



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

OMAHA PUBLIC POWER DISTRICT

DOCKET NO. 50-285

FORT CALHOUN STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 162
License No. DPR-40

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Omaha Public Power District (the licensee) dated September 17, 1993, 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 license 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, Facility Operating License No. DPR-40 is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B. of Facility Operating License No. DPR-40 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 162, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective 120-days from its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

William D. Beckner

William D. Beckner, Director
Project Directorate IV-1
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 29, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 162

FACILITY OPERATING LICENSE NO. DPR-40

DOCKET NO. 50-285

Revise Appendix "A" Technical Specifications as indicated below. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

REMOVE PAGES

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INSERT PAGES

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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 TIA-1 or -2 (4,160 V).
- b. House service transformers TIA-3 and 4 (4,160 V).
- c. 4,160 V engineered safety feature buses 1A3 and 1A4.
- d. 4,160 V/480 V Transformers TIB-3A, TIB-3B, TIB-3C, TIB-4A, TIB-4B, TIB-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-40-A, B, C and D).
- j. 120V a-c instrument panels AI-42A and AI-42B.
- 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 storage system containing a minimum volume of 16,000 gallons of diesel fuel in FO-1, and an additional 8,000 gallons of diesel fuel in FO-10.

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 inventory of diesel fuel in FO-1 is less than 16,000 gallons and/or FO-10 is less than 8,000 gallons, but the combined inventory in FO-1 and FO-10 is greater than a 6 day supply (21,350 gallons), then restore the required inventory within 48 hours.

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. Either one of the 120V a-c instrument panels AI-42A or AI-42B may be inoperable for up to 8 hours.

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.⁽¹⁾ 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.⁽²⁾

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.⁽³⁾ The auxiliary power transformers are not considered inoperable during these normal plant startup/shutdown realignments.

2.0 LIMITING CONDITIONS FOR OPERATION

2.7 Electrical Systems (Continued)

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 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 plant shutdown as required by Specification 2.7(2). This period is acceptable based on the remaining capacity (more than 6 days), the fact that procedures are in place to obtain replenishment, and the low probability of an event during this brief period.

Additional supplies of diesel fuel oil are available in the Omaha area and from nearby terminals. Ample facilities exist to assure deliveries to the site within 24 hours.

2.0 LIMITING CONDITIONS FOR OPERATION

2.7 Electrical Systems (Continued)

One battery charger on each battery shall be operating so that the batteries will always be at full charge; this ensures that adequate d-c power will be available for all emergency uses. Each battery has one battery charger permanently connected with a third charger capable of being connected to either battery bus. The chargers are each rated for 400 amperes at 130 volts. Following a DBA the batteries and the chargers will handle all required loads. Each of the reactor protective channels instrumentation channels is supplied by one of the a-c instrument buses. The removal of one of the a-c instrument buses is permitted as the 2-of-4 logic may be manually changed to a 2-of-3 logic without compromising safety.

The engineered safeguards instrument channels use a-c instrument buses (one redundant bus for each channel) and d-c buses (one redundant bus for each logic circuit). The removal of one of the a-c instrument buses is permitted as the two of four logic automatically becomes a two of three logic.

Required engineered safeguards components, as described in Specification 2.7(2), refers to components required to be operable by other Limiting Conditions for Operation within these Technical Specifications. If no other LCO requires a particular ESF component to be operable, then its redundant component is also not required to be operable due to this specification. As an example, Specification 2.3 requires that safety injection pumps be operable prior to the reactor being made critical, and Specification 2.7 applies when the RCS is above 300°F. If the RCS is above 300°F but the reactor is not critical, then no safety injection pumps are required to be operable.

References

- (1) USAR, Section 8.3.1.2
- (2) USAR, Section 8.4.1
- (3) USAR, Section 8.2.2