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October 08, 2002  
LIC-02-0098

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Reference: Docket No. 50-285

**SUBJECT: Fort Calhoun Station Unit No. 1 License Amendment Request,  
"Increase Diesel Fuel Oil Storage Inventory Requirement"**

Pursuant to 10 CFR 50.90, Omaha Public Power District (OPPD) hereby requests that Fort Calhoun Station (FCS) Unit No. 1, Technical Specification (TS) 2.7(1) m, 2.7(2) k and 2.7 Basis be amended. The amendment will increase the amount of diesel fuel oil required to be kept in auxiliary boiler fuel oil storage tank (FO-10).

The amendment is necessary because a recent calculation determined that the amount of diesel fuel oil required by TS 2.7 is slightly insufficient (35 gallon shortfall) for 7 days of emergency diesel generator operation. However, there is no safety or operability concern as administrative controls currently in place ensure that there is substantial margin in the minimum diesel fuel oil inventory required to be stored in FO-10.

Attachment 1 provides the No Significant Hazards Evaluation and the technical bases for this requested change to the Technical Specifications. Attachments 2 and 3 contain a marked-up and clean version reflecting the requested Technical Specification and Basis changes.

OPPD requests 30 days to implement the amendment. No commitments are made to the NRC in this letter.

I declare under penalty of perjury that the foregoing is true and correct. (Executed on October 8, 2002)

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U. S. Nuclear Regulatory Commission

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If you have any questions or require additional information, please contact Dr. R. L. Jaworski of my staff at 402-533-6833.

Sincerely,



D. J. Bannister

Manager – Fort Calhoun Station

DJB/RRL/EMD/rr1

Attachments

1. Fort Calhoun Station's Evaluation for Amendment of Operating License
2. Mark-up of Technical Specifications
3. Clean Version of Technical Specifications

c: E. W. Merschoff, NRC Regional Administrator, Region IV  
A. B. Wang, NRC Project Manager  
J. G. Kramer, NRC Senior Resident Inspector  
Division Administrator, Public Health Assurance, State of Nebraska  
Winston & Strawn

# **Fort Calhoun Station's Evaluation for Amendment of Operating License Increasing FO-10 Diesel Fuel Oil Minimum Inventory**

- 1.0 INTRODUCTION
- 2.0 DESCRIPTION OF PROPOSED AMENDMENT
- 3.0 BACKGROUND
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- 7.0 NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC)
- 8.0 ENVIRONMENTAL CONSIDERATION
- 9.0 REFERENCES

## 1.0 INTRODUCTION

The Omaha Public Power District (OPPD) is requesting an amendment to Operating License DPR-40 for the Fort Calhoun Station (FCS) Unit No. 1.

Specifically, OPPD proposes to revise Technical Specification (TS) 2.7, "Electrical Systems." TS 2.7 currently requires 8,000 gallons of diesel fuel be kept in reserve in the auxiliary boiler fuel oil tank (FO-10) for post accident emergency diesel generator (EDG) operation. A calculation has determined that 8,000 gallons is somewhat insufficient (35 gallon shortfall) for 7 days of post-accident EDG operation.

Therefore, the minimum amount of diesel fuel oil required by TS 2.7 to be kept in FO-10 is being increased from 8,000 to 10,000 gallons. Current surveillance procedures require at least 10,000 gallons of diesel fuel oil in FO-10. This is verified on a daily basis in accordance with the surveillance requirements of TS 3.2.

No TS operational requirements were violated by this discrepancy. The EDGs are considered operable with the inventory administrative controls described above.

## 2.0 DESCRIPTION OF PROPOSED AMENDMENT

The proposed changes will 1) revise TS 2.7(1) m, 2.7(2) k and the Basis of 2.7 to require a minimum of 10,000 gallons of diesel fuel oil inventory in FO-10, 2) increase the 6 day supply to 23,350 gallons, and 3) insert minor grammatical changes such as the term diesel fuel "oil" for consistency with the Basis of TS 2.7.

## 3.0 BACKGROUND

There are two EDGs of identical design and characteristic. Dedicated fuel oil for EDG operation is supplied from the 18,000-gallon underground storage tank FO-1 with a separated supply line for each EDG. Each EDG has two fuel oil transfer pumps mounted on the engine. The pumps transfer fuel oil from FO-1 storage tank to a 300-gallon wall mounted auxiliary day tank in the EDG room. Fuel oil is then gravity fed from the auxiliary day tank to a 550-gallon engine base tank. The level in the auxiliary day tank is maintained by automatic operation of the fuel oil transfer pump in response to low and high level signals. Low or high level in the auxiliary day tank is alarmed in the control room. Low level in the engine base tank is also alarmed in the control room. The plant emergency procedures provide guidance to transfer fuel oil in storage tank FO-10 to storage tank FO-1 prior to the depletion of fuel oil in storage tank FO-1.

Fuel oil can be transferred from storage tank FO-10 to storage tank FO-1 by the fuel oil transfer pump (FO-37). A dedicated portable hose with sufficient length is provided to connect storage tank FO-10 to storage tank FO-1. This dedicated hose is tagged and stored in an appropriate area. Fuel oil transfer pump FO-37 is a non-safety related component; however, power can be supplied to FO-37 from either of the two EDGs or

from the generator connected to the diesel driver (FW-56) for FW-54, the diesel driven auxiliary feedwater pump. As a backup to fuel oil transfer pump FO-37, a dedicated and tagged portable pump is stored in an appropriate area. Periodically, the portable pump and hose is checked via a preventative maintenance task to ensure they are available for use.

The two fuel oil storage tanks, FO-1 and FO-10, are nearly identical with the only identified differences being the nameplate and current critical quality element classification. The capacity, foundation, construction materials, construction code, and initial pressurized leak testing are identical for both tanks. The vendor and model number of the level indicators are the same for both fuel oil storage tanks, FO-1 and FO-10, and they have similar maintenance requirements.

Each diesel generator has sufficient capacity to start and run at design load required by engineered safety features equipment. The safety features operated from one diesel generator can adequately cool the core for any loss of coolant accident and also maintain the containment pressure within the design value. The engine base tank capacity of 550 gallons on each diesel provides 3 hours running time (worst case loading) before transfer of fuel oil from the 18,000 gallon capacity emergency diesel generator fuel oil storage tank FO-1 is mandatory. Two fuel oil transfer pumps per diesel, with each being powered from the associated diesel, are available for transferring fuel oil from FO-1 to the day tanks. The minimum diesel fuel oil inventory available to the diesel generators from the emergency diesel generator fuel oil storage tank FO-1 is maintained to assure the operation of either: 1) one diesel generator at full rated design capacity for at least 3.6 days, or 2) one diesel generator at post accident load conditions for a minimum of 4.5 days.

#### 4.0 REGULATORY REQUIREMENTS & GUIDANCE

The Fort Calhoun Station design meets criteria similar to those now contained in 10 CFR 50 Appendix A, General Design Criteria for Nuclear Power Plants. The Fort Calhoun Station USAR Appendix G, Responses to 70 Criteria, describes how those criteria are met. The criteria that govern emergency power are USAR Appendix G, Criterion 24 and 39.

Criterion 24 – Emergency Power for Protection Systems, 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. 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”.

Criterion 39 – Emergency Power For Engineered Safety Features states: “Alternate power systems shall be provided and designed with adequate independency, redundancy, capacity and testability to permit the functioning required of the engineered safety features. As a minimum, the onsite power system and the offsite power system shall each, independently, provide this capacity assuming a failure of a single active component in each power system.” Onsite power is provided by two diesel generator sets. Each independent diesel generator set is adequate for supplying the minimum engineered safeguards equipment for the hypothetical accident concurrent with loss of outside power.

## 5.0 TECHNICAL ANALYSIS

### 5.1 Design Basis

This proposed change will establish a minimum of 10,000 gallons of diesel fuel oil be reserved in the auxiliary boiler fuel oil storage tank FO-10. This assures sufficient fuel oil for transfer to the emergency diesel generator fuel oil storage tank in the event of an emergency to extend the fuel supply for diesel generator operation to 7 days.

The amendment is necessary because a recent calculation determined that the amount of diesel fuel oil required by TS 2.7 is slightly insufficient for 7 days of emergency EDG operation. However, there is no safety or operability concern as administrative controls currently in place ensure that there is substantial margin in the minimum diesel fuel oil inventory required to be stored in FO-10.

This discrepancy was documented in OPPD’s corrective action program. The calculation performed to resolve this discrepancy determined that the minimum available diesel fuel oil inventory required by TS 2.7(1)m is 35 gallons short of the amount required for 7 days of post-accident EDG operation. The major cause of the discrepancy was a reduction in available fuel inventory attributed to the fuel used by FW-56, the auxiliary feedwater pump diesel engine. FW-56 can provide power for FO-37, the auxiliary feedwater pump fuel oil transfer pump, which transfers diesel fuel oil from FO-10 to FO-1. As described in Section 3.0, FW-56 is one of three sources of power for FO-37.

Plant surveillance procedures were revised to require at least 10,000 gallons of diesel fuel oil in FO-10. This is verified on a daily basis in accordance with the surveillance requirements of TS 3.2. Administrative controls are in place to ensure a substantial margin for diesel fuel oil availability. The proposed revisions to TS 2.7 increases the minimum amount of diesel fuel oil required in FO-10 by 2,000 gallons, which covers the identified shortage and includes additional margin to prevent future concerns. The 6-day supply (21,350 gallons) is also being increased by a like amount to 23,350 gallons. Minor grammatical revisions are also incorporated for clarity and consistency.

The FCS Updated Safety Analysis Report (USAR) Section 8.4.1 (Reference 9.1) has been revised to reflect the updated analysis and to assure maintenance of these administrative requirements until receipt of the proposed amendment.

## 5.2 Risk Information

The proposed amendment does not involve application or use of risk-informed decisions. The risk to the health and safety of the public as a result of these clarifications to core power distribution monitoring requirements is minimal.

## 6.0 REGULATORY ANALYSIS

The proposed amendment increases the minimum diesel fuel oil inventory requirements listed in TS 2.7 to meet the capacity requirements of IEEE-308. IEEE-308 requires sufficient fuel for 7 days of EDG operation following the most severe accident. Increasing the minimum inventory requirement of FO-10, the auxiliary boiler fuel oil tank by 2000 gallons enables the site to meet this criterion and provides an extra margin of inventory to prevent any future concerns. The proposed revision will update the TS to match administrative controls already in place that require a minimum of 10,000 gallons of diesel fuel oil in FO-10.

In conclusion, 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.

## 7.0 NO SIGNIFICANT HAZARDS CONSIDERATION

OPPD has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) 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.

No changes to the EDG diesel fuel oil storage and distribution system configuration or usage is required to achieve the inventory increase. This change only increases the current minimum inventory requirements listed in TS 2.7 and assures that the inventory will meet the capacity requirements of IEEE-308, which requires sufficient fuel for 7 days of EDG operation following the most severe accident. Increasing the minimum inventory requirement of FO-10, the auxiliary

boiler fuel oil tank by 2000 gallons enables the site to meet this criterion and provides an extra margin of inventory to prevent any future concerns.

Therefore, this change does not involve an increase in the probability or consequences of any accident previously evaluated.

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

Response: No.

No changes to the Emergency Diesel Generator fuel oil storage and distribution system configuration or usage are required to achieve the inventory increase. FO-10 has a capacity of 18,000 gallons. Therefore, FO-10 can readily accommodate the additional 2000 gallons of inventory.

Therefore, the proposed changes will not create the possibility of a new or different kind of accident from any previously evaluated.

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

Response: No.

The proposed change will increase the margin of safety by requiring that additional diesel fuel oil inventory be kept on-site to ensure that the 7 day on-site fuel supply criteria is met.

Therefore, this technical specification change does not involve a reduction in the margins of safety.

Based on the above, OPPD concludes that the proposed amendment 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.

## 8.0 ENVIRONMENTAL CONSIDERATION

The proposed amendment is confined to administrative clarification. The changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) for the following reasons:

As demonstrated in Section 7.0, the proposed amendment does not involve a significant hazards consideration.



The proposed amendment does not result in a significant change in the types or increase in the amounts of any effluents that may be released offsite. Also, the TS change does not introduce any new effluents or significantly increase the quantities of existing effluents. As such, the change cannot significantly affect the types or amounts of any effluents that may be released offsite.

The proposed amendment does not result in a significant increase in individual or cumulative occupational radiation exposure. The proposed change does not result in any physical plant changes. No new surveillance requirements are anticipated as a result of these changes that would require additional personnel entry into radiation controlled areas. Therefore, the amendment has no significant affect on either 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.

## 9.0 REFERENCES

- 9.1 Fort Calhoun Station Unit 1 Updated Safety Analysis Report (USAR) Section 8.4.1, "Diesel Generators"

# ATTACHMENT 2

## Markup of Technical Specification Pages

NOTE: Pages 2-33 and 2-35 are included for information only.  
There are no revisions or amendments to these two pages.

## TECHNICAL SPECIFICATIONS

### 2.0 LIMITING CONDITIONS FOR OPERATION

#### 2.7 Electrical Systems

##### Applicability

Applies to the availability of electrical power for the operation of plant components.

##### Objective

To define those conditions of electrical power availability necessary to provide for safe reactor operation and the continuing availability of engineered safety features.

##### Specifications

###### (1) Minimum Requirements

The reactor shall not be heated up or maintained at temperatures above 300°F unless the following electrical systems are operable:

- a. Unit auxiliary power transformers T1A-1 or -2 (4,160 V).
- b. House service transformers T1A-3 and 4 (4,160 V).
- c. 4,160 V engineered safety feature buses 1A3 and 1A4.
- d. 4,160 V/480 V Transformers T1B-3A, T1B-3B, T1B-3C, T1B-4A, T1B-4B, T1B-4C.
- e. 480 V distribution buses 1B3A, 1B3A-4A, 1B4A, 1B3B, 1B3B-4B, 1B4B, 1B3C, 1B3C-4C, 1B4C.
- f. MCC No. 3A1, 3B1, 3A2, 3C1, 3C2, 4A1, 4A2, 4C1 and 4C2.
- g. 125 V d-c buses No. 1 and 2 (Panels EE-8F and EE-8G).
- h. 125 V d-c distribution panels AI-41A and AI-41B.
- i. 120V a-c instrument buses A, B, C, and D (Panels AI-40A, B, C and D).
- j. Inverters A, B, C, and D.
- k. Station batteries No. 1 and 2 (EE-8A and EE-8B) including one battery charger on each 125V d-c bus No. 1 and 2 (EE-8F and EE-8G).
- l. Two emergency diesel generators (DG-1 and DG-2).
- m. One diesel fuel ~~oil~~ storage system containing a minimum volume of 16,000 gallons of diesel fuel in FO-1, and an additional ~~a minimum volume of 810,000~~ gallons of diesel fuel in FO-10.

## TECHNICAL SPECIFICATIONS

### 2.0 LIMITING CONDITIONS FOR OPERATION

#### 2.7 Electrical Systems (Continued)

No changes to this page, included for reference only

#### (2) Modification of Minimum Requirements

The minimum requirements may be modified to the extent that one of the following conditions will be allowed after the reactor coolant has been heated above 300°F. However, the reactor shall not be made critical unless all minimum requirements are met. If any of the provisions of these exceptions are violated, the reactor shall be placed in a hot shutdown condition within the following 12 hours. If the violation is not corrected within an additional 12 hours, the reactor shall be placed in a cold shutdown condition within an additional 24 hours.

- a. Both unit auxiliary power transformers T1A-1 and -2 (4.16 kV) may be inoperable for up to 24 hours provided the operability of both diesel generators is demonstrated immediately.
- b. Either house service transformer T1A-3 or T1A-4 (4.16kV) may be inoperable for up to 7 days provided the operability of the diesel generator associated with the inoperable transformer is immediately verified. The NRC Operations Center shall be notified by telephone within 4 hours after transformer inoperability. Continued operation beyond 7 days is permissible, provided a special report is submitted to the NRC within 48 hours after transformer inoperability pursuant to Section 5.9.3 of the Technical Specifications. The special report will outline the plans for restoration of transformer operability and the additional precautions to be taken while the transformer is out of service.
- c. Both house service transformers T1A-3 and T1A-4 (4.16kV) may be inoperable for up to 72 hours provided the operability of both diesel generators is immediately verified. The loss of the 161kV incoming line renders both transformers inoperable. The NRC Operations Center shall be notified by telephone within 4 hours after transformer inoperability. Continued operation beyond 72 hours is permissible, provided a special report is submitted to the NRC within 48 hours after both transformers' inoperability pursuant to Section 5.9.3 of the Technical Specifications. The special report will outline the plans for restoration of the transformers' operability and the additional precautions to be taken while the transformers are out of service.

## 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 days (total for both) during any month, provided there are no inoperable required engineered safeguards components associated with the operable diesel generator. 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. If ~~the~~ inventory of diesel fuel ~~oil~~ in FO-1 is less than 16,000 gallons and/or FO-10 is less than ~~8~~10,000 gallons, but the combined inventory in FO-1 and FO-10 is greater than a 6 day supply (~~243~~350 gallons), then restore the required inventory within 48 hours.

## TECHNICAL SPECIFICATIONS

No changes to this page, included for reference only

### 2.0 LIMITING CONDITIONS FOR OPERATION

#### 2.7 Electrical Systems (Continued)

- i. Island buses 1B3A-4A, 1B3B-4B, and 1B3C-4C 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(es).
- m. Either one of the 125V d-c buses No. 1 or 2 (Panels EE-8F or EE-8G) may be inoperable for up to 8 hours.
- n. Either one of the 125V d-c distribution panels AI-41A or AI-41B may be inoperable for up to 8 hours.
- o. One inverter (A, B, C, or D) may be inoperable for up to 24 hours provided the reactor protective and engineered safeguards systems instrument channels supplied by the remaining three inverters are all operable and the 120V a-c instrument bus associated with the inoperable inverter is powered from its bypass source.

#### Basis

The electrical system equipment is arranged so that no single failure can inactivate enough engineered safeguards to jeopardize the plant safety. The 480 V safeguards are arranged on nine bus sections. The 4.16 kV safeguards are supplied from two buses.

The normal source of auxiliary power with the plant at power for the safeguards buses is from the house service power transformers being fed from the 161 Kv incoming line with on-site emergency power from either one of two diesel generators and off-site standby power via the unit auxiliary transformers.<sup>(1)</sup> The loss of the 161kV incoming line renders the house service transformers (T1A-3 and T1A-4) inoperable in that the transformers cannot supply power to the 4.16kV safeguards buses 1A3 and 1A4. Inoperability of the house service transformer(s) or loss of the 161kV incoming line is not reportable pursuant to 10 CFR 50.72 criteria; however, the NRC will be promptly notified of these events via the NRC Operations Center.

The two emergency diesel generators on site do not require outside power for start up or operation.

Upon loss of normal and standby power sources, the 4.16 Kv buses 1A3 and 1A4 are energized from the diesel generators. Bus load shedding, transfer to the diesel generator and pickup of critical loads are carried out automatically.<sup>(2)</sup>

When the turbine generator is out of service for an extended period, the generator can be isolated by opening motor operated disconnect switch DS-T1 in the bus between the generator and the main transformer, allowing the main transformer and the unit auxiliary power transformers (T1A-1 and T1A-2) to be returned to service.<sup>(3)</sup> The auxiliary power transformers are not considered inoperable during these normal plant startup/shutdown realignments.

## TECHNICAL SPECIFICATIONS

### 2.0 LIMITING CONDITIONS FOR OPERATION

#### 2.7 Electrical Systems (Continued)

The time allowed to repair an inoperable inverter is based upon engineering judgement, taking into consideration the time required to repair an inverter and the additional risk to which the unit is exposed because of the inverter inoperability. In the event of inverter failure, the load on the inverter is automatically transferred to its safety related bypass source. The associated 120 V a-c instrument bus is considered OPERABLE when it is being powered from its bypass source and during the short time it takes to manually or automatically transfer between sources.

Equipment served by 4.16 kV and 480 V auxiliary buses and MCC's is arranged so that loss of an entire 4.16 kV bus does not compromise safety of the plant during DBA conditions. For example, if 4.16 kV bus 1A3 is lost, two raw water pumps, one low pressure safety injection pump, two high pressure safety injection pumps, one auxiliary feedwater pump, two component cooling water pumps, one containment spray pump and two containment air fans are lost. This leaves two raw water pumps, one low pressure safety injection pump, one high pressure safety injection pump, one component cooling water pump, two containment spray pumps and two containment air fans which is more than sufficient to control containment pressure below the design value during the DBA.

Each diesel generator has sufficient capacity to start and run at design load required by engineered safety features equipment. The safety features operated from one diesel generator can adequately cool the core for any loss of coolant accident and also maintain the containment pressure within the design value. The engine base tank capacity of 550 gallons on each diesel provides 3 hours running time (worst case loading) before transfer of fuel oil from the 18,000 gallon capacity emergency diesel generator fuel oil storage tank FO-1 is mandatory. Two fuel oil transfer pumps per diesel, with each being powered from the associated diesel, are available for transferring fuel oil from FO-1 to the day tanks. The minimum diesel fuel oil inventory available to the diesel generators from the emergency diesel generator fuel oil storage tank FO-1 is maintained to assure the operation of either: 1) one diesel generator at full rated design capacity for at least 3.6 days, or 2) one diesel generator at post accident load conditions for a minimum of 4.5 days.

A minimum amount of ~~8,000 gallons of~~ diesel fuel oil is reserved in the auxiliary boiler fuel oil storage tank FO-10 for transfer to the emergency diesel generator fuel oil storage tank in the event of an emergency to extend the fuel supply for diesel generator operation to 7 days. Methods of transfer of the fuel oil from this tank to FO-1 have been established and procedures have been developed so that the transfer can be made in a timely manner without adversely impacting diesel generator operation. Therefore, a minimum diesel fuel oil inventory available to the diesel generators from the total on-site diesel fuel oil storage capacity is maintained to assure the operation of one diesel generator at the required post accident loads for 7 days. The fuel inventory is allowed below the 7 day supply, but above a 6 day supply, for a period of 48 hours. This restriction allows sufficient time for obtaining the requisite replacement volume and performing the analyses required prior to addition of fuel oil to the tank. A period of 48 hours is considered sufficient to complete restoration of the required level prior to initiating a

# ATTACHMENT 3

## Proposed Technical Specification Pages

NOTE: Pages 2-33 and 2-35 are included for information only.  
There are no revisions or amendments to these two pages.



## TECHNICAL SPECIFICATIONS

### 2.0 LIMITING CONDITIONS FOR OPERATION

#### 2.7 Electrical Systems

##### Applicability

Applies to the availability of electrical power for the operation of plant components.

##### Objective

To define those conditions of electrical power availability necessary to provide for safe reactor operation and the continuing availability of engineered safety features.

##### Specifications

###### (1) Minimum Requirements

The reactor shall not be heated up or maintained at temperatures above 300°F unless the following electrical systems are operable:

- a. Unit auxiliary power transformers T1A-1 or -2 (4,160 V).
- b. House service transformers T1A-3 and 4 (4,160 V).
- c. 4,160 V engineered safety feature buses 1A3 and 1A4.
- d. 4,160 V/480 V Transformers T1B-3A, T1B-3B, T1B-3C, T1B-4A, T1B-4B, T1B-4C.
- e. 480 V distribution buses 1B3A, 1B3A-4A, 1B4A, 1B3B, 1B3B-4B, 1B4B, 1B3C, 1B3C-4C, 1B4C.
- f. MCC No. 3A1, 3B1, 3A2, 3C1, 3C2, 4A1, 4A2, 4C1 and 4C2.
- g. 125 V d-c buses No. 1 and 2 (Panels EE-8F and EE-8G).
- h. 125 V d-c distribution panels AI-41A and AI-41B.
- i. 120V a-c instrument buses A, B, C, and D (Panels AI-40A, B, C and D).
- j. Inverters A, B, C, and D.
- k. Station batteries No. 1 and 2 (EE-8A and EE-8B) including one battery charger on each 125V d-c bus No. 1 and 2 (EE-8F and EE-8G).
- l. Two emergency diesel generators (DG-1 and DG-2).
- m. One diesel fuel oil storage system containing a minimum volume of 16,000 gallons of diesel fuel in FO-1, and a minimum volume of 10,000 gallons of diesel fuel in FO-10.

## TECHNICAL SPECIFICATIONS

- 2.0 **LIMITING CONDITIONS FOR OPERATION**  
2.7 **Electrical Systems (Continued)**

No changes to this page, included for reference only

### (2) **Modification of Minimum Requirements**

The minimum requirements may be modified to the extent that one of the following conditions will be allowed after the reactor coolant has been heated above 300°F. However, the reactor shall not be made critical unless all minimum requirements are met. If any of the provisions of these exceptions are violated, the reactor shall be placed in a hot shutdown condition within the following 12 hours. If the violation is not corrected within an additional 12 hours, the reactor shall be placed in a cold shutdown condition within an additional 24 hours.

- a. Both unit auxiliary power transformers T1A-1 and -2 (4.16 kV) may be inoperable for up to 24 hours provided the operability of both diesel generators is demonstrated immediately.
- b. Either house service transformer T1A-3 or T1A-4 (4.16kV) may be inoperable for up to 7 days provided the operability of the diesel generator associated with the inoperable transformer is immediately verified. The NRC Operations Center shall be notified by telephone within 4 hours after transformer inoperability. Continued operation beyond 7 days is permissible, provided a special report is submitted to the NRC within 48 hours after transformer inoperability pursuant to Section 5.9.3 of the Technical Specifications. The special report will outline the plans for restoration of transformer operability and the additional precautions to be taken while the transformer is out of service.
- c. Both house service transformers T1A-3 and T1A-4 (4.16kV) may be inoperable for up to 72 hours provided the operability of both diesel generators is immediately verified. The loss of the 161kV incoming line renders both transformers inoperable. The NRC Operations Center shall be notified by telephone within 4 hours after transformer inoperability. Continued operation beyond 72 hours is permissible, provided a special report is submitted to the NRC within 48 hours after both transformers' inoperability pursuant to Section 5.9.3 of the Technical Specifications. The special report will outline the plans for restoration of the transformers' operability and the additional precautions to be taken while the transformers are out of service.

## 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 days (total for both) during any month, provided there are no inoperable required engineered safeguards components associated with the operable diesel generator. 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. If the inventory of diesel fuel oil in FO-1 is less than 16,000 gallons and/or FO-10 is less than 10,000 gallons, but the combined inventory in FO-1 and FO-10 is greater than a 6 day supply (23,350 gallons), then restore the required inventory within 48 hours.

## TECHNICAL SPECIFICATIONS

No changes to this page, included for reference only

### 2.0 LIMITING CONDITIONS FOR OPERATION

#### 2.7 Electrical Systems (Continued)

- l. Island buses 1B3A-4A, 1B3B-4B, and 1B3C-4C 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(es).
- m. Either one of the 125V d-c buses No. 1 or 2 (Panels EE-8F or EE-8G) may be inoperable for up to 8 hours.
- n. Either one of the 125V d-c distribution panels AI-41A or AI-41B may be inoperable for up to 8 hours.
- o. One inverter (A, B, C, or D) may be inoperable for up to 24 hours provided the reactor protective and engineered safeguards systems instrument channels supplied by the remaining three inverters are all operable and the 120V a-c instrument bus associated with the inoperable inverter is powered from its bypass source.

#### Basis

The electrical system equipment is arranged so that no single failure can inactivate enough engineered safeguards to jeopardize the plant safety. The 480 V safeguards are arranged on nine bus sections. The 4.16 kV safeguards are supplied from two buses.

The normal source of auxiliary power with the plant at power for the safeguards buses is from the house service power transformers being fed from the 161 Kv incoming line with on-site emergency power from either one of two diesel generators and off-site standby power via the unit auxiliary transformers.<sup>(1)</sup> The loss of the 161kV incoming line renders the house service transformers (T1A-3 and T1A-4) inoperable in that the transformers cannot supply power to the 4.16kV safeguards buses 1A3 and 1A4. Inoperability of the house service transformer(s) or loss of the 161kV incoming line is not reportable pursuant to 10 CFR 50.72 criteria; however, the NRC will be promptly notified of these events via the NRC Operations Center.

The two emergency diesel generators on site do not require outside power for start up or operation.

Upon loss of normal and standby power sources, the 4.16 Kv buses 1A3 and 1A4 are energized from the diesel generators. Bus load shedding, transfer to the diesel generator and pickup of critical loads are carried out automatically.<sup>(2)</sup>

When the turbine generator is out of service for an extended period, the generator can be isolated by opening motor operated disconnect switch DS-T1 in the bus between the generator and the main transformer, allowing the main transformer and the unit auxiliary power transformers (T1A-1 and T1A-2) to be returned to service.<sup>(3)</sup> The auxiliary power transformers are not considered inoperable during these normal plant startup/shutdown realignments.

## TECHNICAL SPECIFICATIONS

### 2.0 LIMITING CONDITIONS FOR OPERATION

#### 2.7 Electrical Systems (Continued)

The time allowed to repair an inoperable inverter is based upon engineering judgement, taking into consideration the time required to repair an inverter and the additional risk to which the unit is exposed because of the inverter inoperability. In the event of inverter failure, the load on the inverter is automatically transferred to its safety related bypass source. The associated 120 V a-c instrument bus is considered OPERABLE when it is being powered from its bypass source and during the short time it takes to manually or automatically transfer between sources.

Equipment served by 4.16 kV and 480 V auxiliary buses and MCC's is arranged so that loss of an entire 4.16 kV bus does not compromise safety of the plant during DBA conditions. For example, if 4.16 kV bus 1A3 is lost, two raw water pumps, one low pressure safety injection pump, two high pressure safety injection pumps, one auxiliary feedwater pump, two component cooling water pumps, one containment spray pump and two containment air fans are lost. This leaves two raw water pumps, one low pressure safety injection pump, one high pressure safety injection pump, one component cooling water pump, two containment spray pumps and two containment air fans which is more than sufficient to control containment pressure below the design value during the DBA.

Each diesel generator has sufficient capacity to start and run at design load required by engineered safety features equipment. The safety features operated from one diesel generator can adequately cool the core for any loss of coolant accident and also maintain the containment pressure within the design value. The engine base tank capacity of 550 gallons on each diesel provides 3 hours running time (worst case loading) before transfer of fuel oil from the 18,000 gallon capacity emergency diesel generator fuel oil storage tank FO-1 is mandatory. Two fuel oil transfer pumps per diesel, with each being powered from the associated diesel, are available for transferring fuel oil from FO-1 to the day tanks. The minimum diesel fuel oil inventory available to the diesel generators from the emergency diesel generator fuel oil storage tank FO-1 is maintained to assure the operation of either: 1) one diesel generator at full rated design capacity for at least 3.6 days, or 2) one diesel generator at post accident load conditions for a minimum of 4.5 days.

A minimum amount of diesel fuel oil is reserved in the auxiliary boiler fuel oil storage tank FO-10 for transfer to the emergency diesel generator fuel oil storage tank in the event of an emergency to extend the fuel supply for diesel generator operation to 7 days. Methods of transfer of the fuel oil from this tank to FO-1 have been established and procedures have been developed so that the transfer can be made in a timely manner without adversely impacting diesel generator operation. Therefore, a minimum diesel fuel oil inventory available to the diesel generators from the total on-site diesel fuel oil storage capacity is maintained to assure the operation of one diesel generator at the required post accident loads for 7 days. The fuel inventory is allowed below the 7 day supply, but above a 6 day supply, for a period of 48 hours. This restriction allows sufficient time for obtaining the requisite replacement volume and performing the analyses required prior to addition of fuel oil to the tank. A period of 48 hours is considered sufficient to complete restoration of the required level prior to initiating a