

REPLACEMENT PAGES
TECHNICAL SPECIFICATIONS
APPENDIX A

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.5 -----NOTES-----</p> <ol style="list-style-type: none"> 1. Neutron detectors and RC flow sensors are excluded from this Surveillance. 2. Verification of bypass function is excluded from this Surveillance. <p>-----</p> <p>Perform CHANNEL CALIBRATION.</p>	<p>92 days</p>
<p>SR 3.3.1.6 -----NOTE-----</p> <p>Neutron detectors and RCPPM current and voltage sensors are excluded from CHANNEL CALIBRATION.</p> <p>-----</p> <p>Perform CHANNEL CALIBRATION.</p>	<p>24 months</p>
<p>SR 3.3.1.7 -----NOTE-----</p> <p>Neutron detectors and RCPPM current and voltage sensors and the watt transducer are excluded from RPS RESPONSE TIME testing.</p> <p>-----</p> <p>Verify RPS RESPONSE TIME is within limits.</p>	<p>24 months on a STAGGERED TEST BASIS</p>

Table 3.3.1-1 (page 1 of 1)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Nuclear Overpower -				
a. High Setpoint	1,2 ^(a)	F	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.5 SR 3.3.1.7	≤ 104.9% RTP
b. Low Setpoint	2 ^(b) , 3 ^(b) 4 ^(b) , 5 ^(b)	G	SR 3.3.1.1 SR 3.3.1.5	≤ 5% RTP
2. RCS High Outlet Temperature	1,2	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	≤ 618°F
3. RCS High Pressure	1,2	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6 SR 3.3.1.7	≤ 2355 psig
4. RCS Low Pressure	1,2 ^(a)	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6 SR 3.3.1.7	≥ 1800 psig
5. RCS Variable Low Pressure	1,2 ^(a)	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	≥ (11.59 * T _{hot} - 5037.8) psig
6. Reactor Building High Pressure	1,2,3 ^(c)	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	≤ 4 psig
7. Reactor Coolant Pumps	1,2 ^(a)	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6 SR 3.3.1.7	More than one pump tripped
8. Nuclear Overpower RCS Flow and Measured AXIAL POWER IMBALANCE	1,2 ^(a)	F	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.7	Nuclear Overpower RCS Flow and AXIAL POWER IMBALANCE setpoint envelope in COLR
9. Main Turbine	≥ 45% RTP	H	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	Turbine tripped
10. Main Feedwater Pumps	≥ 20% RTP	I	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	Both pumps tripped
11. Shutdown Bypass RCS High Pressure	2 ^(b) , 3 ^(b) 4 ^(b) , 5 ^(b)	G	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	≤ 1720 psig

(a) When not in shutdown bypass operation.

(b) During shutdown bypass operation with any CRD trip breakers in the closed position and the CRD Control System (CRDCS) capable of rod withdrawal.

(c) With any CRD trip breaker in the closed position and the CRDCS capable of rod withdrawal.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.5.2	<p>-----NOTE----- When an ESAS channel is placed in an inoperable status solely for performance of this Surveillance, entry into associated Conditions and Required Actions may be delayed for up to 8 hours, provided the associated ES Function is maintained. -----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	31 days
SR 3.3.5.3	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.4	Verify ESF RESPONSE TIME within limits.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.6.1 Perform CHANNEL FUNCTIONAL TEST.	24 months

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.4 Verify SDM is $\geq 1\% \Delta k/k$.	1 hour <u>AND</u> Once per 12 hours thereafter

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.9.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.9.2	<p>-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. -----</p> <p>Perform CHANNEL CALIBRATION.</p>	24 months
SR 3.3.9.3	Verify at least one decade overlap with intermediate range neutron flux channels.	Once each reactor startup prior to source range counts exceeding 10^6 cps if not performed within the previous 7 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.10.2 -----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. -----</p> <p>Perform CHANNEL CALIBRATION.</p>	<p>24 months</p>
<p>SR 3.3.10.3 Verify at least one decade overlap with power range neutron flux channels.</p>	<p>Once each reactor startup prior to intermediate range indication exceeding 1E-5 amp if not performed within the previous 7 days</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time not met for Functions 1.c, 2, 3, or 4.	F.1 Reduce once through steam generator (OTSG) pressure to < 750 psig.	12 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----
Refer to Table 3.3.11-1 to determine which SRs shall be performed for each EFIC Function.

SURVEILLANCE	FREQUENCY
SR 3.3.11.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.11.2 Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.11.3 Perform CHANNEL CALIBRATION.	24 months
-----NOTE----- Only required to be performed in MODES 1 and 2. -----	
SR 3.3.11.4 Verify EFIC RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.11-1 (page 1 of 1)
Emergency Feedwater Initiation and Control System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. EFW Initiation				
a. Main Feedwater	1,2 ^(a) ,3 ^(a)	4	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	Both pumps tripped
b. OTSG Level - Low	1,2,3	4 per OTSG	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3 SR 3.3.11.4	≥ 0 inches
c. OTSG Pressure - Low	1,2,3 ^(b)	4 per OTSG	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	≥ 600 psig
d. RCP Status	≥ 10% RTP	4	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	NA
2. EFW Vector Valve Control				
a. OTSG Pressure - Low	1,2,3 ^(b)	4 per OTSG	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	≥ 600 psig
b. OTSG Differential Pressure - High	1,2,3 ^(b)	4	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	≤ 125 psid
3. Main Steam Line Isolation				
a. OTSG Pressure - Low	1,2,3 ^{(b)(c)}	4 per OTSG	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3 SR 3.3.11.4	≥ 600 psig
4. MFW Isolation				
a. OTSG Pressure - Low	1,2,3 ^{(b)(d)}	4 per OTSG	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3 SR 3.3.11.4	≥ 600 psig

(a) When the RPS is not in shutdown bypass.

(b) When OTSG pressure ≥ 750 psig.

(c) Except when all MSIVs are closed and deactivated.

(d) Except when all MFIVs are closed and deactivated.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.16.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.16.2 -----NOTE----- When the Control Room Isolation—High Radiation instrumentation is placed in an inoperable status solely for performance of this Surveillance, entry into associated Conditions and Required Actions may be delayed for up to 3 hours. ----- Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.16.3 Perform CHANNEL CALIBRATION with a setpoint of approximately two times background.	18 months

SURVEILLANCE REQUIREMENTS

-----NOTE-----
These SRs apply to each PAM instrumentation Function in Table 3.3.17-1.

SURVEILLANCE		FREQUENCY
SR 3.3.17.1	-----NOTE----- Not required for Function 4. -----	
	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.17.2	-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. -----	-----NOTE----- The Frequency for Function 12 is 18 months. -----
	Perform CHANNEL CALIBRATION.	24 months

SURVEILLANCE REQUIREMENTS

-----NOTE-----
These SRs apply to each Remote Shutdown System Instrumentation Function in
Table 3.3.18-1.

SURVEILLANCE		FREQUENCY
SR 3.3.18.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.18.2	<p>-----NOTE----- Not required for Function 1.a. -----</p> <p>Perform CHANNEL CALIBRATION for each required instrumentation channel.</p>	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.9.2.2	<p>-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. -----</p> <p>Perform CHANNEL CALIBRATION.</p>	24 months

PROPOSED BASES
INFORMATION ONLY
(TSCRN 202)

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY
(continued)

7. Reactor Coolant Power Pump Monitors (continued)

The Allowable Value for the Reactor Coolant Pump to Power trip setpoint is selected to prevent normal power operation unless at least three RCPs are operating. RCP status is monitored by two power transducers on each pump. These relays indicate a loss of an RCP on overpower or underpower. The overpower setpoint is selected low enough to detect locked rotor conditions (although credit is not allowed for this capability) but high enough to avoid a spurious trip due to the current associated with start of an RCP. The underpower setpoint is selected to reliably trip on loss of voltage to the RCPs. The RCPPM setpoints do not account for instrumentation errors caused by harsh environments because the trip Function is not required to respond to events that could create harsh environments around the equipment.

There are two pump power monitors provided for each RCP. Both monitors are required to satisfy the instrumentation channel requirements of this LCO.

(continued)

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY

9. Main Turbine Trip (Control Oil Pressure) (continued)

Function was added to B&W plants in accordance with NUREG-0737 (Ref. 4) following the Three Mile Island Unit 2 accident. The trip lowers the probability of an RCS power operated relief valve (PORV) actuation for turbine trip events. This trip is activated at higher power levels, thereby limiting the range through which the Integrated Control System must provide an automatic runback on a turbine trip.

Each of the four turbine oil pressure switches provides input to an associated RPS channel through buffers that continuously monitor the status of the contacts. Failure of an individual pressure switch affects only the associated RPS channel.

For the Main Turbine Trip (Control Oil Pressure) bistable, the setpoint is selected to provide a trip whenever turbine control oil pressure drops below the normal operating range. To ensure that the trip is enabled as required by the LCO, an automatic bypass at reactor power of 45% RTP is provided. The turbine trip is not required to protect against events that create a harsh environment in the turbine building. Therefore, errors induced by harsh environments are not included in the determination of the setpoint Allowable Value.

10. Loss of Main Feedwater Pumps (Control Oil Pressure)

The Loss of Main Feedwater Pumps (Control Oil Pressure) trip Function provides an early reactor trip in anticipation of the loss of heat sink associated with a LOFW event. This trip was added in accordance with NUREG-0737 (Ref. 4), following the Three Mile Island Unit 2 accident. This trip provides a reactor trip at high power levels following a LOFW to minimize challenges to the PORV.

(continued)

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
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10. Loss of Main Feedwater Pumps (Control Oil Pressure)
(continued)

For the feedwater pump control oil pressure bistable, the setpoint is selected to provide a trip whenever feedwater pump control oil pressure drops below the normal operating range. To ensure that the trip is enabled as required by the LCO, the reactor power bypass is set at 20% RTP. The Loss of Main Feedwater Pumps (Control Oil Pressure) trip is not required to protect against events that can create a harsh environment in the turbine building. Therefore, errors caused by harsh environments are not included in the determination of the setpoint Allowable Value.

11. Shutdown Bypass RCS High Pressure

The RPS Shutdown Bypass RCS High Pressure TRIP is provided to allow for withdrawing the CONTROL RODS prior to reaching the normal RCS Low Pressure trip setpoint. The shutdown bypass provides trip protection during deboration and RCS heatup by allowing the operator to withdraw the safety rod groups. This makes additional negative reactivity readily available to terminate inadvertent reactivity excursions. Use of the shutdown bypass trip requires that the nuclear overpower trip setpoint be administratively reduced to $\leq 5\%$ RTP. The Shutdown Bypass RCS High Pressure trip forces a reactor trip to occur whenever the plant switches from power operation to shutdown bypass or vice versa. This ensures that all CONTROL RODS are inserted and the flux distribution is known before reactor startup can begin. The operator is required to remove the shutdown bypass, reset the Nuclear Overpower-High Power trip setpoint, and again withdraw the safety rod groups before proceeding with startup.

FSAR, Chapter 14, (Ref. 2), accident analysis does not address events that occur during shutdown bypass operation, because the consequences of these events are assumed to be enveloped by the MODE 1 events that are presented.

APPLICABLE

11. Shutdown Bypass RCS High Pressure (continued)

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.5 (continued)

This Surveillance is modified by two Notes. The first clarifies that neutron detectors and RC flow sensors (tubes) are not required to be tested as part of this Surveillance. In the case of the neutron detectors, there is no adjustment that can be made to the detectors. Furthermore, adjustment of the detectors is unnecessary because they are passive devices with minimal drift. Slow changes in detector sensitivity are compensated for by performing the daily calorimetric calibration and the monthly axial channel calibration. RCS flow detectors are excluded from this SR, but are surveilled as part of SR 3.3.1.6 on a refueling basis. This is based on their inaccessibility during power operations. The second note clarifies that the bypass function associated with the test Functions need only be performed once per fuel cycle. This is consistent with the definition of CHANNEL CALIBRATION.

SR 3.3.1.6

The CHANNEL CALIBRATION is a complete check of the instrument channel, including the sensor. The test verifies that the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drift to ensure that the instrument channel remains operational between successive tests. The 24 month Frequency is based on the results of a review of instrument drift data conducted in accordance with NRC Generic Letter 91-04.

A Note to the Surveillance indicates that neutron detectors and RCPPM current and voltage sensors are excluded from CHANNEL CALIBRATION. In the case of the neutron detectors, this Note is necessary because of the difficulty in generating an appropriate detector input signal. Excluding the detectors is acceptable because the principles of detector operation ensure a virtually instantaneous response. RCPPM current and voltage sensors are excluded due to the fact no adjustments can be made to these sensors.

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BASES

SURVEILLANCE
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(continued)

SR 3.3.5.3

CHANNEL CALIBRATION is a complete check of the instrument channel, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drift to ensure that the instrument channel remains operational between successive tests.

The Frequency is based on the results of a review of instrument drift data conducted in accordance with NRC Generic Letter 91-04.

SR 3.3.5.4

SR 3.3.5.4 ensures that the ESAS actuation channel response times are less than or equal to the maximum times assumed in the accident analysis. The response time values are the maximum values assumed in the safety analyses. Individual component response times are not modeled in the analyses. Response time testing acceptance criteria are on a Function basis and are included in Reference 1. The analyses model the overall or total elapsed time from the point at which the parameter exceeds the actuation setpoint value at the sensor to the point at which the end device is actuated. Thus, this SR encompasses the automatic actuation logic components addressed under LCO 3.3.7 and the operation of the ES end devices.

Response time tests are conducted on an 24 month STAGGERED TEST BASIS. This results in response time verification of all instrument channels every 72 months. The Frequency is based on plant operating experience, which shows that random failures of instrumentation components causing serious response time degradation but not channel failure are infrequent occurrences.

REFERENCES

1. FSAR, Chapter 7.
 2. FSAR, Chapter 14.
 3. FSAR, Chapter 6.
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BASES (continued)

ACTIONS A Note has been added to the ACTIONS indicating separate Condition entry is allowed for each ESAS manual initiation Function.

A.1

With one manual initiation channel of one or more ESAS Functions inoperable, the channel must be restored to OPERABLE status within 72 hours. The Completion Time of 72 hours is based on plant operating experience and administrative controls, which provide alternative means of ESAS Function initiation via individual component controls. The 72 hour Completion Time is also consistent with the allowed outage time for a loss of redundancy condition for the safety systems actuated by ESAS.

B.1 and B.2

If the manual initiation channel cannot be restored to OPERABLE status within 72 hours, the plant must be placed in a MODE in which the LCO does not apply. To achieve this status, the plant must be placed in at least MODE 3 within 6 hours and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required MODES from full power conditions in an orderly manner and without challenging plant systems.

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SR 3.3.6.1

SR 3.3.6.1 is a CHANNEL FUNCTIONAL TEST of the ESAS manual initiation. The SR verifies manual initiating circuitry is OPERABLE but does not actuate the end device (i.e., pump, valves, etc.). Proper operation of the Function is primarily monitored by ES logic matrix test lights (located on the ES Actuation relay cabinets). The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance is performed with the reactor at power. This Frequency has been extended to 24 months based on operating experience, which shows these components usually pass the Surveillance when performed on an 18 month Frequency.

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BASES

SURVEILLANCE
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SR 3.3.9.2 (continued)

any failures in the detectors will be apparent as change in channel output. The Frequency of 24 months is based on the results of instrument drift data conducted in accordance with NRC Generic Letter 91-04.

SR 3.3.9.3

SR 3.3.9.3 is the verification of one decade of overlap between source and intermediate range neutron flux instrumentation. The SR is required to be performed prior to source range count rate exceeding 10^6 cps if it has not been performed within 7 days prior to reactor startup. Failure to verify one decade of overlap on one or more source range channels requires the plant to be maintained in subcritical condition until the verification can be made. This ensures a continuous source of neutron power indication during the approach to criticality. The verification may be omitted if performed within the previous 7 days. The 7 day portion of the Frequency is based on operating experience, which shows that source range and intermediate range instrument overlap does not change appreciably over this time interval.

REFERENCES

None.

BASES

SURVEILLANCE
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SR 3.3.10.2 (continued)

The SR is modified by a Note excluding neutron detectors from CHANNEL CALIBRATION. It is not necessary to test the detectors because generating a meaningful test signal is difficult. In addition, the detectors are of simple construction, and any failures in the detectors will be apparent as a change in channel output. The 24 month Frequency is based on the results of a review of instrument drift data conducted in accordance with NRC Generic Letter 91-04.

SR 3.3.10.3

SR 3.3.10.3 is the verification of one decade of overlap between intermediate and power range neutron flux instrumentation. The SR is required to be performed prior to intermediate range indication exceeding $1E-5$ amp if it has not been performed within 7 days prior to reactor startup. Failure to verify one decade of overlap on one or more channels requires the plant to remain in a condition where the intermediate range channels provide adequate indication until the verification can be made. This ensures the power range nuclear instrumentation is functioning properly prior to the transition to this range of indication.

The test may be omitted if performed within the previous 7 days. The 7 day portion of the Frequency is based on operating experience, which shows that intermediate range instrument overlap does not change appreciably over this time interval.

REFERENCES

None.

BASES

APPLICABLE 3, 4. Main Steam Line and MFW Isolation (continued)
SAFETY ANALYSES

trip and following EFIC installation considered the isolation functions occurring on OTSG pressure < 600 psig as backup. Since these isolation functions would currently be provided by the safety grade EFIC System, use of the EFIC System in the original safety analysis would have been consistent with the licensing position allowing mitigative functions to be performed by safety grade systems in accident analysis. For these reasons, the SLB accident analysis remains conservative with the assumed Integrated Control System actions.

The EFIC System satisfies Criterion 3 of the NRC Policy Statement.

LCO

All instrumentation performing an EFIC System Function listed in Table B 3.3.11-1 shall be OPERABLE. Four channels are required OPERABLE for all EFIC instrumentation channels to ensure that no single failure prevents actuation of a train. Each EFIC instrumentation channel is considered to include the sensors and measurement channels for each Function, the operational bypass switches, and permissives. Failures that disable the capability to place a channel in operational bypass, but which do not disable the trip Function, do not render the protection channel inoperable.

The Bases for the LCO requirements of each specific EFIC Function are discussed next.

Loss of MFW Pumps

Four EFIC channels shall be OPERABLE. The setpoint should be about half of the normal control oil pressure so that it will provide a good indication of the Loss of MFW Pumps. Analysis only assumes Loss of MFW Pumps and a specific value of MFW pump control oil pressure is not used in the analysis. Further, since the setpoint is so much less than

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BASES

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SR 3.3.11.1 (continued)

monitoring the same parameter should read approximately the same value. Significant deviations between instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious.

Acceptance criteria are determined by plant staff and are presented in the Surveillance Procedure. The criteria are based on a combination of the channel instrument uncertainties.

The Frequency, about once every shift, is based on operating experience that demonstrates channel failure is unlikely. Thus, performance of the CHANNEL CHECK ensures that undetected overt channel failure is limited to time intervals between subsequent performances of the SR.

SR 3.3.11.2

A CHANNEL FUNCTIONAL TEST verifies the function of the required trip, interlock, and alarm functions of the channel. The Frequency of 31 days is based on operating experience and industry accepted practice.

SR 3.3.11.3

CHANNEL CALIBRATION is a complete check of the instrument channel including the sensor. The test verifies the channel responds to a measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channels adjusted to account for instrument drift to ensure that the instrument channel remains operational between successive tests. The Frequency is based on the results of a review of instrument drift data conducted in accordance with NRC Generic Letter 91-04.

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BASES

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SR 3.3.17.1 (continued)

A note to the Surveillance excludes the performance of a CHANNEL CHECK on Function 4. FPC requested, and was granted, exception from performing a CHANNEL CHECK on this instrumentation as part of Amendment 124, dated October 17, 1989. The basis for not performing this SR is based on the design of the system. The system utilizes differential pressure (dp) measurements across vertical elevations of the hot leg and the reactor vessel when the RCPs are tripped. Performance of the SR with the RCPs in operation provides no meaningful information, such that a CHANNEL CHECK of this Function is not required.

SR 3.3.17.2

CHANNEL CALIBRATION is a complete check of the instrument channel, including the sensor, to verify the channel responds to the measured parameter(s) within the necessary range and accuracy.

For the Containment Area Radiation instrumentation, a CHANNEL CALIBRATION consists of an electronic calibration of the channel, not including the detector, for range decades above 10 R/hr. The calibration also provides a one point check of the detector below 10 R/hr using a gamma test source (Reference NUREG 0737, Table II.F.1-3).

The 24 month Frequency is based on the results of a review of instrument drift data conducted in accordance with NRC Generic Letter 91-04. The Frequency for the hydrogen monitors is 18 months based on operating experience and was originally selected to be consistent with the typical industry fuel cycle.

A Note clarifies that the neutron detectors are not required to be tested as part of the CHANNEL CALIBRATION. Adjustment of the detectors is unnecessary because they are passive devices and operating experience has shown them to exhibit minimal drift. Furthermore, there is no adjustment that can be made to the detectors.

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BASES

SURVEILLANCE
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(continued)

SR 3.3.18.2

CHANNEL CALIBRATION is a complete check of the instrument loop and sensor. The SR verifies that the channel responds to the measured parameters within the necessary range and accuracy.

A Note clarifies that Function 1.a., "Reactor Trip Breaker (RTB) Position" is not required to have a CHANNEL CALIBRATION. This indication is mechanical in nature, and thus, not subject to a calibration.

The 24 month Frequency is based on the results of a review of instrument drift data conducted in accordance with NRC Generic Letter 91-04 and is justified by the assumption of a 30 month calibration interval in the determination of the magnitude of equipment drift.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 19.
 2. 10 CFR 50, Appendix R, Section L.
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(continued)

SR 3.9.2.2

SR 3.9.2.2 is the performance of a CHANNEL CALIBRATION every 24 months. The CHANNEL CALIBRATION for the source range nuclear instrumentation is a complete check and re-adjustment of the channels, from the pre-amplifier input to the indicators. The 18 month Frequency is based on engineering judgment and the need to perform this Surveillance during the conditions that exist during a plant outage. The 24 month Frequency is based on the results of a review of instrument drift data conducted in accordance with NRC Generic Letter 91-04.

Performance of SR 3.3.9.2 meets the requirements of this Surveillance, and one performance may be used to satisfy both requirements.

This SR is modified by a Note stating that neutron detectors are excluded from the CHANNEL CALIBRATION. It is not necessary to test the detectors because generating a meaningful test signal is difficult. The detectors are of simple construction, and any failures in the detectors will be apparent as change in channel output.

REFERENCES

1. FSAR, Section 7.3.1.2.
 2. FSAR, Section 14.1.2.4.
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