

March 20, 2008

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

SUBJECT: DUANE ARNOLD ENERGY CENTER - ISSUANCE OF AMENDMENT
REGARDING LICENSE AMENDMENT REQUEST TO IMPROVE THE BANKED
POSITION WITHDRAWAL SEQUENCE CONTROL ROD INSERTION PROCESS
(TAC NO. MD6814)

Dear Mr. Anderson:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 268 to Facility Operating License No. DPR-49 for the Duane Arnold Energy Center.

This amendment consists of a change to the Technical Specifications (TS) in response to your application dated September 14, 2007, which requested revision to TS 3.3.2.1, "Control Rod Block Instrumentation," Table 3.3.2.1-1, "Control Rod Block Instrumentation," to modify a footnote such that a new Banked Position Withdrawal Sequence (BPWS) shutdown sequence could be utilized. In conjunction with this change, the TS Bases for Section 3.1.6, "Rod Pattern Control," and 3.3.2.1, "Control Rod Block Instrumentation," will be revised to reflect the new BPWS shutdown sequence.

A copy of the Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

Karl D. Feintuch, Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosures:

1. Amendment No. 268 to License No. DPR-49
2. Safety Evaluation

cc w/encls: See next page

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 Vice President
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 3277 DAEC Road
 Palo, IA 52324-9785

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Duane Arnold Energy Center

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December 12, 2007

FPL ENERGY DUANE ARNOLD, LLC

DOCKET NO. 50-331

DUANE ARNOLD ENERGY CENTER

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 268
License No. DPR-49

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by FPL Energy Duane Arnold, LLC dated September 14, 2007, 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, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-49 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 268, are hereby incorporated in the license. FPL shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Lois James, Branch Chief
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Facility Operating License
and Technical Specifications

Date of Issuance: March 20, 2008

ATTACHMENT TO LICENSE AMENDMENT NO. 268

FACILITY OPERATING LICENSE NO. DPR-49

DOCKET NO. 50-331

Replace the following pages of the License and Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

License Page 3
TS Page 3.3-20

INSERT

License Page 3
TS Page 3.3-20

- 2.B.(2) FPL Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Updated Final Safety Analysis Report, as supplemented and amended as of June 1992 and as supplemented by letters dated March 26, 1993, and November 17, 2000.
 - 2.B.(3) FPL Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
 - 2.B.(4) FPL Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated radioactive apparatus components;
 - 2.B.(5) FPL Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not to separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
- C. This license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I; Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

Maximum Power Level

- 2.C.(1) FPL Energy Duane Arnold, LLC is authorized to operate the Duane Arnold Energy Center at steady state reactor core power levels not in excess of 1912 megawatts (thermal).

- (2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 268, are hereby incorporated in the license. FPL Energy Duane Arnold, LLC shall operate the facility in accordance with the Technical Specifications.

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 268 TO FACILITY OPERATING LICENSE NO. DPR-49

FPL ENERGY DUANE ARNOLD, LLC

DUANE ARNOLD ENERGY CENTER

DOCKET NO. 50-331

1.0 INTRODUCTION

By letter to the Nuclear Regulatory Commission (NRC) dated September 14, 2007, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML072681088), FPL Energy Duane Arnold, LLC (the licensee) proposed changes to the technical specifications (TS) for Duane Arnold Energy Center (DAEC). The requested changes are the adoption of TSTF-476, Revision 1, "Improved BPWS Control Rod Insertion Process (NEDO-33091-A)," to the Boiling-Water Reactor (BWR) Standard Technical Specifications (STS), which was proposed by the Technical Specifications Task Force (TSTF) by letter on January 9, 2007 (ADAMS Accession No. ML070090561) and approved by the NRC (72 FR 29004, May 23, 2007). This TSTF involves changes to NUREG-1433 and NUREG-1434 Section 3.1.6 "Rod Pattern Control," Section 3.3.2.1 "Control Rod Block Instrumentation," and Table 3.3.2.1-1. The proposed TSTF would allow the use of the improved banked position withdrawal sequence (BPWS) during shutdowns if the conditions of NEDO-33091-A, Revision 2, "Improved BPWS Control Rod Insertion Process," dated July 2004, have been satisfied.

2.0 REGULATORY EVALUATION

10 CFR Part 50 includes the NRC's requirement that TSs shall be included by applicants for a license authorizing operation of a production or utilization facility. 10 CFR 50.36 (d) requires that TSs include items in five specific categories. These categories are: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operations (LCOs); (3) surveillance requirements (SRs); (4) design features; and (5) administrative controls. For this licensing action the proposed change to TS Section 3.3, Table 3.3.2.1-1 affects categories (1) safety limits, limiting safety system settings, and limiting control settings; (2) LCOs; and (3) SRs.

The control rod drop accident (CRDA) is the design-basis accident for the subject TS changes. In order to minimize the impact of a CRDA, the BPWS process was developed to minimize control rod reactivity worth for BWR plants. The proposed improved BPWS further simplifies the control rod insertion process, and in order to evaluate it, the staff followed the guidelines of Standard Review Plan Section 15.4.9, and referred to General Design Criterion (GDC) 28 of Appendix A to 10 CFR Part 50 as its regulatory requirement. GDC 28 states that the reactivity control systems shall be designed with appropriate limits on the potential amount and rate of reactivity increase to assure that the effects of postulated reactivity accidents can neither (1) result in damage to the reactor coolant pressure boundary greater than limited local yielding nor (2) sufficiently disturb the core, its support structures or other reactor pressure vessel internals to impair significantly the capability to cool the core.

3.0 TECHNICAL EVALUATION

In its safety evaluation for Licensing Topical Report NEDO-33091-A, "Improved BPWS Control Rod Insertion Process," dated June 16, 2004, ADAMS Accession No. ML041700479, the NRC staff determined that the methodology described in TSTF-476, Revision 1, to incorporate the improved BPWS into the STS, is acceptable.

TSTF-476, Revision 1 states that the improved BPWS provides the following benefits: (1) allows the plant to reach the all-rods-in condition prior to significant reactor cool down, which reduces the potential for re-criticality as the reactor cools down; (2) reduces the potential for an operator reactivity control error by reducing the total number of control rod manipulations; (3) minimizes the need for manual scrams during plant shutdowns, resulting in less wear on control rod drive (CRD) system components and CRD mechanisms; and, (4) eliminates unnecessary control rod manipulations at low power, resulting in less wear on reactor manual control and CRD system components.

The safety evaluation for NEDO-33091-A explained that the potential for the CRDA will be eliminated by the following changes to operational procedures, which DAEC has committed to and stated, in its application letter dated September 14, 2007, that it has made:

1. Before reducing power to the low-power set point (LPSP), operators shall confirm control rod coupling integrity for all rods that are fully withdrawn. Control rods that have not been confirmed coupled and are in intermediate positions, must be fully inserted prior to power reduction to the LPSP. No action is required for fully-inserted control rods.

If a shutdown is required and all rods, which are not confirmed coupled, cannot be fully inserted prior to power dropping below the LPSP, then the original/standard BPWS must be adhered to.

2. After reactor power drops below the LPSP, rods may be inserted from notch position 48 to notch position 00 without stopping at the intermediate positions. However, GE Nuclear Energy recommends that operators insert rods in the same order as specified for the original/standard BPWS as much as reasonably possible. If a plant is in the process of shutting down following improved BPWS with the power below the LPSP, no control rod shall be withdrawn unless the control rod pattern is in compliance with standard BPWS requirements.

In addition to the procedure changes specified above, the staff previously verified during its review of NEDO-33091-A, Revision 2 that no single failure of the BWR CRD mechanical or hydraulic system can cause a control rod to drop completely out of the reactor core during the shutdown process. Therefore, the proper use of the improved BPWS will prevent a CRDA from occurring while power is below the LPSP.

The NRC staff finds the proposed TS change in DAEC's amendment request properly incorporates the improved BPWS procedure into the STS, and that DAEC accurately adopted TSTF-476 and the requisite procedural changes. Therefore, the NRC staff approves the DAEC license amendment request to adopt TSTF-476, Revision 1.

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATIONS

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or changes a surveillance requirement. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluent 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 (72 FR 68216). 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.

6.0 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) 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.

Principal Contributor: A. Jason Lising, NRR

Date: March 20, 2008