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U.S. Nuclear Regulatory Commission
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Subject: Comments Concerning Draft Regulatory Issue Summary (RIS) 2018-XX, "Clarification of the Requirements for Reactor Pressure Vessel Upper Head Bare Metal Visual Examinations" (83FR10407, dated March 9, 2018, Docket ID NRC-2018-0038)

This letter is being submitted in response to the U.S. Nuclear Regulatory Commission (NRC) request for comments concerning draft Regulatory Issue Summary (RIS) 2018-XX, "*Clarification of the Requirements for Reactor Pressure Vessel Upper Head Bare Metal Visual Examinations*," published in the *Federal Register* on March 9, 2018 (i.e., 83FR10407).

This draft RIS is addressed to all holders of an operating license or construction permit for a Pressurized Water Reactor (PWR) under the NRC's regulations, except those who have permanently ceased operations. The NRC is issuing this RIS to clarify the requirements for bare-metal visual examination, which can be either a visual examination of the bare metal of the upper head or a Visual Testing (VT)-2 examination under the insulation to meet the requirements of notes 1 and 4 in Table 1 of American Society of Mechanical Engineers (ASME) Code Case N-729-4, "*Alternative Examination Requirements for PWR Reactor Vessel Upper Heads with Nozzles Having Pressure-Retaining Partial-Penetration Welds Section XI, Division 1.*"

Exelon appreciates the opportunity to comment on this draft RIS and offers the comments below for the NRC's consideration.

Comments

1. Under the second paragraph in the Summary of Issue section, the NRC states the following:

"An indication that the leakage may have come from a component not subject to the visual examination does not remove the possibility that some or all of the leakage possibly came from a nozzle. If the licensee fully removes the deposits using aggressive cleaning methods, such as high-pressure water/steam or power washing, an adequate examination and evaluation to determine the source of leakage is no longer possible."

Exelon is requesting further clarification concerning the use of aggressive cleaning methods after determining the leakage source. The statement above, as written, indicates that it would not be acceptable to use aggressive cleaning on the head after the leakage source has been identified to preclude future corrosion and provide a cleaner surface free of obstructions for future examinations. Exelon believes that it should be acceptable to leave the head in as clean a condition as possible post-examination.

2. Exelon requests that the NRC define "*light cleaning methods*." The use of this term in the draft RIS seems to be rather vague. Does this mean dry air only? Can water be used to clean the surface?
3. This draft RIS provides very restrictive directions on how to assess "*relevant conditions indicative of possible nozzle leakage*." Exelon recognizes that leakage from above the reactor head that collects in the Control Rod Drive Mechanism (CRDM) nozzle annulus region could mask a leak from the nozzle itself. However, if it is very clear that the leakage has come from sources other than the nozzle, regardless whether a sample could be obtained for chemical analysis or not, the requirements of the Code Case N-729-4 to perform a subsequent Visual Examination (VE) of previously obscured surfaces after cleaning prior to return to service and again in the subsequent refueling outage (ASME Code Subsection 3142.1(b)(2)) should be adequate to validate that the external leakage did not mask a nozzle leak. Operating Experience (OE) through the numerous reactor head examinations throughout the industry over the years has shown that the likelihood of a CRDM nozzle leak progressing from initial leakage to a critical flaw size that could lead to possible nozzle ejection is extremely low. Exelon believes that the inspection program has been working. This draft RIS stipulates that licensees mobilize examination equipment under the reactor head, which could result in incurring significant radiation dose and cost with little increase in quality and safety.

The draft RIS does not allow alternatives for new replacement reactor heads that contain corrosion resistant material. Exelon considers this interpretation to be particularly overconservative for replaced reactor heads made from Pressurized Water Stress Corrosion Cracking (PWSCC) resistant material (e.g., Alloy 690 material) where the likelihood of cracking developing in the nozzles or attachment welds is extremely low.

4. Exelon believes in lieu of this RIS, the ASME Code Committee should be engaged to revise Code Case N-729-4 to include additional details and to clarify the type of reactor head (i.e., replacement and material such as Alloy 690).

U.S. Nuclear Regulatory Commission
Comments Concerning Draft RIS 2018-XX
Docket ID NRC-2018-0038
May 7, 2018
Page 3

If you have any questions or require additional information, please contact Richard Gropp at (610) 765-5557.

Respectfully,

A handwritten signature in cursive script, appearing to read "D. P. Helker".

David P. Helker
Manager, Licensing and Regulatory Affairs
Exelon Generation Company, LLC