

NRR-PMDAPEm Resource

From: Purnell, Blake
Sent: Wednesday, September 02, 2015 11:30 AM
To: Loomis, Thomas R:(GenCo-Nuc) (thomas.loomis@exeloncorp.com)
Cc: david.helker@exeloncorp.com; Tate, Travis
Subject: Clinton Power Station, Unit 1 - Request for Additional Information Regarding Relief Request I3R-10 (TAC No. MF6115)
Attachments: MF6115 BWRVIP RAI Rev 2.docx

Mr. Thomas Loomis:

By application dated April 10, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15100A228), Exelon Generation Company, LLC (EGC, the licensee) submitted relief requests (RRs) for its Clinton Power Station (CPS), Unit 1, and Nine Mile Point Nuclear Station (NMP), Units 1 and 2. The RRs propose to use various Boiling Water Reactor (BWR) Vessel and Internals Project (BWRVIP) guidelines as an alternative to certain requirements of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code for inservice inspection of reactor vessel internal (RVI) components.

The Nuclear Regulatory Commission (NRC) staff is reviewing the submittal and has determined that the additional information attached is needed to complete its review of the CPS RR. The staff requests that a response to this request be provided by October 2, 2015. This request was discussed with EGC personnel on September 1 and 2, 2015.

If the NRC staff needs additional information regarding the NMP RR this request will be done by separate correspondence. If you have any questions please contact me at 301-415-1380.

Sincerely,

Blake Purnell, Project Manager
Plant Licensing Branch III-2 and
Planning and Analysis Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission

Docket Nos. 50-461, 50-220, and 50-410

*by email

OFFICE	LPL3-2/PM*	EVIB*	LPL3-2/BC*
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DATE	9/2/15	7/28/15	8/20/15

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From: Purnell, Blake

Created By: Blake.Purnell@nrc.gov

Recipients:

"david.helker@exeloncorp.com" <david.helker@exeloncorp.com>

Tracking Status: None

"Tate, Travis" <Travis.Tate@nrc.gov>

Tracking Status: None

"Loomis, Thomas R:(GenCo-Nuc) (thomas.loomis@exeloncorp.com)" <thomas.loomis@exeloncorp.com>

Tracking Status: None

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REQUEST FOR ADDITIONAL INFORMATION

RELIEF REQUEST TO USE BWRVIP GUIDELINES

CLINTON POWER STATION, UNIT 1

NINE MILE POINT NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-461, 50-220, AND 50-410

By application dated April 10, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15100A228), Exelon Generation Company, LLC (the licensee) submitted relief requests (RRs) for its Clinton Power Station (CPS), Unit 1, and Nine Mile Point Nuclear Station (NMP), Units 1 and 2. The RRs propose to use various Boiling Water Reactor (BWR) Vessel and Internals Project (BWRVIP) guidelines as an alternative to certain requirements of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code for inservice inspection of reactor vessel internal (RVI) components.

The Nuclear Regulatory Commission (NRC) staff is reviewing the submittal and has determined that the additional information below is needed to complete its review.

Clinton Power Station, Unit 1

CPS-RAI-1

For CPS, the application references the BWR Vessel and Internals Inspection Summaries for Fall 2013 Outages dated August 7, 2014 (ADAMS Accession No. ML14241A014). Based on the NRC staff's review of the report, the following information is needed:

- (a) Identify the following type of welds that have been inspected at CPS, Unit 1: (1) furnace sensitized stainless steel vessel attachment welds or (2) vessel attachment welds made with nickel base alloy 182 welding electrodes. If these welds were inspected in the past, provide the number of welds that were identified with cracks and the corrective actions taken.
- (b) Welds made with nickel base alloy 182 welding electrodes are more susceptible to intergranular stress corrosion cracking than stainless steel welds. Identify if any of the alloy 182 welds (both ASME Section XI welds and non-ASME Section XI welds) of the reactor vessel internal components have been inspected at CPS, Unit 1. If these welds were inspected in the past, provide the number of welds that were identified with cracks and the corrective actions taken.

CPS-RAI-2

Hydrogen water chemistry (HWC) and/or HWC plus noble metal chemical addition (NMCA) are methods used to mitigate intergranular stress corrosion cracking. Specify whether HWC or HWC+NMCA are currently implemented at CPS. Provide details on the methods for determining the effectiveness of HWC/NMCA using the latest measured values of the following parameters:

- (a) Electro-chemical potential applicable when HWC or HWC+NMCA is implemented,

- (b) Hydrogen/oxygen molar ratio applicable when HWC+NMCA method is implemented, and
- (c) Catalyst loading (platinum) applicable when HWC+NMCA is implemented.

Many BWR units have implemented the newly developed on-line noble chemical (OLNC) addition to their reactor vessels. If OLNC has been implemented at CPS, provide the latest measured values for parameters (a) and (b) above.

Describe the availability of HWC/HWC+NMCA during the normal operation of CPS, Unit 1. Identify when HWC/NMCA or HWC/OLNC was implemented at CPS, Unit 1.

CPS-RAI-3

- (a) On page 5 of the August 7, 2014, inspection summary, it states that during the 2011 refueling outage a flaw was discovered in vertical weld V11. Provide the following information related to this flaw: (1) length of the flaw; (2) location of the flaw (i.e., specify if it is in the weld or heat affected zone or near the junction of the horizontal weld/heat affected zone), (3) corrective actions taken with respect to this flaw, and (4) when would this flaw be inspected in the future.
- (b) Confirm whether radial ring welds in repaired shrouds were inspected at CPS, Unit 1. This inspection is recommended in Section 3.4 of the NRC-approved BWRVIP-76-A report.

CPS-RAI-4

Confirm that a plant-specific leakage assessment was performed, as required by BWRVIP-18 (core spray), BWRVIP-41 (jet pump assembly), BWRVIP-42 (low pressure coolant injection system), and BWRVIP-76 (core shroud), for the internals at CPS, Unit 1, which accounts for the leakage from all internals that impact the ability to cool the core and maintain peak clad temperature within allowed limits during postulated loss of coolant accidents. Provide a summary of all internal components included in the leakage assessment along with a summary of the following for each component:

- (a) the number and length of all cracks detected in past examinations for the component
- (b) the number and length of all cracks evaluated in the leakage assessment
- (c) the calculated leak rate from each crack evaluated in the leakage assessment.

Identify if a plant-specific integrated leakage assessment was performed at CPS, Unit 1, for the RVI components associated with the BWRVIP documents listed above.

CPS-RAI-5

In the application, the licensee identified BWRVIP-25, "BWR Core Plate Inspection and Flaw Evaluation Guidelines," as part of its inspection program for the RVI components at CPS, Unit 1. The August 7, 2014, inspection summary does not include the inspection results of the core plate at CPS, Unit 1.

Identify whether the core plate is part of its ASME Code, Section XI, core support structure. If this is not the case, explain why augmented inspections (non-ASME Code, Section XI) of the core plate, consistent with the inspection guidelines of BWRVIP-25, were not performed.

Provide a summary of previous core plate inspection results, if conducted, so the NRC staff can assess the extent of any aging degradation in the core plate at CPS, Unit 1. The summary should specify the number of welds that were identified with cracks or any other aging degradation and the corrective actions taken by the licensee. Furthermore, identify whether wedges on the core plate have been installed at CPS, Unit 1.