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SUSQUEHANNA - UNIT 2

3/4 3-12

Effective Date:
 October 20, 1989
 Amendment No. 61

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION</u>	<u>ISOLATION SIGNAL(S)(a)</u>	<u>MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM (b)</u>	<u>APPLICABLE OPERATIONAL CONDITION</u>	<u>ACTION</u>
3. MAIN STEAM LINE ISOLATION				
a. Reactor Vessel Water Level - Low Low Low, Level 1	X	2	1, 2, 3	21
b. Main Steam Line Radiation - High	C	2	1, 2, 3	21
c. Main Steam Line Pressure - Low	P	2	1	22
d. Main Steam Line Flow - High	D	2/line	1, 2, 3	20
e. Condenser Vacuum - Low	UA	2	1, 2, 3	21
f. Reactor Building Main Steam Line Tunnel Temperature - High	E	2	1, 2, 3	21
g. Reactor Building Main Steam Line Tunnel Δ Temperature - High	E	2	1, 2, 3	21*
h. Manual Initiation	NA	1	1, 2, 3	24
i. Turbine Building Main Steam Line Tunnel Temperature - High	E	2	1, 2, 3	21
4. REACTOR WATER CLEANUP SYSTEM ISOLATION				
a. RWCU Δ Flow - High	J	1	1, 2, 3	23
b. RWCU Area Temperature - High	W	3	1, 2, 3	23
c. RWCU Area Ventilation Δ Temperature - High	W	3	1, 2, 3	23*
d. SLCS Initiation	I	2	1, 2, 3	23
e. Reactor Vessel Water Level - Low Low, Level 2	B	2	1, 2, 3	23
f. RWCU Flow - High	J	1	1, 2, 3	23
g. Manual Initiation	NA	1	1, 2, 3	24

SEE REVISED PAGE

*These trip functions need not be OPERABLE from October 19, 1989 to January 1, 1990.

TABLE 3.3.2-1 (Continued)
ISOLATION ACTUATION INSTRUMENTATION

TRIP FUNCTION	ISOLATION SIGNAL(S)(a)	MINIMUM OPERABLE CHANNELS PER TRIP SYSTEMS (b)	APPLICABLE OPERATIONAL CONDITION	ACTION
3. <u>MAIN STEAM LINE ISOLATION</u>				
a. Reactor Vessel Water Level - Low Low Low, Level 1	X	2	1, 2, 3	21
b. Main Steam Line Radiation - High	C	2	1, 2, 3	21
c. Main Steam Line Pressure - Low	P	2	1	22
d. Main Steam Line Flow - High	D	2/line	1, 2, 3	20
e. Condenser Vacuum - Low	UA	2	1, 2, 3	21
f. Reactor Building Main Steam Line Tunnel Temperature - High	E	2	1, 2, 3	21
g. Reactor Building Main Steam Line Tunnel Δ Temperature - High	E	2	1, 2, 3	21*
h. Manual Initiation	NA	1	1, 2, 3	24
i. Turbine Building Main Steam Line Tunnel Temperature - High	E	2	1, 2, 3	21
4. <u>REACTOR WATER CLEANUP SYSTEM ISOLATION</u>				
a. RWCU Δ Flow - High	J	1	1, 2, 3	23
b. RWCU Area Temperature - High	W	3	1, 2, 3	23
c. RWCU Area Ventilation Δ Temperature - High	W	3	1, 2, 3	23*
d. SLCS Initiation	I	2	1, 2, 3	23
e. Reactor Vessel Water Level - Low Low, Level 2	B	2	1, 2, 3	23
f.1. RWCU Flow - High	J	1#	1, 2, 3	23
f.2. Non-Regenerative Heat Exchanger Discharge Temperature - High	J	1#	1, 2, 3	23
g. Manual Initiation	NA	1	1, 2, 3	24

* These trip functions need not be OPERABLE from October 19, 1989 to January 1, 1990.

For Unit 2 Cycle 6 operation, the Non-Regenerative Heat Exchanger Discharge Temperature - High Channel shall be OPERABLE in place of RWCU Flow - High Channel 'B'.

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION	TRIP SETPOINT	ALLOWABLE VALUE
MAIN STEAM LINE ISOLATION (Continued)		
e. Condenser Vacuum - Low	≥ 9.0 inches Hg vacuum	≥ 8.8 inches Hg vacuum
f. Reactor Building Main Steam Line Tunnel Temperature - High	≤ 177°F	≤ 184°F
g. Reactor Building Main Steam Line Tunnel Δ Temperature - High	≤ 99°F	≤ 108°F*
h. Manual Initiation	NA	NA
i. Turbine Building Main Steam Line Tunnel Temperature - High	≤ 197°F	≤ 200°F
4. REACTOR WATER CLEANUP SYSTEM ISOLATION		
a. RWCU Δ Flow - High	≤ 60 gpm	≤ 80 gpm
b. RWCU Area Temperature - High	≤ 147°F or 131°F#	≤ 154°F or 137°F#
c. RWCU/Area Ventilation Δ Temperature - High	≤ 69°F or 40.5°F#	≤ 72°F or 43.5°F#*
d. SLCS Initiation	NA	NA
e. Reactor Vessel Water Level - Low Low, Level 2	≥ -38 inches*	≥ -45 inches
f. RWCU Flow - High	≤ 426 gpm	≤ 436 gpm
g. Manual Initiation	NA	NA
5. REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION		
a. RCIC Steam Line Δ Pressure - High	≤ 153" H ₂ O	≤ 165" H ₂ O
b. RCIC Steam Supply Pressure - Low	≥ 60 psig	≥ 53 psig
c. RCIC Turbine Exhaust Diaphragm Pressure - High	≤ 10.0 psig	≤ 20.0 psig

* These trip functions need not be OPERABLE from October 19, 1989 to January 19, 1990.

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**TABLE 3.3.2-2 (Continued)
ISOLATION ACTUATION INSTRUMENTATION SETPOINTS**

TRIP FUNCTION	TRIP SETPOINT	ALLOWABLE VALUE
MAIN STEAM LINE ISOLATION (Continued)		
e. Condenser Vacuum - Low	≥ 9.0 inches Hg vacuum	≥ 8.8 inches Hg vacuum
f. Reactor Building Main Steam Line Runnel Temperature - High	≤ 177°F	≤ 184°F
g. Reactor Building Main Steam Line Tunnel Δ Temperature - High	≤ 99°F	≤ 108°F*
h. Manual Initiation	NA	NA
i. Turbine Building Main Steam Line Tunnel Temperature - High	≤ 197°F	≤ 200°F
4. REACTOR WATER CLEANUP SYSTEM ISOLATION		
a. RWCU Δ Flow - High	≤ 60 gpm	≤ 80 gpm
b. RWCU Area Temperature - High	≤ 147°F or 131°F#	≤ 154°F or 137°F#
c. RWCU/Area Ventilation Δ Temperature - High	≤ 69°F or 40.5°F#	≤ 72°F or 43.5°F#*
d. SLCS Initiation	NA	NA
e. Reactor Vessel Water Level - Low Low, Level 2	≥ -38 inches*	≥ -45 inches
f1. RWCU Flow - High	≤ 426 gpm	≤ 436 gpm
f2. Non-Regenerative Heat Exchanger Discharge Temperature - High	≤ 144°F	≤ 150°F
g. Manual Initiation	NA	NA
5. REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION		
a. RCIC Steam Line Δ Pressure - High	≤ 153" H ₂ O	≤ 165" H ₂ O
b. RCIC Steam Supply Pressure - Low	≥ 60 psig	≥ 53 psig
c. RCIC Turbine Exhaust Diaphragm Pressure - High	≤ 10.0 psig	≤ 20.0 psig
* These trip functions need not be OPERABLE from October 19, 1989 to January 19, 1990.		

TABLE 3.3.2-3

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

TRIP FUNCTION	RESPONSE TIME (Seconds)#
1. PRIMARY CONTAINMENT ISOLATION	
a. Reactor Vessel Water Level	
1) Low, Level 3	<10(a)
2) Low Low, Level 2	<1.0*/<10(a)**
3) Low Low Low, Level 1	<10(a)
b. Drywell Pressure - High	<10(a)
c. Manual Initiation	NA
d. SGTS Exhaust Radiation - High(b)	<10(a)
e. Main Steam Line Radiation - High(b)	<10(a)
2. SECONDARY CONTAINMENT ISOLATION	
a. Reactor Vessel Water Level-Low Low, Level 2	<10(a)
b. Drywell Pressure - High	<10(a)
c. Refuel Floor High Exhaust Duct Radiation - High(b)	<10(a)
d. Railroad Access Shaft Exhaust Duct Radiation - High(b)	<10(a)
e. Refuel Floor Wall Exhaust Duct Radiation -High(b)	<10(a)
f. Manual Initiation	NA
3. MAIN STEAM LINE ISOLATION	
a. Reactor Vessel Water Level- Low Low Low, Level 1	<10(a)
b. Main Steam Line Radiation - High(b)	<1.0*/<10(a)**
c. Main Steam Line Pressure - Low	<1.0*/<10(a)**
d. Main Steam Line Flow-High	<0.5*/<10(a)**
e. Condenser Vacuum - Low	NA
f. Reactor Building Main Steam Line Tunnel Temperature - High	NA
g. Reactor Building Main Steam Line Tunnel Δ Temperature - High	NA
h. Manual Initiation	NA
i. Turbine Building Main Steam Line Tunnel Temperature - High	NA
4. REACTOR WATER CLEANUP SYSTEM ISOLATION	
a. RWCU Δ Flow - High	<10(a)##
b. RWCU Area Temperature - High	NA
c. RWCU Area Ventilation Temperature ΔT - High	NA
d. SLCS Initiation	NA
e. Reactor Vessel Water Level - Low Low, Level 2	<10(a)
f. RWCU Flow - High	NA SEE REVISED PAGE
g. Manual Initiation	NA
5. REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION	
a. RCIC Steam Line Δ Pressure - High	<10(a)###
b. RCIC Steam Supply Pressure - Low	<10(a)
c. RCIC Turbine Exhaust Diaphragm Pressure - High	NA
d. RCIC Equipment Room Temperature - High	NA
e. RCIC Equipment Room Δ Temperature - High	NA
f. RCIC Pipe Routing Area Temperature - High	NA
g. RCIC Pipe Routing Area Δ Temperature - High	NA
h. RCIC Emergency Area Cooler Temperature - High	NA
i. Manual Initiation	NA
j. Drywell Pressure - High	<10(a)

**TABLE 3.3.2-3
ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME**

TRIP FUNCTION	RESPONSE TIME (Seconds)#
<p>1. PRIMARY CONTAINMENT ISOLATION</p> <ul style="list-style-type: none"> a. Reactor Vessel Water Level <ul style="list-style-type: none"> 1) Low, Level 3 2) Low Low, Level 2 3) Low Low Low, Level 1 b. Drywell Pressure - High c. Manual Initiation d. SGTS Exhaust Radiation - High^(b) e. Main Steam Line Radiation - High^(b) 	<ul style="list-style-type: none"> ≤ 10^(a) ≤ 1.0*/≤ 10^(a) ** ≤ 10^(a) ≤ 10^(a) NA ≤ 10^(a) ≤ 10^(a)
<p>2. SECONDARY CONTAINMENT ISOLATION</p> <ul style="list-style-type: none"> a. Reactor Vessel Water Level - Low Low, Level 2 b. Drywell Pressure - High c. Refuel Floor High Exhaust Duct Radiation - High^(b) d. Railroad Access Shaft Exhaust Duct Radiation - High (b) e. Refuel Floor Wall Exhaust Duct Radiation - High^(b) f. Manual Initiation 	<ul style="list-style-type: none"> ≤ 10^(a) ≤ 10^(a) ≤ 10^(a) ≤ 10^(a) ≤ 10^(a) NA
<p>3. MAIN STEAM LINE ISOLATION</p> <ul style="list-style-type: none"> a. Reactor Vessel Water Level - Low Low Low, Level 1 b. Main Steam Line Radiation - High^(b) c. Main Steam Line Pressure - Low d. Main Steam Line Flow - High e. Condenser Vacuum - Low f. Reactor Building Main Steam Line Tunnel Temperature - High g. Reactor Building Main Steam Line Tunnel Δ Temperature - High h. Manual Initiation i. Turbine Building Main Steam Line Tunnel Temperature - High 	<ul style="list-style-type: none"> ≤ 10^(a) ≤ 1.0*/≤ 10^(a) ** ≤ 1.0*/≤ 10^(a) ** ≤ 0.5*/≤ 10^(a) ** NA NA NA NA NA
<p>4. REACTOR WATER CLEANUP SYSTEM ISOLATION</p> <ul style="list-style-type: none"> a. RWCU Δ Flow - High b. RWCU Area Temperature - High c. RWCU Area Ventilation Temperature ΔT - High d. SLCS Initiation e. Reactor Vessel Water Level - Low Low, Level 2 f1. RWCU Flow - High f2. Non-Regenerative Heat Exchanger Discharge Temperature - High g. Manual Initiation 	<ul style="list-style-type: none"> ≤ 10^(a)## NA NA NA ≤ 10^(a) NA NA NA
<p>5. REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION</p> <ul style="list-style-type: none"> a. RCIC Steam Line Δ Pressure - High b. RCIC Steam Supply Pressure - Low c. RCIC Turbine Exhaust Diaphragm Pressure - High d. RCIC Equipment Room Temperature - High e. RCIC Equipment Room Δ Temperature - High f. RCIC Pipe Routing Area Temperature - High g. RCIC Pipe Routing Area Δ Temperature - High h. RCIC Emergency Area Cooler Temperature - High i. Manual Initiation j. Drywell Pressure - High 	<ul style="list-style-type: none"> ≤ 10^(a)### ≤ 10^(a) NA NA NA NA NA NA NA NA ≤ 10^(a)



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TABLE 4.3.2.1-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED</u>
3. MAIN STEAM LINE ISOLATION				
a. Reactor Vessel Water Level - Low Low Low, Level 1	S	M	R	1, 2, 3
b. Main Steam Line Radiation - High	S	M	R	1, 2, 3
c. Main Steam Line Pressure - Low	NA	M	Q	1
d. Main Steam Line Flow - High	S	M	R	1, 2, 3
e. Condenser Vacuum - Low	NA	M	Q	1, 2**, 3**
f. Reactor Building Main Steam Line Tunnel Temperature - High	NA	M	Q	1, 2, 3
g. Reactor Building Main Steam Line Tunnel Δ Temperature - High	NA	M	Q	1, 2, 3*
h. Manual Initiation	NA	R	NA	1, 2, 3
i. Turbine Building Main Steam Line Tunnel Temperature - High	NA	M	Q	1, 2, 3
4. REACTOR WATER CLEANUP SYSTEM ISOLATION				
a. RWCU Δ Flow - High	S	M	R	1, 2, 3
b. RWCU Area Temperature - High	NA	M	Q	1, 2, 3
c. RWCU Area Ventilation Δ Temperature - High	NA	M	Q	1, 2, 3*
d. SLCS Initiation	NA	R	NA	1, 2, 3
e. Reactor Vessel Water Level - Low Low, Level 2	S	M	R	1, 2, 3
f. RWCU Flow - High	S	M	R	1, 2, 3
g. Manual Initiation	NA	R	NA	1, 2, 3

SEE REVISED PAGE

*These trip functions need not be OPERABLE from October 19, 1989 to January 19, 1990.

TABLE 4.3.2.1-1 (Continued)
ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED
3. MAIN STEAM LINE ISOLATION				
a. Reactor Vessel Water Level - Low Low Low, Level 1	S	M	R	1, 2, 3
b. Main Steam Line Radiation - High	S	M	R	1, 2, 3
c. Main Steam Line Pressure - Low	NA	M	Q	1
d. Main Steam Line Flow - High	S	M	R	1, 2, 3
e. Condenser Vacuum - Low	NA	M	Q	1, 2 **, 3 **
f. Reactor Building Main Steam Line Tunnel Temperature - High	NA	M	Q	1, 2, 3
g. Reactor Building Main Steam Line Tunnel Δ Temperature - High	NA	M	Q	1, 2, 3*
h. Manual Initiation	NA	R	NA	1, 2, 3
i. Turbine Building Main Steam Line Tunnel Temperature - High	NA	M	Q	1, 2, 3
4. REACTOR WATER CLEANUP SYSTEM ISOLATION				
a. RWCU Δ Flow - High	S	M	R	1, 2, 3
b. RWCU Area Temperature - High	NA	M	Q	1, 2, 3
c. RWCU Area Ventilation Δ Temperature - High	NA	M	Q	1, 2, 3*
d. SLCS Initiation	NA	R	NA	1, 2, 3
e. Reactor Vessel Water Level - Low Low, Level 2	S	M	R	1, 2, 3
f.1. RWCU Flow - High [#]	S	M	R	1, 2, 3
f.2. Non-Regenerative Heat Exchanger Discharge Temperature - High [#]	S	M	Q	1, 2, 3
g. Manual Initiation	NA	R	NA	1, 2, 3

* These trip functions need not be OPERABLE from October 19, 1989 to January 1, 1990.

For Unit 2 Cycle 6 operation, the Non-Regenerative Heat Exchanger Discharge Temperature - High Channel shall be OPERABLE in place of RWCU Flow - High Channel 'B'.