



September 6, 2013

NG-13-0274

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

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

License Renewal Commitment Changes

- References: 1) NUREG-1955, "Safety Evaluation Report Related to the License Renewal of Duane Arnold Energy Center," dated November 30, 2010 (ML103070013)  
2) NUREG -1801, "Generic Aging Lessons learned (GALL) Report," Revision 2, December, 2010

In Reference 1, the NRC Staff documented their safety review of the renewal of the Duane Arnold Energy Center (DAEC) Operating License. Included in this review were a number of commitments requiring NextEra Energy Duane Arnold, LLC, hereafter NextEra Energy Duane Arnold, to implement aging management programs. These commitments were subsequently incorporated into the NextEra Energy Duane Arnold Updated Final Safety Analysis Report (UFSAR) in accordance with 10 CFR 50.71(e).

The Staff has updated the generic guidance for aging management as reflected in Reference 2. NextEra Energy Duane Arnold has identified several instances where the existing commitments in the NextEra Energy Duane Arnold UFSAR either require clarification to ensure proper implementation, or warranted updating to reflect later guidance contained in Reference 2. These changes have been evaluated in accordance with our commitment control procedures and in accordance with 10 CFR 50.59.

The enclosure to this letter provides a summary of these commitment changes.

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If you have any questions or require additional information, please contact Ken Putnam at 319-851-7238.



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Vice President, Duane Arnold Energy Center  
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Enclosure

cc: Regional Administrator, USNRC, Region III  
Resident Inspector, USNRC, Duane Arnold Energy Center  
Project Manager, USNRC, Duane Arnold Energy Center

Attachment to NG-13-0274

Summary of Commitment Changes to the Aging Management Programs  
Required Per NUREG-1955

4 pages follow

**Commitment 36: Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS) Program, XI.M13**

Existing Commitment:

Implement a Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS) Program.

Reason for Commitment Change:

Generic Aging Lessons Learned (GALL) Rev.1 included a program for Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel, XI.M13. GALL Rev. 2 incorporated into the XI.M9, BWR Vessel Internals Program inspections for degradation of wrought and cast reactor vessel internal components due to neutron and thermal embrittlement using VT-1 inspections. The inspections of the susceptible Cast Austenitic Stainless Steel components will be performed under the Augmented ISI Program. Previous inspections of these components were limited to the weld area. The first exams fully consistent with the enhanced program will be performed during the 2014 refueling outage. A standalone CASS Program will not be implemented as the inspections are performed under another aging management program.

Revised Commitment:

Enhance the Augmented Inspection procedures for the BWR Vessel Internals Program implementing procedures to include inspection for thermal and/or neutron embrittlement in susceptible Cast Austenitic Stainless Steel (CASS) components.

**Commitment 52: Buried Piping and Tanks Inspection Program, XI.M34**

Existing Commitment:

Enhance the Buried Piping and Tanks Inspection Program to include inspection of at least a minimum number of pipe segments in each material group (one stainless steel, two carbon steel, one cast iron, and two ductile iron) prior to entry into the period of extended operation and each ten-year period after entry into the period of extended operation.

Where torsional guided wave data indicates significant susceptibility, inspections will be performed on associated locations. The sample locations for directed inspections will preferentially select higher risk locations. Piping that normally contains hazardous materials will be prioritized in the inspection location selection process. The diesel fuel oil piping will be inspected prior to entry into the period of extended operation. These directed inspections will be performed

with sufficient excavation to expose at least ten linear feet of piping as practicable, including the pipe bottom. Inspections of coated carbon steel piping will include the coating and backfill in the vicinity of the piping for material that could cause coating damage. The uncoated stainless steel, ductile iron and cast iron piping will be externally inspected for corrosion, and the fill in the vicinity of the piping will be inspected for material that could cause external damage to the stainless steel, ductile iron or cast iron pipe.

Reason for Commitment Change:

The applicable section of GALL Rev. 2, under the XI.M41, Buried and Underground Piping and Tanks allows the inspection of buried and underground piping and tanks to be hydrostatically tested or examined internally by a method capable of determining pipe wall thickness instead of excavation of 10 linear feet of piping. The alternate inspection methods ensure piping is capable of performing its intended function without the need for extensive excavation and backfill and may be a more appropriate inspection for some piping.

Revised Commitment:

Enhance the Buried Piping and Tanks Inspection Program to include inspection of at least a minimum number of pipe segments in each material group (one stainless steel, two carbon steel, one cast iron, and two ductile iron) prior to entry into the period of extended operation and each ten-year period after entry into the period of extended operation.

Where torsional guided wave data indicates significant susceptibility, inspections will be performed on associated locations. The sample locations for directed inspections will preferentially select higher risk locations. Piping that normally contains hazardous materials will be prioritized in the inspection location selection process. The diesel fuel oil piping will be inspected prior to entry into the period of extended operation. These directed inspections will be performed with sufficient excavation to expose at least ten linear feet of piping as practicable, including the pipe bottom. Inspections of coated carbon steel piping will include the coating and backfill in the vicinity of the piping for material that could cause coating damage. The uncoated stainless steel, ductile iron and cast iron piping will be externally inspected for corrosion, and the fill in the vicinity of the piping will be inspected for material that could cause external damage to the stainless steel, ductile iron or cast iron pipe.

As alternatives to direct external inspections involving excavation, the buried piping inspections may be performed by a hydrostatic test on at least 25% of the code class/safety-related or hazmat piping or both constructed from the material under consideration on an interval not to exceed 5 years. Or, similarly, at least 25% of the code class/safety-related or hazmat piping or both constructed from the material under consideration will be internally inspected by a method capable of precisely determining pipe wall thickness on an interval not to exceed 5 years.

**Commitment 55- One-Time Inspection Program, XI.M32**Existing Commitment:

The sample selection for the DAEC One-Time Inspection program will include a representative sample of approximately 20% of the population (defined as having the same material environment combination) or a maximum of 25 components with the exception of carbon steel and cast iron in a fuel oil environment. Existing maintenance records that document component condition will be used as part of the sample.

Reason for Commitment Change:

During implementation of the One Time Inspection Program it was recognized that there was ambiguity in the commitment with respect to what constituted a separate grouping of material and environment combinations with respect to calculating the sample size of required inspections for aging. The following commitment change eliminates that ambiguity. The specified number of required inspections is consistent with a target of approximately 20% of the population (defined as having the same material environment combination) or a maximum of 25 components with the exception of carbon steel and cast iron in a fuel oil environment. The table clarifies the separate environmental groupings and material combinations with respect to selecting the sample of required inspections for aging that will be used. Since the aging effects of Carbon Steel and Stainless Steel are the same in Sample Group 3 and Sample Group 4 the required number of inspections for both groups were added together totaling 57.

Revised Commitment:

The sample selection for the DAEC One-Time Inspection program will include a representative sample of the population. Existing maintenance records that document component condition will be used as part of the sample. The material environment combinations and the number of required inspections for the sample group will be as shown in the following table:

Sample Group Environment	Materials in the Sample Group Environment	Number of Required Inspections
Sample Group 1- Fuel Oil	Carbon Steel and Cast Iron Stainless Steel	6
Sample Group 2- Lube Oil	Aluminum alloy Carbon Steel and Cast Iron Copper Alloy including Admiralty Brass Stainless Steel including Cast Austenitic Stainless Steel	38
Sample Group 3/4- Steam and Treated Water, Reactor Coolant and Sodium Pentaborate	Copper Alloy, Copper, Admiralty Brass, Brass Carbon Steel, Low Alloy Steel and Cast Iron Stainless Steel Including Cast Austenitic Stainless Steel Stainless Steel Cladding of Low Alloy Steel with Carbon Steel and Nickel Alloy	57

**ATTACHMENT 1**  
**(Revised Commitments for Table 18-1 of UFSAR)**

<i>Item No / System, Component or Program</i>	<i>Commitment</i>	<i>Section</i>	<i>Schedule</i>
36. (Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS) Program)	<p>Implement a Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS) Program.</p> <p>[Revised in DAEC letter NG-09-0764 in response to New Program Commitment RAI]</p>	18.1.38	Prior to the period of extended operation
52. (Buried Piping and Tanks Inspection Program)	<p>Enhance the Buried Piping and Tanks Inspection Program to include inspection of at least a minimum number of pipe segments in each material group (one stainless steel, two carbon steel, one cast iron, and two ductile iron) prior to entry into the period of extended operation and each ten-year period after entry into the period of extended operation. Where torsional guided wave data indicates significant susceptibility, inspections will be performed on associated locations. The sample locations for directed inspections will preferentially select higher risk locations. Piping that normally contains hazardous materials will be prioritized in the inspection location selection process. The diesel fuel oil piping will be inspected prior to entry into the period of extended operation. These directed inspections will be performed with sufficient excavation to expose at least ten linear feet of piping as practicable, including the pipe bottom. Inspections of coated carbon steel piping will include the coating and backfill in the vicinity of the piping for material that could cause coating damage. The uncoated stainless steel, ductile iron and cast iron piping will be externally inspected for corrosion, and the fill in the vicinity of the piping will be inspected for material that could cause external damage to the stainless steel, ductile iron or cast iron pipe.</p> <p>[Added in letter NG-10-0383]  [Revised in letter NG-10-0427]</p>	18.1.7	Prior to the period of extended operation
55. (One-Time Inspection Program)	<p>The sample selection for the DAEC One-Time Inspection program will include a representative sample of the population. Existing maintenance records that document component condition will be used as part of the sample.</p> <p>[Revised in DAEC letter NG-09-0764 in response to New Program Commitments RAI]</p>	18.1.32	Prior to the period of extended operation