UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 29, 2020

Mr. Don Moul
Executive Vice President Nuclear Division
and Chief Nuclear Officer
Florida Power & Light Company
Mail Stop: NT3/JW
15430 Endeavor Drive
Jupiter, FL 33478

SUBJECT: DUANE ARNOLD ENERGY CENTER - ISSUANCE OF AMENDMENT NO. 310 RE: CHANGES TO THE POST-SHUTDOWN EMERGENCY PLAN FOR DUANE ARNOLD ENERGY CENTER (EPID L-2019-LLA-0075)

Dear Mr. Moul:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 310 to Renewed Facility Operating License No. DPR-49, for the Duane Arnold Energy Center (DAEC), in response to your letter dated April 9, 2019, as supplemented by letters dated October 28, 2019, November 4, 2019, December 9, 2019, February 21, 2020, and March 11, 2020.

The amendment revises the DAEC Emergency Plan to support the planned permanent cessation of operations and permanent defueling of the DAEC reactor.

A copy of our related safety evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

Mahesh L. Chawla, Project Manager
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosures:
1. Amendment No. 310 to DPR-49
2. Safety Evaluation

cc: Listserv

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

NEXTERA ENERGY DUANE ARNOLD, LLC

DOCKET NO. 50-331

DUANE ARNOLD ENERGY CENTER

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 310
Renewed License No. DPR-49

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by NextEra Energy Duane Arnold, LLC dated April 9, 2019, as supplemented by letters dated October 28, 2019, November 4, 2019, December 9, 2019, February 21, 2020, and March 11, 2020, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, by Amendment No. 310, Renewed Facility Operating License No. DPR-49 is hereby amended to authorize the revision to Duane Arnold Energy Center Emergency Plan as set forth in application dated April 9, 2019, as supplemented by letters dated October 28, 2019, November 4, 2019, December 9, 2019, February 21, 2020, and March 11, 2020, and as evaluated in the NRC staff's safety evaluation issued with this amendment.

3. This license amendment becomes effective upon the licensee's submittal of certification required by 10 CFR 50.82(a)(1)(ii) and shall be implemented within 30 days from the amendment effective date.

FOR THE NUCLEAR REGULATORY COMMISSION

Mirela Gavrilas

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Date: 2020.04.29 11:42:32 -04'00'

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

Date of Issuance: April 29, 2020

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 310 TO RENEWED

FACILITY OPERATING LICENSE NO. DPR-49

NEXTERA ENERGY DUANE ARNOLD, LLC

DUANE ARNOLD ENERGY CENTER

DOCKET NO. 50-331

1.0 INTRODUCTION

By letter dated January 18, 2019 (Reference 1), in accordance with Sections 50.82(a)(1)(i) and 50.4(b)(8) to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," NextEra Energy Duane Arnold LLC (NEDA, the licensee) informed the U.S. Nuclear Regulatory Commission (NRC, or Commission) that the Duane Arnold Energy Center (DAEC) would permanently cease power operations by the fourth quarter of calendar year 2020. By letter dated March 2, 2020 (Reference 2), NEDA certified that it planned to permanently cease power operations at DAEC on October 30, 2020. Upon the NRC's docketing of the NEDA's certification that all fuel has been permanently removed from the reactor vessel and placed into the spent fuel pool (SFP), pursuant to 10 CFR 50.82(a)(2), the license for the DAEC will no longer authorize operation of the reactor or emplacement or retention of fuel into the reactor vessel. The irradiated fuel will be stored in the SFP and in dry cask storage at the onsite independent spent fuel storage installation (ISFSI) until it is shipped offsite.

By application dated April 9, 2019 (Reference 3), and as supplemented by letters dated October 28, November 4, and December 9, 2019, and February 21 and March 11, 2020 (References 4, 5, 6 ,7, and 8, respectively), NEDA requested approval by the NRC for proposed changes to the DAEC Emergency Plan as required under 10 CFR 50.54(q)(4) prior to implementation by the licensee, to support the planned permanent cessation of operations and permanent defueling of the DAEC reactor. The proposed changes would revise the DAEC Emergency Response Organization (ERO) on-shift and augmented staffing commensurate with the reduced spectrum of credible accidents for a permanently shut down and defueled nuclear power reactor facility. As a result of the transition from an operating facility to a permanently defueled facility, the proposed changes will properly reflect the conditions of the facility while continuing to maintain effectiveness of the DAEC Emergency Plan.

In a letter dated February 21, 2020, NEDA informed the NRC that the DAEC Emergency Plan was revised since the original application was submitted on January 18, 2019. The February 21, 2020, letter summarized the revisions to the DAEC Emergency Plan made under

10 CFR 50.54(q)(3), which reorganized emergency operations facility (EOF) staffing and implemented a new Joint Information System that also reorganized joint information center (JIC) staffing. Subsequently, NEDA provided updated information for the revised ERO staffing in a letter dated March 11, 2020.

Supplemental letters dated October 28, November 4, and December 9, 2019, and February 21 and March 11, 2020, provided additional information that clarified the application but did not expand the scope of the application as originally noticed and, therefore, did not change the NRC staff's proposed no significant hazards consideration determination as published in the *Federal Register* (FR) on August 29, 2019 (84 FR 45544).

2.0 REGULATORY EVALUATION

An operating nuclear power reactor licensee's emergency plan is developed for a level of effectiveness commensurate with the potential consequences to public health and safety for a wide spectrum of accident scenarios. With the permanent cessation of operations and the permanent removal of the fuel from the reactor vessel at DAEC, most of the accident scenarios postulated for an operating nuclear power reactor will no longer be applicable. The irradiated fuel will be stored in the SFP and in the onsite ISFSI until the fuel can be moved offsite for long-term storage or disposal. The reactor coolant system (RCS) and reactor support systems will no longer be in operation and will have no function related to the storage of the irradiated fuel. Therefore, postulated accidents involving a failure or malfunction of the reactor, RCS, or reactor support systems will no longer be applicable.

Chapter 15, "Accident Analyses," of the DAEC Updated Final Safety Analysis Report (Reference 9) describes safety analyses for postulated design-basis accidents (DBA) under which DAEC is licensed. The postulated DBA that will remain applicable to DAEC in its permanently shut down and defueled condition is the fuel handling accident (FHA) in the reactor building where the SFP is located.

The regulatory requirements and guidance on which the NRC staff based its review of the license amendment request are addressed below.

2.1 Regulatory Requirements

Section 50.47(b)(1) of 10 CFR requires, in part, that "each principal response organization has staff to respond and to augment its initial response on a continuous basis."

Section 50.47(b)(2) of 10 CFR requires, in part, that "adequate staffing to provide initial facility accident response in key functional areas [be] maintained at all times," and that "timely augmentation of response capabilities is available."

Section 50.72(a)(3) of 10 CFR states that "[t]he licensee shall notify the NRC immediately after notification of the appropriate State or local agencies and not later than one hour after the time the licensee declares one of the Emergency Classes."

Section IV.A, "Organization," of Appendix E to 10 CFR Part 50, "Emergency Planning and Preparedness for Production and Utilization Facilities," states, in part, that "[t]he organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization."

Section IV.A.9 of Appendix E to 10 CFR Part 50, states, in part, that "a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan."

Notification procedures described in Section IV.D.3 of Appendix E to 10 CFR Part 50, states, in part, that "[a] licensee shall have the capability to notify responsible State and local governmental agencies within 15 minutes after declaring an emergency."

2.2 Guidance

Regulatory Guide (RG) 1.101, Revision 2, "Emergency Planning and Preparedness for Nuclear Power Reactors," October 1981 (Reference 10), provides guidance on methods acceptable to the NRC staff for implementing the planning standards of 10 CFR 50.47(b)(1) and (2), and the requirements of Sections IV.A and IV.D of Appendix E to 10 CFR Part 50. Revision 2 of RG 1.101 endorses Revision 1 to NUREG-0654/FEMA-REP-1 [Federal Emergency Management Agency – Radiological Emergency Preparedness], "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980 (referred to hereafter as NUREG-0654) (Reference 11), which provides acceptance criteria outlining an acceptable means for complying with the planning standards set forth in 10 CFR 50.47(b). These criteria provide a basis for NRC licensees, and State and local governments to develop acceptable radiological emergency plans.

In NUREG-0654, Section II, "Planning Standards and Evaluation Criterion," Evaluation Criteria II.B.1 and II.B.5 address planning standard 10 CFR 50.47(b)(2). Evaluation Criterion II.B.1 specifies the onsite emergency organization of plant staff personnel for all shifts, and its relation to the responsibilities and duties of the normal shift complement. In addition, Evaluation Criterion II.B.5, states, in part:

> Each licensee shall specify the positions or title and major tasks to be performed by the persons to be assigned to the functional areas of emergency activity. For emergency situations, specific assignments shall be made for all shifts and for plant staff members, both onsite and away from the site. These assignments shall cover the emergency functions in Table B-1 entitled, "Minimum Staffing Requirements for Nuclear Power Plant Emergencies." The minimum on-shift staffing levels shall be as indicated in Table B-1. The licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency. This capability shall be as indicated in Table B-1.

By letter dated June 12, 2018 (Reference 12), the NRC staff provided alternative guidance to Evaluation Criterion II.B.5 in NUREG-0654, Revision 1, for minimum ERO on-shift and augmentation staffing. The letter stated, in part:

> The NRC has revised Section II.B, Table B-1 of NUREG-0654, based in part on comments received from the public on the draft Revision 2 of NUREG-0654, located at www.regulations.gov under Docket ID FEMA-2012-0026. The revised ERO staffing guidance has been finalized, and the NRC will include it when the entire NUREG-0654, Revision 2, is ready for issuance. Until then, the NRC staff is making available on an interim basis the ERO on-shift and augmentation staffing plan (attached). Regardless of whether a licensee chooses to use the guidance contained in Revision 1 of NUREG-0654, the attached, or an

> alternative approach, licensees are still required to adhere to 10 CFR 50.54(q) when revising their ERO staffing plans.

Subsequently, NUREG-0654/FEMA-REP-1, Revision 2, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Final Report, was published in December 2019 (Reference 13).

The NRC's Office of Nuclear Security and Incident Response (NSIR), Division of Preparedness and Response (DPR), Interim Staff Guidance (ISG), document – NSIR/DPR-ISG-01, "Emergency Planning for Nuclear Power Plants," November 2011 (Reference 14), provides updated guidance information to address emergency planning requirements for nuclear power plants. Specifically, NSIR/DPR-ISG-01 was developed to address the assignment of tasks or responsibilities to on-shift ERO personnel that would potentially overburden them and prevent the timely performance of their emergency plan functions. The ISG also endorsed the Nuclear Energy Institute (NEI) document NEI 10-05, Revision 0, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," June 2011 (Reference 15), which was developed to establish a standard methodology for licensees to conduct analyses of the ability of on-shift staff to perform all required functions and tasks necessary to respond to a declared emergency for an operating power reactor. Licensees can use this methodology as an acceptable method to meet the requirement of Section IV.A.9 to Appendix E of 10 CFR Part 50 for all accident scenarios that are applicable in a permanently defueled condition.

3.0 TECHNICAL EVALUATION

The NRC staff reviewed the licensee's regulatory and technical analyses in support of its proposed emergency plan changes, as described in the licensee's letter dated April 9, 2019, and as supplemented by letters dated October 28, November 4, and December 9, 2019, and February 21 and March 11, 2020. The NRC staff reviewed the application using the evaluation criteria in Table B-1 of NUREG-0654, Revision 1, and draft Revision 2 of NUREG-0654 as the final version of NUREG-0654, Revision 2, was not issued at the time of the application. The staff also reviewed the licensee's ability to promptly implement the SFP mitigation strategies, if required. The NRC staff's technical evaluation for each major functional area described in Section B, "Emergency Response Organization," and Table B-1, "On-Shift Staffing & [and] Staff Augmentation Assignments," of the DAEC Emergency Plan is detailed in Sections 3.1 through 3.9 of this safety evaluation.

In Section 3.2.1, "On-Shift and Augmentation Staffing," of Attachment 1 to the NEDA's letter dated April 9, 2019, the licensee stated, in part:

> To support reduced staffing following permanent cessation of operations and permanent removal of fuel from the reactor vessels, the on-shift staffing levels have been evaluated, in part, using the methodology in NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," [ ] which evaluates the postulated accidents that will be applicable in the permanently defueled condition. DAEC performed a multi-disciplined team review of the on-shift staffing changes. This team included participants from Operations, Radiation Protection, Security, Safety, Emergency Planning and Regulatory Assurance.

NEDA stated that the following accident scenarios were evaluated in the analysis of proposed post-shutdown on-shift staff:

- Design-basis threat,
- FHA,
- Aircraft probable threat (50.54(hh)),
- Control room fire requiring evacuation and maintain SFP cooling, and
- General emergency with radioactive release and protective action recommendation (assumed for analysis purposes).

The spectrum of credible accidents and operational events for a permanently shut down and defueled reactor, and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to an operating nuclear power reactor facility. An operating nuclear power reactor licensee's emergency plan is developed for a level of effectiveness commensurate with the potential consequences to public health and safety for a wide spectrum of accident scenarios. When NEDA certifies the permanent cessation of power operations and the permanent removal of the fuel from the reactor vessel at DAEC, most of the accident scenarios postulated for an operating power reactor will no longer be applicable. The irradiated fuel will be stored in the SFP and onsite ISFSI until it can be moved offsite for long--term storage or disposal.

During reactor decommissioning, the principal public safety concerns involve the radiological risks associated with the storage of spent fuel on-site. The reactor, RCS, and reactor support systems will no longer be in operation, and will have no functions related to the storage of the irradiated fuel. Therefore, postulated accidents involving failure or malfunction of the reactor, RCS, or reactor support systems will be no longer applicable. The license identified that the only postulated DBA that will remain applicable to DAEC in the permanently shut down and defueled condition is the FHA in the reactor building, where the SFP is located.

The licensee determined that the loss-of-coolant accident, control rod drop accident, National Fire Protection Association (NFPA) 805 safe shutdown, anticipated transient without scram accidents, and station blackout, need not be considered in the analysis of proposed post-shutdown on-shift staffing. Once the certifications required by 10 CFR 50.82(a)(1)(i) and (ii) are docketed, DAEC will no longer be licensed to operate and 10 CFR 50.63 (the station blackout rule) will no longer be applicable pursuant to 10 CFR 50.63(a)(1). Similarly, pursuant to 10 CFR 50.48, NFPA 805 is applicable to licensed nuclear power generating stations. Once the certifications required by 10 CFR 50.82(a)(1)(i) and (ii) are docketed, DAEC will no longer be licensed to generate power. Finally, because the 10 CFR Part 50 license will no longer authorize emplacement or retention of fuel in the reactor vessel, neither an anticipated transient without scram nor a control rod drop accident will be credible events.

In Section 3.1, "Accident Analysis," of Attachment 1, "Description and Evaluation of the Proposed Changes," to NEDA's letter dated April 9, 2019, the licensee stated, in part:

> In the permanently shutdown and defueled condition, the DAEC Fire Brigade will implement the SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2). DAEC will continue to maintain a trained and qualified Fire Brigade responsible for implementation of the SFP inventory makeup strategies. The Fire Brigade personnel identified in the DAEC emergency plan are separate and distinct from those responsible for implementing the major elements of the

> emergency plan including command and control, emergency classification, offsite notifications, and dose assessment and protective action recommendation development. Therefore, sufficient staffing is available to implement SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2) without impacting the performance of designated emergency plan functions.
>
> As described in Section 3.2.2.2, ["Operations Support Center,"] events involving a loss of SFP cooling and/or water inventory can be addressed by implementation of SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2), which will continue to be maintained to satisfy applicable License Conditions of the Renewed Operating License.

3.1 Major Functional Area: Plant Operations and Assessment of Operational Aspects

The DAEC Emergency Plan currently identifies the following minimum on-shift staffing as "on duty" at the plant during normal operations for all shifts:

- One (1) Operations Shift Manager (Senior Reactor Operator (SRO)),
- One (1) Control Room Supervisor (SRO),
- Three (3) Control Room Operators (Reactor Operators),
- Two (2) Auxiliary Operators, and
- One (1) Shift Technical Advisor (STA).

The licensee's post-shutdown on-shift staffing analysis concluded that in a permanently shut down and defueled condition, with the postulated accidents that would be applicable to that condition, the following on-shift complement would be able to perform all required DAEC Emergency Plan actions in a timely manner and that there are no identified collateral duties that would prevent the timely performance of these emergency plan functions:

- One (1) Operations Shift Manager (Certified Fuel Handler (CFH)), and
- Two (2) Non-Certified Operators (NCO).

In Section 3.2.1.1, "Major Functional Area: Plant Operations and Assessment of Operational Aspects," of Attachment 1 to the NEDA's letter dated April 9, 2019, the licensee stated:

> Because of the reduced number of possible events requiring mitigating actions in the permanently shut down and defueled condition and the limited number of actions to be performed by the Control Room positions in a permanently shut down and defueled condition, no Control Room Operators or STA job tasks are required for any of the events analyzed or proposed post-shutdown on-shift staffing. Therefore, the Control Room Operator and STA positions can be eliminated without reducing the effectiveness of the DAEC Emergency Plan.. . . The analysis of proposed post-shutdown on-shift staffing concluded that in a permanently shut down and defueled condition, the Operations Shift Manager and two NCOs can perform all required DAEC actions in a timely manner and there are no collateral duties that would prevent the timely performance of emergency plan functions.

With DAEC in a permanently shut down and defueled condition, the Operations staff will need to respond to events regarding an FHA, a loss of SFP cooling or water inventory, and external events that could lead to a challenge to maintaining SFP cooling or water inventory. The Control Room will continue to have indications, alarms, and controls related to SFP parameters.

The licensee concluded that the proposed on-shift staffing continues to meet the applicable planning standards in 10 CFR 50.47(b) and requirements of Appendix E to 10 CFR Part 50, commensurate with the reduced spectrum of credible accidents with DAEC in the permanently shut down and defueled condition, and that DAEC retains the ability to implement the DAEC SFP mitigation actions.

NRC Staff Conclusion

The NRC staff reviewed the licensee's analysis of proposed post-shutdown on-shift staffing. As discussed previously in Section 3.0 of this safety evaluation, the spectrum of credible accidents and operational events for a permanently shut down and defueled reactor, and the number and complexity of activities required for the safe storage of spent nuclear fuel, is reduced as compared to those at an operating nuclear power reactor facility. Based on this, the NRC staff determined the proposed level of on-site operations staffing will continue to provide for the direction and performance of actions to mitigate the remaining identified applicable events and the prompt implementation of mitigating actions in response to an SFP accident.

Based on the NRC staff's review of the information, as provided in NEDA's letter dated April 9, 2019, and as supplemented by NEDA's letters dated October 28, November 4, and December 9, 2019, and February 21 and March 11, 2020, the NRC staff finds that the proposed level of the ERO staffing the Plant Operations and Assessment Major Functional Area continues to meet the applicable planning standards of 10 CFR 50.47(b) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50, to cope with radiological emergencies commensurate with the reduced spectrum of credible accidents in the permanently shut down and defueled condition of the DAEC facility. As such, the proposed changes in ERO staffing for the positions listed above for this functional area are acceptable and do not impact the ability of the ERO staffing to perform the required plant operations and assessment functions.

3.2 Major Functional Area: Emergency Direction and Control

The licensee proposes no changes to the DAEC on-shift staff or augmented ERO for this Major Functional Area. The on-shift Operations Shift Manager will continue to perform this function until relieved by either the Emergency Coordinator in the Technical Support Center (TSC) or the Emergency Response and Recovery Director in the EOF.

3.3 Major Functional Area: Notification/Communication

The DAEC Emergency Plan currently identifies the Operations Shift Manager as the individual who completes the offsite notification form and provides the information to a dedicated Shift Communicator who in turn notifies designated offsite response organizations (OROs) and the NRC. The licensee proposes that the Shift Communicator be replaced by an on-shift NCO for notification of the OROs and NRC.

The regulations in Section IV.D.3 of Appendix E to 10 CFR Part 50 require that "[a] licensee shall have the capability to notify responsible State and local government agencies within 15 minutes after declaration of an emergency classification." In addition, 10 CFR 50.72(a)(3)

requires that the licensee notify the NRC immediately after notification of the appropriate State or local agencies and not later than 60 minutes after the time the licensee declares one of the emergency classes. The licensee stated that DAEC will continue to notify the State and local communities within 15 minutes after declaration of an emergency and will notify the NRC immediately after notification of the appropriate State or local agencies and no later than 60 minutes after the time DAEC declares one of the emergency classes.

The licensee stated that the on-shift communicator has advanced communications capabilities available such as the "All-Call" phone system, which provides a rapid method for contacting OROs via Local Area Network (LAN)/Internet with satellite backup capabilities. The "All-Call" phone system provides a communication path from the licensee's Control Room/Simulator, TSC and EOF with the Iowa Homeland Security and Emergency Management Division, Benton County and Linn County Sheriff 911 Dispatch Centers and Emergency Operations Centers (EOCs).

The licensee also stated that communications with the NRC will take place over dedicated telephone lines provided for and maintained by the NRC. For purposes of conducting the analysis of proposed post-shutdown staffing, the NRC notifications were treated as a continuous action in accordance with 10 CFR 50.72(c)(3), meaning that once the initial NRC communications are established, it is assumed that the NRC will request an open line to be continuously maintained with the NRC Operations Center. The use of dedicated phone circuits and headsets enables these notifications to be performed by the same person who performs the county and State notifications.

In the post-shutdown and defueled condition, the responsibility for completion of the offsite notification form and providing the information to the person performing offsite notifications will remain with the Operations Shift Manager. However, the person actually performing offsite notifications to the OROs and NRC will no longer be a dedicated Shift Communicator but an NCO. The resource commitment to support the communication and notification function is not full time, and it was determined by the licensee that there would be sufficient time to support performance of collateral duties during the first 60 minutes until staff augmentation can occur.

NRC Staff Conclusion

The NRC staff reviewed the licensee's analysis of proposed post-shutdown on-shift staffing and determined that in a permanently shut down and defueled condition, the designated on-shift staffing could perform this required DAEC Emergency Plan action in a timely manner. In addition, there were no collateral duties identified that would prevent the timely performance of this emergency plan function. Additionally, the licensee continues to maintain the same level of communications equipment capabilities to perform timely communications with the required OROs.

Based on the NRC staff's review of the information, as provided in NEDA's letter dated April 9, 2019, and as supplemented by letters dated October 28, November 4, and December 9, 2019, and February 21 and March 11, 2020, the NRC staff finds that the proposed level of staffing continues to meet the applicable planning standards in 10 CFR 50.47(b) and the requirements in 10 CFR 50.72(a)(3) and Sections IV.A and IV.D(3) of Appendix E to 10 CFR Part 50 to cope with radiological emergencies commensurate with the reduced spectrum of credible accidents in the permanently shut down and defueled condition of the DAEC facility. As such, the proposed changes in ERO staffing for the positions listed above for

this functional area are acceptable and do not impact the ability of the ERO staffing to perform the required notification/communication functions.

3.4 Major Functional Area: Radiological Accident Assessment and Support of Operational Accident Assessment

The purpose of conducting accident assessment is to review radiological conditions using data from available instrumentation, assessing the impact of changing radiological conditions on emergency classification, assisting in accident assessments based upon those changing radiological conditions, and recommending appropriate off-site protective measures.

a. Major Task: Offsite Dose Assessment

NEDA is proposing to eliminate the on-shift Chemistry Technician position. The DAEC Emergency Plan currently identifies the on-shift Chemistry Technician as performing the initial dose assessment and is augmented by the TSC Meteorological Information and Dose Assessment System (MIDAS) Operator within 60 minutes of an Alert or higher emergency classification. The on-shift Chemistry Technician also performs reactor coolant sampling and analysis – refer to Section 3.4.d for the assessment of changes to this function.

In Section 3.2.1.4.1, "Major Task: Offsite Dose Assessment and Protective Action Recommendations," of Attachment 1 to NEDA's letter dated April 9, 2019, the licensee stated, in part:

> The elimination of the on-shift Chemistry Technician position does not impact the ability of the on-shift staff to perform the initial dose assessment. The analysis of proposed post-shutdown on-shift staffing concluded that in a permanently defueled condition, the Operations Shift Manager and two NCOs can perform all required DAEC Emergency Plan actions in a timely manner and there are no collateral duties that would prevent the timely performance of emergency plan functions. NCOs can perform initial dose assessment using existing EPIPs [emergency plan implementing procedures].

The NRC staff reviewed the licensee's analysis of the post-shutdown staffing and determined that the proposed changes to the on-shift dose assessment being performed by a qualified individual, until augmented by an Alert or higher emergency classification, are acceptable and do not impact the ability to perform the required dose assessment functions.

b. Major Task: Offsite Surveys

The licensee proposes no changes in staffing to Major Task: Offsite Surveys.

c. Major Tasks: Onsite and In-Plant Surveys

The DAEC Emergency Plan currently identifies the on-shift Health Physics (HP) Technician as initially performing onsite and in-plant surveys. Augmentation of the on-shift HP Technician is by two HP technicians within 60 minutes of an Alert or higher emergency classification and two additional HP technicians within 90 minutes. NEDA is proposing to eliminate two HP technicians augmenting within 90 minutes and reduce the 60-minute augmenting HP technician positions from two to one for an Alert or higher emergency classification.

In Section 3.2.1.4.3, “Major Task: Onsite and In-Plant Surveys,” of Attachment 1 to NEDA’s letter dated April 9, 2019, the licensee stated that,

> With irradiated fuel being stored in the SFP and ISFSI, the spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The risk in the permanently shut down and defueled condition is significantly reduced because many of the potential initiating conditions that would lead to an emergency declaration will no longer be possible and the elimination of credible accidents involving an operating reactor provides additional time to plan and execute assessment and mitigation actions. If additional resources are determined to be necessary during an emergency, DAEC maintains the necessary staffing to provide sufficient personnel trained in radiation protection to respond and perform the required actions, if necessary, in the permanently shut down and defueled condition.
>
> Additionally, the duties and coverages required for the HP Technician positions are reduced. The reduced spectrum of possible accidents limits the necessity to take measures requiring multiple damage control or survey teams in the Protected Area. During the initial stages of an accident, not all areas of the plant would be affected by releases of radioactive materials. Therefore, radiation protection coverage would not be required for all areas. Because entry is expected to be limited to those areas where maintenance necessary to maintain SFP cooling is required and the areas potentially affected by an accident involving the SFP are limited, there is a significant decrease in areas potentially requiring radiation protection coverage in a permanently shut down and defueled condition. If radiation protection coverage is deemed necessary, multiple emergency teams can be covered by each HP Technician. If radiation protection coverage is not provided (for entry into areas with low radiological risk or known radiological status), worker protection is ensured because emergency workers are required to wear electronic dosimeters (which will alarm at preset dose and dose rate setpoints) and because of the installed Area Radiation Monitors (ARMs) (which alarm locally and remotely at preset dose rates) located throughout the plant.

The NRC staff reviewed the licensee’s analysis of the post-shutdown staffing and determined that the proposed changes to reduce the staffing for the onsite and in-plant surveys is acceptable and does not impact the ability to perform the required onsite and in-plant survey functions.

d. Major Task: Chemistry

NEDA is proposing to eliminate the on-shift Chemistry Technician position. The DAEC Emergency Plan currently identifies the on-shift Chemistry Technician performing reactor coolant sampling and analysis.

In Section 3.2.1.4.4, “Major Task: Chemistry/Radiochemistry,” of Attachment 1 to NEDA’s letter dated April 9, 2019, the licensee stated:

> On-shift Chemistry Technician initially performs the task. Once the DAEC is shut down and permanently defueled, no chemistry/radio-chemistry job tasks are

required within the first 60 minutes of any of the analyzed events. This is consistent with draft NUREG 0654 Rev. 2, which does not include the Chemistry/Radiochemistry function in Table B.1 on-shift staffing for operating nuclear plants. "Technical Analysis in Support of the Guidance in NUREG-0654/FEMA-REP-1" for the draft Rev. 2 states:

> The Chemistry/Radiochemistry function listed in Table B-1 to Revision 1 of the NUREG is no longer needed as the need for immediate reactor coolant sampling has been reduced due to the variety of plant indications of fuel damage available to licensees.

The NRC staff reviewed the licensee's analysis of proposed post-shutdown on-shift staffing, which provided that there were not any chemistry job tasks required for any of the analyzed events. As the licensee stated previously, one of the purposes of the Chemistry Technician is to collect and analyze gaseous and liquid samples if the applicable radiation monitor is not available during a release, or as directed by the Operations Shift Manager. The removal of the on-shift Chemistry Technician does not impact the ability of the on-shift or ERO staff to perform the Major Functional Area of Radiological Accident Assessment and Support of Operational Accident Assessment. Therefore, the staff concludes that the change in ERO staffing is acceptable.

NRC Staff Conclusion

Based on the NRC staff's review of the information, as provided in NEDA's letter dated April 9, 2019, and as supplemented by letters dated October 28, November 4, and December 9, 2019, and February 21 and March 11, 2020, the NRC staff finds that the proposed level of the on-shift staffing continues to meet the applicable planning standards of 10 CFR 50.47(b) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies commensurate with the reduced spectrum of credible accidents in the permanently shut down and defueled condition of the DAEC facility. As such, the proposed changes in ERO staffing for the positions listed above for this functional area are acceptable and do not impact the ability of the ERO staffing to perform the required radiological accident assessment and support of operational accident assessment functions.

3.5 Major Functional Area: Plant System Engineering, Repair and Corrective Actions

a. Major Task: Technical Support

The DAEC Emergency Plan currently identifies the on-shift STA as performing the major task of Technical Support and is augmented by the Reactor Engineer, Electrical Engineer and Mechanical Engineer within 60 minutes of an Alert or higher emergency classification.

NEDA proposes to eliminate the STA position from the on-shift staffing and to transfer the functions of the Reactor Engineer, Electrical Engineer and Mechanical Engineer to the Technical and Engineering Supervisor.

In Section 3.2.1.5, "Major Functional Area: Plant System Engineering, Repair and Corrective Actions," of Attachment 1 to NEDA's letter dated April 9, 2019, the licensee stated:

> The STA performs independent assessments of plant operating concerns, technical support, appropriate corrective actions, analysis of events and their

> effects, effectiveness of response(s) to emergent conditions, classifications of emergencies, protection of the public, and any other actions related to critical safety functions and plant safety during abnormal and emergency situations. The STA also contributes to operations during normal plant conditions. By routine monitoring of equipment and plant operations, the STA can focus on preventative actions to mitigate the consequences of an accident.
>
> Because of the permanent cessation of power operations and permanent removal of fuel from the reactor vessel, the STA position is no longer necessary for technical and an analytical assistance. The Technical Support function will be assumed by the remaining Control Room personnel.

The licensee's analysis of proposed post-shutdown on-shift staffing concluded that the Operations Shift Manager/CFH and two NCOs can perform any required technical analysis associated with the storage of spent fuel in a timely matter, and there are no collateral duties that would prevent the timely performance of this task.

Section 3.2.1.5 to Attachment 1 of NEDA's letter dated April 9, 2019, further states:

> Currently, the function of the Reactor Engineer is to provide confirmation of adequacy of core cooling, maintenance of coolable core geometry, and to verify that actual plant responses to the event is as expected. This function is initially performed by the STA under the guidance of the Operations Shift Manager. The Reactor Engineering position can be eliminated without increasing the risk to public health and safety because the major task of evaluating core/thermal hydraulics is not necessary in a permanently shut down and defueled condition.
>
> The primary duties of the TSC Engineer positions [Reactor, Electrical, Mechanical] include: responding to engineering requests from the Technical and Engineering Supervisor, evaluating the implementation of Severe Accident Management Guidelines, and assisting the OSC [Operations Support Center] in preparing to send repair teams into the plant. These duties are either no longer necessary in a permanently shut down and defueled condition or will be performed by other members of the post-shutdown ERO.
>
> The Technical and Engineering Supervisor is tasked with performing an engineering assessment of plant conditions and/or actions needed to mitigate damage to the plant. With respect to responding to engineering requests from the Technical and Engineering Supervisor, this function will continue to be performed by augmenting qualified engineering resources. The Technical and Engineering Supervisor will continuously evaluate the need for engineering resources and coordinate with the Admin [Administration] Supervisor in the TSC to call in additional qualified engineering personnel. These individuals may be tasked with activities to be complete at engineering offices external to the TSC, called to report to the TSC, or directed to other facilities.

The NRC staff reviewed the licensee's analysis of the post-shutdown staffing and determined that the proposed transfer of the on-shift technical analysis from the STA to the Shift Manager/CFH and the changes to the TSC engineering function are acceptable and do not impact the ability to perform the required technical support functions.

b. Major Task: Repair and Corrective Actions

The DAEC Emergency Plan currently identifies the Auxiliary Operators as performing the major task of Repair and Corrective Actions on-shift. The on-shift Auxiliary Operators are currently augmented with the OSC Supervisor, a Mechanical Maintenance Technician and an Electrical Maintenance Technician within 60 minutes of an Alert or higher emergency classification to perform repair and corrective actions. This major task is currently further augmented with Instrument & Control (I&C) Technician and an additional Electrical Maintenance Technician within 90 minutes of an Alert or higher emergency classification to perform repair and corrective actions. NEDA is proposing to replace the on-shift Auxiliary Operators with NCOs and eliminate one Electrical Maintenance Technician (augmenting within 90 minutes of an Alert or higher emergency classification).

Section 3.2.1.5 to Attachment 1 of NEDA's letter dated April 9, 2019, states, in part:

> Electrical Maintenance Technician duties include providing repairs and corrective actions for plant electrical equipment, as directed. The elimination of the Electrical Maintenance Technician position described above is justified because the spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The set of plant equipment required in the permanently shut down and defueled condition is also greatly reduced, which reduces the assessment and mitigation activities the OSC must perform. Additionally, the elimination of credible accidents involving an operating reactor provides additional time to plan and execute assessment and mitigation actions.

The NRC staff reviewed the licensee's analysis of the post-shutdown staffing and determined that the proposed changes to support the repair and corrective actions function are acceptable and do not impact the ability to perform the required repair and corrective actions functions.

NRC Staff Conclusion

The NRC staff reviewed the licensee's analysis of the proposed post-shutdown on-shift and augmented staffing. As discussed previously, the spectrum of credible accidents and operational events for a permanently shut down and defueled nuclear power reactor facility and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to those at an operating plant. Based on this, the NRC staff determined the proposed level of onsite and augmented staffing will continue to provide for the direction and performance of actions to mitigate the remaining identified applicable events and the prompt implementation of mitigating actions in response to an SFP accident.

Based on the NRC staff's review of the information, as provided in NEDA's letter dated April 9, 2019, and as supplemented by letters dated October 28, November 4, and December 9, 2019, and February 21 and March 11, 2020, the NRC staff finds that the proposed level of the staffing continues to meet the applicable planning standards of 10 CFR 50.47(b) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies commensurate with the reduced spectrum of credible accidents in the permanently shut down and defueled condition of the DAEC facility. As such, the proposed changes in ERO staffing for the positions discussed above for this functional area are acceptable and do not impact the ability of the ERO staffing to perform the required plant system engineering functions and repair and corrective actions.

3.6 Major Functional Area: In-Plant Protective Actions

The DAEC Emergency Plan currently identifies two on-shift HP technicians performing the in-plant protective actions. Augmentation of the on-shift HP technicians is by one HP technician within 60 minutes of an Alert or higher emergency classification and two additional HP technicians within 90 minutes of an Alert or higher emergency classification. DAEC proposes to reduce the on-shift HP technician positions staff in support of this major task from two to one and the 90-minute augmenting HP technician positions from two to one.

In Section 3.2.1.6, "Major Functional Area: Protective Actions," to Attachment 1 of NEDA's letter dated April 9, 2019, the licensee stated:

> The function of these resources is to provide radiation protection oversight of the on-shift complement of personnel and augmented personnel who are expected to respond to emergency events for damage repair, corrective actions, search and rescue, first aid, firefighting and personnel monitoring. They can also be expected to provide for access control and the issuance of dosimetry.
>
> The analysis of proposed post-shutdown staffing concluded that in a permanently shut down and defueled condition, HP Technicians can perform this required action in a timely manner and there are no collateral duties that would prevent the timely performance of this task.
>
> Worker use of electronic dosimeters facilitates more efficient use of HP Technicians to provide radiation protection coverage while preserving the As Low As Reasonably Achievable (ALARA) concept. Access control is maintained because the worker must obtain an electronic dosimeter and enter a radiation work permit number into the access control computer system prior to being allowed access into the Radiologically Controlled Area (RCA). No setup is required for the [Radiation Work Permit] RWP access control computers, which allows HP Technicians to be used for more critical tasks during emergency response. Personnel are required to self-monitor for radioactive contamination whenever they exit the RCA. No radiation protection involvement is necessary for this contamination monitoring activity because workers are trained to perform this task without supervision or oversight. However, contaminated personnel exiting the RCA will require radiation protection oversight.
>
> Radiation protection coverage will only be performed if the radiological status of a room is unknown and there is a definitive need for emergency workers to enter the room to perform a task. The decision to provide radiation protection coverage may be based on plant radiological conditions as indicated by installed ARMs.
>
> During the initial stages of an accident, not all areas of the plant would be affected by releases of radioactive materials. Therefore, radiation protection coverage would not be required for all areas. Because entry is expected to be limited to those areas where maintenance necessary to maintain SFP cooling is required and the areas potentially affected by an accident involving the SFP are limited, there is a significant decrease in areas potentially requiring radiation protection coverage in a permanently shut down and defueled condition. If

radiation protection coverage is deemed necessary, multiple emergency teams can be covered by the on-shift HP Technician. If radiation protection coverage is not provided (for entry into areas with low radiological risk or known radiological status), worker protection is ensured because emergency workers are required to wear electronic dosimeters (which will alarm at preset dose and dose rate set points) and because of the installed ARMs (which alarm locally and remotely at preset dose rates) located throughout the plant.

NRC Staff Conclusion

The NRC staff reviewed the licensee's analysis of proposed post-shutdown on-shift staffing, which provided that in a permanently defueled condition, the designated on-shift HP Technician staffing could perform this required DAEC Emergency Plan action in a timely manner. As discussed previously in Section 3.0 of this safety evaluation, the spectrum of credible accidents and operational events for a permanently shut down and defueled reactor, and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to an operating plant. Based on this, the NRC staff concludes that the level of on-shift staffing of one HP technician and augmentation of one 60-minute and one 90-minute HP technician will continue to provide for support of radiation protection oversight of the on-shift complement of personnel for damage repair, corrective actions, search and rescue, first aid, firefighting, and personnel monitoring required for the remaining DBAs and for mitigative actions in response to an SFP accident.

Based on the NRC staff's review of the information, as provided in NEDA's letter dated April 9, 2019, and as supplemented by letters dated October 28, November 4, and December 9, 2019, and February 21 and March 11, 2020, the NRC staff finds that the proposed level of the on-shift staffing continues to meet the applicable planning standards of 10 CFR 50.47(b) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies commensurate with the reduced spectrum of credible accidents in the permanently shut down and defueled condition of the DAEC facility. As such, the proposed changes in ERO staffing for the positions discussed above for this functional area are acceptable and do not impact the ability of the ERO staffing to perform the required protective actions.

3.7 Major Functional Area: Fire Fighting

The DAEC Emergency Plan currently identifies the DAEC Fire Brigade complement consisting of five responders, one of which acts as the Plant Fire Brigade Leader. There are no proposed changes to the DAEC staffing in this Major Functional Area.

3.8 Major Functional Area: Rescue Operations and First Aid

The DAEC Emergency Plan currently identifies that on-shift personnel initially perform the task with augmentation by on-call ambulance service. There are no proposed changes to the DAEC staffing in this Major Functional Area.

3.9 Major Functional Areas: Site Access Control and Personnel Accountability

The DAEC Emergency Plan currently identifies that this staffing is in accordance with technical specifications and DAEC procedures. There are no proposed changes to the DAEC staffing in this Major Functional Area.

4.0 Emergency Response Organization Changes – Emergency Response Facility Evaluation

4.1 Augmented Emergency Response Organization

If an Alert or higher emergency classification is declared, or if the minimum on-shift crew requires assistance during a Notification of Unusual Event, the onsite emergency organization will be augmented by additional plant personnel as described in Section B of the DAEC Emergency Plan. Section 2.5.(3) of the DAEC Emergency Plan describes the augmented emergency organization that will staff and operate the EOF, TSC, OSC, and the JIC. It states, in part,

> Activation of the TSC and OSC will occur at an ALERT or higher classification. The TSC and OSC have an activation time of 60 minutes. The EOF has an activation time of 60 minutes from a Site Area Emergency or higher classification.

Section 3.2.2, "ERO Staffing," of Attachment 1 to NEDA's April 9, 2019, letter, the licensee stated:

> In the permanently shutdown and defueled condition, DAEC will continue to maintain ERO teams to respond to an emergency declaration. When the Operations Shift Manager directs the activation of the ERO call -out system, ERO members are notified to ensure adequate coverage of ERO positions at each ERF [emergency response facility]. ERO members not on-call are expected to respond unless they are unavailable.
>
> DAEC requires ERO personnel to act promptly in reporting to their assigned ERF even when not on-duty. During duty periods, plant procedure require that team members respond within the required response time to their ERF (unless a longer time frame is specified for their specific ERO position) and that on-call ERO members remain fit for duty throughout the duty assignment. Individuals are trained to respond to their ERF even if they are not on-duty. Excess personnel that respond may be assigned support responsibilities or be designated as a relief shift.

The licensee stated that the proposed revisions to the DAEC emergency plan will not change the requirements described above. All ERO personnel are expected to respond when notified by the ERO notification system. Procedures identify ERO positions assigned to each ERF and the minimum staffing required before each facility can be declared operational and available to perform its designed functions. The procedures will continue to assign responsibilities to ERO responders with the purposes of removing the responsibilities of coordinating with offsite responders and delivering information to the public from the Control Room, allowing on-shift personnel to focus on returning the facility to a safe condition.

In NEDA's letter dated October 28, 2019, the licensee stated, in part:

> DAEC will conduct a drill to validate the proposed ERO changes in preparation for implementation of the shutdown and permanently defueled Emergency Plan, in accordance with the EP [emergency preparedness] drill program. The NRC and FEMA will be provided with appropriate advanced notice to allow them the opportunity to observe. This will be tracked as a new commitment.

Subsequently, in NEDA's letter dated December 9, 2019, the licensee stated, in part:

> In the referenced letter, NextEra Energy Duane Arnold, LLC (NEDA) committed to providing an ERO Drill to validate the proposed ERO changes. The commitment stated that the NRC and FEMA will be notified of the date in advance and offered the opportunity to observe. This letter revises that commitment to include advance notification of the drill date to the OROs with an offer to participate.

4.2 Technical Support Center Augmenting Positions

Attachment 4, "Emergency Response Organization Task Analysis," of NEDA's letter dated April 9, 2019, contains an analysis of all augmented ERO position proposed for elimination and evaluates the transfer of tasks to remaining augmented ERO positions following permanent cessation of power operations and permanent removal of fuel from the reactor vessel. The proposed changes to the DAEC Emergency Plan do not involve any physical modifications or changes to the layout and configuration changes of the TSC. The TSC will continue to be activated within 60 minutes from an Alert or higher classification level.

The following table illustrates the NRC staff's summary of proposed changes to the TSC staffing based on NEDA's supplemental letter dated March 11, 2020:

Technical Support Center	
Current DAEC Augmented ERO Positions	**Proposed Post-Shutdown Augmented ERO Positions**
Emergency Coordinator	Emergency Coordinator
TSC Operations Supervisor	*Position Eliminated*
Reactor Engineer	*Position Eliminated*
TSC Operations Liaison	TSC Operations Liaison
Technical and Analysis Engineer	*Position Eliminated*
TSC Communicator	TSC Communicator
Technical and Engineering Supervisor	Technical and Engineering Supervisor
IC/Electrical Maintenance (EM) Engineer	*Position Eliminated*
Mechanical Engineer	*Position Eliminated*
NRC ENS Communicator	NRC ENS Communicator
Site Radiation Protection Coordinator	Site Radiation Protection Coordinator
MIDAS Operator	MIDAS Operator
Field Team Director	Field Team Director
NRC Health Physics Network (HPN) Communicator	NRC HPN Communicator
Security and Support Supervisor	Security and Support Supervisor
Security Force	Security Force
Admin Supervisor	Admin Supervisor
TSC Clerical	*Position Eliminated**
Information Service Rep	Information Service Rep

The proposed staffing changes eliminate the TSC Operations Supervisor, Reactor Engineer, Technical and Analysis Engineer, IC/EM Engineer, and Mechanical Engineer.

In Section 3.2.2.1, "Technical Support Center," of Attachment 1 to NEDA's letter dated April 9, 2019, the licensee stated:

> Following permanent cessation of power operations and permanent removal of fuel from the DAEC reactor vessel, the TSC will continue to be located on the ground floor of the Data and Acquisition Center (DAC). The proposed changes to the DAEC Emergency Plan do not involve any physical modifications to, or layout and configuration changes in, the TSC.

The licensee stated that the current DAEC Emergency Plan is intended to address the risks to public health and safety inherent in an operating nuclear power reactor. The risk in the permanently shut down and defueled condition is significantly reduced because many of the potential initiating accidents and operational events that would lead to an emergency declaration will no longer be possible.

The licensee stated that the spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating nuclear power reactor facility. The set of plant equipment required in the permanently shut down and defueled condition is also greatly reduced, which reduces the assessment and mitigation activities the TSC must perform. Therefore, the TSC Operations Supervisor, Reactor Engineer, Technical and Analysis Engineer, IC/EM Engineer, and Mechanical Engineer can be eliminated without placing an undue burden on the remaining ERO positions in the TSC and without increasing the risk to public health and safety. The proposed augmented ERO staffing reductions continue to address the risks to public health and safety, comply with the DAEC Emergency Plan, site commitments, and applicable regulations.

TSC Operations Supervisor

The primary function of the TSC Operations Supervisor is to provide support for the Control Room and to direct action associated with severe accident management. In a permanently shut down and defueled condition, the need for severe accident management no longer exists. The TSC Operations Supervisor position can be eliminated without increasing the risk to public health and safety because the major task of evaluating severe accidents and taking mitigating actions for these conditions are not necessary or possible in a permanently shut down and defueled condition.

TSC Reactor Engineer

The Reactor Engineer's primary duties include: monitoring plant conditions for indication of core damage, providing support to the operations crew in the Control Room and the Emergency Coordinator in the TSC, making recommendations for returning the reactor core to a safe and stable condition, determining the amount of failed fuel and providing that information to the TSC Operations Supervisor, obtaining vendor feedback on the amount of failed fuel, tracking and reporting that minimum staffing has been achieved, and acting as a member of the TSC accident team. After docketing of the certifications of permanent cessation of power operations and permanent removal of fuel from the reactor vessel, the 10 CFR Part 50 license will no longer authorize reactor operation or emplacement or retention of fuel in the reactor vessel. Elimination of the Reactor Engineer position will have no effect on emergency response in a

permanently shut down and defueled condition because the position is not required to assess the condition of fuel in the SFP during an emergency. The TSC Technical and Engineering Supervisor is qualified to perform the task of engineering assessment of plant conditions and/or events resulting in damage to the SFP integrity or the loss of SPF cooling or inventory.

Technical and Analysis Engineer, IC/EM Engineer, and Mechanical Engineer

The primary duties of the TSC Engineer positions (Technical and Analysis Engineer, IC/EM Engineer, and Mechanical Engineer) include monitoring plant conditions for any indication of core damage, responding to engineering requests from the Technical and Engineering Supervisor, evaluating the implementation of Severe Accident Management Guidelines, and assisting the OSC in preparing to send repair teams into the plant. These duties are either no longer necessary in a permanently shut down and defueled condition or can be performed by the TSC Technical and Engineering Supervisor. The TSC Technical and Engineering Supervisor is qualified to perform the immediate task of engineering assessment of plant conditions and/or events resulting in damage to the SFP integrity or the loss of SFP cooling or inventory. However, qualified engineering resources would be available to augment, if needed, the development of repair/recovery tasks.

NRC Staff Conclusion

The NRC staff reviewed the licensee's analysis of proposed post-shutdown ERO staffing. As discussed previously in Section 3.0 to Attachment 1 of NEDA's letter dated April 9, 2019, the spectrum of credible accidents and operational events for a permanently shut down and defueled reactor, and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to those at an operating plant. These proposed changes eliminate positions that are no longer needed due to the permanently defueled condition of the reactor and reassign some functional and administrative responsibilities. The reassigned tasks can be performed by the remaining positions without adversely impacting their previously assigned duties given the limited activities required for the post-shutdown condition. Therefore, the NRC staff concludes that the proposed level of TSC staffing remaining after elimination of the Reactor Engineer, TSC Engineers (IC/EM, Mechanical, Technical and Analysis), and TSC Operations Supervisor, will continue to provide plant management and technical support to the operating personnel located in the control room for the level of support required for the remaining DBAs and for mitigative actions in response to an SFP accident.

Based on the NRC staff's review of the information as provided in NEDA's letter dated April 9, 2019, and as supplemented by letters dated October 28, November 4, and December 9, 2019, and February 21 and March 11, 2020, the NRC staff finds that the proposed level of augmented TSC staffing, as described above, continues to meet the applicable planning standards of 10 CFR 50.47(b) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies commensurate with the reduced spectrum of credible accidents in the permanently shut down and defueled condition of the DAEC facility. As such, the proposed changes in TSC staffing for the positions listed above for this functional area are acceptable and do not impact the ability of the ERO to perform the required functions.

4.4 Operations Support Center Augmented Positions

Following permanent cessation of power operations and permanent removal of fuel from the reactor vessel, the OSC will continue to be located on the ground floor of the Data Acquisition

Center next to the TSC. The proposed changes to the DAEC Emergency Plan do not involve any physical modifications or changes to the layout and configuration of the OSC. The OSC will continue to be activated within 60 minutes from an Alert or higher classification level.

In the permanently shut down and defueled condition, the primary functions of the OSC will remain the dispatching of, and accounting for, Repair and Corrective Action Teams. The OSC Supervisor will continue to be responsible for ensuring adequate staffing of the OSC and continuously evaluating the need for resources. The OSC Supervisor can call in additional assistance, if necessary. OSC resources will continue to be positions with specific training and qualification requirements for personnel in accordance with the site training program.

The following table illustrates the NRC staff's summary of the proposed changes to the OSC staffing, based on NEDA's supplemental letter dated March 11, 2020, which eliminates one augmenting IC/EM Supervisor and one Mechanical Supervisor:

Operations Support Center	
Current DAEC Augmented ERO Positions	**Proposed Post-Shutdown Augment ERO Positions**
OSC Supervisor	OSC Supervisor
HP Supervisor	HP Supervisor
IC/EM Supervisor	*Position Eliminated*
Mechanical Supervisor	*Position Eliminated*
Technicians (1 Chemistry, 9 HPs, 1 Mechanical, 2 Electrical, 1 I&C)	Technicians (1 Chemistry, 5 HPs, 1 Mechanical, 1 Electrical, 1 I&C)
Offsite Radiological Assembly Area Staff	Offsite Radiological Assembly Area Staff
OSC Staff (Radwaste Personnel)	OSC Staff (Radwaste Personnel)

OSC IC/EM Supervisor and Mechanical Supervisor

In Section 3.2.2.2, "Operations Support Center," of Attachment 1 to NEDA's letter dated April 9, 2019, the licensee stated:

> In the permanently shut down and defueled condition, the primary functions of the OSC will remain dispatching of, and accounting for, Repair and Corrective Action Teams and dispatching of Onsite and Offsite Monitoring Teams. The OSC Craft functions will continue to be performed by qualified augmenting resources. The OSC Supervisor will continue to continuously evaluate the need for resources and coordinate with the Admin[Administrative] Supervisor in the TSC to call in additional assistance. OSC resources will continue to be augmented positions with specific training and qualification requirements for assigned personnel in accordance with the site training program. The required training courses and requalification frequencies will be unchanged in the post--shutdown condition.
>
> Restoration of equipment supporting SFP cooling and inventory will be the primary focus of emergency mitigation actions for the TSC and OSC in a permanently shutdown and defueled condition. Although ERO activation and response time requirements will be unchanged, the elimination of credible accidents involving an operating reactor provides additional time to plan and

execute assessment and mitigation actions. The proposed changes do not impact the capability to assess and monitor actual or potential offsite consequences of a radiological emergency or provide information to offsite authorities in a timely manner. Therefore, the IC/EM Supervisor and Mechanical Supervisor positions can be eliminated without placing an undue burden on the remaining ERO positions in the OSC and without increasing the risk to public health and safety.

Events involving a loss of SFP cooling and/or water inventory can be addressed by implementation of SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2). These capabilities will continue to be maintained as a license condition. OSC staff is not relied upon to implement SFP inventory makeup.

NRC Staff Conclusion

The NRC staff reviewed the licensee's analysis of proposed ERO staffing for the permanently shut down and defueled condition and considered the postulated accidents that would be applicable to that condition. As discussed previously in Section 3.0, the spectrum of credible accidents and operational events for a permanently shut down and defueled reactor, and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to those at an operating plant. The duties being reassigned can be adequately performed by the remaining ERO staff in the OSC and the assumption of duties previously done by eliminated positions will not affect the capability of the remaining ERO positions or the OSC to perform their designated functions with respect to the reduced spectrum of accidents. Therefore, the NRC staff concludes that the proposed level of OSC staffing remaining after elimination of the IC/EM Supervisor and Mechanical Supervisor will continue to provide for supervision and technical support to the operating personnel located in the Control Room for the level of support required for the remaining DBAs and for mitigative actions in response to an SFP accident.

Based on the NRC staff's review of the information, as provided in NEDA's letter dated April 9, 2019, and as supplemented by letters dated October 28, November 4, and December 9, 2019, and February 21 and March 11, 2020, the NRC staff finds that the proposed level of augmented OSC staffing, as described above, continues to meet the applicable planning standards of 10 CFR 50.47(b) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies commensurate with the reduced spectrum of credible accidents in the permanently shut down and defueled condition of the DAEC facility. As such, the proposed changes in OSC staffing for the positions listed above for this functional area are acceptable and do not impact the ability of the ERO to perform the required functions.

4.5 Emergency Operations Facility Augmentation Positions

Following permanent cessation of power operations and permanent removal of fuel from the reactor vessel, the EOF will continue to be located at its current location at the Alliant Tower in Cedar Rapids, Iowa. The proposed changes to the DAEC Emergency Plan do not involve any physical modifications or changes to the layout and configuration changes of the EOF. The EOF will continue to be activated within 60 minutes from a Site Area Emergency or higher classification level.

The following table illustrates the NRC Staff's summary, based on NEDA's supplemental letter dated March 11, 2020, showing there are no proposed changes to the EOF staffing:

Emergency Operations Facility	
Current DAEC Augmented ERO Positions	**Proposed Post-Shutdown Augmented ERO Positions**
Emergency Response and Recovery Director	Emergency Response and Recovery Director
EOF/Ops Liaison	EOF/Ops Liaison
NRC HPN Communicator	NRC HPN Communicator
Radiological Assessment Coordinator	Radiological Assessment Coordinator
Field Team Director	Field Team Director
MIDAS Operator	MIDAS Operator
Communicators/Messengers/Recorders	Communicators/Messengers/Recorders
Information Services Representative	Information Services Representative
State / County Technical Liaisons	State / County Technical Liaisons
Support Services Coordinator	Support Services Coordinator

In Section 3.2.2.3, "Emergency Operations Facility," of Attachment 1 to NEDA's letter dated April 9, 2019, the licensee stated:

> The EOF functions to maintain overall management of DAEC's emergency response and recovery resources; evaluate, coordinate, and communicate emergency response activities with Federal, State of Iowa, and local emergency response organizations; evaluate offsite accident conditions; and make recommendations to offsite agencies regarding protective actions. State of Iowa representatives are provided space and communications at the EOF and staff this facility at an Alert or higher classification. There are no proposed changes to the EOF.

Functional responsibilities of the positions will remain the same. The augmented ERO staff will continue to address the risks to public health and safety and comply with applicable regulations. EOF staffing will continue to support the ability of the State and county response organizations to effectively implement their FEMA-approved radiological emergency plans.

NRC Staff Conclusion

The licensee's analysis of proposed post-shutdown ERO staffing indicates that there are no proposed changes to EOF staffing. Existing tasks will continue to be performed as they were done prior to the cessation of power operation and permanent removal of fuel from the reactor vessel, and therefore, there are no duties nor administrative responsibilities that will adversely affect the capability of the EOF to perform its functions given the limited activities required for post-shutdown condition. As such, the NRC staff concludes that the proposed level of EOF staffing will continue to provide management of overall licensee emergency response (including coordination with Federal, State, and local officials), coordination of radiological and environmental assessments, and determination of recommended public protective actions for the level of support required for the remaining DBA and for mitigative actions in response to an SFP accident.

Based on the NRC staff's review of the information, as provided in NEDA's letter dated April 9, 2019, and as supplemented by letters dated October 28, November 4, and December 9, 2019, and February 21 and March 11, 2020, the NRC staff finds that the proposed level of EOF staffing, as described above, continues to meet the applicable planning standards of 10 CFR 50.47(b) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies commensurate with the reduced spectrum of credible accidents in the permanently shut down and defueled condition of the DAEC facility. As such, the proposed changes in EOF staffing for the positions listed above for this functional area are acceptable and do not impact the ability of the ERO to perform the required functions.

4.6 Joint Information Center Augmented Positions

The JIC is located on the sixth and fifteenth floors of the Alliant Tower in Cedar Rapids with an auditorium and conference rooms. The facility consists of approximately 3,700 square feet and can accommodate 200 news personnel for registration, inquiries, and mass briefings. The JIC functions as the single-point contact for disseminating information to the industry, news media, and public officials.

Following permanent cessation of operations and permanent removal of fuel from the reactor vessel, the JIC will continue to be located at the Alliant Tower, in Cedar Rapids, Iowa. The proposed changes to the DAEC Emergency Plan do not involve any physical modifications or layout configuration changes to the JIC.

The following table illustrates the NRC staff's summary, based on the supplemental letter dated March 11, 2020, showing there are no proposed changes to the JIC staffing:

Joint Information Center	
Current DAEC Augmented ERO Positions	**Proposed Post-Shutdown Augmented ERO Positions**
Joint Information Center Manager	Joint Information Center Manager
Site Spokesperson	Site Spokesperson
Assistant JIC Manager	Assistant JIC Manager
Corporate Coordination/Support	Corporate Coordination/Support
211 Call Center Manager	211 Call Center Manager
Media Host	Media Host
EOF/JIC Shared Services (Support Services Coordinator, Information Services Representative, Communicators / Messengers, Recorders	EOF/JIC Shared Services (Support Services Coordinator, Information Services Representative, Communicators / Messengers, Recorders

There are no proposed JIC staffing changes and, therefore, there is no impact on the capabilities of the augmented ERO staff to provide emergency event information. Because no positions are being eliminated in the JIC there is no undue burden on the ERO positions in the JIC and no increase in the risk to public health and safety.

NRC Staff Conclusion

The licensee's analysis of proposed post-shutdown ERO staffing indicates that there are no proposed changes to JIC staffing. Existing tasks will continue to be performed as they were

done prior to the cessation of power operation and permanent removal of fuel from the reactor vessel and, therefore, there are no duties nor administrative responsibilities that will adversely affect the capability of the JIC to perform its functions given the limited activities required for post-shutdown condition. As such, the NRC staff concludes that the proposed level of staffing at the JIC will continue to disseminate information to the public for the level of support required for the remaining DBAs and for mitigative actions in response to an SFP accident.

Based on the NRC staff's review of the information, as provided in NEDA's letter dated April 9, 2019, and as supplemented by letters dated October 28, November 4, and December 9, 2019, and February 21 and March 11, 2020, the NRC staff finds that the proposed level of JIC staffing, as described above, continues to meet the applicable planning standards of 10 CFR 50.47(b) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies commensurate with the reduced spectrum of credible accidents in the permanently shut down and defueled condition of the DAEC facility. As such, the JIC staffing for the positions listed above for this functional area are acceptable and do not impact the ability of the JIC to perform the required functions.

4.7 Assessment of Proposed Staffing Changes on Offsite Response Organizational Interfaces

In Section 3.2.2, "ERO Staffing," of Attachment 1 to NEDA's letter dated April 9, 2019, the licensee stated:

> The proposed changes to the DAEC Emergency Plan have been discussed with the representatives from each Offsite Response Organization (ORO). Potential impacts on the ability of State of Iowa and local response organizations to effectively implement their FEMA [Federal Emergency Management Agency]-approved Radiological Emergency Plans [REP] do not exist because no tasks that require interfacing with State of Iowa and local response organizations are proposed for elimination.

By letter dated April 30, 2019 (Reference 16), the NRC staff requested FEMA's review of the proposed licensee staffing changes against the current FEMA-approved State and local REP plans to verify that no potential adverse impacts exist that would preclude the effective of State and local REP plans. In a letter dated July 29, 2019 (Reference 17), FEMA responded that the FEMA REP staff cannot affirm that no adverse impacts exist that would preclude the effective implementation of state and local REP plans or impact FEMA's finding of reasonable assurance for DAEC until additional information as specified in the letter is provided. The responses to FEMA's additional questions were included as part of NEDA letter dated October 28, 2019, was found by the NRC staff to be acceptable. The NRC staff provided its evaluation of NEDA's responses to FEMA by email dated December 11, 2019 (Reference 18). FEMA provided a response to the NRC staff's email in a letter dated January 13, 2020 (Reference 19), in which they stated, "FEMA has determined that the proposed licensee ERO changes would have no adverse impacts that would preclude the effective implementation of state and local REP plans or impact FEMAs" future ability to make any determination of Reasonable Assurance for DAEC."

In a letter dated February 21, 2020, NEDA informed the NRC that the DAEC Emergency Plan was subsequently revised under 10 CFR 50.54(q)(3) since the original application was submitted on April 9, 2019. This submittal summarized the revisions to the DAEC Emergency Plan and correction of typographical errors. These revisions implemented a reorganization of

the EOF implemented a new Joint Information System. NEDA's letter dated February 21, 2020, states that FEMA Region VII was briefed on the changes to the new Joint Information System in advanced and FEMA's feedback was incorporated.

NEDA provided updated information for the revised ERO staffing in a letter dated March 11, 2020, which also provided acknowledgement and agreement from Benton County, Linn County and the State of Iowa for the proposed changes resulting from the proposed Joint Information System initiative.

4.8 Summary

Based on the evaluation above, the NRC staff finds that the proposed emergency plan changes continue to meet the applicable planning standards in 10 CFR 50.47(b), and the requirements in 10 CFR 50.72(a)(3) and Sections IV.A and IV.D(3) of Appendix E to 10 CFR Part 50, and continue to provide reasonable assurance that adequate protective measures can and will continue to be taken in the event of a radiological emergency, commensurate with the reduced spectrum of credible accidents in the permanently shut down and defueled condition at the DAEC facility.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Iowa State official was notified of the proposed issuance of the amendment on March 21, 2020. The State official had no comments.

6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes the requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or change the surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (84 FR 45544). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

8.0 REFERENCES

1. Nazar, Mano, NextEra Energy Duane Arnold, LLC, letter to U.S. Nuclear Regulatory Commission, “Certification of Permanent Cessation of Power Operations,” dated January 18, 2019 (ADAMS Accession No. ML19023A196).

2. Curtland, Dean, NextEra Energy Duane Arnold, LLC, letter to U.S. Nuclear Regulatory Commission, “Certification of Permanent Cessation of Power Operations,” dated March 2, 2020 (ADAMS Accession No. ML20062E489).

3. Curtland, Dean, NextEra Energy Duane Arnold, LLC, letter to U.S. Nuclear Regulatory Commission, “License Amendment Request – Proposed Post-Shutdown Emergency Plan,” dated April 9, 2019 (ADAMS Accession No. ML19101A280).

4. Curtland, Dean, NextEra Energy Duane Arnold, LLC, letter to U.S. Nuclear Regulatory Commission, “Response to Request for Additional Information Relating to Proposed Changes to the Emergency Plan for Permanently Defueled Condition,” dated October 28, 2019 (ADAMS Accession No. ML19301A529).

5. Curtland, Dean, NextEra Energy Duane Arnold, LLC, letter to U.S. Nuclear Regulatory Commission, “Supplement to Recently Submitted License Amendment Requests,” dated November 4, 2019 (ADAMS Accession No. ML19308A085).

6. Curtland, Dean, NextEra Energy Duane Arnold, LLC, letter to U.S. Nuclear Regulatory Commission, “Supplement to Response to Request for Additional Information Relating to Proposed Changes to the Emergency Plan for Permanently Defueled Condition,” dated December 9, 2019 (ADAMS Accession No. ML19343A225).

7. Curtland, Dean, NextEra Energy Duane Arnold, LLC, letter to U.S. Nuclear Regulatory Commission, “Supplement to License Amendment Request (TSCR-182): Proposed Changes to the Emergency Plan for Permanently Defueled Condition,” dated February 21, 2020 (ADAMS Accession No. ML20055D151).

8. Curtland, Dean, NextEra Energy Duane Arnold, LLC, letter to U.S. Nuclear Regulatory Commission, “Supplement to License Amendment Request (TSCR-182): Proposed Changes to the Emergency Plan for Permanently Defueled Condition,” dated March 11, 2020 (ADAMS Accession No. ML20071G336).

9. Duane Arnold Energy Center, Updated Final Safety Analysis Report, Chapter 15, “Accident Analyses,” Revision 25, dated March 21, 2019 (ADAMS Accession No. ML19100A025).

10. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.101, Revision 2, “Emergency Planning and Preparedness for Nuclear Power Reactors,” dated October 1981 (ADAMS Accession No. ML090440294).

11. U.S. Nuclear Regulatory Commission, Federal Emergency Management Agency, NUREG-0654/FEMA-REP-1, Rev. 1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” dated November 1980 (ADAMS Accession No. ML040420012).

12. Kahler, R., U.S. Nuclear Regulatory Commission, letter to Susan Perkins-Grew, Nuclear Energy Institute, “Alternative Guidance for Licensee Emergency Response Organizations,” dated June 12, 2018 (ADAMS Accession No. ML18022A352).

13. U.S. Nuclear Regulatory Commission, Federal Emergency Management Agency, NUREG-0654/FEMA-REP-1, Rev. 2 “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” Final Report, dated December 2019 (ADAMS Accession No. ML19347D139).

14. U.S. Nuclear Regulatory Commission, NSIR/DPR-ISG-01, “Interim Staff Guidance – Emergency Planning for Nuclear Power Plants,” dated November 20, 2011 (ADAMS Accession No. ML113010523).

15. Nuclear Energy Institute, NEI 10-05, Revision 0, “Assessment of On-Shift Emergency Response Organization Staffing and Capabilities,” dated June 2011 (ADAMS Accession No. ML111751698).

16. Anderson, Joseph D., U.S. Nuclear Regulatory Commission, letter to Vanessa Quinn, Federal Emergency Management Agency, “Federal Emergency Management Agency Review Requested of Revision to the Duane Arnold Emergency Center Emergency Plan to Address the Permanently Shutdown and Defueled Condition,” dated April 30, 2019 (ADAMS Accession No. ML19116A146).

17. Quinn, Vanessa E., Federal Emergency Management Agency, letter to Joseph Anderson, U.S. Nuclear Regulatory Commission, “Federal Emergency Management Agency (FEMA) Review Requested of Revision to the Duane Arnold Energy Center (DAEC) Emergency Plan to Address the Permanently Defueled Condition,” dated July 29, 2019 (ADAMS Accession No. ML19213A323).

18. Anderson, Joseph D., U.S. Nuclear Regulatory Commission, email to Vanessa Quinn, Federal Emergency Management Agency, “Response to FEMA Questions RE Proposed Changes to DAEC Emergency Plan,” dated December 11, 2019 (ADAMS Accession No. ML19352G687).

19. Casey, Michael S., Federal Emergency Management Agency, letter to Joseph Anderson, U.S. Nuclear Regulatory Commission, “Federal Emergency Management Agency (FEMA) Review of Responses to Requests for Additional Information (RAI) Pertaining to the Duane Arnold Energy Center (DAEC) Emergency Plan to Address the Permanently Defueled Condition,” dated January 13, 2020 (ADAMS Accession No. ML20016A275).

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Date of Issuance: April 29, 2020

SUBJECT: DUANE ARNOLD ENERGY CENTER - ISSUANCE OF AMENDMENT NO. 310 RE: CHANGES TO THE POST-SHUTDOWN EMERGENCY PLAN FOR DUANE ARNOLD ENERGY CENTER (EPID L-2019-LLA-0075) DATED APRIL 29, 2020

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