Sequoyah Nuclear Plant Unit 2

Sequoyah Nuclear Plant (SQN) Unit 2
Pre-submittal Meeting for Request for Exemption from Requirements of
10 CFR 26.205

November 20, 2024

TVA TENNESSEE VALLEY AUTHORITY

Agenda

- Introduction
- Affected Regulations
- Proposed Exemption
- Basis for Proposed Exemption
- Mitigating Actions
- Precedents
- Summary
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Introduction – what we plan to do

- The purpose of this meeting is to provide information for a one-time exemption proposed by Tennessee Valley Authority (TVA) pursuant to 10 CFR 26.9, “Specific exemptions,” for Sequoyah (SQN) Unit 2.
- This will be a request for exemption from the requirements of 10 CFR 26.205, "Fitness for Duty Programs - Work Hours."
- The proposed exemption would allow the use of the less restrictive work hour limitations described in 10 CFR 26.205(d)(4) – the so-called “outage work hour rules” – to support activities during a specific maintenance window in the ongoing SQN Unit 2 extended turbine generator outage.

Introduction – how we got here

- The shutdown for the ongoing SQN Unit 2 extended turbine generator outage occurred on July 30, 2024. This was an unplanned shutdown.
- A full “restack” of the turbine generator is being performed over the next several months. This is an extensive refurbishment of the main generator.
- The SQN Unit 2 extended turbine generator outage is scheduled to be completed in early April 2025.
- Not directly related to the work on the turbine generator, a three-week maintenance window is scheduled to begin January 2025 to complete items such as:
    - Testing for entry into Mode 4 (Hot Shutdown)
    - Entry into Mode 4, Mode 3, Mode 2
    - Testing of main steam safety valves
    - Testing of primary check valves
    - Plant cooldown

Affected Regulations

- 10 CFR 26.4(a) defines the categories of individuals that are subject to the work hour controls specified in 10 CFR 26.205. These categories include:

  (1) 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;

  (2) Performing health physics or chemistry duties required as a member of the onsite emergency response organization minimum shift complement;

  (3) Performing the duties of a fire brigade member who is responsible for understanding the effects of fire and fire suppressants on safe shutdown capability;

  (4) Performing maintenance or onsite directing of the maintenance of SSCs that a risk informed evaluation process has shown to be significant to public health and safety; and

  (5) Performing security duties as an armed security force officer, alarm station operator, response team leader, or watchman, hereinafter referred to as security personnel.

- The proposed exemption to 10 CFR 26.205(d)(4) applies to individuals in categories (1), (2), and (4) above.

Affected Regulations (continued)

- 10 CFR 26.9, Specific exemptions, states:

  Upon application of any interested person or on its own initiative, the Commission may grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property or the common defense and security, and are otherwise in the public interest.

- 10 CFR 26.205(d)(4) provides the following requirements:

  During the first 60 days of a unit outage, licensees need not meet the requirements of § 26.205(d)(3) or (d)(7) for individuals specified in § 26.4(a)(1) through (a)(4), while those individuals are working on outage activities. However, the licensee shall ensure that the individuals specified in § 26.4(a)(1) through (a)(3) have at least 3 days off in each successive (i.e., non-rolling) 15-day period and that the individuals specified in § 26.4(a)(4) have at least 1 day off in any 7-day period

Proposed Exemption

- Given that the 60-day period in 10 CFR 26.205(d)(4) has expired, TVA requests to apply the less restrictive work hour limitations described in 10 CFR 26.205(d)(4) to individuals in the categories of 10 CFR 26.4(a) items (1), (2), and (4):

  (1) 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

  (2) Performing health physics or chemistry duties required as a member of the onsite emergency response organization minimum shift complement

  (4) Performing maintenance or onsite directing of the maintenance of SSCs that a risk informed evaluation process has shown to be significant to public health and safety

- The period of the proposed exemption would commence on a date/time noted in the Outage Control Center log, commencing no earlier than January 6 and no later than January 31, 2025, applicable for a period not to exceed 21 days.

Basis for Proposed Exemption - I

- Due to the unplanned nature of the shutdown last July, testing of main steam safety valves (normally performed as the unit is being shut down) was not completed.
- A three-week maintenance window has been scheduled to begin during January 2025 to complete items such as:
  - Testing for entry into Mode 4 (Hot Shutdown)
  - Entry into Mode 4, Mode 3, Mode 2
  - Testing of main steam safety valves
  - Testing of primary check valves
  - Plant cooldown
- This three-week window will allow the discovery and resolution of any discovery items during a period of less restrictive work hour limitations.

Basis for Proposed Exemption - I (continued)

- Discovery and resolution of these items would prevent a further addition to the length of the ongoing SQN Unit 2 extended turbine generator outage by allowing time to make long lead-time repairs, such as:
  - Potential repairs to main steam safety valves
  - Potential repairs to primary check valves
  - Replacement of power-operated relief valves due to potentially-significant leakage detected upon heatup to Normal Operating Temperature and Pressure during this maintenance window
- Operating experience with past refueling outages has demonstrated that such discovery and resolution requires the use of the so-called “outage work hour rules” under 10 CFR 26.205(d)(4), i.e., continuous 72-hour work weeks.
- However, the 60-day period allowed under 10 CFR 26.205(d)(4) for “outage work hour rules” expired on September 28, 2024.

Basis for Proposed Exemption - II

- The use of “online” work hour rules restricts weekly work hours to a 54-hour cap, calculated as a rolling average over a maximum six-week period.
- In the week immediately following the three-week maintenance window, emergency diesel generator (EDG) maintenance outages are scheduled to begin. This places these EDG outages within the six-week rolling window of the three-week maintenance window previously described.
- These EDG outages will be completed using “online” work hour rules. However, there will be several individuals in operations and maintenance roles who work greater than 40 hrs/wk during the EDG outages.
- If the work hours from the previous three-week maintenance window were kept under “online” rules, and thus had to be included in the rolling average of the EDG outage period, then TVA would be unable to properly meet the EDG outage work requirements.

Basis for Proposed Exemption - III

- Approval of this exemption request would ensure that TVA has the needed resources to complete the SQN Unit 2 extended turbine generator outage as currently scheduled, avoiding unnecessary impacts to TVA's ability to provide safe and reliable power to the Tennessee Valley.
- Without the exemption approval, TVA will be challenged from a reliability perspective, especially as this service territory moves into warmer weather and resulting higher loads in April 2025. This would result in TVA committing other generators and/or acquiring off-system energy replacements.
- Without the exemption approval, TVA's reserve capacity position would begin to not meet planning targets in April 2025 and this situation would worsen during the months of June-August. To replace this energy, TVA would be required to perhaps purchase replacement power from the market on a non-firm basis which increases reliability risk.

Basis for Proposed Exemption - IV

- Transition Into/Out of Outage Work Hour Rules
  - The affected individuals had transitioned out of outage work hour rules when the 60-day period expired on September 28, 2024.
  - Regulatory position C.10 of Regulatory Guide 5.73, “Fatigue Management for Nuclear Power Plant Personnel,” allows personnel to work extended hours during successive unit outages provided an adequate interval is provided between the unit outages to address the effects of cumulative fatigue.
  - The work schedule maintained at SQN Unit 2 from September 29, 2024, to the present date meets the guidance provided in Regulatory Guide 5.73 for an adequate interval between outages to address the effects of cumulative fatigue.
  - This period of working normal average hours provides assurance that cumulative fatigue will not compromise the ability of these individuals to safely and competently perform their duties.

Mitigating Actions

- During the period of the proposed exemption, the cognizant supervisors will assess each assigned supervised employee for fatigue and mental alertness prior to conducting work covered by the Fatigue Rule.

Precedents

- On November 10, 2009, the NRC approved an exemption request for the Donald C. Cook Nuclear Plant Unit 1 (D.C. Cook) which applied the requirements of 10 CFR 26.205(d)(4) for 60 days or until completion of the forced outage, whichever was shorter (ML092630003 and ML09263004). The D.C. Cook exemption is relevant in that the provisions of 10 CFR 26.205(d)(4) were approved for application during an extended outage.

- On June 24, 2010, the NRC approved an exemption request for the Davis Besse Nuclear Power Station (DBNPS) Unit 1, which applied the requirements of 10 CFR 26.205(d)(4) and (d)(5) to support the restart from an extended outage (ML101730457 and ML101730482). Davis-Besse is cited as precedent because it sought an exemption for a period not to exceed 21 days, due to an extended outage.

Precedents (continued)

- On October 28, 2013, the NRC approved an exemption request from 10 CFR 26.205 for the Fort Calhoun Station, Unit 1 (ML13274A025 and ML13274A026). Fort Calhoun is cited as precedent because it sought an exemption due to an extended outage. The exemption allowed the use of the less restrictive working hour limitations described in 10 CFR 26.205(d)(4) to support activities for a period not to exceed 45 days.

- On April 29, 2022, the NRC approved an exemption request from 10 CFR 26.205 for the Watts Bar Nuclear Plant, Unit 2 (ML22117A185 and ML22117A186). Watts Bar is cited as precedent because it sought an exemption due to an extended outage. The exemption allowed the use of the less restrictive working hour limitations described in 10 CFR 26.205(d)(4) to support activities for a period not to exceed 60 days.

Summary

- TVA is requesting a one-time exemption pursuant to 10 CFR 26.9, for SQN Unit 2, to allow the use of the less restrictive work hour limitations described in 10 CFR 26.205(d)(4) for workers in categories 26.4(a)(1),(2),(4) to support activities during a specific maintenance window in the ongoing SQN Unit 2 extended turbine generator outage.
- The period of the proposed exemption would commence on a date/time noted in the Outage Control Center log, commencing no earlier than January 6 and no later than January 31, 2025, applicable for a period not to exceed 21 days.
- The proposed exemption will not endanger life or property or the common defense and security, and is otherwise in the public interest.

Schedule for Submittal

- The schedule for this three-week maintenance window was developed using a deliberate decision-making process.
- TVA plans to submit this exemption request to NRC by November 30, 2024.
- To allow for update of applicable procedures, night orders, and workhour control systems in advance of the planned January 6 start date for the exemption period, TVA requests NRC approval by December 31, 2024.


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