Industry/TSTF Standard Technical Specification Change Traveler

Add Action to LCO 3.3.6.1 to give option to isolate the penetration

Classification: 3) Improve Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☐ 1432 ☑ 1433 ☑ 1434

Description:

1) NUREGs 1433 and 1434: Add Actions Note allowing administrative opening under administrative control of penetrations isolated to comply with Actions.

2) NUREG-1433 only: Breakout TIP System isolation as a separate isolation Function with the associated Action allowing penetration isolation rather than a unit shutdown.

Justification:

1) The isolation instrumentation serves as a support system for the primary containment isolation valves. Therefore, the Actions for inoperability of the instrumentation need not be more restrictive that inoperability of the function it supports.

As such, the allowance for intermittently opening penetrations (under administrative control) that are isolated to comply with Actions, that is currently in the PCIV Specification, is similarly added to the instrumentation Specification Actions as Note 1.

2) Additionally, the Actions for inoperable primary containment isolation instrumentation that require a unit shutdown is overly restrictive in the event that the inoperability affects only the Traversing Incore Probe System isolation instrumentation. Therefore, a separate isolation instrumentation Function is being provided for this isolation. The Action selected for inoperability of this Function is the same as for inoperable manual isolation Functions (i.e., isolate the penetration in 24 hours). The TIP system penetration is a small bore (approximately 1/2 inch), and its isolation in a design basis event is via the manually operated shear valves. The ability to manually isolate the TIP System by either the normal isolation valve or the shear valve would be unaffected by the inoperable instrumentation. Therefore, the same action as for manual isolation Functions provides an appropriate level of safety.

This change is not applicable to NUREG-1434 since the TIP System for a BWR/6 is totally contained within the Primary Containment.

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Revision History

OG Revision 0 Revision Status: Closed

Revision Proposed by: Susquehanna

Revision Description:
Original Issue

Owners Group Review Information

Date Originated by OG: 02-Nov-96

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved Date: 22-Nov-96

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OG Revision 1 Revision Status: Closed

Revision Proposed by: BWROG

Revision Description:
Complete replacement of BWROG-29, Rev. 0

Owners Group Review Information

Date Originated by OG: 27-Apr-97

Owners Group Comments
(No Comments)

Owners Group Resolution: Superceeded Date: 19-May-97

TSTF Review Information

TSTF Received Date: 19-May-97 Date Distributed for Review 16-May-97

OG Review Completed: ☐ BWOG ☐ WOG ☐ CEOG ☐ BWROG

TSTF Comments:
(No Comments)

TSTF Resolution: Superceeded Date: 19-May-97

OG Revision 2 Revision Status: Closed

Revision Proposed by: BWROG

Revision Description:
Complete replacement of BWROG-29, Rev. 1

Owners Group Review Information

Date Originated by OG: 19-May-97

Owners Group Comments
(No Comments)

Owners Group Resolution: Superceeded Date: 13-Aug-97

OG Revision 3 Revision Status: Closed

Revision Proposed by: BWROG

Revision Description:
Complete replacement of BWROG-29, Rev. 2

Owners Group Review Information

Date Originated by OG: 13-Aug-97

Owners Group Comments
(No Comments)

Owners Group Resolution: Withdrawn Date:

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OG Revision 4 Revision Status: Closed

Revision Proposed by: BWROG

Revision Description:
Revised justification. Revised Bases to clarify which functions (2a and 7a) closes which valves.

Owners Group Review Information

Date Originated by OG: 11-Feb-98

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved Date: 11-Feb-98

TSTF Review Information

TSTF Received Date: 11-Feb-98 Date Distributed for Review 28-May-98

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF Comments:
(No Comments)

TSTF Resolution: Approved Date: 10-Jul-98

NRC Review Information

NRC Received Date: 13-Nov-98

NRC Comments:
5/13/99 - NRC to contact B. Ford.
6/16/99 - CSS has minor changes.
2/11/00 - Revision prepared. Undergoing review.

Final Resolution: Superceded by Revision Final Resolution Date: 10-Feb-99

TSTF Revision 1 Revision Status: Closed

Revision Proposed by: NRC

Revision Description:
Revised to address NRC comments. Revised Condition A to address Function 7.a and 7.b. Revised the Bases to clearly describe Functions 7.a and 7.b.

TSTF Review Information

TSTF Received Date: 06-Mar-00 Date Distributed for Review 07-Mar-00

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF Comments:
(No Comments)

TSTF Resolution: Approved Date: 07-Mar-00

NRC Review Information

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TSTF Revision 1 Revision Status: Closed

NRC Received Date: 13-Mar-00

NRC Comments:

6/14/00 - TSTF to revise to address NRC comments

Final Resolution: Superceded by Revision Final Resolution Date: 14-Jun-00

TSTF Revision 2 Revision Status: Active Next Action: NRC

Revision Proposed by: NRC

Revision Description:
Revised Insert B 155 based on NRC comments to clearly describe the relationship between the sensors and the trip logic.

TSTF Review Information

TSTF Received Date: 14-Jun-00 Date Distributed for Review 14-Jun-00

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF Comments:
(No Comments)

TSTF Resolution: Approved Date: 14-Jun-00

NRC Review Information

NRC Received Date: 14-Jun-00

NRC Comments:
(No Comments)

Final Resolution: NRC Action Pending Final Resolution Date:

Incorporation Into the NUREGs

File to BBS/LAN Date: TSTF Informed Date: TSTF Approved Date:

NUREG Rev Incorporated:

Affected Technical Specifications

Action 3.3.6.1	Primary Containment Isolation Instrumentation Change Description: ACTION Notes	
Action 3.3.6.1 Bases	Primary Containment Isolation Instrumentation Change Description: ACTION Notes	
Bkgnd 3.3.6.1 Bases	Primary Containment Isolation Instrumentation	NUREG(s)- 1433 Only
S/A 3.3.6.1 Bases	Primary Containment Isolation Instrumentation	NUREG(s)- 1433 Only

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LCO 3.3.6.1	Primary Containment Isolation Instrumentation Change Description: Table 3.3.6.1-1	NUREG(s)- 1433 Only
Action 3.3.6.1.A	Primary Containment Isolation Instrumentation	NUREG(s)- 1433 Only
Action 3.3.6.1.A Bases	Primary Containment Isolation Instrumentation	NUREG(s)- 1433 Only
Action 3.3.6.1.G Bases	Primary Containment Isolation Instrumentation	NUREG(s)- 1433 Only

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INSERT B1

The ACTIONS are modified by two Notes. Note 1 allows penetration flow path(s) to be unisolated intermittently under administrative controls. These controls consist of stationing a dedicated operator at the controls of the valve, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for primary containment isolation is indicated.

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3.3 INSTRUMENTATION

3.3.6.1 Primary Containment Isolation Instrumentation

LCO 3.3.6.1 The primary containment isolation instrumentation for each Function in Table 3.3.6.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.1-1.

ACTIONS

1. Penetration flow paths may be unisolated intermittently under administrative controls.

5

-----NOTE-----

2. Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 2.a, 2.b, and 6.b, 7.a, and 7.b **AND** 24 hours for Functions other than Functions 2.a, 2.b, and 6.b, 7.a, and 7.b
B. One or more automatic Functions with isolation capability not maintained.	B.1 Restore isolation capability.	1 hour

(continued)

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Table 3.3.6.1-1 (page 6 of 6)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure – High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [145] psig
b. Reactor Vessel Water Level – Low, Level 3	3,4,5	[2] (c)	J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≥ [10] inches
7. Traversing Incore Probe Isolation					
a. Reactor Vessel Water Level – Low, Level 3	1,2,3	[2]	G	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≥ [10] inches
b. Drywell Pressure – High	1,2,3	[2]	G	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [1.92] psig

(c) Only one trip system required in MODES 4 and 5 when RHR Shutdown Cooling System integrity maintained.

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BASES

BACKGROUND

3, 4. High Pressure Coolant Injection System Isolation and Reactor Core Isolation Cooling System Isolation (continued)

HPCI and RCIC Functions isolate the Group 3, 4, 8, and 9 valves.

5. Reactor Water Cleanup System Isolation

The Reactor Vessel Water Level—Low Low, Level 2 Isolation Function receives input from four reactor vessel water level channels. The outputs from the reactor vessel water level channels are connected into two two-out-of-two trip systems. The Differential Flow—High and SLC System Initiation Functions receive input from two channels, with each channel in one trip system using a one-out-of-one logic. The Area Temperature—High Function receives input from six temperature monitors, three to each trip system. The Area Ventilation Differential Temperature—High Function receives input from six differential temperature monitors, three in each trip system. These are configured so that any one input will trip the associated trip system. Each of the two trip systems is connected to one of the two valves on each RWCU penetration.

RWCU Functions isolate the Group 5 valves.

6. Shutdown Cooling System Isolation

The Reactor Vessel Water Level—Low, Level 3 Function receives input from four reactor vessel water level channels. The outputs from the reactor vessel water level channels are connected to two two-out-of-two trip systems. The Reactor Vessel Pressure—High Function receives input from two channels, with each channel in one trip system using a one-out-of-one logic. Each of the two trip systems is connected to one of the two valves on each shutdown cooling penetration.

Shutdown Cooling System Isolation Functions isolate the Group 11 valves.

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7. Traversing Incore Probe System Isolation

(continued)

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The Reactor Vessel Water Level – Low, Level 3 Isolation Function receives input from two reactor vessel water level channels. The outputs from the reactor vessel water level channels are connected into one two-out-of-two logic trip system. The Drywell Pressure – High Isolation function receives input from two drywell pressure channels. The outputs from the drywell pressure channels are connected into one two-out-of-two logic trip system.

When either Isolation Function actuates, the TIP drive mechanisms will withdraw the TIPs, if inserted, and close the inboard TIP system isolation ball valves when the TIPs are fully withdrawn. The outboard TIP system isolation valves are manual shear valves.

TIP System Isolation Functions isolate the Group [x] valves (inboard isolation ball valves).

BASES

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APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

6.b. Reactor Vessel Water Level—Low, Level 3 (continued)

is bounded by breaks of the recirculation and MSL. The RHR Shutdown Cooling System isolation on Level 3 supports actions to ensure that the RPV water level does not drop below the top of the active fuel during a vessel draindown event caused by a leak (e.g., pipe break or inadvertent valve opening) in the RHR Shutdown Cooling System.

Reactor Vessel Water Level—Low, Level 3 signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels (two channels per trip system) of the Reactor Vessel Water Level—Low, Level 3 Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function. As noted (footnote (c) to Table 3.3.6.1-1), only two channels of the Reactor Vessel Water Level—Low, Level 3 Function are required to be OPERABLE in MODES 4 and 5 (and must input into the same trip system), provided the RHR Shutdown Cooling System integrity is maintained. System integrity is maintained provided the piping is intact and no maintenance is being performed that has the potential for draining the reactor vessel through the system.

The Reactor Vessel Water Level—Low, Level 3 Allowable Value was chosen to be the same as the RPS Reactor Vessel Water Level—Low, Level 3 Allowable Value (LCO 3.3.1.1), since the capability to cool the fuel may be threatened.

The Reactor Vessel Water Level—Low, Level 3 Function is only required to be OPERABLE in MODES 3, 4, and 5 to prevent this potential flow path from lowering the reactor vessel level to the top of the fuel. In MODES 1 and 2, another isolation (i.e., Reactor Steam Dome Pressure—High) and administrative controls ensure that this flow path remains isolated to prevent unexpected loss of inventory via this flow path.

This Function isolates the Group 11 valves.

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(continued)

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Traversing Incore Probe System Isolation

7.a. Reactor Vessel Water Level — Low, Level 3

Low RPV water level indicates that the capability to cool the fuel may be threatened. The valves whose penetrations communicate with the primary containment are isolated to limit the release of fission products. The isolation of the primary containment on Level 3 supports actions to ensure that offsite dose limits of 10 CFR 100 are not exceeded. The Reactor Vessel Water Level — Low, Level 3 Function associated with isolation is implicitly assumed in the FSAR analysis as these leakage paths are assumed to be isolated post LOCA.

Reactor Vessel Water Level — Low, Level 3 signals are initiated from level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Two channels of Reactor Vessel Water Level — Low, Level 3 Function are available and are required to be OPERABLE to ensure that no single instrument failure can initiate an inadvertent isolation actuation. The isolation function is ensured by the manual shear valve in each penetration.

The Reactor Vessel Water Level — Low, Level 3 Allowable Value was chosen to be the same as the RPS Level 3 scram Allowable Value (LCO 3.3.1.1), since isolation of these valves is not critical to orderly plant shutdown.

This Function isolates the Group [x] valves.

7.b. Drywell Pressure — High

High drywell pressure can indicate a break in the RCPB inside the primary containment. The isolation of some of the primary containment isolation valves on high drywell pressure supports actions to ensure that offsite dose limits of 10 CFR 100 are not exceeded. The Drywell Pressure — High Function, associated with isolation of the primary containment, is implicitly assumed in the FSAR accident analysis as these leakage paths are assumed to be isolated post LOCA.

High drywell pressure signals are initiated from pressure transmitters that sense the pressure in the drywell. Two channels of Drywell Pressure — High per Function are available and are required to be OPERABLE to ensure that no single instrument failure can initiate an inadvertent actuation. The isolation function is ensured by the manual shear valve in each penetration.

The Allowable Value was selected to be the same as the ECCS Drywell Pressure — High Allowable Value (LCO 3.3.5.1), since this may be indicative of a LOCA inside primary containment.

This Function isolates the Group [x] valves.

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BASES (continued)

ACTIONS

[Reviewer's Note: Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use the times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.]

Insert B1

A Note has been provided to modify the ACTIONS related to primary containment isolation instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable primary containment isolation instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable primary containment isolation instrumentation channel.

A.1

Because of the diversity of sensors available to provide isolation signals and the redundancy of the isolation design, an allowable out of service time of 12 hours for Functions 2.a, 2.b, and 6.b and 24 hours for Functions other than Functions 2.a, 2.b, and 6.b has been shown to be acceptable (Refs. 5 and 6) to permit restoration of any inoperable channel to OPERABLE status. This out of service time is only acceptable provided the associated Function is still maintaining isolation capability (refer to Required Action B.1 Bases). If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action A.1. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue with no further restrictions. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an isolation), Condition C must be entered and its Required Action taken.

(continued)

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BASES

ACTIONS

G.1 (continued)

may continue if the affected penetration flow path(s) is isolated. Isolating the affected penetration flow path(s) accomplishes the safety function of the inoperable channels. The 24 hour Completion Time is acceptable due to the fact that these Functions (Manual Initiation) are not assumed in any accident or transient analysis in the FSAR. Alternately, if it is not desired to isolate the affected penetration flow path(s) (e.g., as in the case where isolating the penetration flow path(s) could result in a reactor scram), Condition H must be entered and its Required Actions taken.

either

INSERT B 179

H.1 and H.2

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, or any Required Action of Condition F or G is not met and the associated Completion Time has expired, the plant must be placed in a MODE or other specified condition in which the LCO does not apply. This is done by placing the plant in at least MODE 3 within 12 hours and in MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

I.1 and I.2

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the associated SLC subsystem(s) is declared inoperable or the RWCU System is isolated. Since this Function is required to ensure that the SLC System performs its intended function, sufficient remedial measures are provided by declaring the associated SLC subsystems inoperable or isolating the RWCU System.

The 1 hour Completion Time is acceptable because it minimizes risk while allowing sufficient time for personnel to isolate the RWCU System.

(continued)

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INSERT B 179

... or, in the case of the TIP System isolation, the TIP system penetration is a small bore (approx 1/2 inch), its isolation in a design basis event (with loss of offsite power) would be via the manually operated shear valves, and the ability to manually isolate by either the normal isolation valve or the shear valve is unaffected by the inoperable instrumentation.

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3.3 INSTRUMENTATION

3.3.6.1 Primary Containment Isolation Instrumentation

LCO 3.3.6.1 The primary containment isolation instrumentation for each Function in Table 3.3.6.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.1-1.

ACTIONS

1. Penetration flow paths may be unisolated intermittently under administrative controls.

----------NOTES----------

2. Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 2.b, 5.c, 5.d, and 5.e AND 24 hours for Functions other than Functions 2.b, 5.c, 5.d, and 5.e
B. One or more automatic Functions with isolation capability not maintained.	B.1 Restore isolation capability.	1 hour

(continued)

BASES

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APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

5.e. Drywell Pressure—High (continued)

High drywell pressure signals are initiated from pressure transmitters that sense the pressure in the drywell. Four channels of Drywell Pressure—High Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value was selected to be the same as the ECCS Drywell Pressure—High Allowable Value (LCO 3.3.5.1), since this may be indicative of a LOCA inside primary containment.

This Function isolates the Group 3 valves.

ACTIONS

Reviewer's Note: Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use the times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.

Insert B1

(2) Note has been provided to modify the ACTIONS related to primary containment isolation instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition discovered to be inoperable or not within limits will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable primary containment isolation instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable primary containment isolation instrumentation channel.

A.1

Because of the diversity of sensors available to provide isolation signals and the redundancy of the isolation design, an allowable out of service time of 12 hours or 24 hours, depending on the Function, has been shown to be

(continued)