



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

January 19, 2012

Mr. Michael J. Pacilio  
President and Chief Nuclear Officer  
Exelon Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2; BYRON STATION, UNIT NOS. 1 AND 2; CLINTON POWER STATION, UNIT NO. 1; DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3; LASALLE COUNTY STATION, UNITS 1 AND 2; LIMERICK GENERATION STATION, UNITS 1 AND 2; OYSTER CREEK NUCLEAR GENERATING STATION; PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3; QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2; AND THREE MILE ISLAND NUCLEAR STATION, UNIT 1 – REQUEST FOR ADDITIONAL INFORMATION RE: PROPOSED ALTERNATIVE TO USE AMERICAN SOCIETY OF MECHANICAL ENGINEERS BOILER AND PRESSURE VESSEL CODE CASE N-789 (TAC NOS. ME7303 THROUGH ME7319)

Dear Mr. Pacilio:

By letter dated October 7, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML112800669), with a supplement dated November 10, 2011 (ADAMS Accession No. ML113180232), Exelon Generating Company submitted for the Nuclear Regulatory Commission review and approval a proposed alternative to use American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Case N-789 (N-789), "Alternative Requirements for Pad Reinforcement of Class 2 and 3 Moderate-Energy Carbon Steel Piping for Raw Water Service, Section XI, Division 1," at Braidwood Units 1 and 2, Byron Unit Nos. 1 and 2, Clinton Unit 1, Dresden Units 2 and 3, LaSalle Units 1 and 2, Limerick Units 1 and 2, Oyster Creek, Peach Bottom Units 2 and 3, Quad Cities Units 1 and 2, and Three Mile Island, Unit 1.

The NRC staff is reviewing your submittal and has determined that additional information is required to complete the review. The specific information requested is addressed in the enclosure to this letter. During a teleconference on January 11, 2012, your staff stated that you will respond by February 24, 2012.

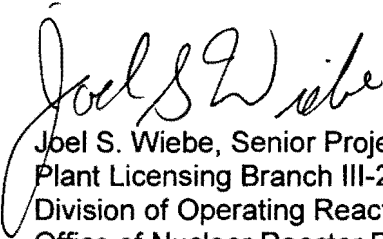
The NRC staff considers that timely responses to requests for additional information help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources.

M. Pacilio

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If circumstances result in the need to revise the response date, please contact me at (301) 415-6606.

Sincerely,



Joel S. Wiebe, Senior Project Manager  
Plant Licensing Branch III-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-456, STN 50-457,  
STN 50-454, STN 50-455, 50-461, 50-237,  
50-249, 50-373, 50-374, 50-352, 50-353, 50-219,  
50-277, 50-278, 50-254, 50-265 and 50-289

Enclosure:  
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION  
RELATED TO THE PROPOSED ALTERNATIVE TO USE AMERICAN SOCIETY OF  
MECHANICAL ENGINEERS (ASME) BOILER AND PRESSURE VESSEL CODE CASE N-789  
(N-789), "ALTERNATIVE REQUIREMENTS FOR PAD REINFORCEMENT OF CLASS 2 AND 3  
MODERATE-ENERGY CARBON STEEL PIPING FOR RAW WATER SERVICE, SECTION XI,  
DIVISION 1," FOR BRAIDWOOD STATION, UNITS 1 AND 2; BYRON STATION,  
UNIT NOS. 1 AND 2; CLINTON POWER STATION, UNIT NO 1; DRESDEN NUCLEAR  
POWER STATION, UNITS 2 AND 3; LASALLE COUNTY STATION, UNITS 1 AND 2;  
LIMERICK GENERATING STATION, UNITS 1 AND 2; OYSTER CREEK NUCLEAR  
GENERATING STATION; PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 and 3;  
QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2; THREE MILE ISLAND  
NUCLEAR STATION, UNIT 1,  
DOCKET NOS. STN 50-456, STN 50-457, STN 50-454, STN 50-455, 50-461, 50-237,  
50-249, 50-373, 50-374, 50-352, 50-353, 50-219, 50-277, 50-278; 50-254, 50-265, AND 50-289

By letter dated October 7, 2011 (Agencywide Documents and Access Management System (ADAMS) Accession No. ML112800669), with a supplement dated November 10, 2011 (ADAMS Accession No. ML113180232), Exelon Generating Company submitted for U.S. Nuclear Regulatory Commission (NRC) review and approval a proposed alternative to use American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Case N-789 (N-789), "Alternative Requirements for Pad Reinforcement of Class 2 and 3 Moderate-Energy Carbon Steel Piping for Raw Water Service, Section XI, Division 1," at Braidwood Units 1 and 2, Byron Unit Nos. 1 and 2, Clinton Unit No. 1, Dresden Units 2 and 3, LaSalle Units 1 and 2, Limerick Units 1 and 2, Oyster Creek, Peach Bottom Units 2 and 3, Quad Cities Units 1 and 2, and Three Mile Island, Unit 1. To complete its review, the NRC staff requests additional information as follows. The questions are related to the submittal dated November 10, 2011, which contains the latest version of the proposed alternative.

1. Paragraphs 1(e) and 8(d) of N-789 state that reinforcing pads, including those installed during a refueling outage, shall not remain in service beyond the end of the next refueling outage.
  - a. Confirm that both the pressure pad and structural pad as discussed in Section 3 of N-789 are part of the reinforcing pads.

Enclosure

- b. Confirm that both the pressure and structural pads will not remain in service beyond the end of the next refueling outage.
  - c. If the repair is performed in mid-cycle (e.g., one month before the scheduled refueling outage), discuss when is the 'next refueling outage'.
  - d. There are piping systems that are required to be functional and thus cannot be repaired during refueling outages. The repair of these pipes can only be performed when the plant (the unit) is operating. The maximum service life to the next refueling outage would not be applicable or appropriate for these piping systems. Provide the service life of the reinforcing pads for these piping systems.
  - e. Section 2 of the proposed alternative lists the end date of the 10-year inservice inspection (ISI) interval for each unit. Confirm that the end date of the 10-year ISI interval is reached during the mid-cycle because the duration of the proposed alternative is requested to be limited to the end of 10-year ISI interval.
2. Section 3.1(1) of N-789 states that . . . [t]he pressure pads are designed to retain . . . full structural integrity . . . assuming a corrosion rate of either two times the actual measurement corrosion rate in that location or four times the estimated maximum corrosion rate for the system . . . ."
- a. Discuss how the actual measurement corrosion rate will be derived (e.g., what is the period of time between two measurements taken? Would the measured corrosion rate be based on the average of several measurements or only one measurement).
  - b. Discuss whether the maximum (worst) corrosion rate determined from both approaches in N-789 (i.e., the greater of the two times the actual measurement corrosion rate or four times the estimated maximum corrosion rate) will be used in the pressure pads design. If not, provide justification why the worst corrosion rate is not used in the reinforcing pad design.
  - c. Discuss how the corrosion rate is used to design the reinforcing pad (e.g., how the thickness and size of the pad and weld size are designed based on the corrosion rate?).
  - d. Discuss what the acceptance criteria are for the 'full structural integrity' of piping (provide reference specific ASME Code paragraphs that define the full structural integrity).
3. The design requirements in Section 3.2 and examination requirements in Section 6 of N-789 stipulate the use of the Construction Code or ASME Code, Section III.
- a. Clarify the edition and addenda of the ASME Code, Section III, that will be used if it is used in lieu of the Construction Code.
  - b. N-789 also stipulates the use of various IWA paragraphs of the AMSE Code, Section XI. Confirm that the edition and addenda of the ASME Code, Section XI, will be based on the Code of Record for the specific 10-year ISI interval at each nuclear unit covered under the proposed alternative.
4. Section 4 of N-789 discusses requirements for installing the reinforcing pad on water-backed piping. Discuss whether N-789 permits a reinforcing pad be installed

on a leaking area of the pipe. If yes, discuss how welding will be conducted on a leaking pipe to minimize fabrication defects (e.g., porosity and hydrogen cracking) in the weld.

5. Section 8 of N-789 stipulates inservice monitoring requirements for the structural pad, but not the pressure pad. In Section 5 of the Proposed Alternative, the licensee stated that for the pressure pads, inservice monitoring will not be required because the design of pressure pads conservatively assumes two times the actual measured corrosion rate or four times if using an estimated rate.
  - a. Justify that either two times the actual measured corrosion rate or four times the estimated maximum corrosion rate for the system is adequate to ensure conservatism that the pressure pad will not leak or lose structural integrity prior to its removal.
  - b. Even if a conservative corrosion rate is used in the pad design, justify why the pressure pad does not need ISIs.
6. Discuss whether the proposed alternative will be applied to buried piping. If yes, discuss how the required examinations will be performed if the pipes are buried after the reinforcing pad is installed.

M. Pacilio

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If circumstances result in the need to revise the response date, please contact me at (301) 415-6066.

Sincerely,

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Joel S. Wiebe, Senior Project Manager  
Plant Licensing Branch III-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-456, STN 50-457,  
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Request for Additional Information

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NRR-088

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| NAME   | JWiebe    | SRohrer(BTully<br>for) | TLupold* | JZimmerman | JWiebe    |
| DATE   | 1/19/12   | 1/18/12                | 1/3/12   | 1/19/12    | 1/ 19/12  |

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