DISCUSSION OF CHANGES
ITS: 3.3.6.1 – PRIMARY CONTAINMENT ISOLATION INSTRUMENTATION

ADMINISTRATIVE CHANGES

A1 In the conversion of the James A. FitzPatrick Nuclear Power Plant (JAFNPP) Current Technical Specifications (CTS) to the proposed plant specific Improved Technical Specifications (ITS) certain wording preferences or conventions are adopted that do not result in technical changes. Editorial changes, reformatting, and revised numbering are adopted to make the ITS consistent with the conventions in NUREG-1433, "Standard Technical Specifications, General Electric Plants, BWR/4", Revision 1 (i.e., Improved Standard Technical Specifications (ISTS)).

A2 CTS 4.2.A Note (*) specifies that response time testing and conformance to the test acceptance criteria for the remaining channel components includes trip unit and relay logic. This requirement is not explicitly included in ITS SR 3.3.6.1.8 since the definition of ISOLATION INSTRUMENTATION RESPONSE TIME in ITS Chapter 1.0 and SR 3.3.6.1.8 ensure the proper testing is performed. Since this deletion does not change any current requirements, this change is considered administrative.

A3 A Note has been added at the start of the Actions of CTS Table 3.2-1 and 3.2-8 ("Separate Condition entry is allowed for each channel.") to provide more explicit instructions for proper application for the new Actions for Technical Specification compliance. In conjunction with the proposed Specification 1.3 "Completion Times," this Note provides direction consistent with the intent of the Required Actions for inoperable primary containment isolation instrumentation channels, functions, or trip systems. It is intended that each Required Action be applied regardless of it having been applied previously for other inoperable primary containment isolation instrumentation channels, functions, or trip systems. I

A4 The explicit allowance to restore the channel to operable status in CTS Table 3.2-1 Note 1.b.3 has been deleted since ITS LCO 3.0.2 provides this same allowance. LCO 3.0.2 states that if the LCO is met the completion of the Required Action is not required. Therefore, if the channel is restored in ITS 3.3.6.1, ACTION A, the requirement to place the channel in trip is not required and the ACTION can be exited for the restored channel. Since this change does not change any requirements, this deletion is considered administrative. This change is consistent with NUREG-1433, Revision 1.

A5 CTS Table 3.2-1 Note 2.a which allows 6 hours to perform a surveillance for those functions utilizing a two-out-of-two taken once logic has been changed by identifying the actual Functions involved as identified in Note 2 to the ITS 3.3.6.1 Surveillances (e.g., Functions 2.d and 2.g). I

ADMINISTRATIVE CHANGES

A5 (continued)

The details of some penetration flow paths which utilize a two-out-of-two logic (CTS Table 3.2-1 Note 8) has been relocated to the Bases (LA4). This change is considered administrative since the CTS requirement has been incorporated in ITS 3.3.6.1 Surveillance Note 2.

A6 The Action in CTS Table 3.2-1 ACTION Note 3.F to declare the affected system inoperable is an unnecessary reminder that other Technical Specifications may be affected. This is essentially a "cross reference" between Technical Specifications that has been determined to be adequately provided through training and is proposed to be deleted. This change is consistent with NUREG-1433, Revision 1.

A7 The Reactor Water Cleanup (RWC) System, High Pressure Coolant Injection (HPCI) Steam Line, and Reactor Core Isolation Cooling System (RCIC) Steam Line Area Temperature Functions specified in CTS Table 3.2-1 have been separated to indicate the actual areas in which the channels are designed to monitor. Most of the ITS 3.3.6.1 Functions (3.d, 3.e, 3.f, 3.g, 3.h and 3.i for HPCI, 4.d and 4.e for RCIC, and 5.a and 5.c for RWC) contain one channel for each Function in each trip system. Therefore, if both channels for the same Function are inoperable (and not in trip) in each trip system isolation capability is not maintained and entry into proposed ITS 3.3.6.1 ACTION B will be required (restore isolation capability within 1 hour). For those Functions which contain 2 channels in each trip system, each channel within each trip system (i.e., Functions 3.j, 4.f, and 5.b) is associated with a separate area/room within the identified Function. Therefore, if both channels are inoperable within the same area/room, ITS 3.3.6.1 ACTION B must also be entered. This application is consistent with the current requirements in the actions requirements of CTS Table 3.2-1 (in particular Note 1.b.1), therefore this change is administrative and simply represents a change in presentation consistent with the format of NUREG-1433, Revision 1. I I

A8 The explicit requirement to perform an Instrument Functional Test in CTS Table 4.2-1 for Items 1, 6, 8 and 12 have been deleted since the requirements of the quarterly calibration tests of current (in CTS Table 4.2-1) and proposed surveillance (SR 3.3.6.1.3) are duplicative of these requirements. Since the calibration surveillance includes the requirements of the instrument functional test this change is considered administrative. This change is consistent with the philosophy of NUREG-1433, Revision 1. I I

ADMINISTRATIVE CHANGES

A9 The allowance in CTS Table 4.2-1 through 4.2-5 Note 4, CTS Table 4.1-1 Note 3, and CTS Table 4.1-2 Note 2, providing the allowance that instrument checks, instrument functional tests and calibration tests, respectively, are not required when these instruments are not required to be operable or are tripped is deleted. This explicit Note is not needed in ITS 3.3.6.1 since this allowance is included in ITS SR 3.0.1. SR 3.0.1 states that SRs shall be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. In addition, the Note states that Surveillances do not have to be performed on inoperable equipment or variables outside specified limits. When equipment is declared inoperable, the Actions of this LCO require the equipment to be placed in the trip condition. In this condition, the equipment is still inoperable but has accomplished the required safety function. Therefore, the allowances in SR 3.0.1 and the associated actions provide adequate guidance with respect to when the associated surveillances are required to be performed and this explicit requirement is not retained. This change is consistent with NUREG-1433, Revision 1. I

A10 CTS Table 4.2-1 Note 5 and Table 4.1-1 Note 4 provide the allowance to inject a simulated electrical signal into the measurement channel while performing a Channel Functional Test. This explicit allowance is not retained in ITS 3.3.6.1 since it is duplicative of the current and proposed Channel Functional Test definition. In addition, CTS Table 4.2-1 Note 16 which provides an allowance that the quarterly calibration of the temperature sensor consists of comparing the active temperature signal with a redundant temperature signal is deleted since the allowance is duplicative of the proposed Channel Calibration Definition of Chapter 1.0. Since these changes do not alter any existing requirements, this change is considered administrative. This change is consistent with NUREG-1433, Revision 1. I

A11 The CTS Table 4.2-1 through 4.2-5 Note 9 requirement that the logic system functional test should include a calibration of time delay relays and timers necessary for proper functioning of the trip systems is deleted since the Primary Containment Isolation logic does not include any time delay relays or timers. This change is considered administrative since its removal does not increase or decrease any testing requirements. I

ADMINISTRATIVE CHANGES

A12 The CTS Table 4.2-1 Note 8 cross reference to Table 4.1-2 is deleted since the association of the Logic System Functional Testing requirements of the Reactor Low Water Level (Level 3) and Drywell Pressure – High Functions will be directly associated with ITS 3.3.6.1. Since this change does not change the current requirements, this change is considered administrative. This change is consistent with NUREG-1433, Revision 1.

A13 Not Used.

A14 Not Used.

A15 CTS Table 3.2-1 Note 1.a.1) and 2) and Note 1.b.3)(a) and (b) provide the appropriate Required Actions for those Primary Containment Isolation Instrumentation channels which are common to RPS (Note 1.a.1) and not common to RPS (1.a.2). In ITS 3.3.6.1 ACTION A, the Completion Times are specific to the actual Functions in ITS Table 3.3.6.1-1. ITS Functions 2.a, 2.b, 2.d, 2.g, 5.e, 5.f, 6.b, 7.a, and 7.b are common to RPS (Reactor Vessel Water Level – Low (Level 3) and Drywell Pressure – High), therefore the Completion Times associated with these Functions will be 12 hours, while all other Functions are not common to RPS and the associated Completion Time will be 24 hours. Since these Completion Times are consistent with the CTS requirements, this change is considered to be administrative and is consistent with the Format of NUREG-1433, Revision 1.

A16 CTS Table 3.2-1 includes a "Trip Level Setting" column which includes the trip setting for each primary containment isolation system instrumentation function. In the ITS, the Primary Containment Isolation Instrumentation Functions are included in Table 3.3.6.1-1 along with its associated "Allowable Value".

The CTS "trip level settings" and the CTS "trip settings" are considered the "Allowable Values" as described in the ITS since the instrumentation is considered inoperable if the value is exceeded when either the CTS or the ITS is applicable. A detailed explanation of trip setpoints, allowable values and analytical limits as they relate to instrumentation uncertainties is provided below.

Trip setpoints are those predetermined values of output at which an action is expected to take place. The setpoints are compared to the actual process parameter and when the measured output value of the process parameter exceeds the setpoint in either the increasing or decreasing direction, the associated device (e.g., trip unit) changes state.

ADMINISTRATIVE CHANGES

A16 (continued)

The trip setpoints are specified in the setpoint calculations and are derived from the analytical limits and account for all worst case applicable instrumentation uncertainties (e.g., drift, process effects, calibration uncertainties, and severe environmental effects as appropriate). The trip setpoints derived in this manner provide adquate protection because all expected uncertainties are accounted for in the setpoint calculations.

The setpoints specified in the setpoint calculations are selected to ensure that the actual field trip setpoints do not exceed the ITS Allowable Values (i.e., the CTS "trip level settings" and the CTS "trip settings") between successive CHANNEL CALIBRATIONS. The CTS "trip settings"/"trip level settings" and the "ITS Allowable Values" are both the TS limit values that are placed on the actual field setpoints. The Allowable Values are derived from the trip setpoints by accounting for normal effects that would be seen during periodic surveillance or calibration. These effects are instrumentation uncertainties observed during normal operation (e.g., drift and calibration uncertainties). Accordingly, the ITS Allowable Values include all applicable instrument channel and measurement uncertainties. A channel is inoperable if its actual field trip setpoint is not within its required ITS Allowable Value.

The analytical limits are derived from the limiting values of the process parameters obtained from the safety analysis or other appropriate documents.

These "Trip Level Settings" or "Allowable Values" have been established consistent with the NYPA Engineering Standards Manual, IES-3A, "Instrument Loop Accuracy and Setpoint Calculation Methodology." The methodology used to determine the "Allowable Values" are consistent with the methodology discussed in ISA-S67.04-1994, Part II, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation." This change revises the terminology used in the CTS from "Trip Level Setting" to "Allowable Value". Since the instrumentation will be declared inoperable at the same numerical value, this change is considered administrative. Any technical changes to any "Trip Level Setting" in the CTS will be discussed below. This change is consistent with NUREG-1433, Revision 1.

A17 CTS Table 3.2-1 requires 2 Main Steam Line High Flow channels to be Operable per trip system. The title is "Main Steam Line High Flow." This term represents the flow in each of the four steam lines.

ADMINISTRATIVE CHANGES

A17 (continued)

Therefore, the current requirement is interpreted to be: 2 channels per main steam line (MSL), per trip system (total of 16 channels). For clarity, in ITS Table 3.3.6.1-1 (Function 1.c) will require 2 channels per MSL. Since this change doesn't change the existing requirements, it is considered administrative. This change is consistent with NUREG-1433, Revision 1.

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 CTS Table 4.2-8 requires a Channel Functional Test to be performed every 24 months (R) for the Containment High Radiation Range Monitor. ITS Table 3.3.6.1-1 will require the performance of this test every 92 days (SR 3.3.6.1.2). The added testing will ensure the primary containment isolation Function is maintained and tested similar to those of other channels providing a containment isolation Function. This proposed Frequency is consistent with the reliability analysis of NEDC-31677P-A and NEDC-30851-P-A Supplement 2 for BWR Isolation Instrumentation. The addition of new Surveillance Requirements constitutes a more restrictive change.

In addition, a new Surveillance is proposed to be added for this Function. ITS SR 3.3.6.1.7 the Logic System Functional Test (LSFT) will be required to be performed every 24 months for the channels associated with this Function. Since this Function only includes one channel in each trip system, the addition of this requirement is considered administrative since a Channel Functional Test will satisfy the requirements of a LSFT.

M2 The Applicability for the Reactor Vessel Water Level – Low (Level 3) Function in CTS Table 3.2-1 (ITS Table 3.3.6.1 Function 6.b) has been changed to include MODES 4 and 5. These new Applicabilities will protect against potential draining of the reactor vessel through the RHR suction line during shutdown conditions, which is when the RHR Shutdown Cooling System is normally operated. Appropriate ACTIONS have also been added for when the Function is inoperable in MODES 4 and 5 (ITS 3.3.6.1 ACTION J). In addition, Note (e) to proposed Table 3.3.6.1-1 specifies that during these MODES, only one trip system is required, provided RHR Shutdown Cooling System integrity is maintained. This change is an additional restriction on plant operations and is consistent with NUREG-1433, Revision 1, and will enhance plant safety. I

TECHNICAL CHANGES - MORE RESTRICTIVE

M3 Not Used. 1 I

M4 CTS 4.2.A specifies that the main steam isolation valve (MSIV) actuation instrumentation response time for the specified trip functions must be demonstrated to be within its limit once per 24 months. Each test shall include at least one channel in each trip system. All channels in both trip systems shall be tested within two test intervals. In ITS SR 3.3.6.1.8 the ISOLATION INSTRUMENTATION RESPONSE TIME test must be performed every 24 months on a STAGGERED TEST BASIS. Note 2 of this SR specifies that "n" equals 2 channels for the purpose of determining the STAGGERED TEST BASIS Frequency. Therefore, SR 3.3.6.1.8 will require all channels requiring response time testing to be tested in two (2) surveillance intervals. This change is more restrictive since two (2) channels must be tested each interval for Functions 1.a and 1.b while 8 channels must be tested each interval for Function 1.c instead of one channel in each trip system required by the CTS. This change will ensure a sufficient number of channels are tested each interval to identify any significant response time degradation.

M5 Not Used. 1 I

M6 The required number of OPERABLE channels in each trip system in CTS Table 3.2-1 for HPCI and RCIC Steam Line Low Pressure and HPCI and RCIC Turbine High Exhaust Diaphragm Pressure Functions (proposed Functions 3.b, 4.b, 3.c and 4.c for Table 3.3.6.1-1) are proposed to be increased from 1 to 2. The two trip systems for these Functions receive inputs from two channels, both of which must trip to isolate the associated valve(s), yielding a two-out-of-two logic for each trip system. The increase in channels required to be OPERABLE constitutes a more restrictive change and is necessary to ensure no single instrument failure can preclude the isolation function.

M7 CTS Table 3.2-1, Note 3.A requires the reactor to be in cold shutdown within 24 hours when the ACTIONS or Completions Times associated with inoperable Primary Containment instrumentation cannot be satisfied. These requirements are proposed to be replaced by ITS 3.3.6.1 Required Actions D.2.1 (for isolation Functions associated with main steam line isolation) and H.1 (for isolation Functions associated with primary containment isolation) which require the plant be in MODE 3 within 12 hours under the same conditions. In addition, ITS 3.3.6.1 Required Action D.2.2 and H.2 requires the plant to be in MODE 4 in 36 hours (L11). This change is more restrictive because it provides an additional requirement to place the plant in MODE 3 in 12 hours. The allowed Completion Times in Required Action D.2.1 and H.1 are reasonable, based on operating experience, to reach the required plant conditions from

TECHNICAL CHANGES - MORE RESTRICTIVE

M7 (continued)

full power conditions in an orderly manner and without challenging plant systems. However, the 12 hour Completion Time ensures timely action is taken to place the plant in a shutdown condition (MODE 3). The consequences of any design bases event is significantly reduced when plant is shutdown. This change is consistent with NUREG-1433, Revision 1.

M8 The Completion Time provided to close the affected isolation valves in CTS Table 3.2-1 Action Notes 3.C, 3.D and 3.E are proposed to be decreased from 4 or 8 hours to 1 hour (ITS ACTION F). The 1 hour Completion Time is necessary since it minimizes risk while allowing sufficient time for operations personnel to isolate the affected penetration. This time is consistent with the time provided in NUREG 1433, Revision 1, and is considered an additional restriction on plant operation.

M9 The Frequency for performance of Channel Checks of CTS Table 4.2-1, Table 4.2-8, and Table 4.1-1 are proposed to be changed to 12 hours from once per day. The Channel Check ensures once every 12 hours that a gross failure of instrumentation has not occurred. This Frequency is based on operating experience that demonstrates that Channel failure is rare. This change is consistent with NUREG-1433, Revision 1, and is considered more restrictive but will supplement the less formal, but more frequent, checks of channels during normal operational use of displays associated with the channels required by the LCO.

M10 The isolation Function of the Containment High Range Radiation Monitor Function in CTS Table 3.2-8 (Accident Monitoring Instrumentation) is being moved to the Primary Containment Isolation Functions of ITS 3.3.6.1 (Table 3.3.6.1-1 Function 2.c). Along with this change the "Minimum No. of Operable Channels Required" column in CTS Table 3.2-8 has been changed to a "Required Channels per Trip System" column consistent with ITS Table 3.3.6.1-1. This change will require one channel to be Operable in each trip system, instead of the current requirement to have only one channel Operable. This change will ensure that no single instrument failure can preclude the isolation function. In addition, the Required Action in CTS Table 3.2-8 Note A which allows 30 days to restore the required inoperable Containment Radiation channel has been changed to the actions for Primary Containment Isolation Instrumentation of ITS 3.3.6.1 ACTIONS A, B, C and F. Since the Completion Times provided in the proposed LCO are less than 30 days (i.e., 24 hours), this change is considered more restrictive and will

TECHNICAL CHANGES - MORE RESTRICTIVE

M10 (continued)

enhance plant safety by minimizing the time allowed to operate with inoperable channels with the associated penetration flow paths open.

In addition, since both channels are required to be Operable, an allowance is necessary to perform the associated Surveillances while in the applicable modes consistent with other Primary Containment Isolation Functions. Therefore, ITS SR Table Note 2 will be added for this Function. This Note will delay entry into the associated Conditions and Required Action for 6 hours as long as isolation capability is maintained. Since there is only a requirement to have one Operable channel in the ITS, this change is also considered more restrictive but is consistent with the reliability analysis of NEDC-31677P-A and NEDC-30851-P-A Supplement 2 for BWR Isolation Instrumentation. This change is also consistent with NUREG-1433, Revision 1.

M11 SLC System Initiation has been added to CTS Table 3.2-1 (proposed Table 3.3.6.1-1). Along with the new Function, ACTIONS and Surveillance Requirements have been added. The Standby Liquid Control (SLC) System Initiation Function ensures that Reactor Water Cleanup (RWC) can be automatically isolated to prevent dilution and removal of the boron solution when the SLC System has been initiated. With both SLC Initiation channels inoperable, entry into ITS 3.3.6.1 ACTION B is required and one hour is provided to restore isolation capability. If this cannot be met, ITS 3.3.6.1 Required Action I.1 will require that both SLC Subsystems be declared inoperable within one hour, and therefore, entry into ITS 3.1.7 (SLC System) will be required. Alternatively, Required Action I.2 will allow the isolation of the RWC System. These actions will minimize the time the plant can operate without an Operable SLC System. Footnote (d) has been added to Table 3.3.6.1-1 which specifies that SLC System Initiation only inputs into one of two trip systems and only isolates one valve in the RWC suction and return line. This will ensure proper action will be taken when the function is inoperable. | I

M12 The allowance in CTS Table 3.2-1 Note 2 to place the affected primary containment isolation valves (PCIVs) in an inoperable status during the performance of instrumentation surveillances and delay entry into the associated Limiting Conditions for Operation and required action for 6 hours has been deleted. This change is consistent with the allowances in the reliability analysis of NEDC-31677P-A and NEDC-30851-P-A Supplement 2 for BWR Isolation Instrumentation. These analyses only allow the instrumentation channel to be placed in an inoperable

TECHNICAL CHANGES - MORE RESTRICTIVE

M12 (continued)

condition during the performance of a required Surveillance. This change is more restrictive on plant operation but necessary to ensure the PCIVs will isolate the penetration flow path when necessary, consistent with the analyses.

M13 The CTS Applicability of the Primary Containment Isolation Functions as described in CTS 3.2.A is whenever primary containment integrity is required. The Applicability identified in CTS Table 3.2-1 Note 1 is whenever Primary Containment integrity is required by Specification 3.7.A.2. The Applicability in CTS 3.7.A.2 is whenever the reactor is critical or when the reactor water temperature is above 212°F and fuel is in the reactor vessel. In addition, there is an exception in CTS 3.7.A.2, to not require primary containment integrity to be met during low power physics tests at atmospheric pressure and power levels not to exceed 5 MWt, however any change to this requirement is discussed in the Discussion of Changes for ITS 3.10.8. The scope of the current Applicability covers MODE 1, 3 and portions of MODE 2 operations. In general the Applicability of most Functions in the ITS will be MODES 1, 2 and 3. This change is considered more restrictive since the Functions will be required to be Operable at all times in MODE 2 (which is consistent with current practice). Changes to the current Applicability are further discussed in L3, M2, and L17. This change is consistent with NUREG-1433, Revision 1.

M14 This change replaces the following setpoints or Allowable Values (A16) in the CTS:

(1) HPCI Steam Line Low Pressure Isolation in CTS Table 3.2-1, Item 14, of 100 > P > 50 psig to ≥ 61 psig and ≤ 90 psig (Function 3.b for HPCI);

(2) Main Steam Line Leak Detection High Temperature Isolation in CTS Table 3.2-1, Item 10, of < 40°F above max. ambient to < 195°F (Function 1.e);

(3) HPCI and RCIC Steam Line/Area Temperature Isolation in CTS Table 3.2-1, Item 16 (HPCI) and Item 20 (RCIC), from ≤ 40°F above max. ambient to:

(a) ≤ 160°F (Function 3.d) for HPCI Steam Line Penetration (Drywell Entrance) Area Temperature – High,

TECHNICAL CHANGES - MORE RESTRICTIVE

M14 (continued)

(b) ≤ 160°F (Function 3.e) for HPCI Steam Line Torus Room Area Temperature - High,

(c) ≤ 170°F (Function 3.f) for RHR Hx A Area Temperature - High,

(d) ≤ 170°F (Function 3.g) for RHR Hx B Area Temperature - High,

(e) ≤ 144°F (Function 3.h) for RB Southwest Area of Elevation 272' Temperature - High,

(f) ≤ 144°F (Function 3.i) for RB Southeast Area of Elevation 272' Temperature - High,

(g) ≤ 144°F (Function 3.j) for HPCI Equipment Area Temperature - High,

(h) ≤ 160°F (Function 4.d) for RCIC Steam Line Penetration (Drywell Entrance) Area Temperature - High,

(i) ≤ 160°F (Function 4.e) for RCIC Steam Line Torus Room Area Temperature - High, and

(j) ≤ 144°F (Function 4.f) for RCIC Equipment Area Temperature - High.

(4) RWCU System Equipment Area Temperature in CTS Table 3.2.1, Item 11, of < 40°F above max, ambient to:

(a) ≤ 144°F (Function 5.a) for RWC Suction Line Penetration Area Temperature - High,

(b) ≤ 165°F (Function 5.b) for RWC Pump A Area Temperature - High,

(c) ≤ 175°F (Function 5.b) for RWC Pump B Area Temperature - High, and

(d) ≤ 155°F (Function 5.c) for RWC Heat Exchanger Room Area Temperature - High.

(5) Reactor High Pressure (Shutdown Cooling Isolation) in CTS Table 3.2-1, Item 3, of ≤ 75 psig to ≤ 74 psig (Function 6.a) for Reactor Pressure - High;

TECHNICAL CHANGES - MORE RESTRICTIVE

M14 (continued)

(6) RCIC Turbine High Exhaust Diaphragm Pressure in CTS Table 3.2-1, Item 19, of ≤ 10 psig to ≤ 5 psig (Function 4.c) for RCIC Turbine Exhaust Diaphragm Pressure – High;

(7) RCIC Turbine Steam Line High Flow in CTS Table 3.2-1, Item 17, of ≤ 282 in H_2O dp to ≤ 272.26 inches of water dp (Function 4.a) for RCIC Steam Line Flow – High;

(8) HPCI Turbine High Exhaust Diaphragm Pressure in CTS Table 3.2-1, Item 15, of ≤ 10 psig to ≤ 9.9 psig (Function 3.c) for HPCI Turbine Exhaust Diaphragm Pressure – High; and

(9) RCIC Steam Line Low Pressure in CTS Table 3.2-1, Item 18, of 100 > P > 50 psig to ≥ 58 psig and ≤ 93 psig (Function 4.b) for RCIC Steam Supply Line Pressure – Low.

The Allowable Values (to be included in the Technical Specifications) and the Trip Setpoints (to be included in plant procedures) have been established consistent with the NYPA Engineering Standards Manual, IES-3A, "Instrument Loop Accuracy and Setpoint Calculation Methodology." The methodology used to determine the "Allowable Values" are consistent with the methodology discussed in ISA-S67.04-1994, Part II, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation." The proposed values will ensure the most limiting requirement is met. All design limits, applied in the methodologies, were confirmed as ensuring that applicable design requirements of the associated systems are maintained.

M15 CTS Table 3.2-1 Note 3.B requires the main steam lines to be isolated within 8 hours when CTS Table 3.2-1 Notes 1 and 2 (as applicable) are not met for inoperable Main Steam Line Low Pressure channels (ITS 3.3.6.1 Function 1.b). However, the Main Steam Line Low Pressure channels are only required to be Operable in the Run Mode (MODE 1), as stated in CTS Table 3.2-1 Note 5. As stated in CTS 3.0.A, once the plant is placed in the Startup/Hot Standby Mode (MODE 2), the Main Steam Line Low Pressure channels are no longer required to be Operable; thus the requirement in CTS Table 3.2-1 Note 3.B to isolate the main steam lines is no longer required. Effectively, the CTS requires the plant to be placed in MODE 2 within 8 hours. The ITS provides an Action consistent with the Applicability of the Main Steam Line Low Pressure channels. ITS 3.3.6.1 ACTION E requires the plant to be placed in MODE 2. However, in lieu of the CTS time of 8 hours to complete this action, the ITS requires MODE 2 to be reached in 6 hours, a decrease of 2 hours. I

TECHNICAL CHANGES - MORE RESTRICTIVE

M15 (continued)

The new time is consistent with other ITS ACTIONS that require the plant to be in MODE 2, and provides adequate time to reach MODE 2 without challenging plant systems.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 The specific details relating to the design in CTS Tables 3.2-1 and Table 3.2-8 identifying the "Total Number of Instrument Channels Provided by Design for Both Trip Systems" are proposed to be relocated to the Bases. Placing these details in the Bases provides assurance they will be maintained. The requirements of ITS 3.3.6.1 which require the primary containment isolation instruments to be OPERABLE, the definition of OPERABILITY, and the proposed Required Action and surveillances suffice. As such, these details are not required to be inthe ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA2 The details in CTS Table 3.2-1 Footnote (*) that an inoperable channel or trip system need not be placed in the tripped condition where this would cause the Trip Function to occur is proposed to be relocated to the Bases. The ITS 3.3.6.1 ACTIONS and ITS Chapter 1.0 (Use and Application) provide sufficient guidance on how the Required Actions must be applied. If placing the inoperable channel(s) in the tripped condition would cause an isolation, the Required Actions of ACTION A may not be met within the required Completion Time and ACTION C would be required to be entered, as described in the Bases. In addition, if it is not desired to place a channel in trip even when placing it in trip does not result in an isolation, then ACTION C can also be entered. This case is similar to the case when placing a channel in trip results in an isolation. Since the same response is required, this change is one of presentation only and is considered administrative. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA3 This change proposes to relocate the systems which must be isolated in CTS Table 3.2-1 Action Note 3.C, 3.D and 3.E and in CTS Table 3.2-8 Footnote (*) to the Bases. The requirement to isolate the associated Penetration in Required F.1 is adequate to ensure proper action is taken when entry into these conditions is required. As such, these details

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA3 (continued)

(systems to be isolated) are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA4 The details (logic and penetrations isolated by the functions) associated with the Reactor Water Level – Low and Drywell Pressure – High Functions in Note 8 of CTS Table 3.2-1 are proposed to be relocated to the Bases. The requirements in proposed Table 3.3.6.1-1 for Functions 2.d and 2.g and associated Footnote (c) that only one trip system is provided for each associated penetration is adequate to ensure the requirements of these Functions are monitored and controlled in accordance with the current requirements. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS. 1 I

LA5 The details of Table 4.2-1 related to what valves are isolated as a result of the Logic System Functional test is proposed to be relocated to the Bases. The requirements in proposed Table 3.3.6.1-1 to perform SR 3.3.6.1.7 for each of the Functions of the same Table is adequate to ensure the proper surveillance is performed at the appropriate Frequency. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA6 The details in CTS Table 3.2-1 Note 7, that the signals (Reactor Vessel Water Level – Low and Drywell Pressure – High) are common to RPS, are proposed to be relocated to the Bases. The details of design are not necessary to ensure the Primary Containment Isolation instruments are Operable. The requirements of ITS 3.3.6.1, which require the Primary Containment Isolation instrument channels to be Operable, and the definition of Operability suffice. The Bases identifies which instruments are common to RPS, and those instruments which are common to RPS are identified in the ITS 3.3.6.1 ACTION A Completion Times to ensure the proper Required Actions are taken if the primary containment instrumentation is found to be inoperable. As such, these details are not required to be in the ITS to provide adequate protection of the public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC) (continued)

LA7 CTS Table 4.2-1 through 4.2-5 Note 11 identifies methods for calibration (using a radiation source every 24 months and using a current source every 3 months). These details are proposed to be relocated to the Bases. The requirements to perform a CHANNEL CALIBRATION (SR 3.3.6.1.3) every 3 months and to calibrate the radiation detector every 24 months (SR 3.3.6.1.6) is adequate to ensure proposed Functions 1.f and 2.f remain Operable. In addition, a Note has been included along with ITS SR 3.3.6.1.3 which states that for Functions 1.f and 2.f, the radiation detector may be excluded. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA8 CTS Table 3.2-1, Reactor High Pressure (Shutdown Cooling Isolation), isolates the Residual Heat Removal (RHR) Shutdown Cooling System pump suction isolation valves whenever reactor pressure exceeds 75 psig. This trip has a reset function that is controlled by CTS Table 3.2-2 Item 10 Reactor Low Pressure. This reset function provides a permissive for inclusion of the LPCI injection valves in the Shutdown Cooling System Isolation if reactor pressure is below the reset setpoint and the shutdown cooling suction valves are not fully closed. The requirements of CTS Table 3.2-2, Item 10 (including actions), and the associated Surveillances and Testing Requirements in CTS Table 4.2-2 are proposed to be relocated to the Technical Requirements Manual (TRM). This Function does not provide a specific safety function. The requirement to isolate the RHR shutdown cooling pump suction isolation and LPCI injection valves on Reactor Vessel Water Level – Low (Level 3) during MODES 3, 4 and 5 ensures that the reactor pressure vessel water level does not drop below the top of the active fuel during a vessel draindown event caused by a leak (e.g., pipe break or inadvertent valve opening) in the RHR Shutdown Cooling System. Inclusion of the LPCI Injection valves in the Shutdown Cooling System Isolation Logic requires the shutdown cooling pump suction isolation valves to be open in addition to the reset of the reactor pressure trip. However, opening the shutdown cooling suction valves also requires the reset of the reactor pressure trip. Failure of the reactor pressure trip to reset will prevent the opening of the shutdown cooling suction valves and eliminate the need for the Shutdown Cooling Isolation Function. Therefore, CTS Table 3.2-2, Item 10 and associated Surveillance Requirements will be relocated to the TRM. This Function is not required to be included in the ITS to provide adequate protection of the public health and safety. At ITS implementation, the TRM will be incorporated by reference into the UFSAR. As such, changes to the relocated requirements in the TRM will be controlled by the provisions of 10 CFR 50.59.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC) (continued)

LA9 The detail in CTS Table 3.2-1 that the Trip Level Setting of the Reactor Low Water Level (Items 1 and 2) and Reactor Low Low Low Water Level (Item 4) Functions are referenced from the Top of Active Fuel (TAF) is proposed to be relocated to the Bases. CTS 1.0.Z definition specifies that the Top of Active Fuel, corresponding to the top of the enriched fuel column of each fuel bundle, is located 352.5 inches above vessel zero, which is the lowest point in the inside bottom of the reactor pressure vessel. (See General Electric drawing No. 919D690BD). These details are also proposed to be relocated to the Bases. The requirement in ITS LCO 3.3.6.1.1 that the primary containment isolation instrumentation for each Function in Table 3.3.6.1-1 shall be OPERABLE, the requirements in the Table including the Allowable Value for each reactor vessel water level Function (1.a, 2.e, 2.g, 5.e and 6.b), the definition of Operability, the proposed Actions, and Surveillance Requirements are adequate to ensure the instrumentation is properly maintained. In addition, the Bases includes a statement that the reactor vessel water level Allowable Values are referenced from a level of water of 352.5 inches above the lowest point in the inside bottom of the reactor pressure vessel and also corresponds to the top of a 144 inch fuel column. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety.Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA10 Not Used. I

LA11 The detail in CTS Table 3.2-1 Note 2.b which defines primary containment isolation capability (for at least one containment isolation valve in the affected penetration) is proposed to be relocated to the Bases. The requirements of ITS 3.3.6.1 Surveillance Note 2 which requires isolation capability to be maintained when a channel is placed in an inoperable status solely for performance of required Surveillances is sufficient to ensure at least one containment isolation valve in the affected penetration maintains isolation capability during the performance of the Surveillance. The ITS Bases provides a detailed description of what is meant by isolation capability for each Function. As such, these details are not required to be in the ITS to provide adequate protection of the public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA12 The details described in CTS 4.2.A footnote *, which states that the sensor is eliminated from response time testing for the MSIV actuation logic circuits for Reactor Low Water Level (L1), Low Steam Line Pressure, and High Steam Line Flow Functions are relocated to the Bases.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA12 (continued)

These operational details are not necessary to ensure the PCI instrumentation is OPERABLE. The requirements of ITS 3.3.6.1, which require the PCI instrumentation to be OPERABLE, and the definition of OPERABILITY suffice. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 The CTS Safety Limit and actions in CTS 1/2.2.2, when operating the RHR System in the Shutdown Cooling Mode, are proposed to be incorporated into ITS 3.3.6.1 (Table 3.3.6.1-1 for Primary Containment Isolation Instrumentation). The RHR Shutdown Cooling System is designed with an interlock in the logic for the system isolation valves, which are normally closed during power operation, to prevent opening of the valves above a preset pressure setpoint (Allowable Value) of ≤ 75 psig. This setpoint is selected to assure that pressure integrity of the RHR system is maintained. The CTS 1.2.2 requirement that the pressure be less than the limit "when operating the Residual Heat Removal Pump" is covered by the Applicability of the instrumentation, which is MODES 1, 2, and 3 (when primary containment is required Operable). In MODES 4 and 5 with the pump operating, the reactor is depressurized and the potential for inadvertent pressurization is very low. Additionally, the context of CTS 2.2.2 is covered by proposed ACTION F which requires that the affected penetration flow path(s) be isolated. The high pressure interlock is only provided for equipment protection to prevent an inter-system LOCA and, as such, this function should not be considered a Safety Limit on plant operation. I

L2 The details relating to the Instrument I.D. numbers for the containment isolation instrumentation in CTS 4.2.A and CTS Table 3.2-8 for Function 4 (Containment High Range Radiation Monitor) are proposed to be deleted. These details are not necessary to ensure the containment isolation instrumentation is maintained Operable. The requirements of ITS 3.3.6.1 (which describes the instrumentation) and the associated Surveillance Requirements are adequate to ensure the required instrumentation is maintained Operable. The Bases also provide a description of the type of instrumentation required by the Specification.

L3 The Applicability for the CTS Table 3.2-1 Reactor Low Water Level Function is MODES 1, 2, and 3 (when primary containment is required) as

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L3 (continued)

shown in Note 1 to the Table. The MODE 1 and 2 Applicability requirements for the Reactor Vessel Water Level – Low (Level 3) (proposed Function 6.b) are proposed to be deleted. In addition, the requirement that the Drywell High Pressure Function be Operable in MODES 1, 2 and 3 for Residual Heat Removal shutdown cooling suction valve isolation has been deleted. The Reactor Pressure – High Function (ITS Table 3.3.6.1-1 Function 6.a) ensures that the RHR Shutdown Cooling pump suction valves are isolated in MODE 1 and MODE 2 when above the RHR cut-in permissive pressure setpoint, since this Function isolates the valves when above the setpoint. When in MODE 2 below the setpoint, other Technical Specification requirements ensure that RHR Shutdown Cooling is not in service (LCO 3.5.1 requires all LPCI to be OPERABLE in MODE 2, and with RHR aligned to the shutdown cooling mode, LPCI will be inoperable). In addition, plant procedures require that RHR be aligned to the LPCI mode, and the recirculation pumps to operating (which would necessitate securing the shutdown cooling mode) prior to entering MODE 2. Therefore, the MODE 1 and 2 requirements for these Functions have been deleted. Below the RHR cut-in permissive pressure setpoint in MODE 3, and during MODES 4 and 5, the Drywell High Pressure Function is not required since the core energy is low and the probability of a loss of coolant accident is small. In addition, the Reactor Vessel Water Level – Low (Level 3) Function is required to be Operable which will ensure the valves close due to an inadvertent drain down event. Therefore, the MODE 3, 4, and 5 requirements for the Drywell High Pressure Function is not required. These changes are consistent with NUREG-1433, Revision 1.

L4 For ITS 3.3.6.1 proposed Function 5.e, Reactor Vessel Water Level – Low (Level 3) and ITS 3.3.6.1 Function 5.f, Drywell Pressure – High for Reactor Water Cleanup (RWCU) System isolation, the ACTION is proposed to be changed from performance of CTS Table 3.2-1 Action Note 3.A, which requires the plant to be in cold shutdown in 24 hours to isolate the affected penetration flow path(s) within 1 hour (ITS Required Action F.1). Isolation of the affected line returns the system to a status equivalent to the instrumentation performing its function, therefore, continued operation should be allowed.

L5 For ITS Function 6.b, Reactor Vessel Water Level – Low (Level 3) for RHR Shutdown Cooling System isolation, the ACTION for MODE 3 (MODES 4 and 5 are covered by DOC M2) is proposed to be changed from performance of CTS Table 3.2-1 ACTION Note 3.A, which requires the plant to be in cold shutdown in 24 hours, to immediate initiation of action to restore inoperable channels to OPERABLE status or to isolate the RHR Shutdown

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L5 (continued)

Cooling System (ITS 3.3.6.1 Required Actions J.1 and J.2, respectively). These ACTIONS ensure that shutdown cooling operations are not unnecessarily interrupted however, allow the plant to achieve cold shutdown conditions when needed, while ensuring action is continued to restore the channels. When the RHR Shutdown cooling System is isolated it must be declared inoperable and further actions will be required to provide alternate decay heat removal methods as required by ITS 3.4.7 during MODE 3. If Required Action J.1 is chosen prudent action must be taken to restore the channels, however the system can remain in operation to support the decay heat removal requirements. The bases for concluding that this change is consistent with the plant safety analysis is provided below.

The Bases Applicable Safety Analysis for ITS 3.3.6.1, Function 6.b notes that isolation of the RHR Shutdown Cooling System suction is not directly assumed in the safety analyses because a break of the RHR Shutdown Cooling System is bounded by breaks of the reactor water recirculation system and Main Steam Line (which are discussed in UFSAR Sections 14.6.1.3 and 14.6.1.5 respectively). In general, design basis loss-of-coolant (LOCA) accidents, such as those discussed in UFSAR 14.6.1.3 and 14.6.1.5, assume system conditions that result in maximum energy release and maximum loss of reactor water inventory. In the case of comparing a break of the RHR Shutdown Cooling System to the reactor water recirculation system break assumed in the design basis LOCA it is apparent that the larger recirculation system piping (28 or 26 inch diameter versus 20 inch diameter) and much higher recirculation system operating pressure (greater than 1000 psig versus less than 75 psig) will result in the recirculation system break bounding the RHR Shutdown Cooling System break. In a similar manner, a break of a Main Steam Line (24 inch diameter and greater than 1000 psig) will also bound the RHR Shutdown Cooling System break. Accordingly, this change is consistent with the plant safety analysis.

L6 For proposed Function 2.e, Reactor Vessel Water Level – Low Low (Level 1) for the isolation of the recirculation loop sample and recirculation pump seal purge penetrations, the ACTION is proposed to be changed from performance of CTS Table 3.2-1 ACTION Note 3.A, which requires the plant to be in cold shutdown in 24 hours to isolation of the affected penetration flow path(s) within 1 hour (ITS 3.3.6.1 Required Action F.1). Isolation of the affected line returns the system to a status equivalent to the instrumentation performing its function, therefore, continued operation should be allowed.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC) (continued)

L7 For proposed Function 1.a, Reactor Vessel Water Level – Low Low Low (Level 1) for the isolation of the Main Steam Lines and drains, the ACTION is proposed to be changed from performance of CTS Table 3.2-1 Action Note 3.A, which requires the plant to be in cold shutdown in 24 hours to allow isolation of the affected main steam line (ITS 3.3.6.1 Required Action D.1). Some conditions may affect the isolation logic for only one main steam line. In these cases, it is not necessary to require a shutdown of the plant; rather, isolation of the affected line returns the system to a status where it can perform the remainder of its isolation function, and continued operation is allowed (although it may be at a reduced power level). This provides the necessary time to close the MSIVs in a controlled and orderly manner that is within the capabilities of the plant, assuming the minimum required equipment is Operable. This extra time reduces the potential for a plant transient that could challenge safety systems. This change is consistent with NUREG-1433, Revision 1. I

L8 For ITS 3.3.6.1 Function 2.g, Reactor Vessel Water Level – Low (Level 3) and for Function 2.d, Drywell Pressure – High, for those penetrations associated with CTS Table 3.2-1 Note 8 (those penetrations utilizing a two-out-of-two logic for isolation of both primary containment isolation valves on the hydrogen and oxygen sample, and gaseous particulate sample supply and return lines), the Action is proposed to be changed from performance of CTS Table 3.2-1 Action Note 3.A, which requires the plant to be in cold shutdown in 24 hours to isolate the affected penetration flow path(s) within 1 hour (ITS 3.3.6.1 Required Action F.1). Isolation of the affected line returns the system to a status equivalent to the instrumentation performing its function, therefore, continued operation should be allowed. I

L9 For ITS 3.3.6.1 proposed Functions 1.c, Main Steam Line Flow – High, 1.d, Condenser Vacuum – Low, and 1.e, Main Steam Tunnel Temperature – High, the associated ACTIONs are proposed to be changed from performance of CTS Table 3.2-1 ACTION Note 3.B or 3.G, which requires isolation of the affected main steam lines within 8 hours to allow the plant to be in MODE 3 within 12 hours and MODE 4 within 36 hours (ITS 3.3.6.1 Required Actions D.2.1 and D.2.2). This alternative action will allow the plant to be placed in a condition where isolation is not required. The change is acceptable since the current 8 hour allowance was provided to allow the plant to be brought to a condition where it will be possible to close the main steam isolation valves without imposing a transient on the reactor coolant system. Since the change is permitted to allow a controlled cool down to minimize the possibilities of a shutdown transient by allowing more time to reduce pressure this change is acceptable.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC) (continued)

L10 When more than one channel associated with a trip function is inoperable, CTS Table 3.2-1 Notes 1.b.2 requires action to be taken within 6 hours to place a channel in Trip or to take the required actions specified in the Table for the associated Function. These actions must be taken even if containment isolation capability is maintained. ITS 3.3.6.1 will not include this requirement as long as isolation capability is maintained. The allowance in Note 1.b.1 and ITS 3.3.6.1 ACTION B to restore isolation capability in one hour is adequate to ensure the time without automatic isolation capability is minimized. ITS 3.3.6.1 ACTIONS A will still require inoperable channels to be repaired within 12 hours for those channels common to RPS and 24 hours for those channels not common to RPS. In addition, CTS Table 3.2.1 Footnote (**) providing guidance on how to interpret the Actions has been deleted since it no longer applies.

L11 CTS Table 3.2-1, Note 3.A requires the reactor to be in cold shutdown within 24 hours when the ACTIONS or Completions Times associated with inoperable Primary Containment instrumentation cannot be satisfied. These requirements are proposed to be replaced by ITS 3.3.6.1 Required Actions D.2.2 (for isolation Functions associated with main steam line isolation) and H.2 (for isolation Functions associated with primary containment isolation) which require the plant be in MODE 4 within 36 hours under the same conditions. In addition, ITS 3.3.6.1 Required Action D.2.1 and H.1 requires the plant to be in MODE 3 in 12 hours (M7). This change is less restrictive because it extends the time for the plant to be in MODE 4 from 24 hours to 36 hours. The allowed Completion Times in Required Actions D.2.2 and H.2 are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems. The consequences of an accident are not significantly increased because ITS 3.6.1.1, Required Action D.2.1 and H.1 will require the plant be placed in MODE 3 within 12 hours once the determination is made that the Required Action or Completion Time associated with these Functions cannot be satisfied. This change reduces the time the reactor would be allowed to continue to operate once the condition is identified. The consequences of a LOCA are significantly mitigated when the reactor is shutdown and a controlled cooldown is already in progress. This change is consistent with NUREG-1433, Revision 1.

L12 The time to close the Main Steam Isolation Valves (MSIVs) in CTS Table 3.2-1, Note 3.B and 3.G are proposed to be extended from 8 hours to 12 hours (ITS 3.6.1.1 ACTION D). This provides the necessary time to close the MSIVs in a controlled and orderly manner that is within the capabilities of the plant, assuming the minimum required equipment is 1

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L12 (continued)

Operable. This extra time reduces the potential for a plant transient that could challenge safety systems. This change is consistent with NUREG-1433, Revision 1.

L13 The Applicability for the CTS Table 3.2-1 for the Main Steam Line High Radiation is MODES 1, 2, and 3 (when primary containment is required) as shown in Note 1 to the Table. The ITS Applicability for this Function is MODES 1 and 2 with THERMAL POWER ≤ 10% RTP (ITS Table 3.3.6.1-1 Functions 1.f and 2.f). The proposed Applicability is consistent with the Applicability for the Rod Worth Minimizer in CTS 3.3.B.3 (ITS Table 3.3.2.1 Function 2) since the Main Steam Line Tunnel High Radiation channels provide protection during a control rod drop accident (CRDA). When THERMAL POWER is > 10% RTP, there is no possible control rod configuration that results in a control rod worth that could exceed the 280 cal/gm fuel damage limit during a CRDA, therefore this protection is not required to mitigate the consequences of an accident above 10% RTP. This change is acceptable since the associated penetrations (main steam line drains and recirculation loop sample valves) will still require isolation signals to automatically isolate these penetrations under different conditions. I

L14 The details in CTS Tables 4.1-1 and 4.1-2, that identify those portions of the instrument channel which require functional testing (trip channel and alarm) and the method of calibration (standard pressure source), respectively, are proposed to be deleted. This information is not necessary because the proposed definitions for Channel Functional Test and Channel Calibration provide the necessary guidance. This change is consistent with NUREG-1433, Revision 1. I

L15 Not used. I

L16 This change replaces the Trip Level Setting or Allowable Value (A16) of ≤ 160 inches of water dP to ≤ 168.24 inches of water dP for the HPCI Turbine Steam Line High Flow trip function (ITS 3.3.6.1 Function 3.a). The Allowable Values (to be included in the Technical Specifications) and the Trip Setpoints (to be included in plant procedures) have been established consistent with the NYPA Engineering Standards Manual, IES-3A, "Instrument Loop Accuracy and Setpoint Calculation Methodology." The methodology used to determine the "Allowable Values" are consistent with the methodology discussed in ISA-S67.04-1994, Part II, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation." Any changes to the safety analysis limits, applied in the methodologies, were evaluated and confirmed as ensuring

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L16 (continued)

safety analysis licensing acceptance limits are maintained. All design limits, applied in the methodologies, were confirmed as ensuring that applicable design requirements of the associated systems are maintained. The use of this methodology for establishing Allowable Values and Trip Setpoints ensures design or safety analysis limits are not exceeded in the event of transients or accidents and accounts for uncertainties and environmental conditions, as appropriate.

L17 This change replaces the Trip Level Setting or Allowable Value (A16) in CTS Table 3.2-1, Item 9, Main Steam Line Flow High ≤ 140% of rated steam flow to ≤ 125.9 psid (ITS Table 3.3.6.1, Function 1.c, Main Steam Line Flow High). The Allowable Values (to be included in the Technical Specifications) and the Trip Setpoints (to be included in the plant procedures) have been established consistent with the NYPA Engineering Standards Manual, IES-3A, "Instrument Loop Accuracy and Setpoint Calucation Methodology." The methodology used to determine the "Allowable Values" are consistent with the methodology discussed in ISA.S67.04-1994, Part II, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation." Any changes to the safety analysis limits, applied in the methodologies, were evaluated and confirmed as ensuring safety analysis licensing acceptance limits are maintained. All design limits, applied in the methodologies, were confirmed as ensuring that applicable design requirements of the associated systems are maintained. The use of this methodology for establishing Allowable Values and Trip Setpoints ensures design or safety analysis limits are not exceeded in the event of transients or accidents and acouunts for uncertainties and environmental conditions, as appropriate.

L18 An allowance is proposed for intermittently opening, under administrative control, closed penetration flow paths. The allowance is presented in ITS 3.3.6.1 ACTIONS Note 1. Opening of these penetration flow paths on an intermittent basis may be required for repairs, routine evolutions, etc. Intermittently opening closed penetration flow paths is acceptable due to the low probability of an event that could pressurize the primary containment during the short time in which the flow path is open. Furthermore, the administrative controls established ensure that the affected penetrations can be isolated when a need for primary containment isolation is indicated. As such, the proposed allowance for intermittently opening instrumentation penetration flow paths (under administrative control) that are isolated to comply with Actions which is also currently allowed in the PCIV Specification, is

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L18 (continued)

similarly added to the instrumentation Specification Actions as Note 1. These changes are consistent with NUREG-1433, Revision 1 as modified by TSTF-306, Revision 2.

L19 The requirements of CTS Table 3.2-1, for inoperability of Item 1, "Reactor Low Water Level" ("Reactor Vessel Water Level - Low (Level 3)") and/or inoperability of Item 5, "Drywell Pressure - High") as stipulated by Action A under Note 3 would require a shutdown of the unit. The unit shutdown requirement would be overly conservative for those situations where the inoperable isolation instrumentation affects only the Traversing Incore Probe (TIP) System isolation instrumentation. Accordingly, an allowance is proposed that would avoid a unit shutdown in those situations where the inoperability of primary containment isolation instrumentation would affect only the Traversing Incore Probe (TIP) System isolation instrumentation. The TIP System penetration is a small bore configuration, and its isolation in a design basis event is via either an automatically closed inboard isolation valve or by a manually operated outboard shear valve. The proposed allowance would require manual isolation of this penetration flow path in 24 hours upon discovery of inoperable primary containment isolation instrumentation which only affects the TIP System isolation function. The isolation time is the same as for inoperable manual isolation Functions as provided by ITS 3.3.6.1 ACTION G. The 24 hour completion time is acceptable due to the fact that manual isolation functions are not assumed in any accident or transient analysis. Since the TIP isolation function includes a manual isolation function, the same action as for manual isolation Functions provides an appropriate level of safety.

Consistent with this proposed allowance, the TIP Isolation Function is identified (Functions 7.a and 7.b on ITS Table 3.3.6.1-1) as a separate isolation Function with an associated Action allowing penetration flow path isolation rather than a unit shutdown. As identified above, the associated Action requires isolation of the penetration flow path within 24 hours. Applicable Modes, Surveillance Requirements and Allowable Values are provided for the TIP Isolation Function consistent with those associated with ITS Functions 2.a and 2.b on ITS Table 3.3.6.1-1. Supporting Bases changes are also provided as well as appropriate changes to the listing of identified Functions for the Completion Time associated with Condition A of the ITS. These changes are consistent with NUREG-1433, Revision 1 as modified by TSTF-306, Revision 2.

TECHNICAL CHANGES - RELOCATIONS

None

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L15 CHANGE

Not used.

I

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L15 CHANGE (continued)

Not used.

I

[3.2.A]

3.3 INSTRUMENTATION

3.3.6.1 Primary Containment Isolation Instrumentation

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

[Table 3.2-1] [3.2.A] [L18]

APPLICABILITY: According to Table 3.3.6.1-1.

ACTIONS

TA1

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

--NOTE S TA1--

[A3] 2. TA1 Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable. [L19] [Table 3.2-1 Note 1.a, 1.b.3] L07	A.1 Place channel in trip. TA1 2.d, 2.g, 5.e, 5.f	12 hours for Functions 2.a, 2.b, ~~and~~ 6.b, 7.a and 7.b DB1 AND 24 hours for Functions other than Functions 2.a, 2.b, and 6.b 7.a and 7.b I
B. One or more ~~automatic~~ Functions with isolation capability not maintained. [Table 3.2-1 Note 1.b.1] [M5]	B.1 Restore isolation capability.	1 hour

(continued)

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ACTIONS (continued)

	CONDITION	REQUIRED ACTION		COMPLETION TIME
[M5] Table 3.2.1 Note 1.a Note 1.b Note *	C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Enter the Condition referenced in Table 3.3.6.1-1 for the channel.	Immediately
Table 3.2.1 Note 3.A Note 3.B Note 3.G L11, L12, L17 M7	D. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	D.1	Isolate associated main steam line (MSL).	12 hours
		<u>OR</u>		
		D.2.1	Be in MODE 3.	12 hours
		<u>AND</u>		
		D.2.2	Be in MODE 4.	36 hours
T3.2.1 Note 3.B M15	E. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	E.1	Be in MODE 2.	6 hours
T 3.2.1 Note 3.C Note 3.D Note 3.E Note 3.F L4, L8 M8 [M5]	F. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	F.1	Isolate the affected penetration flow path(s).	1 hour
[L19]	G. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	G.1	Isolate the affected penetration flow path(s).	24 hours

(continued)

I

REVISION ~~F~~ I

CLB1

j and (b) 6 hours for Functions 2.d, 2.g, 7.a, and 7.b

SURVEILLANCE REQUIREMENTS

---NOTES---

[4.2.A] 1. Refer to Table 3.3.6.1-1 to determine which SRs apply for each Primary Containment Isolation Function.

as follows: (a) CLB1

[T 3.2-1 Note 2 M11 M10] 2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains isolation capability.

	SURVEILLANCE	FREQUENCY
[T.4.1-1] [M9] [T.4.2-1] [M9]	SR 3.3.6.1.1 Perform CHANNEL CHECK.	12 hours
[T.4.2-1] [T.4.1-1]	SR 3.3.6.1.2 Perform CHANNEL FUNCTIONAL TEST. (PA4)	~~[92]~~ days (CLB2)
[T 4.2-1 Note 15] [T 4.1-2 Note 6]	SR 3.3.6.1.~~3~~ (4) Calibrate the trip unit (s)	~~[92]~~ 184 days days (CLB3) (DB)
[T.4.2-1] [T.4.2-1 Note 11 for (B)]	SR 3.3.6.1.~~4~~ (3) (CLB3) Perform CHANNEL CALIBRATION.	92 days (Insert SR 3.3.6.1.3 Note)
	~~SR 3.3.6.1.5 Perform CHANNEL FUNCTIONAL TEST.~~	~~[184] days~~ (CLB4)
[T.4.1-2 Note 6] [T 4.2-1 Note 15] [T 4.2-B]	SR 3.3.6.1.~~6~~ (5) (CLB3) (CLB4) Perform CHANNEL CALIBRATION.	~~[18]~~ 24 months (DB2)
[T 4.2-1] [M1]	SR 3.3.6.1.7 Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~[18]~~ 24 months (CLB10)
[T.4.2-1 Note 11]	SR 3.3.6.1.6 Calibrate the radiation detectors.	24 months (DB2)

(continued)

REVISION I

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (DB10)
1. Main Steam Line Isolation		(DB4)		(PA3)	
[T 3.2-1(4)] [T 4.2-1(2)] [4.2.A.1] a. Reactor Vessel Water Level — Low Low ~~Low~~, Level 1 (PA2)	1,2,3	[2]	D	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] 4 SR 3.3.6.1.6 5 SR 3.3.6.1.7 SR 3.3.6.1.8	≥ ~~[-113]~~ 18 inches
[T 3.2-1(8)] [T 4.2-1(5)] [2.1.A.6] [4.2.A.2] b. Main Steam Line Pressure — Low	1	[2]	E (DBS)	[SR 3.3.6.1.1] [SR 3.3.6.1.2] ~~SR 3.3.6.1.4~~ SR 3.3.6.1.4 SR 3.3.6.1.7 SR 3.3.6.1.8	≥ [825] psig (DBS) SR 3.3.6.1.5
[L17] [A11] [T 3.2-1(9)] [T 4.2-1(4)] [4.2.A.3] c. Main Steam Line Flow — High	1,2,3	[2] per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 4 [SR 3.3.6.1.3] SR 3.3.6.1.6 5 SR 3.3.6.1.7 SR 3.3.6.1.8	≤ ~~[ ]% rated steam flow~~ 125.9 psid
[T 3.2-1(12)] [T 4.2-1(7)] d. Condenser Vacuum — Low	1, 2(a), 3(a)	[2] (DBS)	D	SR 3.3.6.1.1 SR 3.3.6.1.2 ~~SR 3.3.6.1.4~~ SR 3.3.6.1.4 SR 3.3.6.1.7	≥ ~~[7]~~ 8 inches Hg vacuum (DB5) SR 3.3.6.1.5
[T 3.2-1(10)] [M14] [T 4.2-1(3)] e. Main Steam Tunnel (Area) Temperature — High (PA2)	1,2,3	[8]	D	SR 3.3.6.1.1 SR 3.3.6.1.2 4 [SR 3.3.6.1.3] SR 3.3.6.1.6 5 SR 3.3.6.1.7 ~~SR 3.3.6.1.8~~ (CLB5)	≤ ~~[ ]~~ 195 °F
~~f. Main Steam Tunnel Differential Temperature — High~~	~~1,2,3~~	~~[2]~~	~~D~~	~~SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7~~	~~≤ [ ]°F~~ (DB7)
~~g. Turbine Building Area Temperature — High~~	~~1,2,3~~	~~[32]~~	~~D~~	~~[SR 3.3.6.1.1] SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7~~	~~≤ [200]°F~~ (CLB7)
~~h. Manual Initiation~~	~~1,2,3~~	~~[1]~~	~~G~~	~~SR 3.3.6.1.7~~	~~NA~~ (DB6)
[T 3.2-1(7)] [T 4.2-1(8)] f. Main Steam Line Radiation - High	1(b), 2(b)		F	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 3 times Normal Full Power Background

(continued)

(a) With any turbine [stop valve] not closed. (DB10)

(b) With THERMAL POWER ≤ 10% RTP (DB6)

REVISION I

Table 3.3.6.1-1 (page 2 of 6)
Primary Containment Isolation Instrumentation

DB10

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment Isolation		DB4		PA3	
a. Reactor Vessel Water Level — ~~Low,~~ Level 3 (c) (d) PA2	1,2,3	~~[2]~~	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.~~5~~ 4 SR 3.3.6.1.~~6~~ 5 SR 3.3.6.1.7 ~~SR 3.3.6.1.8~~ CLB5	≥ ~~[10]~~ 177 inches
b. Drywell Pressure — High	1,2,3	~~[2]~~	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.~~5~~ 4 SR 3.3.6.1.~~6~~ 5 SR 3.3.6.1.7 ~~SR 3.3.6.1.8~~ CLB5	≤ ~~[1.92]~~ 2.7 psig
c. ~~Drywell~~ Containment PA2 Radiation — High	1,2,3	~~[1]~~	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.~~6~~ 5 SR 3.3.6.1.7	≤ ~~[138]~~ 450 R/hr
~~d. Reactor Building Exhaust Radiation — High~~	~~1,2,3~~	~~[2]~~	~~H~~	~~SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8~~	~~≤ [60] mR/hr~~ CLB7
~~e. Refueling Floor Exhaust Radiation — High~~	~~1,2,3~~	~~[2]~~	~~H~~	~~SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8~~	~~≤ [20] mR/hr~~ DB7
~~f. Manual Initiation~~	~~1,2,3~~	~~[1 per group]~~	~~G~~	~~SR 3.3.6.1.7~~	~~NA~~ CLB7
3. High Pressure Coolant Injection (HPCI) System Isolation					
a. HPCI Steam Line Flow — High	1,2,3	~~[1]~~	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.~~5~~ 4 SR 3.3.6.1.~~6~~ 5 SR 3.3.6.1.~~7~~ ~~SR 3.3.6.1.8~~ CLB5	≤ ~~[303]% rated steam flow~~ 168.24 inches of water dP

[T.3.2-1 (1)(2)]
[T.4.1-1 (9)]
[T.4.1-2 (7)]

[T.3.2-1 (5)
[T 4.1-1 (8)]
[T4.1-2 (6)]

[T.3.2-8 (4)]
[T.4.2-8 (4)] [M1]

[T.3.2-1 (13)]
[T.4.2-1 (9)]

(continued)

Insert Functions 2.d, 2.e, 2.f, 2.g DB6

(c) Only one trip system provided for each associated penetration DB6

1 [I]

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(DB6)

INSERT Functions 2.d, 2.e, 2.f, 2.g

[T 3.2-1(6)] [T4.1-1(8)] [T3.2-1 Note 8]	d.	Drywell Pressure - High	1,2,3	2(c)	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 2.7 psig
[T3.2-1(4)] [T4.2-1(2)]	e.	Reactor Vessel Water Level - Low Low Low (Level 1)	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 18 inches
[T 3.2-1(7)] [T4.2-1(8)]	f.	Main Steam Line Radiation - High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 3 times Normal Full Power Background
[T3.2-1 Note 8] [T3.2-1(2)] [T4.1-1(9)]	g.	Reactor Vessel Water Level - Low (Level 3)	1,2,3	2(c)	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 177 inches

Table 3.3.6.1-1 (page 5 of 6)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (DB10)
4. RCIC System Isolation (continued)		(DB4)		(PA3)	144
[T 3.2-1 (20)] [M14] (DB7) ~~i.~~ f. RCIC Equipment ~~Room~~ Area Temperature — High	1,2,3	~~[1]~~ 2	F	~~[~~SR 3.3.6.1.~~1~~ 0 SR 3.3.6.1.2 (6) ~~[~~SR 3.3.6.1.~~3]~~ ~~SR 3.3.6.1.6~~ SR 3.3.6.1.7 ← add SR 3.3.6.1.5	≤ ~~[ ]~~ °F (DB3)
~~j. RCIC Equipment Room Differential Temperature — High~~	~~1,2,3~~	~~[1]~~	~~F~~	~~[SR 3.3.6.1.1] SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.4 SR 3.3.6.1.7~~	~~≤ [ ]°F~~ (DB7)
~~k. Manual Initiation~~	~~1,2,3~~	~~[1 per group]~~	~~G~~	~~SR 3.3.6.1.7~~	~~NA~~ (CLB7)
5. Reactor Water Cleanup (RWCU) System Isolation					
(PA2) ~~a. Differential Flow — High~~ ← Insert Function 5.a (DB6)	~~1,2,3~~	~~[1]~~	~~F~~	~~SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8~~	~~≤ [79] gpm~~ (DB7)
[T 3.2-1 (11)] [M14] b. RWCU Pump Area Temperature — High ← Insert Function 5.c (DB6)	1,2,3	(3) ~~[1 per room]~~	F	~~SR 3.3.6.1.1~~ ~~SR 3.3.6.1.2~~ ~~[SR 3.3.6.1.3]~~ ← add SR 3.3.6.1.3 ~~SR 3.3.6.1.6~~ SR 3.3.6.1.7 ~~[SR 3.3.6.1.8]~~	≤ ~~[150]~~ 165 °F for Pump Room A and 175°F for Pump Room B (DB5)
[T 3.2-1 (11)] ~~c. Area Ventilation Differential Temperature — High~~	~~1,2,3~~	~~[3] [1 per room]~~	~~F~~	~~SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7 [SR 3.3.6.1.8]~~	~~≤ [67]°F~~ (DB7)
[M 11] d. SLC System Initiation (DB8) (PA2)	1,2	~~[2]~~ (b) (d) (DB6) (DB9)	I	SR 3.3.6.1.7	NA
[T 3.2-1(1)] [T 4.1-1 (9)] [T 4.1-2 (7)] e. Reactor Vessel Water Level — ~~Low~~ Low, Level ~~2~~ (3) (PA2) (DB6)	1,2,3	~~[2]~~	F	SR 3.3.6.1.1 SR 3.3.6.1.2 ~~[~~SR 3.3.6.1.~~3]~~ (4) SR 3.3.6.1.~~6~~ (5) SR 3.3.6.1.7 ~~SR 3.3.6.1.8~~ (CLB5)	≥ ~~[-47]~~ 177 inches
Insert Function 5.f →					
~~f. Manual Initiation~~	~~1,2,3~~	~~[1 per group]~~	~~G~~	~~SR 3.3.6.1.7~~	~~NA~~ (CLB7)

(continued)

(d) ~~(b)~~ SLC System Initiation only inputs into one of the two trip systems and only isolates one valve in the RWC suction and return line. (DB9) (DB6)

(I) (I)

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DBG INSERT Function 5.a

[T3.2-1(11)] [T4.2-1(6)] [M14]

a.	RWCU Suction Line Penetration Area Temperature - High	1,2,3	1	F	SR 3.3.6.1.1.3 SR 3.3.6.1.1.7	≤ 144°F

1/I

DBG INSERT Function 5.c

[T3.2-1(11)] [T4.2-1(6)] [M14]

c.	RWCU Heat Exchanger Room Area Temperature -High	1,2,3	1	F	SR 3.3.6.1.1.3 SR 3.3.6.1.1.7	≤ 155°F

1 I

DBG INSERT Functions 5.f

[T3.2-1(5)] [T4.2-1(8)] [L4]

f.	Drywell Pressure - High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 2.7 psig

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM (DB4)	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS (PA3)	ALLOWABLE VALUE (DB10)
6. Shutdown Cooling System Isolation					
a. Reactor ~~Steam Dome~~ Pressure — High (PA2)	1,2,3	[1]	F (DB5)	SR 3.3.6.1.3 ~~SR 3.3.6.1.1~~ ~~SR 3.3.6.1.2~~ ~~SR 3.3.6.1.3~~ ~~SR 3.3.6.1.6~~ SR 3.3.6.1.7	≤ [115] psig 74
b. Reactor Vessel Water Level — Low, Level 3 (PA2)	3,4,5	[2](a) (e)	J	SR 3.3.6.1.1 SR 3.3.6.1.2 (4) [SR 3.3.6.1.4] (5) SR 3.3.6.1.6 SR 3.3.6.1.7	≥ [10] inches 177
7. Traversing Incore Probe System Isolation (TA1)		(DB4)			(DB10)
a. Reactor Vessel Water Level - Low, Level 3 (PA2)	1,2,3	[2]	G	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] (4) SR 3.3.6.1.6 (5) SR 3.3.6.1.7	≥ [10] inches 177
b. Drywell Pressure - High	1,2,3	[2]	G	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] (4) SR 3.3.6.1.6 (5) SR 3.3.6.1.7	≤ [1.1] psig 2.7 (DB10)

(a) (e) Only one trip system required in MODES 4 and 5 when RHR Shutdown Cooling System integrity maintained. (PB6)

[M14]
[T. 3.2-1(3)]
[T 4.2-1(1)]
[1.2.2/2.2.2]

[T 3.2-1(1)] [M2]
[T 4.1-1(9)]
[T 4.1-2(7)]

[M2]

[T 3.2-1(2)(6)]
[L19]
T 4.1-1(8)(9)

REVISION F I

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.3.6.1 - PRIMARY CONTAINMENT ISOLATION INSTRUMENTATION

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 The allowance in ITS 3.3.6.1 Surveillance Note 2 has been revised in accordance with License Amendment 227 to allow Functions 2.g (Reactor Vessel Water Level – Low (Level 3), 2.d (Drywell Pressure – High), 7.a (Reactor Vessel Water Level – (Level 3)), and 7.b (Drywell Pressure – High) to not maintain isolation capability during the performance of a required Surveillance. The allowance is acceptable since the associated penetration flow paths(s) involve sample lines which form part of a closed system with the primary containment atmosphere or in the case of TIP System penetrations the manual shear valve is available for manual isolation. I I

CLB2 The brackets have been removed for the Frequency of ITS SR 3.3.6.1.2 and the 92 day Frequency retained consistent with CTS Table 4.2-1, 4.1-1, and with the reliability analysis of NEDC-30851-P-A Supplement 2 and NEDC-31677-P-A.

CLB3 The ISTS SR 3.3.6.1.3 bracketed Surveillance Frequency has been changed from 92 days to 184 days to be consistent with the frequency in CTS Table 4.2-1 Note 15 and approved in JAFNPP Technical Specification Amendment No. 89. The Surveillance has been renumbered as SR 3.3.6.1.3 and subsequent Surveillances have been renumbered, as required.

CLB4 This change deletes the ISTS SR 3.3.6.1.5 184 day Channel Functional Test from the Surveillance Requirements in ITS 3.3.6.1, "Primary Containment Isolation Instrumentation." None of the Primary Containment Isolation Instrumentation require a 184 day Channel Functional Test. This change is based on the current JAFNPP licensing basis. Subsequent Surveillances are renumbered, as required.

CLB5 These ISOLATION RESPONSE TIME surveillance tests have been deleted for certain Functions since the EDG response time is much greater. The Reviewer's Note has been deleted since it is not intended to be included in the ITS. In addition, the allowance in the current Note to ISTS SR 3.3.6.1.8 has been deleted since is does not apply.

CLB6 Not Used.

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB7 This change deletes the Main Steam Line Isolation Manual Initiation Function, Reactor Building Exhaust Radiation High—Function, PCI Manual Initiation Function, HPCI Manual Initiation, RCIC Manual Initiation and RWCU System Manual Initiation. These Functions are not currently required by the JAFNPP licensing basis and are not credited in the safety analysis. Since none of the "manual" isolation functions are applicable to JAFNPP, the word "automatic" was deleted from Condition B to avoid any implication that a condition addressing manual isolation functions might exist. However, ACTION G is retained for its use with Functions 7.a and 7.b on ITS Table 3.3.6.1-1.

CLB8 A Note has been added to ITS SR 3.3.6.1.8 to ensure that all channels are tested within two surveillance intervals consistent with the current licensing basis. In addition, the bracketed SR Frequency has been changed from 18 to 24 months consistent with the current Frequency in CTS 4.2.A.

CLB9 Not used.

CLB10 The ISTS SR 3.3.6.1.7 bracketed Frequency has been changed from 18 months to 24 months to be consistent with the frequency in CTS Table 4.2-1 as approved in License Amendment 248.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 The Definition of ISOLATION SYSTEM RESPONSE TIME has been changed to ISOLATION INSTRUMENTATION RESPONSE TIME since it reflects the instrumentation response and not the system response. This change is consistent with the definition in Chapter 1.0.

PA2 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific nomenclature.

PA3 The SRs associated with each Function in Table 3.3.6.1-1 have been renumbered, as required, consistent with changes to the ITS 3.3.6.1 SURVEILLANCE REQUIREMENTS Table. Any specific change not reflected in the SURVEILLANCE REQUIREMENTS Table is identified with a specific JFD.

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.3.6.1 - PRIMARY CONTAINMENT ISOLATION INSTRUMENTATION

<u>PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT</u> (PA)

PA4 An editorial change has been made to correct a typographical error.

<u>PLANT-SPECIFIC DIFFERENCE IN THE DESIGN</u> (DB)

DB1 Four new Functions have been added to the Completion Times of ITS 3.3.6.1 Required Action A.1 since they are common to RPS.

DB2 The brackets have been removed from the Surveillance Frequency in ITS SR 3.3.6.1.5 (CHANNEL CALIBRATION) and extended from 18 months to 24 months consistent with the frequencies in CTS Table 4.2-1. The Frequency is consistent with the setpoint calculation methodology for the associated Functions. In addition, SR 3.3.6.1.6 has been added to calibrate the radiation detector of Functions 1.f and 2.f (Main Steam Line Radiation—High) consistent with the current allowances in CTS Table 4.2-1. The remaining portions of the channels will be calibrated in accordance with SR 3.3.6.1.3 as indicated by the associated Note. These allowances are also consistent with the setpoint calculation methodology for these functions.

DB3 The brackets have been removed from ITS Table 3.3.6.1-1 Function 4.f, RCIC Equipment Area Temperature—High and the Function has been retained consistent with the JAFNPP design and licensing basis.

DB4 The brackets have been removed and the proper number of channels included for each Function in Table 3.3.6.1-1. The values are consistent with the current requirements in CTS Table 3.1-1 except for Functions 3.b, 3.c, 4.b, and 4.c. The number of channels for these Functions have been changed consistent with the plant design and justified in M6.

DB5 The channels of ITS 3.3.6.1 Functions 1.b and 1.d include trip units, therefore, SR 3.3.6.1.4 and SR 3.3.6.1.5 have been added for these Functions. The channels of ITS 3.3.6.1 Functions 5.b and 6.a include a switch (temperature or pressure). These switches are calibrated every 3 months in accordance with the current setpoint methodology, therefore, the Surveillances associated with these Functions have been revised, as required.

DB6 The following ITS 3.3.6.1 Functions have been added since they are required by design and current licensing basis: Main Steam Line Radiation—High (1.f and 2.f); Function 2.e, Reactor Vessel Water Level—Low Low Low (Level 1); Functions 3.f, 3.g, 3.h, 3.i, 3.j (Area Temperatures associated with HPCI Isolation); Function 4.d, RCIC Steam

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB6 (continued)

Line Penetration (Drywell Entrance) Area Temperature—High; Function 5.a, Suction Line Penetration Area Temperature—High; Function 5.c, RWC Heat Exchanger Area Temperature—High; and Function 5.f, Drywell Pressure—High. Functions 2.d and 2.g have been added for those Functions which include only one trip system to certain penetration flow paths to simplify the Required Actions. Footnote (c) was added to Table 3.3.6.1-1 to identify these Functions. Subsequent Notes have been renumbered, where applicable. Subsequent Functions have been renumbered, as required. In addition, Footnote (b) has been added to the Applicability of Functions 1.f and 2.f since these Functions are only required to mitigate consequences during a CRDA.

DB7 This change deletes various ITS Functions from the Table 3.3.6.1-1 since they are not included in the design: Function 1.f, Main Steam Tunnel Differential Temperature—High; Function 1.g, Turbine Building Area Temperature—High; Function 2.e, Refueling Floor Exhaust Radiation—High; Functions 3.d and 4.d, Drywell Pressure—High; Function 3.g and 4.f, HPCI and RCIC Suppression Pool Area Temperature-Time Delay Relays; Functions 3.h and 4.g, HPCI and RCIC Suppression Pool Area Differential Temperature—High; Function 3.i and 4.h, Emergency Area Cooler Temperature—High; Function 4.j, RCIC Equipment Room Differential Temperature—High; Function 5.a Differential Flow—High and Function 5.c Area Ventilation Differential Temperature—High. Subsequent Functions have been renumbered, as required.

DB8 The correct trip level Function has been incorporated for ITS Function 3.3.6.1 Function 5.e in accordance with the JAFNPP design.

DB9 ITS Table 3.3.6.1-1 Footnote (d) has been revised to identify the valves isolated by the Function consistent with the JAFNPP design.

DB10 The brackets have been removed and the proper plant specific value or requirements incorporated.

DB11 This change separates the RWC Pump Area Temperature—High Function (ITS 3.3.6.1 Function 5.b) Allowable Value into two areas (Pump Room A and Pump Room B) since the proposed "Allowable Values" are different.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

TA1 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler number 306, Revision 2 have been incorporated into the revised Improved Technical Specifications.

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

None

I

DB

INSERT BKGD-1

(a) reactor vessel water level, (b) main steam line (MSL) pressure, (c) MSL flow, (d) condenser vacuum, (e) main steam tunnel area temperatures, (f) main steam line radiation, (g) drywell pressure, (h) containment radiation, (i) high pressure coolant injection (HPCI) and reactor core isolation cooling (RCIC) steam line flow, (j) HPCI and RCIC steam line pressure, (k) HPCI and RCIC turbine exhaust diaphragm pressure, (l) HPCI and RCIC area temperatures, (m) reactor water cleanup (RWCU) area temperature, (n) Standby Liquid Control (SLC) System initiation, and (o) reactor pressure. I

BASES

BACKGROUND (continued)

1. Main Steam Line Isolation

Most MSL Isolation Functions receive inputs from four channels. The outputs from these channels are combined in a one-out-of-two taken twice logic to initiate isolation of all main steam isolation valves (MSIVs). The outputs from the same channels are arranged into two two-out-of-two logic trip systems to isolate all MSL drain valves. Each MSL drain line has two isolation valves with one two-out-of-two logic system associated with each valve.

DB1 The

The exceptions to this arrangement are the Main Steam Line Flow—High Function and Area and Differential Temperature Functions. The Main Steam Line Flow—High Function uses 16 flow channels, four for each steam line. One channel from each steam line inputs to one of the four trip strings. Two trip strings make up each trip system and both trip systems must trip to cause an MSL isolation. Each trip string has four inputs (one per MSL), any one of which will trip the trip string. The trip strings are arranged in a one-out-of-two taken twice logic. This is effectively a one-out-of-eight taken twice logic arrangement to initiate isolation of the MSIVs. Similarly, the 16 flow channels are connected into two two-out-of-two logic trip systems (effectively, two one-out-of-four twice logic), with each trip system isolating one of the two MSL drain valves on the associated steam line.

, Main Steam Tunnel DB1 — High

and the Main Steam Line Radiation—High PA2

channels PA2 Channel

The Main Steam Line Radiation—High Function receives inputs from four channels. The outputs from the channels are arranged into two two-out-of-two logic trip systems and isolates the MSL drain valves. This Function does not provide an MSIV isolation signal. Each trip system is associated with one MSL drain valve with a two-out-of-two logic.

The Main Steam Tunnel Temperature—High Function receives input from 16 channels. The logic is arranged similar to the Main Steam Line Flow—High Function. ~~The Turbine Building Area Temperature—High Function receives input from 64 channels. The inputs are arranged in a one-out-of-thirty-two taken twice logic trip system to isolate all MSIVs. Similarly, the inputs are arranged in two one-out-of-sixteen twice logic trip systems, with each trip system isolating one of the two MSL drain valves per drain line.~~

PA1 DB1 DB1

~~MSL Isolation Functions isolate the Group 1 valves.~~ PA1

2. Primary Containment Isolation

(Functions 2.a and 2.b)

The Reactor Vessel Water Level—Low (Level 3) and Drywell Pressure—High

~~Most~~ Primary Containment Isolation Functions receive inputs from four channels. Normally the outputs from these channels are

DB1

(continued)

Revision I

DB1 INSERT BKGD-3

The exception to this arrangement for the Reactor Vessel Water Level – Low (Level 3) and Drywell Pressure – High Functions (Functions 2.d and 2.g) are with certain penetration flow paths (i.e., hydrogen/oxygen sample supply and return valves, and gaseous/particulate sample supply and return valves). For these penetration flow paths only one logic trip system closes two valves in each flow path as noted by footnote (c) to Table 3.3.6.1-1. The design is acceptable since it helps ensure post-accident sampling capability is maintained. The remainder of the penetration flow paths isolated by the Reactor Vessel Water Level – Low (Level 3) and Drywell Pressure – High Functions (Functions 2.a and 2.b) are extensive and are identified in Reference 1.

DB1 INSERT BKGD-4

The Containment Radiation – High Function (Function 2.c) includes two channels, whose outputs are arranged in two one-out-of-one logic trip systems. Each trip system isolates one valve per associated penetration, so that operation of either logic isolates the penetration. The penetration flow paths isolated by this Function include the drywell and suppression chamber vent and purge valves.

The Reactor Vessel Water Level – Low Low Low (Level 1) and the Main Steam Line Radiation – High Functions (Functions 2.e and 2.f) both have four channels, whose outputs are arranged into two two-out-of-two logic trip systems for each Function. One trip system initiates isolation of the associated inboard isolation valves, while the other trip system initiates the isolation of the associated outboard valves. The penetration flow path isolated by these Functions is the recirculation loop sample valves.

DB1 **INSERT Function 5-1**

Any channel will initiate the trip logic. The Function is initiated by placing the SLC System initiation switch in any position other than stop (start system A or start system B). Therefore, a channel is defined as the circuitry required to trip the trip logic when the switch is in position start system A or start system B.

DB1 **INSERT FUNCTION 5-2**

and only one trip system is connected to the RWCU return penetration outboard valve. The trip system associated with the SLC System Initiation Function is connected to the outboard RWCU suction valve and the outboard RWCU return penetration valve. I

TA3 **INSERT FUNCTION 7-1**

The Reactor Vessel Water Level - Low, Level 3 Isolation Function receives input from two reactor vessel water level channels. The outputs from the reactor vessel water level channels are connected into one two-out-of-two logic trip system. The Drywell Pressure - High Isolation function receives input from two drywell pressure channels. The outputs from the drywell pressure channels are connected into one two-out-of-two logic trip system. PA2

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

TIP System Isolation Functions isolate Group [x] valves (inboard isolation ball valves). DB1 I

BASES

Main Steam Tunnel Area Temperature – High

DB1

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1.e, ~~1.f., 1.g.~~ ~~Area and Differential~~ Temperature—High (continued)

DB5

~~Eight thermocouples provide input to the Differential Temperature—High Function. The output of these thermocouples is used to determine the differential temperature. Each channel consists of a differential temperature instrument that receives inputs from thermocouples that are located in the inlet and outlet of the area cooling system for a total of four available channels.~~

DB3

high enough above the temperature expected during power operations to avoid spurious isolation, yet low enough to provide early indication of a steam line break

The ~~ambient and differential~~ ~~temperature monitoring~~ Allowable Value is chosen ~~to detect a leak equivalent to between 1% and 10% rated steam flow~~.

DB1

These Functions isolate the ~~Group 1~~ MSIVs and MSL drain valves.

15 3 PA2

I

Insert Function 1.f

DB4

~~1.h. Manual Initiation~~

~~The Manual Initiation push button channels introduce signals into the MSL isolation logic that are redundant to the automatic protective instrumentation and provide manual isolation capability. There is no specific FSAR safety analysis that takes credit for this Function. It is retained for the overall redundancy and diversity of the isolation function as required by the NRC in the plant licensing basis.~~

~~There are two push buttons for the logic, one manual initiation push button per trip system. There is no Allowable Value for this Function since the channels are mechanically actuated based solely on the position of the push buttons.~~

~~Two channels of Manual Initiation Function are available and are required to be OPERABLE in MODES 1, 2, and 3, since these are the MODES in which the MSL isolation automatic Functions are required to be OPERABLE.~~

CLB1

(continued)

Revision I

DB4

INSERT Function 1.f

1.f Main Steam Line Radiation - High

The Main Steam Line Radiation - High isolation signal has been removed from the MSIV isolation logic circuitry (Ref. 1); however, this isolation Function has been retained for the MSL drains valves (and other valves discussed under Function 2.f) to ensure that the assumptions utilized to determine that acceptable offsite doses resulting from a control rod drop accident (CRDA) are maintained.

Main Steam Line Radiation - High signals are generated from four radiation elements and associated monitors, which are located near the main steam lines in the steam tunnel. Four instrumentation channels of the Main Steam Line Radiation - High Function are available and required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value was selected to be low enough that a high radiation trip results from the fission products released in the CRDA. In addition, the setting is adjusted high enough above the background radiation level in the vicinity of the main steam lines so that spurious trips are avoided at rated power. As noted (Footnote (b) to Table 3.3.6.1-1), the channels are only required to be OPERABLE in MODES 1 and 2 with THERMAL POWER ≤ 10% RTP. When THERMAL POWER is > 10% RTP, there is no possible control rod configuration that results in a control rod worth that could exceed the fuel damage limit during a CRDA (Refer to the Bases for Function 2 (Rod Worth Minimizer) of LCO 3.3.2.1, "Control Rod Block Instrumentation)). In MODES 3 and 4, all control rods are required to be inserted into the core; therefore, a CRDA cannot occur. In MODE 5, since only a single control rod can be withdrawn from a core cell containing fuel assemblies, adequate SDM ensures that the consequences of a CRDA are acceptable, since the reactor will be subcritical.

This Function isolates the MSL drain valves.

DB4

,2.g

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Primary Containment Isolation

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

PA2

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

PA2

Reactor Vessel Water Level—Low, Level 3 signals are initiated from level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels of Reactor Vessel Water Level—Low, Level 3 Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

DB4 For Function 2.a

DB4 Insert 2.g

PA2

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

DB3 the capability to cool the fuel may be threatened

This Function isolates the ~~Group 2, 6, 10, and 12~~ valves listed in Reference 1.

DB1

PA2

2.b. Drywell Pressure—High

,2.d DB4

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

Insert Function 2.a(2) DB3

PA2

High drywell pressure signals are initiated from pressure transmitters that sense the pressure in the drywell. Four

DB4 For Function 2.b

(continued)

Revision I

DB4 INSERT Function 2.g

For Function 2.g, two channels of Reactor Vessel Water Level - Low (Level 3) are required to be OPERABLE for each hydrogen/oxygen and gaseous/particulate sample supply and return penetration to ensure these penetrations can be isolated.

I

DB3 Insert Function 2.a (2)

The Allowable Value is the water level above a zero reference level which is 352.56 inches above the lowest point inside the RPV and is also at the top of a 144 inch fuel column (Ref. 13).

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2.b. Drywell Pressure—High (continued) , 2.d DB4

channels of Drywell Pressure—High ~~per Function~~ are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function. Insert Function 2.d DB4

The Allowable Value was selected to be as low as possible without inducing spurious trips. The Allowable Value is chosen DB3 to be the same as the RPS ECCS Drywell Pressure—High Allowable Value (LCO 3.3.1.1), since this may be indicative of a LOCA inside primary containment. DB1

These Functions isolate the ~~Group 2, 6, 7, 10, and 12~~ valves listed in Reference 1. PA1 PA2 DB4

2.c. Containment ~~Drywell~~ Radiation—High PA2

High containment ~~drywell~~ radiation indicates possible gross failure of the fuel cladding. Therefore, when Containment ~~Drywell~~ Radiation—High is detected, an isolation is initiated to limit the release of fission products. However, this Function is not assumed in any accident or transient analysis in the UFSAR because other leakage paths (e.g., MSIVs) are more limiting.

The containment ~~drywell~~ radiation signals are initiated from radiation detectors that are located in the drywell. Two channels of Containment ~~Drywell~~ Radiation—High Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value is low enough to promptly detect gross failures in the fuel cladding. However, the setting is high enough to avoid spurious isolation. DB3

This Function isolates the containment vent and purge valves.

~~2.d., 2.e. Reactor Building and Refueling Floor Exhaust Radiation—High~~ CLB1

~~High secondary containment exhaust radiation is an indication of possible gross failure of the fuel cladding. The release may have originated from the primary containment due to a break in the RCPB. When Exhaust Radiation—High is detected, valves whose penetrations communicate with the primary containment atmosphere are isolated to limit the release of fission products. Additionally, the Refueling Floor Exhaust Radiation—High Function is assumed to~~

(continued)

Revision I

DB4 INSERT Function 2.d - 1 I

For Function 2.d two channels of Drywell Pressure-High are required to be OPERABLE for each hydrogen/oxygen and gaseous/particulate sample supply and return penetration to ensure these penetrations can be isolated. 1 I

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

CLB1

2.d., 2.e. Reactor Building and Refueling Floor Exhaust Radiation—High (continued)

initiate isolation of the primary containment during a fuel handling accident (Ref. 2).

The Exhaust Radiation—High signals are initiated from radiation detectors that are located on the ventilation exhaust piping coming from the reactor building and the refueling floor zones, respectively. The signal from each detector is input to an individual monitor whose trip outputs are assigned to an isolation channel. Four channels of Reactor Building Exhaust—High Function and four channels of Refueling Floor Exhaust—High Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

I

The Allowable Values are chosen to promptly detect gross failure of the fuel cladding.

These Functions isolate the Group 6, 10, and 12 valves.

Insert Function 2.e and 2.f

DB4

2.f. Manual Initiation

The Manual Initiation push button channels introduce signals into the primary containment isolation logic that are redundant to the automatic protective instrumentation and provide manual isolation capability. There is no specific FSAR safety analysis that takes credit for this Function. It is retained for overall redundancy and diversity of the isolation function as required by the NRC in the plant licensing basis.

There are two push buttons for the logic, one manual initiation push button per trip system. There is no Allowable Value for this Function since the channels are mechanically actuated based solely on the position of the push buttons.

Two channels of the Manual Initiation Function are available and are required to be OPERABLE in MODES 1, 2, and 3, since these are the MODES in which the Primary Containment Isolation automatic Functions are required to be OPERABLE.

CLB1

(continued)

Revision I

1 I

ΔB 4 INSERT Functions 2.e and 2.f

2.e. Reactor Vessel Water Level - Low Low Low (Level 1)

Low reactor vessel (RPV) water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, isolation of the recirculation loop sample valves occurs to prevent offsite dose limits from being exceeded. The Reactor Vessel Water Level - Low Low Low (Level 1) Function is one of the many Functions assumed to be OPERABLE and capable of providing isolation signals. The Reactor Vessel Water Level - Low Low Low (Level 1) Function associated with isolation is assumed in the analysis of the recirculation line break (Ref. 3). The isolation of the recirculation loop sample valves on Level 1 supports actions to ensure that offsite dose limits are not exceeded for a DBA.

Reactor vessel water level signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels of Reactor Vessel Water Level - Low Low Low (Level 1) Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Reactor Vessel Water Level - Low Low Low (Level 1) Allowable Value is chosen to ensure that the recirculation loop sample valves close on a potential loss of coolant accident (LOCA) to prevent offsite doses from exceeding 10 CFR 100 limits. The Allowable Value is the water level above a zero reference level which is 352.56 inches above the lowest point inside the RPV and is also at the top of a 144 inch fuel column (Ref. 13).

This Function isolates the recirculation loop sample valves.

DB4 INSERT Functions 2.e and 2.f (continued)

2.f. Main Steam Line Radiation - High

The Main Steam Line Radiation - High isolation signal has been removed from the MSIV isolation logic circuitry (Ref. 1); however, this isolation Function has been retained for the recirculation loop sample valves to ensure that the assumptions utilized to determine that acceptable offsite doses resulting from a CRDA are maintained.

Main Steam Line Radiation - High signals are generated from four radiation elements and associated monitors, which are located near the main steam lines in the steam tunnel. Four instrumentation channels of the Main Steam Line Radiation - High Function are available and required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value was selected to be low enough that a high radiation trip results form the fission products released in the design basis CRDA. In addition, the setting is adjusted high enough above the background radiation level in the vicinity of the main steam lines so that spurious trips are avoided at rated power. As noted (footnote (b) to Table 3.3.6.1-1), the channels are only required to be OPERABLE in MODES 1 and 2 with THERMAL POWER ≤ 10% RTP. When THERMAL POWER is > 10% RTP, there is no possible control rod configuration that results in a control rod worth that could exceed the fuel damage limit during a CRDA (Refer to the Bases for Function 2 (Rod Worth Minimizer) of LCO 3.3.2.1). In MODES 3 and 4, all control rods are required to be inserted into the core; therefore, a CRDA cannot occur. In MODE 5, since only a single control rod can be withdrawn from a core cell containing fuel assemblies, adequate SDM ensures that the consequences of a CRDA are acceptable, since the reactor will be subcritical.

This Function isolates the recirculation loop sample valves.

I

BASES

a b and 5.c RWCU PA2

DB4 DB5

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

5.b., 5.c., ~~Area and Area Ventilation Differential~~ Temperature—High (continued)

single instrument failure can preclude the isolation function.

DB5

~~Twelve thermocouples provide input to the Area Ventilation Differential Temperature—High Function. The output of these thermocouples is used to determine the differential temperature. Each channel consists of a differential temperature instrument that receives inputs from thermocouples that are located in the inlet and outlet of the area cooling system and for a total of six available channels (two per area). Six channels are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.~~

DB3 DB5 DB3

The Area ~~and Area Ventilation Differential~~ Temperature—High Allowable Values are set high enough to avoid spurious isolation yet low enough to ~~detect a leak equivalent to 25 gpm~~ provide timely detection and isolation of a break in the RWCU System.

I

These Functions isolate ~~the Group 5~~ both RWCU suction valves and the return valves. DB1

5.d. SLC System Initiation

control room

DB1 unless otherwise noted

The isolation of the RWCU System is required when the SLC System has been initiated to prevent dilution and removal of the boron solution by the RWCU System (Ref. 6). ~~SLC System initiation signals are~~ The RWCU isolation is initiated ~~from~~ when the ~~two~~ SLC ~~pump start signals~~ initiation switch is in any position other than stop.

There is no Allowable Value associated with this Function since the channels are mechanically actuated based solely on the position of the SLC System initiation switch. (start system A or start system B)

Two channels ~~(one from each pump)~~ of the SLC System Initiation Function are available and are required to be OPERABLE only in MODES 1 and 2, since these are the only MODES where the reactor can be critical, and these MODES are consistent with the Applicability for the SLC System (LCO 3.1.7).

d DB4 suction

I

As noted (footnote (d) to Table 3.3.6.1-1), this Function is only required to close one of the RWCU suction isolation valves and one return isolation valve since the signals only provide input into one of the two trip systems.

(continued)

Revision I

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

DB31

5.e. Reactor Vessel Water Level—Low Low, Level 2 3 1 PA2

Low RPV water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, isolation of some interfaces with the reactor vessel occurs to isolate the potential sources of a break. The isolation of the RWCU System on Level 2 supports actions to ensure that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46. The Reactor Vessel Water Level—Low Low, Level 2 Function associated with RWCU isolation is not directly assumed in the FSAR safety analyses because the RWCU System line break is bounded by breaks of larger systems (recirculation and MSL breaks are more limiting). 3 DB1 DB1 I PA2 DB1

1 PA2 1 3

Reactor Vessel Water Level—Low Low, Level 2 signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels of Reactor Vessel Water Level—Low Low, Level 2 Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function. 1 PA2 3 PA2 DB1

RPS 1 DB1 3 PA2 DB1 1 DB3 DB1 I

The Reactor Vessel Water Level—Low Low, Level 2 Allowable Value was chosen to be the same as the ECCS Reactor Vessel Water Level—Low Low, Level 2 Allowable Value (LCO 3.3.5.1), since the capability to cool the fuel may be threatened.

Insert Function 5.e(2)

DB4

PA2 1 3 DB1 PA2

This Function isolates the Group 5 valves. both RWCU suction valves and the RWCU return

Insert Function 5.f

~~5.f. Manual Initiation~~

~~The Manual Initiation push button channels introduce signals into the RWCU System isolation logic that are redundant to the automatic protective instrumentation and provide manual isolation capability. There is no specific FSAR safety analysis that takes credit for this Function. It is retained for overall redundancy and diversity of the isolation function as required by the NRC in the plant licensing basis.~~

~~There are two push buttons for the logic, one manual initiation push button per trip system. There is no Allowable Value for this Function, since the channels are~~ CLB1

(continued)

Revision I

1 I

DB3 INSERT Function 5.e (2)

The Allowable Value is the water level above a zero reference level which is 352.56 inches above the lowest point inside the RPV and is also at the top of a 144 inch fuel column (Ref. 13).

DB4 INSERT Function 5.f

5.f. Drywell Pressure-High

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

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

The Allowable Value was selected to be as low as possible without inducing spurious trips. The Allowable Value is chosen to be the same as the RPS Drywell Pressure-High Allowable Value (LCO 3.3.1.1), since this may be indicative of a LOCA inside primary containment.

This Function isolates both RWCU suction valves and one RWCU return valve.

PA2

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

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

reactor water system

is bounded by breaks of the recirculation and MSL. PA2
The RHR Shutdown Cooling System isolation on Level 3 supports actions to ensure that the RPV water level does not drop below the top of the active fuel during a vessel draindown event caused by a leak (e.g., pipe break or inadvertent valve opening) in the RHR Shutdown Cooling System.

PA2 PA6

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

one trip system

DB4 I

PA2

PA1 or other activity

PA6

Insert Function 6.b

DB1

PA2

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

I

The Reactor Vessel Water Level—Low, Level 3 Function is only required to be OPERABLE in MODES 3, 4, and 5 to prevent this potential flow path from lowering the reactor vessel level to the top of the fuel. In MODES 1 and 2, another isolation (i.e., Reactor ~~Steam Dome~~ Pressure—High) and administrative controls ensure that this flow path remains isolated to prevent unexpected loss of inventory via this flow path. PA2 PA2

PA2

This Function isolates ~~the Group 11~~ valves.

and the inboard LPCI injection valves

both RHR Shutdown cooling pump suction

DB1

TA3

INSERT FUNCTION 7

(continued)

REVISION ~~F~~ I

BASES (continued)

ACTIONS

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

PA4

TA3

Insert Actions I

PA1

(2) Note has been provided to modify the ACTIONS related to primary containment isolation instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable primary containment isolation instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable primary containment isolation instrumentation channel. DB1

2.d, 2.g, 5.e, 5.f, DB1 , 7.a and 7b

A.1

DB1

2.d, 2.g, 5.e, 5.f,

Because of the diversity of sensors available to provide isolation signals and the redundancy of the isolation design, an allowable ~~out of service time of~~ 12 hours for Functions 2.a, 2.b, ~~and~~ 6.b and 24 hours for Functions other than Functions 2.a, 2.b, ~~and~~ 6.b has been shown to be acceptable (Refs. 6 and 7) to permit restoration of any inoperable channel to OPERABLE status. This out of service time is only acceptable provided the associated Function is still maintaining isolation capability (refer to Required Action B.1 Bases). If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action A.1. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue with no further restrictions. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an isolation), Condition C must be entered and its Required Action taken.

PA3

(continued)

REVISION I

(associated with MSIV isolation)

DB1

BASES

ACTIONS (continued)

B.1

(for the associated trip system in trip)

Required Action B.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in redundant automatic isolation capability being lost for the associated penetration flow path(s). The MSL Isolation Functions are considered to be maintaining isolation capability when sufficient channels are OPERABLE or in trip, such that both trip systems will generate a trip signal from the given Function on a valid signal. The other isolation functions are considered to be maintaining isolation capability when sufficient channels are OPERABLE or in trip, such that one trip system will generate a trip signal from the given Function on a valid signal. This ensures that one of the ~~two~~ PCIVs in the associated penetration flow path can receive an isolation signal from the given Function. For Functions 1.a, 1.b, 1.d, ~~and~~ ~~1.f~~, this would require both trip systems to have one channel OPERABLE or in trip. For Function 1.c, this would require both trip systems to have one channel, associated with each MSL, OPERABLE or in trip. For Functions 1.e ~~and 1.g~~, each Function consists of channels that monitor several locations within a given area (e.g., different locations within the main steam tunnel area). Therefore, this would require both trip systems to have one channel per location OPERABLE or in trip. For Functions 2.a, 2.b, ~~2.d~~, 2.e, 3.b, 3.c, 4.b, 4.c, 5.e, 5.f and 6.b, this would require one trip system to have two channels, each OPERABLE or in trip. For Functions 2.c, 3.a, 3.d, 3.e, 3.f, 3.g, 3.h, 3.i, 4.a, 4.d, 4.e, ~~4.f, 4.g, 4.h, 4.i, 4.j,~~ 5.a, 5.c, and 6.a, this would require one trip system to have one channel OPERABLE or in trip. For Functions ~~5.b and 5.c~~, each Function consists of channels that monitor ~~several~~ different locations. Therefore, this would require one channel per location to be OPERABLE or in trip (the channels are not required to be in the same trip system). ~~The Condition does not include the Manual Initiation Functions (Functions 1.h, 2.d, 3.j, 4.k, and 5.f), since they are not assumed in any accident or transient analysis. Thus, a total loss of manual initiation capability for 24 hours (as allowed by Required Action A.1) is allowed.~~

(associated with MSIV isolation)

at least

four areas are monitored by four channels

(associated with MSIV isolation)

Insert ACTION B.1-1

1

2.f

3.j, 4.f and 5.b

two

CLB1

Insert ACTION B.1-2

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The 1 hour Completion Time is acceptable because it minimizes

(continued)

Revision I

DB1

INSERT ACTION B.1-1

For Functions 1.a, 1.b and 1.d (associated with MSL drain isolation) this would require one trip system to have two channels, each OPERABLE or in trip. For Function 1.c (associated with MSL drain isolation) this will require one trip system to have two channels, associated with each MSL, each OPERABLE or in trip. For Function 1.e this would require one trip system to have two channels, associated with each main steam tunnel area, each to be OPERABLE or in trip. For Functions 2.d and 2.g, as noted by footnote (c) to Table 3.3.6.1-1, there is only one trip system provided for each associated penetration. For these penetrations (i.e., hydrogen/oxygen sample and return, and gaseous/particulate sample supply and return), this will require both channels to be OPERABLE or in trip in order to close at least one valve.

I I I

DB1

INSERT ACTION B.1-2

For Function 5.d, this would require that with the SLC initiation switch in start system A or B the associated valve will close. For Functions 7.a and 7.b the logic is arranged in one trip system, therefore this would require both channels to be OPERABLE or in trip, or the manual shear valves to be OPERABLE.

BASES

ACTIONS

B.1 (continued)

risk while allowing time for restoration or tripping of channels.

C.1

Required Action C.1 directs entry into the appropriate Condition referenced in Table 3.3.6.1-1. The applicable Condition specified in Table 3.3.6.1-1 is Function and MODE or other specified condition dependent and may change as the Required Action of a previous Condition is completed. Each time an inoperable channel has not met any Required Action of Condition A or B and the associated Completion Time has expired, Condition C will be entered for that channel and provides for transfer to the appropriate subsequent Condition.

D.1, D.2.1, and D.2.2

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the plant must be placed in a MODE or other specified condition in which the LCO does not apply. This is done by placing the plant in at least MODE 3 within 12 hours and in MODE 4 within 36 hours (Required Actions D.2.1 and D.2.2). Alternately, the associated MSLs may be isolated (Required Action D.1), and, if allowed (i.e., plant safety analysis allows operation with an MSL isolated), operation with that MSL isolated may continue. Isolating the affected MSL accomplishes the safety function of the inoperable channel. The Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

PA 1

one

E.1

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the plant must be placed in a MODE or other specified condition in which the LCO does not apply. This is done by placing the plant in at least MODE 2 within 6 hours.

(continued)

Revision I

BASES

ACTIONS

E.1 (continued)

The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 2 from full power conditions in an orderly manner and without challenging plant systems.

I

F.1

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, plant operations may continue if the affected penetration flow path(s) is isolated. Isolating the affected penetration flow path(s) accomplishes the safety function of the inoperable channels.

~~For the RWCU Area and Area Ventilation Differential Temperature—High Functions, the affected penetration flow path(s) may be considered isolated by isolating only that portion of the system in the associated room monitored by the inoperable channel. That is, if the RWCU pump room A area channel is inoperable, the pump room A area can be isolated while allowing continued RWCU operation utilizing the B RWCU pump. For the RWCU Differential Flow—High Function, if the flow element/transmitter monitoring RWCU flow to radwaste and condensate is the only portion of the channel inoperable, then the affected penetration flow path(s) may be considered isolated by isolating the RWCU return to radwaste and condensate.~~

DB1

Alternately, if it is not desired to isolate the affected penetration flow path(s) (e.g., as in the case where isolating the penetration flow path(s) could result in a reactor scram), Condition H must be entered and its Required Actions taken.

The 1 hour Completion Time is acceptable because it minimizes risk while allowing sufficient time for plant operations personnel to isolate the affected penetration flow path(s).

G.1

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, plant operations

(continued)

REVISION ~~F~~ I

TA3 CLB1

INSERT G.1

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

CLB1

BASES

ACTIONS (continued)

J.1 and J.2

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the associated penetration flow path should be closed. However, if the shutdown cooling function is needed to provide core cooling, these Required Actions allow the penetration flow path to remain unisolated provided action is immediately initiated to restore the channel to OPERABLE status or to isolate the RHR Shutdown Cooling System (i.e., provide alternate decay heat removal capabilities so the penetration flow path can be isolated). Actions must continue until the channel is restored to OPERABLE status or the RHR Shutdown Cooling System is isolated.

PA4

SURVEILLANCE REQUIREMENTS

~~Reviewer's Note: Certain Frequencies are based on approved topical reports. In order for a licensee to use these Frequencies, the licensee must justify the Frequencies as required by the staff SER for the topical report.~~

PA1 Note1

As noted at the beginning of the SRs, the SRs for each Primary Containment Isolation instrumentation Function are found in the SRs column of Table 3.3.6.1-1. I

The Surveillances are modified by ~~a~~ Note 2 to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains trip capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Refs. ~~5~~ and ~~6~~) assumption of the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the PCIVs will isolate the penetration flow path(s) when necessary. PA1 I 8 DB1 X1 I

CLB2

or 6 hours for Functions 2.d, 2.g, 7.a, and 7.b

Insert SR NOTE

CLB2

SR 3.3.6.1.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A

(continued)

REVISION ~~F~~ I

CLB2 INSERT SR Note

For Functions 2.d and 2.g this allowance is permitted since the associated penetration flow path(s) involve sample lines which form a closed system with the primary containment atmosphere. For Function 7.a and 7.b this is permitted since the associated penetrations can be manually isolated if needed. I

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.3.6.1 - PRIMARY CONTAINMENT ISOLATION INSTRUMENTATION

<u>RETENTION OF EXISTING REQUIREMENT</u> (CLB)

CLB1 This change deletes the Main Steam Line Isolation Manual Initiation Function, Reactor Building Exhaust Radiation – High Function, PCI Manual Initiation Function, HPCI Manual Initiation, RCIC Manual Initiation and RWCU System Manual Initiation. These Functions are not currently required by the JAFNPP licensing basis and are not credited in the safety analysis. The Bases has been modified, as required to remove any references to these Manual Initiation Functions. However, ACTION G is retained for ITS use with Functions 7.a and 7.b on ITS Table 3.3.6.1.

CLB2 The allowance in ITS 3.3.6.1 Surveillance Note 2 has been revised in accordance with License Amendment 227 to allow Functions 2.g and 7.a (Reactor Vessel Water Level – Low (Level 3) and 2.d and 7.b (Drywell Pressure – High) to not maintain isolation capability during the performance of a required Surveillance. The allowance is acceptable since the associated penetration flow paths(s) involve sample lines which form part of a closed system with the primary containment atmosphere or in the case of TIP System penetrations the manual shear valve is available for manual isolation.

CLB3 This change deletes the ISTS SR 3.3.6.1.5 184 day Channel Functional Test from the Surveillance Requirements in ITS 3.3.6.1, "Primary Containment Isolation Instrumentation." None of the Primary Containment Isolation Instrumentation require a 184 day Channel Functional Test. This change is based on the current JAFNPP licensing basis. Subsequent Surveillances are renumbered, as required.

CLB4 The ISOLATION INSTRUMENTATION RESPONSE TIME TEST has been revised to exclude the sensor response time as reflected in the Bases to SR 3.3.6.1.8. This allowance was approved in Technical Specification License Amendment 235. The Bases of SR 3.3.6.1.5 and SR 3.3.6.1.8 have been revised to reflect the allowances of this Amendment.

CLB5 These ISOLATION RESPONSE TIME surveillance test has been deleted for certain Function since the EDG response time is much greater. The Bases of SR 3.3.6.1.8 has been revised to eliminate reference to testing of radiation detectors since these channels are not required to be tested.

CLB6 The Bases has been revised consistent with Specification to ensure all required Functions are tested for ISOLATION INSTRUMENTATION RESPONSE TIME within two surveillance intervals. In addition, the SR Frequency

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB6 (continued)

has been changed from 18 to 24 months consistent with the current Frequency in CTS 4.2.A.

CLB7 The ISTS SR 3.3.6.1.3 bracketed Surveillance Frequency has been changed from 92 days to 184 days to be consistent with the frequency in CTS Table 4.2-1 Note 15 and approved in JAFNPP Technical Specification Amendment No. 89. The Surveillance has been renumbered as SR 3.3.6.1.4 and subsequent Surveillances have been renumbered, as required. The Bases has been modified to reflect these changes.

I

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 Editorial change made with no change in intent.

PA2 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific nomenclature.

PA3 The quotations used in the Bases References have been removed. The Writer's Guide does not require the use of quotations.

PA4 Reviewer's Note (or reviewer's type of note) has been deleted. This information is for the NRC reviewer to be keyed in to what is needed to meet this requirement. This is not meant to be retained in the final version of the plant specific submittal.

PA5 The Definition of ISOLATION SYSTEM RESPONSE TIME has been changed in accordance with the changes made to the ITS 1.0. The Bases of SR 3.3.6.1.8 has been revised to reflect these changes.

PA6 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the wording in the Specification.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific design. Subsequent References have been renumbered, as required.

DB2 The description of the setpoint calculation methodology has been revised to reflect the plant specific methodology.

DB3 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant safety analysis description.

DB4 The following ITS 3.3.6.1 Functions have been added since they are required by design and current licensing basis: Main Steam Line Radiation–High (1.f and 2.f); Function 2.e, Reactor Vessel Water Level–Low Low Low (Level 1); Functions 3.f, 3.g, 3.h, 3.i, 3.j (Area Temperatures associated with HPCI Isolation); Function 4.d, RCIC Steam Line Penetration (Drywell Entrance) Area Temperature–High; Function 5.a, Suction Line Penetration Area Temperature–High; Function 5.c, RWC Heat Exchanger Area Temperature–High; and Function 5.f, Drywell Pressure–High. In addition, Functions 2.b and 2.g have been added for those Functions which include only one trip system to certain penetration flow paths to simplify the Required Actions. Note (c) was added to Table 3.3.6.1-1 to identify these Functions. Subsequent Notes have been renumbered, where applicable. Subsequent Functions have been renumbered, as required. The Bases has been modified as required to reflect these changes. I I I

DB5 This change deletes various ITS Functions from the Table 3.3.6.1-1 since they are not included in the design: Function 1.f, Main Steam Tunnel Differential Temperature–High; Function 1.g, Turbine Building Area Temperature–High; Function 2.e, Refueling Floor Exhaust Radiation–High; Functions 3.d and 4.d, Drywell Pressure–High; Relays; Function 3.g and 4.f, HPCI and RCIC Suppression Pool Area Temperature-Time Delay Relays; Functions 3.h and 4.g, HPCI and RCIC Suppression Pool Area Differential Temperature–High; Function 3.i and 4.h, Emergency Area Cooler Temperature–High; Function 4.j, RCIC Equipment Room Differential Temperature–High; Function 5.a, Differential Flow–High and Function 5.c, Area Ventilation Differential Temperature–High. Subsequent Functions have been renumbered, as required. The Bases has been modified as required to reflect these changes.

DB6 SR 3.3.6.1.6 has been added to calibrate the radiation detector of Functions 1.f and 2.f (Main Steam Line Radiation–High) consistent with the current allowances in CTS Table 4.2-1. The remaining portion of the channels will be calibrated in accordance with SR 3.3.6.1.3. I

3.3 INSTRUMENTATION

3.3.6.1 Primary Containment Isolation Instrumentation

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

APPLICABILITY: According to Table 3.3.6.1-1.

ACTIONS

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

2. Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 2.a, 2.b, 2.d, 2.g, 5.e, 5.f, 6.b, 7.a and 7.b AND 24 hours for Functions other than Functions 2.a, 2.b, 2.d, 2.g, 5.e, 5.f, 6.b, 7.a and 7.b
B. One or more Functions with isolation capability not maintained.	B.1 Restore isolation capability.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Enter the Condition referenced in Table 3.3.6.1-1 for the channel.	Immediately
D. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	D.1 Isolate associated main steam line (MSL). <u>OR</u> D.2.1 Be in MODE 3. <u>AND</u> D.2.2 Be in MODE 4.	12 hours 12 hours 36 hours
E. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	E.1 Be in MODE 2.	6 hours
F. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	F.1 Isolate the affected penetration flow path(s).	1 hour
G. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	G.1 Isolate the affected penetration flow path(s).	24 hours

(continued)

SURVEILLANCE REQUIREMENTS

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

1. Refer to Table 3.3.6.1-1 to determine which SRs apply for each Primary Containment Isolation Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours provided the associated Function maintains isolation capability; and (b) 6 hours for Functions 2.d, 2.g, 7.a, and 7.b.

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.1.3	-----------------NOTE----------------- For Functions 1.f and 2.f, radiation detectors are excluded. --------------------------------------- Perform CHANNEL CALIBRATION.	92 days
SR 3.3.6.1.4	Calibrate the trip units.	184 days
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.1.6	Calibrate the radiation detectors.	24 months
SR 3.3.6.1.7	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

(continued)

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level – Low Low Low (Level 1)	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7 SR 3.3.6.1.8	≥ 18 inches
b. Main Steam Line Pressure – Low	1	2	E	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7 SR 3.3.6.1.8	≥ 825 psig
c. Main Steam Line Flow – High	1,2,3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7 SR 3.3.6.1.8	≤ 125.9 psid
d. Condenser Vacuum – Low	1, 2[a], 3[a]	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 8 inches Hg vacuum
e. Main Steam Tunnel Area Temperature – High	1,2,3	8	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 195°F
f. Main Steam Line Radiation – High	1[b], 2[b]	2	F	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 3 times Normal Full Power Background

(continued)

(a) With any turbine stop valve not closed.
(b) With THERMAL POWER ≤ 10% RTP.

Table 3.3.6.1-1 (page 2 of 6)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment Isolation					
a. Reactor Vessel Water Level – Low (Level 3)	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 177 inches
b. Drywell Pressure – High	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 2.7 psig
c. Containment Radiation – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 450 R/hr
d. Drywell Pressure – High	1,2,3	2(c)	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 2.7 psig
e. Reactor Vessel Water Level – Low Low Low (Level 1)	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 18 inches
f. Main Steam Line Radiation – High	1(b), 2(b)	2	F	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 3 times Normal Full Power Background
g. Reactor Vessel Water Level – Low (Level 3)	1,2,3	2(c)	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 177 inches

(b) With THERMAL POWER ≤ 10% RTP.
(c) Only one trip system provided for each associated penetration.

(continued)

Table 3.3.6.1-1 (page 5 of 6)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Reactor Water Cleanup (RWCU) System Isolation					
a. RWCU Suction Line Penetration Area Temperature – High	1,2,3	1	F	SR 3.3.6.1.3 SR 3.3.6.1.7	≤ 144°F
b. RWCU Pump Area Temperature – High	1,2,3	1 per room	F	SR 3.3.6.1.3 SR 3.3.6.1.7	≤ 165°F for Pump Room A and ≤ 175°F for Pump Room B
c. RWCU Heat Exchanger Room Area Temperature – High	1,2,3	1	F	SR 3.3.6.1.3 SR 3.3.6.1.7	≤ 155°F
d. SLC System Initiation	1,2	2(d)	I	SR 3.3.6.1.7	NA
e. Reactor Vessel Water Level – Low (Level 3)	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 177 inches
f. Drywell Pressure – High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 2.7 psig
6. Shutdown Cooling System Isolation					
a. Reactor Pressure – High	1,2,3	1	F	SR 3.3.6.1.3 SR 3.3.6.1.7	≤ 74 psig
b. Reactor Vessel Water Level – Low (Level 3)	3,4,5	2(e)	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 177 inches

(continued)

(d) SLC System Initiation only inputs into one of the two trip systems and only isolates one valve in the RWCU suction and return line.

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

B 3.3 INSTRUMENTATION

B 3.3.6.1 Primary Containment Isolation Instrumentation

BASES

BACKGROUND

The primary containment isolation instrumentation automatically initiates closure of appropriate primary containment isolation valves (PCIVs). The function of the PCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents (DBAs). Primary containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a DBA.

The isolation instrumentation includes the sensors, logic circuits, relays, and switches that are necessary to cause initiation of primary containment and reactor coolant pressure boundary (RCPB) isolation. Most channels include electronic equipment (e.g., trip units) that compares measured input signals with pre-established setpoints. When the setpoint is exceeded, the channel output relay actuates, which then outputs a primary containment isolation signal to the isolation logic. Functional diversity is provided by monitoring a wide range of independent parameters. The input parameters to the isolation logics are (a) reactor vessel water level, (b) main steam line (MSL) pressure, (c) MSL flow, (d) condenser vacuum, (e) main steam tunnel area temperatures, (f) main steam line radiation, (g) drywell pressure, (h) containment radiation, (i) high pressure coolant injection (HPCI) and reactor core isolation cooling (RCIC) steam line flow, (j) HPCI and RCIC steam line pressure, (k) HPCI and RCIC turbine exhaust diaphragm pressure, (l) HPCI and RCIC area temperatures, (m) reactor water cleanup (RWCU) area temperature, (n) Standby Liquid Control (SLC) System initiation, and (o) reactor pressure. Redundant sensor input signals from each parameter are provided for initiation of isolation. The only exception is SLC System initiation.

Primary containment isolation instrumentation has inputs to the trip logic of the isolation functions listed below.

(continued)

BASES

BACKGROUND (continued)

1. Main Steam Line Isolation

Most MSL Isolation Functions receive inputs from four channels. The outputs from these channels are combined in a one-out-of-two taken twice logic to initiate isolation of all main steam isolation valves (MSIVs). The outputs from the same channels are arranged into two two-out-of-two logic trip systems to isolate all MSL drain valves. The MSL drain line has two isolation valves with one two-out-of-two logic system associated with each valve.

The exceptions to this arrangement are the Main Steam Line Flow – High, Main Steam Tunnel Temperature – High and the Main Steam Line Radiation – High Functions. The Main Steam Line Flow – High Function uses 16 flow channels, four for each steam line. One channel from each steam line inputs to one of the four trip channels. Two trip channels make up each trip system and both trip systems must trip to cause an MSL isolation. Each trip channel has four inputs (one per MSL), any one of which will trip the trip channel. The trip channels are arranged in a one-out-of-two taken twice logic. This is effectively a one-out-of-eight taken twice logic arrangement to initiate isolation of the MSIVs. Similarly, the 16 flow channels are connected into two two-out-of-two logic trip systems (effectively, two one-out-of-four twice logic), with each trip system isolating one of the two MSL drain valves on the associated steam line. The Main Steam Tunnel Temperature – High Function receives input from 16 channels. The logic is arranged similar to the Main Steam Line Flow – High Function. The Main Steam Line Radiation – High Function receives inputs from four channels. The outputs from the channels are arranged into two two-out-of-two logic trip systems and isolates the MSL drain valves. This Function does not provide an MSIV isolation signal. Each trip system is associated with one MSL drain valve with a two-out-of-two logic.

2. Primary Containment Isolation

The Reactor Vessel Water Level – Low (Level 3) and Drywell Pressure – High Primary Containment Isolation Functions (Functions 2.a and 2.b) receive inputs from four channels. Normally the outputs from these channels are arranged into two two-out-of-two logic trip systems. One trip system

(continued)

BASES

BACKGROUND

2. Primary Containment Isolation (continued)

initiates isolation of all inboard primary containment isolation valves, while the other trip system initiates isolation of all outboard primary containment isolation valves. Each logic closes one of the two valves on each penetration, so that operation of either logic isolates the penetration. The exception to this arrangement for the Reactor Vessel Water Level - Low (Level 3) and Drywell Pressure - High Functions (Functions 2.d and 2.g) are with certain penetration flow paths (i.e., hydrogen/oxygen sample supply and return valves, and gaseous/particulate sample supply and return valves). For these penetration flow paths only one logic trip system closes two valves in each flow path as noted by footnote (c) to Table 3.3.6.1-1. The design is acceptable since it helps ensure post-accident sampling capability is maintained. The remainder of the penetration flow paths isolated by the Reactor Vessel Water Level - Low (Level 3) and Drywell Pressure - High Functions (Functions 2.a and 2.b) are extensive and are identified in Reference 1.

The Containment Radiation - High Function (Function 2.c) includes two channels, whose outputs are arranged in two one-out-of-one logic trip systems. Each trip system isolates one valve per associated penetration, so that operation of either logic isolates the penetration. The penetration flow paths isolated by this Function include the drywell and suppression chamber vent and purge valves.

The Reactor Vessel Water Level - Low Low Low (Level 1) and the Main Steam Line Radiation - High Functions (Functions 2.e and 2.f) both have four channels, whose outputs are arranged into two two-out-of-two logic trip systems for each Function. One trip system initiates isolation of the associated inboard isolation valves, while the other trip system initiates the isolation of the associated outboard valves. The penetration flow path isolated by these Functions is the recirculation loop sample valves.

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

Most Functions that isolate HPCI and RCIC receive input from two channels, with each channel in one trip system using a

(continued)

BASES

BACKGROUND

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

one-out-of-one logic. Each trip system for HPCI and RCIC closes the associated steam supply valves. Each HPCI trip system closes the associated pump suction isolation valve. One HPCI trip system and both RCIC trip systems will also initiate a turbine trip which in turn closes the main pump minimum flow isolation valve and pump discharge to reactor isolation valve.

The exceptions are the HPCI and RCIC Turbine Exhaust Diaphragm Pressure – High, Steam Supply Line Pressure – Low, and the Equipment Area Temperature – High Functions (Functions 3.b through 3.j and 4.b through 4.f). These Functions receive inputs from four channels. The outputs from the turbine exhaust diaphragm pressure and steam supply pressure channels are each connected to two two-out-of-two trip systems. The output of each equipment area temperature channel is connected to one trip system so that any channel will trip its associated trip system. This arrangement is consistent with all other area temperature Functions, in that any channel will trip its associated trip system.

5. Reactor Water Cleanup System Isolation

The Reactor Vessel Water Level – Low (Level 3) and Drywell Pressure – High Isolation Functions (Functions 5.e and 5.f) receive input from four channels. The outputs from these channels are connected into two two-out-of-two trip systems for each function. The SLC System Initiation Function (Function 5.d) receives input from two channels, with both channels providing input to one trip system. Any channel will initiate the trip logic. The Function is initiated by placing the SLC System initiation switch in any position other than stop (start system A or start system B). Therefore, a channel is defined as the circuitry required to trip the trip logic when the switch is in position start system A or start system B. The Area Temperature – High Functions (Functions 5.a, 5.b and 5.c) receive input from eight temperature monitors, four to each trip system. These are configured so that any one input will trip the associated trip system. Each of the two trip systems is connected to one of the two valves on the RWCU suction penetration and only one trip system is connected to the

(continued)

BASES

BACKGROUND

5. Reactor Water Cleanup System Isolation (continued)

RWCU return penetration outboard valve. The trip system associated with the SLC System Initiation Function is connected to the outboard RWCU suction valve and the outboard RWCU return penetration valve.

6. Shutdown Cooling System Isolation

The Reactor Vessel Water Level – Low (Level 3) Function (Function 6.b) receives input from four reactor water level channels. The outputs from the reactor vessel water level channels are connected to two two-out-of-two trip systems. Each of the two trip systems is connected to one of the two valves on the RHR shutdown cooling pump suction penetration and on one of the two inboard LPCI injection valves if in shutdown cooling mode. The Reactor Pressure – High Function (Function 6.a) receives input from two channels, with each channel providing input into each trip system using a one-out-of-two logic. However, only one channel input is required to be OPERABLE for a trip system to be considered OPERABLE. Each of the two trip systems is connected to one of the two valves on the shutdown cooling pump suction penetration.

7. Traversing Incore Probe System Isolation

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

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

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BASES (continued)

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The isolation signals generated by the primary containment isolation instrumentation are implicitly assumed in the safety analyses of References 2 and 3 to initiate closure of valves to limit offsite doses. Refer to LCO 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," Applicable Safety Analyses Bases for more detail of the safety analyses.

Primary containment isolation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 4). Certain instrumentation Functions are retained for other reasons and are described below in the individual Functions discussion.

The OPERABILITY of the primary containment instrumentation is dependent on the OPERABILITY of the individual instrumentation channel Functions specified in Table 3.3.6.1-1. Each Function must have a required number of OPERABLE channels, with their setpoints within the specified Allowable Values, where appropriate. A channel is inoperable if its actual trip setpoint is not within its required Allowable Value. The actual setpoint is calibrated consistent with applicable setpoint methodology assumptions. Each channel must also respond within its assumed response time, where appropriate.

Allowable Values are specified for each Primary Containment Isolation Function specified in the Table. Nominal trip setpoints are specified in the setpoint calculations. The nominal setpoints are selected to ensure that the setpoints do not exceed the Allowable Value between CHANNEL CALIBRATIONS. Operation with a trip setpoint less conservative than the nominal trip setpoint, but within its Allowable Value, is acceptable. Trip setpoints are those predetermined values of output at which an action should take place. The setpoints are compared to the actual process parameter (e.g., reactor vessel water level), and when the measured output value of the process parameter exceeds the setpoint, the associated device (e.g., trip unit) changes state. The analytic limits are derived from the limiting values of the process parameters obtained from the safety analysis or other appropriate documents. The trip setpoints are derived from the analytical limits and account for all worst case instrumentation uncertainties as appropriate (e.g., drift, process effects, calibration uncertainties, and severe environmental errors (for channels that must function in harsh environments as defined by

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

10 CFR 50.49)). The trip setpoints derived in this manner provide adequate protection because all expected uncertainties are accounted for. The Allowable Values are then derived from the trip setpoints by accounting for normal effects that would be seen during periodic surveillance or calibration. These effects are instrumentation uncertainties observed during normal operation (e.g., drift and calibration uncertainties).

Certain Emergency Core Cooling Systems (ECCS) and RCIC valves (e.g., minimum flow) also serve the dual function of automatic PCIVs. The signals that isolate these valves are also associated with the automatic initiation of the ECCS and RCIC. The instrumentation requirements and ACTIONS associated with these signals are addressed in LCO 3.3.5.1, "Emergency Core Cooling Systems (ECCS) Instrumentation," and LCO 3.3.5.2, "Reactor Core Isolation Cooling (RCIC) System Instrumentation," and are not included in this LCO.

In general, the individual Functions are required to be OPERABLE in MODES 1, 2, and 3 consistent with the Applicability for LCO 3.6.1.1, "Primary Containment." Functions that have different Applicabilities are discussed below in the individual Functions discussion.

The specific Applicable Safety Analyses, LCO, and Applicability discussions are listed below on a Function by Function basis.

Main Steam Line Isolation

1.a. Reactor Vessel Water Level - Low Low Low (Level 1)

Low reactor pressure vessel (RPV) water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, isolation of the MSIVs and other interfaces with the reactor vessel occurs to prevent offsite dose limits from being exceeded. The Reactor Vessel Water Level - Low Low Low (Level 1) Function is one of the many Functions assumed to be OPERABLE and capable of providing isolation signals. The Reactor Vessel Water Level - Low Low Low (Level 1) Function associated with isolation is assumed in the analysis of the recirculation line break (Ref. 2). The isolation of the MSLs on Level 1 supports actions to ensure

(continued)

BASES

APPLICABILITY SAFETY ANALYSES, LCO, and APPLICABILITY

1.a. Reactor Vessel Water Level - Low Low Low (Level 1) (continued)

that offsite dose limits are not exceeded for a DBA. Reactor vessel water level signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels of Reactor Vessel Water Level - Low Low Low (Level 1) Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Reactor Vessel Water Level - Low Low Low (Level 1) Allowable Value is chosen to ensure that the MSLs isolate on a potential loss of coolant accident (LOCA) to prevent offsite doses from exceeding 10 CFR 100 limits. In addition, the setting is low enough to allow the removal of heat from the reactor for a predetermined time following a scram, prevent isolation or a partial loss of feedwater and to reduce challenges to the safety/relief valves (S/RVs). The Allowable Value is the water level above a zero reference level which is 352.56 inches above the lowest point inside the RPV and is also at the top of a 144 inch fuel column (Ref. 13).

This Function isolates the MSIVs and MSL drain valves.

1.b. Main Steam Line Pressure - Low

Low MSL pressure indicates that there may be a problem with the turbine pressure regulation, which could result in a low reactor vessel water level condition and the RPV cooling down at a rate greater than 100°F/hr if the pressure loss is allowed to continue. The Main Steam Line Pressure - Low Function is directly assumed in the analysis of the pressure regulator failure (Ref. 3). For this event, the closure of the MSIVs ensures that the RPV temperature change limit (100°F/hr) is not reached. In addition, this Function supports actions to ensure that Safety Limit 2.1.1.1 is not exceeded. (This Function closes the MSIVs prior to pressure decreasing below 785 psig, which results in a scram due to MSIV closure, thus reducing reactor power to < 25% RTP.)

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1.b. Main Steam Line Pressure–Low (continued)

The MSL low pressure signals are initiated from four transmitters that are connected to the MSL pressure averaging manifold. The transmitters are arranged suchthat, even though physically separated from each other, each transmitter is able to detect low MSL pressure. Four channels of Main Steam Line Pressure–Low Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value was selected high enough to detect a pressure regulator malfunction and prevent excessive RPV depressurization. In addition, the setting is low enough to prevent spurious isolations.

The Main Steam Line Pressure–Low Function is only required to be OPERABLE in MODE 1 since this is when the assumed transient can occur (Ref. 2). This Function is automatically bypassed when the reactor mode switch is not in the run position.

This Function isolates the MSIVs and MSL drain valves.

1.c. Main Steam Line Flow–High

Main Steam Line Flow–High is provided to detect a break of the MSL and to initiate closure of the MSIVs. If the steam were allowed to continue flowing out of the break, the reactor would depressurize and the core could uncover. If the RPV water level decreases too far, fuel damage could occur. Therefore, the isolation is initiated on high flow to prevent or minimize core damage. The Main Steam Line Flow–High Function is directly assumed in the analysis of the main steam line break (MSLB) (Ref. 3). The isolation action, along with the scram function of the Reactor Protection System (RPS), ensures that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46 and offsite doses do not exceed the 10 CFR 100 limits.

The MSL flow signals are initiated from 16 transmitters that are connected to the four MSLs. The transmitters are arranged such that, even though physically separated from each other, all four connected to one MSL would be able to

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1.c. Main Steam Line Flow-High (continued)

detect the high flow. Four channels of Main Steam Line Flow-High Function for each unisolated MSL (two channels per trip system) are available and are required to be OPERABLE so that no single instrument failure will preclude detecting a break in any individual MSL.

The Allowable Value is chosen to ensure that offsite dose limits are not exceeded due to the break. In addition, the setting is high enough to permit the isolation of one main steam line at reduced power without causing an automatic isolation of the steam lines yet low enough to permit early detection of a gross steam line break.

This Function isolates the MSIVs and MSL drain valves.

1.d. Condenser Vacuum-Low

The Condenser Vacuum-Low Function is provided to prevent overpressurization of the main condenser in the event of a loss of the main condenser vacuum. Since the integrity of the condenser is an assumption in offsite dose calculations, the Condenser Vacuum-Low Function is assumed to be OPERABLE and capable of initiating closure of the MSIVs. The closure of the MSIVs is initiated to prevent the addition of steam that would lead to additional condenser pressurization and possible rupture of the diaphragm installed to protect the turbine exhaust hood, thereby preventing a potential radiation leakage path following an accident.

Condenser vacuum pressure signals are derived from four pressure transmitters that sense the pressure in the condenser. Four channels of Condenser Vacuum-Low Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation, function.

The Allowable Value is chosen to prevent damage to the condenser due to pressurization, thereby ensuring its integrity for offsite dose analysis. As noted (footnote (a) to Table 3.3.6.1-1), the channels are not required to be OPERABLE in MODES 2 and 3 when all turbine stop valves (TSVs) are closed, since the potential for condenser overpressurization is minimized. The Function is

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1.d. Condenser Vacuum - Low (continued)

automatically bypassed when the reactor mode switch is not in the run position and when all TSVs are closed.

This Function isolates the MSIVs and MSL drain valves.

1.e. Main Steam Tunnel Area Temperature - High

Main Steam Tunnel Area temperature is provided to detect a break in a main steam line and provides diversity to the high flow instrumentation. High temperature in the main steam tunnel outside the primary containment could indicate a break in a main steam line. The automatic closure of the MSIVs and MSL drains, prevents excessive loss of reactor coolant and the release of significant amounts of radioactive material from the reactor coolant pressure boundary. The isolation occurs when a very small leak has occurred. If the small leak is allowed to continue without isolation, offsite dose limits may be reached. However, credit for these instruments is not taken in any transient or accident analysis in the UFSAR, since bounding analyses are performed for large breaks, such as MSLBs.

Main Steam Tunnel Area temperature signals are initiated from resistance temperature detectors (RTDs) located in the area being monitored. Sixteen channels of Main Steam Tunnel Temperature - High Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value is chosen high enough above the temperature expected during power operations to avoid spurious isolation, yet low enough to provide early indication of a steam line break.

This Function isolates the MSIVs and MSL drain valves.

1.f. Main Steam Line Radiation - High

The Main Steam Line Radiation - High isolation signal has been removed from the MSIV isolation logic circuitry (Ref. 1); however, this isolation Function has been retained for the MSL drains valves (and other valves discussed under

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APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1.f. Main Steam Line Radiation—High (continued)

Function 2.f) to ensure that the assumptions utilized to determine that acceptable offsite doses resulting from a control rod drop accident (CRDA) are maintained.

Main Steam Line Radiation—High signals are generated from four radiation elements and associated monitors, which are located near the main steam lines in the steam tunnel. Four instrumentation channels of the Main Steam Line Radiation—High Function are available and required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value was selected to be low enough that a high radiation trip results from the fission products released in the CRDA. In addition, the setting is adjusted high enough above the background radiation level in the vicinity of the main steam lines so that spurious trips are avoided at rated power. As noted (footnote (b) to Table 3.3.6.1-1), the channels are only required to be OPERABLE in MODES 1 and 2 with THERMAL POWER ≤ 10% RTP. When THERMAL POWER is > 10% RTP, there is no possible control rod configuration that results in a control rod worth that could exceed the fuel damage limit during a CRDA (Refer to the Bases for Function 2 (Rod Worth Minimizer) of LCO 3.3.2.1, "Control Rod Block Instrumentation"). In MODES 3 and 4, all control rods are required to be inserted into the core; therefore, a CRDA cannot occur. In MODE 5, since only a single control rod can be withdrawn from a core cell containing fuel assemblies, adequate SDM ensures that the consequences of a CRDA are acceptable, since the reactor will be subcritical.

This Function isolates the MSL drain valves.

Primary Containment Isolation

2.a., 2.g. Reactor Vessel Water Level—Low (Level 3)

Low RPV water level indicates that the capability to cool the fuel may be threatened. The valves whose penetrations communicate with the primary containment are isolated to limit the release of fission products. The isolation of the primary containment on Level 3 supports actions to ensure

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2.a., 2.g. Reactor Vessel Water Level – Low (Level 3) (continued)

that offsite dose limits of 10 CFR 100 are not exceeded. The Reactor Vessel Water Level – Low (Level 3) Function associated with isolation is implicitly assumed in the UFSAR analysis as these leakage paths are assumed to be isolated post LOCA.

Reactor Vessel Water Level – Low (Level 3) signals are initiated from level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. For Function 2.a, four channels of Reactor Vessel Water Level – Low (Level 3) Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function. For Function 2.g, two channels of Reactor Vessel Water Level – Low (Level 3) are required to be OPERABLE for each hydrogen/oxygen and gaseous/particulate sample supply and return penetration to ensure these penetrations can be isolated.

The Reactor Vessel Water Level – Low (Level 3) Allowable Value was chosen to be the same as the RPS Level 3 scram Allowable Value (LCO 3.3.1.1), since the capability to cool the fuel may be threatened. The Allowable Value is referenced from a level of water 352.56 inches above the lowest point in the inside bottom of the reactor pressure vessel and also corresponds to the top of a 144 inch fuel column (Ref. 13). I

This Function isolates the valves listed in Reference 1.

2.b., 2.d. Drywell Pressure – High I

High drywell pressure can indicate a break in the RCPB Primary containment. The isolation of some of the primary containment isolation valves on high drywell pressure supports actions to ensure that offsite dose limits of 10 CFR 100 are not exceeded. The Drywell Pressure – High Function, associated with isolation of the primary

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APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2.b., 2.d. Drywell Pressure - High (continued)

containment, is implicitly assumed in the UFSAR accident analysis as these leakage paths are assumed to be isolated post LOCA.

High drywell pressure signals are initiated from pressure transmitters that sense the pressure in the drywell. For Function 2.b, four channels of Drywell Pressure - High are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function. For Function 2.d, two channels of Drywell Pressure - High are required to be OPERABLE for each hydrogen/oxygen and gaseous/particulate sample supply and return penetration to ensure these penetrations can be isolated. | I

The Allowable Value was selected to be as low as possible without inducing spurious trips. The Allowable Value is chosen to be the same as the RPS Drywell Pressure - High Allowable Value (LCO 3.3.1.1), since this may be indicative of a LOCA inside primary containment.

These Functions isolate the valves listed in Reference 1. | I

2.c. Containment Radiation - High

High containment radiation indicates possible gross failure of the fuel cladding. Therefore, when Containment Radiation - High is detected, an isolation is initiated to limit the release of fission products. However, this Function is not assumed in any accident or transient analysis in the UFSAR because other leakage paths (e.g., MSIVs) are more limiting.

The containment radiation signals are initiated from radiation detectors that are located in the drywell. Two channels of Containment Radiation - High Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value is low enough to promptly detect gross failures in the fuel cladding. However, the setting is high enough to avoid spurious isolation.

This Function isolates the containment vent and purge valves.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

2.e. Reactor Vessel Water Level - Low Low Low (Level 1)

Low reactor pressure vessel (RPV) water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, isolation of the recirculation loop sample valves occurs to prevent offsite dose limits from being exceeded. The Reactor Vessel Water Level - Low Low Low (Level 1) Function is one of the many Functions assumed to be OPERABLE and capable of providing isolation signals. The Reactor Vessel Water Level - Low Low Low (Level 1) Function associated with isolation is assumed in the analysis of the recirculation line break (Ref. 3). The isolation of the recirculation loop sample valves on Level 1 supports actions to ensure that offsite dose limits are not exceeded for a DBA.

Reactor vessel water level signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels of Reactor Vessel Water Level - Low Low Low (Level 1) Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Reactor Vessel Water Level - Low Low Low (Level 1) Allowable Value is chosen to ensure that the recirculation loop sample valves close on a potential loss of coolant accident (LOCA) to prevent offsite doses from exceeding 10 CFR 100 limits. The Allowable Value is the water level above a zero reference level which is 352.56 inches above the lowest point inside the RPV and is also at the top of a 144 inch fuel column (Ref. 13).

This Function isolates the recirculation loop sample valves.

2.f. Main Steam Line Radiation - High

The Main Steam Line Radiation-High isolation signal has been removed from the MSIV isolation logic circuitry (Ref. 1); however, this isolation Function has been retained for the recirculation loop sample valves to ensure that the assumptions utilized to determine that acceptable offsite doses resulting from a CRDA are maintained.

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APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2.f. Main Steam Line Radiation—High (continued)

Main Steam Line Radiation—High signals are generated from four radiation elements and associated monitors, which are located near the main steam lines in the steam tunnel. Four Instrumentation channels of the Main Steam Line Radiation—High Function are available and required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value was selected to be low enough that a high radiation trip results from the fission products released in the Design Basis CRDA. In addition, the setting is adjusted high enough above the background radiation level in the vicinity of the main steam lines so that spurious trips are avoided at rated power. As noted (footnote (b) to Table 3.3.6.1-1), the channels are only required to be OPERABLE in MODES 1 and 2 with THERMAL POWER ≤ 10% RTP. When THERMAL POWER is > 10% RTP, there is no possible control rod configuration that results in a control rod worth that could exceed the fuel damage limit during a CRDA (Refer to the Bases for Function 2 (Rod Worth Minimizer) of LCO 3.3.2.1). In MODES 3 and 4, all control rods are required to be inserted into the core; therefore, a CRDA cannot occur. In MODE 5, since only a single control rod can be withdrawn from a core cell containing fuel assemblies, adequate SDM ensures that the consequences of a CRDA are acceptable, since the reactor will be subcritical.

This Function isolates the recirculation loop sample valves.

High Pressure Coolant Injection and Reactor Core Isolation Cooling Systems Isolation

3.a., 4.a. HPCI and RCIC Steam Line Flow—High

Steam Line Flow—High Functions are provided to detect a break of the RCIC or HPCI steam lines and initiate closure of the steam line isolation valves of the appropriate system. If the steam is allowed to continue flowing out of the break, the reactor will depressurize and the core can uncover. Therefore, the isolations are initiated on high flow to prevent or minimize core damage. The isolation action, along with the scram function of the RPS, ensures

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APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

3.a., 4.a. HPCI and RCIC Steam Line Flow-High (continued)

that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46. Specific credit for these Functions is not assumed in any UFSAR accident analyses since the bounding analysis is performed for large breaks such as recirculation and MSL breaks. However, these instruments prevent the RCIC or HPCI steam line breaks from becoming bounding.

The HPCI and RCIC Steam Line Flow-High signals are initiated from transmitters (two for HPCI and two for RCIC) that are connected to the system steam lines. Two channels of both HPCI and RCIC Steam Line Flow-High Functions are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Values are chosen to be low enough to ensure a timely detection of a turbine steam line break so that the trip occurs to prevent fuel damage and maintains the MSLB event as the bounding event. The setting is adjusted high enough to avoid spurious isolations during HPCI and RCIC startups.

These Functions isolate the valves, as appropriate, as listed in Reference 1.

3.b., 4.b. HPCI and RCIC Steam Supply Line Pressure-Low

Low steam pressure indicates that the pressure of the steam in the HPCI or RCIC turbine may be too low to continue operation of the associated system's turbine. These isolations are for equipment protection and are not assumed in any transient or accident analysis in the UFSAR.

However, they also provide a diverse signal to indicate a possible system break. These instruments are included in Technical Specifications (TS) because of the potential for risk due to possible failure of the instruments preventing HPCI and RCIC initiations (Ref. 5).

The HPCI and RCIC Steam Supply Line Pressure-Low signals are initiated from transmitters (four for HPCI and four for RCIC) that are connected to the system steam line. Four channels of both HPCI and RCIC Steam Supply Line

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

3.b., 4.b. HPCI and RCIC Steam Supply Line Pressure - Low (continued)

Pressure - Low Functions are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function. The Allowable Values are selected to be high enough to prevent damage to the system's turbine and low enough to ensure HPCI and RCIC Systems remain OPERABLE.

These Functions isolate the valves, as appropriate, as listed in Reference 1.

3.c., 4.c. HPCI and RCIC Turbine Exhaust Diaphragm Pressure - High

High turbine exhaust diaphragm pressure could indicate that the turbine rotor is not turning, or there is a broken turbine blading or shrouding, thus allowing reactor pressure to act on the turbine exhaust line. The system is isolated to prevent overpressurization of the turbine exhaust line. These isolations are for equipment protection and are not assumed in any transient or accident analysis in the UFSAR. These instruments are included in the TS because of the potential for risk due to possible failure of the instruments preventing HPCI and RCIC initiations (Ref. 5).

The HPCI and RCIC Turbine Exhaust Diaphragm Pressure - High signals are initiated from switches (four for HPCI and four for RCIC) that are connected to the area between the rupture diaphragms on each system's turbine exhaust line. Four channels of both HPCI and RCIC Turbine Exhaust Diaphragm Pressure - High Functions are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Values are high enough to prevent damage to low pressure components in the turbine exhaust pathway. The settings are adjusted low enough to avoid isolation of the system's turbine.

These Functions isolate the valves, as appropriate, as listed in Reference 1.

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APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

3.d., 3.e., 3.f., 3.g., 3.h., 3.i., 3.j., 4.d., 4.e., 4.f. HPCI and RCIC Area Temperature - High

HPCI and RCIC Area temperatures are provided to detect a leak from the associated system steam piping. The isolation occurs when a very small leak has occurred and is diverse to the high flow instrumentation. If the small leak is allowed to continue without isolation, offsite dose limits may be reached. These Functions are not assumed in any UFSAR transient or accident analysis, since bounding analyses are performed for large breaks such as recirculation or MSL breaks.

Area Temperature - High signals are initiated from resistance temperature detectors (RTDs) that are appropriately located to protect the system that is being monitored. Two instruments monitor each area for a total of 16 channels for HPCI and 8 channels for RCIC. All channels for each HPCI and RCIC Area Temperature - High Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Values are set high enough above normal operating levels to avoid spurious operation but low enough to provide timely detection of a steam leak.

These Functions isolate the valves, as appropriate, as listed in Reference 1.

Reactor Water Cleanup (RWCU) System Isolation
5.a., 5.b., and 5.c. RWCU Area Temperatures - High

RWCU area temperatures are provided to detect a leak from the RWCU System. The isolation occurs even when very small leaks have occurred. If the small leak continues without isolation, offsite dose limits may be reached. Credit for these instruments is not taken in any transient or accident analysis in the UFSAR, since bounding analyses are performed for large breaks such as recirculation or MSL breaks.

Area temperature signals are initiated from temperature elements that are located in the area that is being monitored. Eight thermocouples provide input to the Area Temperature - High Functions (two per area or room). Eight channels are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation

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APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

5.a., 5.b., and 5.c. RWCU Area Temperatures - High (continued)

function. The Area Temperature - High Allowable Values are set high enough to avoid spurious isolation yet low enough to provide timely detection and isolation of a break in the RWCU System.

These Functions isolates both RWCU suction valves and the return valve.

5.d. SLC System Initiation

The isolation of the RWCU System is required when the SLC System has been initiated to prevent dilution and removal of the boron solution by the RWCU System (Ref. 6). The RWCU isolation signal is initiated when the control room SLC initiation switch is in any position other than stop.

There is no Allowable Value associated with this Function since the channels are mechanically actuated based solely on the position of the SLC System initiation switch.

Two channels (start system A or start system B) of the SLC System Initiation Function are available and are required to be OPERABLE only in MODES 1 and 2, since these are the only MODES where the reactor can be critical, and these MODES are consistent with the Applicability for the SLC System (LCO 3.1.7).

As noted (footnote (d) to Table 3.3.6.1-1), this Function is only required to close one of the RWCU suction isolation valves and one return isolation valve since the signals only provide input into one of the two trip systems. I

5.e. Reactor Vessel Water Level - Low (Level 3)

Low RPV water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, isolation of some interfaces with the reactor vessel occurs to isolate the potential sources of a break. The isolation of the RWCU System on Level 3 supports actions to ensure that the fuel peak cladding temperature remains below the limits of

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

5.e. Reactor Vessel Water Level - Low (Level 3) (continued)

10 CFR 50.46. The Reactor Vessel Water Level - Low (Level 3) Function associated with RWCU isolation is not directly assumed in the UFSAR safety analyses because the RWCU System line break is bounded by breaks of larger systems (recirculation and MSL breaks are more limiting). I

Reactor Vessel Water Level - Low (Level 3) signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels of Reactor Vessel Water Level - Low (Level 3) Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Reactor Vessel Water Level - Low (Level 3) Allowable Value was chosen to be the same as the RPS Reactor Vessel Water Level - Low (Level 3) Allowable Value (LCO 3.3.1.1), since the capability to cool the fuel may be threatened. The Allowable Value is the water level above a zero reference level which is 352.56 inches above the lowest point inside the RPV and is also at the top of a 144 inch fuel column (Ref. 13). I

This Function isolates both RWCU suction valves and the RWCU return valve.

5.f. Drywell Pressure - High

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

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

5.f. Drywell Pressure - High (continued)

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

The Allowable value was selected to be as low as possible without inducing spurious trips. The Allowable Value is chosen to be the same as the RPS Drywell Pressure - High Allowable Value (LCO 3.3.1.1), since this may be indicative of a LOCA inside primary containment.

This Function isolates both RWCU suction valves and one RWCU return valve.

6.a. Reactor Pressure - High

The Reactor Pressure - High Function is provided to isolate the shutdown cooling portion of the Residual Heat Removal (RHR) System. This interlock Function is provided only for equipment protection to prevent an intersystem LOCA scenario, and credit for the interlock is not assumed in the accident or transient analysis in the UFSAR.

The Reactor Pressure - High signals are initiated from two pressure switches that are connected to different taps on reactor recirculation pump B suction line. Each switch provides input to each trip system. However, only one channel input is required to be OPERABLE for a trip system to be considered OPERABLE. Two channels of Reactor Pressure - High Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function. The Function is only required to be OPERABLE in MODES 1, 2, and 3, since these are the only MODES in which the reactor can be pressurized; thus, equipment protection is needed.

The Allowable Value was chosen to be low enough to protect the system equipment from overpressurization.

This Function isolates both RHR shutdown cooling pump suction valves.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

6.b. Reactor Vessel Water Level – Low (Level 3)

Low RPV water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, isolation of some reactor vessel interfaces occurs to begin isolating the potential sources of a break. The Reactor Vessel Water Level – Low (Level 3) Function associated with RHR Shutdown Cooling System isolation is not directly assumed in safety analyses because a break of the RHR Shutdown Cooling System is bounded by breaks of the reactor water recirculation system and MSL. The RHR Shutdown Cooling System isolation on Level 3 supports actions to ensure that the RPV water level does not drop below the top of the active fuel during a vessel draindown event caused by a leak (e.g., pipe break or inadvertent valve opening) in the RHR Shutdown Cooling System.

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

The Reactor Vessel Water Level – Low (Level 3) Allowable Value was chosen to be the same as the RPS Reactor Vessel Water Level – Low (Level 3) Allowable Value (LCO 3.3.1.1), since the capability to cool the fuel may be threatened. The Allowable Value is the water level above a zero reference level which is 352.56 inches above the lowest point inside the RPV and is also at the top of a 144 inch fuel column (Ref. 13). I

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

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

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

This Function isolates both RHR shutdown cooling pump suction valves and the inboard LPCI injection valves.

Traversing Incore Probe System Isolation

7.a. Reactor Vessel Water Level- Low (Level 3)

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

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

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

This Function isolates the TIP System isolation ball valves.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

7.b. Drywell Pressure - High

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

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

The Allowable Value was selected to be as low as possible without inducing spurious trips. The Allowable Value is chosen to be the same as the RPS Drywell Pressure - High Allowable Value (LCO 3.3.1.1), since this may be indicative of a LOCA inside primary containment.

This Function isolates the TIP System isolation ball valves.

ACTIONS

The ACTIONS are modified by two Notes. Note 1 allows penetration flow path(s) to be unisolated intermittently under administrative controls. These controls consist of stationing a dedicated operator at the controls of the valve, who is in continous communication with the control room. In this way, the penetration can be rapidly isolated when a need for primary containment isolation is indicated. Note 2 has been provided to modify the ACTIONS related to primary containment isolation instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure,

(continued)

BASES

ACTIONS (continued)

with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable primary containment isolation instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable primary containment isolation instrumentation channel.

A.1

Because of the diversity of sensors available to provide isolation signals and the redundancy of the isolation design, an allowable out of service time of 12 hours for Functions 2.a, 2.b, 2.d, 2.g, 5.e, 5.f, 6.b, 7.a and 7.b and 24 hours for Functions other than Functions 2.a, 2.b, 2.d, 2.g, 5.e, 5.f, 6.b, 7.a and 7.b has been shown to be acceptable (Refs. 6 and 7) to permit restoration of any inoperable channel to OPERABLE status. This out of service time is only acceptable provided the associated Function is still maintaining isolation capability (refer to Required Action B.1 Bases). If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action A.1. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue with no further restrictions. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an isolation), Condition C must be entered and its Required Action taken.

B.1

Required Action B.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in redundant isolation capability being lost for the associated penetration flow path(s). The MSL, Isolation Functions (associated with MSIV isolation) are considered to be maintaining isolation capability when sufficient channels are OPERABLE or in trip (or the associated trip system in trip), such that both trip systems will generate a trip signal from the given Function on a valid signal. The other

(continued)

BASES

ACTIONS

B.1 (continued)

isolation functions are considered to be maintaining isolation capability when sufficient channels are OPERABLE or in trip, such that one trip system will generate a trip signal from the given Function on a valid signal. This ensures that at least one of the PCIVs in the associated penetration flow path can receive an isolation signal from the given Function. For Functions 1.a, 1.b, and 1.d (associated with MSIV isolation), this would require both trip systems to have one channel OPERABLE or in trip. For Function 1.c (associated with MSIV isolation), this would require both trip systems to have one channel, associated with each MSL, OPERABLE or in trip. For Function 1.e, four areas are monitored by four channels (e.g., different locations within the main steam tunnel area). Therefore, this would require both trip systems to have one channel per location OPERABLE or in trip (associated with MSIV isolation). For Functions 1.a, 1.b and 1.d (associated with MSL drain isolation) this would require one trip system to have two channels, each OPERABLE or in trip. For Function 1.c (associated with MSL drain isolation) this will require one trip system to have two channels, associated with each MSL, each OPERABLE or in trip. For Function 1.e this would require one trip system to have two channels, associated with each main steam tunnel area, each to be OPERABLE or in trip. For Functions 2.d and 2.g, as noted by footnote (c) to Table 3.3.6.1-1, there is only one trip system provided for each associated penetration. For these penetrations (i.e., hydrogen/oxygen sample and return, and gaseous/particulate sample supply and return), this will require both channels to be OPERABLE or in trip in order to close at least one valve. For Functions 2.a, 2.b, 2.e, 2.f, 3.b, 3.c, 4.b, 4.c, 5.e, 5.f, and 6.b, this would require one trip system to have two channels, each OPERABLE or in trip. For Functions 2.c, 3.a, 3.d, 3.e, 3.f, 3.g, 3.h, 3.i, 4.a, 4.d, 4.e, 5.a, 5.c, and 6.a, this would require one trip system to have one channel OPERABLE or in trip. For Functions 3.j, 4.f, and 5.b each Function consists of channels that monitor two different locations. Therefore, this would require one channel per location to be OPERABLE or in trip (the channels are not required to be in the same trip system). For Function 5.d, this would require that with the SLC initiation switch in start system A or B the associated valve will close. For Function 7.a and 7.b the logic is arranged in one trip system, therefore this would require both channels to be OPERABLE or in trip, or the manual shear valves to be OPERABLE.

(continued)

BASES

ACTIONS

B.1 (continued)

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

C.1

Required Action C.1 directs entry into the appropriate Condition referenced in Table 3.3.6.1-1. The applicable Condition specified in Table 3.3.6.1-1 is Function and MODE or other specified condition dependent and may change as the Required Action of a previous Condition is completed. Each time an inoperable channel has not met any Required Action of Condition A or B and the associated Completion Time has expired, Condition C will be entered for that channel and provides for transfer to the appropriate subsequent Condition.

D.1, D.2.1, and D.2.2

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the plant must be placed in a MODE or other specified condition in which the LCO does not apply. This is done by placing the plant in at least MODE 3 within 12 hours and in MODE 4 within 36 hours (Required Actions D.2.1 and D.2.2). Alternately, the associated MSLs may be isolated (Required Action D.1), and, if allowed (i.e., plant safety analysis allows operation with one MSL isolated), operation with that MSL isolated may continue. Isolating the affected MSL accomplishes the safety function of the inoperable channel. The Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

(continued)

BASES

ACTIONS (continued)

E.1

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the plant must be placed in a MODE or other specified condition in which the LCO does not apply. This is done by placing the plant in at least MODE 2 within 6 hours.

The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 2 from full power conditions in an orderly manner and without challenging plant systems.

F.1

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, plant operations may continue if the affected penetration flow path(s) is isolated. Isolating the affected penetration flow path(s) accomplishes the safety function of the inoperable channels. Alternately, if it is not desired to isolate the affected penetration flow path(s) (e.g., as in the case where isolating the penetration flow path(s) could result in a reactor scram), Condition H must be entered and its Required Actions taken. The 1 hour Completion Time is acceptable because it minimizes risk while allowing sufficient time for plant operations personnel to isolate the affected penetration flow path(s).

G.1

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, plant operations may continue if the affected penetration flow path(s) is isolated. Isolating the affected penetration flow path(s) accomplishes the safety function of the inoperable channels. The 24 hour Completion Time is acceptable due to the fact the penetrations associated with these Functions (TIP System penetration) are a small bore (approx 1/2 inch), its isolation in a design basis event (with loss of offsite power) would be via the manually operated shear valves, and the ability to manually isolate by either the normal isolation valve or the shear valve is unaffected by the inoperable instrumentation.

(continued)

BASES

ACTIONS (continued)

H.1 and H.2

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

I.1 and I.2

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

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

J.1 and J.2

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the associated penetration flow path should be closed. However, if the shutdown cooling function is needed to provide core cooling, these Required Actions allow the penetration flow path to remain unisolated provided action is immediately initiated to restore the channel to OPERABLE status or to isolate the RHR Shutdown Cooling System (i.e., provide alternate decay heat removal capabilities so the penetration flow path can be isolated). Actions must continue until the channel is restored to OPERABLE status or the RHR Shutdown Cooling System is isolated.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

As noted (Note 1) at the beginning of the SRs, the SRs for each Primary Containment Isolation instrumentation Function are found in the SRs column of Table 3.3.6.1-1.

The Surveillances are modified by Note 2 to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains trip capability or 6 hours for Functions 2.d, 2.g, 7.a, and 7.b. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Refs. 7 and 8) assumption of the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the PCIVs will isolate the penetration flow path(s) when necessary. For Functions 2.d and 2.g, this allowance is permitted since the associated penetration flow path(s) involve sample lines which form a closed system with the primary containment atmosphere. For Functions 7.a and 7.b this is permitted since the associated penetrations can be manually isolated if needed.

SR 3.3.6.1.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1.1 (continued)

Channel agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

The Frequency is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the channels required by the LCO.

SR 3.3.6.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. A successful test of the required contacts(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The 92 day Frequency of SR 3.3.6.1.2 is based on the reliability analysis described in References 7 and 8.

SR 3.3.6.1.3, SR 3.3.6.1.5, and SR 3.3.6.1.6

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. SR 3.3.6.1.6 however is only a calibration of the radiation detectors using a standard radiation source.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1.3, SR 3.3.6.1.5, and SR 3.3.6.1.6 (continued)

As noted for SR 3.3.6.1.3, the main steam tunnel radiation detectors are excluded from CHANNEL CALIBRATION due to ALARA reasons (when the plant is operating, the radiation detectors are generally in a high radiation area; the steam tunnel). This exclusion is acceptable because the radiation detectors are passive devices, with minimal drift. The radiation detectors are calibrated in accordance with SR 3.3.6.1.6 on a 24 month Frequency. The CHANNEL CALIBRATION of the remaining portions of the channel (SR 3.3.6.1.3) are performed using a standard current source.

Reactor Vessel Water Level - Low Low Low (Level 1), Main Steam Line Pressure - Low and Main Steam Line Flow - High Function sensors (Functions 1.a, 1.b, and 1.c, respectively) are excluded from ISOLATION INSTRUMENTATION RESPONSE TIME testing (Ref. 11). However, during the CHANNEL CALIBRATION of these sensors, a response check must be performed to ensure adequate response. This testing is required by Reference 11. Personnel involved in this testing must have been trained in response to Reference 12 to ensure that they are aware of the consequences of instrument response time degradation. This response check must be performed by placing a fast ramp or a step change into the input of each required sensor. The personnel must monitor the input and output of the associated sensor so that simultaneous monitoring and verification may be accomplished.

The Frequency of SR 3.3.6.1.3 is based on the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The Frequencies of SR 3.3.6.1.5 and SR 3.3.6.1.6 are based on the assumption of an 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.6.1.4

Calibration of trip units provides a check of the actual trip setpoints. The channel must be declared inoperable if the trip setting is discovered to be less conservative than the Allowable Value specified in Table 3.3.6.1-1. If the trip setting is discovered to be less conservative than accounted for in the appropriate setpoint methodology, but

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1.4 (continued)

is not beyond the Allowable Value, the channel performance is still within the requirements of the plant safety analysis. Under these conditions, the setpoint must be readjusted to be equal to or more conservative than that accounted for in the appropriate setpoint methodology.

The Frequency of 184 days is based on operating experience that demonstrates this equipment to be reliable.

SR 3.3.6.1.7

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required isolation logic for a specific channel. The system functional testing performed on PCIVs in LCO 3.6.1.3 overlaps this Surveillance to provide complete testing of the assumed safety function. While this Surveillance can be performed with the reactor at power for some Functions, the 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was found to be acceptable from a reliability standpoint.

SR 3.3.6.1.8

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. Testing is performed only on channels where the assumed response time does not correspond to the emergency diesel generator (EDG) start time. For channels assumed to respond within the EDG start time, sufficient margin exists in the 10 second start time when compared to the typical channel response time (milliseconds) so as to assure adequate response without a specific measurement test.

ISOLATION INSTRUMENTATION RESPONSE TIME acceptance criteria are included in Reference 9. ISOLATION SYSTEM RESPONSE TIME may be verified by actual response time measurements in any

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1.8 (continued)

series of sequential, overlapping, or total channel measurements. However, the sensors for Functions 1.a, 1.b, and 1.c are allowed to be excluded from specific ISOLATION SYSTEM RESPONSE TIME measurement if the conditions of Reference 10 are satisfied. If these conditions are satisfied, sensor response time may be allocated based on either assumed design sensor response time or the manufacturer's stated design response time. When the requirements of Reference 10 are not satisfied, sensor response time must be measured. For all other Functions, the measurement of instrument loop response times may be excluded if the conditions of Reference 10 are satisfied.

ISOLATION INSTRUMENTATION RESPONSE TIME tests are conducted on a 24 month STAGGERED TEST BASIS. A Note requires STAGGERED TEST BASIS Frequency to be determined based on 2 channels. This will ensure that all required channels are tested during two Surveillance Frequency intervals. For

Functions 1.a and 1.b, two channels must be tested during each test, while for Function 1.c, eight channels must be tested. The 24 month Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience that shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

REFERENCES

1. UFSAR, Section 7.3.
2. UFSAR, Section 14.5.
3. UFSAR, Section 14.6.
4. 10 CFR 50.36(c)(2)(ii).
5. NEDO-31466, Technical Specification Screening Criteria Application and Risk Assessment, November 1987.
6. UFSAR, Section 3.9.3.

(continued)

BASES

REFERENCES (continued)

7. NEDC-31677P-A, Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation, July 1990.

8. NEDC-30851P-A, Supplement 2, Technical Specifications Improvement Analysis For BWR Isolation Instrumentation Common To RPS And ECCS Instrumentation, March 1989.

9. UFSAR, Table 7.3-12.

10. NEDO-32291-A, System Analyses For the Elimination of Selected Response Time Testing Requirements, October 1995.

11. NRC letter dated October 28, 1996, Issuance of Amendment 235 of Facility Operating License DPR-59 for James A. FitzPatrick Nuclear Power Plant.

12. NRC Bulletin 90-01, Supplement 1, Loss of Fill-Oil in Transmitters Manufactured by Rosemount, December 1992.

13. Drawing 11825-5.01-15D, Rev. D, Reactor Assembly Nuclear Boiler, (GE Drawing 919D690BD).

Specification 3.3.6.2 A1

Table 3.3.6.2-1, Secondary Containment Isolation Instrumentation

JAFNPP

~~TABLE 4.1-2~~

~~REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENT CALIBRATION~~

~~MINIMUM CALIBRATION FREQUENCIES FOR REACTOR PROTECTION INSTRUMENT CHANNELS~~

Function

A5

	~~Instrument Channel~~	Group (1)	Calibration	Frequency (2)
	IRM High Flux	C	Comparison to APRM on Controlled Shutdowns	W
	APRM High Flux Output Signal	B	Heat Balance	D
	Flow Bias Signal	B	Internal Power and Flow Test with Standard Pressure Source	R
	LPRM Signal	B		Every 1000 MWD/T average core exposure
	High Reactor Pressure	B	Standard Pressure Source	(Note 6)
[2]	High Drywell Pressure	B	~~Standard Pressure Source~~	(Note 6)
[1]	Reactor Low Water Level	B	~~Standard Pressure Source~~	(Note 6)
	High Water Level in Scram Discharge Instrument Volume	A	Water Column (Note 5)	R (Note 5)
	High Water Level in Scram Discharge Instrument Volume	B	Standard Pressure Source	Q
	Main Steam Line Isolation Valve Closure	A	(Note 4)	(Note 4)
	Turbine First Stage Pressure Permissive	B	Standard Pressure Source	(Note 6)

See ITS 3.3.1.1

See ITS 3.3.1.1

L7

[SR 3.3.6.2.4
SR 3.3.6.2.5]

I

See ITS 3.3.1.1

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 (continued)

essentially remain as an option, through the addition of proposed Required Actions C.1.2 and C.2.2. These Required Actions require declaring the associated secondary containment isolation valves and Standby Gas Treatment subsystem inoperable, which will ultimately result in shutting down the plant.

L3 Not Used.

L4 CTS RETS Table 3.10-1 Note (d) requires the isolation of the secondary containment and to start the Standby Gas Treatment (SGT) System when the instrumentation is found to be inoperable and not restored to operable status within 24 hours. New Required Actions have been added to CTS RETS Table 3.10-1 as an option the current action of Note (d) (ITS 3.3.6.2 Required Actions C.1.2 and C.2.2) to require declaring the affected components inoperable and taking the appropriate actions in the associated Secondary Containment Isolation Valve (SCIV) and SGT System Specification (ITS 3.6.4.2 and ITS 3.6.4.3, respectively) if the associated penetrations and SGT subsystems are not placed in the proper condition within 1 hour (M3). Since the instrumentation provide signals to SCIVs and SGT System (i.e., it supports SCIVs and SGT System OPERABILITY), it is appropriate that the proper action would be to declare these systems or components inoperable. The current requirements are overly restrictive, in that if the associated SCIVs and SGT subsystems were inoperable for other reasons, a much longer restoration time is provided.

L5 Not Used.

L6 Not Used.

L7 The requirement in CTS Table 4.1-1 to calibrate the alarm during the Channel Functional Test, the requirement in CTS RETS Table 3.10-2 that includes recorders within the definition of the instrument channel, and the CTS Table 4.1-2 detail of the method of calibration (standard pressure source) have been deleted. These components are not required to ensure the safety analysis assumptions are met. The requirement to include those portions of the channel which are needed to perform the required safety Function are included within the scope of the channels. The details of what the channel consists of is included in the Bases. The requirement that the associated channels in the ITS LCO 3.3.6.2 must be Operable are sufficient to ensure Operability of the required components. In addition, the calibration detail is not necessary because the proposed definition of Channel Calibration provide the necessary guidance. This change is consistent with NUREG-1433, Revision 1. I

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L8 CTS RETS Table 3.10-1 requires both trip systems to have at least one operable or tripped channel. A new ACTION is proposed to be added to the CTS RETS Table 3.10-1 to allow 1 hour to restore isolation capability when one or more isolation Functions with isolation capability not maintained. ITS 3.3.6.2 ACTION B will allow one hour torestore isolation capability. This action is consistent with current actions for other secondary containment Functions in CTS Table 3.2-1 Note 1.b.1. This completion time will allow the operator time to evaluate and repair any discovered inoperabilities. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration or tripping of channels. I

TECHNICAL CHANGES - RELOCATIONS

None

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L7 CHANGE

The Licensee has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below.

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

   This change proposes to delete the requirement to include recorders and/or alarms within the scope of the channel definition and to delete the specific instrument used to perform a calibration. The proposed change does not increase the probability of an accident because these instruments are not assumed to initiate an accident. The proposed change provides assurance that the associated Secondary Containment Isolation Functions are tested consistent with the analysis assumptions. As a result, the consequences of an accident are not affected by this change. This change will not alter assumptions relative to the mitigation of an accident or transient event. Therefore, this change will 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?

   This change will not physically alter the plant (no new or different types of equipment will be installed). The changes in methods governing normal plant operation and testing are consistent with the current safety analysis assumptions. Therefore, this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

   This change proposes to delete the requirement to include recorders and/or alarms within the scope of the channel definition and to delete the specific calibration device. The proposed change still provides the necessary control of testing to ensure Operability of the Secondary Containment Isolation Instrumentation. The safety analysis assumptions will still be maintained, thus no question of safety exists. Therefore, this change does not involve a significant reduction in a margin of safety.

BASES

DB3

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

remaining instrument errors (e.g., drift). The trip setpoints derived in this manner provide adequate protection because instrumentation uncertainties, process effects, calibration tolerances, instrument drift, and severe environment errors (for channels that must function in harsh environments as defined by 10 CFR 50.49) are accounted for.

In general, the individual Functions are required to be OPERABLE in the MODES or other specified conditions when SCIVs and the SGT System are required.

The specific Applicable Safety Analyses, LCO, and Applicability discussions are listed below on a Function by Function basis.

PA1

1. Reactor Vessel Water Level—Low Low, Level 2 3

PA5

and control room

the resulting

PA5

for release of radioactive material and

Low reactor pressure vessel (RPV) water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. An isolation of the secondary containment and actuation of the SGT System are initiated in order to minimize the potential of an offsite dose release. The Reactor Vessel Water Level—Low Low, Level 2 Function is one of the Functions assumed to be OPERABLE and capable of providing isolation and initiation signals. The isolation and initiation systems on Reactor Vessel Water Level—Low Low, Level 2 support actions to ensure that any offsite releases are within the limits calculated in the safety analysis.

PA1 3 DB4 Ref. 4

Reactor Vessel Water Level—Low Low, Level 2 signals are initiated from level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels of Reactor Vessel Water Level—Low Low, Level 2 Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

PA1 3

as the RPS level scram Allowable Value (LCO 3.3.1.1, "Reactor Protection System Instrumentation")

DB1

The Reactor Vessel Water Level—Low Low, Level 2 Allowable Value was chosen to be the same as the High Pressure Coolant Injection/Reactor Core Isolation Cooling (HPCI/RCIC) Reactor Vessel Water Level—Low Low, Level 2 Allowable Value

DB1 I

(continued)

Revision I

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1. Reactor Vessel Water Level—Low Low, Level 2 (continued)

~~(LCO 3.3.5.1 and LCO 3.3.5.2)~~, since this could indicate that the capability to cool the fuel is being threatened.

Insert Function 1

The Reactor Vessel Water Level—Low Low, Level 2 Function is required to be OPERABLE in MODES 1, 2, and 3 where considerable energy exists in the Reactor Coolant System (RCS); thus, there is a probability of pipe breaks resulting in significant releases of radioactive steam and gas. In MODES 4 and 5, the probability and consequences of these events are low due to the RCS pressure and temperature limitations of these MODES; thus, this Function is not required. In addition, the Function is also required to be OPERABLE during operations with a potential for draining the reactor vessel (OPDRVs) because the capability of isolating potential sources of leakage must be provided to ensure that offsite and control room dose limits are not exceeded if core damage occurs.

2. Drywell Pressure—High

The Drywell Pressure-High Function is one of the Functions assumed to be OPERABLE and capable of providing isolation and initiating signals,

High drywell pressure can indicate a break in the reactor coolant pressure boundary (RCPB). An isolation of the secondary containment and actuation of the SGT System are initiated in order to minimize the potential of an offsite and control room ~~dose~~ release. The isolation and initiation systems on high drywell pressure supports actions to ensure that any offsite releases are within the limits calculated in the safety analysis (Ref 4.). ~~However, the Drywell Pressure—High Function associated with isolation is not assumed in any FSAR accident or transient analyses. It is retained for the overall redundancy and diversity of the secondary containment isolation instrumentation as required by the NRC approved licensing basis.~~

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

The Allowable Value was chosen to be the same as the ECCS RPS Drywell Pressure—High Function Allowable Value

(continued)

Revision I

Insert Function 1 {DB1}

The Allowable Value is the water level above a zero reference level which is 352.56 inches above the lowest point inside the RPV and is also at the top of a 144 inch fuel column (Ref. 8).

1 I

Revision I

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1. Reactor Vessel Water Level - Low (Level 3) (continued)

Reactor Vessel Water Level - Low (Level 3) signals are initiated from level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels of Reactor Vessel Water Level - Low (Level 3) Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Reactor Vessel Water Level - Low (Level 3) Allowable Value was chosen to be the same as the RPS level scram Allowable Value (LCO 3.3.1.1, "Reactor Protection System Instrumentation"), since this could indicate that the capability to cool the fuel is being threatened. The Allowable Value is the water level above a zero reference level which is 352.56 inches above the lowest point inside the RPV and is also at the top of a 144 inch fuel column (Ref. 8). I

The Reactor Vessel Water Level - Low (Level 3) Function is required to be OPERABLE in MODES 1, 2, and 3 where considerable energy exists in the Reactor Coolant System (RCS); thus, there is a probability of pipe breaks resulting in significant releases of radioactive steam and gas. In MODES 4 and 5, the probability and consequences of these events are low due to the RCS pressure and temperature limitations of these MODES; thus, this Function is not required. In addition, the Function is also required to be OPERABLE during operations with a potential for draining the reactor vessel (OPDRVs) because the capability of isolating potential sources of leakage must be provided to ensure that offsite and control room dose limits are not exceeded if core damage occurs.

2. Drywell Pressure - High

High drywell pressure can indicate a break in the reactor coolant pressure boundary (RCPB). An isolation of the secondary containment and actuation of the SGT System are initiated in order to minimize the potential of an offsite and control room release. The Drywell Pressure - High

(continued)

A1

LIMITING CONDITIONS FOR OPERATION

3.9 MECHANICAL VACUUM PUMP ISOLATION

Applicability

Applies to the mechanical pump isolation instrumentation.

Objective

To assure operability of the trip circuitry.

[3.3.7.2] Specifications

Condser Air Removal Pump Isolation Instrumentation

[LCO 3.3.7.2] a. The ~~mechanical vacuum~~ air removal pump shall be capable of being automatically isolated and secured by a signal of high radiation in the main steam line tunnel

[APPLICABILITY] whenever the main steam isolation valves are open. MODES 1 and 2 with any air removal pump not isolated and

L1

b. If the limits of Table 3.10-1 are not met, the vacuum pump shall be isolated.

A2

SURVEILLANCE REQUIREMENTS

3.9 MECHANICAL VACUUM PUMP ISOLATION

Applicability

Applies to the surveillance requirement which isolates the mechanical vacuum pump.

Objective

To specify the instrument surveillance type and frequency.

Specifications

The instrument surveillance requirements are given on Table 3.10-2.

A/3

I

ADMINISTRATIVE CHANGES

A1 In the conversion of the James A. FitzPatrick Nuclear Power Plant (JAFNPP) Current Technical Specifications (CTS) to the proposed plant specific Improved Technical Specifications (ITS) certain wording preferences or conventions are adopted which do not result in technical changes. Editorial changes, reformatting, and revised numbering are adopted to make the ITS consistent with the conventions in NUREG-1433, "Standard Technical Specifications, General Electric Plants, BWR/4", Revision 1 (i.e., Improved Standard Technical Specifications (ISTS)).

A2 The requirement in CTS RETS 3.9.b to isolate the vacuum pump (or air removal pump) when the limits of CTS RETS Table 3.10-1 have been exceeded has been deleted since the associated actions for the Main Steam Line Radiation—High Function in CTS RETS Table 3.10-1 Note (h) along with its reference to CTS Appendix A Table 3.2-1 provide the appropriate actions. ITS 3.3.7.2 includes all of the applicable actions except as modified below. Since the removal of this requirement does not change any technical requirements this change is considered administrative. 1 I

A3 The current requirement in both CTS RETS Table 3.10-1 and CTS Table 3.2-1 to have a total of four OPERABLE channels for the Main Steam Line Radiation—High Function is retained in ITS 3.3.7.2 LCO. Since the Main Steam Line Radiation—High Function is the only function which isolates the air removal pumps this format has been chosen rather than the typical manner of presentation in the other proposed instrumentation LCOs. Therefore a Table is not included in the ITS and the requirements of the "Total Number of Instrument Channels Provided by Design" column has been included in ITS 3.3.7.2 LCO. Since there is no change in any technical requirements this change is considered administrative (see comment LA1). 1 I

A4 CTS RETS Table 3.10-1 Note (h) is being deleted since its cross-reference to CTS Appendix A Table 3.2-1 is not required since the details of both Tables as it relates to condenser air removal pump isolation will be incorporated into ITS 3.3.7.2. Since this change is only a change in format this change is considered administrative.

A5 A Note at the start of ITS 3.3.7.2 (CTS RETS Table 3.10-1 and CTS Table 3.2-1) Actions Table ("Separate Condition entry is allowed for each channel.") is proposed to be added to provide more explicit instructions for proper application for the new Actions for Technical Specification compliance. In conjunction with the proposed Specification 1.3 "Completion Times," this Note provides direction consistent with the intent of the Required Actions for inoperable primary containment isolation instrumentation channels, functions, or trip systems. It is

ADMINISTRATIVE CHANGES

A5 (continued)

intended that each Required Action be applied regardless of it having been applied previously for other inoperable Main Steam Line High Radiation channels. 1

A6 Reference to those trip functions which are not common to RPS in CTS Table 3.2-1 Action Notes 1.a.2 and 1.b.3.b has been deleted since the Main Steam Line Radiation—High Function is not common to RPS and since this function is the only function that is associated with ITS 3.3.7.2 (Condenser Air Removal Pump Isolation Instrumentation). Since this deletion does not change any requirements this change is considered administrative. 1

A7 The term PCIS initiation capability in CTS Table 3.2-1 Note 2.b has been changed to condenser air removal pump isolation capability since PCIS initiation capability is not important to ITS 3.3.7.2. This change has been made for clarification and therefore is considered administrative.

A8 The Instrument Functional Test identified in CTS Table 4.2-1 for Item 8 (Main Steam Line High Radiation) has been deleted since the requirements of the quarterly calibration tests of current and proposed surveillance (SR 3.3.7.2.2) are duplicative of these requirements. In addition, Note 5 of Table 4.2-1 through 4.2-5 has been deleted as it relates to the Main Steam Line Radiation—High Function since the quarterly Functional test has been deleted. Since the quarterly calibration surveillance satisfies the requirements of the quarterly functional test this change is considered administrative. 1

A9 CTS RETS Table 3.10-2 Note (g) is being deleted since the reference to current Appendix A Table 4.2-1 is not required since the details of the Table are being included in ITS 3.3.7.2. Since this change is only a change in format this change is considered administrative. 1

A10 The CTS RETS Table 3.10-2 Note (h) requirement that the logic system functional test should include a calibration of time delay relays and timers necessary for proper functioning of the trip systems is deleted since the Main Steam Line Radiation—High Function does not include any time delay relays or timers. This change is considered administrative, since there are no technical changes. 1

A11 The requirement in CTS Table 3.2-1 Note 1, "there shall be two operable or tripped trip systems for each Trip Function, except as provided below" has been deleted since the proposed LCO, and ACTIONS clearly define the appropriate requirements. Since there is no technical change

ADMINISTRATIVE CHANGES

A11 (continued)

in deleting this portion of the Note, this change is considered administrative.

A12 A Note has been added to the Actions of CTS Table 3.2-1. ITS 3.3.7.2 Required Action Note A.2 will not permit placing the channel in trip if the associated isolation valve is inoperable. This clarification has been made since there is no system specification for the condenser air removal pump isolation valves and therefore the appropriate ACTIONS associated with valve inoperabilites are included in this Specification. Since there are no changes in any technical requirements this change is considered administrative.

A13 CTS RETS 3.9 makes references to the requirements in CTS RETS Table 3.10-2 (instrument surveillances). ITS 3.3.7.2 does not include a Table since there is only one Function credited for the isolation of the Condenser Air Removal Pump. ITS LCO 3.3.7.2 requires the four channels of the Main Steam Line Radiation–High Function for the condenser air removal pump isolation to be Operable. The Surveillance Requirement contained in CTS RETS Table 3.10-2 for "Mechanical Vacuum Pump Isolation" is included as SR 3.3.7.2.4 (the LOGIC SYSTEM FUNCTIONAL TEST including isolation valve actuation). Since this change simply changes the format of presentation this change is considered administrative.

A14 CTS Table 3.2-1 includes a "Trip Level Setting" column which includes the trip setting for each primary containment isolation system instrumentation functions. In addition, CTS RETS Table 3.10-1 includes a "Trip Level Setting" column which includes the trip setting for each radiation monitoring system that initiates and/or isolates systems. Both of these Tables include the "Trip Level Setting" for Main Steam Line High Radiation Function which isolates the mechanical vacuum pump. In the ITS, the Condenser Air Removal Pump Isolation Instrumentation includes the "Allowable Value" for the Main Steam Line Radiation–High Function in SR 3.3.7.2.2.

The CTS "trip level settings" are considered the "Allowable Values" as described in the ITS since the instrumentation is considered inoperable if the value is exceeded when either the CTS or the ITS is applicable. A detailed explanation of trip setpoints, allowable values and analytical limits as they relate to instrumentation uncertainties is provided below.

Trip setpoints are those predetermined values of output at which an

ADMINISTRATIVE CHANGES

A14 (continued)

instrumentation will be declared inoperable at the same numerical value, this change is considered administrative. This change is consistent with NUREG-1433, Revision 1.

A15 A Note has been added to the current requirements in Note 11 for CTS Table 4.2-1 to 4.2-5 (ITS SR 3.3.7.2.2) which excludes the calibration of the radiation detectors associated with the Main Steam Line Radiation—High Function during the quarterly test (once every 3 months). Since the current requirements only require an instrument channel alignment (CHANNEL CALIBRATION) every 3 months using a current source this implies the radiation detector is excluded from this Surveillance. The radiation detector is currently being calibrated every 24 months in accordance with the same CTS Note. This calibration will be retained in the ITS as indicated in SR 3.3.7.2.3. This change simply represents a change in format and is therefore considered administrative.

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 The Frequency for performance of the Channel Check Surveillance of CTS Table 4.2-1 Function 8 is proposed to be changed from once per day to 12 hours (ITS SR 3.3.7.2.1). The Channel Check ensures once every 12 hours that a gross failure of instrumentation has not occurred. This change is consistent with NUREG-1433, Revision 1 which requires the SR to be performed every 12 hours. It represents an additional restriction on plant operations but added to enhance plant safety.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 The specific details relating to the design in CTS RETS Table 3.10-1 and Table 3.2-1 concerning the "Minimum No. of Operable Instrumentation Channels Per Trip System" are proposed to be relocated to the Bases. Placing these details in the Bases provides assurance they will be maintained. The requirements of ITS 3.3.7.2 which requires four channels of the Main Steam Line Radiation—High Function for the condenser air removal pump isolation, the definition of OPERABILITY, and the proposed Required Action and Surveillances suffice. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS. 1

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA2 The details in CTS Table 4.2-1 through 4.2-5 Note 11 concerning the methods to calibrate the Main Steam Line Radiation channels (e.g., radiation source) is proposed to be relocated to the Bases. The requirements in ITS SR 3.3.7.2.2 and SR 3.3.7.2.3 are adequate to ensure the appropriate calibrations are performed. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA3 The details in CTS Table 3.2-1 Note 1.a footnote (*) that an inoperable instrument channel or trip system need not be place in the tripped condition where this would cause the Trip Function to occur is proposed to be relocated to the Bases. The requirements in ITS 3.3.7.2 that the Main Steam Line channels shall be Operable, the definition of Operability and the ITS ACTIONS will ensure the proper actions are taken. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CTS RETS 3.9.a requires the mechanical vacuum pump capability to be automatically isolated and secured whenever the main steam isolation valves are open. In addition, CTS Table 3.2-1 requires the function to be operable whenever the primary containment integrity is required by CTS 3.7.A.2. The Applicability of ITS 3.3.7.2 will be during MODES 1 and 2 with any condenser air removal pump not isolated and any main steam line not isolated. The Applicability in CTS RETS 3.9.a is very broad and includes MODES 1, 2, 3, 4 and 5 while the applicability of CTS Table 3.2-1 includes MODES 1, 2 and 3. In MODES 3 and 4 there is a very low probability for a need for this function to be OPERABLE since the likelihood of a Control Rod Drop Accident (CRDA) occurring is small since all control rods are supposed to be inserted. In MODES 1 and 2, if the condenser air removal pumps are isolated (and a main steam line is open), the air ejectors must pull condenser vacuum and therefore there is no untreated pathway through the main stack. The requirement to maintain the Function Operable in Mode 5 when the main steam lines are not isolated is not necessary since the reactor is depressurized and steam would not be discharged through the system. Since the objective of the condenser air removal pump trip is to minimize the consequences of a CRDA this change is acceptable. In addition, if the air removal pumps cannot be isolated in accordance with CTS Table 3.2-1 Action Note 3.E

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 (continued)

(ITS 3.3.7.2 Required Action C.1) alternative actions (ITS 3.3.7.2 Required Actions C.2 or C.3) are provided to place the plant outside the conditions of the proposed Applicability. These actions are to isolate the main steam lines or to place the plant in MODE 3, respectively. The proposed Applicability and default actions will ensure the instrumentation is Operable whenever condenser air removal pump isolation is required to ensure the offsite dose limits are not exceeded should a CRDA occur. I

L2 When more than one channel associated with a trip function is inoperable, CTS Table 3.2-1 Notes 1.b.2 requires action to be taken within 6 hours to place inoperable instrument channel(s) in one trip system and/or that trip system in the tripped condition. These actions must be taken even if condenser air removal pump isolation capability is maintained. ITS 3.3.7.2 will not include this requirement as long as condenser air removal pump isolation capability is maintained. The requirement in ITS 3.3.7.2 to enter ACTION B when isolation capability cannot be maintained and to restore isolation capability within 1 hour is sufficient. The 1 hour Completion Time is consistent with CTS Table 3.2-1 Note 1.b.1. This change is consistent with changes made to other instrumentation Functions for Primary Containment Isolation Instrumentation in ITS 3.3.6.1 and is also considered acceptable for this application. ITS 3.3.7.2 ACTIONS A (CTS Table 3.2-1 Notes 1.a.2 and 1.b.3.b) will still require inoperable Main Steam Line Radiation channels to be restored or placed in trip within 24 hours. This Completion Time is considered acceptable. Along with this change CTS Table 3.2-1 Footnote (**) has been deleted since it no longer provides any pertinent guidance. With two channels inoperable in the same trip system isolation capability is lost, therefore entry into ACTION B will be required. If a channel is inoperable in each trip system, ACTION A applies and 24 hours is allowed to restore each channel to Operable status.

L3 CTS Table 3.2-1 Note 3.E requires the isolation of the mechanical vacuum pump (air removal) within 8 hours if the Required Actions and Completions Times are not met for inoperable Main Steam Line Radiation channels. The allowance provided in ITS 3.3.7.2 ACTION C has extended this time to 12 hours since more time may be necessary to close the main steam isolation valves or to be in MODE 3 (These alternative actions were added as discussed in L1). This Completion Time is consistent with other LCOs which require the closure of the MSIVs or to be in MODE 3, therefore this extension provides the necessary time to close the MSIVs in a controlled and orderly manner I

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L3 (continued)

that is within the capabilities of the plant, assuming the minimum required equipment is Operable. This extra time reduces the potential for a plant transient that could challenge safety systems.

L4 The CTS RETS Table 3.10-2 Note (f) requires the actuation testing of condenser air removal pump isolation to be performed using a "simulated" signal. This allowance has been modified to allow an "actual" signal. This is reflected in ITS SR 3.3.7.2.4 which requires an isolation valve actuation but does not specify that it must be from a simulated signal. This allows satisfactory automatic system initiations to be used to fulfill the Surveillance Requirements. Operability is adequately demonstrated in either case since the Condenser air removal pump isolation valve cannot discriminate between "actual" or "simulated" signals.

L5 The details in CTS RETS Table 3.10-2 Note (f) identifying how the Logic System Functional Test is to be performed (i.e., where possible using test jacks) has been deleted. The proposed definition for Logic System Functional Test provides the necessary guidance therefore this explicit requirement is not necessary to ensure Operability. This change is consistent with NUREG-1433, Revision 1.

TECHNICAL CHANGES - RELOCATIONS

None

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.3.7.2 - CONDENSER AIR REMOVAL PUMP ISOLATION INSTRUMENTATION

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE

The Licensee has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below.

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

   This change limits the Applicability of the Main Steam Line Radiation channels to those plant operating conditions where a Control Rod Drop Accident (CRDA) is postulated and when condenser air removal pump isolation is necessary to mitigate the consequences of this accident. The Condenser Air Removal Pump Isolation Instrumentation Function is not assumed to be an initiator of any analyzed event. Therefore, this proposed change will not involve a significant increase in the probability of an accident previously evaluated. The role of the instrumentation is to isolate the condenser air removal pump discharge pathway during a Control Rod Drop Accident and thereby limiting the consequences. The probability of this event occurring during MODES 3 and 4 are small since the control rods must be fully inserted. In MODES 1 and 2, there is a potential for a Control Rod Drop Accident, therefore when an air removal pump is not isolated (and a main steam line is open) the instrumentation is required. When the air removal pumps are isolated, the instrumentation is not required since the associated safety function has been met. Thus, the instrumentation is only required in MODES 1 and 2 with any air removal pump not isolated and any main steam line not isolated. The requirement to maintain this Function Operable in MODE 5 with the main steam lines not isolated is not necessary since the reactor is depressurized and steam would not be discharged through the system. Since the proposed Applicability will ensure the Function is Operable when CRDA is postulated to occur, the consequences of an accident will be bounded by the safety analysis. Therefore, this proposed change will 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?

   The proposed change does not introduce a new mode of plant operation and does not involve a physical modification to the plant. Therefore, it does not create the possibility of a new or different kind of accident from any accident previously evaluated.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE

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

The purpose of the instrumentation is to ensure offsite dose limits are not exceeded should a control rod drop accident during startup occur. Deletion of requirements to have the Main Steam Line Radiation-High Function Operable in MODES other than MODES 1 and 2 with any condenser air removal pump not isolated and any main steam line not isolated is acceptable because either the accident cannot occur (all rods are inserted in MODES 3 and 4) or the reactor will not be pressurized (MODE 5), thus steam could not be discharged through the system. Therefore, this change does not involve a significant reduction in a margin of safety. I

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

The Licensee has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below. I

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

   This change will allow additional time to repair inoperable channels as long as condenser air removal pump isolation capability is maintained even if more than one Main Steam Line Radiation channel is inoperable. I These channels are not considered as initiators for any accidents previously analyzed. Therefore, this change does not significantly increase the probability of a previously analyzed accident. The current and proposed ACTION to limit the loss of isolation capability is adequate to ensure the Function remains Operable during this extended time period. The consequences of an accident due to this change will be the same as the consequences allowed by the existing requirements when isolation capability is lost. Therefore, this change does not significantly increase the consequences of a previously analyzed accident.

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

   The proposed change does not introduce a new mode of plant operation and does not involve physical modification to the plant. Therefore it does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

   This change will allow additional time to repair inoperable channels as long as condenser air removal pump isolation capability is maintained even if more than one Main Steam Line Radiation channel is inoperable. I This change does not involve a significant reduction in a margin of safety since the effective time allowed to repair (an additional 18 hours) an inoperable channel is small and the time allowed to operate with the loss of isolation capability is still only 1 hour.

< INSERT Page 3.3-74a > DB1

3.3 INSTRUMENTATION

Air Removal

3.3.7.~~8~~ ② Condenser ~~Vacuum~~ Pump Isolation Instrumentation

[T. 3.2-1 RETS T. 3.10-1] [RETS 3.9.a]

LCO 3.3.7.~~8~~ Four channels of the Main Steam ~~Tunnel~~ Line Radiation—High Function for the condenser ~~vacuum~~ air removal pump isolation shall be OPERABLE. | I

[RETS 3.9.a] [L1] [Table 3.2-1 Note 1]

APPLICABILITY: MODES 1 and 2 with ~~the~~ any condenser ~~vacuum~~ pump ~~in service~~ not isolated and any main steam line not isolated. | I

ACTIONS

[A5]

-----------------------------------NOTE-----------------------------------
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more ~~required~~ channels inoperable.	A.1 Restore channel to OPERABLE status.	~~[~~24 hours~~]~~
	OR	
[TABLE 3.2-1 Note 1.a Note 1.a.2 Note 1.b.3] [A12]	A.2 --------Note-------- Not applicable if inoperable channel is the result of an inoperable isolation valve. -------------------- Place channel or associated trip system in trip.	~~[~~24 hours~~]~~
[Table 3.2-1 Note 1.b.1] B. Condenser air removal pump isolation capability not maintained.	B.1 Restore isolation capability.	1 hour

(continued)

Revision I

<INSERT Page 3.3-74b> DB1

Air Removal

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C ~~B~~. Required Action and associated Completion Time of Condition A or B not met. ~~OR~~ ~~Condenser vacuum pump isolation capability not maintained.~~	C ~~B~~.1 Isolate the condenser ~~vacuum~~ air removal pump~~s~~. OR C ~~B~~.2 Isolate the ~~main~~ steam lines. OR C ~~B~~.3 Be in MODE 3.	12 hours 12 hours 12 hours

[Table 3.2-1 Note 1.a, 1.b Note 3.E]

[ETS 3.9.a] [L1]

I

I

SURVEILLANCE REQUIREMENTS

[Table 3.2-1 Note 2.b]

-----NOTE-----
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains condenser ~~vacuum~~ air removal pump isolation capability.

SURVEILLANCE	FREQUENCY
SR 3.3.7.~~0~~2.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.7.~~0~~2.2 Perform CHANNEL ~~FUNCTIONAL TEST~~ CALIBRATION.	~~[92]~~ days
~~[SR 3.3.7.X.3 Calibrate the trip units.~~	~~[92] days]~~
SR 3.3.7.~~0~~2.~~4~~3 ~~Perform CHANNEL CALIBRATION. The allowable value shall be ≤ 10 x normal background.~~ Calibrate each radiation detector.	~~[18]~~ 24 months

INSERT SR 3.3.7.2.2 NOTE

INSERT SR 3.3.7.2.2

[Table 4.2-1]

[Table 4.2-1]
[Table 3.10-1]
[ETS Table 3.2-1]

[Table 4.2-1]

(continued)

Revision I

<u>RETENTION OF EXISTING REQUIREMENT</u> (CLB)

None

<u>PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT</u> (PA)

None

<u>PLANT-SPECIFIC DIFFERENCE IN THE DESIGN</u> (DB)

DB1 ITS 3.3.7.2 is proposed to be added since the Condenser Air Removal Pump Isolation Function is required to ensure the Control Rod Drop Accident is met during the proposed Applicability. This Specification was obtained from the Supplemental Technical Specification Volume S1, prepared by the BWR Owners' Group, March 1994. The Specification has been modified as required to reflect the plant specific nomenclature and current Surveillance Requirements for Main Steam Line Radiation—High Channels. In addition, ACTION B was added to be consistent with current allowances in the CTS. | I

<u>DIFFERENCE BASED ON AN APPROVED TRAVELER</u> (TA)

None

<u>DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER</u> (TP)

None

<u>DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE</u> (X)

None

<Insert Page B 3.3-219a> DBI

Air Removal

B 3.3 INSTRUMENTATION Air Removal

B 3.3.7.0 2 Condenser Vacuum Pump Isolation Instrumentation

BASES

of the suction and discharge valves

air removal

BACKGROUND

The condenser vacuum pump isolation instrumentation initiates ~~a trip of the condenser vacuum pump~~ and isolation of the ~~associated isolation valve~~ following events in which main steam radiation exceeds predetermined values. ~~Tripping and~~ Isolating the condenser vacuum pump limits the offsite doses in the event of a control rod drop accident (CRDA).

condenser air removal pumps

line

air removal

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logic circuits

the

The condenser vacuum pump isolation instrumentation (Ref. 1) includes sensors, relays and switches that are necessary to cause initiation of an condenser vacuum pump isolation. The channels include electronic equipment that compares measured input signals with pre-established setpoints. When the setpoint is exceeded, the channel output relay actuates, which then outputs an isolation signal to the condenser vacuum pump isolation logic.

air removal

The isolation logic consists of two independent trip systems, with two channels of Main Steam Tunnel Line Radiation—High in each trip system. Each trip system is a one-out-of-two logic for this Function. Thus, either channel of Main Steam Tunnel Radiation—High in each trip system are needed to trip a trip system. The outputs of the channels in a trip system are combined in a logic so that both trip systems must trip to result in an isolation signal.

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are

There is one isolation valve associated with this function.

two s

(continued)

TYP all pages

<Insert Page B3.3-219b> DB1

BASES (continued)

air removal

APPLICABLE SAFETY ANALYSES

The condenser vacuum pump isolation is assumed in the safety analysis for the CRDA. The condenser vacuum pump isolation instrumentation initiates an isolation of the condenser vacuum pump to limit offsite doses resulting from fuel cladding failure in a CRDA (Ref. 2).

air removal

The condenser vacuum pump isolation satisfies Criterion 3 of ~~the NRC Policy Statement~~. 10 CFR 50.36(c)(2)(ii) (Ref. 3) air removal

LCO

The OPERABILITY of the condenser vacuum pump isolation is dependent on the OPERABILITY of the individual Main Steam Line ~~Tunnel~~ Radiation—High instrumentation channels, which must have a required number of OPERABLE channels in each trip system, with their setpoints within the specified Allowable Value of SR 3.3.7.8.4 2.2. The actual setpoint is calibrated consistent with applicable setpoint methodology assumptions. Channel OPERABILITY also includes the associated isolation valve. I

Main Steam Line Radiation-High I

An Allowable Values ~~are~~ is specified for the ~~condenser vacuum pump isolation Function specified in the LCO~~. A Nominal trip setpoints ~~are~~ is specified in the setpoint calculations. The nominal setpoints ~~are~~ is selected to ensure that the setpoints do not exceed the Allowable Value between CHANNEL CALIBRATIONS. Operation with a trip setpoint less conservative than the nominal trip setpoint, but within its Allowable Value, is acceptable. Trip setpoints are those predetermined values of output at which an action should take place. The setpoints are compared to the actual process parameter (i.e., Main Steam ~~Tunnel~~ Line Radiation—High), and when the measured output value of the process parameter exceeds the setpoint, the associated device (e.g., trip unit) changes state. The analytic limits ~~are~~ is derived from the limiting values of the process parameters obtained from the safety analysis. ~~The Allowable Values are derived from the analytic limits, corrected for calibration, process, and some of the instrument errors. The trip setpoints are then determined accounting for the remaining instrument errors (e.g., drift). The trip setpoints derived in this manner provide adequate protection because instrumentation uncertainties, process effects, calibration tolerances, instrument drift, and severe environment errors (for channels that must function in harsh environments as defined by 10 CFR 50.49) are accounted for.~~ I

SR 3.3.7.2.2

Insert LCO-1

219b

Revision I

DBI Insert Page B3.3-219d

PA1

BASES (continued)

APPLICABILITY

any

The condenser vacuum pump isolation is required to be OPERABLE in MODES 1 and 2 when the condenser vacuum pump is in service to mitigate the consequences of a postulated CRDA. In this condition fission products released during a CRDA could be discharged directly to the environment. Therefore, the condenser vacuum pump isolation is necessary to assure conformance with the radiological evaluation of the CRDA. In MODE 3, 4 or 5 the consequences of a control rod drop are insignificant, and are not expected to result in any fuel damage or fission product releases. When the condenser vacuum pump is not in operation in MODE 1 or 2, fission product releases via this pathway would not occur.

not isolated and any main steam line not isolated

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air removal

or the main steam lines are isolated

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s

ACTIONS

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

air removal

A.1 and A.2

With one or more channels inoperable, but with condenser vacuum pump isolation capability maintained (refer to Required Actions B.1, B.2, and B.3 Bases), the condenser vacuum pump isolation instrumentation is capable of performing the intended function. However, the reliability and redundancy of the condenser vacuum pump isolation instrumentation is reduced, such that a single failure in one of the remaining channels could result in the inability of the condenser vacuum pump isolation instrumentation to perform the intended function. Therefore, only a limited time is allowed to restore the inoperable channels to

air removal

(continued)

Revision I

DBI <Insert Page B 3.3-219e>

TAI

BASES

ACTIONS (continued)

OPERABLE status. Because of the low probability of extensive numbers of inoperabilities affecting multiple channels, and the low probability of an event requiring the initiation of condenser air removal vacuum pump isolation, 24 hours has been shown to be acceptable (Refs. 4 ~~3 and 4~~) to permit restoration of any inoperable channel to OPERABLE status. (Required Action A.1). Alternately, the inoperable channel, or associated trip system, may be placed in trip (Required Action A.2), since this would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. As noted, placing the channel in trip with no further restrictions is not allowed if the inoperable channel is the result of an inoperable isolation valve, since this may not adequately compensate for the inoperable valve (e.g., the valve may be inoperable such that it will not isolate). If it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel would result in loss of condenser vacuum), or if the inoperable channel is the result of an inoperable valve, Condition B must be entered and its Required Actions taken.

H Insert B.1 Completion Time

C.1, C.2, and C.3 (printed B.1, B.2, and B.3)

With any Required Action and associated Completion Time of Condition A or B not met, the plant must be brought to a MODE or other specified condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours (Required Action C.3). Alternately, the ~~associated~~ condenser air removal ~~vacuum~~ pump may be isolated ~~removed from service~~ (5) since this performs the intended function of the instrumentation (Required Action C.1). An additional option is provided to isolate the main steam lines (Required Action C.2), which may allow operation to continue. Isolating the main steam lines effectively provides an equivalent level of protection by precluding fission product transport to the condenser.

I

B.1

Required Action B.1 ~~Condition B~~ is ~~also~~ intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels result in the Function not maintaining condenser air removal ~~vacuum~~ pump isolation capability. The Function is considered to be maintaining condenser air removal ~~vacuum~~ pump isolation capability when sufficient channels are OPERABLE or in trip such that the condenser air removal ~~vacuum~~ pump isolation instruments

(continued)

Revision I

D81 <Insert Page B 3.3-219g>

BASES

ACTIONS

C.1, C.2, and C.3 (continued)

move to previous page as indicated

at least one

will generate a trip signal from a valid Main Steam Line High signal, and the isolation valve will close. This requires one channel of the Function in each trip system to be OPERABLE or in trip, and the condenser vacuum pump isolation valve to be OPERABLE. I

Line Radiation

one

air removal

The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions, or to remove the condenser pump from service, or to isolate the main steam lines, in an orderly manner and without challenging plant systems. 1

air removal

SURVEILLANCE REQUIREMENTS

~~Reviewer's Note: Certain Frequencies are based on approved topical reports. In order for a licensee to use these times, the licensee must justify the Frequencies as required by the staff Safety Evaluation Report for the topical report.~~

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into the associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains condenser vacuum pump isolation trip capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 4) assumption of the average time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the condenser vacuum pumps will isolate when necessary.

air removal

air removal

(continued)

Revision I

INSERT SR 3.3.7.2.2 DB1

SR 3.3.7.2.3, however, is only a calibration of the radiation detectors using a standard radiation source.

As noted for SR 3.3.7.2.2, the main steam line radiation detectors are excluded from CHANNEL CALIBRATION due to ALARA reasons (when the plant is operating, the radiation detectors are generally in a high radiation area; the steam tunnel). This exclusion is acceptable because the radiation detectors are passive devices, with minimal drift. The radiation detectors are calibrated in accordance with SR 3.3.7.2.3 on a 24 month Frequency. The CHANNEL CALIBRATION of the remaining portions of the channel (SR 3.3.6.1.2) are performed using a standard current source. 1 I

The Frequency of SR 3.3.7.2.2 is based on the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The Frequency of SR 3.3.7.2.3 is based on the assumption of a 24 month calibration interval in the determination of the magnitude of detector drift in the setpoint analysis.

3.3 INSTRUMENTATION

3.3.7.2 Condenser Air Removal Pump Isolation Instrumentation

LCO 3.3.7.2 Four channels of the Main Steam Line Radiation—High Function for the condenser air removal pump isolation shall be OPERABLE. | I

APPLICABILITY: MODES 1 and 2 with any condenser air removal pump not isolated and any main steam line not isolated. | I

ACTIONS

------------------------------------NOTE------------------------------------
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Restore channel to OPERABLE status.	24 hours
	<u>OR</u>	
	A.2 --------NOTE-------- Not applicable if inoperable channel is the result of an inoperable isolation valve. -------------------- Place channel or associated trip system in trip.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Condenser air removal pump isolation capability not maintained.	B.1	Restore isolation capability.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Isolate the condenser air removal pumps.	12 hours
	<u>OR</u>		
	C.2	Isolate the main steam lines.	12 hours
	<u>OR</u>		
	C.3	Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

-----------------------------------NOTE-----------------------------------
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains condenser vacuum pump isolation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.7.2.1	Perform CHANNEL CHECK.	12 hours

(continued)

B 3.3 INSTRUMENTATION

B 3.3.7.2 Condenser Air Removal Pump Isolation Instrumentation

BASES

BACKGROUND

The condenser air removal pump isolation instrumentation initiates an isolation of the suction and discharge valves of the condenser air removal pumps following events in which main line steam radiation exceeds predetermined values. Isolating the condenser air removal pump limits the offsite doses in the event of a control rod drop accident (CRDA).

The condenser air removal pump isolation instrumentation (Ref. 1) includes sensors, logic circuits, relays and switches that are necessary to cause initiation of the condenser air removal pumps isolation. The channels include electronic equipment that compares measured input signals with pre-established setpoints. When the setpoint is exceeded, the channel output relay actuates, which then outputs an isolation signal to the condenser air removal pump isolation logic.

The isolation logic consists of two trip systems, with two channels of Main Steam Line Radiation—High in each trip system. Each trip system is a one-out-of-two logic for this Function. Thus, either channel of Main Steam Line Radiation—High in each trip system are needed to trip a trip system. The outputs of the channels in a trip system are combined in a logic so that both trip systems must trip to result in an isolation signal.

There are two isolation valves associated with this function.

APPLICABLE SAFETY ANALYSES

The condenser air removal pump isolation is assumed in the safety analysis for the CRDA. The condenser air removal pump isolation instrumentation initiates an isolation of the condenser air removal pump to limit offsite does resulting from fuel cladding failure in a CRDA (Ref. 2).

The condenser air removal pump isolation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 3).

(continued)

BASES (continued)

LCO

The OPERABILITY of the condenser air removal pump isolation is dependent on the OPERABILITY of the individual Main Steam Line Radiation-High instrumentation channels, which must have a required number of OPERABLE channels in each trip system, with their setpoints within the specified Allowable Value of SR 3.3.7.2.2. The actual setpoint is calibrated consistent with applicable setpoint methodology assumptions. Channel OPERABILITY also includes the associated isolation valve.

An Allowable Value is specified for the Main Steam Line Radiation-High isolation Function in SR 3.3.7.2.2. A nominal trip setpoint is specified in the setpoint calculations. The nominal setpoint is selected to ensure that the setpoints do not exceed the Allowable Value between CHANNEL CALIBRATIONS. Operation with a trip setpoint less conservative than the nominal trip setpoint, but within its Allowable Value, is acceptable. Trip setpoints are those predetermined values of output at which an action should take place. The setpoints are compared to the actual process parameter (i.e., Main Steam Line Radiation-High), and when the measured output value of the process parameter exceeds the setpoint, the associated device (e.g., trip unit) changes state. The analytic limit is derived from the limiting values of the process parameters obtained from the safety analysis. The trip setpoint is derived from the analytical limit and accounts for all worst case instrumentation uncertainties as appropriate (e.g., drift, process effects, calibration uncertainties, and severe environmental errors (for channels that must function in harsh environments as defined by 10 CFR 50.49)). The trip setpoint derived in this manner provides adequate protection because all expected uncertainties are accounted for. The Allowable Value is then derived from the trip setpoint by accounting for normal effects that would be seen during periodic surveillance or calibration. These effects are instrumentation uncertainties observed during normal operation (e.g., drift and calibration uncertainties). The Allowable Value was selected to be low enough that a high radiation trip results from the fission products released in the CRDA. In addition, the setting is adjusted high enough above the background radiation level in the vicinity of the main steam lines so that spurious trips are avoided at rated power.

(continued)

BASES (continued)

APPLICABILITY

The condenser air removal pump isolation is required to be OPERABLE in MODES 1 and 2 when any condenser air removal pump is not isolated and any main steam line not isolated to mitigate the consequences of a postulated CRDA. In this condition fission products released during a CRDA could be discharged directly to the environment. Therefore, condenser air removal pump isolation is necessary to assure conformance with the radiological evaluation of the CRDA. In MODE 3, 4 or 5 the consequences of a control rod drop are insignificant, and are not expected to result in any fuel damage or fission product releases. When the condenser air removal pumps or main steam lines are isolated in MODE 1 or 2, fission product releases via this pathway would not occur.

ACTIONS

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

<u>A.1 and A.2</u>

With one or more channels inoperable, but with condenser air removal pump isolation capability maintained (refer to Required Action B.1 Bases), the condenser air removal pump isolation instrumentation is capable of performing the intended function. However, the reliability and redundancy of the condenser air removal pump isolation instrumentation is reduced, such that a single failure in one of the remaining channels could result in the inability of the condenser air removal pump isolation instrumentation to

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

perform the intended function. Therefore, only a limited time is allowed to restore the inoperable channels to OPERABLE status. Because of the low probability of extensive numbers of inoperabilities affecting multiple channels, and the low probability of an event requiring the initiation of condenser air removal pump isolation, 24 hours has been shown to be acceptable (Ref. 4) to permit restoration of any inoperable channel to OPERABLE status. (Required Action A.1). Alternately, the inoperable channel, or associated trip system, may be placed in trip (Required Action A.2), since this would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. As noted, placing the channel in trip with no further restrictions is not allowed if the inoperable channel is the result of an inoperable isolation valve, since this may not adequately compensate for the inoperable valve (e.g., the valve may be inoperable such that it will not isolate). If it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel would result in loss of condenser vacuum), or if the inoperable channel is the result of an inoperable valve, Condition B must be entered and its Required Actions taken.

B.1

Required Action B.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels result in the Function not maintaining condenser air removal pump isolation capability. The Function is considered to be maintaining condenser air removal pump isolation capability when sufficient channels are OPERABLE or in trip such that the condenser air removal pump isolation instruments will generate a trip signal from a valid Main Steam Line Radiation—High signal, and at least one isolation valve will close. This requires one channel of the Function in each trip system to be OPERABLE or in trip, and one condenser air removal pump isolation valve to be OPERABLE.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

(continued)

BASES

ACTIONS (continued)

C.1, C.2, and C.3

With any Required Action and associated Completion Time of Condition A or B not met, the plant must be brought to a MODE or other specified condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours (Required Action C.3). Alternately, the condenser air removal pumps may be isolated since this performs the intended function of the instrumentation (Required Action C.1). An additional option is provided to isolate the main steam lines (Required Action C.2), which may allow operation to continue. Isolating the main steam lines effectively provides an equivalent level of protection by precluding fission product transport to the condenser.

The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions, or to remove the condenser air removal pump from service, or to isolate the main steam lines, in an orderly manner and without challenging plant system.

SURVEILLANCE REQUIREMENTS

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into the associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains condenser air removal pump isolation trip capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 4) assumption of the average time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the condenser air removal pumps will isolate when necessary.

SR 3.3.7.2.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.7.2.1 (continued)

indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Channel agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

The Frequency is based upon operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the required channels of this LCO.

SR 3.3.7.2.2 and SR 3.3.7.2.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. SR 3.3.7.2.3, however, is only a calibration of the radiation detectors using a standard radiation source.

As noted for SR 3.3.7.2.2, the main steam line radiation detectors are excluded from CHANNEL CALIBRATION due to ALARA reasons (when the plant is operating, the radiation detectors are generally in a high radiation area; the steam tunnel). This exclusion is acceptable because the radiation detectors are passive devices, with minimal drift. The radiation detectors are calibrated in accordance with SR 3.3.7.2.3 on a 24 month Frequency. The CHANNEL 1I

(continued)

BASES [Insert Page B 3.3-219n] X1

ACTIONS

A.1 (continued)

Bases of LCO 3.5.1, "Emergency Core Cooling System - Operating". I

This out of service time is only acceptable provided the ESW pressure channels are still maintaining actuation capability (refer to Require Action B.1 Bases). If the inoperable channel cannot be restored to OPERABLE status within the Completion Time, the channel must be placed in the tripped condition per Required Action A.1. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue with no further restrictions. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an ESW System initiation), Condition C must be entered and its Required Action taken.

B.1

Required Action B.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels result in redundant automatic initiation capability being lost for both ESW initiation logic systems. The ESW initiation logic systems are considered to be maintaining initiation capability when sufficient channels are OPERABLE or in the trip such that one logic system will generate an initiation signal from the given Function on a valid signal. This will ensure that at least one ESW System will receive an initiation signal.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The Completion Time is acceptable because it minimizes risk while allowing for restoration or tripping of channels.

C.1

If any Required Action and associated Completion Time of Condition A or B are not met, the associated ESW subsystem(s) must be declared inoperable immediately. This declaration also requires entry into applicable Conditions

(continued)

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 (continued)

This information provides instructions on the Surveillance performance which is not necessary in the Technical Specifications to ensure the RPS Electric Power Monitoring instruments are Operable. The requirements of ITS 3.3.8.2 which require the Electric Power Monitoring instruments to be Operable and the definition of Operability suffice. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CTS 3.9.G does not provide specific Applicability requirements for the RPS electric power monitoring assemblies (EPAs). The CTS Bases for this Specification and Amendment 76 to the JAFNPP Operating License specify that this protection is for the RPS (see discussion below with regards to License Amendment 76). CTS Table 3.1-1 requires the RPS instrumentation to be Operable when in the refuel, startup and run modes. The Applicability for the RPS Electric Power Monitoring in ITS 3.3.8.2 is MODES 1 and 2, and MODES 3, 4, and 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies. This change is less restrictive since the only Applicability requirements during Refuel will be when a control rod is withdrawn from a core cell containing one or more fuel assemblies. The current requirement is at all time during MODE 5 or refueling operations. This change is acceptable since the RPS electric power monitoring assemblies provide protection for RPS and therefore must be Operable to support RPS Operability. In addition, ITS 3.10.3, "Single Control Rod Withdrawal - Hot Shutdown" and ITS 3.10.4, "Single Control Rod Withdrawal - Cold Shutdown" will allow a single control rod to be withdrawn in MODE 3 or MODE 4, respectively by allowing the reactor mode switch to be placed in the refuel position. In this situation, the RPS EPAs will be required by this Specification.

License Amendment Number 76, dated November 7, 1983, approved the modifications and the associated Technical Specification/Bases changes which were necessary to address the Staff's concerns with regards to the capability of the RPS to properly operate after suffering sustained, abnormal voltage or frequency conditions from a non-Class 1E power supply. Included as part of this License Amendment was the results of a detailed review and technical evaluation of the proposed modifications

[3.9.6]

3.3 INSTRUMENTATION

3.3.8.2 Reactor Protection System (RPS) Electric Power Monitoring

[3.9.6]

LCO 3.3.8.2 Two RPS electric power monitoring assemblies shall be OPERABLE for each inservice RPS motor generator set or alternate power supply.

[L1]

APPLICABILITY: MODES 1, 2, and 3,
MODES 4 and 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies.

3, 4, and

CLB1 A1 I

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
[3.9.6.1] A. One or both inservice power supplies with one electric power monitoring assembly inoperable.	A.1 Remove associated inservice power supply(s) from service.	72 hours
[3.9.6.2] [L2] B. One or both inservice power supplies with both electric power monitoring assemblies inoperable.	B.1 Remove associated inservice power supply(s) from service.	1 hour
[M2] [L3] C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, and 3 (or *)	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

A1 CLB1 I

(continued)

Revision I

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met in MODE 4 or 5 [with any control rod withdrawn from a core cell containing one or more fuel assemblies].	D.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately
	AND	
	[D.2.1 Initiate action to restore one electric power monitoring assembly to OPERABLE status for inservice power supply(s) supplying required instrumentation.	Immediately]
	OR	
	[D.2.2 Initiate action to isolate the Residual Heat Removal Shutdown Cooling System.	Immediately]

[M1] X3, CLB1 TA1 CLB2 I

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	------NOTE------ Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for ≥ 24 hours. --------------- Perform CHANNEL FUNCTIONAL TEST.	184 days

[4.9.6.1] 3 or 2 CLB1 TA1 I

(continued)

Revision I

DB1

of the electric power monitoring assemblies associated with the inservice RPS motor generator sets

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY
[4.9.6.2]	SR 3.3.8.2.2	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Overvoltage ≤ [132] V, with time delay set ≤ 4 seconds b. Undervoltage ≥ ~~[108]~~ 112.5 V, with time delay set to ~~[zero]~~ ≤ 4 seconds. c. Underfrequency ≥ [57] Hz, with time delay set to ~~[zero]~~ ≤ 4 seconds.	~~[18]~~ 24 months DB1 for RPS bus A and ≥ 113.9 V for RPS bus B DB1
[4.9.6.2]	SR 3.3.8.2.~~3~~ 4 DB1	Perform a system functional test.	~~[18]~~ 24 months CLB3
[4.9.6.2] [M3]	SR 3.3.8.2.3 DB1	Perform CHANNEL CALIBRATION of the electric power monitoring assemblies associated with the inservice alternate power supplies. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 109.9 V, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 57 Hz, with time delay set to ≤ 4 seconds.	24 months

I

Revision I

JUSTIFICATION FOR DIFFERENCES FROM NUREG 1433, REVISION 1
ITS: 3.3.8.2 - REACTOR PROTECTION SYSTEM (RPS) ELECTRIC POWER MONITORING

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 The MODES 3, 4, and 5 Applicability of LCO 3.3.8.2, "RPS Electric Power Monitoring," is revised to not include MODE 3, except if a control rod is withdrawn from a core cell containing one or more fuel assemblies, consistent with the Applicability of RPS Functions in LCO 3.3.1.1 and CTS Table 3.3-1. In MODES 3 and 4, a control rod may be withdrawn from a core cell containing one or more fuel assemblies in accordance with LCO 3.10.3, "Single Control Rod Withdrawal – Hot Shutdown, and LCO 3.10.4, "Single Control Rod Withdrawal – Cold Shutdown," respectively. Therefore, LCO 3.10.3 and LCO 3.10.4 include Operability requirements for RPS Functions (LCO 3.3.1.1) and control rods (LCO 3.9.5). As a result, this LCO has been modified to also include requirements for the RPS Electric Power Monitoring assemblies to be Operable when the RPS Functions and control rods are required to be Operable. Commensurate changes to the ACTIONS of LCO 3.3.8.2 and SR 3.3.8.2.1 have also been made for consistency.

License Amendment Number 76, dated November 7, 1983, approved the modifications and the associated Technical Specification/Bases changes which were necessary to address the Staff's concerns with regards to the capability of the RPS to properly operate after suffering sustained, abnormal voltage or frequency conditions from a non-Class 1E power supply. Included as part of this License Amendment was the results of a detailed review and technical evaluation of the proposed modifications and associated Technical Specification changes which were performed by Lawrence Livermore Laboratory (LLL). This evaluation was reported in LLL report UCID-19706, "Technical Evaluation of the Monitoring of Electric Power to the Reactor Protection System," dated June 15, 1983. Both the LLL report and the Staff's Safety Evaluation concluded that the proposed modifications and the associated Technical Specification changes will provide automatic protection to the RPS components from sustained abnormal power supply. Therefore, the licensing basis of the modification/Technical Specification changes is that the protection provided by these changes to the facility are for the RPS. This conclusion is consistent with the Bases discussion of the LCO for the current Technical Specifications. Accordingly, the applicability requirements of the ITS (3.3.8.2) needs to be consistent with the applicability requirements of the RPS (3.3.1.1).

The applicability requirements of the RPS as provided in ITS 3.3.1.1, Table 3.3.1.1-1 is for Modes 1, 2 and 5, with note "a" applied to Mode 5. Note "a" states "With any control rod withdrawn from a core cell containing one or more fuel assemblies." The proposed applicability requirements for ITS 3.3.8.2 are identical to those found in ITS for the RPS, including ITS 3.10.3 and 3.10.4 RPS requirements.

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 (continued)

ISTS 3.3.8.2 was written for plants where the protection provided by the RPS electric power monitoring was intended to include components in addition to RPS. As described above, the Licensing Basis of the JAFNPP differs from the Bases of ISTS 3.3.8.2 in that the protection provided is solely for the RPS components. Accordingly, the last phrase of the last sentence found in the applicability section of the Bases of ISTS 3.3.8.2 is deleted. This deleted phrase states that the applicability of the LCO is for "...both residual heat removal (RHR) shutdown cooling isolation valves open."

In summary, consistent with the current licensing basis as described by License Amendment 76, the applicability requirements for ITS 3.3.8.2 ensure that the electrical protection assemblies are operable whenever the RPS is required to be operable. Accordingly, the proposed applicability requirements are acceptable. This change is consistent with TSTF-320 (see JFD TA1 below).

CLB2 The bracketed ITS 3.3.8.2 Required Actions D.2.1 and D.2.2 have been deleted since they are not applicable to the JAFNPP licensing basis for the RPS Electric Power Monitoring Assemblies.

CLB3 The system functional test Frequency in ISTS SR 3.3.8.2.3 (SR 3.3.8.2.4) has been extended from 18 months to 24 months consistent with the current requirements in CTS 4.9.G.2.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

None

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 A new SR (SR 3.3.8.2.3) has been added to simplify the presentation. The JAFNPP design includes two electric power monitoring assemblies (EPAs) for each power supply. There are a total of four power supplies, two in each electrical division and each power supply having two electric power monitoring assemblies. The Allowable Values of the electric power monitoring assemblies associated with the RPS motor generator sets are included in SR 3.3.8.2.2, and the Allowable of the EPAs associated with the alternate supplies are included in SR 3.3.8.2.3. The proposed Allowable Values are based on calculations based on a 24 month Surveillance Frequency, therefore the bracketed SR Frequency has been extended from 18 months to 24 months. This Frequency is consistent with CTS 4.9.G.2.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

TA1 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler number 320, Revision 0 have been incorporated into the revised Improved Technical Specifications. I

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

None

B 3.3 INSTRUMENTATION

B 3.3.8.2 Reactor Protection System (RPS) Electric Power Monitoring

BASES

BACKGROUND

RPS Electric Power Monitoring System is provided to isolate the RPS bus from the motor generator (MG) set or an alternate power supply in the event of overvoltage, undervoltage, or underfrequency. This system protects the loads connected to the RPS bus against unacceptable voltage and frequency conditions (Ref. 1) and forms an important part of the primary success path of the essential safety circuits. Some of the essential equipment powered from the RPS buses includes the RPS logic, scram solenoids, and various valve isolation logic.

PA2

(Safety functions powered by the RPS buses deenergize to actuate.)

RPS electric power monitoring assembly will detect any abnormal high or low voltage or low frequency condition in the outputs of the two MG sets or the alternate power supply and will de-energize its respective RPS bus, thereby causing all safety functions normally powered by this bus to de-energize.

PA1

In the event of failure of an RPS Electric Power Monitoring System (e.g., both inseries electric power monitoring assemblies), the RPS loads may experience significant effects from the unregulated power supply. Deviation from the nominal conditions can potentially cause damage to the scram solenoids and other Class 1E devices.

pilot valve

PA2

In the event of a low voltage condition for an extended period of time, the scram solenoids can chatter and potentially lose their pneumatic control capability, resulting in a loss of primary scram action.

TA2

CLB1

I

In the event of an overvoltage condition, the RPS logic relays and scram solenoids ~~(as well as the main steam isolation valve (MSIV) solenoids)~~, may experience a voltage higher than their design voltage. If the overvoltage condition persists for an extended time period, it may cause equipment degradation and the loss of plant safety function.

Two redundant Class 1E circuit breakers are connected in series between each RPS bus and its MG set, and between each RPS bus and its alternate power supply. Each of these

(continued)

Revision I

BASES

LCO (continued)

conservative than the nominal trip setpoint, but within its Allowable Value, is acceptable. A channel is inoperable if its actual trip setpoint is not within its required Allowable Value. Trip setpoints are those predetermined values of output at which an action should take place. The setpoints are compared to the actual process parameter (e.g., overvoltage), and when the measured output value of the process parameter exceeds the setpoint, the associated device (e.g., trip unit) changes state. The analytic limits are derived from the limiting values of the process parameters obtained from the design and safety analysis. ~~The Allowable Values are derived from the analytic limits, corrected for calibration, process, and some of the instrument errors. The trip setpoints are then determined, accounting for the remaining instrument errors (e.g., drift). The trip setpoints derived in this manner provide adequate protection because instrumentation uncertainties, process effects, calibration tolerances, instrument drift, and severe environment errors (for channels that must function in harsh environments as defined by 10 CFR 50.49) are accounted for.~~

Insert LCO

DB3

DB1

The Allowable Values for the instrument settings are based on the RPS providing ≥ 57 Hz, 120 V ± 10% (to all equipment), and 115 V ± 10 V (to scram ~~and MSIV~~ pilot valve solenoids). The most limiting voltage requirement and associated line losses determine the settings of the electric power monitoring instrument channels. The settings are calculated based on the loads on the buses and RPS MG set or alternate power supply being 120 VAC and 60 Hz.

TA2 PA2 CLB1 1

APPLICABILITY

The operation of the RPS electric power monitoring assemblies is essential to disconnect the RPS ~~bus powered components~~ inservice from the MG set or alternate power supply during abnormal voltage or frequency conditions. Since the degradation of a nonclass 1E source supplying power to the RPS bus can occur as a result of any random single failure, the OPERABILITY of the RPS electric power monitoring assemblies is required when the RPS bus powered components are required to be OPERABLE. This results in the RPS Electric Power Monitoring System OPERABILITY being required in MODES 1, 2, ~~and 3~~ and in MODES 4 and 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies ~~or with both residual heat removal (RHR) shutdown cooling isolation valves open~~.

CLB1 PA2 PA1 3 TB2 1 CLD2 TA2 [and] TA2 CLB1 I

(continued)

Revision I

BASES (continued)

ACTIONS

A.1

If one RPS electric power monitoring assembly for an inservice power supply (MG set or alternate) is inoperable, or one RPS electric power monitoring assembly on each inservice power supply is inoperable, the OPERABLE assembly will still provide protection to the RPS bus powered components under degraded voltage or frequency conditions. However, the reliability and redundancy of the RPS Electric Power Monitoring System is reduced, and only a limited time (72 hours) is allowed to restore the inoperable assembly to OPERABLE status. If the inoperable assembly cannot be restored to OPERABLE status, the associated power supply(s) must be removed from service (Required Action A.1). This places the RPS bus in a safe condition. An alternate power supply with OPERABLE powering monitoring assemblies may then be used to power the RPS bus. CLB1 PA1

The 72 hour Completion Time takes into account the remaining OPERABLE electric power monitoring assembly and the low probability of an event requiring RPS electric power monitoring protection occurring during this period. It allows time for plant operations personnel to take corrective actions or to place the plant in the required condition in an orderly manner and without challenging plant systems.

Alternately, if it is not desired to remove the power supply from service (e.g., as in the case where removing the power supply(s) from service would result in a scram or isolation), Condition C or D, as applicable, must be entered and its Required Actions taken. TA2 I DB1

B.1

If both power monitoring assemblies for an inservice power supply (MG set or alternate) are inoperable or both power monitoring assemblies in each inservice power supply are inoperable, the system protective function is lost. In this condition, 1 hour is allowed to restore one assembly to OPERABLE status for each inservice power supply. If one inoperable assembly for each inservice power supply cannot be restored to OPERABLE status, the associated power supply(s) must be removed from service within 1 hour (Required Action B.1). An alternate power supply with

(continued)

Revision I

BASES

ACTIONS

B.1 (continued)

OPERABLE assemblies may then be used to power one RPS bus. The 1 hour Completion Time is sufficient for the plant operations personnel to take corrective actions and is acceptable because it minimizes risk while allowing time for restoration or removal from service of the electric power monitoring assemblies.

Alternately, if it is not desired to remove the power supply(s) from service (e.g., as in the case where removing the power supply(s) from service would result in a scram or isolation), Condition C or D, as applicable, must be entered and its Required Actions taken. TA2 DB1 I

C.1 and C.2 CLB2

If any Required Action and associated Completion Time of Condition A or B are not met in MODE 1, 2, or 3, a plant shutdown must be performed. This places the plant in a condition where minimal equipment, powered through the inoperable RPS electric power monitoring assembly(s), is required and ensures that the safety function of the RPS (e.g., scram of control rods) is not required. The plant shutdown is accomplished by placing the plant in MODE 3 within 12 hours and in MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems. Eor3 CLB2 TA2 I CLB2 TA2 I

D.1, D.2.1, and D.2.2 CLB1 TA2

If any Required Action and associated Completion Time of Condition A or B are not met in MODE 4, or 5, or with any control rod withdrawn from a core cell containing one or more fuel assemblies or with both RHR shutdown cooling valves open, the operator must immediately initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies. Required Action D.1 results in the least reactive condition for the reactor core and ensures that the safety function of the RPS (e.g., scram of control rods) is not required. B1 CLB2 TA2 CLB1 I

(continued)

Revision I

BASES

ACTIONS

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

~~In addition, action must be immediately initiated to either restore one electric power monitoring assembly to OPERABLE status for the inservice power source supplying the required instrumentation powered from the RPS bus (Required Action D.2.1) or to isolate the RHR Shutdown Cooling System (Required Action D.2.2). Required Action D.2.1 is provided because the RHR Shutdown Cooling System may be needed to provide core cooling.~~ All actions must continue until the applicable Required Actions are completed.

CLO1 TA2 TA1

SURVEILLANCE REQUIREMENTS

SR 3.3.8.2.1

Insert SR 3.3.8.2.1

A CHANNEL FUNCTIONAL TEST is performed on each overvoltage, undervoltage, and underfrequency channel to ensure that the entire channel will perform the intended function.* Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

As noted in the Surveillance, the CHANNEL FUNCTIONAL TEST is only required to be performed while the plant is in a condition in which the loss of the RPS bus will not jeopardize steady state power operation (the design of the system is such that the power source must be removed from service to conduct the Surveillance). The 24 hours is intended to indicate an outage of sufficient duration to allow for scheduling and proper performance of the Surveillance.

The 184 day Frequency and the Note in the Surveillance are based on guidance provided in Generic Letter 91-09 (Ref. ~~4~~ 3). X1

SR 3.3.8.2.2 and SR 3.3.8.2.5 DB2

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies that the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

(continued)

Revision I

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.3.8.2 - REACTOR PROTECTION SYSTEM (RPS) ELECTRIC POWER MONITORING

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 The EPAs were installed to protect the RPS components, therefore reference to the MSIV solenoids and other isolation functions have been deleted.

CLB2 The MODES 3, 4, and 5 Applicability of LCO 3.3.8.2, "RPS Electric Power Monitoring," is revised to not include MODE 3 unless a control rod is withdrawn in any core cell with one or more fuel assemblies, consistent with the Applicability of RPS Functions in LCO 3.3.1.1 and CTS Table 3.3-1. In MODES 3 and 4, a control rod may be withdrawn from a core cell containing one or more fuel assemblies in accordance with LCO 3.10.3, "Single Control Rod Withdrawal - Hot Shutdown, and LCO 3.10.4, "Single Control Rod Withdrawal - Cold Shutdown," respectively. Therefore, LCO 3.10.3 and LCO 3.10.4 include Operability requirements for RPS Functions (LCO 3.3.1.1) and control rods (LCO 3.9.5). As a result, this LCO has been modified to also include requirements for the RPS Electric Power Monitoring assemblies to be Operable when the RPS Functions and control rods are required to be Operable. Commensurate changes to the ACTIONS of LCO 3.3.8.2 have also been made for consistency. The Justification for Differences for the Specification (CLB1) provides additional justification. In addition, these changes are consistent with TSTF-320 (see TA2 below).

CLB3 This requirement was added consistent with the current requirements in CTS 4.9.G.2. Since there is no other simulated actuation test for this equipment in another Technical Specification this testing is appropriate.

CLB4 The system functional test Frequency in SR 3.3.8.2.4 has been extended from 18 months to 24 months consistent with the current requirements in CTS 4.9.G.2.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 Typographical error corrected.

PA2 Editorial change made for enhanced clarity or to be consistent with similar statements in other places in the Bases.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect plant specific design/analysis.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB2 A new SR (SR 3.3.8.2.3) has been added to the Specification, therefore the Bases has been modified to reflect this change. This modification was necessary to identify the different Allowable Values of the electrical power monitoring assemblies associated with the MG set and the alternate power supplies. Subsequent SRs have been renumbered, as applicable to reflect this change.

DB3 The description of the setpoint calculation methodology has been revised to reflect the plant specific methodology.

DB4 The proposed Allowable Values are based on calculations based on a 24 month Surveillance Frequency, therefore the 18 month SR Frequency has been extended from 18 months to 24 months. This Frequency is consistent with CTS 4.9.G.2.

DB5 The brackets have been removed and the proper plant specific reference has been provided.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

TA1 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler number 205, Revision 3 have been incorporated into the revised Improved Technical Specifications.

TA2 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler number 320, Revision 0 have been incorporated into the revised Improved Technical Specifications. I

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 NUREG-1433, Revision 1, Bases reference to "the NRC Policy Statement" has been replaced with 10 CFR 50.36(c)(2)(ii), in accordance with 60 FR 36953 effective August 18, 1995. Subsequent references have been renumbered, as applicable.

3.3 INSTRUMENTATION

3.3.8.2 Reactor Protection System (RPS) Electric Power Monitoring

LCO 3.3.8.2 Two RPS electric power monitoring assemblies shall be OPERABLE for each inservice RPS motor generator set or alternate power supply.

APPLICABILITY: MODES 1 and 2,
MODES 3, 4, and 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies.

I

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both inservice power supplies with one electric power monitoring assembly inoperable.	A.1 Remove associated inservice power supply(s) from service.	72 hours
B. One or both inservice power supplies with both electric power monitoring assemblies inoperable.	B.1 Remove associated inservice power supply(s) from service.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1 or 2.	C.1 Be in MODE 3.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met in MODE 3, 4, or 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies.	D.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

1/I

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	-----------------NOTE----------------- Only required to be performed prior to entering MODE 2 from MODE 3 or 4, when in MODE 4 for ≥ 24 hours. --------------------------------------- Perform CHANNEL FUNCTIONAL TEST.	184 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION of the electric power monitoring assemblies associated with the inservice RPS motor generator sets. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 112.5 V for RPS bus A and ≥ 113.9 V for RPS bus B, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 57 Hz, with time delay set to ≤ 4 seconds.	24 months
SR 3.3.8.2.3	Perform CHANNEL CALIBRATION of the electric power monitoring assemblies associated with the inservice alternate power supplies. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 109.9 V, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 57 Hz, with time delay set to ≤ 4 seconds.	24 months
SR 3.3.8.2.4	Perform a system functional test.	24 months

I

B 3.3 INSTRUMENTATION

B 3.3.8.2 Reactor Protection System (RPS) Electric Power Monitoring

BASES

BACKGROUND

RPS Electric Power Monitoring System is provided to isolate the RPS bus from the motor generator (MG) set or an alternate power supply in the event of overvoltage, undervoltage, or underfrequency. This system protects the loads connected to the RPS bus against unacceptable voltage and frequency conditions (Ref. 1) and forms an important part of the primary success path of the essential safety circuits. Some of the essential equipment powered from the RPS buses includes the RPS logic, scram solenoids, and various valve isolation logic.

RPS electric power monitoring assembly will detect any abnormal high or low voltage or low frequency condition in the outputs of the two MG sets or the alternate power supply and will de-energize its respective RPS bus, thereby causing all safety functions normally powered by this bus to de-energize. (Safety functions powered by the RPS buses deenergize to actuate.)

In the event of failure of an RPS Electric Power Monitoring System (e.g., both in-series electric power monitoring assemblies), the RPS loads may experience significant effects from the unregulated power supply. Deviation from the nominal conditions can potentially cause damage to the scram pilot valve solenoids and other Class 1E devices.

In the event of a low voltage condition for an extended period of time, the scram pilot valve solenoids can chatter and potentially lose their pneumatic control capability, resulting in a loss of primary scram action.

In the event of an overvoltage condition, the RPS logic relays and scram pilot valve solenoids may experience a voltage higher than their design voltage. If the overvoltage condition persists for an extended time period, it may cause equipment degradation and the loss of plant safety function. I

Two redundant Class 1E circuit breakers are connected in series between each RPS bus and its MG set, and between each RPS bus and its alternate power supply. Each of these

(continued)

BASES

APPLICABILITY (continued)

Electric Power Monitoring System OPERABILITY being required in MODES 1 and 2; and in MODES 3, 4, and 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies.

ACTIONS

A.1

If one RPS electric power monitoring assembly for an inservice power supply (MG set or alternate) is inoperable, or one RPS electric power monitoring assembly on each inservice power supply is inoperable, the OPERABLE assembly will still provide protection to the RPS bus under degraded voltage or frequency conditions. However, the reliability and redundancy of the RPS Electric Power Monitoring System is reduced, and only a limited time (72 hours) is allowed to restore the inoperable assembly to OPERABLE status. If the inoperable assembly cannot be restored to OPERABLE status, the associated power supply(s) must be removed from service (Required Action A.1). This places the RPS bus in a safe condition. An alternate power supply with OPERABLE power monitoring assemblies may then be used to power the RPS bus.

The 72 hour Completion Time takes into account the remaining OPERABLE electric power monitoring assembly and the low probability of an event requiring RPS electric power monitoring protection occurring during this period. It allows time for plant operations personnel to take corrective actions or to place the plant in the required condition in an orderly manner and without challenging plant systems.

Alternately, if it is not desired to remove the power supply from service (e.g., as in the case where removing the power supply(s) from service would result in a scram or isolation), Condition C or D, as applicable, must be entered and its Required Actions taken.

B.1

If both power monitoring assemblies for an inservice power supply (MG set or alternate) are inoperable or both power monitoring assemblies in each inservice power supply are inoperable, the system protective function is lost. In this

(continued)

BASES

ACTIONS

B.1 (continued)

condition, 1 hour is allowed to restore one assembly to OPERABLE status for each inservice power supply. If one inoperable assembly for each inservice power supply cannot be restored to OPERABLE status, the associated power supply(s) must be removed from service within 1 hour (Required Action B.1). An alternate power supply with OPERABLE assemblies may then be used to power one RPS bus. The 1 hour Completion Time is sufficient for the plant operations personnel to take corrective actions and is acceptable because it minimizes risk while allowing time for restoration or removal from service of the electric power monitoring assemblies.

Alternately, if it is not desired to remove the power supply(s) from service (e.g., as in the case where removing the power supply(s) from service would result in a scram or isolation), Condition C or D, as applicable, must be entered and its Required Actions taken.

C.1

If any Required Action and associated Completion Time of Condition A or B are not met in MODE 1 or 2, a plant shutdown must be performed. This places the plant in a condition where minimal equipment, powered through the inoperable RPS electric power monitoring assembly(s), is required and ensures that the safety function of the RPS (e.g., scram of control rods) is not required. The plant shutdown is accomplished by placing the plant in MODE 3 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

D.1

If any Required Action and associated Completion Time of Condition A or B are not met in MODE 3, 4, or 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies, the operator must immediately initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies. Required Action D.1 results in the least reactive condition for the 1 I

(continued)

BASES

ACTIONS

D.1 (continued)

reactor core and ensures that the safety function of the RPS (e.g., scram of control rods) is not required. All actions must continue until the applicable Required Actions are completed.

SURVEILLANCE REQUIREMENTS

SR 3.3.8.2.1

A CHANNEL FUNCTIONAL TEST is performed on each overvoltage, undervoltage, and underfrequency channel to ensure that the entire channel will perform the intended function. A successful test of the required contacts(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

As noted in the Surveillance, the CHANNEL FUNCTIONAL TEST is only required to be performed while the plant is in a condition in which the loss of the RPS bus will not jeopardize steady state power operation (the design of the system is such that the power source must be removed from service to conduct the Surveillance). The 24 hours is intended to indicate an outage of sufficient duration to allow for scheduling and proper performance of the Surveillance.

The 184 day Frequency and the Note in the Surveillance are based on guidance provided in Generic Letter 91-09 (Ref. 3).

SR 3.3.8.2.2 and SR 3.3.8.2.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies that the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel

(continued)

SUMMARY OF CHANGES TO ITS SECTION 3.4 - REVISION I

Source of Change	Summary of Change	Affected Pages
¦itorial clarification	A minor editorial clarification has been made in the Discussion of Changes. (DOC L3, "additional 4 hours" changed in two places to "option" and "before a reactor shutdown must be initiated" changed to "within the same 4 hours.")	**Specification 3.4.4** DOC L3 (DOCs p 3 of 3)
Technical change	A Note has been added to the Surveillance Requirements to allow a channel to be inoperable during Surveillance testing for up to 6 hours without requiring entry into the associated ACTIONS, provided the other required leakage detection instrumentation is Operable. This change has been previously approved by the NRC during the ITS conversions for WNP-2, NMP2, and LaSalle 1 and 2.	**Specification 3.4.5** CTS markup p 2 of 7 DOC L6 (DOCs p 5 of 5) NSHC L6 (NSHCs p 10 of 10) NUREG ITS markup p 3.4-15 JFD X2 (JFDs p 2 of 2) NUREG Bases markup p B 3.4-32 and Insert page B 3.4-32 Bases JFD X2 (Bases JFDs p 2 of 2 Retyped ITS p 3.4-12 Retyped ITS Bases p B 3.4-29
Technical change	The changes agreed to by JAFNPP during a conversation with the NRC have been made. Specifically, the Specification has been modified to include requirements for both a drywell continuous atmospheric particulate channel and a drywell continuous atmospheric gaseous channel. In addition, a typographical error in Discussion of Change M2 has been corrected (The words "CTS 3.6.D.5 and 3.6.D.5" have been changed to "CTS 3.6.D.4 and 3.6.D.5").	**Specification 3.4.5** CTS markup p 2 of 7, 4 of 7, and 5 of 7 DOCs A2, M2, L1, and L3 (DOCs p 1 of 5, 2 of 5, 3 of 5, and 4 of 5) NSHCs L1 and L3 (NSHCs p 1 of 10, 2 of 10, and 5 of 10) NUREG ITS markup p 3.4-12, 3.4-13, 3.4-14, and 3.4-15 JFDs CLB1, PA3 (deleted), and DB1 (deleted) (JFDs p 1 of 2) NUREG Bases markup p B 3.4-29, B 3.4-30, B 3.4-31, and B 3.4-32 Bases JFDs CLB2, PA3, and DB3 (Bases JFDs p 1 of 2 and 2 of 2) Retyped ITS p 3.4-10, 3.4-11, and 3.4-12 Retyped ITS Bases p B 3.4-27, B 3.4-28, and B 3.4-29

SUMMARY OF CHANGES TO ITS SECTION 3.4 - REVISION I

Source of Change	Summary of Change	Affected Pages
Typographical error	Minor typographical error in the Discussion of Changes has been corrected. (DOC A2, "CTS 4.6.1.b" changed to "4.6.C.1.b.")	**Specification 3.4.6** DOC A2 (DOCs p 1 of 4)
RAI 3.4.6-01	The changes to the ITS and Bases discussed in RAI 3.4.6-01 have been removed from the submittal.	**Specification 3.4.6** NUREG ITS markup p 3.4-16 JFD PA2 (deleted) (JFDs p 1 of 1) NUREG Bases markup p B 3.4-34 and B 3.4-35 Bases JFD PA3 (deleted) (Bases JFDs p 1 of 1) Retyped ITS p 3.4-12 Retyped ITS Bases p B 3.4-32 and B 3.4-33
Typographical error	Minor typographical error in the Discussion of Changes has been corrected. (DOC A4, "MODES 1, 2, and 3" changed to "MODES 1, 2, or 3" in the third sentence.)	**Specification 3.4.9** DOC A4 (DOCs p 1 of 7)
RAI 3.4.9-03	The changes to the ITS and Bases discussed in RAI 3.4.9-03 have been removed from the submittal.	**Specification 3.4.9** NUREG ITS markup p 3.4-24 and Insert page 3.4-24 JFD PA3 (deleted) (JFDs p 1 of 1) Retyped ITS p 3.4-20 and 3.4-21

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 (continued)

current MODES 1, 2, and 3 (i.e., is at operating pressure after a period of 24 hours). An unidentified LEAKAGE increase of > 2 gpm within the previous 24 hour period indicates a potential flaw in the RCPB and must be quickly evaluated to determine the source and extent of the LEAKAGE. As the plant starts up and increases pressure, leakage will occur due to the increased pressure. Thus, an increase is detected, and if greater than the limit, could require a plant shutdown, even though there is no safety problem. This proposed change will not require the limit to be applied until MODE 1 is achieved, which is when reactor pressure has effectively stabilized at nominal operating pressure. The overall 5 gpm unidentified Leakage limit will be maintained. This limit is well below the expected flow from a critical sized crack in the primary system.

L2 CTS 3.6.D.1.c requires that total leakage not exceed 25 gpm. ITS 3.4.4 requires that total LEAKAGE not exceed specified limits when averaged over the previous 24 hour period. Total leakage consists of unidentified and identified Leakage. The unidentified Leakage is the more important of the two leakages, and it is being maintained as an instantaneous limit; it is not being averaged to determine unidentified Leakage. The total leakage limit is chosen to ensure the RCS inventory makeup capability and drywell sump capacity is not exceeded. Allowing instantaneous total leakage to be greater than the limit, provided the average total leakage over a 24 hour period is within the limit is acceptable since the current 25 gpm limit is well within the capability of the CRD System pumps and the RCIC System, and is well below the capacity of the drywell equipment drain sump. Additionally, the existing limits associated with unidentified Leakage will still apply.

L3 CTS 3.6.D.3 requires that the source of an increase in the leakage be identified within 4 hours. ITS 3.4.4 Required Action B.1, provides an additional option to allow the operators to reduce the leakage (or leakage increase) to within acceptable limits within the same 4 hours. This additional option is acceptable because the leakage limits are significantly below the leakage that would result from a critical sized crack. The critical crack size is indicative of a crack large enough to result in crack instability. I

TECHNICAL CHANGES - RELOCATIONS

None

A1

JAFNPP

~~3.6 (cont'd)~~

2. With reactor coolant system leakage greater than the limits specified in 3.6.D.1.a or 3.6.D.1.c, the leakage rate shall be reduced to within these limits within 4 hours or the reactor shall be in at least the hot standby condition within the following 12 hours and in cold condition within the next 24 hours.

See ITS 3.4.4

3. With an increase in unidentified reactor coolant system leakage equal to or greater than the limit specified in 3.6.D.1.b, the source of the leakage shall be identified within 4 hours or the reactor shall be in at least hot standby condition within the next 12 hours and in cold condition within the following 24 hours.

[LCO 3.4.5] Drywell

4. The ~~Primary Containment Sump Monitoring System (Equipment Drain Sump Monitoring and~~ Floor Drain Sump Monitoring) and the Continuous Atmosphere Monitoring System (Gaseous and Particulate) shall be operable ~~when the reactor coolant leakage limits of Specification 3.6.D.1 are in effect.~~ [SR 3.4.5.1] [SR 3.4.5.2] [SR 3.4.5.3]

[Applicability] One Channel of each

L1

L5

MODES 1, 2, and 3

~~4.6 (cont'd)~~

~~2. Not Used~~

~~3. Not Used~~

add SR Note L6

Drywell

4. The ~~Primary Containment Sump Monitoring System (Equipment Drain Sump Monitoring and~~ Floor Drain Sump Monitoring) instrumentation shall be calibrated and checked as specified in Surveillance Requirement 4.2.E. Continuous Atmosphere Monitoring System (Gaseous and Particulate) instrumentation shall be functionally tested and calibrated as specified in Table 4.6-2.

I

I

~~3.6 (cont'd)~~

~~4.6 (cont'd)~~

L5

Drywell

add ---- NOTE ----
LCO 3.0.4 is not applicable

L3

[ACTION A] 5. With the ~~Primary Containment Sump Monitoring System (Equipment Drain Sump Monitoring or~~ Floor Drain Sump Monitoring) inoperable, restore the system to operable status within ~~24 hours~~ 30 days ~~or be in at least hot shutdown within~~

L2

[ACTION D] the next 12 hours and in the cold condition within the following 24 hours.

and L1

[ACTION C] ~~6.~~ With the Continuous Atmosphere Monitoring System (gaseous) ~~or~~ the Continuous Atmosphere Monitoring System (particulate) inoperable, operation may continue for up to 30 days provided grab samples of the containment atmosphere are obtained and analyzed at least once per ~~24~~ 12 hours.

L1

Channel

add ----- Note ----
LCO 3.0.4 is not applicable

L3

[ACTION D] Otherwise be in at least hot shutdown within the next 12 hours and in cold shutdown within the following 24 hours.

L1

add Action B L1

Add ACTION E M2

I

I

I

I

I

Amendment No. ~~28, 56, 102, 192, 203~~ 210

Specification 3.4.5

A1

A2

JAFNPP

Table 4.6-2

~~Minimum Test and Calibration Frequency for Continuous Atmosphere Monitoring System~~

ITS →

Inst. Channel	Inst. Functional Test [SR 3.4.5.2]	Calibration [SR 3.4.5.3]	~~Sensor~~ Channel Check [SR 3.4.5.1] A1
1. Air Particulate Analyzer	~~None~~ 31 days	Once / 3 mos.	once / ~~day~~ 12 hours
2. Gaseous Activity Analyzer	~~None~~ 31 days	Once / 3 mos.	once / ~~day~~ 12 hours

LCO 3.4.5.b and LCO 3.4.5.c

M1

M1

Amendment No. ~~28, 200, 203,~~ 210

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Revision I