Industry/TSTF Standard Technical Specification Change Traveler

Eliminate the Remote Shutdown System Table of Instrumentation and Controls

Classification: 3) Improve Specifications

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

Description:

This change eliminates the table of instrumentation and controls referenced in the Specifications for the Remote Shutdown System.

Justification:

The specific instruments and controls necessary for each function provided by the Remote Shutdown System are listed in a Table for each NUREG. This change will eliminate these tables and the information will be located in plant documents. It is unnecessary to list specific instruments and controls in the Technical Specifications to provide adequate assurance that the functions can be performed. GDC 19 requires that remote shutdown capability be provided. The LCO provides references to the Functions described in the Bases. This is sufficient to ensure that the system will be Operable. Listing specific instrumentation and controls is unnecessary and may lead to needless expenditure of licensee and NRC resources processing license amendments to revise the table when the information can be adequately controlled by the licensee.

The proposed change was approved on a plant-specific basis for the four BWR/6 plants (Clinton, Grand Gulf, River Bend, and Perry) and several other BWRs. The proposed changes were modeled on these approved ITS and Bases.

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Revision History

OG Revision 0 Revision Status: Closed

Revision Proposed by: WOG Mini-Group

Revision Description:
Original Issue

Owners Group Review Information

Date Originated by OG: 19-Nov-96

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved Date: 19-Nov-96

TSTF Review Information

TSTF Received Date: 20-Nov-96 Date Distributed for Review

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

TSTF Comments:

Superseded by Revision 1.

TSTF Resolution: Superceeded Date: 08-Apr-97

OG Revision 1 Revision Status: Closed

Revision Proposed by: WOG

Revision Description:
Minor editoral change. Enhanced justification.

Owners Group Review Information

Date Originated by OG: 14-Jan-97

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved Date: 14-Jan-97

TSTF Review Information

TSTF Received Date: 14-Jan-97 Date Distributed for Review 06-Jan-98

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

TSTF Comments:

Originally distributed on 4/8/97.
CEOG Comments from 4/24/97: Applicable, accepts.

2/5/98 - Applicable to all and accepted.

TSTF Resolution: Approved Date: 05-Feb-98

NRC Review Information

NRC Received Date: 29-May-98

NRC Comments:

9/24/98 - C. Schulten to discuss with HICB.
4/21/99 - NRC comments. Modify the proposed changes to relocate the Remote Shutdown System Instrumentation and Controls Table to the Remote Shutdown System TS Bases and move the Reviewer's Note in each LCO section of the Bases to the table of required Remote Shutdown System Instrumentation and Controls as a footnote. The Bases table footnote shall state "For channels that fulfill GDC 19 requirements, the number of OPERABLE channels required is based on the plant licensing basis as described in the NRC unit specific Safety Evaluation Report (Reference [4]). Generally, two divisions are required OPERABLE. However, only one channel is required if the unit has justified such a design and the NRC's SER accepted the justification."

Final Resolution: Superceded by Revision Final Resolution Date: 21-Apr-99

TSTF Revision 1 Revision Status: Closed

Revision Proposed by: NRC

Revision Description:
Revised to incorporate NRC comments. The Traveler is modified relocate the Remote Shutdown System Instrumentation and Controls Table to the Remote Shutdown System TS Bases and move the Reviewer's Note in each LCO section of the Bases to the table of required Remote Shutdown System Instrumentation and Controls as a footnote. The Bases table footnote shall state "For channels that fulfill GDC 19 requirements, the number of OPERABLE channels required is based on the plant licensing basis as described in the NRC unit specific Safety Evaluation Report (Reference [4]). Generally, two divisions are

TSTF Revision 1 Revision Status: Closed

required OPERABLE. However, only one channel is required if the unit has justified such a design and the NRC's SER accepted the justification."

TSTF Review Information

TSTF Received Date: 08-Jun-99 Date Distributed for Review 08-Jun-99

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

TSTF Comments:

(No Comments)

TSTF Resolution: Approved Date: 08-Jun-99

NRC Review Information

NRC Received Date: 23-Jun-99

NRC Comments:

(No Comments)

Final Resolution: Superceded by Revision Final Resolution Date: 15-Jul-99

TSTF Revision 2 Revision Status: Closed

Revision Proposed by: TSTF

Revision Description:
Revised to make editorial corrections and to insert missing pages. No technical changes were made.

TSTF Review Information

TSTF Received Date: 16-Jul-99 Date Distributed for Review 16-Jul-99

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

TSTF Comments:

(No Comments)

TSTF Resolution: Approved Date: 16-Jul-99

NRC Review Information

NRC Received Date: 20-Jul-99

NRC Comments:

7/27/99 - NRC requested additional changes. Specifically, the NRC requested that a paragraph the same as CEOG (Digital), Bases, second paragraph on page B 3.3-183 be added to the other NUREGs.

Final Resolution: Superceded by Revision Final Resolution Date: 27-Jul-99

TSTF Revision 3 Revision Status: Active Next Action: NRC

Revision Proposed by: NRC

TSTF Revision 3 **Revision Status: Active** **Next Action: NRC**

Revision Description:
Revised to incorporate NRC request that a paragraph the same as CEOG (Digital), Bases, second paragraph on page B 3.3-183 be added to the other NUREGs.

TSTF Review Information

TSTF Received Date: 27-Jul-99 Date Distributed for Review 27-Jul-99

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

TSTF Comments:
(No Comments)

TSTF Resolution: Approved Date: 27-Jul-99

NRC Review Information

NRC Received Date: 03-Aug-99

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

LCO 3.3.18	Remote Shutdown System	NUREG(s)- 1430 Only
	Change Description: Moved to Bases.	
LCO 3.3.18	Remote Shutdown System	NUREG(s)- 1430 Only
LCO 3.3.18 Bases	Remote Shutdown System	NUREG(s)- 1430 Only
Action 3.3.18 Bases	Remote Shutdown System	NUREG(s)- 1430 Only
Action 3.3.18.A Bases	Remote Shutdown System	NUREG(s)- 1430 Only
LCO 3.3.4	Remote Shutdown System	NUREG(s)- 1431 Only
	Change Description: Moved to Bases.	
LCO 3.3.4	Remote Shutdown System	NUREG(s)- 1431 Only
LCO 3.3.4 Bases	Remote Shutdown System	NUREG(s)- 1431 Only
Action 3.3.4 Bases	Remote Shutdown System	NUREG(s)- 1431 Only
Action 3.3.4.A Bases	Remote Shutdown System	NUREG(s)- 1431 Only

LCO 3.3.12	Remote Shutdown System (Analog)	NUREG(s)- 1432 Only
LCO 3.3.12	Remote Shutdown System (Analog) Change Description: Moved to Bases.	NUREG(s)- 1432 Only
LCO 3.3.12	Remote Shutdown System (Digital) Change Description: Moved to Bases.	NUREG(s)- 1432 Only
LCO 3.3.12	Remote Shutdown System (Digital)	NUREG(s)- 1432 Only
LCO 3.3.12 Bases	Remote Shutdown System (Analog)	NUREG(s)- 1432 Only
LCO 3.3.12 Bases	Remote Shutdown System (Digital)	NUREG(s)- 1432 Only
Action 3.3.12 Bases	Remote Shutdown System (Analog)	NUREG(s)- 1432 Only
Action 3.3.12 Bases	Remote Shutdown System (Digital)	NUREG(s)- 1432 Only
Action 3.3.12.A Bases	Remote Shutdown System (Analog)	NUREG(s)- 1432 Only
Action 3.3.12.A Bases	Remote Shutdown System (Digital)	NUREG(s)- 1432 Only
LCO 3.3.3.2	Remote Shutdown System Change Description: Moved to Bases.	NUREG(s)- 1433 1434 Only
LCO 3.3.3.2	Remote Shutdown System	NUREG(s)- 1433 1434 Only
LCO 3.3.3.2 Bases	Remote Shutdown System	NUREG(s)- 1433 1434 Only
Action 3.3.3.2.A Bases	Remote Shutdown System	NUREG(s)- 1433 1434 Only

INSERT 1

A Remote Shutdown System division is inoperable when each function is not accomplished by at least one designated Remote Shutdown System channel that satisfies the OPERABILITY criteria for the channel's Function. These criteria are outlined in the LCO section of the Bases.

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3.3 INSTRUMENTATION

3.3.18 Remote Shutdown System

LCO 3.3.18 The Remote Shutdown System Functions ~~in~~ Table ~~3.3.18-1~~ shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTES----------
1. LCO 3.0.4 is not applicable.

2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required Functions inoperable.	A.1	Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4.	12 hours

Table 3.3.18-1 (page 1 of 1)
Remote Shutdown System Instrumentation and Controls

NOTE
This Table is for illustration purposes only. It does not attempt to encompass every Function used at every unit, but does contain the types of Functions commonly found.

FUNCTION/INSTRUMENT OR CONTROL PARAMETER	REQUIRED NUMBER OF FUNCTIONS
1. Reactivity Control	
a. Log Power Neutron Flux	[1]
b. Source Range Neutron Flux	[1]
c. Reactor Trip Circuit Breaker Position	[1 per trip breaker]
d. Manual Reactor Trip	[1]
2. Reactor Coolant System (RCS) Pressure Control	
a. Pressurizer Pressure or RCS Wide Range Pressure	[1]
b. Pressurizer Power Operated Relief Valve (PORV) Control and Block Valve Control	[1]
3. Decay Heat Removal via Steam Generators (SGs)	
a. Reactor Coolant Hot Leg Temperature	[1 per loop]
b. Reactor Coolant Cold Leg Temperature	[1 per loop]
c. Condensate Storage Tank Level	[1]
d. SG Pressure	[1 per SG]
e. SG Level or Emergency Feedwater (EFW) Flow	[1 per SG]
f. EFW Controls	[1]
4. RCS Inventory Control	
a. Pressurizer Level	[1]
b. Reactor Coolant Injection Pump Controls	[1]

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BASES

APPLICABLE SAFETY ANALYSES (continued)

The Remote Shutdown System meets the NRC Policy Statement as a risk significant item for retention in the Technical Specifications.

LCO

The Remote Shutdown System LCO provides the requirements for the OPERABILITY of the instrumentation and controls necessary to place and maintain the unit in MODE 3 from a location other than the control room. The instrumentation and controls ~~typically~~ required are listed in Table 3.3.18-1 ~~in the accompanying LCO~~. (B)

(Move to Table B 3.3.18-1)

[Reviewer's Note: For channels that fulfill GDC 19 requirements, the number of OPERABLE channels required depends on the unit licensing basis as described in the NRC unit specific Safety Evaluation Report (SER). Generally, two divisions are required OPERABLE. However, only one channel is required if the unit has justified such a design and the NRC's SER accepted the justification.] The controls, instrumentation, and transfer switches are those required for:

- Core Reactivity Control (initial and long term);
- RCS Pressure Control;
- Decay Heat Removal via the EFW System and the SG safety valves or SG atmospheric dump valves;
- RCS Inventory Control via charging flow; and
- Safety support systems for the above Functions, including service water, component cooling water, and onsite power, including the diesel generators.

A Function of a Remote Shutdown System is OPERABLE if all instrument and control channels needed to support the (B) Function are OPERABLE. In some cases, Table 3.3.18-1 may indicate that the required information or control capability is available from several alternate sources. In these cases, the Function is OPERABLE as long as [one channel of any of] the alternate information or control sources are OPERABLE.

(continued)

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BASES

LCO (continued)

The Remote Shutdown System instruments and control circuits covered by this LCO do not need to be energized to be considered OPERABLE. This LCO is intended to ensure the Remote Shutdown System instruments and control circuits will be OPERABLE if unit conditions require that the Remote Shutdown System be placed in operation.

APPLICABILITY

The Remote Shutdown System LCO is applicable in MODES 1, 2, and 3. This is required so that the unit can be placed and maintained in MODE 3 for an extended period of time from a location other than the control room.

This LCO is not applicable in MODE 4, 5, or 6. In these MODES, the unit is already subcritical and is in a condition of reduced RCS energy. Under these conditions, considerable time is available to restore necessary instrument and control Functions if control room instruments become unavailable.

ACTIONS

The ACTIONS is modified by two Notes. Note 1 excludes the MODE change restriction of LCO 3.0.4. This exception allows entry into an applicable MODE while relying on the ACTIONS, even though the ACTIONS may eventually require a unit shutdown. This exception is acceptable due to the low probability of an event requiring these instruments.

Insert 1

Note 2 has been added to the ACTIONS to clarify the application of Completion Time rules. The Conditions of the Specification may be entered independently for each Function listed in Table 3.3.18-1. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

required

Condition A addresses the situation where one or more required Functions of the Remote Shutdown System are inoperable. This includes any Function listed in Table 3.3.18-1 and the control and transfer switches for

(continued)

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3.3 INSTRUMENTATION

3.3.4 Remote Shutdown System

LCO 3.3.4 The Remote Shutdown System Functions ~~in Table 3.3.4-1~~ shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTES----------
1. LCO 3.0.4 is not applicable.

2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required Functions inoperable.	A.1	Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4.	12 hours

< Move to end of Bases >

(R)

Table 3.3.4-1 (page 1 of 1)
Remote Shutdown System Instrumentation and Controls

NOTE

Reviewer's Note: This table is for illustration purposes only. It does not attempt to encompass every Function used at every unit, but does contain the types of Functions commonly found.

FUNCTION/INSTRUMENT OR CONTROL PARAMETER	REQUIRED NUMBER OF FUNCTIONS
1. Reactivity Control	
a. Source Range Neutron Flux	[1]
b. Reactor Trip Breaker Position	[1 per trip breaker]
c. Manual Reactor Trip	[2]
2. Reactor Coolant System (RCS) Pressure Control	
a. Pressurizer Pressure or RCS Wide Range Pressure	[1]
b. Pressurizer Power Operated Relief Valve (PORV) Control and Block Valve Control	[1, controls must be for PORV & block valves on same line]
3. Decay Heat Removal via Steam Generators (SGs)	
a. RCS Hot Leg Temperature	[1 per loop]
b. RCS Cold Leg Temperature	[1 per loop]
c. AFW Controls Condensate Storage Tank Level	[1]
d. SG Pressure	[1 per SG]
e. SG Level or AFW Flow	[1 per SG]
4. RCS Inventory Control	
a. Pressurizer Level	[1]
b. Charging Pump Controls	[1]

< Insert here >

BASES

APPLICABLE SAFETY ANALYSES (continued)

The Remote Shutdown System is considered an important contributor to the reduction of unit risk to accidents and as such it has been retained in the Technical Specifications as indicated in the NRC Policy Statement.

LCO

The Remote Shutdown System LCO provides the OPERABILITY requirements of the instrumentation and controls necessary to place and maintain the unit in MODE 3 from a location other than the control room. The instrumentation and controls ~~typically~~ required are listed in Table 3.3.4-1 in ~~the accompanying LCO~~.

(Move to Table B 3.3.4-1)

Reviewer's Note: For channels that fulfill GDC 19 requirements, the number of OPERABLE channels required depends upon the unit licensing basis as described in the NRC unit specific Safety Evaluation Report (SER). Generally, two divisions are required OPERABLE. However, only one channel per a given Function is required if the unit has justified such a design, and NRC's SER accepted the justification.

The controls, instrumentation, and transfer switches are required for:

- Core reactivity control (initial and long term);
- RCS pressure control;
- Decay heat removal via the AFW System and the SG safety valves or SG ADVs;
- RCS inventory control via charging flow; and
- Safety support systems for the above Functions, including service water, component cooling water, and onsite power, including the diesel generators.

A Function of a Remote Shutdown System is OPERABLE if all instrument and control channels needed to support the Remote Shutdown System Function are OPERABLE. In some cases, Table 3.3.4-1 may indicate that the required information or control capability is available from several alternate sources. In these cases, the Function is OPERABLE as long

(continued)

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BASES

LCO (continued)

as one channel of any of the alternate information or control sources is OPERABLE.

The remote shutdown instrument and control circuits covered by this LCO do not need to be energized to be considered OPERABLE. This LCO is intended to ensure the instruments and control circuits will be OPERABLE if unit conditions require that the Remote Shutdown System be placed in operation.

APPLICABILITY

The Remote Shutdown System LCO is applicable in MODES 1, 2, and 3. This is required so that the unit can be placed and maintained in MODE 3 for an extended period of time from a location other than the control room.

This LCO is not applicable in MODE 4, 5, or 6. In these MODES, the facility is already subcritical and in a condition of reduced RCS energy. Under these conditions, considerable time is available to restore necessary instrument control functions if control room instruments or controls become unavailable.

ACTIONS

Note 1 is included which excludes the MODE change restriction of LCO 3.0.4. This exception allows entry into an applicable MODE while relying on the ACTIONS even though the ACTIONS may eventually require a unit shutdown. This exception is acceptable due to the low probability of an event requiring the Remote Shutdown System and because the equipment can generally be repaired during operation without significant risk of spurious trip.

Insert 1 →

Note 2 has been added to the ACTIONS to clarify the application of Completion Time rules. Separate Condition entry is allowed for each Function listed on Table 3.3.4-1. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

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BASES

ACTIONS (continued)

A.1

Condition A addresses the situation where one or more required Functions of the Remote Shutdown System are inoperable. This includes any Function ~~listed in Table 3.3.4-1~~, as well as the control and transfer switches for

The Required Action is to restore the required Function to OPERABLE status within 30 days. The Completion Time is based on operating experience and the low probability of an event that would require evacuation of the control room.

B.1 and B.2

If the Required Action and associated Completion Time of Condition A is not met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1

Performance of the CHANNEL CHECK once every 31 days ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If the channels are

(continued)

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3.3 INSTRUMENTATION

3.3.12 Remote Shutdown System (Analog)

LCO 3.3.12 The Remote Shutdown System Functions ~~in Table 3.3.12-1~~ shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTES----------
1. LCO 3.0.4 is not applicable.

2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required Functions inoperable.	A.1	Restore required Functions to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4.	[12] hours

Table 3.3.12-1 (page 1 of 1)
Remote Shutdown System Instrumentation and Controls

NOTE
This table is for illustration purposes only. It does not attempt to encompass every Function used at every unit, but does contain the types of Functions commonly found.

FUNCTION/INSTRUMENT OR CONTROL PARAMETER	REQUIRED NUMBER OF DIVISIONS
1. Reactivity Control	
a. Log Power Neutron Flux	[1]
b. Source Range Neutron Flux	[1]
c. Reactor Trip Circuit Breaker Position	[1 per trip breaker]
d. Manual Reactor Trip	[2]
2. Reactor Coolant System Pressure Control	
a. Pressurizer Pressure or RCS Wide Range Pressure	[1]
b. Pressurizer Power Operated Relief Valve Control and Block Valve Control	[1, controls must be for power operated relief valve and block valves on same line]
3. Decay Heat Removal via Steam Generators	
a. Reactor Coolant Hot Leg Temperature	[1 per loop]
b. Reactor Coolant Cold Leg Temperature	[1 per loop]
c. Auxiliary Feedwater Controls	[1]
d. Steam Generator Pressure	[1 per steam generator]
e. Steam Generator Level or Auxiliary Feedwater Flow	[1 per steam generator]
f. Condensate Storage Tank Level	[1]
4. Reactor Coolant System Inventory Control	
a. Pressurizer Level	[1]
b. Reactor Coolant Charging Pump Controls	[1]

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3.3 INSTRUMENTATION

3.3.12 Remote Shutdown System (Digital)

LCO 3.3.12 The Remote Shutdown System Functions ~~in Table 3.3.12-1~~ shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTES----------
1. LCO 3.0.4 is not applicable.

2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required Functions inoperable.	A.1	Restore required Functions to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4.	[12] hours

Table 3.3.12-1 (page 1 of 1)
Remote Shutdown System Instrumentation and Controls

NOTE
This table is for illustration purposes only. It does not attempt to encompass every Function used at every unit, but does contain the types of Functions commonly found.

FUNCTION/INSTRUMENT OR CONTROL PARAMETER	REQUIRED NUMBER OF DIVISIONS
1. Reactivity Control	
a. Log Power Neutron Flux	[1]
b. Source Range Neutron Flux	[1]
c. Reactor Trip Circuit Breaker Position	[1 per trip breaker]
d. Manual Reactor Trip	[4]
2. Reactor Coolant System Pressure Control	
a. Pressurizer Pressure or RCS Wide Range Pressure	[1]
b. Pressurizer Power Operated Relief Valve Control and Block Valve Control	[1, controls must be for power operated relief valve and block valves on same line]
3. Decay Heat Removal (via Steam Generators)	
a. Reactor Coolant Hot Leg Temperature	[1 per loop]
b. Reactor Coolant Cold Leg Temperature	[1 per loop]
c. Auxiliary Feedwater Controls	[1]
d. Steam Generator Pressure	[1 per steam generator]
e. Steam Generator Level or Auxiliary Feedwater Flow	[1 per steam generator]
f. Condensate Storage Tank Level	[1]
4. Reactor Coolant System Inventory Control	
a. Pressurizer Level	[1]
b. Reactor Coolant Charging Pump Controls	[1]

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BASES

APPLICABLE SAFETY ANALYSES (continued)

The Remote Shutdown System has been identified as an important contributor to the reduction of plant risk to accidents and, therefore, has been retained in the Technical Specifications, as indicated in the NRC Policy Statement.

LCO

The Remote Shutdown System LCO provides the requirements for the OPERABILITY of the instrumentation and controls necessary to place and maintain the unit in MODE 3 from a location other than the control room. The instrumentation and controls typically required are listed in Table 3.3.12-1 in the accompanying LCO. (B)

(Move to Table B 3.3.12-1)

Reviewer's Note: The number of channels that fulfill GDC 19 requirements for the number of OPERABLE channels required depends upon the plant's licensing basis as described in the NRC plant specific Safety Evaluation Report (SER) (Ref. 2). Generally, two divisions are required to be OPERABLE. However, only one channel is required if the plant has justified such a design and the NRC's SER accepted the justification.

The controls, instrumentation, and transfer switches are those required for:

- Core Reactivity Control (initial and long term);
- RCS Pressure Control;
- Decay Heat Removal via the [AFW System] and the safety valves or steam generator ADVs;
- RCS Inventory Control via charging flow; and
- Safety support systems for the above Functions, as well as service water, component cooling water, and onsite power including the diesel generators.

A Function of a Remote Shutdown System is OPERABLE if all instrument and control channels needed to support the remote shutdown Functions are OPERABLE. In some cases, Table 3.3.12-1 may indicate that the required information or control capability is available from several alternate sources. In these cases, the Function is OPERABLE as long (B)

(continued)

BASES

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LCO (continued)

as one channel of any of the alternate information or control sources for each Function is OPERABLE.

The Remote Shutdown System instrumentation and control circuits covered by this LCO do not need to be energized to be considered OPERABLE. This LCO is intended to ensure that the instrument and control circuits will be OPERABLE if plant conditions require that the Remote Shutdown System be placed in operation.

APPLICABILITY

The Remote Shutdown System LCO is applicable in MODES 1, 2, and 3. This is required so that the unit can be placed and maintained in MODE 3 for an extended period of time from a location other than the control room.

This LCO is not applicable in MODE 4, 5, or 6. In these MODES, the unit is already subcritical and in the condition of reduced RCS energy. Under these conditions, considerable time is available to restore necessary instrument control Functions if control room instruments or control become unavailable.

ACTIONS

A Note has been included that excludes the MODE change restrictions of LCO 3.0.4. This exception allows entry into an applicable MODE while relying on the ACTIONS, even though the ACTIONS may eventually require a plant shutdown. This is acceptable due to the low probability of an event requiring this system. The Remote Shutdown System equipment can generally be repaired during operation without significant risk of spurious trip.

A Remote Shutdown System division is inoperable when each Function is not accomplished by at least one designated Remote Shutdown System channel that satisfies the OPERABILITY criteria for the channel's Function. These criteria are outlined in the LCO section of the Bases.

Note 2 has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.12-1. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be

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BASES

ACTIONS (continued)

tracked separately for each Function, starting from the time the Condition was entered for that Function.

A.1

Condition A addresses the situation where one or more required channels of the Remote Shutdown System are inoperable. This includes any Function listed in Table 3.3.12-1 as well as the control and transfer switches for the divisions to OPERABLE status within 30 days. The Completion Time is based on operating experience and the low probability of an event that would require evacuation of the control room.

B.1 and B.2

If the Required Action and associated Completion Time of Condition A are not met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within [12] hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required MODE from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.3.12.1

Performance of the CHANNEL CHECK once every 31 days ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION. Agreement criteria are determined by

(continued)

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APPLICABLE SAFETY ANALYSES (continued)

10 CFR 50, Appendix A, GDC 19 (Ref. 1) and Appendix R (Ref. 2).

The Remote Shutdown System has been identified as an important contributor to the reduction of plant accident risk and, therefore, has been retained in the Technical Specifications, as indicated in the NRC Policy Statement.

LCO

The Remote Shutdown System LCO provides the requirements for the OPERABILITY of the instrumentation and controls necessary to place and maintain the plant in MODE 3 from a location other than the control room. The instrumentation and controls typically required are listed in Table 3.3.12-1 to the accompanying LCO. (B)

move to Table B 3.3.12-1

Reviewer's Note: The number of channels that fulfill GDC 19 requirements for the number of OPERABLE channels required depends upon the plant's licensing basis as described in the NRC plant specific Safety Evaluation Report (SER) (Ref. 3). Generally, two divisions are required to be OPERABLE. However, only one channel is required if the plant has justified such a design and the NRC's SER accepted the justification.

The controls, instrumentation, and transfer switches are those required for:

- Reactivity Control (initial and long term);
- RCS Pressure Control;
- Decay Heat Removal;
- RCS Inventory Control; and
- Safety support systems for the above Functions, as well as service water, component cooling water, and onsite power including the diesel generators.

A Function of a Remote Shutdown System is OPERABLE if all instrument and control channels needed to support the remote shutdown Functions are OPERABLE. In some cases, Table 3.3.12-1 may indicate that the required information or control capability is available from several alternate (B)

(continued)

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LCO (continued)

sources. In these cases, the Remote Shutdown System is OPERABLE as long as one channel of any of the alternate information or control sources for each Function is OPERABLE.

The Remote Shutdown System instrumentation and control circuits covered by this LCO do not need to be energized to be considered OPERABLE. This LCO is intended to ensure that the instrument and control circuits will be OPERABLE if plant conditions require that the Remote Shutdown System be placed in operation.

APPLICABILITY

The Remote Shutdown System LCO is applicable in MODES 1, 2, and 3. This is required so that the unit can be placed and maintained in MODE 3 for an extended period of time from a location other than the control room.

This LCO is not applicable in MODE 4, 5, or 6. In these MODES, the unit is already subcritical and in the condition of reduced RCS energy. Under these conditions, considerable time is available to restore necessary instrument control Functions if control room instruments or control become unavailable.

ACTIONS

A Note has been included that excludes the MODE change restrictions of LCO 3.0.4. This exception allows entry into an applicable MODE while relying on the ACTIONS, even though the ACTIONS may eventually require a plant shutdown. This is acceptable due to the low probability of an event requiring this system.

A Remote Shutdown System division is inoperable when each Function listed in Table 3.3.12-1 is not accomplished by at least one designated Remote Shutdown System channel that satisfies the OPERABILITY criteria for the channel's Function. These criteria are outlined in the LCO section of the Bases.

Note 2 has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.12-1. The Completion Time(s)

(continued)

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BASES

ACTIONS (continued)

of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

Condition A addresses the situation where one or more channels of the Remote Shutdown System are inoperable. This includes any Function listed in Table 3.3.12-1 as well as the control and transfer switches.

The Required Action is to restore the divisions to OPERABLE status within 30 days. The Completion Time is based on operating experience and the low probability of an event that would require evacuation of the control room.

B.1 and B.2

If the Required Action and associated Completion Time of Condition A are not met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within [12] hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required MODE from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.3.12.1

Performance of the CHANNEL CHECK once every 31 days ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each

(continued)

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3.3 INSTRUMENTATION

3.3.3.2 Remote Shutdown System

LCO 3.3.3.2 The Remote Shutdown System Functions ~~in~~ Table 3.3.3.2-1 shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

----------NOTES----------
1. LCO 3.0.4 is not applicable.

2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.	A.1 Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.2.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days

(continued)

<Move to end of Bases>

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(B)

Table 3.3.3.2-1 (page 1 of 1)
Remote Shutdown System Instrumentation

FUNCTION (INSTRUMENT OR CONTROL PARAMETER)	REQUIRED NUMBER OF DIVISIONS
1. Reactor Pressure Vessel Pressure	
a. Reactor Pressure	[1]
2. Decay Heat Removal	
a. RCIC Flow	[1]
b. RCIC Controls	[1]
c. RHR Flow	[1]
d. RHR Controls	[1]
3. Reactor Pressure Vessel Inventory Control	
a. RCIC Flow	[1]
b. RCIC Controls	[1]
c. RHR Flow	[1]
d. RHR Controls	[1]

Reviewer Note: This Table is for illustration purposes only. It does not attempt to encompass every Function used at every plant, but does contain the types of Functions commonly found.

<Insert here>

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APPLICABLE SAFETY ANALYSES (continued)

The criteria governing the design and the specific system requirements of the Remote Shutdown System are located in 10 CFR 50, Appendix A, GDC 19 (Ref. 1).

The Remote Shutdown System is considered an important contributor to reducing the risk of accidents; as such, it has been retained in the Technical Specifications (TS) as indicated in the NRC Policy Statement.

LCO

The Remote Shutdown System LCO provides the requirements for the OPERABILITY of the instrumentation and controls necessary to place and maintain the plant in MODE 3 from a location other than the control room. The instrumentation and controls typically required are listed in Table 3.3.3.2-1 in the accompanying LCO. (B)

Move to Table B 3.3.2-1

Reviewer's Note: For channels that fulfill GDC 19 requirements, the number of OPERABLE channels required depends upon the plant's licensing basis as described in the NRC plant specific Safety Evaluation Report (SER). Generally, two divisions are required to be OPERABLE. However, only one channel per given Function is required if the plant has justified such a design and the NRC SER has accepted the justification.

The controls, instrumentation, and transfer switches are those required for:

- Reactor pressure vessel (RPV) pressure control;
- Decay heat removal;
- RPV inventory control; and
- Safety support systems for the above functions, including service water, component cooling water, and onsite power, including the diesel generators.

The Remote Shutdown System is OPERABLE if all instrument and control channels needed to support the remote shutdown function are OPERABLE. (B) In some cases, Table 3.3.3.2-1 may indicate that the required information or control capability is available from several alternate sources. In these cases, the Remote Shutdown System is OPERABLE as long as one

(continued)

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BASES

LCO (continued)

channel of any of the alternate information or control sources for each Function is OPERABLE.

The Remote Shutdown System instruments and control circuits covered by this LCO do not need to be energized to be considered OPERABLE. This LCO is intended to ensure that the instruments and control circuits will be OPERABLE if plant conditions require that the Remote Shutdown System be placed in operation.

APPLICABILITY

The Remote Shutdown System LCO is applicable in MODES 1 and 2. This is required so that the plant can be placed and maintained in MODE 3 for an extended period of time from a location other than the control room.

This LCO is not applicable in MODES 3, 4, and 5. In these MODES, the plant is already subcritical and in a condition of reduced Reactor Coolant System energy. Under these conditions, considerable time is available to restore necessary instrument control Functions if control room instruments or control becomes unavailable. Consequently, the TS do not require OPERABILITY in MODES 3, 4, and 5.

ACTIONS

A Note is included that excludes the MODE change restriction of LCO 3.0.4. This exception allows entry into an applicable MODE while relying on the ACTIONS even though the ACTIONS may eventually require a plant shutdown. This exception is acceptable due to the low probability of an event requiring this system.

Insert 1 →

Note 2 has been provided to modify the ACTIONS related to Remote Shutdown System Functions. 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 Remote Shutdown System Functions provide appropriate compensatory measures for separate Functions.

(continued)

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BASES

ACTIONS (continued)

As such, a Note has been provided that allows separate Condition entry for each inoperable Remote Shutdown System Function.

A.1

Condition A addresses the situation where one or more required Functions of the Remote Shutdown System is inoperable. This includes any Function listed in Table 3.3.3.2-1, as well as the control and transfer switches for

The Required Action is to restore the Function (both divisions, if applicable) to OPERABLE status within 30 days. The Completion Time is based on operating experience and the low probability of an event that would require evacuation of the control room.

B.1

If the Required Action and associated Completion Time of Condition A are not met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours. The allowed Completion Time is reasonable, based on operating experience, to reach the required MODE from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.3.3.2.1

Performance of the CHANNEL CHECK once every 31 days ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying

(continued)

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3.3 INSTRUMENTATION

3.3.3.2 Remote Shutdown System

LCO 3.3.3.2 The Remote Shutdown System Functions ~~in Table 3.3.3.2-1~~ shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

----------NOTES----------
1. LCO 3.0.4 is not applicable.

2. Separate Condition entry is allo..ed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.	A.1 Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.2.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days

(continued)

<MOVE TO END OF BASES>

(B)

Table 3.3.3.2-1 (page 1 of 1)
Remote Shutdown System Instrumentation

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FUNCTION (INSTRUMENT OR CONTROL PARAMETER)	REQUIRED NUMBER OF DIVISIONS
1. Reactor Pressure Vessel Pressure Control	
a. Reactor Pressure	[1]
2. Decay Heat Removal	
a. RCIC Flow	[1]
b. RCIC Controls	[1]
c. RHR Flow	[1]
d. RHR Controls	[1]
3. Reactor Pressure Vessel Inventory Control	
a. RCIC Flow	[1]
b. RCIC Controls	[1]
c. RHR Flow	[1]
d. RHR Controls	[1]

Reviewer's Note: This Table is for illustration purposes only. It does not attempt to encompass every Function used at every plant, but does contain the types of Functions commonly found.

<INSERT HERE>

APPLICABLE SAFETY ANALYSES (continued)

The criteria governing the design and the specific system requirements of the Remote Shutdown System are located in 10 CFR 50, Appendix A, GDC 19 (Ref. 1).

The Remote Shutdown System is considered an important contributor to reducing the risk of accidents; as such, it has been retained in the Technical Specifications (TS) as indicated in the NRC Policy Statement.

LCO

The Remote Shutdown System LCO provides the requirements for the OPERABILITY of the instrumentation and controls necessary to place and maintain the plant in MODE 3 from a location other than the control room. The instrumentation and controls ~~typically~~ required are listed in Table 3.3.3.2-1 ~~in the accompanying LCO~~. (B)

MOVE TO TABLE B 3.3.3.2-1

Reviewer's Note: For channels that fulfill GDC 19 requirements, the number of OPERABLE channels required depends upon the plant's licensing basis as described in the NRC plant specific Safety Evaluation Report (SER). Generally, two divisions are required to be OPERABLE. However, only one channel per given Function is required if the plant has justified such a design and the NRC SER has accepted the justification.

The controls, instrumentation, and transfer switches are those required for:

- Reactor pressure vessel (RPV) pressure control;
- Decay heat removal;
- RPV inventory control; and
- Safety support systems for the above functions, including service water, component cooling water, and onsite power, including the diesel generators.

The Remote Shutdown System is OPERABLE if all instrument and control channels needed to support the remote shutdown function are OPERABLE. In some cases, Table 3.3.3.2-1 may indicate that the required information or control capability is available from several alternate sources. In these cases, the Remote Shutdown System is OPERABLE as long as one (B)

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BASES

LCO (continued)

channel of any of the alternate information or control sources for each Function is OPERABLE.

The Remote Shutdown System instruments and control circuits covered by this LCO do not need to be energized to be considered OPERABLE. This LCO is intended to ensure that the instruments and control circuits will be OPERABLE if plant conditions require that the Remote Shutdown System be placed in operation.

APPLICABILITY

The Remote Shutdown System LCO is applicable in MODES 1 and 2. This is required so that the plant can be placed and maintained in MODE 3 for an extended period of time from a location other than the control room.

This LCO is not applicable in MODES 3, 4, and 5. In these MODES, the plant is already subcritical and in a condition of reduced Reactor Coolant System energy. Under these conditions, considerable time is available to restore necessary instrument control Functions if control room instruments or control becomes unavailable. Consequently, the TS do not require OPERABILITY in MODES 3, 4, and 5.

ACTIONS

A Note is included that excludes the MODE change restriction of LCO 3.0.4. This exception allows entry into an applicable MODE while relying on the ACTIONS even though the ACTIONS may eventually require a plant shutdown. This exception is acceptable due to the low probability of an event requiring this system.

Insert 1 →

Note 2 has been provided to modify the ACTIONS related to Remote Shutdown System Functions. 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 Remote Shutdown System Functions provide appropriate compensatory measures for separate Functions.

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ACTIONS (continued)

As such, a Note has been provided that allows separate Condition entry for each inoperable Remote Shutdown System Function.

A.1

Condition A addresses the situation where one or more required Functions of the Remote Shutdown System is inoperable. This includes any Function listed in Table 3.3.3.2-1 (as well as) the control and transfer switches for

The Required Action is to restore the Function (both divisions, if applicable) to OPERABLE status within 30 days. The Completion Time is based on operating experience and the low probability of an event that would require evacuation of the control room.

B.1

If the Required Action and associated Completion Time of Condition A are not met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours. The allowed Completion Time is reasonable, based on operating experience, to reach the required MODE from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.3.3.2.1

Performance of the CHANNEL CHECK once every 31 days ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the

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