

QUAD-CITIES

DPR-29

TABLE 4.2-1

MINIMUM TEST AND CALIBRATION FREQUENCY FOR CORE AND CONTAINMENT COOLING SYSTEMS INSTRUMENTATION, ROD BLOCKS, AND ISOLATIONS (1)

Instrument Channel	Instrument Functional Test (2)	Calibration (2)	Instrument Check (2)
<b>ECOS Instrumentation</b>			
1. Reactor low-low water level	(1)	Once/3 months	Once/day
2. Drywell high pressure	(1)	Once/3 months	None
3. Reactor low pressure	(1)	Once/3 months	None
4. Containment spray interlock			
a. 2/3 core height	(1)	Once/3 months	None
b. Containment pressure	(1)	Once/3 months	None
5. Low-pressure core cooling pump discharge	(1)	Once/3 months	None
6. Undervoltage 4-kV essential	Refueling outage	Refueling outage	None
7. Degraded voltage 4-kV essential buses	Refueling (8) outage	Refueling outage	Once/month
<b>Rod Blocks</b>			
1. APRM downscale	(1) (3)	Once/3 months	None
2. APRM flow variable	(1) (3)	Refueling outage	None
3. IRM upscale	(5) (3)	(5) (3)	None
4. IRM downscale	(5) (3)	(5) (3)	None
5. RSM upscale	(1) (3)	Refueling outage	None
6. RSM downscale	(1) (3)	Once/3 months	None
7. SRM upscale	(5) (3)	(5) (3)	None
8. SRM detector not in startup position	(5) (3)	(6)	None
9. IRM detector not in startup position	(5)	(6)	None
10. SRM downscale	(5) (3)	(5) (3)	None
11. High water level in scram discharge volume (SDV)	Once/3 months	Not applicable	None
12. SDV high level trip bypassed	Refueling outage	Not applicable	None
<b>Main Steamline Isolation</b>			
1. Steam tunnel high temperature	Refueling outage	Refueling outage	None
2. Steamline high flow	(1)	Once/3 months	Once/day
3. Steamline low pressure	(1)	Once/3 months	None
4. Steamline high radiation	(1) (4)	Refueling outage	Once/day
5. Reactor low low water level	(1)	Once/3 months	Once/day
<b>RCK Isolation</b>			
1. Steamline high flow	Once/3 months (9)	Once/3 months (9)	None
2. Turbine area high temperature	Refueling outage	Refueling outage	None
3. Low reactor pressure	Once/3 months	Once/3 months	None

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TABLE 4.2-1 (Cont'd)

Instrument Channel	Instrument Functional Test <sup>(2)</sup>	Calibration <sup>(2)</sup>	Instrument Check <sup>(2)</sup>
<b>MPCI Isolation</b>			
1. Steamline high flow	(1) (9)	Once/3 months (9)	None
2. Steamline area high temperature	Refueling outage	Refueling outage	None
3. Low reactor pressure	(1)	Once/3 months	None
<b>Reactor Building Ventilation System Isolation And Standby Treatment System Initiation</b>			
1. Ventilation exhaust duct radiation monitors	(1)	Once/3 months	Once/day
2. Refueling floor radiation monitors	(1)	Once/3 months	Once/day
<b>Steam Jet Air Ejector Off-Gas Isolation</b>			
1. Off-gas radiation monitors	(1) (4)	Refueling outage	Once/day
<b>Control Room Ventilation System Isolation</b>			
1. Reactor low water level	(1)	Once/3 months	Once/day
2. Drywell high pressure	(1)	Once/3 months	None
3. Main steamline high flow	(1)	Once/3 months	Once/day
4. Ventilation exhaust duct radiation monitors	(1)	Once/3 months	Once/day

Notes

- Initially once per month until exposure hours (M as defined on Figure 4.1-1) are  $2.0 \times 10^5$ , thereafter according to Figure 4.1-1 with an interval not less than 1 month nor more than 3 months. The compilation of instrument failure rate data may include data obtained from other boiling water reactors for which the same design instrument operates in an environment similar to that of Quad Cities Units 1 and 2.
- Functional tests, calibrations, and instrument checks are not required when these instruments are not required to be operable or are tripped.
- This instrumentation is excepted from the functional test definition. The functional test shall consist of injecting a simulated electrical signal into the measurement channel.
- This instrument channel is excepted from the functional test definitions and shall be calibrated using simulated electrical signals once every 3 months.
- Functional tests shall be performed before each startup with a required frequency not to exceed once per week. Calibrations shall be performed during each startup or during controlled shutdowns with a required frequency not to exceed once per week.
- The positioning mechanism shall be calibrated every refueling outage.
- Logic system functional tests are performed as specified in the applicable section for these systems.
- Functional test shall include verification of operation of the degraded voltage 5-minute timer and 7-second inherent timer.
- Verification of the time delay setting of  $3 \leq \tau \leq 10$  seconds shall be performed during each refueling outage.

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TABLE 4.2-1

MINIMUM TEST AND CALIBRATION FREQUENCY FOR CORE AND CONTAINMENT COOLING SYSTEMS INSTRUMENTATION,  
ROD BLOCKS, AND ISOLATIONS<sup>(1)</sup>

Instrument Channel	Instrument Functional Test <sup>(2)</sup>	Calibration <sup>(2)</sup>	Instrument Check <sup>(2)</sup>
<b>EDCS Instrumentation</b>			
1. Reactor low-low water level	(1)	Once/3 months	Once/day
2. Drywell high pressure	(1)	Once/3 months	None
3. Reactor low pressure	(1)	Once/3 months	None
4. Containment spray interlock			
a. 2/3 core height	(1)	Once/3 months	None
b. Containment pressure	(1)	Once/3 months	None
5. Low-pressure core cooling pump discharge	(1)	Once/3 months	None
6. Undervoltage 4-kV essential	Refueling outage	Refueling outage	None
7. Degraded voltage 4-kV essential buses	Refueling (8) outage	Refueling outage	Once/month
<b>Rod Blocks</b>			
1. APRM downscale	(1) (3)	Once/3 months	None
2. APRM flow variable	(1) (3)	Refueling outage	None
3. RPM upscale	(5) (3)	(5) (3)	None
4. RPM downscale	(5) (3)	(5) (3)	None
5. RBM upscale	(1) (3)	Refueling outage	None
6. RBM downscale	(1) (3)	Once/3 months	None
7. SRM upscale	(5) (3)	(5) (3)	None
8. SRM detector not in startup position	(5) (3)	(6)	None
9. RPM detector not in startup position	(5)	(6)	None
10. SRM downscale	(5) (3)	(5) (3)	None
11. High water level in scram discharge volume (SDV)	Once/3 months	Not applicable	None
12. SDV high level trip bypassed	Refueling outage	Not applicable	None
<b>Steam Steamline Isolation</b>			
1. Steam tunnel high temperature	Refueling outage	Refueling outage	None
2. Steamline high flow	(1)	Once/3 months	Once/day
3. Steamline low pressure	(1)	Once/3 months	None
4. Steamline high radiation	(1) (4)	Refueling outage	Once/day
5. Reactor low low water level	(1)	Once/3 months	Once/day
<b>BCIC Isolation</b>			
1. Steamline high flow	Once/3 months (9)	Once/3 months (9)	None
2. Turbine area high temperature	Refueling outage	Refueling outage	None
3. Low reactor pressure	Once/3 months	Once/3 months	None

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TABLE 4.2-1 (Cont'd)

Instrument Channel	Instrument Functional Test <sup>(2)</sup>	Calibration <sup>(2)</sup>	Instrument Check <sup>(2)</sup>
<b>WPCI Isolation</b>			
1. Steamline high flow	(1) (9)	Once/3 months (9)	None
2. Steamline area high temperature	Refueling outage	Refueling outage	None
3. Low reactor pressure	(1)	Once/3 months	None
<b>Reactor Building Ventilation System Isolation And Standby Treatment System Initiation</b>			
1. Ventilation exhaust duct radiation monitors	(1)	Once/3 months	Once/day
2. Refueling floor radiation monitors	(1)	Once/3 months	Once/day
<b>Steam Jet Air Ejector Off-Gas Isolation</b>			
1. Off-gas radiation monitors	(1) (4)	Refueling outage	Once/day
<b>Control Room Ventilation System Isolation</b>			
1. Reactor low water level	(1)	Once/3 months	Once/day
2. Drywell high pressure	(1)	Once/3 months	None
3. Main steamline high flow	(1)	Once/3 months	Once/day
4. Ventilation exhaust duct radiation monitors	(1)	Once/3 months	Once/day
<b>Notes</b>			
1. Initially once per month until exposure hours (M as defined on Figure 4.1-1) are $2.0 \times 10^5$ , thereafter, according to Figure 4.1-1 with an interval not less than 1 month nor more than 3 months. The compilation of instrument failure rate data may include data obtained from other boiling water reactors for which the same design instrument operates in an environment similar to that of Quad-Cities Units 1 and 2.			
2. Functional tests, calibrations, and instrument checks are not required when these instruments are not required to be operable or are tripped.			
3. This instrumentation is excepted from the functional test definition. The functional test shall consist of injecting a simulated electrical signal into the measurement channel.			
4. This instrument channel is excepted from the functional test definitions and shall be calibrated using simulated electrical signals once every 3 months.			
5. Functional tests shall be performed before each startup with a required frequency not to exceed once per week. Calibrations shall be performed during each startup or during controlled shutdowns with a required frequency not to exceed once per week.			
6. The positioning mechanism shall be calibrated every refueling outage.			
7. Logic system functional tests are performed as specified in the applicable section for these systems.			
8. Functional test shall include verification of operation of the degraded voltage 5-minute timer and 7-second inherent timer.			
9. Verification of the time delay setting of $3 \leq \tau \leq 10$ seconds shall be performed during each refueling outage.			