 Corrective Action Program (CAP)

a. Inspection Scope (92050)

The inspectors reviewed Problem Evaluation Reports (PERs), interviewed personnel regarding their understanding of the CAP process and concerns resolution program (CRP), and attended daily meetings to ensure identified problems were appropriately classified and captured.

Specifically, the inspectors reviewed several PERs to verify that initiation level was appropriate, condition classification criteria were followed, management review and action was appropriate, and resolution of the issue was sufficient. The inspectors also reviewed an apparent cause evaluation report and a failure analysis report for a primary containment vertical tendon failure reported under 10 CFR 50.55(e). The inspectors assessed the licensee's ability to determine the cause(s) of identified problems and consideration of the following: issue reportability, common cause, generic concerns, extent-of condition, and extent-of-cause. The review also assessed if the licensee had appropriately identified and prioritized corrective actions to prevent recurrence.

The inspectors reviewed the findings and recommendations from 11 internal audits and self-assessments, including items such as readiness for NRC inspection and corrective action follow-up. The audits and self-assessments were also reviewed to verify they were performed with appropriate scope and frequency.

Additional documents reviewed are listed in the attachment.

b. Observations and Findings

No findings of significance were identified.

**4.0 Access Controls**

a. Inspection Scope (92050)

The team reviewed BLN procedure SSP-11.50, "Bellefonte Security and Plant Access", Rev. 14, and interviewed personnel to verify the implementation of TVA's access control program. While not specifically required by the guidance in the Commission Policy Statement for Deferred Plants, the team recognized the potential effect on BLN "current plant status" if efforts were not in place to minimize unauthorized plant access.

b. Observations and Findings

No findings of significance were identified. The team verified through witnessing entrance and exit requirements of both personnel and vehicles, that security measures were implemented in accordance with prescribed procedures.

**5.0 Exit Meeting Summary**

The inspectors presented the inspection results to Mr. D. Pratt, General Manager, Bellefonte Nuclear Plant, and other members of management on June 30, 2010. No proprietary information was identified.

## **PARTIAL LIST OF PERSONS CONTACTED**

### Licensee

Cheryl Auvinen, Doc / Records Management  
Jim Chardos, Construction, Maintenance and Modifications Manager  
Bob Davis, Plant Support  
Vernon Lee, Maintenance Specialist – PM  
Mark Palmer, Project Controls / OPS Manager  
Zack Rad, Bellefonte Licensing Project Manager

## **LIST OF INSPECTION PROCEDURES**

IP 92050:      Review of Quality Assurance for Extended Construction Delay

## **ITEMS OPENED AND CLOSED**

### Opened

None

### Closed

None

## List of Documents Reviewed

### Procedures

SSP-1.7, "Self-Assessment Program," Rev. 0  
 SSP-3.4, "Corrective Action Program," Rev. 18,  
 SSP-4.5, "Regulatory Reporting Requirements," Rev. 8,  
 SSP- 6.2, "Work Control," Rev. 10,  
 SSP-12.7, "Housekeeping/Cleanliness Controls," Rev. 11,  
 SSP-11.50, "Bellefonte Security and Plant Access," Rev. 14,

### Self-Assessments

BLN-CAP-S-10-002, "CAP Implementation"  
 BLN-SIT-S-10-001, "Records Management"  
 BLN-MM-S-10-001, "Work Control"  
 BLN-MM-S-10-002, "Preventative Maintenance Program"  
 BLN-MM-S-10-003, "Control of M&TE"  
 BLN-SIT-F-10-005, "NRC Inspection Readiness"  
 BLN-MM-S-10-004, "Housekeeping"  
 BLA1001, "Corrective Action Follow-up"  
 QA-BL-S-10-01, "QA Observations October, 2009- December, 2009"  
 QA-BL-S-10-02, "QA Observations January, 2010- March, 2010"  
 BLA1003, "Construction Permit and Plant Layup Activities"

### PERs Reviewed

168868, Warehouse Storage–Env. Controls  
 200119, Unit 1 Containment Vertical Tendon Disconnected

### PERs initiated as a result of this inspection

236853, Safety Hazard, suspended plywood  
 236854, Open Feedwater Piping  
 237053, During Inspections of Electrical Penetrations, Code Not Followed

### Miscellaneous

Apparent Cause Evaluation Report for PER 200119  
 Tendon Coupling Failure Analysis Report SL-010157  
 10 CFR 50.55(e) Interim Report Bellefonte Nuclear Plant (BLN) Containment Vertical Tendon Coupling Failure  
 10 CFR 50.55(e) Second Interim Report Bellefonte Nuclear Plant (BLN) Containment Vertical Tendon Coupling Failure