



Fort Calhoun Station  
P.O. Box 550  
Fort Calhoun, NE 68023

April 22, 2008  
LIC-08-0049

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Station P1-137  
Washington, DC 20555-0001

References: 1. Docket No. 50-285  
2. Letter from OPPD (R. P. Clemens) to NRC (Document Control Desk),  
*Clarification of Fort Calhoun Station Technical Specification 2.7(2)j*,  
dated February 20, 2008 (LIC-08-0012)

**SUBJECT: Fort Calhoun Station, Unit No. 1, License Amendment Request (LAR) "Clarification of Technical Specification (TS) 2.7(2)j Regarding Emergency Diesel Generators Allowed Outage Time"**

Pursuant to 10 CFR 50.90, and in accordance with a commitment made in Reference 2, the Omaha Public Power District (OPPD) hereby requests an amendment to Fort Calhoun Station (FCS), Unit No. 1, Renewed Facility Operating License No. DPR-40. The enclosed license amendment request (LAR) clarifies TS 2.7(2)j regarding emergency diesel generator (DG) allowed outage time (AOT).

The enclosure contains a description of the proposed changes, the supporting technical analyses, and the significant hazards consideration determination. Attachment 1 provides the existing TS page marked-up to show the proposed changes. Attachment 2 provides the retyped (clean) TS page.

OPPD has determined that this LAR does not involve a significant hazard consideration as determined per 10 CFR 50.92. Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of this amendment.

There are no regulatory commitments associated with this proposed change.

OPPD requests approval by April 1, 2009, with a 120-day implementation period.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated State of Nebraska Official.

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If you should have any questions regarding this submittal, please contact Mr. Thomas C. Matthews at (402) 533-6938.

I declare under penalty of perjury that the foregoing is true and correct. (Executed on April 22, 2008.)



D. J. Bannister  
Vice President

DJB/MLE/mle

Enclosure: OPPD's Evaluation of the Proposed Changes

c: Director of Consumer Health Services, Department of Regulation and Licensure,  
Nebraska Health and Human Services, State of Nebraska

**Omaha Public Power District's Evaluation  
for  
Amendment of Operating License**

**“Clarification of Technical Specification (TS) 2.7(2)j Regarding Emergency Diesel  
Generators Allowed Outage Time”**

- 1.0 SUMMARY DESCRIPTION
- 2.0 DETAILED DESCRIPTION
- 3.0 TECHNICAL EVALUATION
- 4.0 REGULATORY EVALUATION
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  - 4.2 Precedent
  - 4.3 Significant Hazards Consideration
  - 4.4 Conclusions
- 5.0 ENVIRONMENTAL CONSIDERATION
- 6.0 REFERENCES

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ATTACHMENTS:

- 1. Technical Specification Page (Mark-up of Proposed Changes)
- 2. Proposed Technical Specification Page (Clean)

## 1. SUMMARY DESCRIPTION

The Omaha Public Power District (OPPD) hereby requests an amendment to Fort Calhoun Station (FCS), Unit No. 1, Renewed Facility Operating License No. DPR-40 to incorporate the attached change into the FCS Technical Specifications (TS). The proposed change would revise the Operating License to clarify the allowed outage time (AOT) for the emergency diesel generators (DGs). As such, changes are proposed for TS 2.7(2)j.

## 2. DETAILED DESCRIPTION

At the end of January 2008, DG-2 entered a planned maintenance outage and complications during the outage threatened to delay its restoration beyond the 7-day AOT of TS 2.7(2)j. Therefore, on February 1, 2008, OPPD contacted NRC Region IV to inquire about enforcement discretion to extend the AOT for DG-2 past the allowed 7 days (ultimately, DG-2 was restored to operability within the 7-day AOT). The NRC informed OPPD that enforcement discretion would be difficult to grant because the AOT of TS 2.7(2)j was ambiguous particularly when periods of inoperability span calendar months.

As a result of that event, OPPD committed to clarify TS 2.7(2)j regarding how the TS limits periods of DG inoperability to seven days or less. It should be noted that OPPD has internal procedural guidance ensuring appropriate application of the TS consistent with its intent to limit periods of DG inoperability to seven days or less.

OPPD proposes to clarify TS 2.7(2)j such that a single period of inoperability for one DG is limited to seven consecutive days and specify that the cumulative total time of inoperability for both DGs during any calendar month cannot exceed seven days. The proposed revision to TS 2.7(2)j requires both conditions to be met.

Specifically, TS 2.7(2)j will be revised as follows (new text is underlined, deleted text is in ~~strikeout~~):

- j. Either one of the emergency diesel generators (DG-1 or DG-2) may be inoperable for up to seven consecutive days ~~(total for both) during any month~~, provided there are no inoperable required engineered safeguards components associated with the operable diesel generator and the cumulative total time of inoperability for both DGs during any calendar month does not exceed seven days. If one diesel generator is inoperable, within 8 hours (regardless of when the inoperable diesel generator is restored to operability) EITHER:

- (1) Start the other diesel generator to verify operability, OR
- (2) Ensure the absence of common cause for the diesel generator inoperability for the other diesel generator.

### 3. TECHNICAL EVALUATION

TS 2.7 applies to the availability of electrical power for the operation of plant components and defines those conditions of electrical power availability necessary to provide for safe reactor operation and continued availability of engineered safeguards equipment. As such, TS 2.7(1)l does not allow the reactor to be heated up or maintained at temperatures above 300°F unless DG-1 and DG-2 are operable. These independent DG systems are located in the plant and are connected to separate buses. Both generator sets are independent and start automatically upon loss of offsite power. The diesel generators are ready to accept load within 10 seconds of loss of normal power supply (i.e., offsite power). Starting power is self-contained within each unit. Each unit has sufficient capacity to start sequentially the loads that must be supplied for the engineered safeguards equipment for the design basis accident (DBA) concurrent with loss of outside power. This capacity is adequate to provide a safe and orderly plant shutdown and maintain the plant in a safe condition. Since FCS has sufficient DG capacity and redundancy, TS 2.7(2)j permits TS 2.7(1)l to be modified such that one of the DGs may be inoperable for up to seven days to allow for maintenance and/or testing.

The 7-day AOT of TS 2.7(2)j dates from the original issuance of the operating license in 1973. Regulatory requirements that did not exist at that time now supplement the requirements of TS 2.7(1)l and help to ensure that both DGs are OPERABLE when the reactor is heated up or maintained at temperatures above 300°F. These programs are The Maintenance Rule (10 CFR 50.65(a)(1)) and the reactor oversight process (ROP).

*The Maintenance Rule:* 10 CFR 50.65(a)(1), the Maintenance Rule, requires each licensee to monitor the performance or condition of structures, systems, and components (SSCs) against licensee-established goals to ensure that the SSCs are capable of fulfilling their intended functions. If the performance or condition of an SSC does not meet established goals, appropriate corrective action is required to be taken. The NRC Resident Inspectors monitor OPPD's Corrective Action Process and could take action if OPPD's maintenance program routinely permitted TS 2.7(2)j to circumvent the TS 2.7(1)l requirement to have both DGs operable. The performance and condition monitoring activities required by 10 CFR 50.65(a)(1) and (a)(2) would identify if poor maintenance practices resulted in multiple entries into the LCO and unacceptable DG availability. The effectiveness of these performance monitoring activities, and associated corrective actions, is evaluated at least every refueling cycle, not to exceed 24 months, per 10 CFR 50.65(a)(3).

The Maintenance Rule (10 CFR 50.65(a)(4)), considers all inoperable risk-significant equipment, not just the one or two systems governed by the same LCO. Under 10 CFR 50.65(a)(4), the risk impact of all inoperable risk-significant equipment is assessed and managed when performing preventative or corrective maintenance. The risk assessments are conducted using the procedures and guidance endorsed by

Regulatory Guide 1.182, *Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants*. Regulatory Guide 1.182 endorses the guidance in Section 11 of NUMARC 93-01, *Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants*. These documents address general guidance for conduct of the risk assessment, quantitative and qualitative guidelines for establishing risk management actions, and example risk management actions. These include actions to plan and conduct other activities in a manner that controls overall risk, increased risk awareness by shift and management personnel, actions to reduce the duration of the condition, actions to minimize the magnitude of risk increases (establishment of backup success paths or compensatory measures), and determination that the proposed maintenance is acceptable. This comprehensive program provides assurance of safe plant operation.

The Reactor Oversight Process, NEI 99-02, *Regulatory Assessment Performance Indicator Guideline*, describes the tracking and reporting of performance indicators to support the NRC's ROP. The NEI document is endorsed by Regulatory Issue Summary (RIS) 2001-11, *Voluntary Submission of Performance Indicator Data*. NEI 99-02, Section 2.2, describes the Mitigating Systems Cornerstone. NEI 99-02 specifically addresses emergency AC sources. Extended unavailability of the emergency AC sources (i.e., diesel generators) due to multiple entries into TS 2.7(2)j would affect the NRC's evaluation of OPPD's performance under the ROP, which represents a strong disincentive for such operation.

Based on the above discussion, the concern regarding multiple continuous entries into 2.7(2)j without meeting the LCO of TS 2.7(1)l is addressed by the system unavailability monitoring programs described above. Therefore, this potential concern is not an issue. Specifying that a single period of inoperability for one DG is limited to seven consecutive days and stating that the cumulative total time of inoperability for both DGs during any calendar month cannot exceed seven days clarifies TS 2.7(2)j but does not make it less restrictive.

Therefore, these clarifications and editorial changes are not detrimental to plant safety.

## **4.0 REGULATORY EVALUATION**

### **4.1 Applicable Regulatory Requirements/Criteria**

10 CFR 50.36 *Technical Specifications*. 10 CFR 50.36(c)(2) states, "When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met." The revised actions continue to meet the requirements of this regulation.

10 CFR 50.65, *Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants*. The overall objective of this performance-based rule is to ensure that nuclear power plant structures, systems, and components (SSCs) will be maintained so that they will perform their intended function when required. The revised actions continue to meet the requirements of this regulation.

#### General Design Criteria

FCS was licensed for construction prior to May 21, 1971, and at that time committed to the draft General Design Criteria (GDC). The draft GDC are contained in Appendix G of the FCS Updated Safety Analysis Report (USAR). Criterion 24 – Emergency Power for Protection Systems is applicable to this LAR and states:

*In the event of loss of all offsite power, sufficient alternate sources of power shall be provided to permit the required functioning of the protection systems.*

*This criterion is met. Emergency power is available from two completely independent Diesel generator sets and from the two completely independent 125v dc systems for essential dc loads.*

*The independent diesel generator supply systems are located in the plant and are connected to separate buses. Both generator sets are independently automatic starting upon loss of auxiliary power and will be ready to accept load within 10 seconds of loss of normal supply power. Starting power is self-contained within each unit. Each unit has sufficient capacity to start sequentially the loads that must be supplied for the engineered safeguards equipment for the hypothetical accident concurrent with loss of outside power. This capacity is adequate to provide a safe and orderly plant shutdown and maintain the plant in a safe condition.*

*Each of the two 125v dc batteries is capable of supplying essential station dc load for 8 hours and may be charged by the generator power supply.*

*Facilities are included to permit periodic starting and running the Diesel generator sets without interrupting plant operation. Diesel units are synchronized to the bus and loaded periodically to ensure readiness for emergency services.*

The revised actions continue to meet the requirements of Criterion 24.

#### **4.2 Precedent**

None.

### 4.3 Significant Hazards Consideration

The Technical Specifications (TSs) for Fort Calhoun Station (FCS), Unit No. 1 are modified to clarify the allowed outage time (AOT) of TS 2.7(2)j for the emergency diesel generators (DGs) but are not less restrictive.

The Omaha Public Power District (OPPD) has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed changes clarify the AOT of TS 2.7(2)j for DG inoperability but are not less restrictive. Allowed outage times and editorial changes such as these are not an initiator of any accident previously evaluated. As a result, the probability of an accident previously evaluated is not affected. The consequences of an accident during the revised AOT are no different than the consequences of the same accident during the existing AOT. As a result, the consequences of an accident previously evaluated are not affected by these changes. The proposed changes do not alter or prevent the ability of structures, systems, and components from performing their intended function to mitigate the consequences of an initiating event within the assumed acceptance limits. The proposed changes do not affect the source term, containment isolation, or radiological release assumptions used in evaluating the radiological consequences of an accident previously evaluated. Further, the proposed changes do not increase the types or amounts of radioactive effluent that may be released offsite, nor significantly increase individual or cumulative occupational/public radiation exposures. The proposed changes are consistent with the safety analysis assumptions and resultant consequences. Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different accident from any accident previously evaluated?

Response: No.

The proposed changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. The proposed changes do not alter any assumptions made



in the safety analysis. Therefore, the proposed changes do not create the possibility of a new or different accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed changes clarifying the AOT of TS 2.7(2)j for DG inoperability do not alter the manner in which safety limits, limiting safety system settings or limiting conditions for operation are determined. The safety analysis acceptance criteria are not affected by these changes. The proposed changes will not result in plant operation in a configuration outside of the design basis. Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

#### **4.4 CONCLUSIONS**

Based on the considerations discussed above, (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. Therefore, OPPD concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

#### **5.0 ENVIRONMENTAL CONSIDERATION**

OPPD has evaluated the proposed amendment and has determined that the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

#### **6.0 REFERENCES**

None.

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Attachment 1  
Page 1

**Technical Specification Page  
(Mark-up of Proposed Changes)**

## TECHNICAL SPECIFICATIONS

### 2.0 **LIMITING CONDITIONS FOR OPERATION**

#### 2.7 **Electrical Systems (Continued)**

- d. Either one of the 4.16kV engineered safeguards buses, 1A3 or 1A4 may be inoperable for up to 8 hours provided the operability of the diesel generator associated with the operable bus is demonstrated immediately and there are no inoperable required engineered safeguards components associated with the operable bus.
- e. One of each group of 4160 V/480 V Transformers (T1B-3A or 4A), (T1B-3B or 4B), and (T1B-3C or 4C) may be inoperable for up to 8 hours provided there are no inoperable required engineered safeguards components which are redundant to components on the inoperable transformer.
- f. One of the 480 V distribution buses connected to bus 1A3 or connected to bus 1A4 may be inoperable for up to 8 hours provided there are no inoperable required safeguards components which are redundant to components on the inoperable bus.
- g. Either Group of MCC No.'s (3A1, 3B1, 3A2, 3C1, 3C2,) or (4A1, 4A2, 4C1, 4C2) may be inoperable for up to 8 hours provided there are no inoperable required safeguards components which are redundant to components on the inoperable MCC. MCC 3C1 may be inoperable in excess of 8 hours if battery chargers No. 1 and No. 2 are operable.
- h. One of the four 120V a-c instrument buses (A, B, C or D) may be inoperable for 8 hours provided the reactor protective and engineered safeguards systems instrument channels supplied by the remaining three buses are all operable.
- i. Two battery chargers may be inoperable for up to 8 hours provided battery charger No. 1 (EE-8C) or No. 2 (EE-8D) is operable.
- j. Either one of the emergency diesel generators (DG-1 or DG-2) may be inoperable for up to seven consecutive days (~~total for both~~) ~~during any month~~, provided there are no inoperable required engineered safeguards components associated with the operable diesel generator and the cumulative total time of inoperability for both DGs during any calendar month does not exceed seven days. If one diesel generator is inoperable, within 8 hours (regardless of when the inoperable diesel generator is restored to operability) EITHER:
  - (1) Start the other diesel generator to verify operability, OR
  - (2) Ensure the absence of common cause for the diesel generator inoperability for the other diesel generator.
- k. Not used.

**Proposed Technical Specification Page  
(Clean)**

## TECHNICAL SPECIFICATIONS

### 2.0 **LIMITING CONDITIONS FOR OPERATION**

#### 2.7 **Electrical Systems (Continued)**

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- h. One of the four 120V a-c instrument buses (A, B, C or D) may be inoperable for 8 hours provided the reactor protective and engineered safeguards systems instrument channels supplied by the remaining three buses are all operable.
- i. Two battery chargers may be inoperable for up to 8 hours provided battery charger No. 1 (EE-8C) or No. 2 (EE-8D) is operable.
- j. Either one of the emergency diesel generators (DG-1 or DG-2) may be inoperable for up to seven consecutive days provided there are no inoperable required engineered safeguards components associated with the operable diesel generator and the cumulative total time of inoperability for both DGs during any calendar month does not exceed seven days. If one diesel generator is inoperable, within 8 hours (regardless of when the inoperable diesel generator is restored to operability) EITHER:
  - (1) Start the other diesel generator to verify operability, OR
  - (2) Ensure the absence of common cause for the diesel generator inoperability for the other diesel generator.
- k. Not used.