From: Kuntz, Robert
Sent: Monday, June 13, 2022 2:22 PM
To: Steinman, Rebecca L:(Constellation Nuclear)
Subject: RAI RE: Alternative RV-09, MSSVs

In a letter dated February 17, 2022, Constellation Energy Generation, LLC (Constellation, the licensee) submitted several Alternative Requests (including RV-09) for the Inservice Testing (IST) Program at Quad Cities Nuclear Power Station (QCNPS) Units 1 and 2 to the U.S. Nuclear Regulatory Commission (NRC) (Agencywide Documents Access and Management System Accession Nos. ML22048B569). The letter included Alternative Request RV-09 related to main steam safety valve testing. The Nuclear Regulatory Commission (NRC) staff has determined that additional information is required to complete its review. The Nuclear Regulatory Commission (NRC) staff has determined that additional information is required to complete its review. The NRC staff's request for additional information (RAI) is included. The NRC staff expects a response within 30 days which is July 13, 2022. If Constellation can not provide a response within this time contact me to discuss.

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REQUEST FOR ADDITIONAL INFORMATION

QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2

ALTERNATIVE RV-09

EMIB-RAI-1

Requirement:

Division 1, Mandatory Appendix I, Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants, paragraph I-1320, *Test Frequencies, Class 1 Pressure Relief Valves*, subparagraph (a) *5-Year Test Interval*, which states:

> Class 1 pressure relief valves shall be tested at least once every 5 years, starting with initial electric power generation. No maximum limit is specified for the number of valves to be tested within each interval; however, a minimum of 20% of the valves from each valve group shall be tested within any 24-month interval. This 20% shall consist of valves that have not been tested during the current 5-year interval, if they exist. The test interval for any installed valve shall not exceed 5 years. The 5-year test interval shall begin from the date of the as-left set-pressure test for each valve.

ASME OM Code Case OMN-17, Revision 1, "Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves," Section 1, "Test Frequencies, Class 1 Pressure Relief Valves," Subparagraph (a), "*72-Month Test Interval*," states, in part, that "The test interval for any individual valve that is in service shall not exceed 72 months except that a 6-month grace period is allowed to coincide with refueling outages to accommodate extended shutdown

periods for ASME OM Code 2015 Edition and prior. For ASME OM Code 2017 Edition and later, ISTA-3170 may be utilized to accommodate extended shutdown periods."

Issue:

Quad Cities Alternative Request RV-09, Section 5, "Proposed Alternative and Basis for Use," first, second, and third paragraphs state:

> As an alternative to the Code-required 5-year test interval per Division 1, Mandatory Appendix I, paragraph I-1320(a), QCNPS Units 1 and 2 have been utilizing NRC approved Alternative Request RV-05 (Reference 1). This Alternative Request allows QCNPS Units 1 and 2 to establish a six-year test interval for the subject Class 1 MSSVs provided each QCNPS unit adheres to the additional requirements stipulated within ASME CC OMN-17.
>
> Constellation proposes that the subject MSSVs [Main Steam Safety Valves] be tested at least once every eight years from the date of the as-left set pressure test for each valve. Additionally, Constellation proposes two modifications to the utilization of ASME CC [Code Case] OMN-17. The first change extends the CC OMN-17 testing interval from six years to eight years, with an allowed six-month grace period to coincide with the combined certification testing and refueling outage time periods, and with the interval not to exceed 8.5 years. The second change increases the minimum number of MSSVs from each valve group to be tested from '20% within any 24-month interval' to '40% within any 48-month interval' with the 40% population made up of MSSVs which have not been tested during the current 96-month interval, if they exist. The additional requirements stipulated within ASME CC OMN-17 will be retained.
>
> At QCNPS, Units 1 and 2, Constellation implemented the fleet-wide SRV Best Practices program (Reference 3 Attachment 2) in 2010 and incorporated several enhancements between 2010 and 2014 that resulted in improved MSSV setpoint drift performance. Continued improvements to this program further increase the MSSV reliability.

Request:

1. Discuss how the alternative would address valve testing results where drift is determined to be beyond the allowable limits (for example the testing interval would be adjusted to consistent with the ASME OM Code Case OMN-17 requirement).
2. Discuss whether the additional provisions within ASME OM Code Case OMN-17 will be retained at Quad Cities, specifically OMN-17, Section 1(c), "Requirements of Testing Additional Valves," for each valve tested for which the as-found set pressure exceeds the Owner-established acceptance criteria.
3. Constellation proposes that the subject MSSVs be tested at least once every 8 years from the date of the as-left set pressure test for each valve, with 40% tested every 48 months. Clarify whether there will be at least one MSSV tested each refueling outage and what corrective action will be taken if an MSSV does not meet its test criteria.

EMIB-RAI-2

Requirements:

See EMIB-RAI-1

Issue:

Quad Cities Alternative Request RV-09, Section 5, third, fourth and fifth paragraphs, state:

> At QCNPS, Units 1 and 2, Constellation implemented the fleet-wide SRV Best Practices program (Reference 3, Attachment 2) in 2010 and incorporated several enhancements between 2010 and 2014 that resulted in improved MSSV setpoint drift performance. Continued improvements to this program further increase the MSSV reliability.
>
> The SRV Best Practices program is comprised of methods and philosophies concerning maintenance, inspection and techniques which uses the MSSV [Main Steam Safety Valve] manufacturer's recommended maintenance practices and enhancements identified by Constellation that have been broadly termed “Best Practices.” MSSV Best Practices are developed from the application of the EPRI/NMAC Safety and Relief Valve Testing and Maintenance Guide (Reference 2) and from internal fleet operational experience (OE). The SRV best practices have been implemented through Constellation's oversight of the valve vendor's test and rebuild processes.
>
> Major program elements include specific performance and inspection criteria and maintenance steps that exceed Original Equipment Manufacturer (OEM) specifications and/or Industry established guidelines. The main program elements include 1) Spring Testing, 2) Lapping Techniques and Tools, 3) Set Pressure Adjustment Methodology Precision, and 4) Internal Component Condition Variation Limitations. Collectively, use of these elements have supported a trend in improved setpoint retention of MSSVs in service at QCNPS.

Request:

1. Discuss whether the Constellation Best Practices program will include the latest industry experience with input from various groups, including the Safety Relief Valve Users’ Group, the BWR Owners Group, and other industry experts available in the recent EPRI Report dated July 2021.

Hearing Identifier: NRR_DRMA
Email Number: 1668

Mail Envelope Properties (SA9PR09MB4640D5171BA4A233753FCDFC99AB9)

Subject: RAI RE: Alternative RV-09, MSSVs
Sent Date: 6/13/2022 2:22:06 PM
Received Date: 6/13/2022 2:22:00 PM
From: Kuntz, Robert

Created By: Robert.Kuntz@nrc.gov

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Tracking Status: None

Post Office: SA9PR09MB4640.namprd09.prod.outlook.com

Files	Size	Date & Time
MESSAGE	7472	6/13/2022 2:22:00 PM

Options
Priority: Normal
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date: