NEXTera ENERGY
DUANE ARNOLD

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U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

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

Supplemental Information Regarding the Duane Arnold Energy Center License Renewal Application

References:

1. Letter, Richard L. Anderson (FPL Energy Duane Arnold, LLC) to Document Control Desk (USNRC), "Duane Arnold Energy Center Application for Renewed Operating License (TSCR-109)," dated September 30, 2008, NG-08-0713 (ML082980623)
2. Letter, Richard L. Anderson (FPL Energy Duane Arnold, LLC) to Document Control Desk (USNRC), "License Renewal Application, Supplement 1: Changes Resulting from Issues Raised in the Review Status of the License Renewal Application for the Duane Arnold Energy Center," dated January 23, 2009, NG-09-0059 (ML090280418)

By Reference 1, FPL Energy Duane Arnold, LLC submitted an application for a renewed Operating License (LRA) for the Duane Arnold Energy Center (DAEC). Reference 2 provided Supplement 1 to the application.

During the course of the NRC review, several questions have been raised in conference calls and other interactions with the Staff that warrant clarifications or changes to the LRA. The enclosure provides these clarifications and changes.

This letter contains no new commitments or changes to existing commitments

If you have any questions or require additional information, please contact Mr. Kenneth Putnam at (319) 851-7238.

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I declare under penalty of perjury that the foregoing is true and correct.

Executed on April 2, 2010.

Christopher R Costanzo

Christopher R. Costanzo
Vice President, Duane Arnold Energy Center
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Enclosure: LRA Changes and Clarifications

cc: Administrator, Region III, USNRC
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Enclosure to NG-10-0191
LRA Changes and Clarifications

NRC Request - Clarification Regarding Table 3.3-1, Item Number 3.3.1-49

By email dated March 22, 2010, the NRC Staff requested clarification regarding the discussion of Item Number 3.3.1-49 provided in LRA Table 3.3-1, Summary of Aging Management Evaluations in Chapter VII of NUREG-1801 Auxiliary Systems.

Item Number 3.3.1-49 addresses loss of material due to microbiologically influenced corrosion (MIC) of stainless steel and steel with stainless steel cladding heat exchanger components exposed to closed cycle cooling water. The aging management program listed in Table 3.3-1 for those components is the Closed-Cycle Cooling Water System Program. The discussion provided for Item Number 3.3.1-49 states that it is not applicable at DAEC. The Staff requested clarification of this item.

DAEC Response

Further review shows that there are no stainless steel heat exchanger components exposed to closed-cycle cooling water in scope for License Renewal. The following revisions are therefore made to the LRA:

On page 3.3-53, in Table 3.3-1 Summary of Aging Management Evaluations in Chapter VII of NUREG-1801 Auxiliary Systems, the discussion for Item Number 3.3.1-49 is revised to read:

> Not applicable at DAEC. DAEC does not have any components in scope for License Renewal in this category.

On page 3.3-17, in LRA Section 3.3.1.14 Hydrogen Water Chemistry System, the following is added to Materials:

- Copper Alloy

On page 3.3-156, Table 3.3.2-14, Summary of Aging Management Review Results Hydrogen Water Chemistry System, the following line item is added:

Component Type	Intended Function	Material	Environment	Aging Effects Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Line Item	Table 3.x-1 Item	Notes
Heat exchanger, condenser, cooler, fan coil	Leakage boundary (spatial)	Copper alloy	Air - indoor uncontrolled (external)	None	None	VIII.I-2 (SP-6)	3.4.1-41	C

On page 3.3-156, Table 3.3.2-14, Summary of Aging Management Review Results Hydrogen Water Chemistry System, the line item for "Heat exchanger, condenser, cooler, fan coil" with aging management program of Closed-Cycle Cooling Water System Program is revised as follows:

Component Type	Intended Function	Material	Environment	Aging Effects Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Line Item	Table 3.x-1 Item	Notes
Heat exchanger, condenser, cooler, fan coil	Leakage boundary (spatial)	Copper alloy	Closed cycle cooling water (internal))	Loss of material	Closed-Cycle Cooling Water System Program	VII.F1-8 (AP-34)	3.3.1-51	B

On page 3.3-203, Table 3.3.2-24, Summary of Aging Management Review Results Reactor Water Cleanup System, the line item for "Heat exchanger, condenser, cooler, fan coil" with material of "Stainless steel" with aging management program of Closed-Cycle Cooling Water System Program is deleted.

NRC Request - Clarification of Section 3.3.2.2.3-3

By email dated March 8, 2010, the Staff requested clarification of the rationale of being "in the standby mode of operation" with respect to cracking in stainless steel components exposed to diesel exhaust. The Staff was concerned that, although the duration of operating time was short, excluding this aging mechanism entirely was inconsistent with the Generic Aging Lessons Learned (GALL) Report.

DAEC Response

LRA Section 3.3.2.2.3-3 concerns cracking which could occur in stainless steel diesel exhaust piping, piping components, and piping elements exposed to diesel exhaust. At DAEC a short section of stainless steel flexible coupling is installed in the diesel turbocharger exhaust and thus is exposed to diesel exhaust during engine operation. Engine operation normally occurs for approximately three hours per month during required generator surveillances and the engine is in standby operation for the remainder of the month and these components are at normal room temperatures.

The following LRA revisions are made to reflect the above information.

On page 3.3-32, in LRA Section 3.3.1.29 Standby Diesel Generators, the following is added to Aging Effects Requiring Management:

- Cracking

On page 3.3-37, Section 3.3.2.2.3-3 is revised to replace the existing statement:

> At DAEC, the stainless steel diesel exhaust components exposed to diesel exhaust are normally in the standby mode of operation and do not have temperatures >140°F.

with the following:

At DAEC, the stainless steel piping components exposed to diesel exhaust in the Standby Diesel Generator System will be managed for stress corrosion cracking by the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program as described in Section B.3.28.

On page 3.3-45, Table 3.3-1, Summary of Aging Management Evaluations in Chapter VII of NUREG-1801 Auxiliary Systems, Item Number 3.3.1-6 is revised to replace the statement "Not applicable at DAEC." with the following:

Consistent with NUREG-1801. Stress corrosion cracking of stainless steel diesel engine exhaust piping exposed to diesel exhaust is managed by Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program.

On page 3.3-238, Table 3.3.2-29, Summary of Aging Management Review Results Standby Diesel Generators, for "Pipe, pipe fittings, hoses, tubes, rupture disk" with an environment of Diesel exhaust (internal), Note 207 is deleted.

On page 3.3-240, Table 3.3.2-29, Summary of Aging Management Review Results Standby Diesel Generators, the following line item is added:

Component Type	Intended Function	Material	Environment	Aging Effects Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Line Item	Table 3.x-1 Item	Notes
Pipe, pipe fittings, hoses, tubes, rupture disk	Pressure boundary	Stainless steel	Diesel exhaust (internal)	Cracking	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-1 (AP-33)	3.3.1-6	E

On page B-56, B.3.28.1 Program Description, the first sentence of the second paragraph is revised to read as follows:

The program consists of inspections of the internal surfaces of metallic piping, piping components, ducting, and other components that are not covered by other aging management programs.

NRC Request Regarding Section 3.5.2.2.2.8 Numbering

By email dated March 8, 2010, the Staff pointed out that LRA Section 3.5.2.2.2.8 details Quality Assurance for Aging Management of Nonsafety-Related Components, whereas, the Standard Review Plan (SRP) has this section numbered as 3.5.2.2.3.

DAEC Response

In order to provide consistency with the SRP, the following revision to the LRA is made:

Section 3.5.2.2.2.8 Quality Assurance for Aging Management of Nonsafety-Related Components on page 3.5-24 of the LRA is revised to 3.5.2.2.3 Quality Assurance for Aging Management of Nonsafety-Related Components.

Follow-up to RAI 3.5.2.1-a

By email dated March 17, 2010, the Staff requested additional information regarding the Defective Fuel Storage Container.

The Original LRA referenced AP-79 (pipe etc, Water Chemistry recommended) and the LRA Aging Management Program (AMP) was Section XI with generic note E and Water Chemistry with generic note C.

Revised LRA referenced TP-10 (support members, Water Chemistry and Section XI recommended) and the LRA AMP Section XI was deleted and Water Chemistry is the only AMP.

The Staff stated that although the change to TP-10 is acceptable, it was not clear why Section XI was deleted without using the Structural Monitoring Program or possibly the One Time Inspection Program to confirm the Water Chemistry Program with a generic note E and meet the TP-10 recommended GALL AMP for visual monitoring of the rack after periods of being immersed in the spent fuel pool.

The response to this RAI also included an applicant initiated change for the Holtec Fuel Racks. It was not clear why the Water Chemistry AMP was not listed as a generic note A versus E.

DAEC Response

The defective fuel storage container is a cylindrical stainless steel component designed to contain leakage from one fuel assembly. This is a separate component and not part of a spent fuel rack. There are no aging effects for these components when exposed to an air-indoor uncontrolled environment. Currently at DAEC, none of the defective fuel storage containers are in use, but two empty containers are in the cask pool portion of the spent fuel pool.

To better meet the GALL for these components, the following LRA changes are made:

On page 3.5-11 of the LRA, Section 3.5.1.10 Supports, Aging Management Programs is revised by adding the following:

- One Time Inspection Program

On page 3.5-112 of the LRA, in Table 3.5.2-10, Summary of Aging Management Review Results Supports, the line item "Defective fuel storage container in treated water" with AMP of ASME Section XI, Subsection IWF Program was deleted in response to RAI 3.5.2.1-a in letter NG-09-0825 dated December 14, 2009. In addition, in the line item for "Defective fuel storage container in treated water" with AMP of Water Chemistry Program, the entry for NUREG-1801 Volume 2 was changed to III.B1.1-11 (TP-10). This item is revised to read as follows:

Component Type	Intended Function	Material	Environment	Aging Effects Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Line Item	Table 3.x-1 Item	Notes
Defective fuel storage container in treated water	Structural Support	Stainless steel	Treated water (external)	Loss of material	Water Chemistry Program One-Time Inspection Program	VII.A4-11 (A-58)	3.3.1-24	C

On page 3.5-112 of the LRA, in Table 3.5.2-10, Summary of Aging Management Review Results Supports, the line item for "Holtec spent fuel rack support" which cites the Water Chemistry Program, the Notes entry was previously changed from A to E in response to RAI 3.5.2.1-a in letter NG-09-0825 dated December 14, 2009. The Notes entry for this item is changed back from E to A.

Torus Recoat Commitment Follow-up

By telephone call on March 15, 2010, the Staff requested additional detail regarding the torus recoating, in particular regarding the rationale for only recoating the torus below the water line. The Staff requested the following:

1) Quantify the density/distribution of coating repairs above and below the water line.
2) Provide a brief description of the current coating configuration.
3) Briefly define/describe "below" the water line. The Staff concern is that the recoat not be cut off where the water line fluctuates above/below the planned recoating.

DAEC Response

1. Inspections of the coatings of the shell of the suppression chamber air space (above the water line) performed in recent outages have not identified any coating deficiencies that warranted coating repairs.

Inspections performed since 1995 below the waterline have identified areas of coating deficiencies that required repair in approximately 5 percent of the under water surface area of the suppression chamber shell. In the DAEC response to RAI 3.4-7 provided in letter NG-09-0825 dated December 14, 2009, it was stated that the total number of suppression chamber internal coating repairs since 1995 is 15,487. All of these repairs have been made below the water line, primarily at the very bottom of the shell area.

2. As stated in DAEC Updated Final Safety Analysis Report (UFSAR) Section 6.1.2:

"All interior surfaces of the containment received an inorganic zinc primer coat of 3-5 mils thickness."

"The torus received two topcoats of the modified phenolic coating along a 2-ft-wide splash band at the water level."

3. Below the water line in the suppression chamber is defined as at the point just below the water to air interface. The current project plan ensures recoating will extend well above any fluctuations in water level, including the phenolic splash band.