



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

December 11, 2019

Mr. Dean Curtland
Director of Site Operations
NextEra Energy Duane Arnold, LLC
3277 DAEC Road
Palo, IA 52324-9785

SUBJECT: DUANE ARNOLD ENERGY CENTER – TRIENNIAL INSPECTION OF
EVALUATION OF CHANGES, TESTS AND EXPERIMENTS BASELINE
INSPECTION REPORT 05000331/2019013

Dear Mr. Curtland:

On December 5, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Duane Arnold Energy Center and discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

No findings or violations of more than minor significance were identified during this inspection.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Robert C. Daley, Chief
Engineering Branch 3
Division of Reactor Safety

Docket No. 05000331
License No. DPR-49

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV®

Letter to Mr. Dean Curtland from Robert C. Daley dated December 11, 2019.

SUBJECT: DUANE ARNOLD ENERGY CENTER – TRIENNIAL INSPECTION OF
EVALUATION OF CHANGES, TESTS AND EXPERIMENTS BASELINE
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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Number: 05000331

License Number: DPR-49

Report Number: 05000331/2019013

Enterprise Identifier: I-2019-013-0018

Licensee: NextEra Energy Duane Arnold, LLC

Facility: Duane Arnold Energy Center

Location: Palo, Iowa

Inspection Dates: December 2, 2019 to December 5, 2019

Inspectors: G. Hausman, Senior Reactor Inspector
J. Robbins, Reactor Inspector
N. Shah, Project Engineer

Approved By: Robert C. Daley, Chief
Engineering Branch 3
Division of Reactor Safety

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a triennial inspection of evaluation of changes, tests and experiments baseline inspection at Duane Arnold Energy Center, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

List of Findings and Violations

No findings or violations of more than minor significance were identified.

Additional Tracking Items

None.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.17T - Evaluations of Changes, Tests, and Experiments

Sample Selection (IP Section 02.01) (28 Samples)

The inspectors reviewed the following evaluations, screenings, and/or applicability determinations for 10 CFR 50.59 from 2015 to 2019.

- (1) AR 02175375-01, Power System Stabilizer Removal from Service, January 16, 2017
- (2) CA 02102327-01, Placement of Portable Heaters in the Motor Generator Set Room, July 1, 2016
- (3) EC 0000281703, Chromalox Replacement Project, Revision 0
- (4) EC 0000282458, River Water System Cable Replacement, Revision 0
- (5) EC 0000287931, Implementation of Revised Calculations for Loss of Coolant Accident Dose Consequences, Revision 0
- (6) EC 0000287997, Residual Heat Removal Discharge Header Pressure Switch Setpoint, Revision 1
- (7) EC 0000156026, Replace Existing Reactor Feedwater Pumps (RFP) and Motors with RFP and Motors of Larger Capacity, Revision 43
- (8) EC 0000283115, Flow Indication Controller (FIC2309) Replacement Siemens 353 Controller from Design Level A to B, Revision 1
- (9) EC 0000283472, Fukushima Spent Fuel Pool Level Instrumentation, Revision 6
- (10) EC 0000283785, Replace Obsolete Standby Gas Treatment System Flow Indication Controllers (FIC5828A/B), Revision 2
- (11) EC 0000283960, Raise All Level Setpoints for Limit Switch LS3701 to Allow Pump Starts Due to Sticking Level Element Float LE3701 at Lowest Level, Revision 0
- (12) EC 0000285459, Connect Diesel Air Compressor to Plant Air System, Revision 0
- (13) EC 0000285499, Calculation CAL-E95-015 Calibration Frequency Revised, Revision 1
- (14) EC 0000285928, Programmable Logic Controller (PLC1701C) Replacement, Revision 1
- (15) EC 0000286670, Compressor Motor (1K001-M) Tripped, Overload Jumper-ed Out (Bypassed), Revision 1
- (16) EC 0000287838, Revise Temperature Element (TE4403) Setpoint on Temperature Recorder (TR4400) to Provide Annunciation with Temperature Rise, Revision 0
- (17) EC 0000287965, Disable Low Oil Level Alarm XR2 to Prevent Masking Other Alarms, Revision 0

- (18) EC 0000288156, Replace Obsolete Control Building Chiller Temperature Controllers (TC6924A/B), Revision 2
- (19) EC 0000288815, Diesel Air Compressor Back-Up to Plant Air System, Revision 0
- (20) EC 0000289081, Revise CAL-M91-014 To Be in Compliance with ANSI 195-1976, Section 5.4, Revision 1
- (21) EC 0000291031, Reconfigure Limit Switch (LS2219) Logic to Remove Automatic Opening of Solenoid Valve (SV2219), Revision 2
- (22) EC 0000291104, Replace Level Element (LE-3768) with Longer Length Level Element, Revision 3
- (23) Procedure Change Request (PCR 02073808), Annunciator Response Procedure ARP-1C22 Hydrogen/Oxygen Control Panel, Revision 40
- (24) Procedure Change Request (PCR 02102503), Abnormal Operating Procedure AOP-903 Severe Weather, Revision 55
- (25) Procedure Change Request (PCR 02266292), Operating Instruction OI 878.1 - Source Range Neutron Monitoring System, Revision 21
- (26) Procedure Change Request (PCR 02268679), Annunciator Response Procedure ARP-1C22 Hydrogen/Oxygen Control Panel, Revision 42
- (27) UFSAR Change Request (UCR#: 2016-007), Revise Discussion Regarding Location of Steam Leak Detection Temperature Elements, Revision 24
- (28) UFSAR Change Request (UCR#: 2019-007), Revise Main Steam Line Isolation Valve Position Indication Description, August 22, 2019

INSPECTION RESULTS

No findings were identified.

EXIT MEETINGS AND DEBRIEFS

The inspectors confirmed that proprietary information was controlled to protect from public disclosure.

- On December 5, 2019, the inspectors presented the triennial inspection of evaluation of changes, tests and experiments baseline inspection results to Dean Curtland and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.17T	Calculations	CAL-E98-004	Setpoint Calculation High Reactor Vessel Level, HPCI, RCIC, Feedwater, and Turbine Trip in Remote Shutdown – LS4540	2
		CAL-MC-138	Diesel Oil Storage Tank Level Switch	3
		CAL-R17-002	Dose Rate Evaluation of Reactor Vessel Water Levels During Refueling for EAL Thresholds	0
	Corrective Action Documents	AR 01988025	NRC CGD [Commercial Grade Dedication] Inspection Issue of Third Party Dedication	06/22/2015
		AR 02100600	NRC Questions on Use of [Recurring-Use Temporary Modification] RTM-04-OI151	02/03/2016
		AR 02102327	2016 50.59: Eval of Portable Heaters During Severe Weather	08/08/2016
		AR 02102503	AOP 903 - Severe Weather	01/14/2016
		AR 02102754	2016 50.59: Water Temperature Input to Mark I Analysis	02/22/2016
		AR 02103084	2016 50.59: Inspection Identified Inadequate 50.59 Screening	01/26/2016
		AR 02115464	RCIC Room Steam Leak Detection Not Consistent with CLB [Current Licensing Basis]	10/02/2016
		AR 02138974	T.S. Bases Change Request: B3.3.6.1	12/14/2016
		AR 02138981	UFSAR Change Request: Chapter 7	10/12/2016
		AR 02139054	Evaluate Process Utilized to Move STP 3.5.1-03A/B to Online	09/23/2016
		AR 02175375	Power System Stabilizer 50.59	01/18/2017
		AR 02332637	2019 NRC 50.59/Mod Pre-Inspection Identified Items	10/24/2019
		AR-LIC 2138981	DAEC UFSAR Chapter 7	06/20/2016
		PCR 02073808	Annunciator Response Procedure ARP-1C22 Hydrogen/Oxygen Control Panel	40
		PCR 02090816	Bases-ATWS (Anticipated Transient Without Scram)	19
		PCR 02102503	AOP 903 Severe Weather, Revision 55	01/14/2016
		PCR 02225747	AOP 302.1 - Loss of 125 Vdc Power	58
PCR 02259266	Biennial Review – ATWS - RPV Control,	0		
PCR 02266292	OI 878.1 - Source Range Neutron Monitoring System	21		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		PCR 02268679	Annunciator Response Procedure ARP 1C22 - Hydrogen/Oxygen Control Panel	42
		PCR 02307806	AOP 302.1 - Loss of 125 Vdc Power	60
	Corrective Action Documents Resulting from Inspection	AR 02337533	50.59 Screening for EC 290224	12/05/2019
	Engineering Changes	CA 02102327-01	Placement of Portable Heaters in the MG [Motor Generator] Set Room	07/01/2016
		EC 0000156026	Replace Existing Reactor Feedwater Pumps (RFP) and Motors with RFP and Motors of Larger Capacity	43
		EC 0000283115	FIC2309 Replacement Siemens 353 Controller from Design Level A to B	1
		EC 0000283472	Fukushima Spent Fuel Pool Level Instrumentation	6
		EC 0000283785	SBGT 1V-SGT-1A/B Flow Ind Controller Replacement Siemens 353 Controller from Design Level A to B FIC5828A/B	2
		EC 0000283960	Raise All Level Setpoint for LS3701 to Allow Pump Starts Due to Sticking LE3701 Float at Lowest Level	0
		EC 0000285459	Connect Diesel Air Compressor to Plant Air System	0
		EC 0000285499	CAL-E95-015 Calibration Frequency Revision	1
		EC 0000285928	PLC 1701C Replacement	1
		EC 0000286670	1K001-M Compressor Motor Overload Trip Jumper-ed Out (Bypassed)	1
		EC 0000287838	Revise TE4403 Setpoint on TR4400 to Provide Annunciation with Temperature Rise	0
		EC 0000287965	Disable XR2 Low Oil Level Alarm to Prevent Masking Other Alarms	0
		EC 0000287997	RHR [Residual Heat Removal] Discharge Header Pressure Switch Setpoint	1
		EC 0000288156	TC6924A/B Control Building Chiller Temperature Controller Siemens 353 Controller from Design Level A to B	2
		EC 0000288815	Diesel Air Compressor Back-Up to Plant Air System	0
EC 0000289081		Revise CAL-M91-014 To Be in Compliance with	1	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			ANSI 195-1976, Section 5.4	
		EC 0000291031	Reconfigure LS2219 Logic to Remove Automatic Opening of SV2219	2
		EC 0000291104	Replace LE-3768 with Longer Length Level Element	3
	Engineering Evaluations	ACE 01949946	2016 50.59: Eval of Portable Heaters During Severe Weather	02/16/2016
		EC 0000281703	Chromalox Replacement Project	0
		EC 0000282458	RWS Cable Replacement	0
		EC 0000287931	Implementation of Revised Calculations for LOCA Dose Consequences	0
	Miscellaneous	IP 71111.17T	Evaluations of Changes, Tests, and Experiments	01/01/2017
		NEI 96-07	Guidelines for 10 CFR 50.59 Implementation	1
		UCR #: 2016-007	Revise Discussion Regarding Location of Steam Leak Detection Temperature Elements	24
		UCR #: 2019-007	Revise MSIV [Main Steam Line Isolation Valve] Position Indication Description	08/22/2019
	Procedures	EN-AA-203-1100	Engineering Evaluations	13
		EN-AA-203-1201	10 CFR Applicability and 5059 Screen Reviews	17
		EN-AA-203-1202	10 CFR 5059 Evaluation	3
		EN-AA-205-1102	Temporary Configuration Changes	15
	Self-Assessments	AR 02276319	50.59/Modification Pre-Inspection Assessment	12/02/2019 through 12/06/2019
		PDA 19-001	Duane Arnold Nuclear Assessment Report - Engineering	03/28/2019