

**U.S. NUCLEAR REGULATORY COMMISSION REGULATORY AUDIT  
OF AP1000 BAFFLE DESIGN TESTING  
AS PART OF PRE-APPLICATION FOR WCAP SUBMITTAL**

**WESTINGHOUSE ELECTRIC COMPANY'S TOPICAL REPORT  
AUDIT PLAN**

**APPLICANT:** Westinghouse Electric Company (WEC)

**APPLICANT CONTACTS:** Jennifer Meneely (WEC) and Zachary Harper (WEC)

**DURATION:** Various times from March 21, 2017, through testing phase 2 (May – June 2017)

**LOCATION:** WEC Rockville Office  
11333 Woodglen Drive, Suite 202  
Rockville, Maryland 20852  
Telephone: 301-881-7040

Pennsylvania State University  
Applied Research Laboratory  
University Park, Pennsylvania 16802

**AUDIT TEAM:** Boyce Travis (NRO, Audit Lead)  
Clinton Ashley (NRO)  
1 or 2 supporting staff (SEB) as needed  
Don Habib (NRO, Project Manager)

**I. BACKGROUND**

On November 29, 2016, the U.S. Nuclear Regulatory Commission (NRC) staff held a public meeting with WEC (Agency Documents Access and Management System (ADAMS) Accession No. ML16343A006). The purpose of the meeting was for WEC to discuss preliminary plans to submit a topical report removing part or all of the baffle inside the AP1000 shield building. In the meeting, WEC explained that there was a technical basis (realized as part of scoping studies for other licensing actions) for no longer needing the entirety of the air baffle, and outlined a series of planned tests designed to inform the extent of the changes to be proposed by the topical report. This audit will allow the staff to witness some of the testing in order to be better prepared to evaluate the topical report.

- An initial regulatory audit which will commence on the week of March 20 and be carried out at the WEC Rockville, Maryland office, as necessary. During this audit, the staff will examine the test specification and any supporting documentation.

- Continuing audits to witness testing supporting the review of the planned topical report (exact dates to be determined later).

## **II. PURPOSE**

The purpose of this audit is for the staff to: (1) gain a better understanding of design testing to support changes to the AP1000 baffle, and (2) review related documentation and non-docketed information to evaluate conformance with the regulations or technical guidance.

NRC staff determined efficiency gains would be realized by auditing the documents supporting the testing and witnessing select testing. The purpose of this audit is to allow NRC technical staff to gain an understanding of the testing to better focus staff inquiries to the applicant related to the forthcoming topical report submittal. During the audit and interactions with the applicant, staff may identify information that will need to be requested as detailed NRC requests for information, and would be part of future formal correspondence.

## **III. REGULATORY AUDIT BASIS**

Title 10 *Code of Federal Regulations* (10 CFR) 52.47(a)(3)(i) states that a Design Certification application must contain a final safety analysis report (FSAR) that includes a description of principal design criteria for the facility. This topical report, when submitted, would modify existing criteria in the FSAR. This regulatory audit is based on the following:

- General Design Criteria (GDC) 4, “Environmental and dynamic effects design bases,” of Appendix A to 10 CFR Part 50, which requires in part that the applicant take provisions to accommodate and appropriately protect SSCs important to safety against the environmental conditions, including dynamic effects, that may result from normal operation, maintenance, testing, equipment failures and postulated accidents.
- GDC 38, “Containment heat removal,” which requires that:
  - The containment heat removal system be capable of rapidly reducing the containment pressure and temperature following a loss-of-coolant accident (LOCA) and to maintain these parameters at acceptably low levels
  - The containment heat removal system perform in a manner consistent with the function of other systems
  - The safety-grade design of the containment heat removal system provide suitable redundancy in components and features and suitable interconnections, leak detection, isolation, and containment capability to ensure that, for onsite electric power system operation (assuming offsite power is not available) and for offsite electric power system operation (assuming onsite power is not available), the system safety function can be accomplished in the event of a single failure
- GDC 50, “Containment design basis,” which requires in part that the reactor containment structure and its internal compartments to accommodate the calculated pressure and temperature conditions resulting from any LOCA.

#### **IV. REGULATORY AUDIT SCOPE**

The specific scope of this audit will include reviewing the test specifications and witnessing testing related to WEC's stated goal of submitting a topical report to modify the AP1000 baffle design.

#### **V. DOCUMENTS/INFORMATION NECESSARY FOR THE AUDIT**

The following document(s) are to be made available to the NRC staff, at the WEC Rockville, Maryland office:

- APP-GW-T5-016 Revision 1, "Applied Research Laboratory (ARL) Test Specification for AP1000® Shield Building Wall and Passive Containment Cooling System (PCS) Air Baffle Conductance Testing – Phase 1," and updates to this document.
- Phase 1 and 2 test reports

This is not a comprehensive list of documents that the staff expects to review as part of the audit. It is anticipated that WEC will produce additional documentation as part of performing the testing.

#### **VI. SPECIAL REQUESTS**

The NRC staff requests that WEC provide:

- A conference room (or office) equipped with a telephone to confer with headquarters staff, as necessary
- WEC personnel to provide any necessary overviews of test procedures, specifications and other related documents

#### **VII. AUDIT ACTIVITIES AND DELIVERABLES**

The NRC audit team is expected to consist of aforementioned individuals regarding the proposed baffle changes. An audit report will be generated within 90 days after completion of the audit and published in ADAMS.

The NRC staff acknowledges the proprietary nature of the information requested. It will be handled appropriately throughout the audit. While the NRC staff may take personal notes to support the review, the NRC staff will not remove hard copy or electronic files from the audit site(s) without express permission from WEC.

The audit will assist the NRC staff in the acceptance review for the planned topical report, issuance of requests for additional information (if necessary) for the review of the planned topical report, and in preparation of the NRC staff's safety evaluation report.