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NUCLEAR REGULATORY COMMISSION**

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June 3, 2016

Mr. Thomas A. Vehec  
Vice President  
NextEra Energy Duane Arnold, LLC  
3277 DAEC Road  
Palo, IA 52324-9785

**SUBJECT: DUANE ARNOLD ENERGY CENTER - BASELINE EMERGENCY PREPAREDNESS  
BIENNIAL EXERCISE INSPECTION REPORT 05000331/2016502**

Dear Mr. Vehec:

On May 20, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Duane Arnold Energy Center. The enclosed report documents the results of this inspection, which were discussed on May 20, 2016, with Mr. P. Hansen and other members of your staff.

No findings were identified during this inspection.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," 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's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents 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/**

Steven K. Orth, Chief  
Plant Support Branch  
Division of Reactor Safety

Docket No. 50-331  
License No. DPR-49

Enclosure:  
IR 05000331/2016502

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-331  
License No: DPR-49

Report No: 05000331/2016502

Licensee: NextEra Energy Duane Arnold, LLC

Facility: Duane Arnold Energy Center

Location: Palo, IA

Dates: May 16 - 20, 2016

Inspectors: G. Hansen, Senior Emergency Preparedness Inspector  
M. Garza, Emergency Preparedness Inspector  
K. Carrington, Resident Inspector  
J. Dalzell-Bishop, Health Physics Inspector

Approved by: S. Orth, Chief  
Plant Support Branch  
Division of Reactor Safety

Enclosure

## **SUMMARY**

Inspection Report 05000331/2016502; 05/16/2016 – 05/20/2016; Duane Arnold Energy Center; Baseline Emergency Preparedness Exercise Evaluation; Exercise Evaluation Scenario Review; and Performance Indicator Verification.

This report covers a 1-week period of announced baseline inspection by 4 regional inspectors. The U.S. Nuclear Regulatory Commission's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5, dated February 2014.

### **NRC-Identified and Self-Revealed Findings**

#### **Cornerstone: Emergency Preparedness**

No findings were identified.

### **Licensee-Identified Violations**

None

## **REPORT DETAILS**

### **1. REACTOR SAFETY**

#### **Cornerstone: Emergency Preparedness**

#### **1EP1 Exercise Evaluation (71114.01)**

##### **.1 Exercise Evaluation**

##### **a. Inspection Scope**

The inspectors reviewed the May 17, 2016, biennial emergency preparedness exercise objectives and scenario to ensure that the exercise would acceptably test major elements of the licensee's emergency plan and to verify that the exercise's simulated problems provided an acceptable framework to support demonstration of the licensee's capability to implement its plan. The inspectors also reviewed records of other drills and exercises conducted in 2014, 2015, and 2016, to verify that those drills' scenarios were sufficiently different from the scenario used in the May 17, 2016 exercise.

The inspectors observed and evaluated the licensee's exercise performance, focusing on the risk-significant activities of emergency classification, notification, and protective action decision making, implementation of accident mitigation strategies, and correction of past exercise weaknesses, in the following emergency response facilities:

- Control Room Simulator;
- Technical Support Center;
- Operations Support Center; and
- Emergency Operations Facility.

The inspectors also assessed the licensee's recognition of abnormal plant conditions, transfer of responsibilities between facilities, internal communications, interfaces with offsite officials, readiness of emergency facilities and related equipment, and overall implementation of the licensee's emergency plan.

The inspectors attended post-exercise critiques in the Control Room Simulator, Technical Support Center, Operations Support Center, and Emergency Operations Facility to evaluate the licensee's initial self-assessment of its exercise performance.

The inspectors later met with the licensee's lead exercise evaluators and managers to obtain the licensee's findings and assessments of its exercise participants' performances. These self-assessments were then compared with the inspectors' independent observations and assessments to assess the licensee's ability to adequately critique its exercise performance.

Documents reviewed are listed in the Attachment to this report.

This exercise evaluation inspection constituted one sample as defined in Inspection Procedure (IP) 71114.01.

b. Findings

No findings were identified.

1EP8 Exercise Evaluation – Scenario Review (71114.08)

a. Inspection Scope

Prior to the inspection activity, the inspectors conducted an in-office review of the exercise objectives and scenarios submitted to the U.S. Nuclear Regulatory Commission using IP 71114.08, “Exercise Evaluation – Scenario Review,” to determine if the exercise would test major elements of the Emergency Plan as required by Title 10 *Code of Federal Regulations*, Part 50.47(b)(14).

Documents reviewed are listed in the Attachment to this report.

This review of the exercise objectives and scenario constituted one sample as defined in IP 71114.08.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

**Cornerstone: Emergency Preparedness**

4OA1 Performance Indicator Verification (71151)

.1 Drill/Exercise Performance

a. Inspection Scope

The inspectors sampled licensee submittals for the Drill/Exercise Performance Performance Indicator (PI) for the period from the first quarter 2015 through the first quarter 2016. To determine the accuracy of the PI data reported during this period, PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 7, were used. The inspectors reviewed the licensee’s records associated with the PI to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the NEI guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the PI, assessments of PI opportunities during pre-designated control room simulator training sessions, and performance during other drills.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Drill/Exercise Performance sample as defined in IP 71151.

b. Findings

No findings were identified.

## .2 Emergency Response Organization Drill Participation

### a. Inspection Scope

The inspectors sampled licensee submittals for the Emergency Response Organization Drill Participation PI for the period from the first quarter 2015 through the first quarter 2016. To determine the accuracy of the PI data reported during this period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, were used. The inspectors reviewed the licensee's records associated with the PI to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the NEI guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the PI, performance during the 2015 and 2016 drill, and revisions of the roster of personnel assigned to key emergency response organization positions.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Emergency Response Organization Drill Participation sample as defined in IP 71151.

### b. Findings

No findings were identified.

## .3 Alert and Notification System

### a. Inspection Scope

The inspectors sampled licensee submittals for the Alert and Notification System PI for the period from the first quarter 2015 through the first quarter 2016. To determine the accuracy of the PI data reported during this period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, were used. The inspectors reviewed the licensee's records associated with the PI to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the NEI guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the PI and results of periodic scheduled Alert and Notification System operability tests.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Alert and Notification System sample as defined in IP 71151.

### b. Findings

No findings were identified.

#### 4OA6 Management Meetings

##### .1 Exit Meeting Summary

On May 20, 2016, the inspectors presented the biennial exercise inspection results to Mr. P. Hansen 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

T. Vehec, Site Vice President  
P. Hansen, Plant General Manager  
W. Simmons, Nuclear Oversight Manager  
R. Wheaton, Operations Director  
M. Fritz, Emergency Preparedness Manager  
S. Brown, Engineering Director  
J. Schwertfeger, Security Manager  
R. Porter, Radiation Protection Manager  
C. Hill, Training Manager  
T. Weaver, Senior Licensing Engineer  
B. Murrell, Licensing Engineer  
B. Brown, Emergency Preparedness Specialist  
D. Minnick, Emergency Preparedness Drill Developer  
P. Polfleit, Corporate Emergency Preparedness Specialist

#### U.S. Nuclear Regulatory Commission

C. Norton, Senior Resident Inspector  
J. Steffes, Resident Inspector

### **LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

#### Opened, Closed, and Discussed

None

### **LIST OF ACRONYMS USED**

ADAMS	Agencywide Documents Access and Management System
CFR	Code of Federal Regulations
IP	Inspection Procedure
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records System
PI	Performance Indicator



## 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 inspectors 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.

### 1EP7 Exercise Evaluation (71114.07)

- Duane Arnold Energy Center Emergency Plan; Rev. 37
- EPIP 1.1; Determination of Emergency Action Levels; Rev. 29
- EPIP 1.2; Notifications; Rev. 47
- EPIP 1.3; Plant Assembly and Site Evacuation; Rev. 19
- EPIP 1.5; Activation and Operation of the EOF; Rev. 13
- EPIP 2.1; Activation and Operation of the Operational Support Center (OSC); Rev. 23
- EPIP 2.2; Activation and Operation of the TSC; Rev. 32
- EPIP 2.5; Control Room Emergency Response Operation; Rev. 21
- EPIP 3.3; Dose Assessment and Protective Action; Rev. 33
- Two Years of Drill and Exercise Corrective Action Program Items; dated 04/2014 – 05/2016
- Two Years of Scenario Timelines; dated 04/2014 – 05/2016
- 2016 ERO Training Drill 1; dated 03/29/2016
- Valve-C515-01 – Test Firing of Trigger Assembly, Rev. 14
- EPIP Form OSC-15; OSC Repair Team Work Order; Rev. 3
- EPIP Form OSC-16; OSC Repair Team Work Order Flow Path; Rev.2
- CR 01956514; Activation of Alternate OSC Within 30 Minutes; dated 04/09/2014
- CR 01956646; Lessons Learned from Hostile Action Drill; dated 04/09/2014
- CR 01956594; MET Tower Lost Both Power Sources; dated 04/09/2014
- CR 01956659; Clarity of Communications with Offsite Agencies; dated 04/09/2014
- CR 01956844; Command and Control Transfer in EOF; dated 04/10/2014
- CR 01966100; TSC/EOF Field Team Director Communications; dated 05/15/2014
- CR 01966139; Pager Notification was not Timely for Drill; dated 05/15/2014
- CR 01966184; Failed RSPS Criteria for EAL Information to Offsite Agencies; dated 05/15/2014
- CR 02035088; 60 Minute Responders not Met in EOF; dated 03/25/2015
- CR 02049345; EOF Priorities; dated 05/21/2015
- CR 02049381; Comms/Awareness of County Initiated Protective Actions; dated 05/21/2015
- CR 02123731; EOF Enhancements; dated 04/07/2016
- CR 02132391; 16IPXTSC - Mini-Scenario #2 Missed; dated 05/17/2016
- CR 02132394; 16IPXTSC – EAL Declaration Time Question; dated 05/17/2016
- CR 02132396; 16IPXEOF – EAL FG1 Declared Different from Planned Scenario; dated 05/17/2016
- CR 02132401; 16IPXEOF – Unplanned Dose and Wind PAR Changes; dated 05/17/2016
- CR 02132402; 16IPXSIM – Simulator Response MO1904; dated 05/17/2016
- CR 02132407; 16IPXOSC – Controller Prompting; dated 05/17/2016
- CR 02132408; 16IPXEOF – Did Not Identify DW Rads as Parameter of Interest; dated 05/17/2016
- CR 02132412; 16IPXSIM – Crew Did Not Hold Sufficient Briefs; dated 05/17/16
- CR 02132432; 16IPXSIM – HPCI Directed to be Secured Improperly; dated 05/17/2016

1EP8 Exercise Evaluation – Scenario Review (71114.08)

- Duane Arnold Energy Center 2016 Exercise 60 Day Submittal

4OA1 Performance Indicator Verification (71151)

- EPDM 1010; EP Department Performance Indicators (PI's); Rev. 21
- NRC Performance Indicator Data; Drill/Exercise Performance; dated 1Q 2015 – 1Q 2016
- NRC Performance Indicator Data; Emergency Response Organization Drill Participation; dated 1Q 2015 – 1Q 2016
- NRC Performance Indicator Data; Alert and Notification System Reliability; dated 1Q 2015 – 1Q 2016
- NEI 99-02; Regulatory Assessment Performance Indicator Guideline; Rev. 7

June 3, 2016

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Vice President  
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