



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

March 6, 2014

Mr. Joseph W. Shea
Vice President, Nuclear Licensing
Tennessee Valley Authority
1101 Market Street, LP 3D-C
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT, UNITS 1 AND 2 - PLAN FOR THE ONSITE
AUDIT REGARDING IMPLEMENTATION OF MITIGATING STRATEGIES
RELATED TO ORDER EA-12-049 (MITIGATING STRATEGIES)
(TAC NOS. MF0950 and MF1177)

Dear Mr. Shea:

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12054A736), requiring holders of operating licenses and construction permits issued under Title 10 of the *Code of Federal Regulations* Part 50 to submit for review, Overall Integrated Plans (OIPs) including descriptions of how compliance with the requirements of Attachment 2 of the order will be achieved.

By letter dated February 28, 2013 (ADAMS Accession No. ML13067A030), Tennessee Valley Authority (TVA, the licensee) submitted its OIP for Watts Bar Nuclear Plant, Units 1 and 2 (Watts Bar) in response to Order EA-12-049. By letters dated August 28, 2013, and February 7, 2014 (ADAMS Accession Nos. ML13247A288 and ML14062A050), TVA submitted its first two six-month updates to the OIP.

By letter dated August 28, 2013 (ADAMS Accession No. ML13234A503), the NRC notified all licensees and construction permit holders that the staff is conducting audits of their responses to Order EA-12-049 in accordance with NRC Office of Nuclear Regulation Instruction LIC-111, "Regulatory Audits" (ADAMS Accession No. ML082900195). The purpose of the staff's audit is to determine the extent to which the licensees are proceeding on a path towards successful implementation of the actions needed to achieve full compliance with the order. This audit process led to the issuance of the Watts Bar interim staff evaluation (ISE) and audit report (ADAMS Accession No. ML13343A036) and continues with in-office and onsite portions of this audit.

The ongoing audit process, to include the in-office and onsite portions, allows the staff to assess whether it has enough information to make an Integrated Plan safety evaluation. The audit allows the staff to review open and confirmatory items from the ISE, the licensee's integrated plan, and other audit questions. Additionally, the staff gains a better understanding of submitted information, identifies additional information necessary for the licensee to supplement its plan, and identifies any staff potential concerns. The audit's onsite portion will occur prior to a declaration of compliance for the first unit at each site.

J. Shea

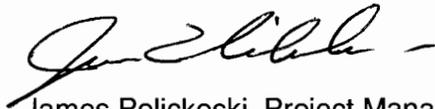
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This document outlines the on-site audit process that continues after ISE issuance as licensees provide new or updated information via periodic updates, update audit information on e-portals, provide preliminary Overall Program Documents, and continue in-office audit communications with staff while proceeding towards compliance with the order.

The staff plans to conduct an onsite audit at the Watts Bar in accordance with the enclosed audit plan from March 12-13, 2014.

If you have any questions, please contact me at 301-415-5430 or by e-mail at james.polickoski@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "James Polickoski", with a horizontal line extending to the right.

James Polickoski, Project Manager
Project Management Branch
Mitigating Strategies Directorate
Office of Nuclear Reactor Regulation

Docket Nos.: 50-390 and 50-391

Enclosure
Audit plan

cc w/encl: Distribution via Listserv

Audit Plan
Watts Bar Nuclear Plant, Units 1 and 2

BACKGROUND AND AUDIT BASIS

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12054A736), requiring holders of operating licenses and construction permits issued under Title 10 of the *Code of Federal Regulations* Part 50 to submit for review, Overall Integrated Plans (OIPs) including descriptions of how compliance with the requirements of Attachment 2 of the order will be achieved.

In accordance with the order, the OIPs were submitted by February 2013, and licensees are in the process of implementing the requirements identified in the order. Licensees are required to complete full implementation no later than two refueling cycles after submittal of the OIPs or by December 31, 2016, whichever comes first.

By letter dated February 28, 2013 (ADAMS Accession No. ML13067A030), Tennessee Valley Authority (TVA, the licensee) submitted its OIP for Watts Bar Nuclear Plant, Units 1 and 2 (Watts Bar) in response to Order EA-12-049. By letters dated August 28, 2013, and February 7, 2014 (ADAMS Accession Nos. ML13247A288 and ML14062A050), TVA submitted its first two six-month updates to the OIP.

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The ongoing audit process, to include the in-office and onsite portions, allows the staff to assess whether it has enough information to make an Integrated Plan safety evaluation. The audit allows the staff to review open and confirmatory items from the ISE, the licensee's integrated plan, and other audit questions. Additionally, the staff gains a better understanding of submitted information, identifies additional information necessary for the licensee to supplement its plan, and identifies any staff potential concerns. The audit's onsite portion will occur prior to a declaration of compliance for the first unit at each site.

This document outlines the on-site audit process that continues after ISE issuance as licensees provide new or updated information via periodic updates, update audit information on e-portals, provide preliminary Overall Program Documents (OPDs), and continue in-office audit communications with staff while proceeding towards compliance with the order.

Enclosure

Following the licensee's declaration of order compliance, the NRC staff will evaluate the OIP as supplemented, the resulting site-specific OPD, and, as appropriate, and other licensee submittals based on the requirements in Order EA-12-049. The staff will make a safety determination regarding order compliance using the Nuclear Energy Institute (NEI) developed guidance document NEI 21-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide" issued in August, 2012 (ADAMS Accession No. ML12242A378), as endorsed by the staff via staff guidance JLD-ISG-2012-01 "Compliance with Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" " (ADAMS Accession No. ML12229A174). Should the licensee propose an alternative strategy to the guidance, as endorsed, for compliance, the staff will evaluate the alternative strategy in reference to the order.

AUDIT SCOPE

As discussed, onsite audits will be performed per Office Instruction LIC-111, "Regulatory Audits," to support the development of safety evaluations. Site-specific OIPs and OPDs rely on equipment and procedures that apply to all units at a site, therefore, audits will be planned to support the "first unit at each site." On-site audits for subsequent units at a site will be on an as-needed basis.

The purpose of the audits is to obtain and review information responsive to open and/or confirmatory items from the NRC ISE of the Watts Bar OIP, as supplemented, and to observe and gain a better understanding of the basis for the site's overall program to ensure the licensee is on the correct path for compliance with the Mitigating Strategies order. These may include, but are not limited to:

- Onsite review and discussion for the basis and approach for detailed analysis and calculations
- Walk-throughs of strategies and laydown of equipment to assess feasibility, timing, and effectiveness of a given mitigating strategy or integration of several strategies
- Storage, protection, access, and deployment feasibility and practicality for onsite portable equipment
- Evaluation of staging, access, and deployment of offsite resources to include Regional Response Center (RRC) provided equipment

NRC AUDIT TEAM

Title	Team Member
Team Lead	Carleen Sanders
Project Manager	James Polickoski
Technical Support	Matthew McConnell
Technical Support	Kerby Scales
Technical Support	Diana Woodyatt

NRC AUDIT TEAM – SUPPLEMENTAL MEMBERS

Title	Team Member
Senior Advisor	Eric Bowman
Branch Chief	Sheena Whaley
Process Oversight	Victor Cusumano

LOGISTICS

The audit will be conducted onsite at Watts Bar on March 12-13, 2014. Entrance and exit briefings will be held with the licensee at the beginning and end of the audit, respectively, as well as daily briefings of team activities. Additional details will be addressed over the phone. A more detailed schedule is provided below.

A private conference room is requested for NRC audit team use with access to audit documentation upon arrival and as needed.

DELIVERABLES

An audit report/summary will be issued to the licensee within 45 days from the end of the audit.

INFORMATION NEEDS

- Materials/documentation provided in response to open or confirmatory items in the Watts Bar ISE
- OPD (current version), operator procedures, operator training plans, RRC (SAFER) playbook
- Materials/documentation for staff audit questions and/or licensee OIP identified open items as listed in the Part 2 table below

To provide supplemental input to the ongoing audit of documents submitted to the NRC and made available via e-portal, the onsite audit will have three components: 1) a review of the overall mitigating strategies for the site, including, if needed, walk-throughs of strategies and equipment laydown of select portions; 2) a review of material relating to open or confirmatory items from the ISE, staff audit questions, and licensee open items; and 3) additional specific issues requested by NRC technical reviewers related to preparation of a safety evaluation. Each part is described in more detail below.

Part 1 - Overall Mitigating Strategies and Program Review:

During the onsite audit, please be prepared to conduct a tabletop discussion of the site's integrated mitigating strategies compliance program. This discussion should address the individual components of the plan, as well as the integrated implementation of the strategies including a timeline. The licensee team presenting this should include necessary

representatives from site management, engineering, training, and operations that were responsible for program development, and will be responsible for training and execution.

Following the tabletop discussion, please be prepared to conduct walk-throughs of procedures and demonstrations of equipment as deemed necessary by NRC audit team members. Include representatives from engineering and operations that will be responsible for training and execution. At this time we expect, at a minimum, to walk-through the items below. Based on the tabletop presentations and audit activities, this list may change.

WALK-THROUGH LIST:

1. Walk-through a sample of strategies that will be delineated by specific NRC technical staff audit team members
2. Walk-through of portable (FLEX) diesel generator (DG) procedures, to include power supply pathways and areas where manual actions are required (ISE open item (OI) 3.2.4.8.A, audit question (AQ) 30/49/50)
3. Walk-through of building access procedures, to include any unique access control devices
4. Strategy walk-through of transfer routes from staging and storage areas for both onsite and offsite equipment
5. Strategy walk-through for core cooling, to include portable pumping equipment, flow paths, and water storage locations
6. Walk-through of communications enhancements

Part 2 – Specific Technical Review Items:

During the visit, the following audit items from the Watts Bar ISE (open items (OI) and confirmatory items (CI)), Watts Bar audit question list (AQ), and licensee OIP, as supplemented, open items will be addressed. Please provide documents or demonstrations as needed to respond to each item.

Audit Item Reference	Item Description
ISE OI 3.2.1.6.A - Sequence of Events AQ 14	Review the reanalysis to support the timelines.
ISE CI 3.1.1.2.A - Deployment of FLEX Equipment	Review the Flex Equipment Storage Building design documents/features and verify that deployment of the equipment will not be impeded by the extended loss of alternating current (ac) power event (ELAP).
ISE CI 3.1.2.2.A - Deployment of FLEX Equipment AQ 4/55	Review a sample of onsite and offsite portable (FLEX) deployment feasibility. The auditors will select FLEX deployment strategy sample to validate the timing and location for staging, connecting, and using the equipment is feasible. The auditors will communicate the desired

Licensee OIP OI 2/5	items for the sample on the first day of the audit.
ISE CI 3.2.1.7.A - Cold Shutdown and Refueling	Review the licensee's shutdown risk process and procedures for incorporation of the supplemental guidance provided in the NEI position paper entitled "Shutdown / Refueling Modes," (ADAMS Accession No. ML13280A650), or plans to provide an equivalent level of safety by alternative means.
ISE CI 3.2.4.4.A – Communication AQ 29	Review a sample of the communication enhancements documented in the NRC staff analysis (ADAMS Accession No. ML13142A348) of the licensee's communications assessment (ADAMS Accession Nos. ML12311A297 and ML13058A067).
ISE CI 3.2.4.5.A - Accessibility	Confirm the implementation of guidance and strategies for accessing protected and locked internal areas during an ELAP through interviews with licensee staff and review of site procedures.
ISE CI 3.2.4.8.A – Electrical AQ 45	Review summary of FLEX DG sizing calculation and manufacturer data.
ISE CI 3.1.1.2.A/3.1.4.1.A/ 3.1.5.1.A – Electrical AQ 9/38	Review the strategy's list of portable equipment, the protected storage, and employment strategy in the various environments.
ISE CIs 3.2.4.2.A-D – Electrical AQ 25/27	Review assessment of room temperature and equipment ratings for operations of installed and portable equipment to include personnel habitability.
ISE CI 3.2.4.9.A – Electrical AQ 32 Licensee OIP OI 3	Review fuel management strategy for FLEX equipment and procedures.
ISE CI 3.2.4.10.A – Electrical AQ 44	Review battery sizing calculation.
ISE CI 3.2.4.10.A – Electrical AQ 42/43 Licensee OIP OI 18	Review direct current (dc) load profile and shedding scheme.
ISE OI 3.2.4.8.A – Electrical AQ 30/39	Review electrical single line diagrams (FLEX DG and electrical supply pathway).
Ventilation Licensee OIP OI 11	Review finalized HVAC calculation MDQ0003602013000272.
Ventilation/Habitability AQ 27	Staff may request a walkthrough of any complex local operator actions or actions deemed to be in a harsh environment. The auditors will communicate the desired walkthroughs on the first day of the audit.
Balance of Plant AQ 52	Review atmospheric relief valve operation, protection, and accessibility during the ELAP event.
Licensee OIP OI 9	Review functional requirements for each of the Phase 3 strategies equipment and components.
Reactor systems	Confirm effectiveness of gravity feed in cooling the reactor coolant

Licensee OIP OI 12	system.
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Part 3 – Specific Topics for Discussion:

1. Draft of Watts Bar OPD
2. Regulatory approach in regards to the potential alternative to the NEI guidance related to pre-staged DGs
3. Thermo-hydraulic analyses to include a discussion of Modular Accident Analysis Program analysis, timeline analysis related to WCAP-17601-P, and boron mixing
4. Training
5. Portable (FLEX) equipment maintenance and testing
6. RRC (SAFER) playbook

Proposed Schedule

Onsite Day 1, Wednesday, March 12, 2014

0800 Check in at site; Badging

0900 Entrance meeting

0930 TVA Presentation

1230 Lunch

1330 NRC Audit Team Activities commence (in parallel):

- Review documents relating to open or confirmatory items, codes, analyses, etc. (1-2-team members)
- Mitigating Strategies walk-throughs with licensee

1600 Audit Team meeting

1630 Team lead daily debrief with licensee

Onsite Day 2, Thursday, March 13, 2014

0800 Check in at site; meet with Senior Resident/Resident

0900 NRC Audit Team Activities:

- Continue review of documents relating to open or confirmatory items, codes, analyses, etc. - if needed
- Continue Mitigating Strategy walk-throughs with licensee

1200 Lunch

1300 Continue NRC Audit Team Activities

1530 Audit Team meeting

1630 NRC/Licensee exit meeting

1700 Audit closeout/departure

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Sincerely,

/RA/

James Polickoski, Project Manager
Project Management Branch
Mitigating Strategies Directorate
Office of Nuclear Reactor Regulation

Docket Nos.: 50-390 and 50-391

Enclosure
Audit plan

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CSanders, NRR/DIRS

ADAMS Accession No. ML14058A105

OFFICE	NRR/DIRS/IPAB/AET	NRR/MSD/LA	NRR/MSD/MESB/BC	NRR/MSD/MRSB/BC
NAME	CSanders	SLent	SBailey	SWhaley
DATE	03/06/2014	03/06/2014	03/06/2014	03/06/2014
OFFICE	NRR/MSD/MSPB/BC	NRR/MSD/MSPB/PM		
NAME	JBowen (JBoska for)	JPolickoski		
DATE	03/06/2014	03/06/2014		

OFFICIAL AGENCY RECORD