

September 9, 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 REMOVE THE
EMERGENCY DIESEL GENERATOR SURVEILLANCE REQUIREMENT FOR
PRE-PLANNED PREVENTIVE MAINTENANCE AND TESTING (TAC NO. MD8173)

Dear Mr. Anderson:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 270 to Facility Operating License No. DPR-49 for the Duane Arnold Energy Center. This amendment consists of changes to the Technical Specifications (TS) in response to your application dated February 19, 2008.

The amendment revises TS Section 3.8.1 "AC Sources - Operating," to remove the surveillance requirement to test the alternate Emergency Diesel Generator (EDG) whenever one EDG is taken out of service for pre-planned preventive maintenance and testing.

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. 270 to License No. DPR-49
2. Safety Evaluation

cc w/encls: See next page

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 REMOVE THE
 EMERGENCY DIESEL GENERATOR SURVEILLANCE REQUIREMENT FOR
 PRE-PLANNED PREVENTIVE MAINTENANCE AND TESTING (TAC NO. MD8173)

Dear Mr. Anderson:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 270 to Facility Operating License No. DPR-49 for the Duane Arnold Energy Center. This amendment consists of changes to the Technical Specifications (TS) in response to your application dated February 19, 2008.

The amendment revises TS Section 3.8.1 "AC Sources - Operating," to remove the surveillance requirement to test the alternate Emergency Diesel Generator (EDG) whenever one EDG is taken out of service for pre-planned preventive maintenance and testing.

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. 270 to License No. DPR-49
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:

PUBLIC	LPL3-1 r/f	RidsNrrDorlLpl3-1	RidsNrrPMKFeintuch
RidsNrrLABTully	RidsOgcRp	RidsAcrcAcnw&mMailCenter	RidsNrrDirsltsb
G. Hill, OIS	RidsRgn3MailCenter	RidsNrrDorlDpr	G. Matharu, EEEB

ADAMS ACCESSION NUMBER: ML082260116 Pkg: ML082260041 TS: ML082260135

OFFICE	NRR/LPL3-1	NRR/LPL3-1/PM	NRR/LPL3-1/LA	NRR/EEEB/BC	OGC/NLO	NRR/LPL3-1/BC
NAME	DWright	KFeintuch	BTully	GWilson	RVHolmes	LJames
DATE	08 / 20 /08	08 / 26 /08	08 / 19 /08	08 / 12 /08	09 / 02 /08	09 / 09 /08

OFFICIAL RECORD COPY

Duane Arnold Energy Center

cc:

Mr. J. A. Stall
Executive Vice President, Nuclear and Chief
Nuclear Officer
Florida Power & Light Company
P. O. Box 14000
Juno Beach, FL 33408-0420

Mr. M. S. Ross
Managing Attorney
Florida Power & Light Company
P. O. Box 14000
Juno Beach, FL 33408-0420

Ms. Marjan Mashhadi
Senior Attorney
Florida Power & Light Company
801 Pennsylvania Avenue, NW
Suite 220
Washington, DC 20004

T. O. Jones
Vice President, Nuclear Operations
Mid-West Region
Florida Power & Light Company
P. O. Box 14000
Juno Beach, FL 33408

Steven R. Catron
Manager, Regulatory Affairs
Duane Arnold Energy Center
3277 DAEC Road
Palo, IA 52324

U. S. Nuclear Regulatory Commission
Resident Inspector's Office
Rural Route #1
Palo, IA 52324

Mr. Mano Nazar
Senior Vice President
and Nuclear Chief Operating Officer
Florida Power & Light Company
P. O. Box 14000
Juno Beach, FL 33408

Mr. D. A. Curtland
Plant Manager
Duane Arnold Energy Center
3277 DAEC Rd.
Palo, IA 52324-9785

Abdy Khanpour
Vice President, Engineering Support
Florida Power & Light Company
P. O. Box 14000
Juno Beach, FL 33408

Daniel K. McGhee
Iowa Department of Public Health
Bureau of Radiological Health
321 East 12th Street
Lucas State Office Building, 5th Floor
Des Moines, IA 50319-0075

Chairman, Linn County
Board of Supervisors
930 1st Street SW
Cedar Rapids, IA 52404

Peter Wells, Acting Vice President, Nuclear
Training and Performance Improvement
Florida Power & Light Company
P. O. Box 14000
Juno Beach, FL 33408-0420

Mark E. Warner
Vice President, Nuclear Plant Support
Florida Power & Light Company
P. O. Box 14000
Juno Beach, FL 33408-0420

Last revised July 2, 2008

FPL ENERGY DUANE ARNOLD, LLC

DOCKET NO. 50-331

DUANE ARNOLD ENERGY CENTER

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 270
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 February 19, 2008, 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. 270, are hereby incorporated in the license. FPL Energy Duane Arnold, LLC, 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 M. James, 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: September 9, 2008

ATTACHMENT TO LICENSE AMENDMENT NO. 270

FACILITY OPERATING LICENSE NO. DPR-49

DOCKET NO. 50-331

Replace the following page of Renewed Facility Operating License DPR-49 with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

REMOVE

Page 3

INSERT

Page 3

Replace the following pages of 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

Page 3.8-3

INSERT

Page 3.8-3

Page 3.8-4

- 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. 270, 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. 270 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 dated February 19, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML080730143), FPL Energy Duane Arnold, LLC (the licensee) requested an amendment to the Duane Arnold Energy Center (DAEC) Operating License No. DPR-49. The licensee proposed to modify Technical Specifications (TS) Surveillance Requirements (SR) related to Emergency Diesel Generator (EDG) testing for pre-planned preventive maintenance and testing.

The current TS require that, upon detection of an inoperable EDG, the remaining EDG be periodically tested to demonstrate operability. The proposed change will delete the starting of the remaining EDG if it can be determined that a common-mode failure does not exist and clarify the starting requirement of the remaining EDG if a new common-mode failure is identified. The proposed change does not eliminate the requirement to perform an operability determination of the available EDG irrespective of the reason for declaring one EDG inoperable.

2.0 REGULATORY EVALUATION

The U.S. Nuclear Regulatory Commission (NRC) staff used the following requirements and guidance documents during the review of the License Amendment Request (LAR):

Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, includes the NRC's requirement that TS shall be included by applicants for a license authorizing operation of a production or utilization facility. Section 50.36(d) of 10 CFR requires that TS include items in five specific categories related to station operation. These categories are: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operations (LCO); (3) SRs; (4) design features; and (5) administrative controls. The proposed change to TS 3.8.1 is within the third category (SRs).

DAEC Updated Final Safety Analyses Report (UFSAR), Section 3.1, describes the licensee's compliance with the Atomic Energy Commission (AEC) General Design Criteria (GDC) 17, "Electric Power Systems." The DAEC UFSAR states:

"An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The safety function of each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to ensure that 1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not

exceeded as a result of anticipated operational occurrences and 2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents. The onsite electric power supplies, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure.”

DAEC UFSAR, Section 3.1, AEC GDC 18, “Inspection and Testing of Electric Power Systems,” states that:

“Electric power systems important to safety shall be designed to permit appropriate periodic inspection and testing of important areas and features, such as wiring, insulation, connections, and switchboards, to assess the continuity of the systems and the condition of their components. The systems shall be designed with a capability to test periodically (1) the operability and functional performance of the components of the systems, such as onsite power sources, relays, switches, and buses, and (2) the operability of the systems as a whole and, under conditions as close to design as practical, the full operation sequence that brings the systems into operation, including operation of applicable portions of the protection system, and the transfer of power among the nuclear power unit, the offsite power system, and the onsite power system.”

NUREG-1366, “Improvements to Technical Specifications Surveillance Requirements,” dated December 1992, and NUREG-1433, Rev. 3, “Standard Technical Specifications General Electric Plants, BWR/4,” dated June 2004, contain recommendations for demonstrating that a common-mode failure may not exist on the remaining diesel(s) when one unit is scheduled for testing or maintenance.

Generic Letter (GL) 93-05, “Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operations,” dated September 27, 2003, provides guidance for implementing line-item TS improvements to reduce testing during power operation.

AEC Safety Guide (SG) 9, “Selection of Diesel Generator Set Capacity for Standby Power Supplies,” dated March 1971, superseded by NRC Regulatory Guide (RG) 1.9, described an acceptable basis for the selection of diesel generator sets of sufficient capacity and margin to implement GDC 17.

NRC RG 1.93 “Availability of Electric Power Sources,” dated December 1974, describes operating procedures and restrictions acceptable to the NRC staff which should be implemented if the available electric power sources are less than the LCO.

RG 1.108, Revision 1, “Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants,” dated August 1977, described a method acceptable to the NRC staff for complying with the NRC’s regulations with regard to periodic testing of diesel electric power units.

3.0 TECHNICAL EVALUATION

3.1 System Description

The UFSAR describes DAEC as a single unit nuclear power station that complies with the requirements of AEC GDC 17 for offsite power sources. The DAEC station switchyard consists of a 161 kilovolt (kV) ring bus section, a 161 kV capacitor bank section to provide reactive power compensation, a 345 kV transmission section, a 36 kV site support power section, and a 34.5 kV site support power section. The preferred power source is taken through a single circuit 161 kV overhead transmission line and the startup transformer to the plant essential buses. The alternate preferred power source is taken from a tertiary 34.5 kV winding on the 161 kV/345 kV autotransformer through a breaker, a single circuit 34.5 kV underground transmission line, and the standby transformer to the plant essential buses.

As described in the application letter dated February 19, 2008, the DAEC Onsite Class 1E Alternating Current (AC) electrical distribution system is powered from two safety-related EDGs. Both generator sets independently start automatically upon loss of auxiliary power and are ready to accept load within 10 seconds of loss of normal supply power. Each EDG has sufficient capacity to start in sequence the loads required for the safe shutdown equipment for the maximum postulated accident concurrent with loss of offsite power. This capacity is adequate to provide a safe and orderly plant shutdown and maintain the plant in a safe condition.

3.2 Proposed Technical Specification Changes

In its letter dated February 19, 2008, the licensee proposed to change the requirement for operability testing of an EDG when the EDG for the alternate safety bus is inoperable. Currently, TS 3.8.1 specifies that if an EDG is unavailable or inoperable due to any cause, then the operability of the remaining operable EDG must be demonstrated within 24 hours.

The proposed amendment would modify the Required Actions (RAs) in LCO 3.8.1, "AC Sources - Operating" for one inoperable EDG. A new note will be added to RA B.4, the conditional surveillance on the alternate operable EDG that requires the performance of SR 3.8.1.2 within 72 hours. The note will exempt performance of this conditional surveillance when the cause of the initial inoperability of the EDG is preplanned, preventive maintenance and testing. The exemption will not apply when the cause of the inoperability is corrective maintenance, even if the problem requiring corrective maintenance is discovered during the execution of the original pre-planned preventive maintenance and testing.

The existing requirement causes the operable EDG to be made inoperable by the conditional SR of RA B.4 whenever the preventive maintenance and testing on the alternate division EDG is not completed and returned to operable status within 72 hours. This is applicable even when it has been determined that no common-mode failure potential exists within the first 24 hour period by RA B.3. This leads to the situation where both EDGs are inoperable simultaneously for the duration of the performance of SR 3.8.1.2, typically 2 hours. The licensee has proposed a revision to RA B.4 in TS LCO 3.8.1, "AC Sources - Operating," to remove the requirement to start the remaining EDG if it can be determined that a common-mode failure does not exist.

3.3 Evaluation

The objective of RA B.4 is to ensure that the opposite train's EDG is not affected by a common-cause failure and to provide assurance of continued operability of the operable EDG. However, the inoperability of an EDG does not necessarily affect the reliability of the operable EDG, unless there is some common-mode failure possibility. This is consistent with GL 93-05 and NUREG-1366, "Improvements to Technical Specifications Surveillance Requirements," December 1992. In GL 93-05, the NRC staff stated that, in performing the study documented in NUREG-1366, the safety can be improved, equipment degradation decreased, and an unnecessary burden on licensee personnel eliminated by reducing the frequency of certain testing required in the TS during power operation. The changes eliminate testing that is likely to cause transients or excessive wear of equipment. An evaluation of these changes indicates that there will be a benefit to plant safety. The evaluation, documented in NUREG-1366, considered (1) unavailability of safety equipment due to testing, (2) initiation of significant transients due to testing, (3) actuation of engineered safety features that unnecessarily cycle safety equipment, (4) importance to safety of that system or component, (5) failure rate of that system or component, and (6) effectiveness of the test in discovering the failure.

The actions contained in TS 3.8.1, RA B.4 can also cause unnecessary testing of the operable EDG(s). This unnecessary testing can result in equipment degradation and the potential for reduced reliability. According to NUREG-1366, the NRC staff recommended that the requirements to test the remaining diesel generator(s), when one diesel generator is inoperable due to any cause other than preplanned preventive maintenance or testing, be limited to those situations where the cause for inoperability has not been conclusively demonstrated to preclude the potential for a common-mode failure. NUREG-1366 and GL 93-05 require that when an EDG itself is inoperable (not including support system or independently testable components), the other EDG(s) should be tested only once and within 8 hours, unless the absence of any potential common-mode failure can be demonstrated. The licensee proposed change incorporates the wording provided in the generic example of GL 93-05 and NUREG-1433. Furthermore, the proposed change states that if a common-cause possibility does not exist on the operable EDG(s), testing of the operable EDG(s) does not have to be performed. The proposed change is acceptable from NUREG-1433 and GL 93-05 perspective.

The NRC staff reviewed UFSAR Section 8.3.1 "Electrical Systems, Emergency Power, Surveillance Requirements," and confirmed that there was no requirement in the DAEC UFSAR that would adversely affect the licensee's requested change to the TS.

The NRC staff reviewed SG 9, RG 1.108 and associated Institute of Electronics and Electrical Engineers (IEEE) Standard 387 (1984), "Criteria for Diesel-Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations." SG 9, RG 1.108 and IEEE Standard 387 (Section 6) provide guidance on specific types of testing that can be performed to verify the design capabilities of the EDGs. The requested TS change does not alter the type of testing that the licensee performs on the EDGs and therefore does not affect the guidance in SG 9 or RG 1.108.

RG 1.93 describes operating procedures and restrictions which should be implemented if the available electric power sources are less than the LCO and actions required to be taken by the

licensee when the LCO is not met. Section 1.0, "The Available AC Power Sources Are One Less Than the LCO," discusses the degraded condition when one of the required offsite or onsite AC sources is not available. That is, either the offsite or the onsite AC power system has no redundancy. RG 1.93 states that each system retains full capability (one system with redundancy) to effect a safe shutdown and to mitigate the effects of a design-basis accident. Operation could therefore safely continue if the availability of the remaining sources is verified. When the TS allow power operation to continue during a specific degradation level, RG 1.93 states that such continued power operation should be contingent on the following: (a) an immediate verification of the availability and integrity of the remaining sources; (b) reevaluation of the availability of the remaining diesel-generator(s) at time intervals not to exceed 8 hours; (c) verification that the required maintenance activities do not further degrade the power system or in any way jeopardize plant safety; and (d) compliance with the additional conditions stipulated for each specific degradation level. The requested TS change relates to the method used to verify the availability of the remaining source(s) during planned equipment outages to comply with this requirement. The licensee's requested change remains consistent with NRC guidance for verification of availability and integrity of the remaining sources as detailed in RG 1.93.

AEC GDC 18, "Inspection and Testing of Electric Power Systems," requires electric power systems important to safety to be designed to permit appropriate periodic inspection and testing of important areas and features, such as wiring, insulation, connections, and switchboards, to assess the continuity of the systems and the condition of their components. The requested TS change does not change the existing design or the capability to periodically test the EDGs. The testing capability for the EDGs remains in agreement with GDC 18.

4.0 SUMMARY

The action contained in DAEC TS 3.8.1, RA B.4 can cause unnecessary testing of the operable EDG(s). This unnecessary testing can result in equipment degradation and the potential for reduced reliability. As a result of the TS change, with the potential decrease in the testing frequencies, the risk of a transient and equipment degradation will be decreased, and the reliability of the equipment will not be adversely impacted.

The NRC staff concludes that the proposed change is intended to reduce unnecessary testing of EDGs as recommended by GL 93-05 and NUREG-1366. On the basis of the above review, the NRC staff finds that the proposed change maintains compliance with requirements governing the design and operation of the electrical power system, provides adequate assurance of system operability, and is consistent with the recommendations contained in GL 93-05, RG 1.93 and NUREG-1366. Therefore, the NRC staff finds the licensee's proposed change to be acceptable.

5.0 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.

6.0 ENVIRONMENTAL CONSIDERATIONS

This 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. 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 (73 FR 33853). 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) 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: G. Singh Matharu

Date: September 09, 2008