

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. 108 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 July 17, 1986 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 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.

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- 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. 108, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

"Jose" G. Calo

Jose A. Calvo, Director Project Directorate - IV Division of Reactor Projects - III, IV, V and Special Projects

Attachment: Changes to the Technical Specifications

Date of Issuance: April 28, 1987

ATTACHMENT TO LICENSE AMENDMENT NO. 108

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	Insert Pages
2-61	2-61
2-62	2-62
2-63	2-63
2-64	2-64
2-65	2-65
2-69	2-69
2-69a	2-69a

2.0 LIMITING CONDITIONS FOR OPERATION

2.14 Engineered Safety Features System Initiation Instrumentation Settings

Applicability

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Applies to the engineered safety features system initiation instrumentation settings.

Objective

To provide for automatic initiation of the engineered safety features in the event that principal process variable limits are exceeded.

Specifications

The engineered safety features system initiation instrumentation setting limits shall be as stated in Table 2-1.

Basis

(1) High Containment Pressure

The basis for the 5 psig set point for the high pressure signal is to establish a setting which would be exceeded quickly in the event of a DBA, cover a spectrum of break sizes, and yet be far enough above normal operation maximum internal pressure to prevent spurious initiation.

High containment pressure initiates the steam generator isolation signal which will close the main steam isolation and bypass valves and the main feedwater isolation and bypass valves.

(2) Pressurizer Low Pressure

The pressurizer low pressure safety injection signal is a diverse signal to the high containment pressure safety injection signal. The 1600 psia setting includes an uncertainty of \pm 22 psia and is the setting used in the safety analysis.(1)

(3) Containment High Radiation (Air Monitoring)

The containment air monitoring system comprises a moving paper filter particle monitor (channel RM-050) and a sample chamber gas monitor (channel RM-051) installed in a common housing.(2)

Optionally, the sampling point for channels RM-050 and RM-051 can be switched from the containment to the ventilation discharge duct.

The ventilation discharge monitoring system consists of a moving paper filter particle monitor (RM-061) and a sample chamber gas monitor (RM-062) installed in a common housing. An iodine monitor for I-131 (RM-060) also monitors these releases.

2.0 LIMITING CONDITIONS FOR OPERATIONS

- 2.14 Engineered Safety Features System Initiation Instrumentation Settings (Continued)
 - (3) Containment High Radiation (Air Monitoring) (Continued)

The setpoints for the isolation function will be calculated in accordance with the ODCM.

Each channel is supplied from a separate instrument A.C. bus and each auxiliary relay requires power to operate. On failure of a single A.C. supply, the A and B matrices will assume a one-out-of-two logic.

(4) Low Steam Generator Pressure

A signal is provided upon sensing a low pressure in a steam generator to close the main steam isolation valves in order to minimize the temperature reduction in the reactor coolant system with resultant loss of water level and possible addition of reactivity. The setting of 500 psia includes a +22 psi uncertainty and was the setting used in the safety analysis.(3)

Closure of the MSIVs (and the bypass valves, along with main feedwater isolation and bypass valves) is accomplished by the steam generator isolation signal which is a logical combination of low steam generator pressure or high containment pressure.

As part of the AFW actuation logic, a separate signal is provided to terminate flow to a steam generator upon sensing a low pressure in that steam generator if the other steam generator pressure is greater than the pressure setting. This is done to minimize the temperature reduction in the reactor coolant system in the event of a main steamline break. The setting of 466.7 psia includes a +31.7 psi uncertainty; therefore, a setting of 435 psia was used in the safety analysis.

(5) SIRW Tank Low Level

Level switches are provided on the SIRW tank to actuate the valves in the safety injection pump suction lines in such a manner so as to switch the water supply from the SIRW tank to the containment sump for a recirculation mode of operation after a period of approximately 24 minutes following a safety injection signal. The switchover point of 16 inches above tank bottom is set to prevent the pumps from running dry during the 10 seconds required to stroke the valves and to hold in reserve approximately 28,000 gallons of at least 1800 ppm borated water. The FSAR loss of coolant accident analysis(4) assumed the recirculation started when the minimum usable volume of 283,000 gallons had been pumped from the tank.

- 2.0 LIMITING CONDITIONS FOR OPERATIONS
- 2.14 Engineered Safety Features System Initiation Instrumentation Settings (Continued)
 - (6) Low Steam Generator Water Level

As part of the AFW actuation logic, a signal is provided to initiate AFW flow to one or two steam generators upon sensing a low water level in the steam generator(s) if the absolute steam generator pressure criteria are satisfied. This function ensures adequate steam generator water level is maintained in the event of a failure to deliver main feedwater to either steam generator. The setting of 28.2% of wide range tap span includes a +13.2% uncertainty; therefore, a setting of 15% of wide range tap span was used in the safety analysis.

(7) High Steam Generator Delta Pressure

As part of the AFW logic, a high steam generator differential pressure signal is generated to provide AFW to the higher pressure steam generator with a concurrent low level signal if both steam generator pressures are less than 466.7 psia. If the differential pressure between steam generators is less than the setting, neither steam generator is supplied with AFW in the presence of a low level signal. The setting of 119.7 psid includes a -15.3 psi uncertainty; therefore, a setting of 135 psid was used in the AFW safety analysis.

References

- (1) USAR, Section 14.1.3
- (2) USAR, Section 11.2.3.2
- (3) USAR, Section 14.12
- (4) USAR, Section 14.15
- (5) USAR, Section 7.4.6
- (6) USAR, Section 7.5.2.5
- (7) USAR, Section 14.4.1

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Engineered Safety Features System Initiat	ion Instrument	Setting	Limits
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	Functional Unit	Functional Unit Channel	
1.	High Containment Pressume	 a. Safety Injection (3) b. Containment Spray (3) c. Containment Isolation d. Containment Air Cooler DBA Mode e. Steam Generator Isolation 	< 5 psig
2.	Pressurizer Low/Low Pressure	 a. Safety Injection (3) b. Containment Spray (3) c. Containment Isolation d. Containment Air Cooler DBA Mode 	≥ 1600 psia ⁽¹⁾
3.	Containment High Radiation	Containment Ventilation Isolation	In accordance with the Offsite Dose Calculational Manual
4.	Low Steam Generator Pressure	a. Steam Line Isolationb. Auxiliary Feedwater Actuation	> 500 psia (2) > 466.7 psia
5.	SIRW Low Level Switches	Recirculation Actuation	16 inches +0, -2 in. above tank bottom
6.	4.16 KV Emergency Bus Low Voltage	a. Loss of Voltage	(2995.2 + 104) volts $\leq 5.9(4)^{20.8}_{seconds}$ Trip
		 b. Degraded Voltage i) Bus 1A3 Side 	> 3825.52 volts (4.8 ± .5) seconds

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2.0 LIMITING CONDITIONS FOR OPERATION

2.15 Instrumentation and Control Systems

Applicability

Applies to plant instrumentation systems.

Objective

To delineate the conditions of the plant instrumentation and control systems necessary to assure reactor safety.

Specifications

The operability, permissible bypass, and Test Maintenance and Inoperable bypass specifications of the plant instrument and control systems shall be in accordance with Tables 2-2 through 2-5.

- (1) In the event the number of channels of a particular system in service falls one below the total number of installed channels, the inoperable channel shall be placed in either the bypassed or tripped condition within one hour if the channel is equipped with a key operated bypass switch, and eight hours if jumpers or blocks must be installed in the control circuitry. The inoperable channel may be bypassed for up to 48 hours from time of discovering loss of operability; however, if the inoperability is determined to be the result of malfunctioning RTDs or nuclear detectors supplying signals to the high power level. thermal margin/low pressurizer pressure, and axial power distribution channels, these channels may be bypassed for up to 7 days from time of discovering loss of operability. If the inoperable channel is not restored to operable status after the allowable time for bypass, it shall be placed in the tripped position or, in the case of malfunctioning RTDs or linear power nuclear detectors, the reactor shall be placed in hot shutdown within 12 hours. If active maintenance and/or surveillance testing is being performed to return a channel to active service or to establish operability, the channel may be bypassed during the period of active maintenance and/or surveillance testing. This specification applies to the high rate trip-wide range log channel when the plant is at or above 10^{-4} % power and is operating below 15% of rated power.
- (2) In the event the number of channels of a particular system in service falls to the limits given in the column entitled "Minimum Operable Channels", one of the inoperable channels must be placed in the tripped position or low level actuation permissive position for the auxiliary feedwater system within one hour, if the channel is equipped with a bypass switch, and within eight hours if jumpers or blocks are required. If the channel has not been restored to operable status after 48 hours from time of discovering loss of operability, the reactor shall be placed in a hot shutdown condition within the following 12 hours; however, operation can continue without containment

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Amendment No. 8, 20, 84, 88, 88, 108

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TABLE 2-4

INSTRUMENT OPERATING CONDITIONS FOR ISOLATION FUNCTIONS

No.	Functional Unit	Minimum Operable <u>Channels</u>	Minimum Degree of <u>Redundancy</u>	Permissible a Bypass Ino Condition Byp	ntenance nd perable ass	
1	Containment Isolation					
A	Manual	1	None	None	N/A	
B	Containment High Pressure A B	2(a)(e) 2(a)(e)	1	During Leak Test	(f)	
	Pressurizer Low/Low A B	2(a)(e) 2(a)(e)	1	Reactor Coolant Pressure Less Than 1700 psia(b)	(f)	
2	Steam Generator Isolatio	m				
A	Manual	1	None	None	N/A	
R	Steam Generator Isolation	on 1	None	None	N/A	
	(i) Steam Generator Low Pressure A	2/Steam Gen (e)	1/Steam Gen	Steam Generator Pressure Less Tha 550 psia(C)	(f) n	
	В	2/Steam Gen (e)	1/Steam Gen			
	(ii) Containment High Pressure A B	2(a)(e) 2(a)(e)	1	During Leak Test	(f)	
3	Ventilation Isolation					
A	Manual	1	None	None	N/A	
B	Containment High Radiation A B	2(d) 2(d)	None None	If Containment Ventilation Isolation Valves Are Closed	(f)	

a A and B circuits each have 4 channels.

b Auto removal of bypass above 1700 psia.

c Auto removal of bypass above 550 psia.

Amendment No. 88, 93, 108

(Continued)

- d A and B circuits are both actuated by any one of the five VIAS initiating channels; RM-050, RM-051, RM-060, RM-061, or RM-062; however, only RM-050 and RM-051 are required for containment ventilation isolation.
- 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.)

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