



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. 173
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 August 4, 1995, as supplemented by letter dated January 22, 1996, 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.

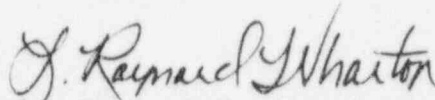
2. Accordingly, Facility Operating License No. DPR-40 is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B. of Facility Operating License No. DPR-40 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 173, 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



L. Raynard Wharton, Project Manager
Project Directorate IV-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: April 24, 1996

ATTACHMENT TO LICENSE AMENDMENT NO. 173

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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2-66a
2-68
2-68b
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INSERT PAGES

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DEFINITIONS

PROTECTIVE SYSTEMS (Continued)

Engineered Safety Feature Logic⁽²⁾

The system which utilizes relay contact outputs from individual instrument channels to provide a dual channel signal to independently initiate the actuation of the engineered safety feature equipment. Two logic subsystems, termed A and B, are provided; each subsystem is composed of four channels wired to provide independent safety feature initiation signals on a 2-out-of-4 basis.

Degree of Redundancy

The difference between the number of operable channels and the number of channels which when tripped will cause an automatic system trip.

INSTRUMENTATION SURVEILLANCE

Channel Check

A qualitative determination of acceptable operability by observation of channel behavior during normal plant operation. This determination shall where feasible, include comparison of the channel with other independent channels measuring the same variable.

Channel Functional Test

Injection of a simulated signal into the channel to verify that it is operable, including any alarm and/or trip initiating action.

Channel Calibration

Adjustment of channel output such that it responds, with acceptable range and accuracy, to known values of the parameter which the channel measures. Calibration shall encompass the entire channel, including equipment action, alarms, interlocks or trip, and shall be deemed to include the channel functional test.

LIMITING CONDITIONS FOR OPERATION
Instrumentation and Control Systems (Continued)

- (5) In the event that any of the following Emergency Auxiliary Feedwater Panel instrumentation or control circuits become inoperable, either restore the inoperable component(s) to operable status within seven days, or be in hot shutdown within the next twelve hours. This specification is applicable in Modes 1 and 2.

Steam Generator Level, Wide Range (AI-179)
Steam Generator Level, Narrow Range (AI-179)
Steam Generator Pressure (AI-179)
Pressurizer Pressure (AI-179)

Basis

During plant operation, the complete instrumentation systems will normally be in service. Reactor safety is provided by the reactor protection system, which automatically initiates appropriate action to prevent exceeding established limits. Safety is not compromised, however, by continuing operating with certain instrumentation channels out of service since provisions were made for this in the plant design. This specification outlines limiting conditions for operation necessary to preserve the effectiveness of the reactor control and protection system when any one or more of the channels are out of service.

All reactor protection and almost all engineered safety feature channels are supplied with sufficient redundancy to provide the capability for channel test at power, except for backup channels such as derived circuits in engineered safeguards control system.

When one of the four channels is taken out of service for maintenance, the protective system logic can be changed to a two-out-of-three coincidence for a reactor trip by bypassing the removed channel. If the bypass is not effected, the out-of-service channel (Power Removed) assumes a tripped condition (except high rate-of-change of power, high power level and high pressurizer pressure),⁽¹⁾ which results in a one-out-of-three channel logic. If in the 2 of 4 logic system of the reactor protective system one channel is bypassed and a second channel manually placed in a tripped condition, the resulting logic is 1 of 2. At rated power, the minimum operable high-power level channel is 3 in order to provide adequate power tilt detection. If only 2 channels are operable, the reactor power level is reduced to 70% rated power which protects the reactor from possibly exceeding design peaking factors due to undetected flux tilts and from exceeding dropped CEA peaking factors.

All engineered safety features are initiated by 2-out-of-4 logic matrices except containment high radiation which operates on a 1-out-of-2 basis. The number of installed channels for Containment Radiation High Signal is two. The containment radiation high signal isolates the containment pressure relief, air sample and purge system valves.

References

- (1) USAR, Section 7.2.7.1

TABLE 2-3

Instrument Operating Requirements for Engineered Safety Features

<u>No.</u>	<u>Functional Unit</u>	<u>Minimum Operable Channels</u>	<u>Minimum Degree of Redundancy</u>	<u>Permissible Bypass Condition</u>	<u>Test, Maintenance and Inoperable Bypass</u>
1	<u>Safety Injection</u>				
A	Manual	1	None	None	N/A
B	High Containment Pressure				
	A	2 ^{(a)(d)}	1	During Leak Test	(f)
	B	2 ^{(a)(d)}	1		
C	Pressurizer Low/Low Pressure				
	A	2 ^{(a)(d)}	1	Reactor Coolant Pressure Less Than 1700 psia ^(b)	(f)
	B	2 ^{(a)(d)}	1		
2	<u>Containment Spray</u>				
A	Manual	1	None	None	N/A
B	High Containment Pressure				
	A	2 ^{(a)(c)(d)}	1	During Leak Test	(f)
	B	2 ^{(a)(c)(d)}	1		
C	Pressurizer Low/Low				
	A	2 ^{(a)(c)(d)}	1	Reactor Coolant Pressure Less Than 1700 psia ^(b)	(f)
	B	2 ^{(a)(c)(d)}	1		
3	<u>Recirculation</u>				
A	Manual	1	None	None	N/A
B	SIRW Tank Low Level				
	A	2 ^{(a)(k)}	1	None	(j)
	B	2 ^{(a)(k)}	1		
4	<u>Emergency Off-Site Power Trip</u>				
A	Manual	1 ^(e)	None	None	N/A
B	Emergency Bus Low Voltage (Each Bus)				
	-Loss of Voltage	2 ^(d)	1	Reactor Coolant Temperature Less Than 300°F	(f)
	-Degraded Voltage	2 ^{(a)(d)}	1		

TABLE 2-3
(Continued)

- i If the channel becomes inoperable, that channel must be placed in the bypassed condition within eight hours from time of discovery of loss of operability. If the channel is not returned to operable status within 48 hours from time of discovery of loss of operability, one of the eight channels may continue to be placed in the bypassed condition provided the Plant Review Committee has reviewed and documented the judgment concerning prolonged operation in bypass of the defective channel. The channel shall be returned to operable status no later than during the next cold shutdown. If one of the four channels on one steam generator is in prolonged bypass and a channel on the other steam generator becomes inoperable, the second inoperable channel must be placed in bypass within eight hours from time of discovery of loss of operability. If one of the inoperable channels is not returned to operable status within seven days from the time of discovery of the second loss of operability, the unit must be placed in hot shutdown within the following 12 hours.

- j If one channel becomes inoperable, that channel must be placed in the bypassed condition within eight hours from time of discovery of loss of operability. If the channel is not returned to operable status within 48 hours from time of discovery of loss of operability, one of the eight channels may continue to be placed in the bypassed condition provided the Plant Review Committee has reviewed and documented the judgment concerning prolonged operation in bypass of the defective channel. The channel shall be returned to operable status no later than during the next cold shutdown. If a channel is in prolonged bypass and a channel on the opposite train becomes inoperable, the second inoperable channel must be placed in bypass within eight hours from time of discovery of loss of operability. If one of the inoperable channels is not returned to operable status within seven days from the time of discovery of the second loss of operability, the unit must be placed in hot shutdown within the following 12 hours.

- k If minimum operable channel conditions are reached, both inoperable channels must be placed in the bypassed condition within eight hours from time of discovery of loss of operability. If one of the inoperable channels is not returned to operable status within 48 hours from time of discovery of the second loss of operability, a unit shutdown must be initiated (see Specification 2.15(2)).

TABLE 2-4

INSTRUMENT OPERATING CONDITIONS FOR ISOLATION FUNCTIONS

<u>No.</u>	<u>Functional Unit</u>	<u>Minimum Operable Channels</u>	<u>Minimum Degree of Redundancy</u>	<u>Permissible Bypass Condition</u>	<u>Test, Maintenance and Inoperable Bypass</u>
1	<u>Containment Isolation</u>				
A	Manual	1	None	None	N/A
B	Containment High Pressure	2 ^{(a)(e)}	1	During Leak Test	(f)
	B	2 ^{(a)(e)}	1		
C	Pressurizer				
	Low/Low	2 ^{(a)(e)}	1	Reactor Coolant Pressure Less Than 1700 psia ^(b)	(f)
	B	2 ^{(a)(e)}	1		
2	<u>Steam Generator Isolation</u>				
A	Manual	1	None	None	N/A
B	Steam Generator Isolation	1	None	None	N/A
	(i) Steam Generator Low Pressure	2/Steam Gen ^(e)	1/Steam Gen	Steam Generator Pressure Less Than 600 psia ^(c)	(f)
	B	2/Steam Gen ^(e)	1/Steam Gen		
	(ii) Containment High Pressure	2 ^{(a)(e)}	1	During Leak Test	(f)
	B	2 ^{(a)(e)}	1		
3	<u>Ventilation Isolation</u>				
A	Manual	1	None	None	N/A
B	Containment High Radiation	1 ^(d)	None	If Containment Relief and Purge Valves Are Closed	(f)
	B	1 ^(d)	None		

a A and B circuits each have 4 channels.

b Auto removal of bypass prior to exceeding 1700 psia.

c Auto removal of bypass prior to exceeding 600 psia.

TABLE 2-4

(Continued)

- d A and B trains are both actuated by either the Containment or Auxiliary Building Exhaust Stack initiating channels. The number of installed channels for Containment Radiation High Signal is two for purposes of Specification 2.15(1).
- e If minimum operable channel conditions are reached, one inoperable channel must be placed in the tripped condition within eight hours from the time of discovery of loss of operability. The remaining inoperable channel may be bypassed for 48 hours from the time of discovery of loss of operability and, if an inoperable channel is not returned to operable status within this time frame, a unit shutdown must be initiated (see Specification 2.15(2)).
- f If one channel becomes inoperable, that channel must be placed in the tripped or bypassed condition within eight hours from the time of discovery of loss of operability. If bypassed and that channel is not returned to operable status within 48 hours from the time of discovery of loss of operability, that channel must be placed in the tripped condition within the following eight hours. (See Specification 2.15(1) and exception associated with maintenance.)

TABLE 3-2 (Continued)

MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND TESTING OF
ENGINEERED SAFETY FEATURES, INSTRUMENTATION AND CONTROLS

<u>Channel Description</u>	<u>Surveillance Function</u>	<u>Frequency</u>	<u>Surveillance Method</u>
4. Containment Pressure High Signal	a. Calibrate	R	a. Known pressure applied to sensors and CPHS actuation logic verified.
	b. Test	Q	b. Pressure switch operation simulated one circuit at a time.
5. Containment Spray Logic	a. Test	Q	a. Simulation of PPLS and CPHS 2/4 logic using built-in testing system. Both "standby power" and "no standby power" circuits will be tested for A and B channels. Test will verify functioning of initiation circuits of all equipment normally operated by safety feature actuation signals.
	b. Test	R	b. Complete automatic test initiated sensor operation (Item 1(b) and 4(b)) and including all normal automatic operations.
6. Containment Radiation High Signal ⁽²⁾	a. Check	D	a. CHANNEL CHECK

TABLE 3-2 (Continued)

MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND TESTING OF
ENGINEERED SAFETY FEATURES, INSTRUMENTATION AND CONTROLS

<u>Channel Description</u>	<u>Surveillance Function</u>	<u>Frequency</u>	<u>Surveillance Method</u>
6. (continued)	b. Test	Q	b. CHANNEL FUNCTIONAL TEST
	c. Calibrate	R	c. Secondary and Electronic Calibration performed at refueling frequency. Primary calibration performed with exposure to radioactive sources only when required by the secondary and electronic calibration.
7. Manual Safety Injection Initiation	a. Test	R	a. Manual initiation.
8. Manual Containment Isolation Initiation	a. Test	R	a. Manual initiation.
	b. Check	R	b. Observe isolation valves closure.
9. Manual Initiation Containment Spray	a. Test	R	a. Manual switch operation; pumps and valves tested separately.
10. Automatic Load Sequencers	a. Test	Q	a. Proper operation will be verified during safety feature actuation test of Item 3(a) above.
11. Diesel Testing	See Technical Specification 3.7		