UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

November 28, 2012

Mr. Richard L. Anderson
Vice President
NextEra Energy Duane Arnold, LLC
3277 DAEC Road
Palo, IA 52324-9785

SUBJECT: DUANE ARNOLD ENERGY CENTER – NRC POST-APPROVAL SITE INSPECTION FOR LICENSE RENEWAL INSPECTION REPORT 05000331/2012008

Dear Mr. Anderson:

On November 17, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed the outage segment of the Post-Approval Site Inspection for License Renewal at your Duane Arnold Energy Center. The enclosed report documents the results of this inspection, which was discussed on November 20, 2012, with Mr. Glenn Rushworth, and other members of your staff.

This inspection was an examination of activities conducted under your renewed license as they relate to the completion of commitments made during the renewed license application process and compliance with the Commission's rules and regulations and the conditions of your operating license. Within these areas, the inspection involved examination of selected procedures and representative records, observations of activities, and interviews with personnel. On the basis of the sample selected for review, there were no findings of significance identified during this inspection. The NRC staff did not identify any instances of incomplete commitments with respect to timeliness or adequacy.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS)

component of NRC's Agencywide Document Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Ann Marie Stone, Chief
Engineering Branch 2
Division of Reactor Safety

Docket Nos. 50-331; 72-032
License No. DPR-49

Enclosure: Inspection Report 05000331/2012008
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ™

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-331
License No:	DPR-49
Report No:	05000331/2012008
Licensee:	NextEra Energy Duane Arnold, LLC
Facility:	Duane Arnold Energy Center
Location:	Palo, IA
Dates:	October 9, 2012 – November 17, 2012
Inspectors:	S. Sheldon, Senior Reactor Engineer (Lead) D. Jones, Reactor Engineer
Approved by:	Ann Marie Stone, Chief Engineering Branch 2 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000331/2012008, 10/09/2012 – 11/17/2012; Duane Arnold Energy Center; Post-Approval Site Inspection for License Renewal

The inspection was conducted by two regional based inspectors. No instances were noted of incomplete license renewal commitments with respect to timeliness or adequacy. No findings were identified by the inspectors. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using IMC 0609, "Significance Determination Process," dated June 2, 2011. The cross-cutting aspects are determined using IMC 0310, "Components within the Cross Cutting Areas," dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated June 7, 2012. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006."

A. NRC-Identified and Self-Revealed Findings

No findings were identified.

B. Licensee-Identified Violations

No violations were identified.

REPORT DETAILS

Summary of Plant Status

The unit was in a refueling outage during the period of this inspection.

4. OTHER ACTIVITIES

4OA5 Other Activities

.1 Post-Approval Site Inspection for License Renewal (Phase I) - IP 71003

a. Inspection Scope

(1) Review of Newly Identified Systems, Structures and Components (SSCs)

The inspectors discussed the identification of new SSCs, under the purview of Title 10 of the Code of Federal Regulations (CFR) 54.37(b), with the licensee's license renewal staff. The licensee personnel indicated that no new components have been identified to date that should have been within the scope of the license renewal program.

(2) Review of Revised Commitments

Based on discussion the inspectors had with licensee staff, at the time of the inspection there were no revised commitments.

(3) Review of Commitments

The inspectors reviewed supporting documents including completed surveillance records, conducted interviews, observed non-destructive examination (NDE) activities, performed visual inspection of structures and components, including those not accessible during power operation, and observed the activities described below that the licensee completed to comply with the license conditions associated with the renewed operating license. The inspectors verified the licensee implemented the "outage related" aging management programs included in NUREG-1955, "Safety Evaluation Report Related to the License Renewal of Duane Arnold Energy Center" in accordance with 10 CFR Part 54, "Requirements for the Renewal of Operating Licenses for Nuclear Power Plants."

b. Findings and Observations

The inspectors reviewed portions of the commitments below, which are referenced to Appendix A of the Safety Evaluation Report (SER) where applicable. Activities observed related to these commitments are also listed.

(1) (LRAP-M032) One-Time Inspection Program (Commitment Items 25 and 55)

The One Time Inspection Program is a new program that addresses potentially long incubation periods for certain aging effects and provides a means for verifying that an aging effect is either not occurring or progressing so slowly as to have negligible effect on the intended function of the structure or component.

The inspectors observed the licensee's activities to implement Commitment Item 25, of the license renewal SER. This commitment documents the licensee will implement a One-Time Inspection Program and complete the one-time inspections prior to the period of extended operation.

The inspectors observed the licensee perform an ultrasonic examination of the Emergency Diesel Generator (EDG) day tank, 1T037A, and a visual examination of the internal surface of the EDG day tank in accordance with WO 40075011-01. The visual inspection was performed to Procedure ACP 1211.53. The inspectors had no concerns with the observed activities; however, sludge on the interior surface of the tank was removed prior to the inspections. The licensee initiated AR 01811852 to note the condition. The resolution of this AR should be reviewed during the IP 71003 Phase II inspection of the Fuel Oil Chemistry Program (LRAP-M030).

(2) (LRAP-S006) Structures Monitoring Program (Commitment Item 25)

The Structures Monitoring Program monitors the condition of structures, masonry walls, and water control structures within the scope of 10 CFR 50.65. The Structures Monitoring Program includes periodic visual inspection of structures and structural components for the detection of aging effects specific for that structure. This program is implemented primarily through the existing procedures of Module 6 of the Maintenance Rule Program.

The inspectors observed the licensee's activities to implement Commitment Item 25, of the NRC license renewal SER. Commitment Item 25 states the "Structures Monitoring Program will be enhanced to incorporate quantitative acceptance criteria for concrete inspections of all in-scope structures as determined from reviewing American Concrete Institute (ACI) 349.3R-96. Enhancements will be made to the program prior to entry into the period of extended operation. Conditions that are acceptable without further evaluation (ACI 349.3R-96 Section 5.1), observed during visual surveys will not be documented in the survey reports if the inspection is performed by a "responsible engineer" as defined in ACI 349.3R-96 Section 7."

The inspectors observed the licensee perform a walkdown and visual inspections in accordance with WO 40108542-03 which included classifying indications with the criteria from ACI 349.3R-96. These inspections included structures within the A cooling tower basin, condenser bay basement, and steam jet air ejector room under WOs 40108542-01, 03, and 04. The inspectors had no concerns with the observed activities.

(3) (LRAP-M036) External Surfaces Monitoring (Commitment Item 8)

The External Surfaces Monitoring Program is an existing program that manages aging effects through visual inspection of external surfaces for evidence of material loss, cracking, and changes in material properties. The program consists of periodic inspections of components such as piping, piping components, fasteners (bolting, washers and nuts), ducting, pipe supports, polymeric components, and other components within the scope of license renewal in order to manage aging effects.

Commitment Item 8 states, "Revise the inspection program to address inspector qualifications, types of components, degradation mechanisms, aging effects, acceptance criteria, inspection frequency, and periodic reviews to determine program effectiveness.

The program will also specifically address inaccessible areas and include inspections of opportunity for possible corrosion under insulation."

The inspectors observed the licensee perform a visual examination of equipment within the reactor building in accordance with WO 40082667-01. The inspections included areas normally inaccessible while the plant is operating. The inspectors had no concerns with the observed activity.

(4) (LRAP-M040) Small-Bore piping Inspection Program (Commitment Item 45)

The ASME Code Class 1 Small-Bore Piping Inspection Program is a plant specific Aging Management Program, which includes measures to verify degradation, is not occurring by inspecting locations susceptible to cracking.

Commitment Item 45 states, in part, the licensee will implement an ASME Code Class 1 Small-Bore Piping Inspection Program and will perform volumetric examination of a minimum of ten percent of the ASME Code Class 1 small-bore socket welds each inspection interval.

The inspectors reviewed the results of the socket weld volumetric inspections of the A and B recirculation pump suction drain lines (WO's 40139986 and 40139987). The inspectors had no concerns with the reviewed activity.

(5) (LRAP-M034) Buried Piping and Tanks Inspection (Commitment Item 52)

The Buried Piping and Tanks Inspection Program manages the aging effect of loss of material for the in-scope buried steel (including cast iron) and stainless steel components such as piping, valves, and tanks.

Commitment Item 52 states, in part, "Enhance the Buried Piping and Tanks Inspection Program to include inspection of at least a minimum number of pipe segments in each material group. 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."

The inspectors observed the licensee perform visual examination, ultrasonic wall thickness examinations, and torsional guided wave inspections of buried piping in accordance with WO's 40121814, 4012815, 4012801, 4012813, 40121803, and 40121812. The inspectors had no concerns with the observed activities; however, the licensee identified an area of wall thickness less than minimum acceptable during the ultrasonic wall thickness examination which was documented in AR 1815188. The resolution of this AR should be reviewed during the IP 71003 Phase II inspection.

In addition, the inspectors witnessed and reviewed the results of the hydrotest of the main diesel fuel oil tank to diesel fuel oil day tank buried fuel oil supply line WO 40107043-01. The inspectors had no concerns with the reviewed activity.

(6) (LRAP-M009) Reactor Vessel Internal Inspections (Commitment Item 37)

The Reactor Vessel Internal Inspections Program is a new plant-specific program which manages the aging effects of changes in dimensions due to void swelling: cracking due to stress corrosion cracking, primary water stress corrosion cracking, irradiation-assisted stress corrosion cracking, and fatigue; loss of fracture toughness due to neutron irradiation embrittlement and thermal aging embrittlement; loss of material due to wear; and loss of preload due to stress relaxation.

Commitment Item 37 states, the licensee will ensure aging of core plate hold down bolts is appropriately addressed by completing one of the following actions:

Install core plate wedges to eliminate the function of core plate hold down bolts.

Perform analysis of the core plate rim hold down bolts that demonstrates adequacy to perform their intended function including loss of pre-load in the period of extended operation including the effects of projected neutron fluence. Inspection of core plate hold down bolts will be performed in accordance with BWRVIP-25, or a deviation disposition will be developed / submitted in accordance with BWRVIP-94.

The inspectors observed the video inspection of 13 reactor vessel core plate hold down bolts performed under WO 40136479. The inspectors had no concerns with the observed activity.

(1) ASME Section XI, Inservice Inspection, Subsection IWE Program (Commitment Item 50)

Commitment Item 50 specified performance of recoating of suppression pool interior surfaces below the water line prior to startup from the first refuel outage during the period of extended operation. The licensee elected to meet Commitment Item 50 by recoating the torus interior surfaces below the water line prior to the period of extended operation and completed the torus recoating work on November 17, 2012.

The inspectors reviewed the licensee's processes and procedures for removal of existing coatings in the torus/suppression pool, inspection of interior surfaces and components, evaluation and disposition or repair of identified pits in the torus/suppression pool internal surface, evaluation and disposition or repair of identified flaws in the torus/suppression pool internal components, and application and curing of new coating materials. Additionally, the inspectors interviewed licensee personnel and reviewed licensee inspection procedures related to visual inspections of the torus/suppression pool.

Based on this review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 50.

4OA6 Management Meetings

.1 Exit Meeting Summary

On November 20, 2012, the inspectors presented the inspection results by telephone to Mr. Glenn Rushworth and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

Glenn Rushworth - Operations Director
Ken Putnam - License Renewal Manager
Ken Peveler – Nuclear Oversight
Tom Byrne - Licensing
Curt Bock – License Renewal
Mike Fairchild - License Renewal
Tim Holt - License Renewal
Narindra N Sikka - License Renewal

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened, Closed, and Discussed

None.

LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

4OA5 Other Activities

- WO 1283872; MA Open And Clean Heat Exchanger; December 2, 2010
- WO 40075011-01; 1T037A Inspect & Clean Tank; 10/12/12
- WO 40082667-01; RFO23 License Renewal External Surfaces Inspections; 10/17/12
- WO 40108542-01; Structures Walkdown, Cooling Towers Basins A/B; 10/18/12
- WO 40108542-03; Structures Walkdown, Condenser Bay Basement; 10/11/12
- WO 40108542-04; Structures Walkdown, Air Ejector Room; 10/11/12
- WO 40115344; YS3286 Lic Renewal Selective Leaching Internal Insp; March 23, 2012
- WO 40116208; FA 3359 Lic Renewal Selective Leaching Internal Insp; April 2, 2012
- WO 40116216; V33-0087: License Renewal Selective Leaching Internal Insp; June 1, 2012
- WO 40136479; Perform ISI On RX Pressure Vessel Internals

Procedures:

- ACP 1210.9; External Surfaces Monitoring and aging Management Plant Walkdown Procedure; Revision 1
- ACP 1211.16; Ultrasonic Thickness Measurement Using Digital Thickness Gauges, Revision 6
- ACP 1211.36; Reactor Pressure Vessel Inspection Procedure; Revision 10
- ACP 1211.53; General NDE Procedure for Protective Coating Inspections Outside of Primary Containment; Revision 1
- ACP 1211.53; Visual Examination of Components in Support of License Renewal; Revision 0
- ACP 1605; Protective Coatings Standards and Specifications; Revision 1
- LMT-10-PAUT-03; Encoded Phased Array Ultrasonic Examination Of Austenitic Socket Weld Fittings; Revision 0
- PCPP 1.1; Protective Coating Program Plan for Duane Arnold Energy Center; Revision 3
- STP NS590013; Suppression Chamber Visual Examination of Submerged Areas; Revision 3
- Surveillance Test Procedure (STP) 3.6.1.1-01; Suppression Chamber and Drywell Visual Examination; Revision 12

Other:

- AR 00596035; Corrosion on Base of Main Condenser Water Boxes; 11/18/10
- AR 01811852; Sludge Observed on Interior Wall of 1T037A; 10/10/12
- AR 01812231; Torus Drain Valve Dripping on Floor; 10/11/12
- AR 01812339; Degraded Cable and Water in Conduit; 10/12/12
- AR1815188; Sample Expansion On GBC-002 From Buried Piping Exam; October 22, 2012
- BECH-M116; Reactor Recirculation System; Revision 66

- CR 01817457; Torus Recoat Project Weld Repair Required for Torus
- CR 01817460; Torus Recoat Project – Weld Repair Required for Torus
- CR 01817471; Atypical Mechanical Wear on Torus Shell Plate
- CR 01821308; Torus Coating Rework
- CR 01822026; Torus Bay 2 Downcomer Coating Delamination
- CR 01822751; Torus Heat Up Plan Slower Than Anticipated
- CR 01824499; Torus Piping Penetrations Not Coated on Inside Per Specification
- CR 01824747; CAL-A06-001 Shall Be Updated Post RFO 23
- CR 01824804; ASME Section XI IWE Exam of the Torus Underwater Surfaces
- LRAP-M009; Aging Management Program Basis Document BWR Vessel Internals; Revision 4
- LRAP-M032; One-Time Inspection Program Basis Document; Revision 2
- LRAP-M033; Selective Leaching of Materials Program Basis Document; Revision 6
- LRAP-M034; Aging Management Program Basis Document Buried Piping And Tanks Program; Revision 6
- LRAP-M036; External Surfaces Monitoring Program Basis Document; Revision 6
- LRAP-M040; Aging Management Program Basis Document ASME Code Class 1 Small-Bore Piping Inspection Program; Revision 1
- LRAP-S006; Structures Monitoring Program Basis Document; Revision 5
- LRTR-OTI; Technical Report – One-Time Inspection; Revision 1
- Report Item BOP-UT-12-021; SBDG 1G-31 Fuel Oil Day Tank; October 13, 2012
- Report Item VDS0229; Core Plate Hold Down Bolts Visual Inspection
- Ultrasonic Examination (UT) of the “A” Recirculation Pump Suction Drain Line 90 Degree Long Radius Elbow-Pipe Weld, RDA-J007 (elbow); Report Item VE-12-002
- Ultrasonic Examination (UT) of the “B” Recirculation Pump Suction Drain Line Pipe-90 Degree Long Radius Elbow, RDB-J009 (elbow); Report Item VE-12-003
- VS-03-10; Core Support Bolt; Revision 1

LIST OF ACRONYMS USED

ACI	American Concrete Institute
ADAMS	Agencywide Document Access Management System
AR	Action Request
ASME	American Society of Mechanical Engineers
CFR	Code of Federal Regulations
EDG	Emergency Diesel Generator
IMC	Inspection Manual Chapter
IP	Inspection Procedure
NDE	Non-Destructive Examination
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records System
RFO	Refueling Outage
SDP	Significance Determination Process
SER	Safety Evaluation Report
SSCs	Systems, Structures, and Components
WO	Work Order

component of NRC's Agencywide Document Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Ann Marie Stone, Chief
Engineering Branch 2
Division of Reactor Safety

Docket Nos. 50-331; 72-032
License No. DPR-49

Enclosure: Inspection Report 05000331/2012008
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ™

DISTRIBUTION:
Cayetano Santos
RidsNrrDorlLpl3-1 Resource
RidsNrrPMDuaneArnold Resource
RidsNrrDirsIrib Resource
Chuck Casto
Cynthia Pederson
Steven Orth
Jared Heck
Allan Barker
Christine Lipa
Carole Ariano
Linda Linn
DRPIII
DRSIII
Tammy Tomczak
ROPreports.Resource@nrc.gov

DOCUMENT NAME: G:\DRSIII\DRS\Work in Progress\DUA 2012-008 LR SNS.docx
☐ Publicly Available ☐ Non-Publicly Available ☐ Sensitive ☐ Non-Sensitive
To receive a copy of this document, indicate in the concurrence box "C" = Copy without attach/encl "E" = Copy with attach/encl "N" = No copy

OFFICE	RIII		RIII		RIII		RIII	
NAME	SSheldon:ls		DJones		AMStone			
DATE	11/28/12		11/28/12		11/28/12			

OFFICIAL RECORD COPY