

Enclosure 1 to NLS-85-220

Proposed Technical Specification Pages
Brunswick-1

ECCS Actuation Information
(85TSB04)

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SUMMARY LIST OF REVISIONS

BRUNSWICK-1

<u>Page No.</u>	<u>Description</u>
3/4 3-31	<p>Add footnote "(a)" to MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM heading.</p> <p>Change former footnote "*" to "(b)".</p> <p>Change former footnote "#" to "(d)".</p>
3/4 3-32	<p>Add footnote "(a)" to MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM heading.</p> <p>Change former footnote "*" to "(b)".</p> <p>Change former footnote "***" to "(c)".</p> <p>Change former footnote "#" to "(d)".</p>
3/4 3-32a	<p>Add footnote "(a)" to MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM heading.</p> <p>Change former footnote "#" to "(d)".</p> <p>Change former footnote "##" to "(e)".</p> <p>Move footnote descriptions to next page.</p>
3/4 3-33	<p>Add Note a, "A channel may be placed in an inoperable status for up to two hours for required surveillance without placing the trip system in the tripped condition, provided at least one OPERABLE channel in the same trip system is monitoring the affected. parameter."</p> <p>Add Note b, "Not applicable when two core spray system subsystems are OPERABLE per Specification 3.5.3.1."</p> <p>Add Note c, "Provides signal to HPCI pump suction valves only."</p> <p>Add Note d, "Alarm only."</p> <p>Add Note e, "Required when ESF equipment is required to be OPERABLE."</p>

TABLE 3.3.3-1

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM^(a)</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>
1. CORE SPRAY SYSTEM			
a. Reactor Vessel Water Level - Low, Level 3 (B21-LT-NO31A,B,C,D) (B21-LTS-NO31A-4,B-4,C-4,D-4)	2	1, 2, 3, 4, 5	30
b. Reactor Steam Dome Pressure - Low (Injection Permissive) (B21-PT-NO21A,B,C,D) (B21-PTS-NO21A-2,B-2,C-2,D-2)	2	1, 2, 3, 4, 5	31
c. Drywell Pressure - High (E11-PT-NO11A,B,C,D) (E11-PTS-NO11A-2,B-2,C-2,D-2)	2	1, 2, 3	30
d. Time Delay Relay (E21-K16A,B)	1	1, 2, 3, 4, 5	31
e. Bus Power Monitor ^(d) (E21-K1A,B)	1/bus	1, 2, 3, 4, 5	32
2. LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM			
a. Drywell Pressure - High (E11-PT-NO11A,B,C,D) (E11-PTM-NO11A-1,B-1,C-1,D-1)	2	1, 2, 3	30
b. Reactor Vessel Water Level - Low, Level 3 (B21-LT-NO31A,B,C,D) (B21-LTS-NO31A-4,B-4,C-4,D-4)	2	1, 2, 3, 4 ^(b) , 5 ^(b)	30
c. Reactor Vessel Shroud Level (Drywell Spray Permissive) (B21-LT-NO36 and B21-LT-NO37) (B21-LTM-NO36-1 and B21-LTM-NO37-1)	1	1, 2, 3, 4 ^(b) , 5 ^(b)	31
d. Reactor Steam Dome Pressure - Low (Injection Permissive) (B21-PT-NO21A,B,C,D) (B21-PTM-NO21A-1,B-1,C-1,D-1) (B21-PTS-NO21A-2,B-2,C-2,D-2)			
1. RHR Pump Start and LPCI Injection Valve Actuation	2	1, 2, 3, 4 ^(b) , 5 ^(b)	31
2. Recirculation Loop Pump Discharge Valve Actuation	2	1, 2, 3, 4 ^(b) , 5 ^(b)	31

TABLE 3.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM^(a)</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>
<u>LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM (Continued)</u>			
e. RHR Pump Start - Time Delay Relay (STR-1A1,2 and STR-1B1,2)	1	1, 2, 3, 4 ^(b) , 5 ^(b)	31
f. Bus Power Monitor ^(d) (E11-K106A,B)	1/bus	1, 2, 3, 4 ^(b) , 5 ^(b)	32
<u>3. HIGH PRESSURE COOLANT INJECTION SYSTEM</u>			
a. Reactor Vessel Water Level - Low, Level 2 (B21-LT-NO31A,B,C,D) (B21-LTS-NO31A-2,B-2,C-2,D-2)	2	1, 2, 3	30
b. Drywell Pressure - High (E11-PT-NO11A,B,C,D) (E11-PTS-NO11A-2,B-2,C-2,D-2)	2	1, 2, 3	30
c. Condensate Storage Tank Level - Low (E41-LS-N002, E41-LS-N003)	2 ^(c)	1, 2, 3	33
d. Suppression Chamber Water Level - High (E41-LSH-NO15A,B)	2 ^(c)	1, 2, 3	33
e. Bus Power Monitor ^(d) (E41-K55 and E41-K56)	1/bus	1, 2, 3	32
<u>4. AUTOMATIC DEPRESSURIZATION SYSTEM</u>			
a. ADS Inhibit Switch (B21-CS-S5A,B)	1	1, 2, 3	36
b. Reactor Vessel Water Level - Low, Level 3 (B21-LT-NO31A,B,C,D) (B21-LTS-NO31A-3,B-3,C-3,D-3)	2	1, 2, 3	30

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TABLE 3.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM^(a)</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>
<u>AUTOMATIC DEPRESSURIZATION SYSTEM (Continued)</u>			
c. Reactor Vessel Water Level - Low, Level 1 (B21-LT-NO42A,B) (B21-LTM-NO42A-1,B-1)	1	1, 2, 3	30
d. ADS Timer (B21-TDPU-K5A,B)	1	1, 2, 3	31
e. Core Spray Pump Discharge Pressure - High (Permissive) (E21-PS-NO08A,B and E21-PS-NO09A,B)	2	1, 2, 3	31
f. RHR (LPCI MODE) Pump Discharge Pressure - High (Permissive) (E11-PS-NO16A,B,C,D and E11-PS-NO20A,B,C,D)	2/pump	1, 2, 3	31
g. Bus Power Monitor ^(d) (B21-K1A,B)	1/bus	1, 2, 3	32

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>
5. <u>LOSS OF POWER</u>					
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage) Relay Type IAV53K, Device Number 27/59E	1/bus	1/bus	1/bus	1,2,3,4 ^(e) ,5 ^(e)	34
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage) Device Number 27/DV	3/bus	2/bus	2/bus	1,2,3,4 ^(e) ,5 ^(e)	35

TABLE 3.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATIONACTION

- ACTION 30 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement:
- a. For one trip system, place at least one inoperable channel in the tripped condition within one hour or declare the associated ECCS inoperable.
 - b. For both trip systems, declare the associated ECCS inoperable.
- ACTION 31 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, declare the associated ECCS inoperable.
- ACTION 32 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, verify bus power availability at least once per 12 hours or declare the associated ECCS inoperable.
- ACTION 33 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, place at least one inoperable channel in the tripped condition within one hour or declare the HPCS system inoperable.
- ACTION 34 - With the number of OPERABLE channels less than the Total Number of Channels, declare the associated emergency diesel generator inoperable and take the ACTION required by Specification 3.8.1.1 or 3.8.1.2, as appropriate.
- ACTION 35 - With the number of OPERABLE channels one less than the Total Number of Channels, place the inoperable channel in the tripped condition within 1 hour; operation may then continue until performance of the next required CHANNEL FUNCTIONAL TEST.
- ACTION 36 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip Function requirement, restore the inoperable channel to OPERABLE status within 8 hours or declare the associated ECCS inoperable.

NOTES

- a. A channel may be placed in an inoperable status for up to two hours for required surveillance without placing the trip system in the tripped conditions, provided at least one OPERABLE channel in the same trip system is monitoring the affected parameter.
- b. Not applicable when two core spray system subsystems are OPERABLE per Specification 3.5.3.1.
- c. Provides signal to HPCI pump suction valves only.
- d. Alarm only.
- e. Required when ESF equipment is required to be OPERABLE.

Enclosure 2 to NLS-85-220

Proposed Technical Specification Pages
Brunswick-2

ECCS Actuation Instrumentation
(85TSB04)

SUMMARY LIST OF REVISIONS

BRUNSWICK-2

<u>Page No.</u>	<u>Description</u>
3/4 3-31	<p>Add footnote "(a)" to MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM heading.</p> <p>Change former footnote "*" to "(b)".</p> <p>Change former footnote "#" to "(d)".</p>
3/4 3-32	<p>Add footnote "(a)" to MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM heading.</p> <p>Change former footnote "*" to "(b)".</p> <p>Change former footnote "***" to "(c)".</p> <p>Change former footnote "#" to "(d)".</p>
3/4 3-32a	<p>Add footnote "(a)" to MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM heading.</p> <p>Change former footnote "#" to "(d)".</p> <p>Change former footnote "##" to "(e)".</p> <p>Move footnote descriptions to next page.</p>
3/4 3-33	<p>Add Note a, "A channel may be placed in an inoperable status for up to two hours for required surveillance without placing the trip system in the tripped condition, provided at least one OPERABLE channel in the same trip system is monitoring the affected parameter."</p> <p>Add Note b, "Not applicable when two core spray system subsystems are OPERABLE per Specification 3.5.3.1."</p> <p>Add Note c, "Provides signal to HPCI pump suction valves only."</p> <p>Add Note d, "Alarm only."</p> <p>Add Note e, "Required when ESF equipment is required to be OPERABLE."</p>

TABLE 3.3.3-1

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM^(a)</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>
1. CORE SPRAY SYSTEM			
a. Reactor Vessel Water Level - Low, Level 3 (B21-LT-NO31A,B,C,D) (B21-LTS-NO31A ,B-4,C-4,D-4)	2	1, 2, 3, 4, 5	30
b. Reactor Steam Dome Pressure - Low (Injection Permissive) (B21-PT-NO21A,B,C,D) (B21-PTS-NO21A-2,B-2,C-2,D-2)	2	1, 2, 3, 4, 5	31
c. Drywell Pressure - High (E11-PT-NO11A,B,C,D) (E11-PTS-NO11A-2,B-2,C-2,D-2)	2	1, 2, 3	30
d. Time Delay Relay (E21-K16A,B)	1	1, 2, 3, 4, 5	31
e. Bus Power Monitor ^(d) (E21-K1A,B)	1/bus	1, 2, 3, 4, 5	32
2. LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM			
a. Drywell Pressure - High (E11-PT-NO11A,B,C,D) (E11-PTM-NO11A-1,B-1,C-1,D-1)	2	1, 2, 3	30
b. Reactor Vessel Water Level - Low, Level 3 (B21-LT-NO31A,B,C,D) (B21-LTS-NO31A-4,B-4,C-4,D-4)	2	1, 2, 3, 4 ^(b) , 5 ^(b)	30
c. Reactor Vessel Shroud Level (Drywell Spray Permissive) (B21-LT-NO36 and B21-LT-NO37) (B21-LTM-NO36-1 and B21-LTM-NO37-1)	1	1, 2, 3, 4 ^(b) , 5 ^(b)	31
d. Reactor Steam Dome Pressure - Low (Injection Permissive) (B21-PT-NO21A,B,C,D) (B21-PTM-NO21A-1,B-1,C-1,D-1) (B21-PTS-NO21A-2,B-2,C-2,D-2)			
1. RHR Pump Start and LPCI Injection Valve Actuation	2	1, 2, 3, 4 ^(b) , 5 ^(b)	31
2. Recirculation Loop Pump Discharge Valve Actuation	2	1, 2, 3, 4 ^(b) , 5 ^(b)	31

TABLE 3.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION AND INSTRUMENT NUMBER</u>	<u>MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM^(a)</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>
<u>LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM (Continued)</u>			
e. RHR Pump Start - Time Delay Relay (STR-2A1,2 and STR-2B1,2)	1	1, 2, 3, 4 ^(b) , 5 ^(b) , 31	
f. Bus Power Monitor ^(d) (E11-K106A,B)	1/bus	1, 2, 3, 4 ^(b) , 5 ^(b)	32
<u>3. HIGH PRESSURE COOLANT INJECTION SYSTEM</u>			
a. Reactor Vessel Water Level - Low, Level 2 (B21-LT-NO31A,B,C,D) (B21-LTS-NO31A-2,B-2,C-2,D-2)	2	1, 2, 3	30
b. Drywell Pressure - High (E11-PT-NO11A,B,C,D) (E11-PTS-NO11A-2,B-2,C-2,D-2)	2	1, 2, 3	30
c. Condensate Storage Tank Level - Low (E41-LS-N002, E41-LS-N003)	2 ^(c)	1, 2, 3	33
d. Suppression Chamber Water Level - High (E41-LSH-NO15A,B)	2 ^(c)	1, 2, 3	33
e. Bus Power Monitor ^(d) (E41-K55 and E41-K56)	1/bus	1, 2, 3	32
<u>4. AUTOMATIC DEPRESSURIZATION SYSTEM</u>			
a. Drywell Pressure - High, coincident with (E11-PT-NO10A,B,C,D) (E11-PTM-NO10A-1,B-1,C-1,D-1)	2	1, 2, 3	30
b. Reactor Vessel Water Level - Low, Level 3 (B21-LT-NO31A,B,C,D) (B21-LTS-NO31A-3,B-3,C-3,D-3)	2	1, 2, 3	30

TABLE 3.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

TRIP FUNCTION AND INSTRUMENT NUMBER	MINIMUM NUMBER OPERABLE CHANNELS PER TRIP SYSTEM ^(a)	APPLICABLE OPERATIONAL CONDITIONS	ACTION
AUTOMATIC DEPRESSURIZATION SYSTEM (Continued)			
c. Reactor Vessel Water Level - Low, Level 1 (B21-LT-NO42A,B) (B21-LTM-NO42A-1,B-1)	1	1, 2, 3	30
d. ADS Timer (B21-TDPU-K5A,B)	1	1, 2, 3	31
e. Core Spray Pump Discharge Pressure - High (Permissive) (E21-PS-NO08A,B and E21-PS-NO09A,B)	2	1, 2, 3	31
f. RHR (LPCI MODE) Pump Discharge Pressure - High (Permissive) (E11-PS-NO16A,B,C,D and E11-PS-NO20A,B,C,D)	2/pump	1, 2, 3	31
g. Bus Power Monitor ^(d) (B21-K1A,B)	1/bus	1, 2, 3	32

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE OPERATIONAL CONDITIONS	ACTION
5. LOSS OF POWER					
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage) Relay Type IAV53K, Device Number 27/59E	1/bus	1/bus	1/bus	1,2,3,4 ^(e) ,5 ^(e)	34
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage) Device Number 27/DV	3/bus	2/bus	2/bus	1,2,3,4 ^(e) ,5 ^(e)	35

TABLE 3.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATIONACTION

- ACTION 30 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement:
- a. For one trip system, place at least one inoperable channel in the tripped condition within one hour or declare the associated ECCS inoperable.
 - b. For both trip systems, declare the associated ECCS inoperable.
- ACTION 31 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, declare the associated ECCS inoperable.
- ACTION 32 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, verify bus power availability at least once per 12 hours or declare the associated ECCS inoperable.
- ACTION 33 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, place at least one inoperable channel in the tripped condition within one hour or declare the HPCS system inoperable.
- ACTION 34 - With the number of OPERABLE channels less than the Total Number of Channels, declare the associated emergency diesel generator inoperable and take the ACTION required by Specification 3.8.1.1 or 3.8.1.2, as appropriate.
- ACTION 35 - With the number of OPERABLE channels one less than the Total Number of Channels, place the inoperable channel in the tripped condition within 1 hour; operation may then continue until performance of the next required CHANNEL FUNCTIONAL TEST.

NOTES

- a. A channel may be placed in an inoperable status for up to two hours for required surveillance without placing the trip system in the tripped condition, provided at least one OPERABLE channel in the same trip system is monitoring the affected parameter.
- b. Not applicable when two core spray system subsystems are OPERABLE per Specification 3.5.3.1.
- c. Provides signal to HPCI pump suction valves only.
- d. Alarm only.
- e. Required when ESF equipment is required to be OPERABLE.