ATTACHMENT 2

Proposed Changes to DPR - 29

Revised Page:

3.1/4.1-8
3.1/4.1-9
3.1/4.1-10
3.2/4.2-11
3.2/4.2-11a*
3.2/4.2-12
3.7/4.7-10
3.7/4.7-18

*New Page

TABLE 3.1-1

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION REQUIREMENTS
REFUEL MODE

Minimum Number of Operable or Tripped Instrument Channels per Trip System(1)	Trip Function	Trip Level Setting	Action(2)
1	Mode switch in shutdown		A
1	Manual scram		A
	IRM		
3	High Flux	≤120/125 of full scale	A
3	Inoperative		
	APRM(3)		
2	High flux (15% scram)	Specification 2.1.A.2	A
2	Inoperative		A
2	High reactor pressure	≤1060 psig	A
2	High drywell pressure(5)	≤2.5 psig	A
2	Reactor low water level	≥8 inches(8)	A
2 (per bank)	High water level in scram discharge volume(4)	≤40 gallons per bank	A
2	Turbine condenser low vacuum(7)	≥21 inches Hg vacuum	A
2	Main steamline high radiation(12)	≤7 X normal full power background	A
4	Main steamline isolation valve closure(7)	≤10% valve closure	A

TABLE 3.1-2

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION REQUIREMENTS
STARTUP/HOT STANDBY MODE

Minimum Number of Operable or Tripped Instrument Channels per Trip System(1)	Trip Function	Trip Level Setting	Action(2)
1	Mode switch in shutdown		A
1	Manual scram		A
	IRM		
3	High Flux	≤120/125 of full scale	A
3	Inoperative		
	APRM(3)		
2	High flux (15% scram)	Specification 2.1.A.2	A
2	Inoperative		A
2	High reactor pressure	≤1060 psig	A
2	High drywell pressure(5)	≤2.5 psig	A
2	Reactor low water level	≥8 inches(8)	A
2 (per bank)	High water level in scram discharge volume(4)	≤40 gallons per bank	A
2	Turbine condenser low vacuum(7)	≥21 inches Hg vacuum	A
2	Main steamline high radiation(12)	≤7 X normal full power background	A
4	Main steamline isolation valve closure(7)	≤10% valve closure	A

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TABLE 3.1-3

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION REQUIREMENTS RUN MODE

Minimum Number of Operable or Tripped Instrument Channels per Trip System(1)	Trip Function	Trip Level Setting	Action(2)
1	Mode switch in shutdown		A
1	Manual scram		A
	APRM(3)		
2	High flux (flow based)	Specification 2.1.A.1	A or B
2	Inoperative		A or B
2	Downscale(11)	≥3/125 of full scale	A or B
2	High reactor pressure	<1060 psig	A
2	High drywell pressure	≤2.5 psig	A
2	Reactor low water level	≥8 inches(8)	A
2 (per bank)	High water level in scram discharge volume	≤40 gallons per bank	A
2	Turbine condenser low vacuum	≥21 inches Hg vacuum	A or C
2	Main steamline high radiation(12)	≤7 X normal full power background	A or C
4	Main steamline isolation valve closure(6)	≤10% valve closure	A or C
2	Turbine control valve fast closure(9)	≥40% turbine/generator load mismatch(10)	A or C
2	Turbine stop valve closure(9)	≤10% valve closure	A or C
2	Turbine EHC control fluid low pressure(9)	≥900 psig	A or C

TABLE 3.2.1

INSTRUMENTATION THAT INITIATES PRIMARY CONTAINMENT ISOLATION FUNCTIONS

Minimum No. of Operable Inst. Channels per Trip System (1)	Instruments	Trip Level Setting	Action (2)
4	Reactor Low Water(5)	>144" above top of active fuel*	A
4	Reactor Low Low Water(5)	≥84" above top of active fuel*	A
4	High drywell pressure(5)	≤2.5 psig (3)	A
16	High Flow Main Steam line(5)	≤140% of rated steam flow	B
16	High Temperature Main Steam Line Tunnel	≤200°F	B
4	High Radiation Main Steam Line Tunnel(6)	≤7 times normal rated power background	B
4	Low Pressure Main Steamline(4)	≥825 psig	B
4	High Flow RCIC Steamline	≤300% of rated steam flow(7)	C
16	RCIC Turbine Area High Temperature	≤200°F	C
4	High Flow HPCI Steam Line	≤300% of rated steam flow(7)	D
16	High Temperature HPCI Steam Line Area	≤200°F	D

NOTES: (For Table 3.2.1)

1. Whenever primary containment integrity is required, there shall be two operable or tripped trip systems for each function, except for low pressure main steamline which only need be available in the RUN position.

2. Action: If the first column cannot be met for one of the trip systems, that trip system shall be tripped.

   If the first column cannot be met for both trip systems, the appropriate actions listed below shall be taken:

   A. Initiate an orderly shutdown and have reactor in Cold Shutdown condition in 24 hours.

   B. Initiate an orderly load reduction and have reactor in Hot Standby within 8 hours.

   C. Close isolation valves in RCIC system.

   D. Close isolation valves in HPCI subsystem.

3. Need not be operable when primary containment integrity is not required.

4. The isolation trip signal is bypassed when the mode switch is in Refuel or Startup/Hot Shutdown.

5. This instrumentation also isolates the control room ventilation system.

6. This signal also automatically closes the mechanical vacuum pump disharge line isolation valves.

7. Includes a time delay of $3 \leq t \leq 10$ seconds.

* Top of active fuel is defined as 360" above vessel zero for all water levels used in the LOCA analyses (see Bases 3.2).

Table 3.2.2

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

Minimum No. of Operable or Tripped Instrument Channels(1)	Trip Function	Trip Level Setting	Remarks
4	Reactor low low water level	>84 inches (+4 inches/-0 inch) above top of active fuel *	1. In conjunction with low reactor pressure initiates core spray and LPCI. 2. In conjunction with high-drywell pressure 120-second time delay and low-pressure core cooling interlock initiates auto blowdown. 3. Initiates HPCI and RCIC. 4. Initiates starting of diesel generators.
4(4)	High-Drywell pressure(2)(3)	≤2.5 psig	1. Initiates core spray, LPCI, HPCI and SGTS. 2. In conjunction with low low water level, 120 second time delay, and low-pressure core cooling interlock initiates auto blowdown. 3. Initiates starting of diesel generators. 4. Initiates isolation of control room ventilation.
2	Reactor Low Pressure	300 psig ≤p≤ 350 psig	1. Permissive for opening core spray and LPCI admission valves. 2. In conjuction with low low reactor water level initiates core spray and LPCI.
	Containment Spray Interlock		Prevents inadvertent operation of containment spray during accident conditions.
2(3)	2/3 core height	≥2/3 core height	
4(3)	containment high pressure	0.5 psig ≤p≤1.5 psig	
2	Timer auto blowdown	≤120 seconds	In conjunction with low low reactor water level, high-drywell pressure, and low pressure core cooling interlock initiates auto blowdown.
4	Low-pressure core cooling pump discharge pressure	100 psig≤p≤150 psig	Defers APR actuation pending confirmation of low-pressure core cooling system operation.
2/Bus(5)	Undervoltage on emergency buses	3045 ± 5% volts	1. Initiates starting of diesel generators. 2. Permissive for starting ECCS pumps. 3. Removes nonessential loads from buses. 4. Bypasses degraded voltage timer.

* Top of active fuel is defined at 360 inches above vessel zero for all water levels used in the LOCA analysis.

2. In the event any isolation valve specified in Table 3.7.1 becomes inoperable, reactor power operation may continue provided at least one valve is in the mode corresponding to the isolated condition.

3. If Specifications D.3.D.1 and 3.7.D.2 cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the cold shutdown condition within 24 hours.

4. The temperature of the main steam-air pilot valves shall be less than 170°F except as specified in Specifications 3.7.D.5 and 3.7.D.6 below.

5. From and after the date that the temperature of any main steamline air pilot valve is found to be greated than 170°F, reactor operation is permissible only during the succeeding 7 days unless the temperature of such valve is sooner reduced to less than 170°F, provided the main steamline isolation valves are operable.

6. If Specification 3.7.D.5 cannot be met, the main steamline isolation valve shall be considered inoperable and action taken in accordance with Specification 3.7.D.2.

reopened.

2) The main steamline isolation valve (one at a time) shall be verified for closure time.

2. When an isolation valve listed in Table 3.7.1 is inoperable, the position of at least one other valve in each line having an inoperable valve shall be recorded daily.

will be replaced with filters qualified pursuant to regulatory guide position C.3.d of Regulatory Guide 1.52 Revision 1 (June 1976). Once per operating cycle demonstration of HEPA filter pressure drop, operability of inlet heaters at rated power, air distribution to each HEPA filter, and automatic initiation of each standby gas treatment system circuit is necessary to assure system performance capability). Note: bases within parentheses will not be applicable until about December 31, 1976, when equipment modifications are completed to allow increased testing.

D. **Primary Containment Isolation Valves**

Those large pipes comprising a portion of the reactor coolant system, whose failure could result in uncovering the reactor core, are supplied with automatic isolation valves (except those lines needed for emergency core cooling system operation or containment cooling). The closure times specified herein are adequate to prevent loss of more coolant from the circumferential rupture of any of these lines outside the containment than from a steamline rupture. Therefore, this isolation valve closure time is sufficient to prevent uncovering the core.

In order to assure that the doses that may result from a steamline break do not exceed the 10 CFR 100 guidelines, it is necessary that no fuel rod perforation resulting from the accident occur prior to closure of the main steamline isolation valves. Analyses indicate that fuel rod cladding perforations would be avoided for main steam valve closure times, including instrument delay, as long as 10.5 seconds. However, for added margin, the technical specifications require a valve close time of not greater than 5 seconds.

For reactor coolant system temperatures less than 212° F, the containment could not become pressurized due to a loss-of-coolant accident. The 212° F limit is based on preventing pressurization of the reactor building and rupture of the blowout panels. These valves are highly reliable, have low service requirement, and most are normally closed. The initiating sensors and associated trip channels are also checked to demonstrate the capability for automatic isolation (reference SAR Section 5.2.2 and Table 5.2.4).

The test interval at once per operating cycle for automatic initiation results in a failure probability of 1.1×10^{-7} that a line will not isolate. More frequent testing for valve operability results in a more reliable system.

The containment is penetrated by a large number of small diameter instrument lines which contact the primary coolant system. A program for periodic testing and examination of the flow check valves in these lines is performed by blowing down the instrument line during a vessel hydro and observing the following two conditions, which will verify that the flow check valve is operable:

ATTACHMENT 3

Proposed Changes to DPR - 30

Revised Page:

3.1/4.1-8
3.1/4.1-9
3.1/4.1-10
3.2/4.2-11
3.2/4.2-11a*
3.2/4.2-12
3.7/4.7-10
3.7/4.7-18

*New Page

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TABLE 3.1-1

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION REQUIREMENTS
REFUEL MODE

Minimum Number of Operable or Tripped Instrument Channels per Trip System(1)	Trip Function	Trip Level Setting	Action(2)
1	Mode switch in shutdown		A
1	Manual scram		A
	IRM		
3	High Flux	≤120/125 of full scale	A
3	Inoperative		
	APRM(3)		
2	High flux (15% scram)	Specification 2.1.A.2	A
2	Inoperative		A
2	High reactor pressure	≤1060 psig	A
2	High drywell pressure(5)	≤2.5 psig	A
2	Reactor low water level	≥8 inches(8)	A
2	High water level in scram discharge volume(4)	≤50 gallons	A
2	Turbine condenser low vacuum(7)	≥21 inches Hg vacuum	A
2	Main steamline high radiation(12)	≤7 X normal full power background	A
4	Main steamline isolation valve closure(7)	≤10% valve closure	A

TABLE 3.1-2

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION REQUIREMENTS
STARTUP/HOT STANDBY MODE

Minimum Number of Operable or Tripped Instrument Channels per Trip System(1)	Trip Function	Trip Level Setting	Action(2)
1	Mode switch in shutdown		A
1	Manual scram		A
	IRM		
3	High Flux	≤120/125 of full scale	A
3	Inoperative		
	APRM(3)		
2	High flux (15% scram)	Specification 2.1.A.2	A
2	Inoperative		A
2	High reactor pressure	≤1060 psig	A
2	High drywell pressure(5)	≤2.5 psig	A
2	Reactor low water level	≥8 inches(8)	A
2	High water level in scram discharge volume(4)	≤50 gallons	A
2	Turbine condenser low vacuum(7)	≥21 inches Hg vacuum	A
2	Main steamline high radiation(12)	≤7 X normal full power background	A
4	Main steamline isolation valve closure(7)	≤10% valve closure	A

TABLE 3.1-3

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION REQUIREMENTS RUN MODE

Minimum Number of Operable or Tripped Instrument Channels per Trip System(1)	Trip Function	Trip Level Setting	Action(2)
1	Mode switch in shutdown		A
1	Manual scram		A
	APRM(3)		
2	High flux (flow based)	Specification 2.1.A.1	A or B
2	Inoperative		A or B
2	Downscale(11)	≤3/125 of full scale	A or B
2	High reactor pressure	<1060 psig	A
2	High drywell pressure	≤2.5 psig	A
2	Reactor low water level	≥8 inches(8)	A
2	High water level in scram discharge volume	≤50 gallons	A
2	Turbine condenser low vacuum	≥21 inches Hg vacuum	A or C
2	Main steamline high radiation(12)	≤7 X normal full power background	A or C
4	Main steamline isolation valve closure(6)	≤10% valve closure	A or C
2	Turbine control valve fast closure(9)	≥40% turbine/generator load mismatch(10)	A or C
2	Turbine stop valve closure(9)	≤10% valve closure	A or C
2	Turbine EHC control fluid low pressure(9)	≥900 psig	A or C

TABLE 3.2.1

INSTRUMENTATION THAT INITIATES PRIMARY CONTAINMENT ISOLATION FUNCTIONS

Minimum No. of Operable Inst. Channels per Trip System (1)	Instruments	Trip Level Setting	Action (2)
4	Reactor Low Water(5)	>144" above top of active fuel*	A
4	Reactor Low Low Water(5)	≥84" above top of active fuel*	A
4	High drywell pressure(5)	≤2.5 psig (3)	A
16	High Flow Main Steam line(5)	≤140% of rated steam flow	B
16	High Temperature Main Steam Line Tunnel	≤200°F	B
4	High Radiation Main Steam Line Tunnel(6)	≤7 times normal rated power background	B
4	Low Pressure Main Steamline(4)	≥825 psig	B
4	High Flow RCIC Steamline	≤300% of rated steam flow(7)	C
16	RCIC Turbine Area High Temperature	≤200°F	C
4	High Flow HPCI Steam Line	≤300% of rated steam flow(7)	D
16	High Temperature HPCI Steam Line Area	≤200°F	D

<u>NOTES</u>: (For Table 3.2.1)

1. Whenever primary containment integrity is required, there shall be two operable or tripped trip systems for each function, except for low pressure main steamline which only need be available in the RUN position.

2. Action: If the first column cannot be met for <u>one</u> of the trip systems, that trip system shall be tripped.

   If the first column cannot be met for <u>both</u> trip systems, the appropriate actions listed below shall be taken:

   A. Initiate an orderly shutdown and have reactor in Cold Shutdown condition in 24 hours.

   B. Initiate an orderly load reduction and have reactor in Hot Standby within 8 hours.

   C. Close isolation valves in RCIC system.

   D. Close isolation valves in HPCI subsystem.

3. Need not be operable when primary containment integrity is not required.

4. The isolation trip signal is bypassed when the mode switch is in Refuel or Startup/Hot Shutdown.

5. This instrumentation also isolates the control room ventilation system.

6. This signal also automatically closes the mechanical vacuum pump disharge line isolation valves.

7. Includes a time delay of $3 \leq t \leq 10$ seconds.

* Top of active fuel is defined as 360" above vessel zero for all water levels used in the LOCA analyses (see Bases 3.2).

Table 3.2.2

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

Minimum No. of Operable or Tripped Instrument Channels(1)	Trip Function	Trip Level Setting	Remarks
4	Reactor low low water level	≥84 inches (+4 inches/-0 inch) above top of active fuel*	1. In conjunction with low reactor pressure initiates core spray and LPCI. 2. In conjunction with high-drywell pressure 120-second time delay and low-pressure core cooling interlock initiates auto blowdown. 3. Initiates HPCI and RCIC. 4. Initiates starting of diesel generators.
4(4)	High-Drywell pressure(2)(3)	≤2.5 psig	1. Initiates core spray, LPCI, HPCI and SGTS. 2. In conjunction with low low water level, 120 second time delay, and low-pressure core cooling interlock initiates auto blowdown. 3. Initiates starting of diesel generators. 4. Initiates isolation of control room ventilation.
2	Reactor Low Pressure	300 psig ≤p≤ 350 psig	1. Permissive for opening core spray and LPCI admission valves. 2. In conjuction with low low reactor water level initiates core spray and LPCI.
	Containment Spray Interlock		Prevents inadvertent operation of containment spray during accident conditions.
2(3)	2/3 core height	≥2/3 core height	
4(3)	containment high pressure	0.5 psig ≤p≤1.5 psig	
2	Timer auto blowdown	≤120 seconds	In conjunction with low low reactor water level, high-drywell pressure, and low pressure core cooling interlock initiates auto blowdown.
4	Low-pressure core cooling pump discharge pressure	100 psig≤p≤150 psig	Defers APR actuation pending confirmation of low-pressure core cooling system operation.
2/Bus(5)	Undervoltage on emergency buses	3045 ± 5% volts	1. Initiates starting of diesel generators. 2. Permissive for starting ECCS pumps. 3. Removes nonessential loads from buses. 4. Bypasses degraded voltage timer.

* Top of active fuel is defined at 360 inches above vessel zero for all water levels used in the LOCA analysis.

reopened.

2) The main steamline isolation valve (one at a time) shall be verified for closure time.

2. In the event any isolation valve specified in Table 3.7.1 becomes inoperable, reactor power operation may continue provided at least one valve is in the mode corresponding to the isolated condition.

3. If Specifications D.3.D.1 and 3.7.D.2 cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the cold shutdown condition within 24 hours.

4. The temperature of the main steam-air pilot valves shall be less than 170°F except as specified in Specifications 3.7.D.5 and 3.7.D.6 below.

5. From and after the date that the temperature of any main steamline air pilot valve is found to be greated than 170°F, reactor operation is permissible only during the succeeding 7 days unless the temperature of such valve is sooner reduced to less than 170°F, provided the main steamline isolation valves are operable.

6. If Specification 3.7.D.5 cannot be met, the main steamline isolation valve shall be considered inoperable and action taken in accordance with Specification 3.7.D.2.

2. When an isolation valve listed in Table 3.7.1 is inoperable, the position of at least one other valve in each line having an inoperable valve shall be recorded daily.

will be replaced with filters qualified pursuant to regulatory guide position C.3.d of Regulatory Guide 1.52 Revision 1 (June 1976). Once per operating cycle demonstration of HEPA filter pressure drop, operability of inlet heaters at rated power, air distribution to each HEPA filter, and automatic initiation of each standby gas treatment system circuit is necessary to assure system performance capability). Note: bases within parentheses will not be applicable until about December 31, 1976, when equipment modifications are completed to allow increased testing.

D. **Primary Containment Isolation Valves**

Those large pipes comprising a portion of the reactor coolant system, whose failure could result in uncovering the reactor core, are supplied with automatic isolation valves (except those lines needed for emergency core cooling system operation or containment cooling). The closure times specified herein are adequate to prevent loss of more coolant from the circumferential rupture of any of these lines outside the containment than from a steamline rupture. Therefore, this isolation valve closure time is sufficient to prevent uncovering the core.

In order to assure that the doses that may result from a steamline break do not exceed the 10 CFR 100 guidelines, it is necessary that no fuel rod perforation resulting from the accident occur prior to closure of the main steamline isolation valves. Analyses indicate that fuel rod cladding perforations would be avoided for main steam valve closure times, including instrument delay, as long as 10.5 seconds. However, for added margin, the technical specifications require a valve close time of not greater than 5 seconds.

For reactor coolant system temperatures less than 212° F, the containment could not become pressurized due to a loss-of-coolant accident. The 212° F limit is based on preventing pressurization of the reactor building and rupture of the blowout panels. These valves are highly reliable, have low service requirement, and most are normally closed. The initiating sensors and associated trip channels are also checked to demonstrate the capability for automatic isolation (reference SAR Section 5.2.2 and Table 5.2.4).

The test interval at once per operating cycle for automatic initiation results in a failure probability of 1.1×10^{-7} that a line will not isolate. More frequent testing for valve operability results in a more reliable system.

The containment is penetrated by a large number of small diameter instrument lines which contact the primary coolant system. A program for periodic testing and examination of the flow check valves in these lines is performed by blowing down the instrument line during a vessel hydro and observing the following two conditions, which will verify that the flow check valve is operable:

ATTACHMENT 4

Evaluation of Significant Hazards Consideration

Description of Amendment Request

An amendment to the Technical Specifications for Quad Cities Units 1 & 2 is requested raising the high drywell pressure trip point from 2.0 psig to 2.5 psig and deletion of the bi-weekly MSIV partial stroke test.

Basis for Proposed No Significant Hazards Consideration Determination

The Commission has provided guidance concerning the application of the standards for determining whether a significant hazards consideration exists by providing certain examples (48FR 14870). The examples of actions involving no significant hazards consideration include: (vi) a change which either result in some increase to the probability or consequences of a previously analyzed accident or may reduce in some way a safety margin, but where the results of the change are clearly within all acceptable criteria with respect to the system or component specified in the Standard Review Plan.

Commonwealth Edison feels this example encompasses both of the requested changes. And increase of the high drywell pressure to 2.5 psig and deletion of the bi-weekly MSIV testing is a relaxation of the current Technical Specification limits and therefore, may be considered as a reduction of an existing safety margin. However, both proposed revisions still comply with the staff's general guidance on the drywell pressure set point and MSIV testing.

In the case of the proposed 2.5 psig setpoint, the increase is requested in order to reduce inadvertent ECCS operation. The new operating margin between normal drywell pressure and the trip point is still within the original plant accident analysis and falls within the Staff's guidance on setpoint margin for resolution of TMI Item II.E 4.2.5.

In the case of the deletion of the bi-weekly MSIV test, the provisions remaining in the Technical Specifications for testing the MSIV's meet the requirements of the BWR Standard Technical Specification for that valve. Therefore, although some relaxation in surveillance requirements will occur, the remaining provisions will meet the staff's requirements for testing of the MSIV's.

Therefore, since the application for amendment involves a proposed change that is similar to an example for which no significant hazards consideration exists, Commonwealth Edison has made a proposed determination that the application involves no significant hazards consideration.