



Memorandum from the Office of the Inspector General

June 24, 2026

Delson C. Erb
Kevin M. Michael

**REQUEST FOR FINAL ACTION – EVALUATION 2026-17609 – NUCLEAR FATIGUE
RULE – SEQUOYAH NUCLEAR PLANT**

Attached is the subject final report for your review and final action. Your written comments, which addressed your management decision and actions planned or taken, have been included in the report. Please notify us when final action is complete. In accordance with the Inspector General Act of 1978, as amended, the Office of the Inspector General is required to report to Congress semiannually regarding evaluations that remain unresolved after 6 months from the date of report issuance.

If you have any questions or wish to discuss our findings, please contact Lindsay J. Denny, Director, Evaluations - Operations, at (865) 633-7349. We appreciate the courtesy and cooperation received from your staff during the evaluation.

Greg Stinson
Assistant Inspector General
(Audits and Evaluations)

HMC:FAJ
Attachment

cc (Attachment):

TVA Board of Directors
Jessica E. Dufner
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Jill M. Matthews
Edward C. Meade
Matthew Rasmussen
Ronald R. Sanders II
Michael D. Skaggs
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Ben R. Wagner
OIG File No. 2026-17609



Office of the Inspector General

Evaluation Report

To the Vice President,
Fleet Support, and the
Vice President, Sequoyah
Nuclear Plant

NUCLEAR FATIGUE RULE – SEQUOYAH NUCLEAR PLANT

Evaluation Auditor
Heather M. Cook

Evaluation 2026-17609
June 24, 2026

ABBREVIATIONS

CFR	Code of Federal Regulations
CR	Condition Report
NFR	Nuclear Fatigue Rule
NPG	Nuclear Power Group
Sequoyah	Sequoyah Nuclear Plant
SPP	Standard Programs and Processes
TVA	Tennessee Valley Authority

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AND KEVIN MICHAEL TO GREG STINSON



Evaluation 2026-17609 – Nuclear Fatigue Rule – Sequoyah Nuclear Plant

EXECUTIVE SUMMARY

Why the OIG Did This Evaluation

According to the Occupational Safety and Health Administration, worker fatigue increases the risk for illness and injuries and has been a contributing factor in several industrial disasters. The Tennessee Valley Authority's Nuclear Fatigue Rule (NFR) procedure establishes requirements for managing fatigue and controlling work hours in accordance with Title 10 Code of Federal Regulations, Part 26, Subpart I, *Managing Fatigue*. The regulation has (1) a maximum average work hour requirement for covered individualsⁱ while the unit is online and (2) a minimum days off requirement while the unit is in outage, which is based on the work the individual performs and the length of their shifts.

Due to the importance of employees being able to safely and competently perform their duties, we performed an evaluation of the NFR at Sequoyah Nuclear Plant (Sequoyah). Our objective was to determine if the Tennessee Valley Authority was in compliance with the NFR at Sequoyah.

What the OIG Found

Nuclear Power Group, Standard Programs and Processes 03.21, *Nuclear Fatigue Management Program*, implements requirements for managing fatigue and controlling work hours in accordance with Title 10 Code of Federal Regulations, Part 26, Subpart I, *Managing Fatigue*. Our review of sampled employee and contract employee work hours and badging records for April 1, 2025, through September 30, 2025, identified no violations of NFR work-hour limits. However, we identified opportunities for improvement related to (1) NFR work-hour tracking and (2) fatigue assessmentⁱⁱ documentation.

What the OIG Recommends

We recommend the Vice President, Sequoyah, address issues related to work-hour tracking and fatigue assessment documentation. Our detailed recommendations are listed in the body of this report.

ⁱ Any individual granted unescorted access to a nuclear power plant protected area to perform certain risk-significant tasks is a covered individual.

ⁱⁱ Fatigue assessments are face-to-face evaluations of an individual whose alertness may be impaired.



Evaluation 2026-17609 – Nuclear Fatigue Rule – Sequoyah Nuclear Plant

EXECUTIVE SUMMARY

TVA Management's Comments

In response to our draft report, TVA management provided planned actions to address our recommendations. See the Appendix for TVA management's complete response.

Auditor's Response

We agree with TVA management's planned actions to address our recommendations.

BACKGROUND

According to the Occupational Safety and Health Administration, worker fatigue increases the risk for illness and injuries and has been a contributing factor in several industrial disasters. Nuclear Power Group (NPG), Standard Programs and Processes (SPP) 03.21, *Nuclear Fatigue Management Program*, implements requirements for managing fatigue and controlling work hours in accordance with Title 10, Code of Federal Regulations (CFR), Part 26, Subpart I, *Managing Fatigue*. This subpart includes requirements related to general provisions, work hours, waivers and exceptions, self-declarations of fatigue, and fatigue assessments.¹

While fatigue management applies to individuals who have unescorted access to protected areas² at a nuclear plant, work-hour controls apply only to covered individuals³ who perform or direct covered work. Covered work includes:

- Operating or onsite directing of the operation of systems and components that a risk-informed evaluation process has shown to be significant to public health and safety.
- Performing maintenance or onsite directing of the maintenance of structures, systems, and components that a risk-informed evaluation process has shown to be significant to public health and safety.
- Performing radiation protection or chemistry duties required as a member of the onsite emergency response organization.
- Conducting the duties of a fire brigade member who is responsible for understanding the effects of fire and fire suppressants on safe shutdown capability.
- Performing security duties as an armed security-force officer, alarm-station operator, response team leader, or watchperson.
- Individuals in other departments assigned tasks that meet the covered work definition.
- Supervisory and management level personnel who assume a role involving the performance of covered work.

Title 10 CFR, Part 26, has (1) a maximum average work-hour requirement for covered individuals while the unit is online, which limits worker hours to an average of 54 hours per week, calculated over a rolling period of up to 6 weeks and (2) a minimum days off requirement while the unit is in outage, which is based on the work the individual performs and the length of their shifts. In

¹ Fatigue assessments are face-to-face evaluations of an individual whose alertness may be impaired.

² Protected areas are areas encompassed by physical barriers and where access is controlled.

³ Any individual who is granted unescorted access to a nuclear power plant protected area and performs covered work is a covered individual.

addition, the following work-hour limits apply to covered individuals regardless of whether the unit is online or in outage:

- No more than 16 work hours in any 24-hour period.
- No more than 26 work hours in any 48-hour period.
- No more than 72 work hours in any 7-day (168-hour) rolling period.
- At least a 10-hour break between successive work periods.
- A continuous break of at least 34 hours in any 9-day period (216 hours).

To ensure employees are not working while fatigued, fatigue assessments are required for five conditions:

- **For Cause** – in response to an observed condition of impaired individual alertness creating a reasonable suspicion that an individual is not fit to safely and competently conduct their duties,
- **Self-declaration** – in response to an individual’s self-declaration to their supervisor that they are not fit to safely and competently perform their duties or any part of a work shift due to fatigue,
- **Post-event** – in response to events requiring post-event drug and alcohol testing,
- **Follow up** – after a “for cause” fatigue assessment or a self-declaration when the individual is returning to duty following a break of less than 10 hours, or
- **Waiver** – required prior to completion of an approved waiver.

According to NPG-SPP-03.21, *Nuclear Fatigue Management Program*, fatigue assessments address (1) acute and cumulative fatigue, (2) potential degradations in alertness and performance due to circadian variations,⁴ (3) potential degradations in alertness and performance that could affect risk-significant functions, and (4) whether any controls and conditions must be established under which the individual will be permitted to perform work.

Additionally, NPG-SPP-03.21, *Nuclear Fatigue Management Program*, requires mid-year and annual reviews be performed by each department to determine NFR compliance. Documents to be reviewed include condition reports (CR),⁵ fatigue assessments, waivers, and violations. In conjunction with the mid-year review, the annual review shall evaluate the effectiveness of the control of work hours for covered individuals.

⁴ The increases and decreases in alertness and cognitive/motor functioning caused by human physiological processes (e.g., body temperature, release of hormones) that vary on an approximate 24-hour cycle.

⁵ A CR is a mechanism used to document an issue (undesired condition, problem, or concern raised by personnel).

Due to the importance of employees being able to safely and competently perform their duties, we performed an evaluation of the NFR at Sequoyah Nuclear Plant (Sequoyah).

OBJECTIVE, SCOPE, AND METHODOLOGY

The objective of our evaluation was to determine if the Tennessee Valley Authority (TVA) was in compliance with the NFR at Sequoyah. Our scope included employee and contract employee work hours from April 1, 2025, through September 30, 2025. In order to fulfill our objective, we:

- Reviewed pertinent SPPs and interviewed the Fleet NFR Program Owner, the Sequoyah NFR Site Lead, and each department's NFR administrator to gain an understanding of the NFR process.
- Compared the general requirements in 10 CFR, Part 26, Subpart I, *Managing Fatigue*, to TVA policies, procedures, training and examinations content, recordkeeping, reports, and audits to determine TVA's compliance with the regulation.
- Compared departmental lists of covered employees being tracked for NFR purposes to employees listed in TVA's human capital management system in departments that perform covered work to determine if all appropriate employees were being included in the NFR program.
- Reviewed documentation for a statistically selected sample of 65 of 1,710 contract employees who performed work at Sequoyah at any time during our project scope but were not included in the NFR program to determine if any covered work was performed outside of the NFR program. We selected our sample using rate of occurrence sampling with a 90-percent confidence level. Since these were statistical samples, the results of the sample can be projected to the population.
- Reviewed the one fatigue assessment performed during our scope to determine if it was performed in accordance with 10 CFR, Part 26, and TVA's NFR procedures.⁶
- Reviewed documentation for a statistically selected sample of 67 of 4,355 covered employee pay periods⁷ with overtime during our scope and performed the following steps:
 - Compared work hours from payroll, work-hour system, and badging records to determine if records were being accurately tracked.
 - Reviewed records to identify any NFR violations.

We selected our sample using rate of occurrence sampling with a 90-percent confidence level. Although this was a statistical sample, we did not project the results due to the nature of the errors identified, which were not appropriate for extrapolation to the full population.

⁶ We intended to review waivers, but there were none during our scope.

⁷ One employee was inadvertently excluded, and their pay periods were not included in our population.

- Reviewed TVA documentation for a random selection of 12 of 116 contract employees with work hours tracked for NFR purposes during our project scope and performed the following steps:
 - Compared work hours from work-hour system and badging records to determine if records were being accurately tracked.
 - Reviewed time records to identify any NFR violations.

This evaluation was conducted in accordance with the Council of the Inspectors General on Integrity and Efficiency's *Quality Standards for Inspection and Evaluation*.

FINDINGS

As stated above, NPG-SPP-03.21, Nuclear Fatigue Management Program, includes rules regarding work-hour limits for how many hours can be worked in specific time periods for covered individuals. Our review of sampled employee and contract employee work hours and badging records for April 1, 2025, through September 30, 2025, identified no violations of NFR maximum average work hours or work-hour limits. However, we identified opportunities for improvement related to NFR work-hour tracking and fatigue assessment documentation. In addition, a system issue was identified and corrected during the course of our evaluation.

OPPORTUNITIES FOR IMPROVEMENT

We identified opportunities for improvement related to (1) NFR work-hour tracking and (2) fatigue assessment documentation deficiencies that could impact the site's ability to monitor for adverse NFR trends.

Work-Hour Tracking

During our comparison of work hours in the payroll system, work-hour system, and badging records, we identified issues related to (1) hours worked missing from the work-hour system and (2) hours not worked included in the work-hour system.

We identified 2 employees and 7 contract employees whose payroll records and badging records indicated they worked a shift that was not included in the work-hour system. According to the TVA and contractor personnel responsible for the schedules, the time was inadvertently omitted. Although these errors did not result in NFR violations, a violation could have occurred if the individuals had been scheduled for overtime based on the inaccurate schedule in the system.

In addition, when an employee takes leave or does not work on a holiday, the employee's schedule should be adjusted to create an accurate reflection of the employee's time paid but not worked, for future overtime purposes. However, we identified hours not worked were still included in the work-hour system for 7 of 67 pay periods in our sample testing. Without an accurate reflection of actual time

worked, the site may not be able to adequately and efficiently staff overtime shifts.

Fatigue Assessment Documentation Deficiencies

During the scope of our evaluation, there was one fatigue assessment performed and it was a post-event fatigue assessment. Our review of the assessment identified documentation deficiencies that could impact the site's ability to monitor for adverse trends. According to NPG-SPP-03.21, *Nuclear Fatigue Management Program*, "Supervisors initiate a CR on fatigue assessment(s) conducted to include referencing 'fatigue' within the summary for tracking purposes and to ensure the use of appropriate anonymity in the CR and attachments." Our review of the fatigue assessment performed during our period identified the associated CR did not include "fatigue" in the summary.

Additionally, according to NPG-SPP-03.21, comments are required when a post-event is performed to describe the event and the individuals' involvement. However, the fatigue assessment reviewed did not include any comments to describe the circumstances resulting in the fatigue assessment because the form did not have a section for comments. We communicated this information to TVA and the form has been updated to include a section for comments.

ADDITIONAL INFORMATION

During our review of work hours, we identified a display issue in the work-hour tracking system. After an employee's shift was updated, the system failed to reflect the revised information and instead presented the previous shift details as the new entry. TVA personnel contacted the work-hour tracking system vendor, and the issue was corrected.

RECOMMENDATIONS

We recommend the Vice President, Sequoyah, reinforce the expectation for:

- Hours worked to be entered in the work-hour system.
- Hours not worked to be removed from the work-hour system.
- Fatigue assessments to include all required information for trending purposes.

TVA Management's Comments – TVA management stated that reaffirmation of these principles will be conducted both in identified groups and holistically to the site in forums and newsletters. See the Appendix for TVA management's complete response.

Auditor's Response – We agree with TVA management's planned action.



Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

June 10, 2026

Greg Stinson, WT 2C-K

RESPONSE TO REQUEST FOR COMMENTS – DRAFT EVALUATION 2026-17609
NUCLEAR FATIGUE RULE- SEQUOYAH NUCLEAR PLANT

This letter is in response to the Draft Evaluation 2026-17609 Nuclear Fatigue Rule – Sequoyah Nuclear Plant.

A review of sampled employees and contract employee work hours and badging records for April 1, 2025 through September 30, 2025 was performed. No violations of NFR maximum average work hours or work-hour limits were identified. However, opportunities for improvement were identified related to NFR work-hour tracking and fatigue assessment documentation deficiencies that could impact the site's ability to monitor adverse NFR trends.

Recommendations:

The OIG recommends the Vice President, Sequoyah, address issues related to work-hour tracking and fatigue assessment documentation. The following reinforcements are expected:

- Hours worked to be entered into the work-hour system
- Hours not worked to be removed from the work-hour system
- Fatigue assessments to include all required information for trending purposes.

Reaffirmation of these principles will be conducted both in identified groups and holistically to the site in forums and newsletters.

Thank you for allowing me to provide these comments. Please contact me if you have any questions.

Kevin Michael
Vice President- Sequoyah Nuclear Plant

Erb, Delson
Christopher

Delson Erb
VP Fleet Support

Digitally signed by Erb, Delson Christopher
DN: dc=gov, dc=tva, dc=main, ou=Main, ou=Corporate,
ou=Users, cn=Erb, Delson Christopher, email=dcerb@tva.gov
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