Bases Continued:

backed up by the rod worth minimizer. Worth of individual rods is very low in a uniform rod pattern. Thus, of all possible sources of reactivity input, uniform control rod withdrawal is the most probable cause of significant power rise. Because the flux distribution associated with uniform rod withdrawals does not involve high local peaks, and because several rods must be moved to change power by a significant percentage of rated power, the rate of power rise is very slow. Generally, the heat flux is in near equilibrium with the fission rate. In an assumed uniform rod withdrawal approach to the scram level, the rate of power rise is no more than 5% of rated power per minute, and the IRM system would be more than adequate to assure a scram before the power could exceed the safety limit. The IRM scram remains active until the mode switch is placed in the run position. This switch occurs when reactor pressure is greater than 850 psig. and the associated APRM is not downscale

The operator will set the APRM neutron flux trip setting no greater than that stated in Specification 2.3.A.1. However, the actual setpoint can be as much as 3% greater than that stated in Specification 2.3.A.1 for recirculation driving flows less than 50% of design and 2% greater than that shown for recirculation driving flows greater than 50% of design due to the deviations discussed on page 39.

B. Deleted

TABLE 3.1.1

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENT REQUIREMENTS

Trip Function	Limiting Trip Settings	Modes in which function must be Operable or Operating** Refuel(3)	Startup	Run	Total No. of Instrument Channels per Trip System	Min. No. of Operable or Operating Instrument Channels Per Trip System(1)	Required Condition
1. Mode Switch in Shutdown		X	X	X	1	1	A
2. Manual Scram		X	X	X	1	1	A
3. Neutron Flux IRM (See Note 2) a. High-High b. Inoperative	≤120/125 of full scale	X	X	~~X(e)~~	4	3	A
4. Flow Referenced Neutron Flux APRM (See Note 5) a. High-High b. Inoperative ~~c. Downscale~~	See Specifications 2.3A.1 ~~≥3/125 of full scale~~			X	3	2	A or B
5. High Reactor Pressure	≤1075 psig	X	X(f)	X(f)	2	2	A
6. High Drywell Pressure	≤ 2 psig	X(4)	X(e,f)	X(e,f)	2	2	A
7. Reactor Low Water Level	≥7 in.(6)	X	X(f)	X(f)	2	2	A
8. Scram Discharge Volume High Level							
a. East	≤56 gal.(8)	X(a)	X(f)	X(f)	2	2	A
b. West	≤56 gal.(8)	X(a)	X(f)	X(f)	2	2	A
9. Turbine Condenser Low Vacuum	≥23 in. Hg	X(b)	X(b,f)	X(f)	2	2	A or C

TABLE 3.1.1 - CONTINUED

Trip Function	Limiting Trip Settings	Modes in which function must be Operable or Operating**			Total No. of Instrument Channels per Trip System	Min. No. of Operable or Operating Instrument Channels Per Trip System (1)	Required Conditions*
		Refuel(3)	Startup	Run			
10. Main Steamline High Radiation	≤ 10 x Normal background at rated power	x	x(f)	x(f)	2	2	A
11. Main Steamline Isolation Valve Closure	≤ 10% Valve Closure	x(b)	x(b)	x	8	8	A or C
12. Turbine Control Valve Fast Closure	(see Note 7)			x(d,f)	2	2	D
13. Turbine Stop Valve Closure	≤ 10% Valve Closure			x(d)	4	4	D

NOTES:

1. There shall be two operable or tripped trip systems for each function.

2. ~~The Detector for each operable IRM channel shall be fully inserted until the associated APRM channel is operable and indicating at least 3/125 full scale.~~ For an IRM channel to be considered operable, its detector shall be fully inserted

3. In the refueling mode with the reactor subcritical and reactor water temperature less than 212°F, only the following trip functions need to be operable: (a) Mode Switch in Shutdown, (b) Manual Scram, (c) High Flux IRM, (d) Scram Discharge Volume High Level.

4. Not required to be operable when primary containment integrity is not required.

5. To be considered operable, an APRM must have at least 2 LPRM inputs per level and at least a total of 14 LPRM inputs, except that channels 1, 2, 5, and 6 may lose all LPRM inputs from the companion APRM Cabinet plus one additional LPRM input and still be considered operable.

Table 3.1.I - Continued

6. Seven inches on the water level instrumentation is 10'6" above the top of the active fuel at rated power.

7. Trips upon loss of oil pressure to the acceleration relay.

8. Limited trip setting refers to the volume of water in the discharge volume receiver tank and does not include the volume in the lines to the level switches.

* Required Conditions when minimum conditions for operation are not satisfied.

A. All operable control rods fully inserted within 8 hours.

B. Power on IRM range or below and reactor in Startup, Refuel, or Shutdown mode.

C. Reactor in Startup or Refuel mode and pressure below 600 psig.

D. Reactor power less than 45% (751.5 MWt.).

** Allowable Bypass Conditions

It is permissible to bypass:

a. The scram discharge volume High Water Level scram function in the refuel mode to allow reactor protection system reset. A rod block shall be applied while the bypass is in effect.

b. The Low Condenser vacuum and MSIV closure scram functions in the Refuel and Startup modes if reactor pressure is below 600 psig.

c. ~~The scram function of an IRM instrument channel when the reactor is in the Run mode and the associated APRM is operable and indicating at least 3/125 full scale.~~

d. The turbine stop valve closure and fast control valve closure scram functions when the reactor thermal power is $\leq$45%(751.5 MWt).

Deleted.

Bases Continued:

The IRMs are calibrated by the heat balance method such that 120/125 of full scale on the highest IRM range is below 20% of rated neutron flux (See Specification 2.3.A.2). The requirement that the IRM detectors be inserted in the core assures that the heat balance calibration is not invalidated by the withdrawal of the detector.

3.1 ~~The requirement that the IRM's be inserted in the core until the APRM's read at least 3/125 of full scale assures that there is proper overlap in the neutron monitoring systems and thus, that adequate coverage is provided for all ranges of reactor operation.~~

Although the operator will set the set points within the trip settings specified on Table 3.1.1, the actual values of the various set points can differ appreciably from the value the operator is attempting to set. The deviations could be caused by inherent instrument error, operator setting error, drift of the set point, etc. Therefore, such deviations have been accounted for in the various transient analysis and the actual trip settings may vary by the following amounts.

Trip Function	Deviation	Trip Function	Deviation
3. High Flux IRM	+2/125 of scale	7. Reactor Low Water Level	-6 inches
5. High Reactor Pressure	+10 psi	8. Scram Discharge Volume High Level	+1 gallon
6. High Drywell Pressure	+1 psi	9. Turbine Condenser Low Vacuum	$-\frac{1}{2}$ in. Hg

A violation of this specification is assumed to occur only when a device is knowingly set outside of the limiting trip setting, or a sufficient number of devices have been affected by any means such that the automatic function is incapable of operating within the allowable deviation while in a reactor mode in which the specified function must be operable, or the actions specified in 3.1.B.2 are not initiated as specified.

If an unsafe failure is detected during surveillance testing, it is desirable to determine as soon as possible if other failures of a similar type have occured and whether the particular function involved is still operable or capable of meeting the single failure criterion. To meet the requirements of Table 3.1.1, it is necessary that all instrument channels in one trip system be operable

Exhibit C

License Amendment Request dated February 18, 1987

Docket No. 50-263
License No. DPR-22

Exhibit C consists of revised pages for the Monticello Nuclear Generating Plant Technical Specifications with the proposed changes incorporated as listed below:

Page
17
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29
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39

Bases Continued:

backed up by the rod worth minimizer. Worth of individual rods is very low in a uniform rod pattern. Thus, of all possible sources of reactivity input, uniform control rod withdrawal is the most probable cause of significant power rise. Because the flux distribution associated with uniform rod withdrawals does not involve high local peaks, and because several rods must be moved to change power by a significant percentage of rated power, the rate of power rise is very slow. Generally, the heat flux is in near equilibrium with the fission rate. In an assumed uniform rod withdrawal approach to the scram level, the rate of power rise is no more than 5% of rated power per minute, and the IRM system would be more than adequate to assure a scram before the power could exceed the safety limit. The IRM scram remains active until the mode switch is placed in the run position and the associated APRM is not downscale. This switch occurs when reactor pressure is greater than 850 psig.

The operator will set the APRM neutron flux trip setting no greater than that stated in Specification 2.3.A.1. However, the actual setpoint can be as much as 3% greater than that stated in Specification 2.3.A.1 for recirculation driving flows less than 50% of design and 2% greater than that shown for recirculation driving flows greater than 50% of design due to the deviations discussed on page 39.

B. Deleted

TABLE 3.1.1
REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENT REQUIREMENTS

Trip Function	Limiting Trip Settings	Modes in which function must be Operable or Operating** Refuel(3)	Startup	Run	Total No. of Instrument Channels per Trip System	Min. No. of Operable or Operating Instrument Channels Per Trip System(1)	Required Condition
1. Mode Switch in Shutdown		X	X	X	1	1	A
2. Manual Scram		X	X	X	1	1	A
3. Neutron Flux IRM (See Note 2) a. High-High b. Inoperative	≤ 120/125 of full scale	X	X		4	3	A
4. Flow Referenced Neutron Flux APRM (See Note 5) a. High-High b. Inoperative	See Specifications 2.3A.1			X	3	2	A or B
5. High Reactor Pressure	≤ 1075 psig	X	X(f)	X(f)	2	2	A
6. High Drywell Pressure	≤ 2 psig	X(4)	X(e,f)	X(e,f)	2	2	A
7. Reactor Low Water Level	≥ 7 in.(6)	X	X(f)	X(f)	2	2	A
8. Scram Discharge Volume High Level							
a. East	≤ 56 gal.(8)	X(a)	X(f)	X(f)	2	2	A
b. West	≤ 56 gal.(8)	X(a)	X(f)	X(f)	2	2	A
9. Turbine Condenser Low Vacuum	≥ 23 in. Hg	X(b)	X(b,f)	X(f)	2	2	A or C

TABLE 3.1.1 - CONTINUED

Trip Function	Limiting Trip Settings	Modes in which function must be Operable or Operating**			Total No. of Instrument Channels per Trip System	Min. No. of Operable or Operating Instrument Channels Per Trip System(1)	Required Conditions*
		Refuel(3)	Startup	Run			
10. Main Steamline High Radiation (See Note 9)	≤ 10 X Normal background at rated power	X	X(f)	X(f)	2	2	A
11. Main Steamline Isolation Valve Closure	≤ 10% Valve Closure	X(b)	X(b)	X	8	8	A or C
12. Turbine Control Valve Fast Closure	(See Note 7)			X(d,f)	2	2	D
13. Turbine Stop Valve Closure	≤ 10% Valve Closure			X(d)	4	4	D

NOTES:

1. There shall be two operable or tripped trip systems for each function.

2. For an IRM channel to be considered operable, its detector shall be fully inserted.

3. In the refueling mode with the reactor subcritical and reactor water temperature less than 212°F, only the following trip functions need to be operable: (a) Mode Switch in Shutdown, (b) Manual Scram, (c) High Flux IRM, (d) Scram Discharge Volume Level.

4. Not required to be operable when primary containment integrity is not required.

5. To be considered operable, an APRM must have at least 2 LPRM inputs per level and at least a total of 14 LPRM inputs, except that channels 1, 2, 5, and 6 may lose all LPRM inputs from the companion APRM Cabinet plus one additional LPRM input and still be considered operable.

Table 3.1.1 - Continued

6. Seven inches on the water level instrumentation is 10'6" above the top of the active fuel at rated power.

7. Trips upon loss of oil pressure to the acceleration relay.

8. Limited trip setting refers to the volume of water in the discharge volume receiver tank and does not include the volume in the lines to the level switches.

* Required Conditions when minimum conditions for operation are not satisfied.

A. All operable control rods fully inserted within 8 hours.

B. Power on IRM range or below and reactor in Startup, Refuel, or Shutdown mode.

C. Reactor in Startup or Refuel mode and pressure below 600 psig.

D. Reactor power less than 45% (751.5 MWt.).

** Allowable Bypass Conditions

It is permissible to bypass:

a. The scram discharge volume High Water Level scram function in the refuel mode to allow reactor protection system reset. A rod block shall be applied while the bypass is in effect.

b. The Low Condenser vacuum and MSIV closure scram functions in the Refuel and Startup modes if reactor pressure is below 600 psig.

c. Deleted.

d. The turbine stop valve closure and fast control valve closure scram functions when the reactor thermal power is $\leq$ 45%(751.5 MWt).

Bases Continued:

3.1 The IRMs are calibrated by the heat balance method such that 120/125 of full scale on the highest IRM range is below 20% of rated neutron flux (see Specification 2.3.A.2). The requirement that the IRM detectors be inserted in the core assures that the heat balance calibration is not invalidated by the withdrawal of the detector.

Although the operator will set the set points within the trip settings specified on Table 3.1.1, the actual values of the various set points can differ appreciably from the value the operator is attempting to set. The deviations could be caused by inherent instrument error, operator setting error, drift of the set point, etc. Therefore, such deviations have been accounted for in the various transient analysis and the actual trip settings may vary by the following amounts.

Trip Function	Deviation	Trip Function	Deviation
3. High Flux IRM	+2/125 of scale	7. Reactor Low Water Level	-6 inches
5. High Reactor Pressure	+10 psi	8. Scram Discharge Volume High Level	+1 gallon
6. High Drywell Pressure	+1 psi	9. Turbine Condenser Low Vacuum	-½ in. Hg

A violation of this specification is assumed to occur only when a device is knowingly set outside of the limiting trip setting, or a sufficient number of devices have been affected by any means such that the automatic function is incapable of operating within the allowable deviation while in a reactor mode in which the specified function must be operable, or the actions specified in 3.1.B.2 are not initiated as specified.

If an unsafe failure is detected during surveillance testing, it is desirable to determine as soon as possible if other failures of a similar type have occurred and whether the particular function involved is still operable or capable of meeting the single failure criterion. To meet the requirements of Table 3.1.1, it is necessary that all instrument channels in one trip system be operable