August 8, 2006

Mr. Christopher M. Crane, President
and Chief Nuclear Officer
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BYRON STATION, UNIT NOS. 1 AND 2, REQUEST FOR ADDITIONAL INFORMATION RE: RELIEF REQUEST 13R-08 - ALTERNATIVE TO WELD OVERLAY REQUIREMENTS (TAC NOS. MD1761 AND MD1762)

Dear Mr. Crane:

By letter to the Nuclear Regulatory Commission (NRC) dated April 28, 2006, Exelon Generation Company, LLC submitted a request to use an alternative to the repair/replacement requirements of the American Society of Mechanical Engineers *Boiler and Pressure Vessel Code*, Section X, 2001 Edition, through 2003 Agenda, IWA-4000, for the structural weld overlays on pressurizer spray, relief, safety and surge nozzle safe-ends at Byron Station, Unit Nos. 1 and 2.

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 discussion with your staff on August 7, 2006, it was agreed that you would provide a response within 30 days from the date of this letter.

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. If circumstances result in the need to revise the requested response date, please contact me at (301) 415-3733.

Sincerely,

/RA/

Robert F. Kuntz, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-454 and 50-455

Enclosure:
Request for Additional Information

cc w/encl: See next page

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Robert F. Kuntz, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-454 and 50-455

Enclosure:
Request for Additional Information

cc w/encl: See next page

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Byron Station, Units 1 and 2

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Byron Station, Units 1 and 2

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Mr. Barry Quigley
3512 Louisiana
Rockford, IL 61108

REQUEST FOR ADDITIONAL INFORMATION

BYRON STATION, UNITS 1 AND 2

DOCKET NOS. 50-454 AND 50-455

In reviewing the Exelon Generation Company, LLC's (Exelon's) submittal dated April 28, 2006, requesting an alternative to the repair/replacement requirements of the American Society of Mechanical Engineers *Boiler and Pressure Vessel Code* (ASME Code), Section XI, 2001 Edition, through 2003 Addenda, IWA-4000, for the structural weld overlays on pressurizer spray, relief, safety and surge nozzle safe-ends, at Byron Station, Units 1 and 2, the NRC staff has determined that the following information is needed in order to complete its review:

1. In the submittal, Exelon stated that structural weld overlays are proposed for the welds listed in Table 1, page 6. Only one reference in the submittal is made stating that a full-structural overlay will be the design (page 8 of 20). Since this is the only place that the design of the overlay has been referenced, clarify whether full-structural overlays are to be performed and that no design/optimized overlays will be implemented. (Category 2.b)

2. Indicate what types of nondestructive examinations (NDEs) will be performed prior to the weld overlay installation. If pre-welding NDE is not to be performed, expand the justification for not performing the NDE prior to welding the full-structural overlays. (Category 2.b)

3. Discuss Exelon's repair strategy as a result of pre-welding NDE. Exelon's submittal indicated that full-structural overlays will be performed as a preemptive application, or as a repair application if a flaw is found. If a flaw is detected in the weld by NDE prior to weld overlay, confirm that the weld overlay thickness calculation is based on the worst case flaw. (Category 2.b)

4. For an overlay that extends over an adjacent weld (if it occurs), discuss in detail Exelon's strategy for expansion of examinations if an unacceptable flaw is found by post-welding NDE of the weld overlay and was not scheduled for an inservice examination for that outage. (Category 2.b)

5. Identify when the flaw evaluations and shrinkage stress effects analyses required under Code Case N-504-2(g), Items 2 and 3, will be performed as they relate to the outage schedule. (Category 2.g)

6. On page 11 of the submittal, Exelon indicated that, "The maximum area of an individual weld based on the finished surface over the ferritic material will exceed 100 sq. in. and will be on the order of 300 sq. in." As Exelon noted, a portion of its basis for acceptability is the NRC staff's approval of the Susquehanna Steam Electric Station overlay. To support Exelon's basis for meeting an acceptable level of quality and safety, identify the similarities and differences in the overlay designs and stresses with Susquehanna that apply to Byron Station, Units 1 and 2. (Category 1.d)

Enclosure

7. On page 12 of the submittal, Exelon identified the start time for the 48-hour hold time from ambient temperature for post welding NDE to completion of the third layer welding. On July 17, 2006, the NRC staff submitted a "No" vote to Code Case N-638-X which dealt with shortening the 48-hour hold time. The 48-hour hold time, from the time when a weld has reached ambient temperature after the completion of welding, is reasonable because it provides defense in depth for repairs on P-3 materials that do not receive preheat or postweld heat treatment as part of the weld repair process. It is the staff's position that the white paper that supports Code Case N-638-X and its referenced Electric Power Research Institute Report (GC-111050) do not provide adequate technical justification to reduce the current 48-hour hold time requirements. Provide a justification in terms of deterministic evidence and/or actual test data that demonstrates that the time boundary Exelon is requesting is sufficient to identify any hydrogen cracking. (Category 1.f)

8. On page 2 of the submittal, Exelon identified Regulatory Guide (RG) 1.147, Rev. 14 as an applicable requirement. On page 12 of the submittal, Exelon identified Code Case N-638-2 as the basis for not performing the "full UT [ultrasonic test] " of the 1.5T band for structural weld overlays. Code Case N-638-2 is not approved or conditionally approved for use in RG 1.147, Rev. 14. Since the Code Case Exelon referenced has not been approved for use by the NRC staff, submit an acceptable technical justification for relief from the UT coverage requirements. (Category 2.g)

9. On page 10 of the submittal, Exelon stated that the Byron Station Third Interval Inservice Inspection (ISI) Program is based on the ASME Code, 2001 Edition, through 2003 Addendum, which is the basis for relief from the IWA-5000 requirements. Identify any pertinent Code paragraphs from Exelon's ISI Code of record or NRC staff-endorsed Code Cases to support Exelon's request for relief. (Category 2.g)

RAI CATEGORIES
(Select only one, most dominant category for each RAI question)

1. More information is needed because of:

   a. complexity of request
   b. first-of-a-kind nature of request
   c. NRC change in regulatory significance or focus
   d. NRC questions on previously used methodology or guidance
   e. licensee change to previously used methodology
   f. licensee reduction in current safety margin

2. The review can not be completed without additional explanation or clarification of:

   a. input variables or analytical assumptions
   b. methodology used or results obtained
   c. applicability or bounding nature of third party analyses or data correlations
   d. differences from NRC guidance documents (SRP, RG, etc.)
   e. no significant hazards consideration discussion
   f. environmental considerations discussion
   g. applicable regulatory requirements discussion
   h. information that appears to be incorrect and needs to be corrected
   i. response to previous RAI appears inadequate

3. Reviewer requesting information even though the question is, or the question asks for:

   a. not directly related to the request
   b. inconsistent with applicable codes, standards, RGs, or SRP sections
   c. information accessible from readily available sources and was explicitly referenced
   d. information does not appear needed given the precedent cases discussed in the request
   e. information that is not safety significant or pertinent to the regulatory finding
   f. information that is known to engineers who work in the general technical area
   g. going beyond the current licensing basis and doesn't need to be asked
   h. a formal commitment

4. Other (please specify)