NEXTera ENERGY
DUANE ARNOLD

November 5, 2009

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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

Errata to the First Annual Amendment to the Duane Arnold Energy Center License Renewal Application

Reference: Letter, Christopher R. Costanzo (NextEra Energy Duane Arnold LLC) to Document Control Desk (USNRC), "First Annual Amendment to the Duane Arnold Energy Center License Renewal Application," dated September 30, 2009, NG-09-0709 (ML092750089)

The referenced letter transmitted the annual update to the Duane Arnold Energy Center License Renewal Application (LRA), and submitted revised pages of the Environmental Report. Several amended pages of the Environmental Report were inadvertently left out. Of these, only page F-73 contains a material difference (removal of Severe Accident Mitigation Alternative Item 118). The remaining pages were impacted by pagination changes due to the deletion. These pages are provided in the Enclosure to this document.

Enclosure 1 of the referenced letter stated "In LRA Section 2.5, Mr. Richard Anderson Vice President Duane Arnold Energy Center is changed to Mr. Christopher R. Costanzo Vice President Duane Arnold Energy Center." The reference to Section 2.5 is incorrect; the correct Section is LRA Section 1.5.

If you have any questions, 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 November 5, 2009.

Christopher R. Costanzo
Vice President, Duane Arnold Energy Center
NextEra Energy Duane Arnold, LLC

Enclosure: Replacement Pages to the Duane Arnold License Renewal Application Environmental Report Appendix F

cc: Administrator, Region III, USNRC
Project Manager, DAEC, USNRC
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M. Rasmusson (State of Iowa)

Enclosure to NG-09-0837
Replacement Pages to the Duane Arnold License Renewal Application
Environmental Report Appendix F

Pages, F-73 through F-79, have been updated and are to replace the corresponding pages in the Environmental Report as originally submitted.

Table 6-1 DAEC Phase I SAMA Analysis (Cont.)

DAEC SAMA Number	Potential Improvement	Discussion	Screened Out Ph 1?	Screening Criterion	Phase I Disposition
108	Improve MSIV design.	Decreased likelihood of containment bypass scenarios.	Yes	B - Implemented OR Intent Met	Improved in 1990.
110	Locate residual heat removal (RHR) inside containment.	Reduced frequency of ISLOCA outside containment.	Yes	B - Implemented OR Intent Met	Pumps are within secondary containment.
112	Revise EOPs to improve ISLOCA identification.	Increased likelihood that LOCAs outside containment are identified as such. A plant had a scenario in which an RHR ISLOCA could direct initial leakage back to the pressurizer relief tank, giving indication that the LOCA was inside containment.	Yes	B - Implemented OR Intent Met	EOPs and SAGs address this.
113	Improve operator training on ISLOCA coping.	Decreased ISLOCA consequences.	Yes	B - Implemented OR Intent Met	Done, EOP training covers this topic.
115	Revise procedures to control vessel injection to prevent boron loss or dilution following SLC injection.	Improved availability of boron injection during ATWS.	Yes	B - Implemented OR Intent Met	ATWS EOPs in place.
116	Provide an alternate means of opening a pathway to the RPV for SLC injection.	Improved probability of reactor shutdown.	Yes	B - Implemented OR Intent Met	Procedures in place.
119	Provide ability to use control rod drive (CRD) or RWCU for alternate boron injection.	Improved availability of boron injection during ATWS.	Yes	B - Implemented OR Intent Met	Procedures in place.
121	Increase safety relief valve (SRV) reseat reliability.	Reduced risk of dilution of boron due to SRV failure to reseat after standby liquid control (SLC) injection.	Yes	B - Implemented OR Intent Met	Process monitoring program in place to monitor SRV health. PM program in place for the SRVs.
122	Provide an additional control system for rod insertion (e.g., AMSAC).	Improved redundancy and reduced ATWS frequency.	Yes	B - Implemented OR Intent Met	ARI system installed.
124	Revise procedure to bypass MSIV isolation in turbine trip ATWS scenarios.	Affords operators more time to perform actions. Discharge of a substantial fraction of steam to the main condenser (i.e., as opposed to into the primary containment) affords the operator more time to perform actions (e.g., SLC injection, lower water level, depressurize RPV) than if the main condenser was unavailable, resulting in lower human error probabilities.	Yes	B - Implemented OR Intent Met	Procedures in place.

Table 6-1 DAEC Phase I SAMA Analysis (Cont.)

DAEC SAMA Number	Potential Improvement	Discussion	Screened Out Ph 1?	Screening Criterion	Phase I Disposition
125	Revise procedure to allow override of low pressure core injection during an ATWS event.	Allows immediate control of low pressure core injection. On failure of high pressure core injection and condensate, some plants direct reactor depressurization followed by five minutes of automatic low pressure core injection.	Yes	B - Implemented OR Intent Met	Procedures in place.
127	Improve inspection of rubber expansion joints.	Reduced frequency of internal flooding due to failure of circulating water system expansion on main condenser. joints.	Yes	B - Implemented OR Intent Met	Inspected every refueling outage. Program in place to replace before prior to end of life expectancy.
129	Increase seismic ruggedness of plant components.	Increased availability of necessary plant equipment during and after seismic events.	Yes	B - Implemented OR Intent Met	Done after Seismic Qualification Utilities Group Inspection. Also see SAMAs 152, 153, 154, 155, and 157 for plant specific seismic issues.
131	Modify safety related condensate storage tank.	Improved availability of CST following a seismic event.	Yes	B - Implemented OR Intent Met	Although not safety related, the CST is bolted in order to sustain seismic event.
133	Replace mercury switches in fire protection system.	Decreased probability of spurious fire suppression system actuation.	Yes	B - Implemented OR Intent Met	Per IPEEE, the only mercury switches in the control circuitry of the DAEC fire protection systems are associated with the diesel-driven fire pump and jockey pump low pressure initiation logic. This control circuitry in no way influences potential suppression system actuations.
136	Enhance procedures to use alternate shutdown methods if the control room becomes uninhabitable.	Increased probability of shutdown if the control room becomes uninhabitable.	Yes	B - Implemented OR Intent Met	Implemented using an alternate mitigation strategy.
137	Enhance fire brigade awareness.	Decreased consequences of a fire.	Yes	B - Implemented OR Intent Met	The fire brigade training and procedures meet current industry standards.

Table 6-1 DAEC Phase I SAMA Analysis (Cont.)

DAEC SAMA Number	Potential Improvement	Discussion	Screened Out Ph 1?	Screening Criterion	Phase I Disposition
138	Enhance control of combustibles and ignition sources.	Decreased fire frequency and consequences.	Yes	B - Implemented OR Intent Met	Procedures in place.
140	Enhance procedures to mitigate large break LOCA.	Reduced consequences of a large break LOCA.	Yes	B - Implemented OR Intent Met	EOPs and SAGs in place.
141	Install computer aided instrumentation system to assist the operator in assessing post-accident plant status.	Improved prevention of core melt sequences by making operator actions more reliable.	Yes	B - Implemented OR Intent Met	Done SPDS.
142	Improve maintenance procedures.	Improved prevention of core melt sequences by increasing reliability of important equipment.	Yes	B - Implemented OR Intent Met	Continuous improvement program in progress.
143	Increase training and operating experience feedback to improve operator response.	Improved likelihood of success of operator actions taken in response to abnormal conditions.	Yes	B - Implemented OR Intent Met	Current program meets current industry guidance.
145	Develop AOP or EOP for response to total loss of DC power. Many of the control breakers in the plant that require DC power are stored energy breakers that can be locally operated. Other strategies would include using EHC panel power to manually jack open the TBVs in order to depressurize, taking local manual control of the RCIC system, and using portable generators to power essential DC loads.	Improved mitigation of total loss of DC power events.	Yes	B - Implemented OR Intent Met	Procedures exist for total loss of DC power, depressurization using alternate power to the TBVs, and operation of RCIC without DC power.
146	Consider revision to the EOP direction to terminate injection to the RPV from sources external to the drywell, irrespective of core cooling, in loss of containment heat removal scenarios where the Maximum Primary Containment Water Level Limit (MPCWLL) is reached.	Enhance ability to mitigate long term containment heatup scenarios.	Yes	B - Implemented OR Intent Met	Guidance in EOPs.

Table 6-1 DAEC Phase I SAMA Analysis (Cont.)

DAEC SAMA Number	Potential Improvement	Discussion	Screened Out Ph 1?	Screening Criterion	Phase I Disposition
147	Maintain heightened awareness of the operations staff of the importance of timely injection of Standby Liquid Control in ATWS scenarios.	Eliminate scenarios in which SLC initiation is delayed in ATWS conditions to prevent containment damage and subsequent core failure.	Yes	B - Implemented OR Intent Met	Included in operator training program.
148	Provide a procedure with a tested lineup that will allow the use of the diesel fire pump to inject to the RPV in extended loss of AC power scenarios. Also provide direction to maintain sufficient DC power reserve to keep the containment and RPV a low enough pressure for the firewater to RPV lineup to be successful.	Better mitigation of extended loss of AC power events.	Yes	B - Implemented OR Intent Met	Procedures in place.
149	Change EOPs to allow the use of Drywell Spray as well as removing ambiguity regarding the diversion of injection sources away from the RPV when adequate core cooling is not assured.	Initiation of drywell spray prior to RPV breach would preclude the debris attack and failure of the drywell shell.	Yes	B - Implemented OR Intent Met	Procedures in place.
150	Relaxation of the restrictions on the use of the drywell sprays in the DWSI curve of the EOPs may be a possible future accident management item.	Drywell sprays offer an additional alternative to the control of the drywell temperature to avoid premature containment failure.	Yes	B - Implemented OR Intent Met	Procedures in place.
151	Provide accident management strategies that provide guidance to the operators on protecting containment and cooling debris using methods that do not require the venting of the RPV and avoid using the drywell vent unless no other alternative exists.	Reduction in the amount of release through the containment vents early in the accident.	Yes	B - Implemented OR Intent Met	Procedure in place.

Table 6-1 DAEC Phase I SAMA Analysis (Cont.)

DAEC SAMA Number	Potential Improvement	Discussion	Screened Out Ph 1?	Screening Criterion	Phase I Disposition
152	One masonry block wall was identified that was not included in the NRC IE Bulletin 80-11 program as a masonry wall that could potentially damage Safe Shutdown Equipment List equipment.	Prevent damage to safety related equipment during a seismic event.	Yes	B - Implemented OR Intent Met	Already Implemented. The wall was added to the list and qualified.
153	Portions of the control room ceiling may not have adequate restraint of the membranes nor adequate strength in the connections to preclude potential falling of ceiling elements onto critical equipment during a seismic loading.	Prevent damage to safety related equipment during a seismic event.	Yes	B - Implemented OR Intent Met	Already Implemented. Selected elements of the control room ceiling were modified.
154	Problems identified with the adequacy of seismic equipment anchorages during field walkdowns and UT examinations.	Prevent damage to safety related equipment during a seismic event.	Yes	B - Implemented OR Intent Met	Already Implemented. Some identified anchorages were qualified by analysis to use as-is, the remaining issues were resolved by maintenance actions or modifications.
155	Two air handlers in the HPCI room were identified as seismically induced flood/spray outliers because nearby piping could potentially impact fire protection sprinkler piping and break off the sprinkler heads, which could damage the air handler motors.	Prevent damage to equipment from post-seismic event flooding/spray.	Yes	B - Implemented OR Intent Met	Already Implemented. Further analysis shows that clearances between equipment are sufficient to preclude impact.
157	Three areas were identified that have gas storage bottles that were not adequately restrained against seismic events.	Prevent damage to equipment from nearby gas bottles post seismic event.	Yes	B - Implemented OR Intent Met	Already Implemented. Gas bottles were either removed or additional restraint provided.

Table 6-1 DAEC Phase I SAMA Analysis (Cont.)

DAEC SAMA Number	Potential Improvement	Discussion	Screened Out Ph 1?	Screening Criterion	Phase I Disposition
158	Prohibit any work in the switchgear room supporting the operating river water train during any maintenance on the river water system.	Reduce the fire ignition frequency in the switchgear room supporting the operable river water train.	Yes	B - Implemented OR Intent Met	Maintenance risk management program provides for protection of certain systems when maintenance is being performed.
159	Post a fire watch in the switchgear room supporting the operating river water train, or stage temporary hoses for implementation of AOP-410, Total Loss of River Water.	Maximize the ability to respond to and mitigate a fire in the switchgear room supporting the operable river water train.	Yes	B - Implemented OR Intent Met	Maintenance risk management program provides for protection of certain systems when maintenance is being performed.
160	Modify piping design to eliminate the flooding sequences from the fire protection piping in the control building HVAC room above the control room.	Eliminate or reduce the damage caused by flooding from rupture of this fire protection piping.	Yes	B - Implemented OR Intent Met	Already Implemented. These fire protection systems were changed to "dry pipe" systems.
161	Increase the distance of installation of a new hydrogen storage tank from safety related structures.	Minimize damages to safety related equipment from fires/explosions in the new hydrogen storage facility.	Yes	B - Implemented OR Intent Met	Already Implemented. The new tank was sited properly in relation to safety related structures. The new location was determined to be in accordance with EPRI guidelines and to be consistent with recommendations in GL 93-06.
162	Install concrete barriers around the auxiliary boiler propane tank.	Eliminate the risk of propane tank damage and subsequent fire/explosion caused by vehicle impacts on the propane tank.	Yes	B - Implemented OR Intent Met	Already Implemented. Concrete barriers installed.
2	Replace lead-acid batteries with fuel cells.	Extended DC power availability during an SBO.	Yes	C - Combined	Combine with SAMA 3.
5	Provide DC bus cross-ties.	Improved availability of DC power system.	Yes	C - Combined	Combine with SAMA 3.
14	Install an additional, buried off-site power source.	Reduced probability of loss of off-site power.	Yes	D - Excess Cost	Standby Transformer already underground. A line to the nearest offsite black start unit would exceed 50 miles.

Table 6-1 DAEC Phase I SAMA Analysis (Cont.)

DAEC SAMA Number	Potential Improvement	Discussion	Screened Out Ph 1?	Screening Criterion	Phase I Disposition
26	Bury off-site power lines.	Improved off-site power reliability during severe weather.	Yes	D - Excess Cost	Standby Transformer already underground. A line to the nearest offsite black start unit would exceed 50 miles.
51	Add redundant DC control power for SW pumps.	Increased availability of SW.	Yes	D - Excess Cost	Cost would exceed maximum benefit. Mods would be required for RHRSW, ESW, and RWS.
80	Install a passive drywell spray system.	Improved drywell spray capability.	Yes	D - Excess Cost	Excess Cost.
86	Install a filtered containment vent to remove decay heat. Option 1: Gravel Bed Filter. Option 2: Multiple Venturi Scrubber.	Increased decay heat removal capability for non-ATWS events, with scrubbing of released fission products.	Yes	D - Excess Cost	Cost will exceed maximum benefit.
94	Create a large concrete crucible with heat removal potential to contain molten core debris.	Increased cooling and containment of molten core debris. Molten core debris escaping from the vessel is contained within the crucible and a water cooling mechanism cools the molten core in the crucible, preventing melt-through of the base mat.	Yes	D - Excess Cost	Excess Cost.
95	Create a core melt source reduction system.	Increased cooling and containment of molten core debris. Refractory material would be placed underneath the reactor vessel such that a molten core falling on the material would melt and combine with the material. Subsequent spreading and heat removal from the vitrified compound would be facilitated, and concrete attack would not occur.	Yes	D - Excess Cost	Excess Cost.
96	Strengthen primary/secondary containment (e.g., add ribbing to containment shell).	Reduced probability of containment over-pressurization.	Yes	D - Excess Cost	Excess Cost.
97	Increase depth of the concrete base mat or use an alternate concrete material to ensure melt-through does not occur.	Reduced probability of base mat melt-through.	Yes	D - Excess Cost	Excess Cost.