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FERMI 2 TECHNICAL REQUIREMENTS MANUAL – VOL I
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Technical Requirements Manual

Volume I

Detroit
Edison

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TABLE TR3.3.1.1-1 (Page 2 of 2)
Reactor Protection System Instrumentation

FUNCTION	TRIP SETPOINT	RESPONSE TIME (seconds)
3. Reactor Vessel Steam Dome Pressure - High	≤ 1093 psig	$\leq 0.55^{(c)}$
4. Reactor Vessel Water Level - Low, Level 3	≥ 173.4 inches ^(d)	$\leq 1.05^{(c)}$
5. Main Steam Isolation Valve - Closure	$\leq 8\%$ closed	≤ 0.06
6. Main Steam Line Radiation - High	≤ 3.0 x full power background ^(f)	NA
7. Drywell Pressure - High	≤ -1.68 psig	NA
8. Scram Discharge Volume Water Level - High		
a. Level Transmitter	≤ 592 ft. 6 inches	NA
b. Float Switch	≤ 594 ft. 8 inches	NA
9. Turbine Stop Valve-Closure	$\leq 5\%$ closed	≤ 0.06
10. Turbine Control Valve Fast Closure	Initiation of fast closure	$\leq 0.08^{(e)}$

(c) The sensor and relays/logic response time need not be measured and may be assumed to be the design response time. Prior to return to service of a new transmitter/relay or following refurbishment of a transmitter (e.g., sensor cell or variable damper components/relay), a response time test will be performed to determine an initial sensor/relay specific response time value.

(d) As referenced to instrument zero Top of Active Fuel (TAF).

(e) Measured from de-energization of K37 relay, which inputs the turbine control valve closure signal, to the RPS.

(f) A new "full power background" level is established for hydrogen water chemistry based on 100% power operation with the established hydrogen injection rate. Actual background radiation levels may be less depending on actual power level or hydrogen injection rate.

Setpoint adjustment is not necessary for variations in power or hydrogen injection rate including interruptions in hydrogen flow.

TR 3.3 INSTRUMENTATION

TR 3.3.6.1 Primary Containment Isolation Instrumentation

The primary containment isolation instrumentation trip setpoints are listed in Table TR3.3.6.1-1.

TABLE TR3.3.6.1-1 (Page 1 of 3)
Primary Containment Isolation Instrumentation

FUNCTION	TRIP SETPOINT	RESPONSE TIME (seconds)
1. Main Steam Line Isolation		
a. Reactor Vessel Water Level - Low Low Low, Level 1	≥ 31.8 inches ^(f)	≤ 1.0 ^{(b)(c)}
b. Main Steam Line Pressure - Low	≥ 756 psig	NA
c. Main Steam Line Flow - High	≤ 115.4 psid	≤ 0.5 ^{(b)(c)}
d. Condenser Pressure - High	≤ 6.85 psia	NA
e. Main Steam Tunnel Temperature - High	$\leq 200^\circ\text{F}$	NA
f. Main Steam Line Radiation - High	≤ 3.0 x full power background ^(e)	NA
g. Turbine Building Area Temperature - High	$\leq 200^\circ\text{F}$	NA
h. Manual Initiation	NA	NA
2. Primary Containment Isolation		
a. Reactor Vessel Water Level - Low, Level 3	≥ 173.4 inches ^(f)	NA
b. Reactor Vessel Water Level - Low Low, Level 2	≥ 110.8 inches ^(f)	NA
c. Drywell Pressure - High	≤ 1.68 psig	NA
d. Manual Initiation	NA	NA

(continued)

(b) Isolation system instrumentation response time for MSIVs Only. No diesel generator delays assumed for MSIVs.

(c) Except for Function 1 Main Steam Line Isolation Instrumentation DC Output Relays, the sensor and relays/logic response time need not be measured and may be assumed to be the design sensor response time. Prior to return to service of a new transmitter/relay or following refurbishment of a transmitter (e.g., sensor cell or variable damper components/relay), a response time test will be performed to determine an initial sensor/relay-specific response time value.

(e) A new "full power background" level is established for hydrogen water chemistry based on 100% power operation with the established hydrogen injection rate. Actual background radiation levels may be less depending on actual power level or hydrogen injection rate.

Setpoint adjustment is not necessary for variations in power or hydrogen injection rate, including interruptions in hydrogen flow.

(f) As referenced to instrument zero Top of Active Fuel (TAF).