

ENCLOSURE 3 - PART 1

PROPOSED TECHNICAL SPECIFICATION PAGE MARKUPS

9204080201 920327  
PDR ADCK 05000341  
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TABLE 3.3.1-2

## REACTOR PROTECTION SYSTEM RESPONSE TIMES

FUNCTIONAL UNIT	RESPONSE TIME (Seconds)
1. Intermediate Range Monitors:	
a. Neutron Flux - High	NA
b. Inoperative	NA
2. Average Power Range Monitor*:	
a. Neutron Flux - High, Setdown	NA
b. Flow Biased Simulated Thermal Power - High	$6 \pm 1^{**}$
c. Fixed Neutron Flux - High	$< 0.09$
d. Inoperative	NA
3. Reactor Vessel Steam Dome Pressure - High	$< 0.55 \#$
4. Reactor Vessel Low Water Level - Level 3	$< 1.05 \#$
5. Main Steam Line Isolation Valve - Closure	$< 0.06$
6. Main Steam Line Radiation - High	NA
7. Drywell Pressure - High	NA
8. Scram Discharge Volume Water Level - High	
a. Float Switch	NA
b. Level Transmitter	NA
9. Turbine Stop Valve - Closure	$< 0.06$
10. Turbine Control Valve Fast Closure	$< 0.08^{***}$
11. Reactor Mode Switch Shutdown Position	NA
12. Manual Scram	NA
13. Deleted	

\*Neutron detectors are exempt from response time testing. Response time shall be measured from the detector output or from the input of the first electronic component in the channel.

\*\*Including simulated thermal power time constant.

\*\*\*Measured from deenergization of K-37 relay which inputs the turbine control valve closure signal to the RPS.

# SENSOR IS ELIMINATED FROM RESPONSE TIME TESTING FOR THE RPS CIRCUITS. RESPONSE TIME TESTING AND CONFORMANCE TO THE ADMINISTRATIVE LIMITS FOR THE REMAINING CHANNEL INCLUDING TRIP UNIT AND RELAY LOGIC ARE REQUIRED.

TABLE 3.3.2-3

ISOLATION ACTUATION SYSTEM INSTRUMENTATION RESPONSE TIME

<u>TRIP FUNCTION</u>	<u>RESPONSE TIME (Seconds)#</u>
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1. PRIMARY CONTAINMENT ISOLATION

a. Reactor Vessel Low Water Level

- 1) Level 3
- 2) Level 2
- 3) Level 1

 $\leq 1.0^* \text{ ##}$ 

~~$\leq 13(a)$~~  NA  
 ~~$\leq 13(a)^{**}$~~  NA  
 ~~$\leq 13(a)$~~  NA  
 ~~$\leq 1.0^* / \leq 13(a)^{**}$~~  NA  
 ~~$\leq 13(a)$~~  NA

b. Drywell Pressure - High

c. Main Steam Line

- 1) Radiation - High<sup>(b)</sup>
- 2) Pressure - Low
- 3) Flow - High

 $\leq 0.5^* \text{ ##}$ 

~~$\leq 13(a)^{**}$~~  NA ###  
 ~~$\leq 13(a)^{**}$~~  NA  
 ~~$\leq 13(a)^{**}$~~  NA

d. Main Steam Line Tunnel Temperature - High

NA

e. Condenser Pressure - High

NA

f. Turbine Bldg. Area Temperature - High

NA

g. Deleted

h. Manual Initiation

NA

2. REACTOR WATER CLEANUP SYSTEM ISOLATIONa.  $\Delta$  Flow - High

NA

b. Heat Exchanger/Pump/High Energy Piping  
Area Temperature - High

NA

c. Heat Exchanger/Pump/Phase Separator  
Area Ventilation Temperature  $\Delta T$  - High

NA

d. SLCS Initiation

NA

e. Reactor Vessel Low Water Level - Level 2

 ~~$\leq 13(a)$~~  NA

f. Deleted

g. Manual Initiation

NA

3. REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION

a. RCIC Steam Line Flow - High

 ~~$\leq 13(a)$~~  NA

b. RCIC Steam Supply Pressure - Low

 ~~$\leq 13(a)$~~  NA

c. RCIC Turbine Exhaust Diaphragm Pressure - High

NA

d. RCIC Equipment Room Temperature - High

NA

e. Manual Initiation

NA

TABLE 3.3.2-3 (Continued)

ISOLATION ACTUATION SYSTEM INSTRUMENTATION RESPONSE TIME

TRIP FUNCTION RESPONSE TIME(Seconds)<sup>#</sup>

4. HIGH PRESSURE COOLANT INJECTION SYSTEM ISOLATION

- |   |                      |
|---|----------------------|
| a. HPCI Steam Flow - High                         | <del>512(a)</del> NA |
| b. HPCI Steam Supply Pressure - Low               | <del>512(a)</del> NA |
| c. HPCI Turbine Exhaust Diaphragm Pressure - High | NA                   |
| d. HPCI Equipment Room Temperature - High         | NA                   |
| e. Manual Initiation                              | NA                   |

5. RHR SYSTEM SHUTDOWN COOLING MODE ISOLATION

- |  |    |
|--|----|
| a. Reactor Vessel Low Water Level - Level 3                                      | NA |
| b. Reactor Vessel (Shutdown Cooling Cut-in Permissive Interlock) Pressure - High | NA |
| c. Manual Initiation   | NA |

6. SECONDARY CONTAINMENT ISOLATION

- |  |                      |
|--|----------------------|
| a. Reactor Vessel Low Water Level - Level 2          | <del>512(a)</del> NA |
| b. Drywell Pressure - High                           | <del>512(a)</del> NA |
| c. Fuel Pool Ventilation Exhaust Radiation - High(b) | <del>512(a)</del> NA |
| d. Manual Initiation                                 | NA                   |

~~(a) <sup>DELETED</sup> The isolation system instrumentation response time shall be measured and recorded as a part of the ISOLATION SYSTEM RESPONSE TIME. Isolation system instrumentation response time specified includes diesel generator starting and sequence loading delays.~~

(b) Radiation detectors are exempt from response time testing. Response time shall be measured from detector output or the input of the first electronic component in the channel.

\*Isolation system instrumentation response time for MSIVs only. No diesel generator delays assumed for MSIVs.

~~\*\*Isolation system instrumentation response time for associated valves except MSIVs.~~

<sup>#</sup>Isolation system instrumentation response time specified for the Trip Function actuating each valve group shall be added to isolation time shown in Table 3.6.3-1 and 3.6.5.2-1 for valves in each valve group to obtain ISOLATION SYSTEM RESPONSE TIME for each valve.

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- ## Sensor is eliminated from response time testing for the MSIV actuation logic circuits. Response time testing and conformance to the administrative limits for the remaining channel including trip unit and relay logic are required.
- ### Response time testing is eliminated for the radiation loops based on the qualified Log Rad Monitors.

TABLE 3.3.3-3  
EMERGENCY CORE COOLING SYSTEM RESPONSE TIMES

<u>TRIP FUNCTION</u>	<u>RESPONSE TIME</u> <u>(Seconds)</u>
1. <u>CORE SPRAY SYSTEM</u>	
a. Reactor Vessel Low Water Level - Level 1	< 30 #
b. Drywell Pressure - High	< 30 #
c. Reactor Steam Dome Pressure - Low	NA*
d. Manual Initiation	NA
2. <u>LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM</u>	
a. Reactor Vessel Low Water Level - Level 1	< 55 #
b. Drywell Pressure - High	< 55 #
c. Reactor Steam Dome Pressure - Low	NA*
d. Reactor Vessel Low Water Level - Level 2	NA
e. Reactor Steam Dome Pressure - Low	NA
f. Riser Differential Pressure - High	NA
g. Recirculation Pump Differential Pressure - High	NA
h. Manual Initiation	NA
3. <u>HIGH PRESSURE COOLANT INJECTION SYSTEM</u>	
a. Reactor Vessel Low Water Level - Level 2	< 30 #
b. Drywell Pressure - High	NA
c. Condensate Storage Tank Level - Low	NA
d. Reactor Vessel Water Level - High, Level 8	NA
e. Suppression Pool Water Level - High	NA
f. Manual Initiation	NA
4. <u>AUTOMATIC DEPRESSURIZATION SYSTEM</u>	
a. Reactor Vessel Low Water Level - Level 1	NA
b. Drywell Pressure - High	NA
c. ADS Timer	NA
d. Core Spray Pump Discharge Pressure - High	NA
e. RHR LPCI Mode Pump Discharge Pressure - High	NA
f. Reactor Vessel Low Water Level - Level 3	NA
g. Manual Initiation	NA
h. Drywell Pressure - High Bypass Timer	NA
i. Manual Inhibit	NA
5. <u>LOSS OF POWER</u>	
a. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)	NA
b. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)	NA

\*These are permissive signals only. They do not activate ECCS initiation.

# ECCS ACTUATION INSTRUMENTATION IS ELIMINATED FROM RESPONSE TIME TESTING.



ENCLOSURE 3 - PART 2

PROPOSED TECHNICAL SPECIFICATION REVISED PAGES

TABLE 3.3.1-2  
REACTOR PROTECTION SYSTEM RESPONSE TIMES

FUNCTIONAL UNIT	RESPONSE TIME (Seconds)
1. Intermediate Range Monitors:	
a. Neutron Flux - High	NA
b. Inoperative	NA
2. Average Power Range Monitor*:	
a. Neutron Flux - High, Setdown	NA
b. Flow Biased Simulated Thermal Power - High	$6 \pm 1^{**}$
c. Fixed Neutron Flux - High	$\leq 0.09$
d. Inoperative	NA
3. Reactor Vessel Steam Dome Pressure - High	$\leq 0.55^{\#}$
4. Reactor Vessel Low Water Level - Level 3	$\leq 1.05^{\#}$
5. Main Steam Line Isolation Valve - Closure	$\leq 0.06$
6. Main Steam Line Radiation - High	NA
7. Drywell Pressure - High	NA
8. Scram Discharge Volume Water Level - High	
a. Float Switch	NA
b. Level Transmitter	NA
9. Turbine Stop Valve - Closure	$\leq 0.06$
10. Turbine Control Valve Fast Closure	$\leq 0.08^{***}$
11. Reactor Mode Switch Shutdown Position	NA
12. Manual Scram	NA
13. Deleted	

\*Neutron detectors are exempt from response time testing. Response time shall be measured from the detector output or from the input of the first electronic component in the channel.

\*\*Including simulated thermal power time constant.

\*\*\*Measured from deenergization of K-37 relay which inputs the turbine control valve closure signal to the RPS.

<sup>#</sup>Sensor is eliminated from response time testing for the RPS circuits. Response time testing and conformance to the administrative limits for the remaining channel including trip unit and relay logic are required.



TABLE 3.3.2-3

ISOLATION ACTUATION SYSTEM INSTRUMENTATION RESPONSE TIME

<u>TRIP FUNCTION</u>	<u>RESPONSE TIME (Seconds)<sup>#</sup></u>
1. <u>PRIMARY CONTAINMENT ISOLATION</u>	
a. Reactor Vessel Low Water Level	
1) Level 3	NA
2) Level 2	NA
3) Level 1	≤ 1.0*##/NA
b. Drywell Pressure - High	NA
c. Main Steam Line	
1) Radiation - High(b)	NA###
2) Pressure - Low	NA
3) Flow - High	≤ 0.5*##/NA
d. Main Steam Line Tunnel Temperature - High	NA
e. Condenser Pressure - High	NA
f. Turbine Bldg. Area Temperature - High	NA
g. Deleted	
h. Manual Initiation	NA
2. <u>REACTOR WATER CLEANUP SYSTEM ISOLATION</u>	
a. Δ Flow - High	NA
b. Heat Exchanger/Pump/High Energy Piping Area Temperature - High	NA
c. Heat Exchanger/Pump/Phase Separator Area Ventilation Temperature ΔT - High	NA
d. SLCS Initiation	NA
e. Reactor Vessel Low Water Level - Level 2	NA
f. Deleted	
g. Manual Initiation	NA
3. <u>REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION</u>	
a. RCIC Steam Line Flow - High	NA
b. RCIC Steam Supply Pressure - Low	NA
c. RCIC Turbine Exhaust Diaphragm Pressure - High	NA
d. RCIC Equipment Room Temperature - High	NA
e. Manual Initiation	NA

TABLE 3.3.2-3 (Continued)

ISOLATION ACTUATION SYSTEM INSTRUMENTATION RESPONSE TIME

<u>TRIP FUNCTION</u>	<u>RESPONSE TIME(Seconds)#</u>
4. <u>HIGH PRESSURE COOLANT INJECTION SYSTEM ISOLATION</u>	
a. HPCI Steam Flow - High	NA
b. HPCI Steam Supply Pressure - Low	NA
c. HPCI Turbine Exhaust Diaphragm Pressure - High	NA
d. HPCI Equipment Room Temperature - High	NA
e. Manual Initiation	NA
5. <u>RHR SYSTEM SHUTDOWN COOLING MODE ISOLATION</u>	
a. Reactor Vessel Low Water Level - Level 3	NA
b. Reactor Vessel (Shutdown Cooling Cut-in Permissive Interlock) Pressure - High	NA
c. Manual Initiation	NA
6. <u>SECONDARY CONTAINMENT ISOLATION</u>	
a. Reactor Vessel Low Water Level - Level 2	NA
b. Drywell Pressure - High	NA
c. Fuel Pool Ventilation Exhaust Radiation - High <sup>(b)</sup>	NA
d. Manual Initiation	NA

(a) Deleted

(b) Radiation detectors are exempt from response time testing. Response time shall be measured from detector output or the input of the first electronic component in the channel.

\*Isolation system instrumentation response time for MSIVs only. No diesel generator delays assumed for MSIVs.

#Isolation system instrumentation response time specified for the Trip Function actuating each valve group shall be added to isolation time shown in Table 3.6.3-1 and 3.6.5.2-1 for valves in each valve group to obtain ISOLATION SYSTEM RESPONSE TIME for each valve.

##Sensor is eliminated from response time testing for the MSIV actuation logic circuits. Response time testing and conformance to the administrative limits for the remaining channel including trip unit and relay logic are required.

###Response time testing is eliminated for the radiation loops based on the qualified Log Rad Monitors.

TABLE 3.3.3-3  
EMERGENCY CORE COOLING SYSTEM RESPONSE TIMES

<u>TRIP FUNCTION</u>	<u>RESPONSE TIME</u> <u>(Seconds)</u>
1. <u>CORE SPRAY SYSTEM</u>	
a. Reactor Vessel Low Water Level - Level 1	≤ 30 <sup>#</sup>
b. Drywell Pressure - High	≤ 30 <sup>#</sup>
c. Reactor Steam Dome Pressure - Low	NA*
d. Manual Initiation	NA
2. <u>LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM</u>	
a. Reactor Vessel Low Water Level - Level 1	≤ 55 <sup>#</sup>
b. Drywell Pressure - High	≤ 55 <sup>#</sup>
c. Reactor Steam Dome Pressure - Low	NA*
d. Reactor Vessel Low Water Level - Level 2	NA
e. Reactor Steam Dome Pressure - Low	NA
f. Riser Differential Pressure - High	NA
g. Recirculation Pump Differential Pressure - High	NA
h. Manual Initiation	NA
3. <u>HIGH PRESSURE COOLANT INJECTION SYSTEM</u>	
a. Reactor Vessel Low Water Level - Level 2	≤ 30 <sup>#</sup>
b. Drywell Pressure - High	NA
c. Condensate Storage Tank Level - Low	NA
d. Reactor Vessel Water Level - High, Level 8	NA
e. Suppression Pool Water Level - High	NA
f. Manual Initiation	NA
4. <u>AUTOMATIC DEPRESSURIZATION SYSTEM</u>	
a. Reactor Vessel Low Water Level - Level 1	NA
b. Drywell Pressure - High	NA
c. ADS timer	NA
d. Core Spray Pump Discharge Pressure - High	NA
e. RHR LPCI Mode Pump Discharge Pressure - High	NA
f. Reactor Vessel Low Water Level - Level 3	NA
g. Manual Initiation	NA
h. Drywell Pressure - High Bypass Timer	NA
i. Manual Inhibit	NA
5. <u>LOSS OF POWER</u>	
a. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)	NA
b. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)	NA

\*These are permissive signals only. They do not activate ECCS initiation.

<sup>#</sup>ECCS actuation instrumentation is eliminated from response time testing.