JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.3.4.1

Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

DISCUSSION OF CHANGES (DOCs) TO THE CTS

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

MARKUP OF NUREG-1433, REVISION 1, SPECIFICATION

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1433, REVISION 1

MARKUP OF NUREG-1433, REVISION 1, BASES

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1433, REVISION 1, BASES

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.3.4.1

Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

Specification 3.3.4.1

A1

3.2 (cont'd)	4.2 (cont'd)
E. Drywell Leak Detection	**E. Drywell Leak Detection** (See ITS: 3.4.5)
The limiting conditions for operation for the instrumentation that monitors drywell leak detection are given in Table 3.2-5.	Instrumentation shall be calibrated and checked as indicated in Table 4.2-5.
F. Feedwater Pump Turbine and Main Turbine Trip	**F. Feedwater Pump Turbine and Main Turbine Trip** (See ITS: 3.3.2.2)
The limiting conditions for operation for the instrumentation that provides a feedwater pump turbine and main turbine trip are given in Table 3.2-6.	Instrumentation shall be tested and calibrated as indicated in Table 4.2-6.
[3.3.4.1] G. Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation	[3.3.4.1] G. Recirculation Pump Trip (ATWS-RPT) Instrumentation
[LCO 3.3.4.1] The limiting conditions for operation for the instrumentation that trip(s) the recirculation pumps as a means of limiting the consequences of a failure to scram during an anticipated transient are given in ~~Table 3.2-7~~. A8	[SR 3.3.4.1.2] [SR 3.3.4.1.3] [SR 3.3.4.1.4] Instrumentation shall be functionally tested and calibrated as indicated in ~~Table 4.2-7~~. A8 [SR 3.3.4.1.5] System logic shall be functionally tested as indicated in Table ~~4.2-7~~. A8
H. Accident Monitoring Instrumentation	**H. Accident Monitoring Instrumentation** (See ITS: 3.3.3.1)
The limiting conditions for operation for the instrumentation that provides accident monitoring are given in Table 3.2-8.	Instrumentation shall be demonstrated operable by performance of a channel check, channel calibration and functional test as indicated in Table 4.2-8, as applicable.
I. 4kv Emergency Bus Undervoltage Trip	**I. Not Used** (See ITS: 3.3.8.1)
The limiting conditions for operation for the instrumentation that prevents damage to electrical equipment or circuits as a result of either a degraded or loss-of-voltage condition on the emergency electrical buses are given in Table 3.2-2.	

Specification 3.3.4.1

A1

TABLE 3.2-7

A8

ATWS RECIRCULATION PUMP TRIP INSTRUMENTATION REQUIREMENTS

RAI 3.3.4.1-1

Minimum Number of Operable Instrument Channels Per Trip System (Notes 1 & 2)	Trip Function	Allowable Value [SR 3.3.4.1.4] Trip Level Setting	[Applicability] Applicable Modes	
[LCO 3.3.4.1.b] 2	Reactor Pressure - High	≤ 1120 psig, or ≥ 1155 psig (Note 3)	Run [MODE 1]	F
[LCO 3.3.4.1.a] 2	Reactor Water Level - Low Low	> 105.4 in. above TAF	Run [MODE 1]	AMD 264

A7 — Allowable Value

1118 — M2 — 1153

LA1

Specification 3.3.4.1

JAFNPP

TABLE 3.2-7 (cont'd)

ATWS RECIRCULATION PUMP TRIP INSTRUMENTATION REQUIREMENTS

add ACTION Table Note (A2)

add RA A.2 Note (M.3)

RAI 3.3.4.1-3

RAI 3.3.4.1-1

RAI 3.3.4.1-2

NOTES FOR TABLE 3.2-7

[LCO 3.3.4.1] 1. There shall be two operable or tripped trip systems for each Trip Function, except as provided for below:

[RA A.2] a. For each Trip Function with one less than the required minimum number of operable instrument channels, place the inoperable instrument channel and/or its associated trip system in the tripped condition* within 12 hours. Otherwise, place the reactor in the start-up/hot standby mode within the next 6 hours.

[ACTION D] add Required Action D.1 (L3)

14 days (L1) add RA.A.1

b. For each Trip Function with two or more channels less than the required minimum number of operable instrument channels:

1) Within one hour, verify sufficient instrument channels remain operable or tripped* to maintain trip capability in the Trip Function, and

2) Within 6 hours, place the inoperable instrument channel(s) in one trip system and/or that trip system** in the tripped condition*, and

3) Within 24 hours, restore the inoperable instrument channel to the other trip system to an operable status.

add ACTION B & C (L2)

[ACTION D] If any of these three conditions cannot be satisfied, place the reactor in the start-up/hot standby mode within the next 6 hours.

add Required Action D.1 (L3)

RAI 3.3.4.1-2

LA2

* An inoperable instrument channel or trip system need not be placed in the tripped condition where this would cause the Trip Function to occur. In these cases, if the inoperable instrument channel is not restored to operable status within the required time, place the reactor in the start-up/hot standby mode within the next 6 hours.

[RA D.2] add Required Action D.1 (L3)

** This action applies to that trip system with the greatest number of inoperable instrument channels. If both systems have the same number of inoperable instrument channels, the ACTION can be applied to either trip system. (A6)

[SR Table Note] 2. When a channel is placed in an inoperable status solely for performance of required surveillances, entry into associated Limiting Conditions for Operation and required actions may be delayed for up to 6 hours provided the associated Trip Function maintains ATWS RPT initiation capability.

Specification 3.3.4.1

JAFNPP

TABLE 3.2-7 (cont'd)

ATWS RECIRCULATION PUMP TRIP INSTRUMENTATION REQUIREMENTS

NOTES FOR TABLE 3.2-7 (cont.)

[SR 3.3.4.1.4] 3. The ATWS Reactor Pressure High Recirculation Pump trip setpoint shall be ≤ 1155 psig when either zero or one SRVs are out of service. The setpoint shall be ≤ 1120 psig when two or more SRVs are out of service.

Allowable Value

1153 M2

1118 M2

≥ 10 Safety/Relief Valves (SRVs) OPERABLE

≤ 10 SRVs OPERABLE

A1 A7 A8 A9

F

RAI 3.3.4.1-6

A1

JAFNPP

TABLE 4.2-7

A8

ATWS RECIRCULATION PUMP TRIP INSTRUMENTATION
TEST AND CALIBRATION REQUIREMENTS

FUNCTION	CHANNEL CHECK [SR 3.3.4.1.1]	CHANNEL FUNCTIONAL TEST [SR 3.3.4.1.2]	TRIP UNIT CALIBRATION [SR 3.3.4.1.3]	CHANNEL CALIBRATION [SR 3.3.4.1.4]	SIMULATED AUTO ACTUATION & LOGIC FUNCTIONAL TEST (including breaker activation) [SR 3.3.4.1.5]
Reactor Pressure-High	D	Q 92 days Q	SA 184 days SA	R 24 months R	R 24 months R
Reactor Water Level-Low Low	D 12 hours				

M1

Specification 3.3.4.1

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JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.3.4.1

Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

DISCUSSION OF CHANGES (DOCs) TO THE CTS

DISCUSSION OF CHANGES
ITS SECTION 3.3.4.1: ATWS-RPT INSTRUMENTATION

ADMINISTRATIVE CHANGES

A1 In the conversion of the James A. FitzPatrick Nuclear Power Plant (JAFNPP) Current Technical Specification (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 This change proposes to add a Note to CTS Table 3.2-7 which allows separate Condition entry for each channel. The Note is reflected in ITS 3.3.4.1 ACTIONS Table ("Separate Condition entry is allowed for each channel."). This change provides more explicit instructions for proper application of the 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 current Required Actions for inoperable ATWS-RPT channels, functions or recirculation pump breakers. It is intended that each Required Action be applied regardless of it having been applied previously for other inoperable ATWS-RPT channels, functions or recirculation pump breakers.

A3 Not Used.

A4 Not Used.

A5 Not Used.

A6 CTS Table 3.2-7 Footnote (**) provides guidance in applying the Required Actions of CTS Table 3.2-7 Note 1.b. This Footnote is not retained in the ITS. ITS LCO 3.3.4.1 and the proposed ACTIONS will provide proper guidance in the appropriate actions to take when one or more channels are inoperable. Therefore this explicit clarification is not retained in the ITS, and this change is considered administrative since no technical requirements are affected. This change is consistent with NUREG-1433, Revision 1.

A7 CTS Table 3.2-7 includes a "Trip Level Setting" column. The settings for the Reactor Pressure–High and Reactor Water Level Low Low Functions are included in this column. In ITS SR 3.3.4.1.4, the "Allowable Values" are specified.

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.

RAI 3.3.4.1-1 RAI 3.3.4.1-2 RAI 3.3.4.1-3 RAI 3.3.4.1-4

ADMINISTRATIVE CHANGES

A7 (continued)

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.

The trip setpoints are specified in the setpoint calculations, 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 adequate 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") between successive CHANNEL CALIBRATIONS. The CTS "trip 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

(CTS) 3.4.1-4)

ADMINISTRATIVE CHANGES

A7 (continued)

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. This change is consistent with NUREG-1433, Revision 1.

A8 CTS 3.2.G makes reference to the limiting conditions for operations for the instrumentation that trip(s) the recirculation pumps in CTS Table 3.2-7. CTS 4.2.G requires the Recirculation Pump Trip instrumentation to be functional tested, calibrated and to test the associated logic as indicated in Table 4.2-7. This cross-reference to the Tables has been deleted since ITS 3.3.4.1 does not include a Table. All of the technical requirements of CTS Tables 3.2-7 and 4.2-7 are included in the ITS 3.3.4.1 LCO, Applicability, and Surveillances. Since this change simply deletes this cross-reference, this change is considered administrative. This change is consistent with NUREG-1433, Revision 1.

A9 The ATWS Reactor Pressure - High Setpoint is modified by Note 3 to CTS Table 3.2-7 according to the number of SRVs that are out of service. Similarily, the corresponding ITS SR 3.3.4.1.4 also modifies the setpoint according to the number of SRVs that are out of service. The presentations are technically equivalent between the CTS and the ITS; however, the CTS presentation has been slightly reworded to provide a revised presentation in translating these requirements from the CTS to the ITS perspective. Specifically, since the JAFNPP design includes 11 SRVs, the CTS wording of "zero or one SRVs are out of service" is equivalent to the proposed ITS wording of "≥ 10 SRVs are OPERABLE" and the CTS wording of "two or more SRVs are out of service" is equivalent to the proposed ITS wording of "< 10 SRVs OPERABLE." Accordingly, this change is considered administrative.

RAI 3.3.1-6

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 CTS Table 4.2-7 requires a daily performance of an ATWS-RPT Channel Check. ITS SR 3.3.4.1 will require this test to be performed every 12 hours. The purpose of the Channel Check is to ensure that a gross failure of instrumentation has not occurred. Thus, performance of the channel check helps to ensure that an undetected outright channel failure is limited to 12 hours. This change is consistent with NUREG-1433, Revision 1.

TECHNICAL CHANGES - MORE RESTRICTIVE (continued)

M2 This change replaces the setpoints or Allowable Values (A7) in CTS Table 3.2-7, Reactor Pressure - High ≤ 1120 psig and ≤ 1155 psig with ≤ 1118 psig and ≤ 1153 psig, respectively (ITS SR 3.3.4.1.4, Reactor Pressure - High). 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 value 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 system is maintained.

M3 A NOTE (ITS 3.3.4.1 Required Action A.2 Note) has been added to CTS Table 3.2-7 Note 1.a which specifies that the action to place a channel in trip is not applicable if the inoperable channel is a result of an inoperable breaker. If a breaker is inoperable for opening, ATWS-RPT trip capability is not maintained for the associated operating recirculation pump, therefore placing the channel in trip would not be an appropriate action to take since tripping the channel would not cause the inoperable breaker to trip. In this condition, the action should be taken according to CTS Table 3.2-7 Note 1; however, the CTS does not explicitly prohibit placing a channel in a tripped condition for this situation. Therefore, a NOTE, as described above, has been added to the CTS Table 3.2-7 Note 1.a. Accordingly, the addition of this NOTE to the CTS is considered a more restrictive change. This change is consistent with NUREG-1433, Revision 1.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 The detail in CTS Table 3.2-7 that the Trip Level Setting of the Reactor Water Level - Low Low Trip Function is 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 3.3.4.1 that the ATWS instrumentation for each Function in Table 3.3.4.1-1 shall be OPERABLE, the requirements in the Table including the Allowable Value, the definition of Operability, the proposed Actions, and Surveillance Requirements are

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 (continued)

adequate to ensure the instrumentation is properly maintained. In addition, the Bases includes a statement that 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. 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.

LA2 The details in CTS Table 3.2-7 foot note(*), relating to placing channels in trip, are proposed to be relocated to the Bases. The ACTIONS of ITS 3.3.4.1 ensure inoperable channels are placed in trip or the unit is placed in a non-applicable MODE or condition, as appropriate. In addition, the Bases for Required Actions A.1 and A.2 indicate that the channels are not required to be placed in the trip condition, and directs entry into the appropriate Condition. As a result, these relocated details are not necessary for ensuring the appropriate actions are taken in the event of inoperable ATWS-RPT Instrumentation channels. As such, these relocated 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 proposed Bases Control Program described in Chapter 5 of the ITS.

RAI-3.3.4.1-2

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CTS Table 3.2-7 Note 1.a allows 72 hours to place an inoperable instrument channel in trip if one channel is inoperable for one or more Trip Functions. ITS 3.3.4.1 ACTION A will allow 14 days to restore channel to operable status or to to place the associated channel in trip. The JAFNPP ATWS-RPT logic consists of two trip systems to complete the "Reactor Low Level" trip function and two trip systems to complete the "Reactor High Pressure" trip function. Each trip function consists of two trip systems in series. The actuation of both trip systems in either the reactor low level logic, or the reactor high pressure logic will result in a trip of both recirculation pumps. Each trip system consists of two instrument channels in a parallel configuration. With a one-out-of-two-taken-twice trip logic arrangement for each trip function, a situation with a single channel being inoperable in one or both trip systems for either or both trip functions will not inhibit a recirculation pump trip during an ATWS event.

RAI 3.3.4.1-1, RAI 3.3.4.1-2

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 (continued)

Accordingly, the ATWS-RPT trip capability is maintained during this situation. Because of the diversity of sensors available to provide trip signals, the low probability of extensive numbers of inoperabilities affecting all diverse Functions, and the low probability of an event requiring the initiation of ATWS-RPT, 14 days is provided to restore (ITS 3.3.4.1 Required Action A.1) or place the inoperable channel in trip (ITS 3.3.4.1 Required Action A.2). The allowance to restore the channels to OPERABLE status is consistent with CTS 3.0.B (In the event the LCO is restored prior to expiration of the time interval, completion of the ACTION statement is not required) and proposed ITS LCO 3.0.3, therefore this portion of the change is considered administrative. This change is consistent with the Completion Times used in an analysis (GENE-770-06-1-A) to extend certain out of service times for test and repair and is consistent with NUREG-1433, Revision 1 (see DOC L2 for the bases for concluding that this analysis is acceptable for use at the JAFNPP). The JAFNPP logic design is similar to the BWR-4 design used in the analysis therefore this change is acceptable.

RAI 3.3.4.1-2

L2 CTS Table 3.2-7 Note 1.b provides the Required Actions when two or more channels are inoperable for one or more Functions. CTS Table 3.2-7 Note 1.b.2) requires that the instrument channel(s) in one trip system and/or that trip system be in the tripped condition within 6 hours. CTS Table 3.2-7 Note 1.b.3) requires the remaining channel in the other trip system to be restored to Operable status within 24 hours. In addition, Note 1.b.1) will allow only one hour to restore trip capability for each Function. ITS 3.3.4.1 Required Action B.1 will require the restoration of ATWS-RPT trip capability in 72 hours, if one Functions trip capability is not maintained. In addition, ITS 3.3.4.1 Required Action C.1 will require the restoration of ATWS-RPT trip capability within 1 hour, if both Functions have lost trip capability. If two channels are inoperable for the same Function and trip capability is maintained, ITS 3.3.4.1 ACTION A applies and 14 days is allowed to restore (Required Action A.1) or trip (Required Action A.2) the channel.

This change is clearly less restrictive for several reasons. The ITS will allow 14 days to restore or place a channel in trip if trip capability is maintained and if one or more channels are inoperable for the same Function, while the CTS allows only 6 hours to place a channel in trip. ITS ACTION B will allow 72 hours to restore ATWS-RPT trip capability if one Function is inoperable, while the CTS will only allow 1 hour. ITS ACTION C allows 1 hour to restore ATWS-RPT trip capability

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 (continued)

for one Function when both Functions are not maintaining ATWS-RPT trip capability, while CTS will require entry into CTS 3.0.C.

These changes are acceptable for the following reasons:

1) Because of the diversity of sensors available to provide trip signals, the low probability of extensive numbers of inoperabilities affecting all diverse Functions, and the low probability of an event requiring the initiation of ATWS-RPT, the 14 days is provided to restore or place a channel in the trip condition with one or more channels inoperable as long as trip capability is maintained for each Function.

2) The 72 hour Completion Time is sufficient for the operator to take corrective action and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period and that one Function is still maintaining ATWS-RPT trip capability.

3) The 1 hour Completion Time is sufficient for the operator to take corrective action and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period.

These changes are consistent with the Completion Times used in an analysis (GENE-770-06-1-A) to extend certain out of service times for test and repair and is consistent with NUREG-1433, Revision 1. The JAFNPP logic design is similar to the BWR-4 design used in the analysis therefore this change is acceptable. The NRC, in their letter dated July 21, 1992, from Charles E. Rossi, Division of Operational Events Assessment to R. D. Binz IV, Chairman of the BWR Owner's Group, approved the above referenced General Electric Topical Report GENE-770-06-1. In the NRC's letter, the Staff concluded that the analyses presented in the Topical Report was acceptable for supporting Licensee's proposed Technical Specification changes subject to the conditions noted in their letter. These conditions were:

1. Confirmation of the applicability of the generic analysis to the plant.

2. Confirmation that any increase in instrument drift due to the extended surveillance test intervals is properly accounted for in the setpoint calculation methodology.

RAI 3.3.4.1-5

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 (continued)

A review of this matter has been completed. The Licensee has concluded that the generic analysis is applicable to the JAFNPP and that the setpoint calculation methodology properly accounts for the effects of increased instrument drift associated with the extended surveillance test intervals. Accordingly, use of the Topical Report to support these Technical Specification changes is acceptable.

RAI 3.3.4.1-5

L3 CTS Table 3.2-7 Note 1.a, and Note 1.b requires that the reactor be placed in startup/hot shutdown mode within 6 hours if the associated Required Actions are not met. ITS 3.3.4.1 Required Action D.2 (Be in MODE 2) provides the same requirement as the CTS but an alternative Required Action has been added to the CTS. ITS 3.3.4.1 Required Action D.1 will allow the affected recirculation pump be removed from service. This action will accomplish the Safety Function of the ATWS-RPT instrumentation and enables continued operation. This change is acceptable since JAFNPP has been analyzed to operate in single loop operation as allowed by CTS 3.5.K, Single-Loop Operation, and proposed ITS 3.4.1, Recirculation Loops Operating. Therefore, this action can only be taken if the inoperability is associated with one RPT breaker. If the inoperability is associated with the instrumentation, then the only alternative is to be in MODE 2 within 6 hours. For clarity a NOTE (ITS 3.3.4.1 Required Action D.1 Note) has been added which specifies that the action to remove the affected recirculation pump from service is only applicable if the inoperable channel is the result of an inoperable RPT breaker. This note prevents the operator from removing both recirculation pumps from service under the most likely scenario where ATWS-RPT Instrumentation trip capability is not maintained for one or more functions as a consequence of inoperable instrumentation. This change is consistent with NUREG-1433, Revision 1 as modified by TSTF 297 R1.

TSTF 297 R1

TSTF 297 R1

TECHNICAL CHANGES - RELOCATIONS

None

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.3.4.1

Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.3.4.1 - ATWS-RPT INSTRUMENTATION

TECHNICAL CHANGE - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. The bases for the determination 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 extends the Completion Time for one inoperable channel in one or more Functions from 72 hours to 14 days. The ATWS-RPT instrumentation is not assumed to be an initiator of any analyzed event. Therefore, this change does not significantly increase the probability of a previously analyzed accident. With one channel inoperable, ATWS-RPT continues to maintain its trip capability. The ATWS-RPT Instrumentation's functions is to mitigate the consequences of an ATWS event by tripping the reactor recirculation pumps. Therefore the need for this Function is only required if the Reactor Protection System fails to perform its safety function. The proposed Completion Time is acceptable because of the diversity of sensors available to provide trip signals, the low probability of extensive numbers of inoperabilities affecting all diverse Functions, and the low probability of extensive numbers of inoperabilities affecting all diverse Functions, and the low probability of an event requiring the initiation of ATWS-RPT. This change is consistent with the Completion Times used in an analysis (GENE-770-06-1-A) to extend certain out of service times for test and repair and is consistent with NUREG-1433, Revision 1. The JAFNPP logic design is similar to the BWR-4 design used in the analysis therefore this change is acceptable. The consequences of an ATWS event occurring during the proposed Completion Time is the same as the consequences of an event occurring during the current 72 hour allowance, therefore this change does not significantly increase the consequences of an accident previously analyzed.

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

   The proposed change introduces no new mode of plant operation and it 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.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.3.4.1 - ATWS-RPT INSTRUMENTATION

TECHNICAL CHANGE - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE

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

This change extends the Completion Time for one inoperable channel in one or more Functions from 72 hours to 14 days. With one channel inoperable, ATWS-RPT continues to maintain its trip capability. The ATWS-RPT Instrumentation's functions is to mitigate the consequences of an ATWS event by tripping the reactor recirculation pumps. Therefore the need for this Function is only required if the Reactor Protection System fails to perform its safety function. The proposed Completion Time is acceptable because of the diversity of sensors available to provide trip signals, the low probability of extensive numbers of inoperabilities affecting all diverse Functions, and the low probability of an event requiring the initiation of ATWS-RPT. This change is consistent with the Completion Times used in an analysis (GENE-770-06-1-A) to extend certain out of service times for test and repair and is consistent with NUREG-1433, Revision 1. The JAFNPP logic design is similar to the BWR-4 design used in the analysis therefore this change is acceptable. The consequences of an ATWS event occurring during the proposed Completion Time is the same as the consequences of an event occurring during the current 72 hour allowance, therefore this change does not significantly reduce the margin of safety.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.3.4.1 - ATWS-RPT INSTRUMENTATION

TECHNICAL CHANGE - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. The bases for the determination 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?

   The proposed change extends the time to restore or place a channel in trip from 6 hours to 14 days (when more than one channel for one or two Functions are inoperable) as long as Trip capability is maintained. In addition, the proposed change extends the Completion Time from 1 hour to 72 hours, if trip capability is not maintained for one trip Function and allows 1 hour to restore trip capability for one trip function when both functions have lost trip capability. The ATWS-RPT instrumentation is not assumed to be an initiator of any analyzed event. Therefore, this change does not significantly increase the probability of a previously analyzed accident. The ATWS-RPT Instrumentation's functions is to mitigate the consequences of an ATS event by tripping the reactor recirculation pumps. Therefore the need for this Function is only required if the Reactor Protection System fails to perform its safety function. These changes are acceptable for the following reasons: 1) Because of the diversity of sensors available to provide trip signals, the low probability of extensive numbers of inoperabilities affecting all diverse Functions, and the low probability of an event requiring the initiation of ATWS-RPT, the 14 days is provided to restore or place a channel in the trip condition with one or more channels as long as trip capability is maintained for each Function; 2) The 72 hour Completion Time is sufficient for the operator to take corrective action and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period and that one Function is still maintaining ATWS-RPT trip capability; 3) The 1 hour Completion Time is sufficient for the operator to take corrective action and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period.

   These changes are consistent with the Completion Times used in an analysis (GENE-770-06-1-A) to extend certain out of service times for test and repair and is consistent with NUREG-1433, Revision 1. The JAFNPP logic design is similar to the BWR-4 design used in the analysis. The consequences of an ATWS event occurring during the proposed

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.3.4.1 - ATWS-RPT INSTRUMENTATION

TECHNICAL CHANGE - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

1. (continued)

Completion Times is bounded by the consequences for the same conditions in the current Specifications, therefore this change does not significantly increase the consequences of an accident previously analyzed.

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

The proposed change introduces no new mode of plant operation and it 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?

The proposed change extends the time to restore or place a channel in trip from 6 hours to 14 days (when more than one channel for one or two Functions are inoperable) as long as Trip capability is maintained. In addition, the proposed change extends the Completion Time from 1 hour to 72 hours, if trip capability is not maintained for one trip Function and allows 1 hour to restore trip capability for one trip Function when both functions have lost trip capability. The ATWS-RPT Instrumentation's function is to mitigate the consequences of an ATWS event by tripping the reactor recirculation pumps. Therefore the need for this Function is only required if the Reactor Protection System fails to perform its safety function. These changes are acceptable for the following reasons: 1) Because of the diversity of sensors available to provide trip signals, the low probability of extensive numbers of inoperabilities affecting all diverse functions, and the low probability of an event requiring the initiation of ATWS-RPT the 14 days is provided to restore or place a channel in the trip condition with one or more channels as long as trip capability is maintained for each Function; 2) The 72 hour Completion Time is sufficient for the operator to take corrective action and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period and that one Function is still maintaining ATWS-RPT trip capability; 3) The 1 hour Completion Time is sufficient for the operator to take corrective action and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period.

These changes are consistent with the Completion Times used in an

TECHNICAL CHANGE - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

3. (continued)

analysis (GENE-770-06-1-A) to extend certain out of service times for test and repair and is consistent with NUREG-1433, Revision 1. The JAFNPP logic design is similar to the BWR-4 design used in the analysis. Therefore, the calculated reactor shutdown failure frequency for the proposed Specification is now consistent with the values in the GENE-770-06-1-A analysis and with other BWRs. As such, any reduction in a margin of safety will be insignificant and offset by the benefits obtained from reducing the potential for plant shutdown transients and increasing the flexibility to ensure ATWS-RPT Instrumentation's high reliability is maintained.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.3.4.1 - ATWS-RPT INSTRUMENTATION

TECHNICAL CHANGE - LESS RESTRICTIVE (SPECIFIC)

L3 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.02. The bases for the determination 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 will allow a recirculation pump to be removed from service to satisfy the Required Actions and allow continued operation instead of placing the reactor in MODE 2. In order to reduce power, reactor recirculation flow will be reduced and control rods will be inserted to achieve MODE 2 conditions in accordance with plant procedures. If it were decided to remove one reactor recirculation pump from service similar actions would have to be taken but the major power or flow reduction will be induced by slowly lowering flow on one recirculation pump in accordance with plant procedures. The Completion Time of 6 hours is sufficient to minimize the transient on the reactor and safely bring the plant to the new operating condition. Since these operations are similar to the Required Actions of a normal cooldown, this change does not significantly increase the probability of an accident previously analyzed. Removing the recirculation pump from service provides the required safety function. In addition, the plant has been analyzed to operate in single loop operation provided certain limitations are applied. ITS 3.4.1, Recirculation Loops Operating, will be applicable and certain additional actions must be taken to operate in these conditions. These actions include ensuring the Thermal Limits have been adjusted for single loop operation. In addition the Reactor Protection System (RPS) Neutron Flux-High (Flow Biased) and Rod Block Monitor-Upscale Allowable Values must be reset for single loop operation. Since the plant is analyzed for single loop operation and since the appropriate regulatory controls for this operation are included in the proposed Specifications this change is acceptable. Therefore, this change does not significantly increase the consequences of a previously analyzed accident.

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

   The proposed change introduces no new mode of plant operation and it does not involve physical modification to the plant. Therefore, it does

TECHNICAL CHANGE - LESS RESTRICTIVE (SPECIFIC)

L3 CHANGE

2. (continued)

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 a recirculation pump to be removed from service to satisfy the Required Actions and allow continued operation instead of placing the reactor in MODE 2. Since the plant is analyzed for single loop operation and since the appropriate regulatory controls for this operation are included in the proposed Specifications this change is acceptable. This change does not involve a significant reduction in a margin of safety since the safety function continues to be satisfied and since JAFNPP has been analyzed for single loop operation.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.3.4.1

Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

MARKUP OF NUREG-1433, REVISION 1
SPECIFICATION

3.3 INSTRUMENTATION

3.3.4.2 Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

LCO 3.3.4.2 Two channels per trip system for each ATWS-RPT instrumentation Function listed below shall be OPERABLE:

a. Reactor Vessel Water Level—Low Low, Level 2; and

b. Reactor Steam Dome Pressure—High.

APPLICABILITY: MODE 1.

ACTIONS

NOTE
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Restore channel to OPERABLE status.	14 days
	OR	
	A.2 NOTE Not applicable if inoperable channel is the result of an inoperable breaker. Place channel in trip.	14 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One Function with ATWS-RPT trip capability not maintained.	B.1 Restore ATWS-RPT trip capability.	72 hours
C. Both Functions with ATWS-RPT trip capability not maintained.	C.1 Restore ATWS-RPT trip capability for one Function.	1 hour
D. Required Action and associated Completion Time not met.	D.1 Remove the associated recirculation pump from service. OR D.2 Be in MODE 2.	6 hours 6 hours

Note
Only applicable if inoperable channel is the result of an inoperable RPT breaker

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 ATWS-RPT trip capability.

SURVEILLANCE	FREQUENCY
SR 3.3.4.2.1 Perform CHANNEL CHECK.	12 hours

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
[4.2.6] [Table 4.2-7]	SR 3.3.4.2.2 Perform CHANNEL FUNCTIONAL TEST.	[92] days
[4.2.6] [Table 4.2-7]	SR 3.3.4.2.3 Calibrate the trip units.	184 [92] days
[4.2.6] [Table 4.2-7] [Table 3.2-7] [19] RAI 3.3.4.1-6	SR 3.3.4.2.4 Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level—Low Low, Level 2: ≥ [-47] inches; and b. Reactor Steam Dome Pressure—High: ≤ [1095] psig.	[18] 24 months
[4.2.6] [Table 4.2-7]	SR 3.3.4.2.5 Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	[18] 24 months

[M2]

1. ≤ 1153 psig with ≥ 10 Safety/Relief Valves (S/RVs) OPERABLE, or
2. ≤ 1118 psig with < 10 S/RVs OPERABLE.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.3.4.1

Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

JUSTIFICATION FOR DIFFERENCES (JFDs)
FROM NUREG-1433, REVISION 1

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.3.4.1 - ATWS-RPT INSTRUMENTATION

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 The brackets have been removed from the Frequency of ITS SR 3.3.4.1.2 and the 92 day Frequency retained consistent with CTS Table 4.2-7 and with the reliability analysis of GENE-770-06-1-A.

CLB2 The brackets have been removed from the Frequency of ITS SR 3.3.4.1.3 and the Frequency extended from 92 days to 184 days consistent with CTS Table 4.2-7.

CLB3 The brackets have been removed from the Frequency of ITS 3.3.4.1.5 (LSFT) and the Frequency has been extended from 18 months to 24 months consistent with CTS Table 4.2-7. This Frequency is consistent with the JAFNPP fuel cycle.

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

PA1 The JAFNPP design does not include the EOC-RPT Trip System. Therefore ISTS 3.3.4.1 is being deleted, and the ATWS-RPT Specification (ISTS 3.3.4.2) is being renumbered as ITS 3.3.4.1.

PA2 Changes have been made to reflect the plant specific terminology.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 Not Used.

DB2 The brackets have been removed from SR 3.3.4.1.1 and the SR is being retained which is consistent with CTS Table 4.2-7. The JAFNPP design is provided with the appropriate indications to perform this SR.

DB3 The brackets have been removed from the Frequency of ITS SR 3.3.4.1.4 and the Frequency has been extended from 18 months to 24 months consistent with CTS Table 4.2-7 and the setpoint calculation methodology.

DB4 The brackets have been removed and the proper plant specific "Allowable Value" has been included consistent with the current value in CTS Table 3.2-7, and the JAFNPP plant specific setpoints methodology.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

TA1 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler number 297, Revision 1 have been incorporated into the revised Improved Technical Specifications.

RAI 3.3.4.1-1

TSTF-297-A

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.3.4.1 - ATWS-RPT INSTRUMENTATION

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

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

None

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.3.4.1

Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

MARKUP OF NUREG-1433, REVISION 1, BASES

PA1

B 3.3 INSTRUMENTATION

B 3.3.4.0 Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

PA1 0

BASES

BACKGROUND

The ATWS-RPT System initiates an RPT, adding negative reactivity, following events in which a scram does not (but should) occur, to lessen the effects of an ATWS event. Tripping the recirculation pumps adds negative reactivity from the increase in steam voiding in the core area as core flow decreases. When Reactor Vessel Water Level—Low Low, Level 2 or Reactor Steam Dome Pressure—High setpoint is reached, the recirculation pump drive motor breakers trip.

PA3 logic circuits PA2 motor generator (MG) DB2

The ATWS-RPT System (Ref. 1) includes sensors, relays, bypass capability circuit breakers, and switches that are necessary to cause initiation of an RPT. The 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 an ATWS-RPT signal to the trip logic.

CLB3

Insert BKGD

The ATWS-RPT consists of two independent trip systems, with two channels of Reactor Steam Dome Pressure—High and two channels of Reactor Vessel Water Level—Low Low, Level 2 in each trip system. Each ATWS-RPT trip system is a two-out-of-two logic for each Function. Thus, either two Reactor Water Level—Low Low, Level 2 or two Reactor Pressure—High signals are needed to trip a trip system. The outputs of the channels in a trip system are combined in a logic so that either trip system will trip both recirculation pumps (by tripping the respective drive motor breakers).

MGs

There is one drive motor breaker provided for each of the two recirculation pumps for a total of two breakers. The output of each trip system is provided to both recirculation pump breakers.

CLB3

MG drive motor

each trip function logic

MAI 3.3.4.1-1

(continued)

CLB3

INSERT BKGD

The ATWS-RPT logic consists of two trip systems for the Reactor Vessel Water Level–Low Low (Level 2) trip function and two trip systems for the Reactor Pressure High–trip function. Each trip system associated with the Reactor Vessel Water Level–Low Low (Level 2) Function includes two reactor water level channels while each trip system associated with the Reactor Pressure–High Function includes two reactor pressure channels. Each ATWS trip system is a one-out-of-two logic and both trip systems associated with the same function must trip for the ATWS trip logic to actuate. Therefore, the ATWS trip system logic for each Function is one-out-of-two taken twice.

The two channels in each trip system are powered from a common power supply. For each trip function, the two channels in one trip system are powered independently from the two the channels in the other trip system (Divisions 1 and 2). The logic associated with the two trip systems for the Reactor Vessel Water Level–Low Low (Level 2) trip function and the logic associated with the two trip systems for the Reactor High Pressure–High trip function are all powered from one common power supply.

RAI 3.3.1-1

BASES (continued)

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The ATWS-RPT is not assumed in the safety analysis. The ATWS-RPT initiates an RPT to aid in preserving the integrity of the fuel cladding following events in which a scram does not, but should, occur. Based on its contribution to the reduction of overall plant risk, however, the instrumentation is included as required by the NRC Policy Statement.

The ATWS-RPT instrumentation meets Criterion 10 CFR 50.36(c)(2)(ii) (Ref. 2).

The OPERABILITY of the ATWS-RPT is dependent on the OPERABILITY of the individual instrumentation channel Functions. Each Function must have a required number of OPERABLE channels in each trip system, with their setpoints within the specified Allowable Value of SR 3.3.4.2.4. The actual setpoint is calibrated consistent with applicable setpoint methodology assumptions. Channel OPERABILITY also includes the associated recirculation pump drive motor breakers. A channel is inoperable if its actual trip setpoint is not within its required Allowable Value.

Allowable Values are specified for each ATWS-RPT Function specified in the LCO. 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. 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.

The individual Functions are required to be OPERABLE in MODE 1 to protect against common mode failures of the

(continued)

DB3

INSERT ASA

The trip setpoints are derived from the analytic 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 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 than derived from the trip setpoints by accounting for normal effects that would be seen during periodic serveillance or calibration. These effects are instrumentation uncertainties observed during normal operation (e.g., drift and calibration uncertainties).

RAI 3.3.4.1-4

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Reactor Protection System by providing a diverse trip to mitigate the consequences of a postulated ATWS event. The Reactor Steam Dome Pressure—High and Reactor Vessel Water Level—Low Low, Level 2 Functions are required to be OPERABLE in MODE 1, since the reactor is producing significant power and the recirculation system could be at high flow. During this MODE, the potential exists for pressure increases or low water level, assuming an ATWS event. In MODE 2, the reactor is at low power and the recirculation system is at low flow; thus, the potential is low for a pressure increase or low water level, assuming an ATWS event. Therefore, the ATWS-RPT is not necessary. In MODES 3 and 4, the reactor is shut down with all control rods inserted; thus, an ATWS event is not significant and the possibility of a significant pressure increase or low water level is negligible. In MODE 5, the one rod out interlock ensures that the reactor remains subcritical; thus, an ATWS event is not significant. In addition, the reactor pressure vessel (RPV) head is not fully tensioned and no pressure transient threat to the reactor coolant pressure boundary (RCPB) exists.

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

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

Low RPV water level indicates the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, the ATWS-RPT System is initiated at Level 2 to aid in maintaining level above the top of the active fuel. The reduction of core flow reduces the neutron flux and THERMAL POWER and, therefore, the rate of coolant boiloff.

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, Level 2, with two channels in each trip system, are available and required to be OPERABLE to ensure that

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

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

no single instrument failure can preclude an ATWS-RPT from this Function on a valid signal. The Reactor Vessel Water Level—Low Low, Level 2 Allowable Value is chosen so that the system will not be initiated after a Level 3 scram with feedwater still available, and for convenience with the reactor core isolation cooling initiation.

b. Reactor Steam Dome Pressure—High

Excessively high RPV pressure may rupture the RCPB. An increase in the RPV pressure during reactor operation compresses the steam voids and results in a positive reactivity insertion. This increases neutron flux and THERMAL POWER, which could potentially result in fuel failure and overpressurization. The Reactor Steam Dome Pressure—High Function initiates an RPT for transients that result in a pressure increase, counteracting the pressure increase by rapidly reducing core power generation. For the overpressurization event, the RPT aids in the termination of the ATWS event and, along with the safety/relief valves, limits the peak RPV pressure to less than the ASME Section III Code Service Level C limits (1500 psig).

The Reactor Steam Dome Pressure—High signals are initiated from four pressure transmitters that monitor reactor steam dome pressure. Four channels of Reactor Steam Dome Pressure—High, with two channels in each trip system, are available and are required to be OPERABLE to ensure that no single instrument failure can preclude an ATWS-RPT from this Function on a valid signal. The Reactor Steam Dome Pressure—High Allowable Value is chosen to provide an adequate margin to the ASME Section III Code Service Level C allowable Reactor Coolant System pressure.

ACTIONS

A Note has been provided to modify the ACTIONS related to ATWS-RPT instrumentation channels. Section 1.3, Completion

(continued)

DB2

INSERT B 3.3.4.1-1

The Allowable Value is dependent on the number of OPERABLE S/RVs. The peak pressure resulting from an ATWS with Main Steam Isolation Valve (MSIV) closure (the limiting transient) is dependent on the power produced during the transient (which is sensitive to the ATWS-RPT Reactor Pressure-High setpoint) and the capability to remove heat from the RPV (which is sensitive to the number of operable S/RVs). The Allowable Value with $\geq$ 10 S/RVs OPERABLE was derived from the analysis performed in Reference 4. The Allowable Value with $<$ 10 S/RVs OPERABLE was derived from the analysis performed in Reference 5.

DB2

INSERT Function a

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. 3).

The HPCI, RCIC and ATWS-RPT initiation functions (as described in Table 3.3.5.1 Function 3.a; Table 3.3.5.2, Function 1 and LCO 3.3.4.1.a including SR 3.3.4.1.4, respectively) describe the reactor vessel water level initiation function as "Low Low (Level 2)." The Allowable Values associated with the HPCI and RCIC initiation function is different from the Allowable Value associated with the ATWS-RPT initiation function as the ATWS function has a separate analog trip unit. Nevertheless, consistent with the nomenclature typically used in design documents, the "Low Low (Level 2)" designation is retained in describing each of these three initiation functions.

ANO-2 CMM

BASES

ACTIONS (continued)

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 ATWS-RPT 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 ATWS-RPT instrumentation channel.

A.1 and A.2

With one or more channels inoperable, but with ATWS-RPT capability for each Function maintained (refer to Required Actions B.1 and B.1 Bases), the ATWS-RPT System is capable of performing the intended function. However, the reliability and redundancy of the ATWS-RPT instrumentation is reduced, such that a single failure in the remaining trip system could result in the inability of the ATWS-RPT System to perform the intended function. Therefore, only a limited time is allowed to restore the inoperable channels to OPERABLE status. Because of the diversity of sensors available to provide trip signals, the low probability of extensive numbers of inoperabilities affecting all diverse both Functions, and the low probability of an event requiring the initiation of ATWS-RPT, 14 days is provided to restore the inoperable channel (Required Action A.1). Alternately, the inoperable channel 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 breaker, since this may not adequately compensate for the inoperable breaker (e.g., the breaker may be inoperable such that it will not open). 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 an RPT), or if the inoperable channel is the result of an inoperable breaker, Condition D must be entered and its Required Actions taken.

(continued)

BASES

ACTIONS (continued)

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 the Function not maintaining ATWS-RPT trip capability. A Function is considered to be maintaining ATWS-RPT trip capability when sufficient channels are OPERABLE or in trip such that the ATWS-RPT System will generate a trip signal from the given Function on a valid signal, and both recirculation pumps can be tripped. This requires two channels of the Function in the same trip system to each be OPERABLE or in trip, and the recirculation pump drive motor breakers to be OPERABLE or in trip.

The 72 hour Completion Time is sufficient for the operator to take corrective action (e.g., restoration or tripping of channels) and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period and that one Function is still maintaining ATWS-RPT trip capability.

C.1

Required Action C.1 is intended to ensure that appropriate Actions are taken if multiple, inoperable, untripped channels within both Functions result in both Functions not maintaining ATWS-RPT trip capability. The description of a Function maintaining ATWS-RPT trip capability is discussed in the Bases for Required Action B.1 above.

The 1 hour Completion Time is sufficient for the operator to take corrective action and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period.

D.1 and D.2

With any Required Action and associated Completion Time 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 2 within 6 hours (Required Action D.2). Alternately, the associated recirculation pump may be removed from service since this

(continued)

BASES

ACTIONS

D.1 and D.2 (continued)

performs the intended function of the instrumentation (Required Action D.1). The allowed Completion Time of 6 hours is reasonable, based on operating experience, both to reach MODE 2 from full power conditions and to remove a recirculation pump from service in an orderly manner and without challenging plant systems.

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 ATWS-RPT 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. 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 recirculation pumps will trip when necessary.

SR 3.3.4.2.1

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 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

(continued)

TA2

INSERT ACTIONS D.1 and D.2

Required Action D.1 is modified by a Note which states that the Required Action is only applicable if the inoperable channel is the result of an inoperable RPT breaker. The Note clarifies the situations under which the associated Required Action would be the appropriate Required Action.

TA3

TSTF-493 R1 Adopted (7-23-09)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4.2.1 (continued)

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.

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 3.3.4.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required 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.

The Frequency of 92 days is based on the reliability analysis of Reference 2.

SR 3.3.4.2.3

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 SR 3.3.4.2.4. If the trip setting is discovered to be less conservative than the setting accounted for in the appropriate setpoint methodology, but is not beyond the Allowable Value, the

(continued)

TA1

INSERT SR 3.3.4.1-2

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.

TSTF-205-A3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4.2.3 (continued)

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 accounted for in the appropriate setpoint methodology.

The Frequency of ~~92~~ 184 days is based on the reliability ~~analysis of Reference 2~~ accuracy and low failure rates of these solid-state electronic components.

SR 3.3.4.2.4

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.

The Frequency is based upon the assumption of an ~~18~~ 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.4.2.5

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the pump breakers is included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if a breaker is incapable of operating, the associated instrument channel(s) would be inoperable.

The ~~18~~ 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 ~~18~~ 24 month Frequency.

(continued)

BASES (continued)

REFERENCES

1. FSAR, Figure 7.2-1, ATWS-RPT Logic Diagram.

2. NEDE-770-06-1, "Bases for Changes To Surveillance Test Intervals and Allowed Out-of-Service Times For Selected Instrumentation Technical Specifications," February 1991.

Insert REF

DB2

INSERT REF

X1

2. 10 CFR 50.36(c)(2)(ii).

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

4. JAF-RPT-MISC (CHS-96-05), GE letter, FitzPatrick Nuclear Power Plant ATWS Analysis For Recirculation Pump Trip Setpoint Changes High Pressure Trip Setpoint Evalution, May 23, 1996.

5. GE-NE-187-59-1191, FitzPatrick Power Uprate Impact Study Engineering Report: Section 9.3.1, Anticipated Transients Without Scram (ATWS) Analyses for the James A. FitzPatrick Nuclear Power Plant, November,1991.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.3.4.1

Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

JUSTIFICATION FOR DIFFERENCES (JFDs)
FROM NUREG-1433, REVISION 1, BASES

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.3.4.1 - ATWS-RPT INSTRUMENTATION

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 The Frequency of ITS SR 3.3.4.1.3 has been extended from 92 days to 184 days consistent with CTS Table 4.2-7.

CLB2 The Frequency of ITS SR 3.3.4.1.5 (LSFT) has been extended from 18 months to 24 months consistent with CTS 4.2-7. This Frequency is consistent with the JAFNPP fuel cycle.

CLB3 The Bases has been revised to be consistent with License Amendment 172 which was issued by the NRC by letter dated October 29, 1991.

RAI 3.3.4.1-1

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

PA1 The FitzPatrick design does not include the EOC-RPT Trip System. Therefore that Specification is being deleted, and the ATWS-RPT Specification is being renumbered as ITS 3.3.4.1. In addition, the associated Surveillances have been renumbered to reflect this change.

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

PA3 Changes have been made to be consistent with other places in the Bases.

PA4 The "Reviewer's Note" has been deleted.

PA5 The quotations used in the Bases References have been removed. The Writer's Guide does not require the use of quotations.

RAI-3.3.4.1-1

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 Not Used.

DB2 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect plant specific design. References have been added. Subsequent references have been renumbered as required.

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

DB4 The Frequency of ITS SR 3.3.4.1.4 has been extended from 18 months to 24 months consistent with CTS Table 4.2-7 and the setpoint calculation methodology.

DB5 The proper plant specific reference have been provided.

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.3.4.1 - ATWS-RPT INSTRUMENTATION

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 297, Revision 1 have been incorporated into the revised Improved Technical Specifications.

TA3 The changes presented in the Industry/Technical Specification Task Force (TSTF) Standard Technical Specification Editorial Changes Affecting NUREG-1433 designated as BWROG-ED-7 have been incorporated into the revised Improved Technical Specifications.

TA4 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler number 367, Revision 0 have been incorporated into the revised Improved Technical Specifications.

TSTF-205 R3
TSTF-297 R1
BWROG-ED-7
TSTF-367 R0

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.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.3.4.1

Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

3.3 INSTRUMENTATION

3.3.4.1 Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

RAI 3.3.4.1-1

LCO 3.3.4.1 Two channels per trip system for each ATWS-RPT instrumentation Function listed below shall be OPERABLE:

a. Reactor Vessel Water Level – Low Low (Level 2); and

b. Reactor Pressure – High.

APPLICABILITY: MODE 1.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more channels inoperable.	A.1	Restore channel to OPERABLE status.	14 days
	OR		
	A.2	--------NOTE-------- Not applicable if inoperable channel is the result of an inoperable breaker. ---------- Place channel in trip.	14 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One Function with ATWS-RPT trip capability not maintained.	B.1	Restore ATWS-RPT trip capability.	72 hours
C. Both Functions with ATWS-RPT trip capability not maintained.	C.1	Restore ATWS-RPT trip capability for one Function.	1 hour
D. Required Action and associated Completion Time not met.	D.1	-------Note---------- Only applicable if inoperable channel is the result of an inoperable RPT breaker. ---------- Remove the affected recirculation pump from service.	6 hours 6 hours
	OR		
	D.2	Be in MODE 2.	

TSTF-297 R1

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 ATWS-RPT trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.4.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.4.1.3	Calibrate the trip units.	184 days
SR 3.3.4.1.4	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level – Low Low (Level 2): ≥ 105.4 inches; and b. Reactor Pressure – High: 1. ≤ 1153 psig with ≥ 10 Safety/Relief Valves (S/RVs) OPERABLE, or 2. ≤ 1118 psig with < 10 S/RVs OPERABLE.	24 months
SR 3.3.4.1.5	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	24 months

Amd 247 (F) (F)

B 3.3 INSTRUMENTATION

B 3.3.4.1 Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

BASES

BACKGROUND

The ATWS-RPT System initiates an RPT, adding negative reactivity, following events in which a scram does not (but should) occur, to lessen the effects of an ATWS event. Tripping the recirculation pumps adds negative reactivity from the increase in steam voiding in the core area as core flow decreases. When Reactor Vessel Water Level – Low Low (Level 2) or Reactor Pressure – High setpoint is reached, the recirculation pump motor generater (MG) drive motor breakers trip.

The ATWS-RPT System (Ref. 1) includes sensors, logic circuits, relays, and switches that are necessary to cause initiation of an RPT. The 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 an ATWS-RPT signal to the trip logic.

The ATWS-RPT logic consists of two trip systems for the Reactor Vessel Water Level – Low Low (Level 2) trip function and two trip systems for the Reactor Pressure – High trip function. Each trip system associated with the Reactor Vessel Water Level – Low Low (Level 2) Function includes two reactor water level channels while each trip system associated with the Reactor Pressure – High Function includes two reactor pressure channels. Each ATWS trip system is a one-out-of-two logic and both trip systems associated with the same function must trip for the ATWS trip logic to actuate. Therefore, the ATWS trip system logic for each Function is one-out-of-two taken twice.

RAI - 3.3.4.1-1

The two channels in each trip system are powered from a common power supply. For each trip function, the two channels in one trip system are powered independently from the the two the channels in the other trip system. (Divisions 1 and 2). The logic associated with the two trip systems for the Reactor Vessel Water – Low Low (Level 3) trip function and the logic associated with the two trip systems for the Reactor Pressure – High trip function are all powered from one common power supply.

(continued)

BASES

BACKGROUND (continued)

There is one drive motor breaker provided for each of the recirculation pump MGs for a total of two breakers. The output of each trip function logic is provided to both recirculation pump MG drive motor breakers.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The ATWS-RPT is not credited in the safety analysis. The ATWS-RPT initiates an RPT to aid in preserving the integrity of the fuel cladding following events in which a scram does not, but should, occur. ATWS-RPT instrumentation satifies Criterion 4 of 10 CFR 50.36 (c) (2) (ii) (Ref. 2). | TSTF 360

The OPERABILITY of the ATWS-RPT is dependent on the OPERABILITY of the individual instrumentation channel Functions. Each Function must have a required number of OPERABLE channels in both trip systems, with their setpoints within the specified Allowable Value of SR 3.3.4.1.4. The actual setpoint is calibrated consistent with applicable setpoint methodology assumptions. Channel OPERABILITY also includes the associated recirculation pump MG drive motor breakers.

Allowable Values are specified for each ATWS-RPT Function specified in the LCO. 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. 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., 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 ATWS analysis. 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 10 CFR 50.49)). The trip setpoints derived in this manner provide adequate protection because all expected uncertainties are accounted for. The | RAI 3.3.4.1-4

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

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 uncertanties observed during normal operation (e.g., drift and calibration uncertainties).

The individual Functions are required to be OPERABLE in MODE 1 to protect against common mode failures of the Reactor Protection System by providing a diverse trip to mitigate the consequences of a postulated ATWS event. The Reactor Pressure – High and Reactor Vessel Water Level – Low Low (Level 2) Functions are required to be OPERABLE in MODE 1, since the reactor is producing significant power and the recirculation system could be at high flow. During this MODE, the potential exists for pressure increases or low water level, assuming an ATWS event. In MODE 2, the reactor is at low power and the recirculation system is at low flow; thus, the potential is low for a pressure increase or low water level, assuming an ATWS event. Therefore, the ATWS-RPT is not necessary. In MODES 3 and 4, the reactor is shut down with all control rods inserted; thus, an ATWS event is not significant and the possibility of a significant pressure increase or low water level is negligible. In MODE 5, the one rod out interlock ensures that the reactor remains subcritical; thus, an ATWS event is not significant. In addition, the reactor pressure vessel (RPV) head is not fully tensioned and no pressure transient threat to the reactor coolant pressure boundary (RCPB) exists.

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

a. Reactor Vessel Water Level – Low Low (Level 2)

Low RPV water level indicates that a reactor scram should have occurred and the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. The ATWS-RPT System is initiated at Level 2 to assist in the mitigation of the ATWS event. The resultant reduction of core flow reduces the neutron flux and THERMAL POWER and, therefore, the rate of coolant boiloff.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

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

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 (Level 2), with two channels in each trip system, are available and required to be OPERABLE to ensure that no single instrument failure can preclude an ATWS-RPT from this Function on a valid signal. The Reactor Vessel Water Level – Low Low (Level 2) Allowable Value is chosen so that the system will not be initiated after a Level 3 scram with feedwater still available, and for convenience with the reactor core isolation cooling (RCIC) and high pressure coolant injection (HPCI) initiation. 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. 3).

The HPCI, RCIC and ATWS-RPT initiation functions (as described in Table 3.3.5.1, Function 3.a; Table 3.3.5.2, Function 1 and LCO 3.3.4.1.a including SR 3.3.4.1.4, respectively) describe the reactor vessel water level initiation function as "Low Low (Level 2)." The Allowable Values associated with the HPCI and RCIC initiation function is different from the Allowable Value associated with the ATWS-RPT initiation function as the ATWS function has a separate analog trip unit. Nevertheless, consistent with the nomenclature typically used in design documents, the "Low Low (Level 2)" designation is retained in describing each of these three initiation functions.

b. Reactor Pressure – High

Excessively high RPV pressure may rupture the RCPB. An increase in the RPV pressure during reactor operation compresses the steam voids and results in a positive reactivity insertion. This increases neutron flux and THERMAL POWER, which could potentially result in fuel failure and overpressurization. The Reactor Pressure – High Function initiates an RPT for transients

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

b. Reactor Pressure – High (continued)

that result in a pressure increase, counteracting the pressure increase by rapidly reducing core power generation. For the overpressurization event, the RPT aids in the termination of the ATWS event and, along with the safety/relief valves (S/RVs), limits the peak RPV pressure to less than the ASME Section III Code Service Level C limits (1500 psig).

The Reactor Pressure – High signals are initiated from four pressure transmitters that monitor reactor steam dome pressure. Four channels of Reactor Pressure – High, with two channels in each trip system, are available and are required to be OPERABLE to ensure that no single instrument failure can preclude an ATWS-RPT from this Function on a valid signal. The Reactor Pressure – High Allowable Value is chosen to provide an adequate margin to the ASME Section III Code Service Level C allowable Reactor Coolant System pressure. The Allowable Value is dependant on the number of OPERABLE S/RVs. The peak pressure resulting from an ATWS with Main Steam Isolation Valve (MSIV) closure (the limiting transient) is dependant on the power produced during the transient (which is sensitive to the ATWS-RPT Reactor Pressure – High setpoint) and the capability to remove heat from the RPV (which is sensitive to the number of operable S/RVs). The Allowable Value with $\geq$ 10 S/RVs OPERABLE was derived from the analysis performed in Reference 4. The Allowable Value with $<$ 10 S/RVs OPERABLE was derived from the analysis performed in Reference 5.

RAI-3.3.4.1-1

ACTIONS

A Note has been provided to modify the ACTIONS related to ATWS-RPT 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 ATWS-RPT 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 ATWS-RPT instrumentation channel.

(continued)

BASES

ACTIONS
(continued)

A.1 and A.2

With one or more channels inoperable, but with ATWS-RPT capability for each Function maintained (refer to Required Action B.1 Bases), the ATWS-RPT System is capable of performing the intended function. However, the reliability and redundancy of the ATWS-RPT instrumentation is reduced, such that a single failure in the same trip system could result in the inability of the ATWS-RPT System to perform the intended function. Therefore, only a limited time is allowed to restore the inoperable channels to OPERABLE status. Because of the diversity of sensors available to provide trip signals, the low probability of extensive number of inoperabilities affecting both Functions, and the low probability of an event requiring the initiation of ATWS-RPT, 14 days is provided to restore the inoperable channel (Required Action A.1). Alternately, the inoperable channel 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 breaker, since this may not adequately compensate for the inoperable breaker (e.g., the breaker may be inoperable such that it will not open). 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 an RPT), or if the inoperable channel is the result of an inoperable breaker, Condition D must be entered and its Required Actions taken.

RAI 3.3.4.1-1

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 the Function not maintaining ATWS-RPT trip capability. A Function is considered to be maintaining ATWS-RPT trip capability when sufficient channels are OPERABLE or in trip such that the ATWS-RPT System will generate a trip signal from the given Function on a valid signal, and both recirculation pumps can be tripped. This requires one channel of the Function in each trip system to each be OPERABLE or in trip, and the

RAI 3.3.4.1-1

(continued)

BASES

ACTIONS

B.1 (continued)

recirculation pump MG drive motor breakers to be OPERABLE or in trip.

The 72 hour Completion Time is sufficient for the operator to take corrective action (e.g., restoration or tripping of channels) and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period and that one Function is still maintaining ATWS-RPT trip capability. In addition, the Completion Time is sufficient to modify the setpoint of all four pressure channels if there are less than ten OPERABLE S/RVs.

C.1

Required Action C.1 is intended to ensure that appropriate Actions are taken if multiple, inoperable, untripped channels within both Functions result in both Functions not maintaining ATWS-RPT trip capability. The description of a Function maintaining ATWS-RPT trip capability is discussed in the Bases for Required Action B.1 above.

The 1 hour Completion Time is sufficient for the operator to take corrective action and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period.

D.1 and D.2

With any Required Action and associated Completion Time 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 2 within 6 hours (Required Action D.2). Alternately, the associated recirculation pump may be removed from service since this performs the intended function of the instrumentation (Required Action D.1). The allowed Completion Time of 6 hours is reasonable, based on operating experience, both to reach MODE 2 from full power conditions and to remove a recirculation pump from service in an orderly manner and without challenging plant systems. Required Action D.1 is modified by a Note which states that the Required Action is only applicable if the inoperable channel is the result of an inoperable RPT breaker. The Note clarifies the situations under which the associated Required Action would be the appropriate Required Action.

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(continued)

BASES

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 ATWS-RPT 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. 6) assumption of the average time required to perform channelSurveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the recirculation pumps will trip when necessary.

SR 3.3.4.1.1

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 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the 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.

TSTF-205 R3

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

The Frequency of 92 days is based on the reliability analysis of Reference 6.

SR 3.3.4.1.3

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 SR 3.3.4.1.4. If the trip setting is discovered to be less conservative than the setting accounted for in the appropriate setpoint methodology, but 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 accounted for in the appropriate setpoint methodology.

The Frequency of 184 days is based on the reliability, accuracy, and low failure rates of these solid-state electronic components.

SR 3.3.4.1.4

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1.4 (continued)

range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.4.1.5

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the pump breakers is included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if a breaker is incapable of operating, the associated instrument channel(s) would be inoperable.

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.

REFERENCES

1. UFSAR, Figure 7.4-9 Reactor Recirculation System (FCD).

2. 10 CFR 50.36(c)(2)(ii).

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

4. JAF-RPT-MISC-02738 (CHS-96-05), GE letter, FitzPatrick Nuclear Power Plant ATWS Analysis For Recirculation Pump Trip Setpoint Changes High Pressure Trip Setpoint Evaluation, May 23, 1996.

(continued)

BASES

REFERENCES (continued)

5. GE-NE-187-59-1191, FitzPatrick Power Uprate Impact Study Engineering Report: Section 9.3.1, Anticipated Transients Without Scram (ATWS) Analyses for the James A. FitzPatrick Nuclear Power Plant, November, 1991.

6. GENE-770-06-1-A, Bases for Changes To Surveillance Test Intervals And Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications, December 1992.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.3.5.1

Emergency Core Cooling System (ECCS) Instrumentation

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

DISCUSSION OF CHANGES (DOCs) TO THE CTS

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

MARKUP OF NUREG-1433, REVISION 1, SPECIFICATION

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1433, REVISION 1

MARKUP OF NUREG-1433, REVISION 1, BASES

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1433, REVISION 1, BASES

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.3.5.1

Emergency Core Cooling System (ECCS) Instrumentation

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

Specification 3.3.5.1

A1

3.2 (cont'd) Emergency (ECCS) Instrumentation

[3.3.5.2] B. Core and Containment Cooling Systems - Initiation and Control

The limiting conditions for operation for the instrumentation that initiates or controls the Core and Containment Cooling Systems are given in Table 3.2-2. This instrumentation must be operable when the system(s) it initiates or controls are required to be operable as specified in Specification 3.5.

[LCO 3.3.5.1] [Applicability]

ECCS 3.3.5.1 A10

4.2 (cont'd) Emergency (ECCS) Instrumentation

B. Core and Containment Cooling Systems - Initiation and Control

[SR Table Note 1]

Instrumentation shall be functionally tested, calibrated, and checked as indicated in Table 4.2-2. 3.3.5.1-1

System logic shall be functionally tested as indicated in Table 4.2-2. 3.3.5.1-1

C. Control Rod Block Actuation

The limiting conditions of operation for the instrumentation that initiates control rod block are given in Table 3.2-3.

C. Control Rod Block Actuation

Instrumentation shall be functionally tested, calibrated, and checked as indicated in Table 4.2-3.

System logic shall be functionally tested as indicated in Table 4.2-3.

See ITS: 3.3.2.1

D. Radiation Monitoring Systems - Isolation and Initiation Functions

Refer to the Radiological Effluent Technical Specifications (Appendix B).

D. Radiation Monitoring Systems - Isolation and Initiation Functions

Refer to the Radiological Effluent Technical Specifications (Appendix B).

A4

Page 1 of 15

Specification 3.3.5.1

Table 3.3.5.1-1
ECCS Instrumentation

A1

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TABLE 3.2-2

CORE AND CONTAINMENT COOLING SYSTEM INITIATION AND CONTROL INSTRUMENTATION OPERABILITY REQUIREMENTS

Item No.	Minimum No. of Operable Instrument Channels Per Trip System	Trip Function	Allowable Value / Trip Level Setting	Total Number of Instrument Channels Provided by Design for Both Trip Systems	Required Channels per Function	Remarks
1	2 (Notes 1, 11)	Reactor Low-Low Water Level	≥ 126.5 in. above TAF	4	2	HPCI & RCIC Initiates HPCI, RCIC and SBTG
2	2 (Notes 2, 3, 11)	Reactor Low-Low-Low Water Level	≥ 18 in. above TAF	4	2	Core Spray & RHR Initiates Core Spray, RHR (LPCI), and Emergency Diesel Generators
3	2 (Notes 4, 12)	Reactor High Water Level	≤ 222.5 in. above TAF	2 (Note 16)	2	Trips HPCI turbine.
						Closes RCIC steam supply valve.
4	2 (Notes 4, 12)	Reactor High Water Level	≤ 222.5 in. above TAF	2 (Note 16)	2	Trips HPCI turbine.
						Closes RCIC steam supply valve.
5	1 (Notes 5, 11)	Reactor Low Level (inside shroud)	≥ 0 in. above TAF	2	1	Prevents inadvertent operation of containment spray during accident condition.
6	2 (Notes 5, 11)	Containment High Pressure	1 inch ≤ p ≤ 2.7 psig	4	2	Prevents inadvertent operation of containment spray during accident condition.
7	2 (Notes 2, 3, 11)	Reactor Low-Low-Low Water Level	≥ 18 in. above TAF	4	2	ADS Initiates ADS (if not inhibited by ADS override switches) in conjunction with Confirmatory Low Level, 120 second delay and RHR (LPCI) or Core Spray pump discharge pressure interlock.

Adds Functions 1.e, 1.f, 2.g, 3.f and 3.g

A1

Table 3.3.5.1-1
ECCS Instrumentation

JAFNPP

TABLE 3.2-2 (Cont'd)

CORE AND CONTAINMENT COOLING SYSTEM INITIATION AND CONTROL INSTRUMENTATION OPERABILITY REQUIREMENTS

Item No.	Minimum No. of Operable Instrument Channels Per Trip System	Trip Function	Total Number of Allowable Value / Trip Level Setting	Instrument Channels Provided by Design for Both Trip Systems	Required Channels Per Function	Remarks
[1.c, 5.c] 7	[ACTION F, H] (1) (Notes 3, 11)	Reactor Low Level	≥ 177 in. above TAF	[4.c] 2	1 for ADS A, 1 for ADS B	Confirmatory low water level for ADS actuation.
[1.b, 2.b, 3.b] 8	[ACTION B, H] (2) (Notes 1, 2) (11)	Drywell High Pressure	≤ 2.7 psig	4		Initiates Core Spray, RHR (LPCI), HPCI and SGTS.
[1.c, 2.c] 8	(2) (Notes 3, 11) [ACTION C] [SR Table Note 2.6]	Reactor Low Pressure	≥ 450 psig / 410 psig and ≤ 490	4		Permits opening Core Spray and RHR (LPCI) injection valves.
10	1 (Notes 2, 12)	Reactor Low Pressure	50 ≤ p ≤ 75 psig	2		Permits closure of RHR (LPCI) injection valves while in shutdown cooling in conjunction with PCIS signal.
[1.d] V1	(1) (Notes 7, 11) [ACTION C]	Core Spray Pump Start Timer (each loop) per pump	11 ± 1.34 sec.	1 (Note 16)		Initiates starting of core spray pump. (each loop)
[2.f] V2	(1) (Notes 3, 11)	RHR (LPCI) Pump Start Timer		per pump		
		1st Pump (A Loop)	1.25 ± 0.26 sec.	1 (Note 16)		Starts 1st Pump (A Loop)
		1st Pump (B Loop)	1.25 ± 0.26 sec.	1 (Note 16)		Starts 1st Pump (B Loop)
		2nd Pump (A Loop)	6.0 ± 0.73 sec.	1 (Note 16)		Starts 2nd Pump (A Loop)
		2nd Pump (B Loop)	6.0 ± 0.73 sec.	1 (Note 16)		Starts 2nd Pump (B Loop)

LA1 LA2 LA4 A7 A12 L6 L7 A9 Pumps A, D Pumps B, C See ITS 3.3.6.1

F Amd 263 Amd 263

Table 3.3.5.1-1
ECCS Instrumentation

JAFNPP

TABLE 3.2-2 (Cont'd)

CORE AND CONTAINMENT COOLING SYSTEM INITIATION AND CONTROL INSTRUMENTATION OPERABILITY REQUIREMENTS

Item No.	Minimum No. of Operable Instrument Channels Per Trip System	Trip Function	Trip Level Setting	Total Number of Instrument Channels Provided by Design for Both Trip Systems	Remarks
[4.b] [5.b] 13	Action G, H; Notes B, 1; A7	Auto Blowdown Timer	≤ 134 sec. [SR Table Note 2.b]	[4.b] [5.b] 2	1 in Trip System A, 1 in Trip System B	Initiates ADS (if not inhibited by ADS override switches).
[4.e] [5.e] 14	Action G, H; Notes B, 1; 4, A7	RHR (LPCI) Pump Discharge Pressure Interlock	125 psig ± 20 psig	[4.e] [5.e] 8	4 in Trip System A, 4 in Trip System B	Permits ADS actuation.
[4.d] [5.d] 15	Action G, H; Notes B, 1; 2, A7	Core Spray Pump Discharge Pressure Interlock	100 psig ± 10 psig	[4.f] [3.f] 4	2 in Trip System A, 2 in Trip System B	Permits ADS actuation.
16	2 (Notes 9, 11)	Condensate Storage Tank Low Level	≥ 59.5 in. above tank bottom (= 15,600 gal. avail)	2 (Note 16)	Transfers RCIC pump suction to suppression chamber.
[3.f] 17	Notes 9, 11; 2, LA2	Condensate Storage Tank Low Level	≥ 59.5 in. above tank bottom (= 15,600 gal. avail) A16, LA3	4, 2 Note 16, LA2; M1	Transfers HPCI pump suction to suppression chamber.
[3.e] 18	Action D, H; Notes 9, 11; 2, LA2	Suppression Chamber High Level	≤ 6 in. above normal level (14.5 feet) A16	2 Note 16, LA2	Transfers HPCI pump suction to suppression chamber.

[SR Table Note 2.b]

A1 A7 LA2 A12 Allowable Value LA1 A7 Required Channels per Function See ITS 3.3.5.2 Mod 263

Table 3.3.5.1-1 ECCS Instrumentation

Specification 3.3.5.1 (A1)

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TABLE 3.2-2 (Cont'd)

CORE AND CONTAINMENT COOLING SYSTEM INITIATION AND CONTROL INSTRUMENTATION OPERABILITY REQUIREMENTS

(LA2) (A7) (See JTS: 3.3.8.1)

Row No.	Minimum No. of Operable Instrument Channels Per Trip System	Trip Function	Trip Level Setting (A12 Allowable Value)	Total Number of Instrument Channels Provided by Design for Both Trip Systems (Required Channels per Function)	Remarks
19	(2 per 4kV bus) (Note 10)	4kV Emergency Bus Undervoltage Relay (Degraded Voltage)	110.6 ± 0.8 secondary volts	4	Initiates both 4kV Emergency Bus Undervoltage Timers. (Degraded Voltage LOCA and non-LOCA) (Note 14)
20	(1 per 4kV bus) (Note 10)	4kV Emergency Bus Undervoltage Timer (Degraded Voltage LOCA)	8.96 ± 0.55 sec.	2	(Note 13)
21	(1 per 4kV bus) (Note 10)	4kV Emergency Bus Undervoltage Timer (Degraded Voltage non-LOCA)	43.8 ± 2.8 sec.	2	(Note 13)
22	(2 per 4kV bus) (Note 10)	4kV Emergency Bus Undervoltage Relay (Loss of Voltage)	85 ± 4.81 secondary volts	4	Initiates 4kV Emergency Bus Undervoltage Loss of Voltage Timer. (Note 15)
23	(1 per 4kV bus) (Note 10)	4kV Emergency Bus Undervoltage Timer (Loss of Voltage)	2.50 ± 0.11 sec.	2	(Note 13)
[2.d] → 2(a)	2 (LA2) Note 11 (1)	Reactor Low Pressure	285 to 335 psig ≥ 295 (add new value)	4	Permits closure of recirculation pump discharge valve. (LA1)

[ACTION C, N]

[SR Table Note 2.b] add new Applicability

(L6)

(F)

Specification 3.3.5.1

A1

A2

ACTIONS

add ACTIONS NOTE

JAFNPP

TABLE 3.2-2

CORE AND CONTAINMENT COOLING SYSTEM INITIATION AND CONTROL INSTRUMENTATION OPERABILITY REQUIREMENTS

add ACTION A

A3

NOTES FOR TABLE 3.2-2

1. With one or more channels inoperable for HPCI and/or RCIC:

See ITS | 3.3.5.2

add Note to Required Action B.2

A11

[RA B.2] A. Within one hour from discovery of loss of system initiation capability, declare the affected system inoperable, and

[RA B.3] B. Within 24 hours, place channel in trip.

[COND H] C. If required actions and associated completion times of actions A or B are not met, immediately declare the affected system inoperable.

2. With one or more channels inoperable for Core Spray and/or RHR:

add Notes 1 and 2 to Required Action B.1

L4

[RA B.1] A. Within one hour from discovery of loss of initiation capability for feature(s) in both divisions, declare the supported features inoperable, and

[RA B.3] B. Within 24 hours, place channel in trip.

[COND H] C. If required actions and associated completion times of actions A or B are not met, immediately declare associated supported feature(s) inoperable.

3. With one or more channels inoperable for ADS:

[RA F.1] A. Within one hour from discovery of loss of ADS initiation capability in both trip systems, declare ADS inoperable, and

[RA F.2] B. Within 96 hours from discovery of an inoperable channel concurrent with HPCI or RCIC inoperable, place channel in trip, and

[RA F.2] C. Within 8 days, place channel in trip.

[COND H] D. If required actions and associated completion times of actions A, B, or C are not met, immediately declare ADS inoperable.

A1

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TABLE 3.2-2

CORE AND CONTAINMENT COOLING SYSTEM INITIATION AND CONTROL INSTRUMENTATION OPERABILITY REQUIREMENTS

See ITS: 3.3.5.2

[ACTION A]		A.	With one or more channels inoperable for HPCI and/or RCIC:
[RA C.2]		A.	Within 24 hours, restore channel to operable status.
[ACTION H]		B.	If required action and associated completion time of action A is not met, immediately declare affected system inoperable.
[ACTION B]		B.	With one or more channels inoperable for containment spray:
[RA B.3]		A.	Within 24 hours, place channel in trip.
[ACTION H]		B.	If required action and associated completion time of action A is not met, immediately declare associated supported feature(s) inoperable.
[ACTION C.]		C.	With one or more channels inoperable for injection permissive and/or recirculation discharge valve permissive:
[RA C.1]		A.	Within one hour from discovery of loss of initiation capability for feature(s) in both divisions, declare the supported features inoperable, and
[RA C.2]		B.	Within 24 hours, restore channel to operable status.
[ACTION H]		C.	If required actions and associated completion times of actions A or B are not met, immediately declare associated supported feature(s) inoperable.

Add Notes 1 and 2 to Required Action C.1

L4

Add ACTION B for functions 1.c and 2.c in MODES 4 and 5

L2

Specification 3.3.5.1 (A1)

TABLE 3.2-2

CORE AND CONTAINMENT COOLING SYSTEM INITIATION AND CONTROL INSTRUMENTATION OPERABILITY REQUIREMENTS

[ACTION C]

[RA C.2] 7. A. With one start timer inoperable, restore the timer to an operable status within 24 hours.

[RA. C.1] B. With two or more start timers inoperable, within one hour declare the associated ECCS subsystem(s) inoperable.

[ACTION H] C. If the required actions and associated completion times of A and B cannot be met declare the associated ECCS subsystem(s) inoperable.

8. With one or more channels inoperable for ADS:

[ACTION G]

[RA.G.1] A. Within one hour from discovery of loss of ADS initiation capability in both trip systems, declare ADS inoperable, and

[RA G.2] B. Within 96 hours from discovery of an inoperable channel concurrent with HPCI or RCIC inoperable, restore channel to operable status, and

[RA.G.2] C. Within 8 days, restore channel to operable status.

[ACTION H] → C. If required actions and associated completion times of actions A, B, or C are not met, immediately declare ADS inoperable.

9. With one or more channels inoperable for HPCI and/or RCIC: → See ITS 3.3.5.2

[Note to Required Action D.1]

[ACTION D]

[RA.D.1] A. Within one hour from discovery of loss of system initiation capability while suction for the affected system is aligned to the CST, declare the affected system inoperable, and

[RA D.2.1] [RA. D.2.2]

[RA.D.2] B. Within 24 hours, place channel in trip or align suction for the affected system to the suppression pool.

[ACTION H] C. If required actions and associated completion times of actions A or B are not met, immediately declare the affected system inoperable.

add ACTION for Functions 1.e; 1.f; 2.g; 3.f; 3.g (M2)

Specification 3.3.5.1 (A1)

TABLE 3.2-2

CORE AND CONTAINMENT COOLING SYSTEM INITIATION AND CONTROL INSTRUMENTATION OPERABILITY REQUIREMENTS

10. With one or more channels inoperable for 4kV Emergency Bus Undervoltage Trip Functions: (see ITS: 3.3.8.1)

    A. Within one hour, place channel in trip.

    B. If required action and associated completion time of action A is not met, immediately declare the affected Emergency Diesel Generator System inoperable.

[SR Note 2(b)] 11 When a channel is placed in an inoperable status solely for performance of required surveillances, entry into associated Limiting Conditions For Operation and required actions may be delayed for up to 6 hours provided the associated Trip Function or the redundant Trip Function maintains ECCS initiation capability.

[SR Note 2(a)] 12 When a channel is placed in an inoperable status solely for performance of required surveillances, entry into associated Limiting Conditions For Operation and required actions may be delayed for up to 6 hours.

13. The 4kV Emergency Bus Undervoltage Timers (degraded voltage LOCA, degraded voltage non-LOCA, and loss-of-voltage) initiate the following: starts the Emergency Diesel-Generators; trips the normal/reserve tie breakers and trips all 4kV motor breakers (in conjunction with 75 percent Emergency Diesel-Generator voltages); initiates diesel-generator breaker close permissive (in conjunction with 90 percent Emergency Diesel-Generator voltages) and; initiates sequential starting of vital loads in conjunction with low-low-low reactor water level or high drywell pressure.

14. A secondary voltage of 110.6 volts corresponds to approximately 93% of 4160 volts on the bus. (see ITS: 3.3.8.1)

15. A secondary voltage of 85 volts corresponds to approximately 71.5% of 4160 volts on the bus.

16 ~~Only one trip system.~~ (LA2)

Specification 3.3.5.1 (A1)

Table 3.3.5.1 Emergency Core Cooling System Instrumentation

JAFNPP

TABLE 4.2-2

CORE AND CONTAINMENT COOLING SYSTEM INSTRUMENTATION TEST AND CALIBRATION REQUIREMENTS

SR 3.3.5.1.3, SR 3.3.5.1.4, SR 3.3.5.1.5

SR 3.3.5.1.1

Function	Instrument Channel	Instrument Functional Test (3.3.5.1.2) Channel	Calibration Frequency Channel	Instrument Check (Note 4) Channel
1) Reactor Water Level		(A13) 2 - Q (Note 5) (A5)	4 - SA / R (Note 15) 5	1 - W (12 hours) (M3)
2a) Drywell Pressure (non-ATTS) (A14)		(A13) Q	3 - Q	NA
2b) Drywell Pressure (ATTS)	ITS Functions 1.b, 2.b, 3.b	2 - Q (Note 5) (A5)	4 - SA / R (Note 15) 5	1 - D (12 hours) (M3)
3a) Reactor Pressure (non-ATTS)		Q	Q	NA (see ITS 3.3.6.1)
3b) Reactor Pressure (ATTS) (A14)		2 - Q (Note 5) (A5)	4 - SA / R (Note 15) 5	1 - D (12 hours) (M3)
4) Auto Sequencing Timers	ITS Functions 1.c, 2.c, 2.d	NA	5 - R	NA
5) ADS - LPCI or CS Pump Disch.	ITS Functions 1.d, 2.f, 4.b, 5.b	Q (A13)	3 - Q	NA
6) HPCI & RCIC Suction Source Levels		Q (A13)	3 - Q	NA
7) 4kV Emergency Bus Under-Voltage (Loss-of-Voltage, Degraded Voltage LOCA and non-LOCA) Relays and Timers.		R	R (see ITS 3.3.8.1)	NA

NOTE: See notes following Table 4.2-5.

ITS Function 2.h

ITS Functions 1.a, 2.a, 2.e, 3.a, 3.c 4.a, 4.c, 5.a, 5.c

ITS Functions

ITS Functions 4.d, 4.e, 5.d, 5.e

(M2) add SR 3.3.5.1.3, SR 3.3.5.1.6 for Functions 1.e, 1.f, 2.g, 3.f, 3.g

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Specification 3.3.5.1 A1

Table 3.3.5.1-1 Emergency Core Cooling System Instrumentation

TABLE 4.2-2 (Cont'd)

CORE AND CONTAINMENT COOLING SYSTEM INSTRUMENTATION TEST AND CALIBRATION REQUIREMENTS

			[3R 3.3.5.1.6] Logic System Functional Test	[3R 3.3.5.1.6] Frequency
[1]	1)	Core Spray Subsystem		R (Notes 7 & 9) (A15)
[2]	2)	[2.a, 2.b, 2.c, 2.d, 2.f, 2.g] Low Pressure Coolant Injection Subsystem		R (Notes 7 & 9)
[2]	3)	[2.a, 2.h] Containment Cooling Subsystem		Re 24 months
[3]	4)	HPCI Subsystem		R (Notes 7 & 9) (A15)
[4,5]	5)	ADS Subsystem		R (Notes 7 & 9)

see ITS! 3.5.1

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see ITS; 3.5.1

NOTE: See notes following Table 4.2-5.

Specification 3.3.5.1

JAFNPP

A.1

~~NOTES FOR TABLES 4.2-1 THROUGH 4.2-5~~

See ITS: 3.4.5

1. Initially once every month until acceptance failure rate data are available; thereafter, a request may be made to the NRC to change the test frequency. The compilation of instrument failure rate data may include data obtained from other boiling water reactors for which the same design instruments operate in a environment similar to that of JAFNPP.

See ITS: 3.3.2.1

2. Functional tests are not required when these instruments are not required to be operable or are tripped. Functional tests shall be performed within seven (7) days prior to each startup.

3. Calibrations are not required when these instruments are not required to be operable or are tripped. Calibration tests shall be performed within seven (7) days prior to each startup or prior to a pre-planned shutdown.

A6

4. Instrument checks are not required when these instruments are not required to be operable or are tripped.

A5

5. This instrumentation is exempt from the functional test definition. The functional test will consist of injecting a simulated electrical signal into the measurement channel.

See ITS: 3.3.2.1

6. These instrument channels will be calibrated using simulated electrical signals once every three months.

7. Simulated automatic actuation shall be performed once per 24 months.

See ITS: 3.5.1, 3.6.1.3, 3.6.4.2, 3.6.4.3

8. Reactor low water level, and high drywell pressure are not included on Table 4.2-1 since they are listed on Table 4.1-2.

See ITS: 3.3.6.1

9. The logic system functional tests shall include a calibration of time delay relays and timers necessary for proper functioning of the trip systems.

A15

10. (Deleted)

11. Perform a calibration once per 24 months using a radiation source. Perform an instrument channel alignment once every 3 months using a current source.

See ITS: 3.3.6.1, 3.3.7.2

12. ~~(Deleted)~~

13. ~~(Deleted)~~

14. (Deleted)

[SR 3.3.5.1.5]

[SR 3.3.5.1.4]

15. Sensor calibration once per 24 months; Master/slave trip unit calibration once per 6 months.

16. The quarterly calibration of the temperature sensor consists of comparing the active temperature signal with a redundant temperature signal.

See ITS: 3.3.6.1

Specification 3.3.5.1

3.5 (cont'd)

4.5 (cont'd)

b.	Flow Rate Test - Core spray pumps shall deliver at least 4,265 gpm against a system head corresponding to a reactor vessel pressure greater than or equal to 113 psi above primary containment pressure.	In accordance with the Inservice Testing Program
c.	Verify that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed or otherwise secured in position, is in the correct position.	Once per 31 Days
d.	Motor operated valves.	In accordance with the Inservice Testing Program
e.	Core Spray Header Δp Instrumentation	
	Check	Once/day
	Calibrate	Once/3 months
	Test	Once/3 months
[SR 3.3.5.1.6]	Logic System Functional Test	Refer to Table 4.2-2
g.	Testable Check Valves	In accordance with the Inservice Testing Program

A1

See ITS 3.5.1

See ITS 3.5.1

L5

24 months

Specification 3.3.5.1

A1

3.5 (cont'd)

2. From and after the date that one of the Core Spray Systems is made or found inoperable for any reason, continued reactor operation is permissible during the succeeding 7 days unless the system is made operable earlier, provided that during the 7 days all active components of the other Core Spray System and the LPCI System shall be operable.

3. Both LPCI subsystems of the RHR System shall be operable whenever irradiated fuel is in the reactor and prior to reactor startup from a cold condition, except as specified below.

   a. From the time that one of the LPCI subsystems is made or found to be inoperable for any reason, continued reactor operation is permissible during the succeeding 7 days unless that subsystem is made operable earlier provided that during these 7 days the operable LPCI subsystem and both Core Spray Systems shall be operable.

4.5 (cont'd)

2. When it is determined that one Core Spray System is inoperable, the operable Core Spray System, and both LPCI subsystems, shall be verified to be operable immediately. The remaining Core Spray System shall be verified to be operable daily thereafter.

See ITS: 3.5.1

[SR 3.3.5.1.6]

3. LPCI System testing shall be as specified in 4.5.A.1a, b, c, d, f and g except that each RHR pump shall deliver at least 8,910 gpm against a system head corresponding to a reactor vessel to primary containment differential pressure of greater than or equal to 20 psid.

   a. When it is determined that one LPCI subsystem is inoperable, the operable LPCI subsystem and both Core Spray Systems shall be verified to be operable immediately and daily thereafter.

See ITS: 3.5.1

Specification 3.3.5.1 (A1)

3.5 (cont'd)

DELETED

C. HIGH PRESSURE COOLANT INJECTION (HPCI SYSTEM)

1. The HPCI System shall be operable whenever the reactor pressure is greater than 150 psig and reactor coolant temperature is greater than 212°F and irradiated fuel is in the reactor vessel, except as specified below:

4.5 (cont'd)

C. HIGH PRESSURE COOLANT INJECTION (HPCI SYSTEM)

Surveillance of HPCI System shall be performed as follows provided a reactor steam supply is available. If steam is not available at the time the surveillance test is scheduled to be performed, the test shall be performed within 10 days of continuous operation from the time steam becomes available.

HPCI System testing shall be as specified in 4.5.A.1.a, b, c, d, f, and g except that the HPCI pump shall deliver at least 4,250 gpm against a system head corresponding to a reactor vessel pressure of 1,195 psig to 150 psig.

See ITS: 3.5.1

(A1)

SR 3.5.1.6

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.3.5.1

Emergency Core Cooling System (ECCS) Instrumentation

DISCUSSION OF CHANGES (DOCs) TO THE CTS

DISCUSSION OF CHANGES
ITS: 3.3.5.1 - ECCS INSTRUMENTATION

ADMINISTRATIVE CHANGES

A1 In the conversion of the James A. FitzPatrick Nuclear Power Plant (JAFNPP) Current Technical Specification (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 A Note has been added at the start of the CTS Table 3.2-2 Actions Table ("Separate Condition entry is allowed for each channel.") to provide more explicit instructions for proper application of the Actions for Technical Specification compliance (ITS 3.3.5.1 ACTIONS Note). In conjunction with the proposed Specification 1.3 "Completion Times," this Note provides direction consistent with the intent of the Required Actions for inoperable ECCS channels, functions, or trip systems. It is intended that each Required Action be applied regardless of it having been applied previously for other inoperable ECCS channels, functions, trip systems or breakers. This clarification is considered administrative.

A3 The proposed format for this Specification includes an ACTION (ACTION A) that directs entry into the appropriate Conditions referenced in Table 3.3.5.1-1 when one or more channels are inoperable. The ACTION has been added since not all Functions have the same ACTIONS. This change represents a presentation preference only and is, therefore, considered administrative.

A4 CTS 3.2.D and 4.2.D provide a cross reference to the Radiological Effluent Technical Specification (Appendix B) for those Radiation Monitoring Systems which provide an Isolation and Initiation Function. Since CTS 3.2.D and 4.2.D do not prescribe any specific requirements and since the changes to the current requirements in Appendix B are discussed in the Discussion of Changes within this submittal, this cross reference has been deleted. This change is considered administrative since it simply eliminates a cross-reference. This change is consistent with NUREG-1433, Revision 1.

A5 CTS Table 4.2-2, Note 5 states that "This instrumentation is exempt from the functional test definition. The functional test will consist of injecting a simulated electrical signal into the measurement channel." The ITS definition of Channel Functional Test (CFT) defines a CFT as "the injection of a simulated or actual signal into the channel as close to the sensor as practicable". Therefore, the test defined by CTS Table

ADMINISTRATIVE CHANGES

A5 (continued)

4.2-2 Note 5 is consistent with the ITS definition of a CFT, and the Note can be deleted. Since this represents no new or different requirements it is considered administrative, and is consistent with NUREG-1433, Revision 1.

A6 CTS Table 4.2-2, Note 4 states that "instrument checks are not required when these instruments are not required to be operable or are tripped." ITS 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." The SR also states that "surveillances do not have to be performed on inoperable equipment or variables outside specified limits." These two statements in SR 3.0.1 equate to Table 4.2-2, Note 2, deleting the need to have the note. Its deletion does not cause a new or different requirement from the CTS. Therefore, the change is considered administrative, and is consistent with NUREG-1433, Revision 1.

A7 The column title in CTS Table 3.2-2 (Total Number of Instrumentation Channels Provided by Design for Both Trip Systems) is proposed to be changed to a per Function basis in ITS 3.3.5.1 rather than the current per Trip System basis. Therefore, except as otherwise noted, the number of channels in the proposed column will be changed to identify the number of channels associated with the new ITS 3.3.5.1 Function. This new categorization is used for all ECCS instrumentation, except the ADS instrumentation. For the ADS instrumentation, each of the two trip systems is listed separately in the Table 3.3.5.1-1 (proposed Functions 4 and 5), thus, the channels per Function do not change. This is considered to be an administrative change.

A8 The details in the CTS Table 3.2-2 "Total Number of Instrumentation Channels Provided by Design for Both Trip Systems" column identifying which systems are supported by the CTS Trip Functions have been deleted (e.g., Core Spray and RHR). ITS Table 3.3.5.1-1 is arranged to identify each Function providing support to a specific ECCS System. Therefore, all the Trip Functions in CTS Table 3.2-2 providing a support Function to the Core Spray System, Low Pressure Injection System (LPCI), High Pressure Coolant Injection (HPCI) System and the Automatic Depressurization System (ADS) Trip System A and B are now associated with the specific System in ITS Table 3.3.5.1-1, thus it is not necessary to identify this cross reference to each system. This change

ADMINISTRATIVE CHANGES

A8 (continued)

in format does not alter any technical requirements, and is therefore, considered administrative. This change is consistent with NUREG-1433, Revision 1.

A9 CTS Table 3.2-2 Item 12 identifies specific start timer setpoints for the "1st Pump" and "2nd Pump" for RHR (LPCI) Loops A and B. In ITS Table 3.3.5.1-1 Function 2.f, the specific LPCI pumps (e.g., A, D) are identified and are associated along with the appropriate Allowable Values. This change in format does not alter any technical requirements and is therefore considered administrative. This change is consistent with NUREG-1433, Revision 1.

A10 CTS 3.2.B requires the Core and Containment Cooling System instrumentation to be Operable whenever the system(s) it initiates or controls are required to be operable as specified in CTS 3.5. CTS 3.5.A.1 and CTS 3.5.A.2 require the Core Spray (CS) and Low Pressure Coolant Injection (LPCI) Systems to be Operable whenever irradiated fuel is in the reactor vessel and prior to reactor startup from a cold condition (ITS MODES 1, 2 and 3). CTS 3.5.C.1 requires the High Pressure Injection System (HPCI) to be Operable whenever the reactor pressure is > 150 psig and reactor coolant temperature is greater than 212°F and irradiated fuel is in the reactor vessel (MODE 1, and MODES 2 and 3 when reactor pressure is > 150 psig), and CTS 3.5.D.1 requires Automatic Depressurization System (ADS) to be Operable whenever the reactor pressure is greater than 100 psig and irradiated fuel is in the reactor vessel. In addition, CTS 3.5.F provides specific Applicability requirements during cold conditions and refueling operations. During a cold condition, two Emergency Core Cooling subsystems are required to be Operable whenever irradiated fuel is in the reactor and work is being performed with the potential for draining the reactor vessel and only one subsystem is required when there are no operations with the potential of draining the vessel. During refueling operations, when the cavity is flooded and the spent fuel pool gates are removed and the water level above the fuel is in accordance with CTS 3.10.C (> 33 feet in the fuel storage pool), no Emergency Core Cooling low pressure subsystems are required.

The CTS 3.5 Applicability during MODES 1, 2 and 3 is consistent with the ITS 3.5.1 (ECCS–Operating) Applicability except for the requirements of ADS. As described in the Discussion of Changes for ITS 3.5.1 the Applicability of ADS has been changed to be consistent with the Applicability of HPCI. The changes to the Applicability requirements

ADMINISTRATIVE CHANGES

A10 (continued)

during cold shutdown (MODE 4) and refueling operations (MODE 5) are discussed in the Discussion of Changes for ITS 3.5.2 (ECCS-Shutdown). The requirements for Operability during MODE 4 are consistent with the current requirements. However, in MODE 5 the minimum water level when no ECCS subsystems are required has been increased to 22 feet 2 inches above the reactor pressure vessel flange. This change is more restrictive than CTS 3.5.F Applicability and is discussed in M3 of the Discussion of Changes for ITS 3.5.2.

The proposed Applicability for ITS 3.3.5.1 is indicated in Table 3.3.5.1-1 for each Function and is consistent with the new Applicability in ITS 3.5.1 and 3.5.2. Since the modifications to the Applicability are adequately discussed in the Discussion of Changes for ITS 3.5.1 and 3.5.3, the corresponding changes to the ECCS instrumentation Applicability are considered administrative since the CTS clearly identifies the instrumentation to be provide a support Function to the associated ECCS subsystems. Any additional changes to the Applicability of any specific Function is discussed below.

Footnote (a) to ITS Table 3.3.5.1-1 requires ECCS subsystems to be operable per LCO 3.5.2, ECCS-Shutdown. This ITS requirement is consistent with CTS requirements as described above. Specifically, the CTS 3.2.B requires the Core and Containment Cooling System instrumentation to be Operable whenever the system(s) it initiates or controls are required to be operable as specified in CTS 3.5. Therefore, the footnote reflects the current licensing basis requirements. Accordingly, the incorporation of this ITS footnote is considered an administrative change.

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A11 A Note has been added to CTS Table 3.2-2 Action Notes 1.A to clearly identify the Functions which these actions are applicable to. ITS 3.3.5.1 Required Action B.2 Note specifies that Required Action B.2 is only applicable to ITS 3.3.5.1 Functions 3.a and 3.b. This note is simply a clarification of the current requirements and therefore this change is considered administrative, but aids in the Application of the Required Actions. This change is consistent with NUREG-1433, Revision 1.

ADMINISTRATIVE CHANGES

A12 CTS Table 3.2-2 includes a "Trip Level Setting" column. The setting for each Core and Containment Cooling System Initiation and Control Instrumentation Operability Requirements Functions is listed in this column. In the ITS, the ECCS Functions are included in Table 3.3.5.1-1 along with its associated "Allowable Value".

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 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.

The trip setpoints are specified in the setpoint calculations, 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 adequate 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") between successive CHANNEL CALIBRATIONS. The CTS "trip 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.

RAI 3.3.5.1-1

ADMINISTRATIVE CHANGES

A12 (continued)

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 Values". Since the instrumentation will be declared inoperable at the same numerical value, this change is considered administrative. Any changes to any "Trip Level Setting" in the CTS will be discussed below. This change is consistent with NUREG-1433, Revision 1.

A13 The explicit requirement to perform a quarterly Functional Test of the Drywell Pressure (non-ATTS), ADS - LPCI or CS Pump Discharge, and HPCI Suction Source Levels instrument channels in CTS Table 4.2-2 is being deleted. CTS Table 4.2-2 and ITS SR 3.3.5.1.3 require a CHANNEL CALIBRATION at the same Frequency, therefore this explicit requirement to perform a quarterly CHANNEL FUNCTIONAL TEST is not required since the ITS definition of CHANNEL CALIBRATION fulfills all the requirements of the CHANNEL FUNCTIONAL TEST. This change is considered administrative since the existing requirements will be fulfilled by performing a CHANNEL CALIBRATION every 92 days.

A14 CTS Table 4.2-2 divides the Surveillance Requirements for Drywell Pressure and Reactor Pressure Functions as non-Analog Transmitter Trip System (ATTS) components and ATTS components. ITS 3.3.5.1 does not specify this explicitly in Table 3.3.5.1-1. Each of the Functions are listed separately along with the associated Surveillance Requirements. Since the required surveillances for non-ATTS and ATTS in the CTS are included in the ITS this change is considered administrative since no technical requirements have been changed. This change is consistent with NUREG-1433, Revision 1.

A15 CTS Table Note 4.2-2 Note 9 requires the calibration of the time delay relays and timers necessary for proper functioning of the trip systems to be performed during the Logic System Functional Test (LFST) which is currently required to be performed every 6 months. This explicit requirement to calibrate the timers during the LSFT has been deleted. The LSFT has been extended to 24 months as justified in L5. The calibration Frequencies of the timers and relays as identified in CTS Table 4.2-2 for the auto sequencing timers is 24 months. The Table does

ADMINISTRATIVE CHANGES

A15 (continued)

not specify a calibration frequency for the ADS auto blowdown timers. Therefore, JAFNPP has interpreted the calibration requirements for all timers to be every 6 months. The calibration Frequency of all timers have been evaluated in accordance with L1 and have been extended from every 6 months to 24 months. Since the calibration and LFST Frequency of all timers have been extended to 24 months, and since all the required timers are explicitly identified as requiring a CALIBRATION and an LFST in ITS Table 3.3.5.1-1 every 24 months, the explicit requirement to perform a calibration of timers during the LFST is not needed. Since the justifications for the Frequency extensions are justified in L1 and L5, this change is considered administrative. This change in format is consistent with NUREG-1433, Revision 1.

A16 CTS Table 3.2-2 Item 17 specifies that the Condensate Storage Tank Low Level setting must be $\geq$ 59.5 inches above the tank bottom. ITS Table 3.3.5.1-1 Function 3.d does not specify the reference point since it is implied by the associated name of the Function (Condensate Storage Tank Level), however, the current setting is maintained as the Allowable Value (see A12). In addition, CTS Table 3.2-2 Item 18 specifies that the Suppression Pool High Level setting must be $\leq$ 6 inches above normal level. The normal Suppression Pool Water Level is specified in CTS 3.7.A.1 as being from 13.88 to 14.00 feet. ITS Table 3.3.5.1-1 specifies the Allowable Value to be $\leq$ 14.5 feet. These changes are considered administrative since there is no technical change in the current requirement. This change is consistent with the format of NUREG-1433, Revision 1.

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 CTS Table 3.2-2 Item No. 17 (Condensate Storage Tank Level - Low) requires two channels to be Operable. For the same Function in the ITS (ITS 3.3.5.1-1 Function 3.d) the required number of channels has been increased to 4 channels. The JAFNPP design includes two condensate storage tanks. Both tanks provide suction to the High Pressure Coolant Injection Pump and each tank is instrumented with two channels of Condensate Storage Tank Level - Low. At least one channel in each tank must indicate low water level for the automatic transfer logic to function to initiate the transfer of the suction source from the CSTs to the suppression pool. Therefore to ensure that no single instrument failure can preclude HPCI swap to the suppression pool source four channels of Condensate Storage Tank Level - Low are proposed to be included in the ITS. The addition of new requirements constitutes a more restrictive change.

TECHNICAL CHANGES - MORE RESTRICTIVE

M2 Five additional Functions are proposed to be added to the requirements in CTS Tables 3.2-2 and 4.2-2 to ensure the Core Spray, Low Pressure Coolant Injection (LPCI), and High Pressure Coolant Injection (HPCI) System minimum flow control valves operate as required. Appropriate Actions and Surveillance Requirements have also been added. This instrumentation ensures each minimum flow control valve operates properly. This will ensure each Emergency Core Cooling System pump is Operable and will function as designed during a design basis accident. The addition of new requirements constitutes a more restrictive change. The following Functions have been added as a result of this change:

1.e Core Spray Pump Discharge Flow-Low (Bypass)
1.f Core Spray Pump Discharge Pressure-High (Bypass)
2.g Low Pressure Coolant Injection Pump Discharge Flow-Low (Bypass)
3.f High Pressure Coolant Injection Pump Discharge Flow-Low (Bypass)
3.g High Pressure Coolant Injection Pump Discharge Pressure-High (Bypass)

Each Function will be calibrated every 3 months (SR 3.3.5.1.3) and will be tested every 24 months in accordance with the Logic System Function Test (SR 3.3.5.1.6). The calibration Frequency is consistent with the Frequencies for similar instrumentation and also consistent with the setpoint calculation methodology.

M3 CTS Table 4.2-2 presently contain daily requirements for performing instrument checks on reactor water level, drywell pressure, and reactor pressure instrumentation. ITS SR 3.3.5.1.1 requires that these Channel Checks be performed every 12 hours. Performing these checks on a more frequent basis adds to the ability to verify that the channels are operable, and therefore, does not represent a change that could affect safety. The channel check ensures once every 12 hours that a gross failure of instrumentation has not occurred. Since the change is requiring a surveillance to be performed on a more frequent basis, the change is considered more restrictive. The proposed change is consistent with NUREG-1433, Revision 1.

M4 Not Used

M5 Not Used

TECHNICAL CHANGES - MORE RESTRICTIVE

M6 This change replaces the setpoint or Allowable Value (A12) in CTS Table 3.2-2, Item 5, Reactor Low Level (inside shroud), containment spray interlock of ≥ 0.0 in. with ≥ 1 inch (ITS Table 3.3.5.1-1 Function 2.e). 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 value 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 system is maintained.

M7 This change replaces the setpoint or Allowable Value (A12) in CTS Table 3.2-2, Item 3, Reactor High Water Level ≤ 222.5 inches with ≤ 222.4 inches (ITS Table 3.5.1.1-1, Function 3.c, Reactor Vessel Water Level - High, Level 8). 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 value 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 system is maintained.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 The details in the CTS Table 3.2-2 "Remarks" column (i.e., initiates HPCI, SGTS, Core Spray, RHR (LPCI) and, etc) are proposed to be relocated to the Bases and therefore the "Remarks" column has been deleted. The Trip Functions in CTS Table 3.2-2 will be associated along with the System which is provides a support Function in the ITS. Therefore all Functions in CTS Table 3.2-2 providing a support Function

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 (continued)

to the Core Spray System, Low Pressure Injection System (LPCI), High Pressure Coolant Injection (HPCI) System and the Automatic Depressurization System (Trip System A and B) are now associated with the specific System in ITS Table 3.3.5.1-1. Therefore the details in the "Remarks" column are not necessary and have been relocated to the Bases. The Bases will describe the actual support Function (e.g., initiate HPCI). The requirement in ITS LCO 3.3.5.1 that the ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE, the details in Table 3.3.5.1-1 for each Function, the definition of Operability and the associated Surveillance Requirements will ensure the instrumentation remains Operable. 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.

LA2 CTS Table 3.2-2 includes both a "Minimum No. of Operable Instrument Channels Per Trip System" column and a "Total Number of Instrument Channels Provided by Design for Both Trip Systems." In addition, Note 16 further specifies there is only one trip system associated with certain High Pressure Coolant Injection Functions (i.e., Item 3, 17, and 18), Item 11 (Core Spray Pump Start Timer), Item 12 (RHR Pump Start Timers). The details that some Functions include more than one trip system and that others Functions only include one trip system are proposed to be relocated to the Bases (except for ADS, see A7). The requirement in ITS LCO 3.3.5.1 that the ECCS instrumentation for each Function in Table 3.3.5.1-1 must be OPERABLE, the details in Table 3.3.5.1-1 for each Function (Required Channels per Function or per pump), the definition of Operability and the associated Surveillance Requirements will ensure the instrumentation remains Operable. As such, this detail (number of trip systems) is 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 detail in the CTS Table 3.2-2 "Trip Level Setting" column for Function 17 (Condensate Storage Tank Low Level) that the setting is equivalent to 15,600 gallons available is proposed to be relocated to the Bases. The requirement in ITS LCO 3.3.5.1 that the ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE, the Allowable Value for Function 3.d (Condensate Storage Tank Level - Low) of $\geq$ 59.5 inches, and the specified Surveillances will ensure that the associated instrumentation remains OPERABLE. As such, this detail

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

LA3 (continued)

is 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 detail in CTS Table 3.2-2 that the Trip Level Setting of the Reactor Water Level Trip Functions (1, 2, 3, 5, and 7) is 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 3.3.5.1 that the ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE, the requirements in the Table including the Allowable Value for Functions 1.a, 2.a, 2.e, 3.a, 3.c, 4.a and 5.a, 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 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. 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 Not Used.

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TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CTS Table 3.2-2 Item 9 directs entry into Note 6 which requires the repair of one or more inoperable channels in 24 hours. The current action is independent of the plant conditions. An option has been provided in the ITS for these same Functions if operating in MODES 4 or 5. ITS Table 3.3.5.1 Functions 1.c and 2.c will now require entry into ITS 3.3.5.1 ACTION B and Required Action B.3 will require to place inoperable channels in the tripped condition within 24 hours if operating in MODES 4 or 5. The allowance to restore the channels to operable status is still applicable since LCO 3.0.2 will allow this action to be exited if the channel is restored to operable status prior to the Completion Time. In MODES 4 and 5 the reactor pressure is low and the pressure setpoint of all instrument channels should already be actuated. Therefore, placing the channel(s) in trip accomplishes the Function of the instrumentation. With the channels in trip the Core Spray System and Low Pressure Coolant Injection System injection valves will not open since the opening of these valves is also dependent on a Loss of Coolant Signal in conjunction with low reactor pressure. Therefore, placing one or more channels in trip is acceptable if operating in MODES 4 and 5.

L3 CTS Table 3.2-2 Item 24 (Reactor Pressure-Low) is currently required whenever the associated Low Pressure Coolant Injection (LPCI) System is required to be Operable as specified in CTS 3.2.B. In the ITS this Applicability has been reduced. ITS 3.3.5.1 Function 2.d will only require this Function to be Operable in MODE 1, 2 and 3 when the associated discharge valve is open (ITS Table 3.3.5.1-1 Footnote c). With the valve(s) closed, the function of the instrumentation has been performed; thus, the Function is not required. In MODES 4 and 5, the loop injection location is not critical since LPCI injection through the recirculation loop in either direction will still ensure that LPCI flow reaches the core (i.e., there is no significant reactor back pressure). Therefore, this change in the CTS Applicability is acceptable since the associated LPCI loop will still be able to perform its associated safety function.

L4 CTS Table 3.2-2 Action Notes 2.A and 6.A require action to be taken in 1 hour upon discovery of loss of initiation capability. ITS 3.3.5.1 Required Actions B.2 and C.1 require these same actions but Note 1 has been added to both of these actions which will only require these actions to be taken during MODES 1, 2 and 3. Note 2 simply clarifies which Functions these actions are applicable to. This change is less restrictive since it will allow 24 hours to restore initiation capability as governed by ITS 3.3.5.1 Required Actions B.3 and C.2. In MODES 4 and 5, the specific initiation time of the low pressure ECCS is not assumed and the probability of a LOCA is lower. Thus, a total loss

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L4 (continued)

of initiation capability for 24 hours is allowed during MODES 4 and 5.

L5 Not Used.

L6 The CTS Table 3.2-2 Trip Level Settings (Allowable Value) for Item 6 (Containment High Pressure), which prevents inadvertent operation of containment spray during accident conditions, Item 9 (Reactor Low Pressure), which provides an open signal to the Core Spray (CS) and Low Pressure Coolant Injection (LPCI) System injection valves, and Item 24 (Reactor Low Pressure), which provides a close signal to the recirculation pump discharge valves, have been revised. The Allowable Value for Item 6 has been changed from > 1 psig and < 2.7 psig to ≥ 1 psig to ≤ 2.7 psig (ITS Table 3.3.5.1 Function 2.h). The Allowable Value for Item 9 has been changed from ≥ 450 psig to ≥ 410 psig and ≤ 490 psig (ITS Table 3.3.5.1-1 Functions 1.c for CS and 2.c for LPCI). The Trip Level Setting for Item 24 is 285 to 335 psig. This has been changed to ≥ 295 psig (ITS Table 3.3.5.1-1 Function 2.d). The Allowable Value for Functions 1.c and 2.c is low enough to prevent overpressuring the equipment in the low pressure ECCS, but high enough to ensure that the ECCS injection prevents the fuel peak cladding temperature from exceeding the limits of 10 CFR 50.46. The Allowable Value for Function 2.d is chosen to ensure that the valves close prior to commencement of LPCI injection flow into the core, as assumed in the safety analysis. The Allowable Value for Function 2.h is low enough to ensure containment spray is not isolated when needed, but high enough to ensure isolation of containment spray prior to establishing a negative containment pressure. The 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. 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 accounts for uncertainties and environmental conditions. This change is consistent with NUREG-1433, Revision 1.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC) (continued)

L7 CTS Table 3.2-2, Item 11 specifies the trip level setting for the Core Spray Pump Start Time to be 11 ± 1.34 seconds. CTS Table 3.2-2, Item 12 specifies the trip level setting for the RHR (LPCI) Pump Start Timers to be 1.25 ± 0.26 seconds for the 1st pump in loops A and B and 6.0 ± 0.73 seconds for the 2nd pump in loops A and B. In ITS Table 3.3.5.1-1 the Allowable Value for Function 1.d (Core Spray Pump Start-Time Delay Relay) is ≤ 12.34 seconds while the Allowable Value for Function 2.f (LPCI Start-Time Delay Relays) is ≤ 1.51 seconds for the A and D pumps and ≤ 6.73 seconds for the B and C pumps. The proposed Allowable Values for the time delay relays are consistent with the upper limit of the CTS trip level settings (e.g., 11 + 1.34 seconds). The lower limit for the timers have been deleted. The Allowable Values included in ITS 3.3.5.1 ensure ECCS will operate within the time period assumed in the accident analyses. The current timer settings also ensure that the time delays are long enough so that most of the starting transient of a pump is complete before starting a subsequent pump. This requirement is maintained since a more restrictive requirement has been added for AC-Sources in ITS 3.8.1. SR 3.8.1.13 requires the verification that the interval between each sequenced load block is within the minimum design interval. If this new requirement is not met, then the associated EDG subsystem and reserve circuit must be declared inoperable and 12 hours are provided to restore the EDG or reserve circuit to operable status. This allowed out of service time is shorter than that currently provided by CTS Table 3.2-2 (Note 7.A). Therefore, the removal of the low limit for the timers from CTS Table 3.2-2 based on the addition of the requirement in ITS 3.8.1 is acceptable.

(E)

TECHNICAL CHANGES - RELOCATIONS

None

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.3.5.1

Emergency Core Cooling System (ECCS) Instrumentation

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.3.5.1 - ECCS INSTRUMENTATION

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE

Not Used.

Am 0263

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.3.5.1 - ECCS INSTRUMENTATION

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. The bases for the determination 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 will allow the Reactor Pressure-Low (Injection Permissive) channels associated with the Core Spray and Low Pressure Coolant Injection (LPCI) System to be placed in trip instead of restored to service in 24 hours in MODES 4 and 5. The allowance to restore the channels to operable status is still applicable since LCO 3.0.2 will allow this action to be exited if the channel is restored to operable status prior to the Completion Time. The proposed change does not affect the probability of an accident. The ECCS System instrumentation is not assumed to be an initiator of any analyzed event. In MODES 4 and 5 the reactor pressure is low and the pressure setpoint of all instrument channels should already be actuated. Therefore, placing the channel(s) in trip accomplishes the Function of the instrumentation. With the channels in trip the CS and LPCI injection valves will not open since the opening of these valves is also dependent on a Loss of Coolant Signal in conjunction with low reactor pressure. Therefore, placing one or more channels in trip is acceptable if operating in MODES 4 and 5 since the safety function will be met. This change will ensure the associated System is available to mitigate any event requiring it to operate in MODES 4 and 5. 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 allow the Reactor Pressure-Low (Injection Permissive) channels associated with the Core Spray and Low Pressure Coolant Injection (LPCI) System to be placed in trip instead of restored to service in 24 hours in MODES 4 and 5. This change will not physically

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

2. (continued)

alter the plant (no new or different type of equipment will be installed). The changes in methods governing normal plant operation are consistent with 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 will allow the Reactor Pressure-Low (Injection Permissive) channels associated with the Core Spray and Low Pressure Coolant Injection (LPCI) System to be placed in trip instead of restored to service in 24 hours in MODES 4 and 5. The allowance to restore the channels to operable status is still applicable since LCO 3.0.2 will allow this action to be exited if the channel is restored to operable status prior to the Completion Time. In MODES 4 and 5 the reactor pressure is low and the pressure setpoint of all instrument channels should already be actuated. Therefore, placing the channel(s) in trip accomplishes the Function of the instrumentation. With the channels in trip the CS and LPCI injection valves will not open since the opening of these valves is also dependent on a Loss of Coolant Signal in conjunction with low reactor pressure. Therefore, placing one or more channels in trip is acceptable if operating in MODES 4 and 5 since the safety function will be met. This change will ensure the associated System is available to mitigate any event requiring it to operate in MODES 4 and 5. Therefore no question of safety exists. Therefore, this change will not involve a significant reduction in a margin of safety.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.3.5.1 - ECCS INSTRUMENTATION

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L3 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. The bases for the determination 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 will only require the Reactor Pressure - Low (Recirculation Discharge Valve Permissive) Function channels to be Operable in MODES 1, 2 and 3 with the associated discharge valve open. The ECCS System instrumentation is not assumed to be an initiator of any analyzed event. Therefore the proposed change does not affect the probability of an accident. With the recirculation discharge valve closed, the function of the instrumentation has been performed; thus, the Function is not required. In MODES 4 and 5, the loop injection location is not critical since LPCI injection through the recirculation loop in either direction will still ensure that LPCI flow reaches the core (i.e., there is no significant reactor back pressure). Therefore this change in the CTS Applicability is acceptable since the associated LPCI loop will still be able to perform its associated safety function. The consequences of an accident are not affected by changing this applicability since the LPCI injection flow will enter the vessel and the safety analysis assumptions will be met. Therefore, this change will not create the possibility of a new or different kind of accident from any 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 only require the Reactor Pressure - Low (Recirculation Discharge Valve Permissive) Function channels to be Operable in MODES 1, 2 and 3 with the associated discharge valve open. The proposed change will not create the possibility of an accident. This change will not physically alter the plant (no new or different type of equipment will be installed). The changes in methods governing normal plant operation are consistent with 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.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L3 CHANGE

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

This change will only require the Reactor Pressure-Low (Recirculation Discharge Valve Permissive) Function channels to be Operable in MODES 1, 2 and 3 with the associated discharge valve open. With the recirculation discharge valve closed, the function of the instrumentation has been performed; thus, the Function is not required. In MODES 4 and 5, the loop injection location is not critical since LPCI injection through the recirculation loop in either direction will still ensure that LPCI flow reaches the core (i.e., there is no significant reactor back pressure). Therefore this change in the CTS Applicability is acceptable since the associated LPCI loop will still be able to perform its associated safety function. This change will ensure the associated System pathway is available to mitigate any event requiring the LPCI System to operate. Therefore no question of safety exists. Therefore, this change will not involve a significant reduction in a margin of safety.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.3.5.1 - ECCS INSTRUMENTATION

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L4 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. The bases for the determination 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?

   The proposed change will allow 24 hours to restore inoperable Low Pressure Coolant Injection (LPCI) and Core Spray (CS) start time delay relay channels to Operable status in MODES 4 and 5 whether or not automatic initiation capability is maintained. The ECCS System instrumentation is not assumed to be an initiator of any analyzed event. Therefore the proposed change does not affect the probability of an accident. In MODES 4 and 5, the specific initiation time of the low pressure ECCS is not assumed and the probability of a LOCA is lower. The ECCS System is required in MODES 4 and 5 to mitigate the consequences of an inadvertent draindown event. Automatic initiation is not required in this condition since one LPCI subsystem may be aligned in the Residual Heat Removal Shutdown Cooling mode of operation. In this condition manual alignment to the injection mode will be necessary to mitigate the consequences of any inadvertent draindown event. Therefore the consequences of any inadvertent draindown event in these conditions will be bounded by the consequences of the same event if manual alignment of the required LPCI subsystem is necessary. 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?

   The proposed change will allow 24 hours to restore inoperable Low Pressure Coolant Injection (LPCI) and Core Spray (CS) start time delay relay channels to Operable status in MODES 4 and 5 whether or not automatic initiation capability is maintained. This change will not physically alter the plant (no new or different type of equipment will be installed). Therefore, this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L4 CHANGE

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

The proposed change will allow 24 hours to restore inoperable Low Pressure Coolant Injection (LPCI) and Core Spray (CS) start time delay relay channels to Operable status in MODES 4 and 5 whether or not automatic initiation capability is maintained. In MODES 4 and 5, the specific initiation time of the low pressure ECCS is not assumed and the probability of a LOCA is lower. The ECCS System is required in MODES 4 and 5 to mitigate the consequences of an inadvertent draindown event. Automatic initiation is not required in this condition since one LPCI subsystem may be aligned in the Residual Heat Removal Shutdown Cooling mode of operation. In this condition manual alignment to the injection mode will be necessary to mitigate the consequences of any inadvertent draindown event. Therefore the consequences of any inadvertent draindown event in these conditions will be bounded by the consequences of the same event if manual alignment of the required LPCI subsystem is necessary. The margin of safety is not significantly reduced since automatic initiation of the low pressure ECCS Systems is not required in these conditions. Therefore, this change will not involve a significant reduction in a margin of safety.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
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L5 CHANGE

Not Used.

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NO SIGNIFICANT HAZARDS CONSIDERATIONS
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TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L6 CHANGE

The Licensee has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. The bases for the determination 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?

The trip setpoints (Allowable Values) for the Reactor Low Pressure and Containment High Pressure Functions have been revised. The Allowable Value for Item 6 has been changed from > 1 psig and < 2.7 psig to ≥ 1 psig and ≤ 2.7 psig (ITS Table 3.3.5.1-1 Function 2.h). The Allowable Value for Item 9 has been changed from ≥ 450 psig to ≥ 410 psig and ≤ 490 psig (ITS Table 3.3.5.1-1 Functions 1.c for CS and 2.c for LPCI). The Trip Level Setting for Item 24 is 285 to 335 psig. This has been changed to ≥ 295 psig (ITS Table 3.3.5.1-1 Function 2.d). The ECCS System instrumentation is not assumed to be an initiator of any analyzed event. Therefore, this change does not significantly increase the probability of an accident previoulsy evaluated. The role of the ECCS System instrumentation is in mitigating and thereby limiting the consequences of an accident. The Allowable Value for Function 2.h is low enough to ensure containment spray is not isolated when needed, but high enough to ensure isolation of containment spray prior to establishing a negative containment pressure. The Allowable Value for Functions 1.c and 2.c is low enough to prevent overpressuring the equipment in the low pressure ECCS, but high enough to ensure that the ECCS injection prevents the fuel peak cladding temperature from exceeding the limits fo 10 CFR 50.46. The Allowable Value for Function 2.d is chosen to ensure that the valves close prior to commencement of LPCI injection flow into the core, as assumed in the safety analysis. The 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. The proposed change still provides assurance that ECCS System instrumentation Operability is maintained consistent with analysis assumptions. 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.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L6 CHANGE (continued)

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

The trip setpoints (Allowable Values) for the Reactor Low Pressure Functions have been revised. The proposed change to Allowable Values will not create the possibility of an accident. This change will not physically alter the plant (no new or different type of equipment will be installed). The changes in methods governing normal plant operation are consistent with 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?

The trip setpoints (Allowable Values) for the Reactor Low Pressure and Containment High Pressure Functions have been revised. The Allowable Value for Item 6 has been changed from > 1 psig and < 2.7 psig to ≥ 1 psig and ≤ 2.7 psig (ITS Table 3.3.5.1-1 Function 2.h). The Allowable Value for Item 9 has been changed from ≥ 450 psig to ≥ 410 psig and ≤ 490 psig (ITS Table 3.3.5.1-1 Functions 1.c for CS and 2.c for LPCI). The Trip Level Setting for Item 24 is 285 to 335 psig. This has been changed to ≥ 295 psig (ITS Table 3.3.5.1-1 Function 2.d). The role of the ECCS System instrumentation is in mitigating and thereby limiting the consequences of an accident. The Allowable Value for Functions 1.c and 2.c is low enough to prevent overpressuring the equipment in the low pressure ECCS, but high enough to ensure that the ECCS injection prevents the fuel peak cladding temperature from exceeding the limits of 10 CFR 50.46. The Allowable Value for Function 2.h is low enough to ensure containment spray is not isolated when needed, but high enough to ensure isolation of containment spray prior to establishing a negative containment pressure. The Allowable Value for Function 2.d is chosen to ensure that the valves close prior to commencement of LPCI injection flow into the core, as assumed in the safety analysis. The 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. Therefore, the margin of safety is not significantly reduced because the proposed changes Technical Specification Values will continue to provide the necessary assurance that the ECCS System instrumentation will automatically initiate when required. The safety analysis assumptions will still be

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L6 CHANGE

3. (continued)

maintained, thus, no question of safety exists. Therefore, this change will not involve a significant reduction in a margin of safety.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.3.5.1 - ECCS INSTRUMENTATION

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L7 CHANGE

The Licensee has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. The bases for the determination 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?

   The proposed change deletes the lower limit of the ECCS pump time delay relays in the ECCS Instrument Specification, however a new Surveillance has been added to the AC Sources - Operating Specification (ITS 3.8.1) which requires the verification that the interval between each sequenced load block is within the minimum design interval. The ECCS System instrumentation is not assumed to be an initiator of any analyzed event. Therefore, the proposed change does not affect the probability of an accident. The proposed Allowable Values for the time delays relays are consistent with the upper limit of the CTS trip level settings (e.g., 11 + 1.34 seconds). The lower limit for the timers have been deleted. The Allowable Values included in ITS 3.3.5.1 ensure ECCS will operate within the time period assumed in the accident analyses. The current timer settings also ensure that the time delays are long enough so that most of the starting transient of a pump is complete before starting a subsequent pump. This requirement is maintianed since a more restrictive requirement has been added for AC Sources - Operating in ITS 3.8.1. SR 3.8.1.13 requires the verification that the interval between each sequenced load block is within the minimum design interval. If this new requirement is not met, then the associated EDG subsystem and reserve circuit must be declared inoperable and 12 hours are provided to restore the EDG or reserve circuit to operable status. This allowed out of service time is shorter than that currently provided by CTS Table 3.2-2 (Note 7.A). Therefore, the removal of the low limit for the times from CTS Table 3.7-2 based on the addition of the requirement in ITS 3.8.1 is acceptable. 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?

   The proposed change deletes the lower limit of the ECCS pump time delay relays in the ECCS Instrument Specification, however a new Surveillance has been added to the AC Sources - Operating Specification (ITS 3.8.1)

F

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L7 CHANGE

2. (continued)

which requires the verification that the interval between each sequenced load block is within the minimum design interval. The ECCS System instrumentation is not assumed to be an initiator of any analyzed event. This change will not physically alter the plant (no new or different type of equipment will be installed). Therefore, this change will not create the possibility of a new or different kind of accident from any previously evaluated.

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

The proposed change deletes the lower limit of the ECCS pump time delay relays in the ECCS Instrument Specification, however a new Surveillance has been added to the AC Sources - Operating Specification (ITS 3.8.1) which requires the verification that the interval between each sequenced load block is within the minimum design interval. The proposed requirements will continue to ensure that the ECCS pumps will initiate in sufficient time to cool the core during a Loss of Coolant Accident and at the same time ensure that the time delays are long enough so that most of the starting transient of a pump is complete before starting a subsequent pump. Therefore, this change will not involve a significant reduction in a margin of safety.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.3.5.1

Emergency Core Cooling System (ECCS) Instrumentation

MARKUP OF NUREG-1433, REVISION 1
SPECIFICATION

3.3 INSTRUMENTATION

3.3.5.1 Emergency Core Cooling System (ECCS) Instrumentation

[3.2 B] LCO 3.3.5.1 The ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE.

[3.2 B] APPLICABILITY: According to Table 3.3.5.1-1.

ACTIONS

[A2] ----------NOTE----------
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
[A3] A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.1-1 for the channel.	Immediately
[T 3.2-2 Note 1, 2, 5] B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1. [L4] [A11]	B.1 --------NOTES-------- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.a, 1.b, 2.a, and 2.b. ---------- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable. AND	1 hour from discovery of loss of initiation capability for feature(s) in both divisions (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 --------NOTE-------- Only applicable for Functions 3.a and 3.b. ---------- Declare High Pressure Coolant Injection (HPCI) System inoperable. AND	1 hour from discovery of loss of HPCI initiation capability
	B.3 Place channel in trip.	24 hours
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1 --------NOTES-------- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.c, 2.c, 2.d, and 2.f. ---------- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable. AND	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	C.2 Restore channel to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1. [T. 3.2-2 Note 9]	D.1 --------NOTE-------- Only applicable if HPCI pump suction is not aligned to the suppression pool. ---------- Declare HPCI System inoperable. AND	1 hour from discovery of loss of HPCI initiation capability
	D.2.1 Place channel in trip. OR	24 hours
	D.2.2 Align the HPCI pump suction to the suppression pool.	24 hours
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1. [M2]	E.1 --------NOTES-------- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.e, 1.f, and 2.g. ---------- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable. AND	1 hour from discovery of loss of initiation capability for subsystems in both divisions

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. (continued)	E.2 Restore channel to OPERABLE status.	7 days
F. As required by Required Action A.1 and referenced in Table 3.3.5.1-1. [T. 3.2-2 Note 3]	F.1 Declare Automatic Depressurization System (ADS) valves inoperable. AND F.2 Place channel in trip.	1 hour from discovery of loss of ADS initiation capability in both trip systems 96 hours from discovery of inoperable channel concurrent with HPCI or reactor core isolation cooling (RCIC) inoperable AND 8 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
G. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	G.1	--------NOTE-------- Only applicable for Functions 4.c, 4.e, 4.f, 4.g, 5.c, 5.e, 5.f, and 5.g. ---------- Declare ADS valves inoperable.	1 hour from discovery of loss of ADS initiation capability in both trip systems
	AND		
	G.2	Restore channel to OPERABLE status.	96 hours from discovery of inoperable channel concurrent with HPCI or RCIC inoperable AND 8 days
H. Required Action and associated Completion Time of Condition B, C, D, E, F, or G not met.	H.1	Declare associated supported feature(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

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

[4.2.B] 1. Refer to Table 3.3.5.1-1 to determine which SRs apply for each ECCS Function.

[T. 3.2-2 Notes 11 & 12] 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 for Functions 3.c, 3.f, and 3.g; and (b) for up to 6 hours for Functions other than 3.c, 3.f, and 3.g provided the associated Function or the redundant Function maintains ECCS initiation capability.

	SURVEILLANCE		FREQUENCY
[T. 4.2-2]	SR 3.3.5.1.1	Perform CHANNEL CHECK.	12 hours
[T. 4.2-2]	SR 3.3.5.1.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days CLB2
[T. 4.2-2 Note 15]	~~SR 3.3.5.1.3~~ 4	Calibrate the trip unit. (5) PA3	~~92~~ 184 [92] days CLB3
[T. 4.2-2]	~~SR 3.3.5.1.4~~ 3	Perform CHANNEL CALIBRATION.	92 days DB5
[T. 4.2-2 Note 15]	SR 3.3.5.1.5	Perform CHANNEL CALIBRATION. 24	[18] months DB5
[4.5.A.1.f] [4.5.A.3] [4.5.C.1] [T. 4.2-2]	SR 3.3.5.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] 24 months X1
	SR 3.3.5.1.7	Verify the ECCS RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS CLB1

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Table 3.3.5.1-1 (page 1 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level – Low Low Low Level 1	1,2,3, 4(a), 5(a)	[4](b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [-118] inches
b. Drywell Pressure – High	1,2,3	[4](b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≤ [1.96] psig
c. Reactor [illegible] Pressure – Low (Injection Permissive)	1,2,3	[4]	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [390] psig and ≤ [400] psig
	4(a), 5(a)	[4]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [350] psig and ≤ [360] psig
Insert Function 1.d					
Core Spray Pump Discharge Flow – Low (Bypass)	1,2,3, 4(a), 5(a)	[1] per pump	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [ ] gpm and ≤ [ ] gpm
Insert Function 1.f					
e. Manual Initiation	1,2,3, 4(a), 5(a)	[2] [1 per subsystem]	C	SR 3.3.5.1.6	NA
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Vessel Water Level – Low Low Low Level 1	1,2,3, 4(a), 5(a)	[4](b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [-118] inches

(continued)

(a) When associated subsystem(s) are required to be OPERABLE.

(b) Also required to initiate the associated diesel generator (DG) and isolate the associated plant service water (PSW) turbine building (T/B) isolation valves.

DBI

INSERT Function 1.d

[L7]	d. Core Spray Pump Start-Time Delay Relay	1,2,3, $4^{(a)}$, $5^{(a)}$	1 per pump	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 12.34 seconds	I/F

DBI

INSERT Function 1.f

f. Core Spray Pump Discharge Pressure – High (Bypass)	1,2,3, $4^{(a)}$, $5^{(a)}$	1 per pump	E	SR 3.3.5.1.3 SR 3.3.5.1.6	≥ 90 psig and ≤ 110 psig	

Table 3.3.5.1-1 (page 2 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
b. Drywell Pressure – High	1,2,3	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≤ 1.92 psig
c. Reactor Steam Dome Pressure – Low (Injection Permissive)	1,2,3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ 390 psig and ≤ 500 psig
	4(a), 5(a)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ 390 psig and ≤ 500 psig
d. Reactor Steam Dome Pressure – Low (Recirculation Discharge Valve Permissive)	1(c), 2(c), 3(c)	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 295 psig
e. Reactor Vessel Shroud Level 0	1,2,3	2	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ -202 inches
f. Low Pressure Coolant Injection Pump Start – Time Delay Relay Pumps A, B, D	1,2,3, 4(a), 5(a)	4 (1 per pump)	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 1.51 seconds and ≤ 6.73 seconds
Pump C		3			≤ 6.73 seconds

(continued)

(a) When associated subsystem(s) are required to be OPERABLE per LCO 3.5.2.

(b) Also required to initiate the associated DG and isolate the associated PSW T/B isolation valves.

(c) With associated recirculation pump discharge valve open.

Table 3.3.5.1-1 (page 3 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
g. Low Pressure Coolant Injection Pump Discharge Flow – Low (Bypass)	1,2,3, 4(a), 5(a)	1 per pump	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [ ] gpm and ≤ [ ] gpm
h. Manual Initiation	1,2,3, 4(a), 5(a)	[2] [1 per subsystem]	C	SR 3.3.5.1.6	NA
3. High Pressure Coolant Injection (HPCI) System					
a. Reactor Vessel Water Level – Low Low Level 2	1, 2(d), 3(d)		B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [-47] inches
b. Drywell Pressure – High	1, 2(d), 3(d)		B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≤ [1.92] psig
c. Reactor Vessel Water Level – High, Level 8	1, 2(d), 3(d)		C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≤ [56.5] inches
d. Condensate Storage Tank Level – Low	1, 2(d), 3(d)		D	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.6	≥ [ ] inches
e. Suppression Pool Water Level – High	1, 2(d), 3(d)		D	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ [754] inches

(continued)

(a) When the associated subsystem(s) are required to be OPERABLE.

(d) With reactor steam dome pressure > [150] psig.

DB12

INSERT Function 2.h

h.	Containment Pressure – High	1,2,3	4	B	SR 3.3.5.1.3 SR 3.3.5.1.6	≥ 1 psig and ≤ 2.7 psig

F

Insert Page 3.3-44

Revision F

Table 3.3.5.1-1 (page 4 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. HPCI System (continued)					
f. High Pressure Coolant Injection Pump Discharge Flow – Low (Bypass)	1, 2(d), 3(d)	[1]	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [ ] gpm and ≤ [ ] gpm
g. Manual Initiation	1, 2(d), 3(d)	[1]	C	SR 3.3.5.1.6	NA
4. Automatic Depressurization System (ADS) Trip System A					
a. Reactor Vessel Water Level – Low Low Low, Level 1	1, 2(d), 3(d)	[2]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [-213] inches
b. Drywell Pressure – High	1, 2(d), 3(d)	[2]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ [1.92] psig
Automatic Depressurization System Initiation Timer	1, 2(d), 3(d)	[1]	G	SR 3.3.5.1.5 SR 3.3.5.1.6	≤ [120] seconds
Reactor Vessel Water Level – Low, Level 3 (Confirmatory)	1, 2(d), 3(d)	[1]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [101] inches
Core Spray Pump Discharge Pressure – High	1, 2(d), 3(d)	[2]	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [167] psig and ≤ [ ] psig

(continued)

(d) With reactor steam dome pressure > [150] psig.

DB 1

INSERT Function 3.g

g.	High Pressure Coolant Injection Pump Discharge Pressure – High (Byasss)	1, 2(d), 3(d)	1	E	SR 3.3.5.1.3 SR 3.3.5.1.6	≥ 25 psig and ≤ 80 psig

Table 3.3.5.1-1 (page 5 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. ADS Trip System A (continued)					
e. Low Pressure Coolant Injection Pump Discharge Pressure – High	1, 2(d), 3(d)	[2]	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [112] psig and ≤ [145] psig
g. Automatic Depressurization System Low Water Level Actuation Timer	1, 2(d), 3(d)	[2]	G	SR 3.3.5.1.5 SR 3.3.5.1.6	≤ [13] minutes
h. Manual Initiation	1, 2(d), 3(d)	[2]	G	SR 3.3.5.1.6	NA
5. ADS Trip System B					
a. Reactor Vessel Water Level – Low Low Low Level 1	1, 2(d), 3(d)	[2]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [-135] inches
b. Drywell Pressure – High	1, 2(d), 3(d)	[2]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ [1.92] psig
c. Automatic Depressurization System Initiation Timer	1, 2(d), 3(d)	[1]	G	SR 3.3.5.1.5 SR 3.3.5.1.6	≤ [120] seconds
d. Reactor Vessel Water Level – Low Level 3 (Confirmatory)	1, 2(d), 3(d)	[1]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [-10] inches
e. Core Spray Pump Discharge Pressure – High	1, 2(d), 3(d)	[2]	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [137] psig and ≤ [110] psig

(continued)

(d) With reactor steam dome pressure > [150] psig.

Table 3.3.5.1-1 (page 6 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. ADS Trip System B (continued)					
f. Low Pressure Coolant Injection Pump Discharge Pressure – High	1, 2(d), 3(d)	[4]	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [112] psig and ≤ [0] psig
g. Automatic Depressurization System Low Water Level Actuation Timer	1, 2(d), 3(d)	[2]	G	[SR 3.3.5.1.5] SR 3.3.5.1.6	≥ [13] minutes
h. Manual Initiation	1, 2(d), 3(d)	[2]	G	SR 3.3.5.1.6	NA

(d) With reactor steam dome pressure > [150] psig.