Pacific Gas and
Electric Company™

Gregory M. Rueger
Senior Vice President–
Generation and
Chief Nuclear Officer

US Mail
Mail Code B32
Pacific Gas and Electric Company
PO Box 770000
San Francisco, CA 94177-0001

Overnight Mail
Mail Code B32
Pacific Gas and Electric Company
77 Beale Street, 32nd Floor
San Francisco, CA 94105-1814

415 973 4684
Fax 415 973 2313

November 1, 2002

PG&E Letter DCL-02-125

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
License Amendment Request 02-06
Revisions to Technical Specifications 3.3.1, "Reactor Trip System (RTS) Instrumentation" and 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation"

Dear Commissioners and Staff:

In accordance with 10 CFR 50.90, PG&E is submitting an application for amendment to Facility Operating License Nos. DPR-80 and DPR-82 for Diablo Canyon Power Plant Units 1 and 2, respectively. The enclosed license amendment request (LAR) proposes to revise Technical Specification (TS) 3.3.1, "Reactor Trip System (RTS) Instrumentation," and TS 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation" as follows: (1) revise both the RTS and ESFAS instrumentation TS and TS Bases to change or clarify the allowances for bypassing and tripping tested channels with other channels inoperable; (2) remove Surveillance Requirement 3.3.1.10 from Function 16.b, "Turbine Stop Valve Closure;" (3) correct the Nominal Trip Setpoint value for Function 16.b, "Turbine Stop Valve Closure;" (4) correct the Allowable Value for the Function 18.f, "Turbine Impulse Chamber Pressure, P-13;" and (5) remove and relocate the nonsafety-related turbine trip function from Function 5 of Table 3.3.2-1, "Turbine Trip and Feedwater Isolation." This function will be relocated to other owner-controlled documents. Changes (2) and (3) were previously included in LAR 00-01, "Administrative Revisions to the Improved Technical Specifications," dated March 16, 2000, but were withdrawn to expedite review of that LAR.

Enclosure 1 provides a description of the proposed changes, the supporting evaluation, and PG&E's determination that the proposed changes do not involve a significant hazards consideration. Enclosure 2 provides a markup of the TS changes. Enclosure 3 provides a markup of the TS Bases to reflect the proposed changes (for information only). Enclosure 4 provides the new proposed TS pages.

A001

TS Bases changes will be implemented in accordance with TS 5.5.14, "Bases Control Program" as part of the implementation of this amendment, upon NRC approval of this amendment application.

The changes proposed in this LAR are not required to address an immediate safety concern. However, they do have some effect on the efficiency of the plant's testing programs. Therefore, PG&E requests approval of the proposed amendment by November 1, 2003. Once approved, the amendment shall be implemented within 120 days.

Sincerely,

Gregory M. Rueger
Senior Vice President – Generation and Chief Nuclear Officer

dxs4
Enclosures
cc:/enc: Edgar Bailey, DHS
Ellis W. Merschoff
David Proulx
Girija S. Shukla
Diablo Distribution

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of PACIFIC GAS AND ELECTRIC COMPANY	) Docket No. 50-275) Facility Operating License) No. DPR-80
Diablo Canyon Power Plant Units 1 and 2	) Docket No. 50-323) Facility Operating License) No. DPR-82

AFFIDAVIT

Gregory M. Rueger, of lawful age, first being duly sworn upon oath says that he is Senior Vice President-Generation and Chief Nuclear Officer of Pacific Gas and Electric Company; that he is familiar with the content thereof; that he has executed LAR 02-06 on behalf of said company with full power and authority to do so; and that the facts stated therein are true and correct to the best of his knowledge, information, and belief.

Gregory M. Rueger
Senior Vice President-Generation and Chief Nuclear Officer

Subscribed and sworn to before me this 1st day of November 2002.

Notary Public
State of California
County of San Luis Obispo

CHUCK MACKEY
Commission # 1204640
Notary Public - California
San Luis Obispo County
My Comm. Expires Dec 12, 2002

EVALUATION

1.0 DESCRIPTION

This License Amendment Request (LAR) proposes to amend Facility Operating License Nos. DPR-80 & DPR-82 for Diablo Canyon Power Plant (DCPP) Units 1 and 2, respectively, to revise Technical Specification (TS) 3.3.1, "Reactor Trip System (RTS) Instrumentation," and TS 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation" as follows:

(1) Clarify the allowances for bypassing and tripping tested channels with other channels inoperable for the RTS and the ESFAS.

(2) Remove Surveillance Requirement (SR) 3.3.1.10 from Function 16.b, "Turbine Stop Valve Closure."

(3) Correct the Nominal Trip Setpoint value for Function 16.b, "Turbine Stop Valve Closure."

(4) Correct the Allowable Value for the Function 18.f, " Turbine Impulse Chamber Pressure, P-13."

(5) Remove and relocate the turbine trip function of Function 5 of Table 3.3.2-1 "Turbine Trip and Feedwater Isolation."

Proposed change (1) to the RTS and ESFAS Instrument TS provides flexibility in surveillance testing. It ensures that the current protection capabilities are maintained within the previously approved submittals and existing control system capabilities.

In change (2), the Function 16.b instrument is a position switch that is not subject to drift and does not have a conventional adjustable setpoint. As a result, performing a calibration test serves no purpose and verifies nothing beyond the required trip actuation device operational test (TADOT). The TADOT continues to be performed on this switch.

The proposed change (3) is a correction of the nominal value for Function 16.b, and provides assurance that the nominal trip setpoint value maintains the allowable value considering instrument inaccuracies.

The proposed change (4) is a correction of the allowable value for Function 18.f, which is provided to make this value consistent with the other allowable values in the TS and reduce confusion. The change was developed using the identical methodology as other allowable values in this TS, and provides consistency.

The proposed change (5) to TS Table 3.3.2-1, Function 5, is to better control the requirements for operability of the ESFAS instrument trip functions. The turbine trip function of this ESFAS function is not safety related and does not meet the 10CFR50.36 criteria for remaining in the TS and allows it to be moved to other owner-controlled documents.

2.0 PROPOSED CHANGE

The proposed changes would revise TS 3.3.1, "Reactor Trip System (RTS) Instrumentation" and the associated Table 3.3.3-1, and Section 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation" and the associated Table 3.3.2-1 to:

1. Restore previously approved surveillance testing in bypass capabilities.
   - For TS 3.3.1, Condition E, the Required Action note for Functions 6, 7, and 8.b is being changed to allow for the inoperable channel and/or one additional channel to be surveillance tested; with one channel in bypass and one channel in trip, or with both the inoperable and the additional channel in bypass for up to four hours.
   - For TS 3.3.1, Condition E, the Required Action note for function 14.a is being separated and changed to allow for the inoperable channel and/or one additional channel to be surveillance tested with one channel in bypass and one channel in trip for up to four hours.
   - For TS 3.3.1, Condition M, the Required Action note for Function 8.a is being changed to allow for the inoperable channel and/or one additional channel to be surveillance tested; with one channel in bypass and one channel in trip or, with both the inoperable and the additional channel in bypass for up to four hours.
   - For TS 3.3.1, Condition M, the Required Action note for Functions 9 and 10 are being separated and changed to allow for the inoperable channel and/or one additional channel to be surveillance tested with one channel in bypass and one channel in trip for up to four hours.
   - For TS 3.3.1, Condition X, the Required Action note for Function 14.b is being changed to allow for the inoperable channel and/or one additional channel to be surveillance tested; with one channel in trip and one channel in bypass, or with both the inoperable and the additional channel in bypass for up to four hours.
   - For TS 3.3.2, Condition D, the Required Action note for Function 1.d is being changed to allow for the inoperable channel and/or one additional channel to be surveillance tested; with one channel in bypass and one channel in trip or, with both the inoperable and the additional channel in bypass for up to four hours.
   - For TS 3.3.2, Condition D, the Required Action note for Functions 1.e(1), 4.d(1), 4.d(2), and 6.d(1) is being changed to allow for the inoperable channel and/or one additional channel to be surveillance tested with one channel in bypass and one channel in trip for up to four hours.
   - For TS 3.3.2, Condition E, the Required Action note for Function 4.c is being changed to allow the inoperable channel and one additional channel

to be surveillance tested in bypass for up to four hours only if any function 1.c channel associated with the inoperable channel is in trip.

- For TS 3.3.2, Condition J, the Required Action note for Function 5.b is being changed to allow for the inoperable channel and/or one additional channel to be surveillance tested with one channel in bypass and one channel in trip for up to four hours.
- For TS 3.3.2, Condition M, the Required Action note for Function 6.d(2) is being changed to allow for the inoperable channel and/or one additional channel to be surveillance tested; with one channel in bypass and one channel in trip, or with both the inoperable and the additional channel in bypass for up to four hours.
- For TS 3.3.2, Condition O, the Required Action note for Function 1.c is being changed to allow for the inoperable channel to be surveillance tested in bypass, or with the inoperable channel in trip, one additional channel to be surveillance tested in bypass for up to four hours.
- For TS 3.3.2, Condition P, the Required Action note for functions 2.c(1) and 3.b(3) is being changed to allow for the inoperable and one additional channel to be surveillance tested in bypass for up to four hours only if any function 1.c channel associated with the inoperable channel is in trip.

2. Remove Surveillance Requirement (SR) 3.3.1.10 from the Function 16.b, "Turbine Stop Valve Closure."
3. Correct the Nominal Trip Setpoint value for Function 16b, "Turbine Stop Valve Closure," to 2 percent.
4. Correct the Allowable Value for Function 18.f, "Turbine Impulse Chamber Pressure, P-13," to less than or equal to 10.3 percent reactor thermal power (RTP) and change the allowable and nominal setpoint notations from "turbine impulse pressure equivalent" to "turbine power."
5. Remove and relocate the turbine trip function of Function 5 of Table 3.3.2-1 "Turbine Trip and Feedwater Isolation," and change the Function 5 Function to read "Feedwater Isolation."

The changes to the TS are noted in the marked-up copy of the affected TS sections in Enclosure 2. The associated TS Bases for TS 3.3.1 and TS 3.3.2 would also be appropriately revised upon approval of this LAR. The TS Bases revisions are included in Enclosure 3 for information only. Enclosure 4 provides the re-typed TS pages.

3.0 BACKGROUND

WCAP-10271

License Amendment (LA) 61/60, dated May 23,1991, approved LAR 90-05 and included recommendations from Westinghouse WCAP-10271 for the increase of surveillance test intervals and allowed outage times (AOTs). In addition to

providing relaxed AOTs, WCAP-10271 discussed the logic circuit configuration required to allow surveillance testing for some of the various instrument channels based on their bypass capabilities. As discussed in WCAP-10271, testing in bypass is allowed only if the channel has bypass capability without lifting leads or establishing jumpers. If this capability does not exist, the channels must be tested by tripping the channel. As a result, for any case where there is an existing inoperable channel that is in a tripped condition and bypass capability for the other channels does not exist, this testing cannot be performed without completing the logic and actuating the system. WCAP-10271 provides an alternative for testing when the inoperable channel is failed in the nontripped condition. In this case, the nontripped inoperable channel would be considered to be bypassed and the WCAP would allow a second channel to be tested in trip. The NRC in a Safety Evaluation Report (SER), dated February 22, 1989, approved this WCAP.

Eagle 21 Installation

On September 21, 1992, PG&E submitted LAR 92-05 "Eagle 21 Process Protection System Upgrade and Resistance Temperature Detector Bypass Elimination," in DCL-92-203. This LAR proposed installation of the Eagle 21 process protection system equipment. This new digital system replaced the previous analog equipment and provided trip and bypass capabilities to the instruments that were to be controlled through the Eagle 21 equipment. These new trip and bypass capabilities were designed to permit any one channel to be tested and maintained during power operation without initiating a protective action at the system level. As a result of the Eagle 21 bypass capabilities for affected instrument channels in both the RTS and ESFAS systems, LAR 92-05 requested the capability to test channels in bypass and TS revisions were provided that supported that request. The TS changes in that LAR were based on WCAP-10271 and its previously approved supplements. The NRC approved testing in bypass for all functions implemented in the Eagle 21 process protection system upgrade used at DCPP, subject to verification that there was installed hardware capability for testing in bypass, in Supplement 1 to the February 22, 1989, SER for WCAP-10271, dated April 30, 1990.

LAR 92-05 was approved in LA 84/83, dated October 7, 1993. The Eagle 21 Reactor Protection System was installed in both Units 1 and 2 in 1994. This installation provided the required bypass capability and provided increased flexibility to meet the surveillance requirements for the various channels of the RTS and ESFAS Instrumentation.

Conversion to Improved Technical Specifications (ITS)

On May 28, 1999, the NRC issued LA 135/135. This LA replaced the previously approved TS with a new set of TS based on NUREG-1431. As a result of the conversion, statements were included in the new TS that changed the philosophy of channels being bypassed or tripped during testing.

In addition to the issues involving surveillance testing in bypass, one channel calibration surveillance test was included in the submittal for LA 135/135 that should have been removed during the engineering reviews performed for that submittal. The removal of this test requirement was initially included in the LAR 00-01, "Administrative Revisions to the Improved Technical Specifications," submittal, along with the request to remove a second test from Function 16.a. However, the removal was determined to be more than a simple administrative correction and it was withdrawn to be included in a future LAR. Accordingly the removal of the subject channel calibration test is included in this LAR.

LA 135/135 has been implemented. As part of that process procedure reviews were conducted. During the implementation of LA 135/135, it was determined that the nominal trip setpoint value listed for Function 16.b, "Turbine Stop Valve Closure," reflected the allowable value, not the nominal value. This nominal value is revised to 2 percent from the currently listed 1 percent.

Other Changes

At the time Eagle 21 was implemented the allowable value for Function 18.f, "Turbine Impulse Chamber Pressure, P-13" was identified as less than or equal to 10.2 percent RTP, with the notation of "Turbine impulse pressure equivalent." However, this value has been found to be inconsistent with other allowable values in this TS and the approved methodology for determining these allowables as provided in WCAP-11082, Revision 5. The TS nominal and allowable values are given in RTP, however the actual settings are based on turbine impulse pressure, which is a function of turbine power. Although a conversion factor could be used to convert between RTP and turbine power for the nominal setpoint and then again for the allowable setpoint, based on a review of the applicable safety analyses and setpoint history, these values are more correctly specified as "Turbine Power" instead of "RTP." This change is consistent with the standard wording provided in NUREG-1431.

Licensee Event Report (LER) 1-99-003-00, "Technical Specification 4.3.1.2, Time Response Test Not Performed Due to Personnel Error," included a commitment to verify TS 4.3.1.2, Table 3.3-2 required tests are appropriately included in the DCPP surveillance test procedures. As a result of that review process, it was determined that the turbine and feedwater isolation trip functions resulting from a steam generator level-high-high signal do not serve the same purpose, do not have the same design basis, or do not require the same operability testing. Further review determined that the turbine trip function is nonsafety-related and does not meet the 10 CFR 50.36 criteria for being maintained in the TS. Therefore, the turbine trip function is being removed from the TS and relocated into an owner-controlled document.

4.0 TECHNICAL ANALYSIS

1. Instrument Function Testing

WCAP-10271 and its supplements specify that testing of an instrument channel should not actuate the protected system. This means that the testing should not cause a spurious actuation or keep a valid signal from actuating the function as designed. As a result, WCAP-10271 provided direction on testing both in bypass and nonbypassed configurations. The information provided in WCAP-10271 indicates that channels with bypass capability, which do not require the lifting of leads or establishing jumpers, are allowed to be tested in either the bypass or tripped condition. For channels without bypass capability, the testing should only be performed in the tripped condition.

Eagle 21 – Two-Out-Of-Three Actuation Logic

For the Eagle 21 instruments that have an inoperable channel and a two-out-of-three logic, [(RTS Functions 9, 10, 14.a and ESFAS Functions 1.c, 1.e(1), 4.d(1), 4.d(2), 5.b, 6.d(1)] there are two surveillance-testing configurations available:

- The inoperable channel can remain in the tripped condition and a second channel can be surveillance-tested in bypass. This will leave the one additional operable channel available to complete the trip logic and cause the required actuation, if necessary.

Channel 1	Channel 2	Channel 3	Trip Scenario
Inoperable and Tripped	Tested in Bypassed	Remains Operable	During testing on a valid trip signal, function will actuate on a 2/3 logic based on inoperable channel being in trip and the operable channel tripping.

The inoperable channel can be placed in bypass and a second channel can be surveillance-tested in trip. This will leave the one additional channel to complete the trip logic and cause the required actuation, if necessary.

Channel 1	Channel 2	Channel 3	Trip Scenario
Inoperable and Bypassed	Tested in Trip	Remains Operable	During testing on a trip signal, function will actuate on a 2/3 logic based on the channel being in tested in trip and the operable channel tripping.

All of the two-out-of-three logic instruments have the above scenarios available. However, the TS 3.3.2 ESFAS Function 1.c, "Safety Injection Containment Pressure-High," channels are included on common control channels for the containment pressure-high-high functions. The TS requires an inoperable Function 1.c channel to be placed in trip for continued operation of that function. However, the common containment pressure-high-high functions are energized to trip functions and they require an inoperable channel to be placed in bypass, not trip, for continued operation of their function. As a result, this common protection channel creates limitations on the common channels for these functions. These limitations are discussed below in the section titled "Eagle 21 - Common Protection Channels."

Eagle 21 – Two-Out-Of-Four Actuation Logic

For the Eagle 21 instruments that have an inoperable channel and a two-out-of-four logic, [(RTS Functions 6, 7, 8.a, 8.b, 14.b, and ESFAS Functions 1.d, 6.d(2)] the two surveillance testing configurations provided for the two-out-of-three logic instruments are available.

Channel 1	Channel 2	Channel 3	Channel 4	Trip Scenario
Inoperable and Tripped	Tested in Bypassed	Remains Operable	Remain Operable	During testing on a valid trip signal, function will actuate on 2/4 logic. This would result from either the two operable channels tripping or one of the operable channels tripping and the inoperable channel being in trip.

Channel 1	Channel 2	Channel 3	Channel 4	Trip Scenario
Inoperable and Bypassed	Tested in Trip	Remains Operable	Remains Operable	During testing on a valid trip signal, function will actuate on 2/4 logic. This would result from either the two operable channels tripping or one of the operable channels tripping and one of the channels being tested in trip.

In addition, for these two-out-of-four logics there is one additional surveillance testing configuration that is also acceptable:

- The inoperable channel and one additional channel may be bypassed for surveillance testing. This will leave two operable channels to actuate the trip logic, if required.

Channel 1	Channel 2	Channel 3	Channel 4	Trip Scenario
Inoperable and Bypassed	Tested in Bypassed	Remains Operable	Remains Operable	During testing on a valid trip signal, function will actuate on 2/4 logic because of the operable channels tripping.

Eagle 21 – Common Protection Channels

The exceptions to the above configurations are the TS 3.3.2 ESFAS Functions 2.c(1), 3.b(3), and 4.c, which are containment pressure–high–high functions. These instruments provide logic initiation of an actuation of the containment spray, Phase B containment isolation, or steam-line isolation. Due to the potential for damage inside the containment created by an inadvertent actuation of any of these systems, every precaution is taken to reduce or eliminate that occurrence. Because these signals do not input directly to a control function, a two-out-of-three logic is necessary to meet acceptable protective requirements. However, a two-out-of-three design would require tripping a failed channel for continued operation. This is undesirable because a single failure of a containment pressure–high–high input could then cause a spurious actuation of these systems. Therefore, these channels are designed

with a two-out-of-four logic so that a failed channel may be bypassed and still satisfy system operability and the single failure criterion.

As a result of the above logic, the TS for Functions 2.c(1), 3.b(3), and 4.c requires that an inoperable channel be returned to operable status or placed in bypass within 6 hours. Once in bypass the system is considered operable because the two-out-of-three logic still exists. However, once the inoperable channel is in bypass it cannot be returned to a tripped condition without re-entering the TS condition and increasing the potential for a spurious actuation.

Normally, an Eagle 21 two-out-of-four logic instrument would be allowed to have the inoperable channel and/or one additional channel to be surveillance tested with one channel in bypass and one channel in trip. However, these specific channels are energized to actuate, which allow them to fail in a nontripped condition on a loss of power in order to further reduce the probability of a spurious actuation. To trip these channels for surveillance testing by energizing them will increase the potential for a spurious actuation; therefore, they are only surveillance-tested in bypass and no other configuration.

The three containment pressure–high–high Functions 2.c(1), 3.b(3), and 4.c are associated with four common containment pressure protection instrument loops, and each of these common protection loops contain one containment pressure high-high channel. In addition, there is a safety injection containment pressure-high Function 1.c channel on three of the four common instrument loops. In this common protection configuration a valid containment pressure-high signal at its setpoint would only trip the safety injection containment pressure-high function. However, in this configuration a valid containment pressure-high-high signal at its setpoint will trip all four functions including the safety injection containment pressure-high function.

Included Functions	Common Protection Channel 1	Common Protection Channel 2	Common Protection Channel 3	Common Protection Channel 4
Function 2.c	X	X	X	X
Function 3.b(3)	X	X	X	X
Function 4.c	X	X	X	X
Function 1.c	X	X	X	None

In this common protection configuration, if a common protection loop or one of the included function channels is inoperable, then the common loop is considered inoperable and one channel from each included function is inoperable. As a result, for continued operation per the TS Limiting Condition for Operation (LCO), the inoperable common instrument loop must be placed in a safe condition (this will place the associated containment pressure-high-high functions in bypass) and the associated safety injection containment pressure-high channel must be manually tripped. This configuration will meet the TS requirements for continued operability of all four of these functions.

The inclusion of a safety injection containment pressure–high channel on three of the four common instrument loops results in restrictions on surveillance testing configurations when compared with other two-out-of-four logic instruments. As discussed above, the safety injection containment pressure-high function is a two-out-of-three logic, which requires an inoperable channel to be placed in trip to continue meeting TS operability and only one channel at a time is allowed to be bypassed for surveillance testing. As a result, for the three common instrument loops that include a safety injection channel, surveillance testing a second common instrument loop in bypass, which would be allowed by the normal two-out-of-four logic, requires verification that the safety injection channel on the bypassed inoperable instrument loop has been placed in trip. Otherwise the second common instrument loop cannot be placed in bypass for any reason, including surveillance testing. However, if the fourth common instrument loop, which does not include the safety injection channel is the inoperable channel, then with that channel in bypass, any one of the other three common operable instrument loops may be surveillance tested in bypass without placing the associated safety injection channel in trip.

Common Instrument Loop Channel 1	Common Instrument Loop Channel 2	Common Instrument Loop Channel 3	Common Instrument Loop Channel 4	Trip Scenario
Inoperable and in bypass with safety injection (SI) function tripped for continued operation per TS	All four functions are tested in bypassed	All four functions remain operable	All three high-high functions remain operable, no included SI function.	During testing on a valid high trip signal, the SI high function will actuate on 2/3 logic because of the SI function on Channel 1 being in trip and the SI function on operable Channel 3 tripping. On a valid high-high signal, all four functions will actuate. The SI function will actuate on Channel 1 being in trip and Channel 3 tripping. The other functions will actuate on Channel 3 and 4 tripping.

Common Instrument Loop Channel 1	Common Instrument Loop Channel 2	Common Instrument Loop Channel 3	Common Instrument Loop Channel 4	Trip Scenario
All four functions are tested in bypassed	All four functions remain operable	All four functions remain operable	Inoperable and in bypass, no included SI function	During testing on a valid high trip signal, the SI high function will actuate on 2/3 logic on Channels 2 an 3 tripping. During testing on a valid high-high signal, all four functions will actuate on Channel 2 and 3 tripping.

The proposed surveillance testing configurations maintain the trip logic intact during surveillance testing; however, as supported in WCAP-10271-P-A, Supplement 2, Revision 1, June 1990, many of them do not meet single failure criterion while in these configurations. The failure to meet this criterion has been previously approved and is justified based on the low probability of an additional channel failure during the period allowed for testing as specified by the TS required action completion times and return to a configuration that meets the minimum requirements for operability for each of these instruments.

Based on these considerations and the fact that none of these configurations is less conservative than previously-approved configurations, PG&E believes that there is reasonable assurance that the health and safety of the public will not be adversely affected by the proposed TS changes.

2. Correction to TS 3.3.1, Table 3.3.1-1, Function 16, "Turbine Trip"

   SR 3.3.1.10 will be removed from Function 16.b, "Turbine Stop Valve Closure." This will result in Function 16.b requiring a trip actuation device operational test (TADOT) (without verification of setpoint) only. The two tests currently listed for this function are a channel calibration test and a TADOT. Both of these tests are designed to verify the actuation of an instrument at a specific setpoint or limit. However, a calibration test is typically required to verify that instruments that are subject to drift are maintaining their setpoints or limits. A calibration test typically involves an as-found trip test performed at the specific limit or setpoint, and then a recalibration of the instrument to optimize the future operation of the instrument at that setpoint. The TADOT test is provided to simply verify actuation based on function at a setpoint or limit, without reverifying or calibrating the actual setpoint or limit. TADOT tests are provided for most instruments whether or not they are subject to drift, and are typically performed more frequently than calibration tests.

The valve position switches on the turbine stop valves are not subject to drift. Their actuation limits are fixed in location when installed. They do not have instrumentation setpoint adjustment features, but only actuate based on the position of the valve they monitor. As a result, a channel calibration is not useful for this type of equipment and would serve no purpose. A TADOT without requiring verification of setpoint will properly verify this actuation function.

The TS prior to implementation of LA 135/135, only required a TADOT (without verification of setpoint) for Function 16.b. NUREG-1431, Revision 1 showed both tests and as a result, the markup for the LAR submittal for LA 135/135 was created with both tests included for this function. As discussed above, the channel calibration test serves no purpose on this type of instrument and the TADOT testing provides the necessary assurance of operability.

In addition, as a part of the channel calibration test the TADOT verified functions are also verified. Since the calibration portion of the test is not relevant for this instrument, these tests are essentially redundant in verifying function. Retaining both requirements provides no increase in the level of assurance of operability. Therefore, the proposed change would eliminate this redundancy, as well as an unnecessary test element requirement. The proposed change is acceptable since it would assure that the instrument function is appropriately verified and operability is maintained.

3. Correction to TS 3.3.1, Table 3.3.1-1, Function 16.b, "Turbine Stop Valve Closure"

   The current nominal trip setpoint value listed for Function 16.b, "Turbine Stop Valve Closure," is the same as the allowable value for that function. This is consistent with the values previously contained in the TS. Also in the previous TS the nominal value was specified as greater than or equal to 1 percent, and was implemented under plant procedures as a nominal value of 2 percent open. This LAR revises the nominal trip setpoint value to 2 percent from the currently listed 1 percent. The allowable value is listed as greater or equal to 1 percent and to assure meeting that value the nominal trip setpoint should be set above that value considering setup and instrument uncertainties. Current practice adjusts the allowable value using setup and instrument uncertainty, and then identifies a trip setpoint that protects the allowable value. Past operating experience has shown that a setting of 2 percent allows for any variance in the setup and ensures maintenance of the allowable value. This change is acceptable because it provides a nominal trip setpoint that is more conservative then the current requirement and provides margin to ensure that the credited allowable value is maintained and that the operability is assured.

4. Correction to TS 3.3.1, Table 3.3.1-1, Function 18.f, "Turbine Impulse Chamber Pressure, P-13"

   The current TS provides an allowable value for Function 18.f, "Turbine Impulse Chamber Pressure, P-13," of 10.2 percent RTP. This LAR revises that value to 10.3 percent Turbine Power to make it consistent with DCPP's approved

methodology. This methodology is based on WCAP-11082, Revision 5. WCAP-11082, Revision 5, specifies an Eagle 21 eagle analog input card drift value of 0.2 percent of calibrated span.

In addition, in the current TS the allowable and nominal values for Function 18.f, "Turbine Impulse Chamber Pressure, P-13," were defined by the notation that the values are "Turbine impulse pressure equivalent." However, this is inconsistent with other allowable values in this TS and the approved methodology for determining these allowables as provided in WCAP-11082, Revision 5. The TS nominal and allowable values are given in RTP, however the actual settings are based on turbine impulse pressure, which is a function of turbine power. Although a conversion factor could be used to convert between RTP and turbine power for the nominal setpoint and then again for the allowable setpoint, based on a review of the applicable safety analyses and setpoint history, these values are more correctly specified as "Turbine Power" instead of "RTP." This change is consistent with the standard wording provided in NUREG-1431.

5. Remove and relocate the turbine trip function of Function 5 of Table 3.3.2-1 "Turbine Trip and Feedwater Isolation" and rename Function 5 as "Feedwater Isolation."

   Function 5 of TS Table 3.3.2-1 currently provides ESFAS instrumentation TS applicability, required channels, LCO conditions, surveillance requirements, allowable value and nominal trip setpoint for both turbine trip and feedwater isolation functions on a steam generator level - high-high signal. Although these two functions are actuated from the same signal, only the feedwater isolation function is credited in any accident scenario contained in the Final Safety Evaluation Report (FSAR). As stated in the FSAR, the primary purpose of the turbine trip function from steam generator level - high-high is to protect the turbine from moisture carryover. Unlike the feedwater isolation function, it is a nonsafety-related function and is not required for reactor protection. To clarify this difference in function, the turbine trip function is being removed and relocated to other owner-controlled documents as provided in this LAR.

   To remove and relocate the turbine trip function an evaluation is provided below of the 10 CFR 50.36.c criteria for items that need to be controlled in the TS. Items that meet these criteria must be included in the TS and must have limiting conditions for operation established for them. If an item does not meet these criteria then it can be excluded from the TS.

   The following is an evaluation of the turbine trip function against the four criteria:

   "Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary."

The turbine trip function on steam generator (SG) high-high level is provided to reduce the potential damage to equipment on the secondary side from moisture carryover in the case of high SG level event. This is not a safety-related function and is not credited or used to detect or indicate in the control room a significant abnormal degradation of the reactor coolant pressure boundary.

"Criterion 2: A process variable, design feature, or operating restriction that is an initial condition of a Design Basis Accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier."

The turbine trip function on SG high-high level is provided to reduce the potential damage to equipment on the secondary side from moisture carryover in the case of high SG level event. This is not a safety-related function nor is its function credited as an initial analysis condition of a Design Basis Accident or transient.

"Criterion 3: A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a Design Basis Accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier."

The turbine trip function on SG high-high level is provided to reduce the potential damage to equipment on the secondary side from moisture carryover in the case of high SG level event. Although this function actuates to protect equipment it is not safety-related. Its function protects secondary side equipment, which is not part of the primary success path functions and does not actuate to mitigate a Design Basis Accident or transient.

"Criterion 4: A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety."

The turbine trip function on SG high-high level is provided to reduce the potential damage to equipment on the secondary side from moisture carryover in the case of high SG level event. The equipment protected is not required to function to mitigate any Design Bases Accident and is not credited to protect the public health and safety. In addition, the damage of this equipment does not provide a significant risk to public health and safety.

Although the turbine function is being removed and relocated, all the TS limits currently stated in Table 3.3.2-1 for the feedwater isolation function remain the same concerning the applicable modes, required channels, conditions, allowable value and nominal trip setpoint.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Evaluation

PG&E has evaluated the no significant hazards considerations involved with the proposed amendment, focusing on the three standards set forth in 10 CFR 50.92(c) as discussed below:

1. *Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?*

   Response: No.

   The proposed changes in the required action statements in the Limiting Conditions for Operation (LCOs) for the allowable surveillance testing configurations for both the reactor trip system (RTS) and engineered safety feature actuation system (ESFAS) instruments will not change the probability or consequences of an accident previously evaluated.

   The proposed surveillance testing configuration changes only clarify available surveillance testing configurations and limitations on those configurations. The changes do not modify how the RTS and ESFAS functions respond to any accident condition. These surveillance testing configurations provide greater flexibility to prevent inadvertent actuation of these functions that could be a precursor for an accident.

   Previous Diablo Canyon Power Plant (DCPP) submittals have been approved providing for the capability of surveillance testing in trip and/or in bypass. Surveillance testing in bypass is considered the preferred method for most Eagle 21 instruments. However, where testing by tripping a single channel without causing a function actuation is acceptable, that capability was also maintained.

   Although some of the changes may appear to add new allowable surveillance testing configurations, all of the proposed configurations are based on the application of the intent behind the existing Technical Specification (TS) wording. The limitations on surveillance testing configurations provided by the proposed changes are to ensure that there are no spurious actuations and that during testing a valid signal will cause the associated functions to actuate as designed. None of these configurations place the associated function in a logic that has not been previously evaluated and approved.

   The proposed elimination of the channel calibration for the turbine stop valve position switches will not change the probability or consequences of an accident previously evaluated since these switches are not subject to drift. These limit switches are installed with fixed limit setpoints that actuate based on valve position and they are not calibrated in the field. As a result, a channel calibration being performed on these switches provides no useful purpose other than to verify function similar to the remaining trip actuation device operational test (TADOT). As a result, performing only the TADOT provides all necessary assurances of operability.

The correction of the turbine stop valve closure nominal trip setpoint is administrative in nature and will not change the probability or consequences of an accident previously evaluated. This was an oversight in the Improved Technical Specification (ITS) review and conversion process. The proposed change only returns the setpoint to the previously evaluated value.

The proposed change to the allowable value for Function 18.f, "Turbine Impulse Chamber Pressure, P-13," is administrative in nature and will not change the probability or consequences of an accident previously evaluated. The P-13 intended trip setpoint has always been maintained at 10 percent and remains unchanged. This modification is performed to provide consistency with current methodology and NUREG-1431, and does not affect the operation of the protective function.

The proposed removal and relocation of the turbine trip function from ESFAS Function 5 will not change the probability or consequences of an accident previously evaluated. The turbine trip function is nonsafety-related and is not credited in any design bases accident scenario. The proposed change only clarifies importance of the two trip functions. The proposed changes in this LAR do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. *Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?*

Response: No.

The proposed changes in the required action statements in the LCOs for the allowable surveillance testing configurations for both the RTS and ESFAS instruments will not create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed changes only clarify previously available surveillance testing configurations and limitations on those configurations. These clarifications ensure maximum surveillance testing flexibility to prevent inadvertent actuation of these functions that could be a precursor for an accident. The changes do not modify any equipment, hardware or how the RTS and ESFAS functions respond to any accident condition.

The proposed elimination of the channel calibration for the turbine stop valve position switches will not create the possibility of a new or different kind of accident from any accident previously evaluated. This change does not modify any equipment, hardware or functions. The switches are installed with fixed limit setpoints that actuate based on valve position. The switches are not subject to drift and are not calibrated in the field. As a result, a channel calibration being performed on these switches provides no useful purpose other than to verify function similar to the required TADOT. As a result, performing only the TADOT provides equivalent assurances of operability.

The correction of the turbine stop valve closure nominal trip setpoint in

Function 16.b, "Turbine Stop Valve Closure," is administrative in nature and will not create the possibility of a new or different kind of accident from any accident previously evaluated. This was an oversight in the ITS review and conversion process. The proposed change does not modify any hardware or equipment, and only returns the setpoint to the previously evaluated value.

The proposed change to the allowable value for Function 18.f, "Turbine Impulse Chamber Pressure, P-13," is administrative in nature and will not create the possibility of a new or different kind of accident from any accident previously evaluated. The P-13 intended (nominal) trip setpoint has always been maintained at 10 percent and remains unchanged. This change does not modify any equipment or hardware. This modification is performed to provide consistency with current methodology and NUREG-1431, and does not affect the operation of the protective function.

The proposed removal and relocation of the turbine trip function from ESFAS Function 5 will not create the possibility of a new or different kind of accident from any accident previously evaluated. The turbine trip function is nonsafety-related and is not credited in any design bases accident scenario. The proposed change only clarifies importance of the two trip functions.

3. *Does the change involve a significant reduction in a margin of safety?*

Response: No.

The proposed changes in the required action statements in the LCOs for the allowable surveillance testing configurations for both the RTS and ESFAS instruments will not involve a significant reduction in a margin of safety. The proposed changes only clarify previously available surveillance testing configurations and limitations on those configurations. These clarifications ensure maximum surveillance testing flexibility to prevent inadvertent actuation of these functions that could be a precursor for an accident. The changes do not modify any equipment, hardware or how the RTS and ESFAS functions respond to any accident condition.

The proposed elimination of the channel calibration for the turbine stop valve position switches will not involve a significant reduction in a margin of safety. This change does not modify any equipment, hardware or functions. The switches are installed with fixed limit setpoints that actuate based on valve position. The switches are not subject to drift and are not calibrated in the field. As a result, a channel calibration being performed on these switches provides no useful purpose other than to verify function similar to the required TADOT. As a result, performing only the TADOT provides equivalent assurances of operability.

The correction of the turbine stop valve closure nominal trip setpoint in Function 16.b, is administrative in nature and will not involve a significant reduction in a margin of safety. This was an oversight in the ITS review and conversion process. The proposed change does not modify any hardware or equipment, and only returns the setpoint to the previously evaluated value.

The proposed change to the allowable value for Function 18.f, "Turbine Impulse Chamber Pressure, P-13," is administrative in nature and will not involve a significant reduction in a margin of safety. The P-13 intended (nominal) trip setpoint has always been maintained at 10 percent and remains unchallenged. This change does not modify any equipment or hardware. This modification is performed to provide consistency with current methodology and NUREG-1431, and does not affect the operation of the protective function.

The proposed removal and relocation of the turbine trip function from ESFAS Function 5 does not involve a significant reduction in a margin of safety. The turbine trip function is nonsafety-related and is not credited in any design bases accident scenario. The proposed change only clarifies importance of the two trip functions.

None of the proposed changes affect the acceptance criteria for any analyzed event. There will be no effect on the manner in which safety limits or limiting safety system settings are determined nor will there be any effect on those plant systems necessary to assure the accomplishment of protection functions.

Based on the above evaluation, PG&E concludes that the changes proposed by this License Amendment Request satisfy the no significant hazards consideration standards of 10 CFR 50.92(c) and, accordingly, a no significant hazards consideration finding is justified.

5.2 Regulatory Requirements and Guidance

10 CFR 50.36, "Technical Specifications," provides four criteria for determining whether items are required to be controlled in TS. These criteria were used to remove and relocate the turbine trip function from Function 5 of ESFAS TS Table 3.3.2-1.

All of the proposed changes in this amendment clarify and provide better control over the RTS and ESFAS instrumentation. None of these proposed changes affects the design or regulatory bases of the DCPP Units 1 and 2. No regulation, standard, or commitment previously met by these systems is being affected by these proposed changes.

In conclusion, based on the absence of affect on the current regulatory basis, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

PG&E has evaluated the proposed changes and determined that the changes do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released off-site, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meet the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed changes is not required.

7.0 REFERENCES:

1. License Amendment 61/60, dated May 23, 1991.
2. License Amendment 84/83, dated October 7, 1993.
3. License Amendment 135/135, dated May 28, 1999.
4. WCAP-10271, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," February 21, 1985; WCAP-10271, Supplement 2, "Evaluation of Surveillance Frequencies and Out of Service Times for the Engineered Safety Features Actuation System," February 1986; WCAP-10271, Supplement 2, Revision 1, "Evaluation of Surveillance Frequencies and Out of Service Times for the Engineered Safety Features Actuation System," March 1987.
5. NRC Safety Evaluation by the Office of Nuclear Reactor Regulation of WCAP-10271, Supplement 2, and WCAP-10271, Supplement 2, Revision 1, "Evaluation of Surveillance Frequencies and Out of Service Times for the Engineered Safety Features Actuation System," February 22, 1989.
6. Supplement 1 to the February 22, 1989, NRC Safety Evaluation by the Office of Nuclear Reactor Regulation of WCAP-10271, Supplement 2, Revision 1, "Evaluation of Surveillance Frequencies and Out of Service Times for the Engineered Safety Features Actuation System," April 30, 1990.
7. WCAP-11082, Revision 5, "Westinghouse Setpoint Methodology for Protection Systems Diablo Canyon Units 1 & 2, 24 Month Fuel Cycle Evaluation," January, 1997 (submitted in PG&E letter DCL-96-214, dated January 31, 1997, in support of LAR 96-10 and approved by the NRC for DCPP by License Amendments 122/120, dated February 17, 1998).

MARKED-UP TECHNICAL SPECIFICATION PAGES

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One channel inoperable.	----------NOTE---------- ~~The inoperable channel, or one additional channel for functions 6, 7, and 8 b may be bypassed for up to 4 hours for surveillance testing of other channels.~~ INSERT 1 For functions 2.b, 3.a, 3.b, ~~and 14.a~~ and only the inoperable channel may be bypassed for surveillance testing of other channels. INSERT 2 ----------	
	E.1 Place channel in trip.	6 hours
	OR	
	E.2 Be in MODE 3.	12 hours
F. One Intermediate Range Neutron Flux channel inoperable.	F.1 Reduce THERMAL POWER to < P-6.	24 hours
	OR	
	F.2 Increase THERMAL POWER to > P-10.	24 hours
G. Two Intermediate Range Neutron Flux channels inoperable.	G.1 Suspend operations involving positive reactivity additions.	Immediately
	AND	
	G.2 Reduce THERMAL POWER to < P-6.	2 hours
H. Not used		
I. One Source Range Neutron Flux channel inoperable.	I.1 Suspend operations involving positive reactivity additions.	Immediately
J. Two Source Range Neutron Flux channels inoperable.	J.1 Open reactor trip breakers (RTBs).	Immediately

(continued)

Insert 1 –

For functions 6, 7 and 8.b, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 4 hours.

Insert 2 –

For function 14.a, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. One Source Range Neutron Flux channel inoperable.	K.1 Restore channel to OPERABLE status.	48 hours
	OR	
	K.2.1 Initiate action to fully insert all rods.	48 hours
	AND	
	K.2.2 Place the Control Rod System in a condition incapable of rod withdrawal.	49 hours
L. Required Source Range Neutron Flux channel inoperable.	L.1 Suspend operations involving positive reactivity additions.	Immediately
	AND	
	L.2 Perform SR 3.1.1.1.	1 hour AND Once per 12 hours thereafter
M. One channel inoperable.	----------NOTE---------- ~~The inoperable channel or one additional channel for function 8.a may be bypassed for up to 4 hours for surveillance testing of other channels.~~ For functions 9, ~~10~~ 12, and 13, only the inoperable channel may be bypassed for surveillance testing of other channels. ----------	INSERT 3 INSERT 4
	M.1 Place channel in trip.	6 hours
	OR	
	M.2 Reduce THERMAL POWER to < P-7.	12 hours
N. Not used		

(continued)

Insert 3 –

For function 8.a, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 4 hours.

Insert 4 –

For functions 9 and 10, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
X. One or more SG Water Level Low - Low Trip Time Delay channel(s) inoperable.	----------NOTE---------- ~~The inoperable channel or one additional channel may be bypassed for up to 4 hours for surveillance testing of other channels.~~ INSERT 5 ----------	
	X.1 Set the Trip Time Delay to zero seconds.	6 hours
	OR	
	X.2 Place the affected SG Water Level Low - Low channel(s) in trip.	6 hours
	OR	
	X.3 Be in MODE 3.	12 hours

Insert 5 –

For function 14.b, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 4 hours.

Table 3.3.1-1 (page 4 of 7)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL[a] TRIP SETPOINT
16. Turbine Trip						
a. Low Auto-Stop Oil Pressure	1[j]	3	O	SR 3.3.1.10 SR 3.3.1.15	≥ 46.5 psig	50 psig
b. Turbine Stop Valve Closure	1[j]	4	P	~~SR 3.3.1.10~~ SR 3.3.1.15	≥ 1% open	~~1~~ 2% open
17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	Q	SR 3.3.1.14	NA	NA
18. Reactor Trip System Interlocks						
a. Intermediate Range Neutron Flux, P-6	2[e]	2	S	SR 3.3.1.11 SR 3.3.1.13	≥ 8E-11 amp	1E-10 amp
b Low Power Reactor Trips Block, P-7	1	1 per train	T	SR 3.3.1.5	NA	NA
c. Power Range Neutron Flux, P-8	1	4	T	SR 3.3.1.11 SR 3.3.1.13	≤ 36.2% RTP	35% RTP

(continued)

(a) A channel is OPERABLE with an actual Trip Setpoint value outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established calibration tolerance band of the Nominal Trip Setpoint. A Trip Setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions.
(e) Below the P-6 (Intermediate Range Neutron Flux) interlocks.
(j) Above the P-9 (Power Range Neutron Flux) interlock.

Table 3.3.1-1 (page 5 of 7)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL[a] TRIP SETPOINT
18. Reactor Trip System Interlocks (cont)						
d. Power Range Neutron Flux, P-9	1	4	T	SR 3.3.1.11 SR 3.3.1.13	≤ 51.2% RTP	50% RTP
e. Power Range Neutron Flux, P-10	1,2	4	S	SR 3.3.1.11 SR 3.3.1.13	≥ 8.8% RTP and ≤ 11.2% RTP	10% RTP
f. Turbine Impulse Chamber Pressure, P-13	1	2	T	SR 3.3.1.10 SR 3.3.1.13	≤ ~~10.2~~ 10.3% ~~RTP~~ turbine ~~impulse pressure equivalent~~ Power	10% ~~RTP~~ turbine ~~impulse pressure equivalent~~ Power
19. Reactor Trip Breakers[k] (RTBs)	1,2	2 trains	R	SR 3.3.1.4	NA	NA
	3[b], 4[b], 5[b]	2 trains	C	SR 3.3.1.4	NA	NA
20. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms[k]	1,2	1 each per RTB	U	SR 3.3.1.4	NA	NA
	3[b], 4[b], 5[b]	1 each per RTB	C	SR 3.3.1.4	NA	NA
21. Automatic Trip Logic	1,2	2 trains	Q	SR 3.3.1.5	NA	NA
	3[b], 4[b], 5[b]	2 trains	C	SR 3.3.1.5	NA	NA
22. Seismic Trip	1,2	3 directions (x,y,z) in 3 locations	W	SR 3.3.1.5 SR 3.3.1.12 SR 3.3.1.14	≤ 0.43g	0.35g

(a) A channel is OPERABLE with an actual Trip Setpoint value outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established calibration tolerance band of the Nominal Trip Setpoint A Trip Setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions.

(b) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(k) Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One channel inoperable.	----------NOTE---------- ~~The inoperable channel or one additional channel for Function 1.d may be bypassed for up to 4 hours for surveillance testing of other channels.~~ INSERT 6 ~~For Functions 1.e, 4.d(1), 4.d(2) and 6.d(1), only the inoperable channel may be bypassed for surveillance testing of the other channels.~~ INSERT 7 ----------	
	D.1 Place channel in trip.	6 hours
	OR	
	D.2.1 Be in MODE 3.	12 hours
	AND	
	D.2.2 Be in MODE 4.	18 hours
E. One Containment Pressure channel inoperable.	----------NOTE---------- ~~One additional channel may be bypassed for up to 4 hours for surveillance testing.~~ INSERT 8 ----------	
	E.1 Place channel in bypass.	6 hours
	OR	
	E.2.1 Be in MODE 3.	12 hours
	AND	
	E.2.2 Be in MODE 4.	18 hours

(continued)

Insert 6 –

For function 1.d, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 4 hours.

Insert 7 –

For functions 1.e(1), 4.d(1), 4.d(2), and 6.d(1), the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours.

Insert 8 –

The inoperable channel and one additional channel may be surveillance tested in bypass for up to 4 hours only if any function 1.c channel associated with the inoperable channel is in trip.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----------	
	I.1 Place channel in trip.	6 hours
	OR	
	I.2. Be in MODE 2.	12 hours
J. One channel inoperable	----------NOTE---------- ~~The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels.~~ ---------- INSERT 9	
	J.1 Place channel in trip.	6 hours
	OR	
	J.2. Be in MODE 3.	12 hours
K. One channel inoperable	K.1.1 Place the channel in cut-out.	6 hours
	AND	
	K.1.2 Return the inoperable channel to an OPERABLE status	48 hours
	OR	
	K.2.1 Be in MODE 3.	54 hours
	AND	
	K.2.2 Be in MODE 5	84 hours

(continued)

Insert 9 –

The inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
L. One or more channels or trains inoperable.	L.1 Verify interlock is in required state for existing unit condition.	1 hour
	OR	
	L.2.1 Be in MODE 3.	7 hours
	AND	
	L.2.2 Be in MODE 4.	13 hours
M. One or more SG Water Level - Low Low Trip Time Delay channel(s) inoperable.	----------NOTE---------- ~~The inoperable channel or one additional channel may be bypassed for up to 4 hours for surveillance testing of other channels.~~ ---------- INSERT 10	
	M.1 Set the Trip Time Delay to zero seconds.	6 hours
	OR	
	M.2 Place the affected SG Water Level - Low Low channel(s) in trip.	6 hours
	OR	
	M.3.1 Be in MODE 3.	12 hours
	AND	
	M.3.2 Be in MODE 4.	18 hours

(continued)

Insert 10 –

The inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 4 hours.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
N. One channel inoperable.	N.1 Restore channel to OPERABLE status. OR N.2 Declare the associated AFW pump or MSIV inoperable.	48 hours Immediately
O. One channel inoperable	----------NOTE---------- ~~The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels.~~ INSERT 11 ---------- O.1 Place channel in trip. OR O.2.1 Be in MODE 3 AND O.2.2 Be in MODE 5.	 6 hours 12 hours 42 hours
P. One channel inoperable.	----------NOTE---------- ~~One additional channel may be bypassed for up to 4 hours for surveillance testing.~~ INSERT 12 ---------- P.1 Place channel in bypass. OR P.2.1 Be in MODE 3 AND P.2.2 Be in MODE 5.	 6 hours 12 hours 42 hours

Insert 11 –

The inoperable channel may be surveillance tested in bypass for up to 4 hours, or with the inoperable channel in trip, one additional channel may be surveillance tested in bypass for up to 4 hours.

Insert 12 –

The inoperable channel and one additional channel may be surveillance tested in bypass for up to 4 hours only if any function 1.c channel associated with the inoperable channel is in trip.

Table 3.3.2-1 (page 4 of 7)
Engineered Safety feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL [a] TRIP SETPOINT
4. Steam Line Isolation (continued)						
d. Steam Line Pressure						
(1) Low	1,2[i], 3[b][i]	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 597.6[c] psig	600[c] psig
(2) Negative Rate-High	3[g][i]	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 102.4 [h] psi/sec	100 [h] psi/sec
e. Not used.						
f. Not used						
g. Not used						
h. Not used						
5. ~~Turbine Trip and~~ Feedwater Isolation						
a Automatic Actuation Logic and Actuation Relays	1,2[j]	2 trains	H	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA

(continued)

(a) A channel is OPERABLE with an actual Trip Setpoint value outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established calibration tolerance band of the Nominal Trip Setpoint. A Trip Setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions.
(b) Above the P-11 (Pressurizer Pressure) interlock and below the P-11 interlock unless the Function is blocked.
(c) Time constants used in the lead/lag compensator are t_1 = 50 seconds and t_2 =5 seconds
(g) Below the P-11 (Pressurizer Pressure). However, may be blocked below P-11 when Safety Injection on Steam Line Pressure-Low is not blocked.
(h) Time constant utilized in the rate/lag compensator are t_3 = 50 sec and t_4 = 50 sec.
(i) Except when all MSIVs are closed and de-activated.
(j) Except when all MFIVs, MFRVs, and associated bypass valves are closed and de-activated or isolated by a closed manual valve.

Table 3.3.2-1 (page 5 of 7)
Engineered Safety feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL [a] TRIP SETPOINT
5. ~~Turbine Trip and~~ Feedwater Isolation (continued)						
b. SG Water Level-High High (P-14)	1,2[j]	3 per SG	J	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 75 2%	75%
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements					
6. Auxiliary Feedwater						
a. Manual	1,2,3	1 sw/pp	N	SR 3.3.2.13	NA	NA
b. Automatic Actuation Logic and Actuation Relays (Solid State Protection System)	1,2,3	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
c. Not used						
d.1 SG Water Level-Low Low	1,2,3	3 per SG	D	SR 3.3 2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 7.0%	7.2%

(continued)

(a) A channel is OPERABLE with an actual Trip Setpoint value outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established calibration tolerance band of the Nominal Trip Setpoint. A Trip Setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions.
(j) Except when all MFIVs, MFRVs, and associated bypass valves are closed and de-activated or isolated by a closed manual valve.

MARKED-UP TECHNICAL SPECIFICATION BASES
(FOR INFORMATION ONLY)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

f. Turbine Impulse Chamber Pressure, P-13

The Turbine Impulse Chamber Pressure, P-13 interlock is actuated when the pressure in the first stage of the high pressure turbine is greater than 10% of ~~the rated thermal power pressure equivalent~~ TURBINE POWER. The interlock is determined by one-out-of-two pressure detectors. The LCO requirement for this Function ensures that one of the inputs to the P-7 interlock is available.

The LCO requires two channels of Turbine Impulse Chamber Pressure, P-13 interlock to be OPERABLE in MODE 1 (1-out-of-2-coincidence).

The Turbine Impulse Chamber Pressure, P-13 interlock must be OPERABLE when the turbine generator is operating. The interlock Function is not required OPERABLE in MODE 2, 3, 4, 5, or 6 because the turbine generator is not operating.

19. Reactor Trip Breakers

This trip Function applies to the RTBs exclusive of individual trip mechanisms. The LCO requires two OPERABLE trains of trip breakers. A trip breaker train consists of, the trip logic, and all trip breakers associated with a single RTS logic train that are racked in, closed, and capable of supplying power to the Rod Control System. Thus, the train may consist of the main breaker, bypass breaker, or main breaker and bypass breaker, depending upon the system configuration. Two OPERABLE trains ensure no single random failure can disable the RTS trip capability.

These trip Functions must be OPERABLE in MODE 1 or 2 when the reactor is critical (1-out-of-2 coincidence). In MODE 3, 4, or 5, these RTS trip Functions must be OPERABLE when the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted.

20. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms

The LCO requires both the Undervoltage and Shunt Trip Mechanisms to be OPERABLE for each RTB that is in service. The trip mechanisms are not required to be OPERABLE for trip breakers that are open, racked out, incapable of supplying power to the Rod Control System, or declared inoperable under Function 19 above. OPERABILITY of both trip mechanisms on each breaker ensures that no single trip mechanism failure will prevent opening any breaker on a valid signal.

(continued)

BASES

ACTIONS

E.1 and E.2 (continued)

INSERT A

~~The Required Actions have been modified by a Note that allows placing the inoperable channel, or one additional channel in the bypassed condition for Functions 6, 7, and 8b for up to 4 hours while performing routine surveillance testing of the other channels. The NOTE allows only the inoperable channel for FUNCTIONS 2b, 3a, 3b and 14.a to be bypassed for surveillance testing of other channels.~~ In accordance with WCAP 10271, very specific circumstances are related to the use of this bypass condition for RTS Functions 2.b, 3.a, and 3.b. Since these channels are not designed with Bypass-capable logic that meets the requirements of IEEE 279, the provisions for bypass only apply to a specific type of channel failure. To apply, the channel must fail in such a way that it does not trip the bistables. With this type of failure, the channel may be returned to service and considered "bypassed" under this Note. Specifically, the bypass condition is the state when a failed channel is taken out of the forced "tripped" state and placed in operation. Due to the failed nature of the channel, the channel cannot be assumed to be OPERABLE, and is therefore considered to be in a state of bypass when the channel failure is such that its bistables are not tripped. The provisions of WCAP 10271 specifically prohibit the use of jumpers or lifted leads to bypass these channels. In this configuration, a second channel can be tested with the channel in the tripped mode without completing reactor trip logic. The 4 hour time limit is justified in Reference 7.

INSERT B

F.1 and F.2

Condition F applies to the Intermediate Range Neutron Flux trip when THERMAL POWER is above the P-6 setpoint and below the P-10 setpoint and one channel is inoperable. Above the P-6 setpoint and below the P-10 setpoint, the NIS intermediate range detector performs the monitoring Functions. If THERMAL POWER is greater than the P-6 setpoint but less than the P-10 setpoint, 24 hours is allowed to reduce THERMAL POWER below the P-6 setpoint or increase to THERMAL POWER above the P-10 setpoint. The NIS Intermediate Range Neutron Flux channels must be OPERABLE when the power level is above the capability of the source range, P-6, and below the capability of the power range, P-10. If THERMAL POWER is greater than the P-10 setpoint, the NIS power range detectors perform the monitoring and protection functions and the intermediate range is not required. The Completion Times allow for a slow and controlled power adjustment above P-10 or below P-6 and take into account the

(continued)

Insert A:

Reference TS 3.2.1 Actions E.1 and E.2

The Required Actions have been modified by a Note for Functions 6, 7 and 8.b, that allows an inoperable channel and/or one additional channel to be tested with one channel in bypass and the other channel in trip for up to 4 hours for performing surveillance testing. Additionally, for Function 6, 7 and 8b, both the inoperable and the additional channel maybe placed in bypass for up to 4 hours for surveillance testing. The Note allows only the inoperable channel for Functions 2.b, 3.a, and 3.b, to be bypassed for up to 4 hours for surveillance testing of other channels.

Insert B:

Reference TS 3.2.1 Actions E.1 and E.2

The Note for Function 14.a, allows the inoperable channel and/or one additional channel to be tested with one channel in bypass and the other in trip for up to 4 hours for surveillance testing. Functions 6,7, and 8.b are two-out-of-four trip logic, and 14.a is two-out-of-three trip logic and the allowed testing configurations provide flexibility for testing, while assuring that during testing no configuration will cause an inadvertent trip of the reactor or keep a valid signal from tripping the reactor as it was designed.

BASES

ACTIONS (continued)

M.1 and M.2 (Continued)

Allowance of this time interval takes into consideration the redundant capability provided by the remaining redundant OPERABLE channel, and the low probability of occurrence of an event during this period that may require the protection afforded by the Functions associated with Condition M.

INSERT C

~~The Required Actions have been modified by a Note that allows placing the inoperable channel, or one additional channel for Function 8a, in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The Note allows only the inoperable channel for Functions 9, 10, 12 and 13 to be bypassed for surveillance testing of other channels. Function 11 may not be bypassed since its logic is not 2 of 4 or 2 of 3, therefore, single failure would not be maintained.~~ In accordance with WCAP 10271, very specific circumstances are related to the use of this bypass condition for RTS Functions 12 and 13. Since these channels are not designed with Bypass-capable logic that meets the requirements of IEEE 279, the provisions for bypass only apply to a specific type of channel failure. To apply, the channel must fail in such a way that it does not trip the bistables. With this type of failure, the channel may be returned to service and considered "bypassed" under this Note. Specifically, the bypass condition is the state when a failed channel is taken out of the forced "tripped" state and placed in operation. Due to the failed nature of the channel, the channel cannot be assumed to be OPERABLE, and is therefore considered to be in a state of bypass when the channel failure is such that its bistables are not tripped. The provisions of WCAP 10271 specifically prohibit the use of jumpers or lifted leads to bypass these channels. In this configuration, a second channel can be tested with the channel in the tripped mode without completing reactor trip logic. The 4 hour time limit is justified in Reference 7.

INSERT D

N.1 and N.2 - Not used

O.1 and O.2

Condition O applies to Turbine Trip on Low Auto-Stop Oil Pressure. With one channel inoperable, the inoperable channel must be placed in the trip condition within 6 hours. If placed in the tripped condition, this results in a partial trip condition requiring only one additional channel to initiate a reactor trip. If the channel cannot be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-9 setpoint within the next 4 hours. The 6 hours allowed to place the inoperable channel in the tripped condition and the 4 hours allowed for reducing power are justified in Reference 7.

(continued)

Insert C:

Reference TS 3.2.1 Actions M.1 and M.2

The Required Actions have been modified by a Note for Function 8.a, that allows the inoperable channel and/or one additional channel to be tested with one channel in bypass and the other in trip, or with both the inoperable channel and the additional channel in bypass for up to 4 hours while performing surveillance testing of those channels. The Note for Function 9 and 10 the inoperable channel and/or one additional channel to be tested with one channel in bypass and the other channel in trip for up to 4 hours for surveillance testing. The Note allows only the inoperable channel for Functions 12 and 13 to be bypassed for surveillance testing of other channels.

Insert D:

Reference TS 3.2.1 Actions M.1 and M.2

Function 11 may not be bypassed since its logic is not 2 of 4 or 2 of 3, therefore, single failure would not be maintained. Function 8.a is a two-out-of-four trip logic and Functions 9 and 10 are two-out-of-three logic trip logics. The allowed testing configurations provide flexibility for testing, while assuring that during testing no configuration will cause an inadvertent trip of the reactor or keep a valid signal from tripping the reactor as it was designed.

BASES

ACTIONS (continued)

W.1 and W.2

Condition W applies to the Seismic Trip, in MODES 1 and 2. With one of the channels inoperable, START UP and/or POWER OPERATION may proceed provided the inoperable channel is placed in trip within the next 6 hours. If a direction is inoperable, then the channel must be considered inoperable. Placing the channel in the tripped condition creates a partial trip condition requiring only one out of two logic from the remaining locations for reactor trip actuation.

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 72 hours while performing surveillance testing or maintenance. The allowed 72 hour bypass time is reasonable based on the low probability of an event occurring while the channel is bypassed and on the time required to perform the required surveillance testing.

X.1, X.2 and X.3

Condition X applies to the Trip Time Delay (TTD) circuitry for the SG Water Level-Low Low trip function in MODES 1 and 2. With one or more TTD circuitry delay timers inoperable or the RSC delta-T equivalent power input inoperable, 6 hours are allowed to adjust the threshold power level for no time delay to 0% RTP. This sets the TTD timer to zero seconds and effectively removes its input from the SG water level circuit. If the TTD timer cannot be set to zero seconds for a single SG water level control, then the affected SG water level low-low channel must be placed in trip. Only one SG water level low-low channel can be placed in the trip position without tripping the plant. The Completion Time of 6 hours is reasonable considering the nature of these functions and the low probability of an event occurring during this interval as justified in Reference 7.

If the TTD threshold power for no time delay cannot be adjusted to 0% RTP (zero seconds time delay) or the single SG water level channel cannot be placed in the trip condition within the specified Completion Time, the unit must be placed in a MODE where these Functions are not required OPERABLE. The 12 hour allowed to place the unit in MODE 3 is a reasonable time, based on operating experience, to place the unit in MODE 3 from full power in an orderly manner and without challenging unit systems.

INSERT E

~~The Required Actions have been modified by a note that allows placing the SG water level channel or one additional channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels.~~

(continued)

Insert E:

Reference TS 3.2.1 Actions X.1, X.2 and X.3

The Required Actions have been modified by a Note that allows the inoperable channel and/or one additional channel to be tested with one channel in bypass and one channel in trip, or with both the inoperable and the additional channel in bypass for up to 4 hours for surveillance testing. This function is a two-out-of-four trip logic and the allowed testing configurations provide flexibility for testing, while assuring that during testing no configuration will cause an inadvertent trip of the reactor or keep a valid signal from tripping the reactor as it was designed. The 4 hour time limit is justified in Reference 7.

BASES

APPLICABLE SAFETY ANALYSES, LCO, AND APPLICABILITY

(2) Steam Line Pressure-Negative Rate-High (continued)

there is insufficient energy in the primary and secondary sides to have an SLB or other accident that would result in a release of significant enough quantities of energy to cause a cooldown of the RCS.

While the transmitters may experience elevated ambient temperatures due to an SLB, the trip function is based on rate of change, not the absolute accuracy of the indicated steam pressure. Therefore, the Trip Setpoint reflects only steady state instrument uncertainties.

e, f. Not used

g. Not used

h. Not used

5. ~~Turbine Trip and~~ Feedwater Isolation

The primary functions of the ~~Turbine Trip and~~ Feedwater Isolation signals are to ~~prevent damage to the turbine due to water in the steam lines, and to~~ stop the excessive flow of feedwater into the SGs. ~~These~~ This Function~~s are~~ is necessary to mitigate the effects of a high water level in the SGs, which could result in carryover of water into the steam lines and excessive cooldown of the primary system. The SG high water level is due to excessive feedwater flows.

The Function is actuated when the level in any SG exceeds the high high setpoint, and performs the following functions:

- ~~Trips the main turbine;~~
- Trips the MFW pumps;
- Initiates feedwater isolation; and
- Shuts the MFW regulating valves and the bypass feedwater regulating valves coincident with P-4.

This Function is actuated by SG Water Level-High High or by an SI signal. ~~The RTS also initiates a turbine trip signal whenever a reactor trip (P-4) is generated.~~ In the event of SI, the unit is taken off line and the ~~turbine generator must be tripped. The~~ MFW System is also taken out of operation and the AFW System is automatically started. The SI signal was discussed previously.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, AND APPLICABILITY (continued)

a. ~~Turbine Trip and~~ Feedwater Isolation-Automatic Actuation Logic and Actuation Relays

Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.

b. ~~Turbine Trip and~~ Feedwater Isolation-Steam Generator Water Level-High High (P-14)

This signal provides protection against excessive feedwater flow. The ESFAS SG water level instruments provide input to the SG Water Level Control System. Therefore, the actuation logic must be able to withstand both an input failure to the control system (which may then require the protection function actuation) and a single failure in the other channels providing the protection function actuation. Thus, three OPERABLE channels (narrow range instrument span for each generator) are required to satisfy the requirements with a two-out-of- three logic and a median signal selector is provided to prevent control and protection function interactions.

The transmitters (d/p cells) are located inside containment. However, the events that this Function protects against cannot cause a severe environment in containment. Therefore, the Trip Setpoint reflects only steady state instrument uncertainties.

c. ~~Turbine Trip and~~ Feedwater Isolation-Safety Injection

~~Turbine Trip and~~ Feedwater Isolation is also initiated by all Functions that initiate SI. The Feedwater Isolation Function requirements for these Functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead Function 1, SI, is referenced for all initiating functions and requirements.

~~Turbine Trip and~~ Feedwater Isolation Functions must be OPERABLE in MODES 1 and 2 except when all MFIVs, MFRVs, and associated bypass valves are closed and de-activated or isolated by a closed manual valve when the MFW System is in operation and the turbine generator may be in operation. In MODES 3, 4, 5, and 6, the MFW System and the turbine generator are not in service and this Function is not required to be OPERABLE.

(continued)

BASES

ACTIONS

D.1, D.2.1, and D.2.2 (continued)

Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 6 hours requires the unit be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 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. In MODE 4, these Functions are no longer required OPERABLE.

INSERT F

~~The Required Actions are modified by a Note that allows the inoperable channel or one additional channel for Function 1.d to be bypassed for up to 4 hours for surveillance testing of other channels. For Functions 1.e, 4.d(1), 4.d(2) and 6.d(1) only the inoperable channel may be bypassed for surveillance testing of the other channels. The 6 hours allowed to restore the channel to OPERABLE status or to place the inoperable channel in the tripped condition, and the 4 hours allowed for testing, are justified in Reference 8.~~

E.1, E.2.1, and E.2.2

Condition E applies to:

- Steam Line Isolation - Containment Pressure - High-high

This signal does not input to a control function. Thus, two-out-of-three logic is necessary to meet acceptable protective requirements. However, a two-out-of-three design would require tripping a failed channel. This is undesirable because a single failure of the Containment Pressure input would then cause spurious containment spray initiation. Spurious spray actuation is undesirable because of the cleanup problems presented. Therefore, these channels are designed with two-out-of-four logic so that a failed channel may be bypassed rather than tripped. Note that one channel may be bypassed and still satisfy the single failure criterion. Furthermore, with one channel bypassed, a single instrumentation channel failure will not spuriously initiate containment spray.

(continued)

Insert F:

Reference TS 3.3.2 Actions D.1, D.2.1, and D.2.2

The Required Actions are modified by a Note for Function 1.d that allows the inoperable channel and/or one additional channel to be tested with one channel in bypass and one channel in trip, or with both the inoperable and the additional channel in bypass for up to 4 hours for surveillance testing. For Functions 1.e, 4.d(1), 4.d(2) and 6.d(1), the Note allows the inoperable channel and/or one additional channel to be tested with one channel in bypass and one channel in trip for up to 4 hours for surveillance testing. Function 1.d is a two-out-of-four trip logic and Functions 1.e, 4.d(1), 4.d(2) and 6.d(1) are two-out-of-three logic actuation logics. The allowed testing configurations provide flexibility for testing, while assuring that during testing no configuration will cause an inadvertent actuation of the function or keep a valid signal from actuating the function as it was designed. The 6 hours allowed to restore the channel to OPERABLE status or to place the inoperable channel in the tripped condition, and the 4 hours allowed for testing, are justified in Reference 8.

BASES

ACTIONS

E.1, E.2.1, and E.2.2 (continued)

To avoid the inadvertent actuation of containment spray and Phase B containment isolation, the inoperable channel should not be placed in the tripped condition. Instead it is bypassed. Restoring the channel to OPERABLE status, or placing the inoperable channel in the bypass condition within 6 hours, is sufficient to assure that the Function remains OPERABLE and minimizes the time that the Function may be in a partial trip condition (assuming the inoperable channel has failed high). The Completion Time is further justified based on the low probability of an event occurring during this interval. Failure to restore the inoperable channel to OPERABLE status, or place it in the bypassed condition within 6 hours, requires the unit be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 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. In MODE 4, these Functions are no longer required OPERABLE.

INSERT G 2

~~The Required Actions are modified by a Note that allows one additional channel to be bypassed for up to 4 hours for surveillance testing. Placing a second channel in the bypass condition for up to 4 hours for testing purposes is acceptable based on the results of Reference 8.~~

F.1, F.2.1, and F.2.2

Condition F applies to the P-4 Interlock.

For the P-4 Interlock Function, this action addresses the train orientation of the SSPS. If a train is inoperable, 48 hours is allowed to return it to OPERABLE status. The specified Completion Time is reasonable considering the nature of this Function, the available redundancy, and the low probability of an event occurring during this interval. If the Function cannot be returned to OPERABLE status, the unit must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power in an orderly manner and without challenging unit systems. In MODE 4, the unit does not have any analyzed transients or conditions that require the explicit use of the protection function noted above.

(continued)

Insert G:

Referenced TS 3.3.2 Actions E.1, E.2.1, and E.2.2

The Required Actions are modified by a Note that allows the inoperable channel to be tested in bypass for up to 4 hours for surveillance testing. In addition, the Note allows the inoperable channel and one additional channel to be tested in bypass for up to 4 hours for surveillance testing **only** if the Function 1.c channel associated with the inoperable channel is in trip during the testing.

This function is a two-out-of-four actuation logic and three of its channels are contained on common control channels with three other functions and the fourth channel is on a common control channel with two other functions. As a result, if a common control channel is inoperable then one channel from each of its contained functions is inoperable. Three of the common control channels each contain a channel from the Safety Injection Containment Pressure – High (Function. 1.c). Function 1.c, is a two-out-of-three logic, which requires an inoperable channel to be placed in trip to continue operability and only one channel at a time is allowed to be bypassed for testing. As a result, for the three common control channels that include a Function 1.c channel the testing of a second common control channel in bypass requires verification that the Function 1.c channel on the inoperable common control channel is in trip. Otherwise no second common control channel can be tested in bypass. However, if the fourth common control channel is the inoperable channel, then with that common control channel in bypass, any one of the other three common control channels may be tested in bypass without placing the associated Function 1.c, channel in trip. Placing a second channel in the bypass condition for up to 4 hours for testing purposes is acceptable based on Reference 8. The allowed testing configurations provide flexibility for testing, while assuring that during testing no configuration will cause an inadvertent actuation of the function or keep a valid signal from actuating the function or an associated function as designed.

BASES

ACTIONS (continued)

G.1, G.2.1 and G.2.2

Condition G applies to the automatic actuation logic and actuation relays for the Steam Line Isolation and AFW actuation Functions.

The action addresses the train orientation of the SSPS and the master and slave relays for these functions. If one train is inoperable, 6 hours are allowed to restore the train to OPERABLE status. The Completion Time for restoring a train to OPERABLE status is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. If the train cannot be returned to OPERABLE status, the unit must be brought to MODE 3 within the next 6 hours and MODE 4 within the following 6 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. Placing the unit in MODE 4 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit does not have analyzed transients or conditions that require the explicit use of the protection functions noted above.

The Required Actions are modified by a Note that allows one train to be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. This allowance is based on the reliability analysis (Ref. 8) assumption that 4 hours is the average time required to perform channel surveillance.

H.1 and H.2

Condition H applies to the Automatic Actuation Logic and Actuation Relays for the ~~Turbine Trip and~~ Feedwater Isolation Function.

This action addresses the train orientation of the SSPS and the master and slave relays for this Function. If one train is inoperable, 6 hours are allowed to restore the train to OPERABLE status or the unit must be placed in MODE 3 within the following 6 hours. The Completion Time for restoring a train to OPERABLE status is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. These Functions are no longer required in MODE 3. Placing the unit in MODE 3 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit does not have analyzed transients or conditions that require the explicit use of the protection functions noted above.

(continued)

BASES

ACTIONS

J.1 and J.2

Condition J applies to the ~~Turbine Trip and~~ Feedwater Isolation Actuation signal resulting from Steam Generator Level - High-High (P-14).

If one channel is inoperable, 6 hours are allowed to restore one channel to OPERABLE status or to place it in the tripped condition. If placed in the tripped condition, the Function is then in a partial trip condition where one-out-of-two logic will result in actuation. The 6-hour Completion Time is justified in Reference 8. Failure to restore the inoperable channel to OPERABLE status or place in the tripped condition within 6 hours requires the unit to be placed in MODE 3 within 12 hours. The allowed Completion time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, this Function is no longer required OPERABLE.

INSERT H2

~~The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to 4 hours for surveillance testing of other channels. The 6 hours allowed to place the inoperable channel in the tripped condition, and the 4 hours allowed for a second channel, to be in the bypassed condition for testing, are justified in Reference 8.~~

K.1.1, K.1.2, K.2.1 and K.2.2

Condition K applies to the Residual Heat Removal Pump Trip on RWST Level - Low. Restoring the channel to OPERABLE status or placing the inoperable channel in the bypass (cut-out) condition within 6 hours is sufficient to ensure that the Function remains OPERABLE and minimizes the time that the Function may be in a partial trip condition (assuming the inoperable channel has failed low). Placing the out-of-service channel in cut-out removes that channel from the trip logic, similar to a bypass function. This provides a two-out-of-two trip logic from the remaining channels. The 6 hour Completion Time is justified in Reference 8. If the channel cannot be placed in the cut-out condition within 6 hours, and returned to an OPERABLE status within 48 hours, the unit must be brought to MODE 3 within 54 hours and MODE 5 within 84 hours. The allowed Completion Times for shutdown 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. In MODE 5, the unit does not have any analyzed transients or conditions that require the explicit use of the pump trip function noted above.

(continued)

Insert H:

Reference TS 3.3.2 Actions J.1 and J.2

The Required Actions are modified by a Note that allows the inoperable channel and/or one additional channel to be tested with one channel in bypass and one channel in trip for up to 4 hours for surveillance testing. This Function is a two-out-of-three actuation logic and the allowed testing configurations provide flexibility for testing, while assuring that during testing no configuration will cause an inadvertent actuation of the function or keep a valid signal from actuating the function as it was designed. The 6 hours allowed to place the inoperable channel in the tripped condition, and the 4 hours allowed for a second channel to be in the bypassed condition for testing, are justified in Reference 8.

BASES

ACTIONS

M.1, M.2, M.3 1 and M.3.2 (Continued)

INSERT I

~~The Required Actions have been modified by a note that allows placing the SG water level channel or one additional channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels.~~

N.1 or N.2

Condition N applies to:

- Manual Initiation of Steam Line Isolation; and
- Manual Initiation of Auxiliary Feedwater.

If a channel is inoperable, 48 hours is allowed to return the channel to an OPERABLE status. The specified Completion Time is reasonable considering the nature of these functions, the available redundancy, and the low probability of an event occurring during this interval. If the Function cannot be returned to OPERABLE status, the associated pump or valve shall be declared inoperable immediately and the REQUIRED ACTION of 3.7.5 or 3.7.2 as applicable complied with immediately.

O.1 or O.2.1 and O.2.2

Condition O applies to Safety Injection resulting from Containment Pressure - High.

If one channel is inoperable, 6 hours are allowed to restore the channel to OPERABLE status or to place it in the tripped condition. Failure of one channel places the function in a two-out-of-two configuration since the trip coincidence is two-out-of-three. The inoperable channel must be tripped to place the Function in a one-out-of-two configuration that satisfies redundancy requirements.

Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 6 hours requires the unit be placed in MODE 3 within 12 hours and MODE 5 in 42 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. In MODE 5, these functions are no longer required OPERABLE.

INSERT J

~~The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to 4 hours for surveillance testing of other channels. The 6 hours allowed to restore the channel to OPERABLE status or to place the inoperable channel in the tripped condition, and the 4 hours allowed for testing, are justified in Reference 8.~~

(continued)

Insert I:

Reference TS 3.3.2 Actions M.1, M.2, M.3.1 and M.3.2

The Required Actions have been modified by a Note that allows the inoperable channel and/or one additional channel to be tested with one channel in bypass and one channel in trip, or with both the inoperable channel and the additional channel in bypass for up to 4 hours while performing surveillance testing. This function is a two-out-of-four trip logic and the allowed testing configurations provide flexibility for testing, while assuring that during testing no configuration will cause an inadvertent actuation of the function or keep a valid signal from actuating the function as it was designed. The 6 hours allowed to place the inoperable channel in the tripped condition, and the 4 hours allowed for a second channel to be in the bypassed condition for testing, are justified in Reference 8.

Insert J:

Reference TS 3.3.2 Actions O.1 or O.2.1 and O.2.2

The Required Actions are modified by a Note that allows the inoperable channel to be tested in bypass or with the inoperable channel in trip, one additional channel maybe tested in bypass for up to 4 hours while performing surveillance testing. This function is a two-out-of-three trip logic and the allowed testing configurations provide flexibility for testing, while assuring that during testing no configuration will cause an inadvertent actuation of the function or keep a valid signal from actuating the function as it was designed. The 6 hours allowed to restore the channel to operable status or to place the inoperable channel in the tripped condition, and the 4 hours allowed for testing, are justified in Reference 8.

BASES

ACTIONS

P.1 or P.2.1 and P.2.2

Condition P applies to:

- Containment Spray - Containment Pressure - High-High.
- Containment Isolation - Phase B Isolation - Containment Pressure - High-High

Neither of these signals has input to a control function. Thus, two-out-of-three logic is necessary to meet acceptable protective requirements. However, a two-out-of-three design would require tripping a failed channel. This is undesirable because a single failure would then cause spurious containment spray initiation. Spurious spray actuation is undesirable because of the cleanup problems presented. Therefore, these channels are designed with two-out-of-four logic so that a failed channel may be bypassed rather than tripped. Note that one channel may be bypassed and still satisfy the single failure criterion. Furthermore, with one channel bypassed, a single instrumentation channel failure will not spuriously initiate containment spray. The containment spray signal is also interlocked with SI and will not initiate without simultaneous SI and containment spray signals.

To avoid the inadvertent actuation of containment spray and Phase B containment isolation, the inoperable channel is bypassed. Restoring the channel to OPERABLE status, or placing the inoperable channel in the bypass condition within 6 hours, is sufficient to assure that the Function remains OPERABLE and minimizes the time that the Function may be in a partial trip condition (assuming the inoperable channel has failed high). The Completion Time is further justified based on the low probability of an event occurring during this interval.

Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 6 hours requires the unit be placed in MODE 3 within 12 hours, and MODE 5 in 42 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. In MODE 5, these Functions are no longer required OPERABLE.

INSERT K

~~The Required Actions are modified by a Note that allows one additional channel to be bypassed for up to 4 hours for surveillance testing. The 6 hours allowed to restore the channel to OPERABLE status or to place the inoperable channel in the tripped condition, and the 4 hours allowed for testing, are justified in Reference 8.~~

(continued)

Insert K:

Reference TS 3.3.2 Actions P.1 or P.2.1 and P.2.2

The Required Actions are modified by a Note that allows the inoperable channel to be tested in bypass for up to 4 hours for surveillance testing. In addition, the Note allows the inoperable channel and one additional channel to be tested in bypass for up to 4 hours for surveillance testing **only** if the Function 1.c channel associated with the inoperable channel is in trip during the testing.

This function is a two-out-of-four actuation logic and three of its channels are contained on common control channels with three other functions and the fourth channel is on a common control channel with two other functions. As a result, if a common control channel is inoperable then one channel from each of its contained functions is inoperable. Three of the common control channels each contain a channel from the Safety Injection Containment Pressure – High (Function. 1.c). Function 1.c, is a two-out-of-three logic, which requires an inoperable channel to be placed in trip to continue operability and only one channel at a time is allowed to be bypassed for testing. As a result, for the three common control channels that include a Function 1.c channel the testing of a second common control channel in bypass requires verification that the Function 1.c channel on the inoperable common control channel is in trip. Otherwise no second common control channel can be tested in bypass. However, if the fourth common control channel is the inoperable channel, then with that common control channel in bypass, any one of the other three common control channels may be tested in bypass without placing the associated Function 1.c, channel in trip. Placing a second channel in the bypass condition for up to 4 hours for testing purposes is acceptable based on Reference 8. The allowed testing configurations provide flexibility for testing, while assuring that during testing no configuration will cause an inadvertent actuation of the function or keep a valid signal from actuating the function or an associated function as designed.

RETYPED TECHNICAL SPECIFICATION PAGES

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One channel inoperable.	----------NOTE---------- For functions 6, 7 and 8.b, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 4 hours. For functions 2.b, 3.a, and 3.b, only the inoperable channel may be bypassed for surveillance testing of other channels. For function 14.a, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours. ----------	
	E.1 Place channel in trip.	6 hours
	OR	
	E.2 Be in MODE 3.	12 hours
F. One Intermediate Range Neutron Flux channel inoperable.	F.1 Reduce THERMAL POWER to < P-6.	24 hours
	OR	
	F.2 Increase THERMAL POWER to > P-10.	24 hours
G. Two Intermediate Range Neutron Flux channels inoperable.	G.1 Suspend operations involving positive reactivity additions.	Immediately
	AND	
	G.2 Reduce THERMAL POWER to < P-6.	2 hours
H. Not used		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. One Source Range Neutron Flux channel inoperable.	I.1 Suspend operations involving positive reactivity additions.	Immediately
J. Two Source Range Neutron Flux channels inoperable.	J.1 Open reactor trip breakers (RTBs).	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. One Source Range Neutron Flux channel inoperable.	K.1 Restore channel to OPERABLE status.	48 hours
	OR	
	K.2.1 Initiate action to fully insert all rods.	48 hours
	AND	
	K.2.2 Place the Control Rod System in a condition incapable of rod withdrawal.	49 hours
L. Required Source Range Neutron Flux channel inoperable.	L.1 Suspend operations involving positive reactivity additions.	Immediately
	AND	
	L.2 Perform SR 3.1.1.1.	1 hour AND Once per 12 hours thereafter
M. One channel inoperable.	----------NOTE---------- For function 8.a, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 4 hours. For functions 9 and 10, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours. For functions 12, and 13, only the inoperable channel may be bypassed for surveillance testing of other channels. ----------	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
M. (continued)	M.1 Place channel in trip. OR M.2 Reduce THERMAL POWER to < P-7.	6 hours 12 hours
N. Not used		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
X. One or more SG Water Level Low - Low Trip Time Delay channel(s) inoperable.	----------NOTE---------- For function 14.b, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 4 hours. ----------	6 hours
	X.1 Set the Trip Time Delay to zero seconds.	
	OR	
	X.2 Place the affected SG Water Level Low - Low channel(s) in trip.	6 hours
	OR	
	X.3 Be in MODE 3.	12 hours

Table 3.3.1-1 (page 4 of 7)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL(a) TRIP SETPOINT
16. Turbine Trip						
a. Low Auto-Stop Oil Pressure	1(j)	3	O	SR 3.3.1.10 SR 3.3.1.15	≥ 46.5 psig	50 psig
b. Turbine Stop Valve Closure	1(j)	4	P	SR 3.3.1.15	≥ 1% open	2% open
17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	Q	SR 3.3.1.14	NA	NA
18. Reactor Trip System Interlocks						
a. Intermediate Range Neutron Flux, P-6	2(e)	2	S	SR 3.3.1.11 SR 3.3.1.13	≥ 8E-11 amp	1E-10 amp
b Low Power Reactor Trips Block, P-7	1	1 per train	T	SR 3.3.1.5	NA	NA
c. Power Range Neutron Flux, P-8	1	4	T	SR 3.3.1.11 SR 3.3.1.13	≤ 36.2% RTP	35% RTP

(continued)

(a) A channel is OPERABLE with an actual Trip Setpoint value outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established calibration tolerance band of the Nominal Trip Setpoint. A Trip Setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions.
(e) Below the P-6 (Intermediate Range Neutron Flux) interlocks.
(j) Above the P-9 (Power Range Neutron Flux) interlock.

Table 3.3.1-1 (page 5 of 7)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL(a) TRIP SETPOINT
18. Reactor Trip System Interlocks (cont)						
d. Power Range Neutron Flux, P-9	1	4	T	SR 3.3.1.11 SR 3.3.1.13	≤ 51.2% RTP	50% RTP
e. Power Range Neutron Flux, P-10	1,2	4	S	SR 3.3.1.11 SR 3.3.1.13	≥ 8.8% RTP and ≤ 11.2% RTP	10% RTP
f. Turbine Impulse Chamber Pressure, P-13	1	2	T	SR 3.3.1.10 SR 3.3.1.13	≤ 10.3% turbine power	10% turbine power
19. Reactor Trip Breakers(k) (RTBs)	1,2	2 trains	R	SR 3.3.1.4	NA	NA
	3(b), 4(b), 5(b)	2 trains	C	SR 3.3.1.4	NA	NA
20. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms (k)	1,2	1 each per RTB	U	SR 3.3.1.4	NA	NA
	3(b), 4(b), 5(b)	1 each per RTB	C	SR 3.3.1.4	NA	NA
21. Automatic Trip Logic	1,2	2 trains	Q	SR 3.3.1.5	NA	NA
	3(b), 4(b), 5(b)	2 trains	C	SR 3.3.1.5	NA	NA
22. Seismic Trip	1,2	3 directions (x,y,z) in 3 locations	W	SR 3.3.1.5 SR 3.3.1.12 SR 3.3.1.14	≤ 0.43g	0.35g

(a) A channel is OPERABLE with an actual Trip Setpoint value outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established calibration tolerance band of the Nominal Trip Setpoint. A Trip Setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions.

(b) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(k) Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One channel inoperable.	----------NOTE---------- For function 1.d, the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 4 hours. For functions 1.e(1), 4.d(1), 4.d(2), and 6.d(1), the inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours. ----------	
	D.1 Place channel in trip.	6 hours
	OR	
	D.2.1 Be in MODE 3.	12 hours
	AND	
	D.2.2 Be in MODE 4.	18 hours
E. One Containment Pressure channel inoperable.	----------NOTE---------- The inoperable channel and one additional channel may be surveillance tested in bypass for up to 4 hours only if any function 1.c channel associated with the inoperable channel is in trip. ----------	
	E.1 Place channel in bypass.	6 hours
	OR	
	E.2.1 Be in MODE 3.	12 hours
	AND	
	E.2.2 Be in MODE 4.	18 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----------	
	I.1 Place channel in trip.	6 hours
	OR	
	I.2. Be in MODE 2.	12 hours
J. One channel inoperable	----------NOTE---------- The inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours. ----------	
	J.1 Place channel in trip.	6 hours
	OR	
	J.2. Be in MODE 3.	12 hours
K. One channel inoperable	K.1.1 Place the channel in cut-out.	6 hours
	AND	
	K.1.2 Return the inoperable channel to an OPERABLE status	48 hours
	OR	
	K.2.1 Be in MODE 3.	54 hours
	AND	
	K.2.2 Be in MODE 5	84 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
L. One or more channels or trains inoperable.	L.1 Verify interlock is in required state for existing unit condition.	1 hour
	OR	
	L.2.1 Be in MODE 3.	7 hours
	AND	
	L.2.2 Be in MODE 4.	13 hours
M. One or more SG Water Level - Low Low Trip Time Delay channel(s) inoperable.	----------NOTE---------- The inoperable channel and/or one additional channel may be surveillance tested with one channel in bypass and one channel in trip for up to 4 hours, or both the inoperable and the additional channel may be surveillance tested in bypass for up to 4 hours. ----------	
	M.1 Set the Trip Time Delay to zero seconds.	6 hours
	OR	
	M.2 Place the affected SG Water Level - Low Low channel(s) in trip.	6 hours
	OR	
	M.3.1 Be in MODE 3.	12 hours
	AND	
	M.3.2 Be in MODE 4.	18 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
N. One channel inoperable.	N.1 Restore channel to OPERABLE status. OR N.2 Declare the associated AFW pump or MSIV inoperable.	48 hours Immediately
O. One channel inoperable	----------NOTE---------- The inoperable channel may be surveillance tested in bypass for up to 4 hours, or with the inoperable channel in trip, one additional channel may be surveillance tested in bypass for up to 4 hours. ---------- O.1 Place channel in trip. OR O.2.1 Be in MODE 3 AND O.2.2 Be in MODE 5.	 6 hours 12 hours 42 hours
P. One channel inoperable.	----------NOTE---------- The inoperable channel and one additional channel may be surveillance tested in bypass for up to 4 hours only if any function 1.c channel associated with the inoperable channel is in trip. ---------- P.1 Place channel in bypass. OR P.2.1 Be in MODE 3 AND P.2.2 Be in MODE 5.	 6 hours 12 hours 42 hours

Table 3.3.2-1 (page 4 of 7)
Engineered Safety feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL (a) TRIP SETPOINT
4. Steam Line Isolation (continued)						
d. Steam Line Pressure						
(1) Low	1,2(i), 3(b)(i)	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 597.6(c) psig	600(c) psig
(2) Negative Rate-High	3(g)(i)	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 102.4 (h) psi/sec	100 (h) psi/sec
e. Not used.						
f. Not used						
g. Not used						
h. Not used						
5. Feedwater Isolation						
a. Automatic Actuation Logic and Actuation Relays	1,2(j)	2 trains	H	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA

(continued)

(a) A channel is OPERABLE with an actual Trip Setpoint value outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established calibration tolerance band of the Nominal Trip Setpoint. A Trip Setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions.
(b) Above the P-11 (Pressurizer Pressure) interlock and below the P-11 interlock unless the Function is blocked.
(c) Time constants used in the lead/lag compensator are t_1 = 50 seconds and t_2 =5 seconds
(g) Below the P-11 (Pressurizer Pressure). However, may be blocked below P-11 when Safety Injection on Steam Line Pressure-Low is not blocked.
(h) Time constant utilized in the rate/lag compensator are t_3 = 50 sec and t_4 = 50 sec.
(i) Except when all MSIVs are closed and de-activated.
(j) Except when all MFIVs, MFRVs, and associated bypass valves are closed and de-activated or isolated by a closed manual valve.

Table 3.3.2-1 (page 5 of 7)
Engineered Safety feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL (a) TRIP SETPOINT
5 Feedwater Isolation (continued)						
b. SG Water Level-High High (P-14)	1,2(j)	3 per SG	J	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 75.2%	75%
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
6. Auxiliary Feedwater						
a. Manual	1,2,3	1 sw/pp	N	SR 3.3.2.13	NA	NA
b. Automatic Actuation Logic and Actuation Relays (Solid State Protection System)	1,2,3	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
c. Not used						
d.1 SG Water Level-Low Low	1,2,3	3 per SG	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 7.0%	7.2%

(continued)

(a) A channel is OPERABLE with an actual Trip Setpoint value outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established calibration tolerance band of the Nominal Trip Setpoint. A Trip Setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions.

(j) Except when all MFIVs, MFRVs, and associated bypass valves are closed and de-activated or isolated by a closed manual valve.