



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

OMAHA PUBLIC POWER DISTRICT

DOCKET NO. 50-285

FORT CALHOUN STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 147
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 November 11, 1991, as supplemented June 25, 1992, 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. 147, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



John T. Larkins, 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: August 3, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 147

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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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 coolant shall not be heated 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 instrumen. buses A, B, C, and D (Panels AI-40A, 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. Both diesel generators, with a full engine base day tank and a minimum of 16,000 gallons of fuel in the underground storage tank.

2.0 LIMITING CONDITIONS FOR OPERATION

2.7 Electrical Systems (Continued)

(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.

2.0 LIMITING CONDITIONS FOR OPERATION

2.7 Electrical Systems (Continued)

- d. Either one of the 4.16 kV 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 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 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 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 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 the other diesel generator is started to verify operability, shutdown and controls are left in the automatic mode and there are no inoperable engineered safeguards components associated with the operable diesel generator.
- k. Island buses 1B3A-4A, 1B3B-4B, and 1B3C-4C may be inoperable for up to 8 hours provided there are no inoperable safeguards components which are redundant to components on the inoperable bus(es).
- l. 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.

2.0 LIMITING CONDITIONS FOR OPERATION

2.7 Electrical Systems (Continued)

- m. Either one of the 125V d-c distribution panels AI-41A or AI-41B may be inoperable for up to 8 hours.
- n. 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.

The total fuel oil engine base tank capacity of 550 gallons on each diesel is considered more than adequate since approximately 5 hours running time (worse case loading) is available before transfer of fuel oil from the 18,000 gallon underground storage tank is mandatory. Two 13 gpm diesel oil transfer pumps per diesel, with each being fed from the diesel it is associated with, are available for transferring fuel oil from the storage tank to the day tanks. The 16,000 gallons in the storage tank in addition to the day tanks will provide diesel operation under the required loading conditions for a minimum of 7 days should only one diesel be in operation. It is considered incredible not to be able to secure fuel oil from one of several sources in the vicinity of the Omaha in less than three days under the worst of weather conditions.

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 charger will handle all required loads. Each of the reactor protective system 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.

References

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

TABLE 2-10

POST-ACCIDENT MONITORING INSTRUMENTATION OPERATING LIMITS

	<u>Instrument</u>	<u>Minimum Operable Channels</u>	<u>Action</u>
1.	Containment Wide Range Radiation Monitors (RM-091A & B)	2	(a)
2.	Wide Range Noble Gas Stack Monitor		
	RM-063L (Noble Gas Portion Only)	1	(a)
	RM-063M (Noble Gas Portion Only)	1	(a)
	RM-063H (Noble Gas Portion Only)	1	(a)
3.	Main Steam Line Radiation Monitor (RM-064)	1	(a)
4.	Containment Hydrogen Monitor (VA-81A & B)	2	(b)(c)
5.	Containment Water Level		
	Narrow Range (LT-599 & LT-600)	1	(d)
	Wide Range (LT-387 & LT-388)	2	(b)(c)
6.	Containment Wide Range Pressure	2	(b)(c)
7.	Reactor Coolant System Subcooled Margin Monitor	2	(e)(f)
8.	Core Exit Thermocouples (i)	2/Core Quadrant	(g)(h)
9.	Reactor Vessel Level (HJTC) (j)	2	(k)(l)

(a) With the number of OPERABLE channels less than required by the minimum channels operable requirements, initiate the pre-planned alternate method of monitoring the appropriate parameter(s) within 72 hours, and

1. either restore the inoperable channel(s) to OPERABLE status within 7 days of the event, or
2. prepare and submit a special report to the Commission pursuant to specification 5.9.3 within 14 days following the event outlining the action taken, the cause of the inoperability, and the plans and schedules for restoring the system to OPERABLE status.

(b) With one channel inoperable, restore the inoperable monitor to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours.

TABLE 2-10 (Continued)

POST-ACCIDENT MONITORING INSTRUMENTATION OPERATING LIMITS

- (c) With both channels inoperable, restore at least one channel to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours.
- (d) With the number of OPERABLE channels less than required by the minimum channels operable requirements, operation may continue until the next cold shutdown, at which time the required channel(s) shall be made operable.
- (e) With the number of OPERABLE channels one less than the minimum channels operable requirement, either
 1. restore the inoperable channel(s) to OPERABLE status within 7 days, or
 2. initiate an alternate means of monitoring the subcooled margin, or
 3. be in at least HOT SHUTDOWN within the next 12 hours.
- (f) With both channels inoperable,
 1. restore the inoperable channel(s) to OPERABLE status within 48 hours, or
 2. initiate an alternate means of monitoring the subcooled margin, or
 3. be in at least HOT SHUTDOWN within the next 12 hours.
- (g) With the number of OPERABLE Core Exit Thermocouples per core quadrant one less than the minimum operable requirement, either restore the inoperable Core Exit Thermocouple(s) to OPERABLE status within 7 days, or be in at least HOT SHUTDOWN within the next 12 hours.
- (h) With all Core Exit Thermocouples within a core quadrant inoperable, either restore the inoperable Core Exit Thermocouple(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours.
- (i) With the number of OPERABLE Core Exit Thermocouples less than the four per core quadrant required by NUREG-0737, either restore to at least four OPERABLE Core Exit Thermocouples per core quadrant within seven days of discovery of loss of operability, or prepare and submit a special report to the Commission pursuant to Specification 5.9.3 within 30 days, outlining the actions taken, the cause of the inoperability and the plans for restoring the inoperable Core Exit Thermocouple(s) to OPERABLE status.
- (j) A channel is eight sensors in a probe. A channel is OPERABLE if four or more sensors, two or more in the upper four and two or more in the lower four, are OPERABLE.

5.9.3 Special Reports

Special reports shall be submitted to the Regional Administrator of the appropriate NRC Regional Office within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification where appropriate:

- a. In-service inspection report, reference 3.3.
- b. Tendon surveillance, reference 3.5.
- c. Containment structural tests, reference 3.5.
- d. Special maintenance reports.
- e. Containment leak rate tests, reference 3.5.
- f. Radioactive effluent releases, reference 2.9.
- g. Materials radiation surveillance specimens reports, reference 3.3.
- h. Fire protection equipment outage, reference 2.19.
- i. Post-accident monitoring instrumentation, reference 2.21
- j. Electrical systems, reference 2.7(2).

5.9.4 Unique Reporting Requirements

a. Radioactive Effluent Release Report

A report covering the operation of the Fort Calhoun Station during the previous six months shall be submitted within 60 days after January 1 and July 1 of each year per the requirements of 10 CFR 50.36a.

The radioactive effluent release report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the plant as outlined in Regulatory Guide 1.21, Revision 1.

The radioactive effluent release report shall include a summary of the meteorological conditions concurrent with the release of gaseous effluents during each quarter as outlined in Regulatory Guide 1.21, Revision 1.

The radioactive effluent release report shall include an assessment of radiation doses from the radioactive liquid and gaseous effluents released from the unit during each calendar quarter as outlined in Regulatory Guide 1.21, Revision 1. In addition, the unrestricted area boundary maximum noble gas gamma air and beta air doses shall be evaluated. The meteorological conditions concurrent with the