



FPL Energy Duane Arnold, LLC  
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**FPL Energy.**

**Duane Arnold Energy Center**

May 5, 2008

NG-08-0278  
10 CFR 50.55a

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555-0001

Duane Arnold Energy Center  
Docket 50-331  
License No. DPR-49

Response to Request for Additional Information Related to Relief Requests MC-R001 and MC-P001

- References:
1. Letter, Richard L. Anderson (FPL Energy Duane Arnold) to Document Control Desk (USNRC), Second 10-Year Containment Inspection Plan, dated November 16, 2007, NG-07-0878 (ML073320185)
  2. Letter, Karl D. Feintuch (USNRC) to Richard L. Anderson (FPL Energy Duane Arnold), Request for Additional Information Pertaining to Relief Requests MC-R001 and MC-P001 for Second Containment Inservice Inspection Interval, dated April 22, 2008 (ML080990497)

Reference 1 provided requests for relief MC-R001, regarding torus coating inspection, and MC-P001, regarding minor repairs to the containment pressure boundary. This relief is requested for the Second Ten-Year Interval of the Containment Inspection Plan for the Duane Arnold Energy Center (DAEC), which will begin on May 22, 2008.

In Reference 2, the Staff issued a request for additional information regarding Reference 1. The response to the request of Reference 2 is provided in the enclosure to this letter.

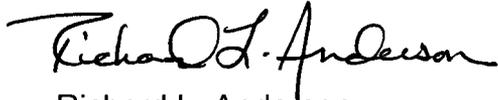
FPL Energy Duane Arnold requests approval of the requests of Reference 1 by November 30, 2008 to support inspections and testing planned for refueling outage RFO 21, currently scheduled for the first quarter of 2009.

This letter contains no new commitments nor revises any previous commitments.

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If you have any questions, please contact Steve Catron at (319) 851-7234.



Richard L. Anderson  
Vice President, Duane Arnold Energy Center  
FPL Energy Duane Arnold, LLC

Enclosure

cc: Administrator, Region III, USNRC  
Project Manager, DAEC, USNRC  
Senior Resident Inspector, DAEC, USNRC

**Enclosure**

**Response to Request for Additional Information Related to Relief Requests  
MC-R001 and MC-P001**

**Response to Request for Additional Information Related  
to the Relief Request for Seal Weld Procedure Qualification**

**NRC Question #1:**

With reference to Relief Request MC-R001, the staff notes that Note 2 of Table IWE-2500-1 Examination Category E-C, Item E4.11, of the ASME Code Section XI, 2001 Edition through 2003 Addenda, which is applicable to successive inspection intervals, states that: "The extent of examination shall be 100% (of those identified for augmented examination per IWE-1240) for each inspection period until the areas examined remain essentially unchanged for the next inspection period. Such areas no longer require augmented examination in accordance with IWE-2420(c)." The purpose of performing the detailed visual examination for the Subject examination category is provided in paragraph IWE-2310(c). The above criteria and the acceptance criteria in IWE-3511 are intended to determine whether continued re-examination of an area that was identified for augmented examination is required or not in the next inspection period. Staff also notes that the code requirement as stated in the relief request, "(Table) IWE-2500-1. Category E-C requires a Detailed Visual (VT-1) every period on 100% of surface areas identified by IWE-1242" is not a complete and accurate statement of the code requirement. Further, the description in the relief request should address the requirements for augmented examination rather than periodic examination of the suppression chamber. Please clarify and justify your request for relief in the context of the code requirements relating to the magnitude and extent of deterioration and distress (observed corrosion rate, actual depth/extent of corrosion/pitting, etc.) of the specific areas of the torus identified for augmented examination for the Second Containment Inservice inspection interval for Duane Arnold and the acceptance criteria for these examinations in IWE-3511.

**FPL Energy Duane Arnold Response:**

The intent of Relief Request MC-R001 is to seek relief from the requirements of Table IWE-2500-1 Examination Category E-C, Item E4.11, of the ASME Code Section XI, 2001 through 2003 Addenda.

IWE-2500-1, category E-C requires a Detailed Visual (VT-1) every period on 100% of the surface areas identified for augmented examination by IWE-1242. The inspection is required every inspection period until the areas examined remain essentially unchanged for the next inspection period. Such areas (essentially unchanged areas in subsequent inspection periods) no longer require augmented examination in accordance with IWE-2420(c). Based on the selection criteria of IWE-1241 and the examination results as described in the relief request, the submerged portion of the DAEC suppression pool is considered as an augmented inspection area and subject to the requirements of IWE-2500-1 Examination Category E-C, Item E4.11.

In 1994, DAEC developed a "Long-Term Strategy for Primary Containment Suppression Chamber (Torus)." This strategy includes underwater cleaning, inspection, and repairs on an every other refueling outage frequency using divers. During the other refueling outages, cleaning is performed as practical without using divers. This strategy was discussed in our submittal in response to Generic Letter 98-04 dated November 11, 1998 (Reference 1), which is described below.

This relief request has been submitted to support the second ten-year containment inspection interval for DAEC. The second ten-year interval only covers the period from May 22, 2008 to February 21, 2014. The end date corresponds with current license expiration. This interval is therefore less than six years and encompasses three refueling outages. In essence, this schedule establishes a single refueling outage in each IWE inspection period. During a typical 10 year interval, there would be at least five refueling outages and the present strategy of an inspection every other refueling outage can be maintained. The present strategy is also consistent with the recommendation of EPRI as provided in Report 1003102, "Guidelines on Nuclear Safety-Related Coatings," November 2001; which recommends in Table 8.1 that inspections be performed every three to five years.

Therefore, DAEC has requested relief from the IWE-2500-1, category E-C requirement for a Detailed Visual (VT-1) every period on 100% of the surface areas identified for augmented examination by IWE-1242. DAEC proposes to perform the required inspection on an every other refueling outage frequency due to the short interval, and to maintain consistency with our established strategy and industry recommendations.

The DAEC "Long-Term Strategy for Primary Containment Suppression Chamber (Torus)" provides the following repair criteria relative to the submerged region of the torus.

### **SUBMERGED REGIONS**

- 1. Inspect 100 percent of the torus shell in each bay and the inside and outside surfaces of the downcomers using qualified underwater divers. Coating should be inspected for zinc depletion, flaking, blistering, peeling, discoloration, or other signs of degradation. Where the coating is found to be degraded, inspect the torus shell in the vicinity of the degraded area for evidence of pits. Inspection should be performed every other refueling outage.*
- 2. Repair all areas greater than 1/4" diameter that show evidence of coating degradation with an underwater cured epoxy coating, UT-15.*
- 3. Clean pitted areas to remove corrosion products from each pit prior to application of the UT-15 epoxy. Measure and record maximum pit depths for engineering evaluation.*

The acceptance criteria used to evaluate areas of coating degradation is consistent with the requirements of ASTM D3911-95, "Standard Test Method for Evaluating Coatings Used in Light-Water Nuclear Power Plants at Simulated Design Basis Accident (DBA) Conditions." Specifically, no flaking, peeling, or delamination is permitted and blisters must be intact and completely surrounded by sound coating. The repair criterion for pitting specifies that pits with a depth greater than 0.053" and/or greater than 1/4" in diameter must be repaired. In the last examination in 2005, there was only one area of pitting that exceeded the criteria (measured depth of 0.056"). However, 1292 localized coating repairs were performed on areas of zinc depletion, tiger striping, mechanical damage, and failures of previous repairs. The lack of a significant amount of pitting indicates that the present strategy is effective in maintaining the structural integrity of the containment by ensuring the protective coating remains intact.

**NRC Question #2:**

With regard to the "Alternate Examination" section of Relief Request MC-P001, please confirm (i) if the minor repair/replacement activities for which relief is sought are those defined in paragraph IWE- 5222 of the ASME Code Section XI, 2001 Edition through 2003 Addenda; and (ii) if non-destructive examination (such as RT, MT, etc.) of the affected area will be performed per the construction code or repair/replacement program, immediately following these minor repair/replacement activities for which relief is sought.

**FPL Energy Duane Arnold Response:**

DAEC confirms that the minor repair/replacement activities for which relief is sought are those defined in paragraph IWE-5222 of the ASME Code Section XI, 2001 Edition through 2003 Addenda.

DAEC confirms that the non-destructive examination (such as radiographic inspection (RT), magnetic particle (MT), etc.) of the affected area will be performed per the construction code or repair/replacement program, immediately following these minor repair/replacement activities for which relief is sought.

**Reference:**

1. Letter, Gary D. Van Middlesworth (Alliant Utilities) to Document Control Desk (USNRC) Response to Generic Letter 98-04 dated July 14, 1998, dated November 11, 1998, NG-98-1901.