



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

September 8, 2014

LICENSEE: Exelon Generation Company, LLC

FACILITY: Byron Station, Units 1 and 2
Braidwood Station, Units 1 and 2

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON JULY 30, 2014, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND EXELON GENERATION COMPANY, LLC CONCERNING RESPONSES FOR REQUEST FOR ADDITIONAL INFORMATION B.2.1.30-3, 3.0.3-3A, AND 2.3.3.12-4, AND DRAFT REQUEST FOR ADDITIONAL INFORMATION SET 38 AND 39, PERTAINING TO THE BYRON STATION AND BRAIDWOOD STATION, LICENSE RENEWAL APPLICATION (TAC NOS. MF1879, MF1880, MF1881, MF1882)

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of Exelon Generation Company, LLC (Exelon or the applicant), held a telephone conference call on July 30, 2014, to discuss draft request for additional information and clarify the applicant's response for request for additional information (RAI) B.2.1.30-3, 3.0.3-3a, and 2.3.3.12-4. The staff also discussed and clarified the staff's draft request for additional information (DRAI), Set 39, concerning the Byron Station, Units 1 and 2, and the Braidwood Station, Units 1 and 2, license renewal application. The applicant discussed additional clarification questions concerning DRAI Set 38 (ADAMS Accession No. ML14205A228). The applicant did not require any additional information on Set 38; no changes were made to the DRAIs.

Below is an in-depth discussion on each RAI response. Enclosure 1 provides a listing of the participants. Enclosure 2 provides the DRAI Set 39 discussed with the applicant and a summary of the discussion that eliminated the need for this DRAI. The applicant had an opportunity to comment on this summary.

RAI B.2.1.30-3

The staff noted that the original LRA as well as the revised LRA Section XI, Subsection IWL Program provided in the applicant's responses to RAI B.2.1.30-3 (letters dated April 17, 2014, and July 8, 2014), state that the applicant performs and will continue to perform "augmented examinations" on additional tendons to address the presence of water in the tendon sheaths at Braidwood. The staff asked the applicant to clarify whether these "augmented examinations" are American Society of Mechanical Engineers (ASME) Code required augmented examinations. The applicant stated that the "augmented examinations" associated with the presence of free water in the tendon sheaths are not to be confused with those required by the ASME Code. The applicant clarified that these "augmented examinations" are activities that will be performed beyond those required by the ASME Code and are directed to manage the effects of aging due to the presence of water in the tendon sheaths at Braidwood through implementation of the ASME Section XI, Subsection IWL Aging Management Program (AMP). It was noted that the augmented examinations that would be performed under Enhancement 1

(only) of the IWL Program would be Code-required augmented examinations. The staff noted and understood the applicant's clarification and had no further questions.

RAI 3.0.3-3a

The staff discussed the applicant's responses submitted for RAI 3.0.3-3a (letters dated May 12, 2014, and July 18, 2014), associated with inspections for cracking under insulation. The staff was concerned that the one-time inspection for cracking under insulation for liquid-filled components described in the letter dated May 12, 2014, was not captured in Section B of the LRA. In addition, the staff recognized that in its prior conference call held June 30, 2014 (ADAMS Accession No. ML14190A464), the staff did not identify the need to capture a summary description of inspections under insulation in the updated final safety analyses report (UFSAR) supplements of all applicable programs (as described in LR-ISG-2012-02 for GALL Report AMP XI.M36). However, given that cracking under insulation is managed by the One Time Inspection Program, its UFSAR summary description should be modified.

RAI 2.3.3.12-4

The staff also discussed aging management review (AMR) items for submerged copper bolting that were added in the June 18, 2014, letter. The staff expressed its uncertainty on the function of the bolts and the method and frequency of inspections that will be used to manage loss of material of the bolt heads and threads. The staff reviewed the approach taken by Callaway for a similar issue, the details of which are documented in Callaway's RAI responses (ADAMS Accession Nos. ML14017A007, ML14127A151, and ML14156A312). The staff discussed their need for information with respect to how the applicant will manage the copper bolting. The applicant understood the staff's concern and agreed to provide further information regarding the function of the bolts and proposed aging management activities related to the bolts in a docketed submittal.

/RA/

Lindsay Robinson, Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-454, 50-455, 50-456, and 50-457

Enclosures:

1. List of Participants
2. List of Draft Request for Additional Information

cc w/encls: Listserv

(only) of the IWL Program would be Code-required augmented examinations. The staff noted and understood the applicant's clarification and had no further questions.

RAI 3.0.3-3a

The staff discussed the applicant's responses submitted for RAI 3.0.3-3a (letters dated May 12, 2014, and July 18, 2014), associated with inspections for cracking under insulation. The staff was concerned that the one-time inspection for cracking under insulation for liquid-filled components described in the letter dated May 12, 2014, was not captured in Section B of the LRA. In addition, the staff recognized that in its prior conference call held June 30, 2014 (ADAMS Accession No. ML14190A464), the staff did not identify the need to capture a summary description of inspections under insulation in the updated final safety analyses report (UFSAR) supplements of all applicable programs (as described in LR-ISG-2012-02 for GALL Report AMP XI.M36). However, given that cracking under insulation is managed by the One Time Inspection Program, its UFSAR summary description should be modified.

RAI 2.3.3.12-4

The staff also discussed aging management review (AMR) items for submerged copper bolting that were added in the June 18, 2014, letter. The staff expressed its uncertainty on the function of the bolts and the method and frequency of inspections that will be used to manage loss of material of the bolt heads and threads. The staff reviewed the approach taken by Callaway for a similar issue, the details of which are documented in Callaway's RAI responses (ADAMS Accession Nos. ML14017A007, ML14127A151, and ML14156A312). The staff discussed their need for information with respect to how the applicant will manage the copper bolting. The applicant understood the staff's concern and agreed to provide further information regarding the function of the bolts and proposed aging management activities related to the bolts in a docketed submittal.

/RA/

Lindsay Robinson, Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-454, 50-455, 50-456, and 50-457

Enclosure:

1. List of Participants
2. List of Draft Request for Additional Information

cc w/encls: Listserv

DISTRIBUTION: See next page

ADAMS Accession No.: ML14238A092

*Concurred via e-mail

OFFICE	LA:DLR	PM: RPB1:DLR	BC:RPB1:DLR	PM:RPB1:DLR
NAME	*YEdmonds	LRobinson	YDiazSanabria	LRobinson
DATE	9/4/14	9/8/14	9/8/14	9/8/14

OFFICIAL RECORD COPY

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON JULY 30, 2014, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND EXELON GENERATION COMPANY, LLC CONCERNING RESPONSES FOR REQUEST FOR ADDITIONAL INFORMATION B.2.1.30-3, 3.0.3-3A, AND 2.3.3.12-4 AND DRAFT REQUEST FOR ADDITIONAL INFORMATION SET 38 AND 39 PERTAINING TO THE BYRON STATION AND BRAIDWOOD STATION, LICENSE RENEWAL APPLICATION (TAC NOS. MF1879, MF1880, MF1881, MF1882)

DISTRIBUTION

EMAIL:

PUBLIC

RidsNrrDlr Resource

RidsNrrDlrRpb1 Resource

RidsNrrDlrRarb Resource

RidsNrrDlrRasb Resource

RidsOgcMailCenter

RidsNrrPMByron Resource

RidsNrrPMBraidwood Resource

LRobinson

DMcIntyre, OPA

EDuncan, RIII

JBenjamin, RIII

AGarmoe, RIII

JMcGhee, RIII

JRobbins, RIII

VMitlyng, RIII

PChandrathil, RIII

TELEPHONE CONFERENCE CALL
BYRON STATION, UNITS 1 AND 2, AND BRAIDWOOD STATION, UNITS 1 AND 2
LICENSE RENEWAL APPLICATION

LIST OF PARTICIPANTS
July 30, 2014

PARTICIPANTS

AFFILIATIONS

Lindsay Robinson	U.S. Nuclear Regulatory Commission (NRC)
Angela Buford	NRC
Sam Cuadrado	NRC
William Holston	NRC
Seung Min	NRC
John Wise	NRC
John Hufnagel	Exelon Generating Company, LLC (Exelon)
Al Fulvio	Exelon
Don Warfel	Exelon
Don Brindle	Exelon
Chris Wilson	Exelon
Casey Muggleston	Exelon
Gary Becknell	Exelon
Jim Annett	Exelon
Ralph Wolen	Exelon

DRAFT REQUEST FOR ADDITIONAL INFORMATION
BYRON STATION, UNITS 1 AND 2, AND BRAIDWOOD STATION, UNITS 1 AND 2,
LICENSE RENEWAL APPLICATION

July 30, 2014

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of Exelon Generation Company, LLC (Exelon or the applicant), held a telephone conference call on July 30, 2014, to discuss and clarify the following draft request for additional information (DRAI), Set 39, concerning the Byron Station, Units 1 and 2, and the Braidwood Station, Units 1 and 2, license renewal application (LRA).

DRAI 3.1.1.81-1b

Applicability:

Byron Station (Byron) and Braidwood Station (Braidwood), all Units

Background:

By letter dated June 16, 2014, the applicant responded to RAI 3.1.1.81-1a, which addressed aging management for pressurizer spray heads. In its response, the applicant stated that the pressurizer spray head is fabricated from ASTM A-269 CF8M cast austenitic stainless steel (CASS). The applicant also indicated that the pressurizer spray head does not perform any intended function at low temperatures. The applicant further stated that the stresses on the pressurizer spray head at low temperatures are negligible and no mechanism exists to apply excessive loading; therefore, the pressurizer spray head is not subject to loads that would result in a fracture (non-ductile failure) at low temperatures.

GALL Report AMP XI.M12, "Thermal Aging Embrittlement of Cast Austenitic Stainless Steel (CASS)," states that based on the criteria set forth in the NRC letter (from C. Grimes, NRC, to D. Walters, Nuclear Energy Institute) dated May 19, 2000, the susceptibility to thermal aging embrittlement of CASS materials is determined in terms of casting method, molybdenum content, and ferrite content. Generic Aging Lessons Learned (GALL) Report aging management program (AMP) XI.M12 also states that for high-molybdenum content steels (SA-351 Grades CF3M, CF3MA, and CF8M or other steels with 2.0 to 3.0 weight percent molybdenum), static-cast steels with ferrite content greater than 14 percent and centrifugal-cast steels with ferrite content greater than 20 percent are potentially susceptible to thermal aging embrittlement. The GALL Report further states that static-cast high-molybdenum steels with ferrite content not exceeding 14 percent and centrifugal-cast high-molybdenum steels with ferrite content not exceeding 20 percent are not susceptible to thermal aging embrittlement.

Issue:

GALL Report AMP XI.M12 describes the criteria for determining the susceptibility of CASS materials to thermal aging embrittlement based on casting method, molybdenum content, and ferrite content. However, the applicant's response did not address these material susceptibility criteria for the pressurizer spray heads. In addition, it is not clear to the staff why the low stresses on the pressurizer spray heads at low temperatures can justify the applicant's claim that loss of fracture toughness due to thermal aging embrittlement is not applicable to these CASS components. Therefore, the staff cannot determine the adequacy of the applicant's aging

ENCLOSURE 2

management for pressurizer spray heads, which are potentially subject to loss of fracture toughness due to thermal aging embrittlement.

Request:

1. Describe the composition, casting method, and ferrite content of the pressurizer spray heads to confirm that these CASS components are not susceptible to loss of fracture toughness due to thermal aging embrittlement in accordance with the material susceptibility criteria described in GALL Report AMP XI.M12.

In addition, clarify why the low stresses on the pressurizer spray heads at low temperatures can justify that loss of fracture toughness due to thermal aging is not applicable to these CASS components.

2. If these CASS components are determined susceptible to loss of fracture toughness due to thermal aging management, describe how this aging effect will be managed for the components. In addition, ensure that the LRA is consistent with the applicant's response.

Discussion: The applicant requested clarification of the staff's request. The applicant clarified that no AMP is needed to manage loss of fracture toughness due to thermal aging embrittlement for pressurizer spray heads because these components are only subject to low stresses at operating temperatures as discussed in Section 3.3.4 of WCAP-14574-A, "License Renewal Evaluation: Aging Management Evaluation for Pressurizers," December 2000. The staff reviewed WCAP-14574-A and agreed that the pressurizer spray heads did not require aging management. This DRAI will not be formally issued.