Entergy

ENTERGY OPERATIONS, INC.
PRE-SUBMITTAL MEETING

Grand Gulf Nuclear Station, Unit 1

Relief Request to Adopt Performance-based Testing for Pressure Isolation Valves (PIVs)

May 10, 2021

Introductions

- Rich Meister – Licensing Engineer – Grand Gulf Nuclear Station, Unit 1 (GGNS)
- Ethan Kennedy – Central Engineering Programs – Entergy Corporate
- Paul Kalka - Central Engineering Programs – Entergy Corporate
- Lana Cook - Central Engineering Programs – Entergy Corporate
- John Schrage – Licensing Engineer - Entergy Corporate
- Phil Couture – Senior Manager, Regulatory Assurance – Entergy Corporate

Purpose

- Describe a planned Inservice Testing (IST) relief request for Pressure Isolation Valves (PIVs) at Grand Gulf Nuclear Station, Unit 1 (GGNS).
  - Background
  - Proposed Alternative
  - Relief Request Details
  - Relief Request Basis
  - Precedent
  - Schedule
- Obtain feedback from NRC Staff on proposed relief request.

Background

- The GGNS IST code of record is American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) – 2004 Edition through, and including, the 2006 Addenda.

- Section ISTC-3522, "Category C Check Valves" states, in part:
  - During operation at power, each check valve shall be exercised or examined in a manner that verifies obturator travel by using the methods in ISTC-5221.
  - If exercising is not practicable during operation at power and cold shutdowns, it shall be performed during refueling outages.

Background (cont.)

- Section ISTC-3630, "Leakage Rate for Other Than Containment Isolation Valves," states, in part:
  - Category A valves with a leakage requirement not based on an Owner's 10 CFR 50, Appendix J, program, shall be tested to verify their seat leakages within acceptable limits. Valve closure before seat leakage testing shall be by using the valve operator with no additional closing force applied.
- Subsection ISTC-3630(a), "Frequency," states, "Tests shall be conducted at least once every 2 years".

Proposed Alternative

- In accordance with 10 CFR 50.55a(z)(1), Entergy plans to request an alternative to ASME OM Code Section ISTC-3522 and Subsection ISTC-3630(a) for 22 PIVs.
- The proposed alternative will allow performance of PIV testing at GGNS on a performance-based frequency, in a manner similar to the containment isolation valve testing process under 10 CFR 50, Appendix J, Option B.
- PIV testing will be controlled in a manner similar to the methods described in NEI 94-01, Revision 3-A.
- The proposed 10 CFR 50.55a(z)(1) alternative provides for more efficient plant operation while maintaining an acceptable level of quality and safety.

Relief Request Details

- PIV test performances would occur at a nominal frequency ranging from every refueling outage to every third refueling outage, subject to acceptable valve performance.

- Valves that demonstrate good performance for two consecutive cycles may have their test interval extended up to 75-months, with a permissible extension (for non-routine emergent conditions) of nine months (84 months total).

- Conservative controls will be established such that if any valve fails the PIV test, the test interval will be reduced in a manner similar to that established under 10 CFR 50 Appendix J, Option B, requirements. Any PIV leakage test failure would require the component be returned to the initial interval of every 30 months until good performance can again be established.

- The primary basis is, with two exceptions, that the 22 subject PIVs have exhibited successful test results over five consecutive refueling outages.

Relief Request Basis

- The primary basis for this proposed alternative is the historic test performance of the PIVs. With two exceptions, the 22 subject PIVs exhibited successful test results over five consecutive refueling outages.

- Additional bases
  - Separate functional testing of motor-operated valve (MOV) PIVs is performed in accordance with the ASME OM Code.
  - Relief valves in the low pressure (LP) piping are able to accommodate conservative PIV seat leakage rates.
  - Operators are highly trained to recognize symptoms of the presence of an ISLOCA (i.e., alarms that identify high pressure (HP) to LP leakage), and to take appropriate actions.

Precedent

- The following is a list of several recently approved alternatives to allow conduct of PIV testing under a performance-based testing approach, similar to that established under 10 CFR 50, Appendix J, Option B:
  - LaSalle County Station, Units 1 and 2, September 10, 2019 (ML19217A306)
  - Limerick Generating Station, Units 1 and 2, October 28, 2019 (ML19228A195)
  - Peach Bottom Atomic Power Station, Units 2 and 3, May 30, 2018 (ML18141A600)
  - Dresden Nuclear Power Station, Units 2 and 3, October 27, 2015 (ML15774A303)

Schedule

- Entergy plans to submit the relief request by May 31, 2021
- Approval will be requested by November 30, 2021 to support implementation and use during the February 2022 refueling outage

Entergy

QUESTIONS?