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TALEN ENERGY

January 29, 2025

Attn: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

10 CFR 50.90

SUSQUEHANNA STEAM ELECTRIC STATION
PROPOSED AMENDMENT TO LICENSES NPF-14 AND NPF-22: REVISE REACTOR VESSEL WATER LEVEL 3 AND LEVEL 8 ALLOWABLE VALUE
PLA-8144

Docket No. 50-387
and 50-388

Pursuant to 10 CFR 50.90, Susquehanna Nuclear, LLC (Susquehanna), is submitting a request for an amendment to the Technical Specifications (TS) for the Susquehanna Steam Electric Station (SSES), Units 1 and 2, Facility Operating License numbers NPF-14 and NPF-22. The proposed amendment would modify the Reactor Vessel Water Level – Low, Level 3 Allowable Value (AV) for TS 3.3.1.1, Reactor Protection System (RPS) Instrumentation, TS 3.3.5.1, Emergency Core Cooling System (ECCS) Instrumentation, TS 3.3.5.2, Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation, and TS 3.3.6.1, Primary Containment Isolation Instrumentation. The proposed amendment would also modify the Reactor Vessel Water Level – High, Level 8 AV for TS 3.3.5.1, ECCS Instrumentation and TS 3.3.5.3, Reactor Core Isolation Cooling (RCIC) System Instrumentation.

These changes would modify the Reactor Vessel Water Level – Low, Level 3 TS AV for the following functions (1) RPS Instrumentation Function 4 in TS Table 3.3.1.1-1, (2) ECCS Instrumentation Functions 4.d and 5.d in TS Table 3.3.5.1-1, (3) RPV Water Inventory Control Instrumentation Function 3.a in TS Table 3.3.5.2-1, and (4) Primary Containment Isolation Instrumentation Functions 2.a, 6.b, and 7.a in TS Table 3.3.6.1-1. The changes would also modify the Reactor Vessel Water Level – High, Level 8 TS AV for the following functions (1) ECCS Instrumentation Function 3.c in TS Table 3.3.5.1-1 and (2) RCIC System Instrumentation Function 2 in TS Table 3.3.5.3-1. The proposed amendment is necessary to resolve issues associated with setpoint drift of the installed pressure transmitters which measure the Reactor Vessel Water Level – Low, Level 3 and the Reactor Vessel Water Level – High, Level 8, thereby reducing the likelihood of the need to perform an unnecessary shutdown due to compliance with the TS which is not warranted for the plant configuration. The revision to the AVs does not affect the overall redundancy and diversity of the above listed instrumentation and does not deviate from what is assumed in the accident analyses.

Attachment 1 provides a description and assessment of the proposed changes along with Susquehanna's determination that the proposed changes do not involve a significant hazard consideration. Attachment 2 provides the existing TS pages marked to show the proposed changes. Attachment 3 provides revised (clean) TS pages. No changes to the TS Bases or Updated Final Safety Analysis Report (FSAR) are required.

Susquehanna requests NRC approval of the proposed changes and issuance of the requested license amendment by February 28, 2026. Once approved, the amendment shall be implemented within 90 days.

In accordance with 10 CFR 50.91, Susquehanna is providing a copy of this application, with attachments, to the designated Commonwealth of Pennsylvania state official.

Both the Plant Operations Review Committee and the Nuclear Safety Review Board have reviewed the proposed changes.

There are no new or revised regulatory commitments contained in this submittal.

Should you have any questions regarding this submittal, please contact Ms. Melisa Krick, Manager – Nuclear Regulatory Affairs, at (570) 542-1818.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on January 29, 2025.

E. Casulli

Attachment:
1. Description and Assessment
2. Marked-Up Technical Specification Pages
3. Revised (Clean) Technical Specification Pages

Copy: NRC Region I
Ms. J. England, NRC Senior Resident Inspector
Ms. A. Klett, NRC Project Manager
Mr. M. Shields, PA DEP/BRP

Attachment 1 to PLA-8144

Description and Assessment

SUSQUEHANNA ASSESSMENT

1. Summary Description

Pursuant to 10 CFR 50.90, Susquehanna Nuclear, LLC (Susquehanna), is submitting a request for an amendment to the Technical Specifications (TS) for the Susquehanna Steam Electric Station (SSES), Units 1 and 2, Facility Operating License numbers NPF-14 and NPF-22. The proposed amendment would modify the Reactor Vessel Water Level – Low, Level 3 Allowable Value (AV) for TS 3.3.1.1, Reactor Protection System (RPS) Instrumentation, TS 3.3.5.1, Emergency Core Cooling System (ECCS) Instrumentation, TS 3.3.5.2, Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation, and TS 3.3.6.1, Primary Containment Isolation Instrumentation. The proposed amendment would also modify the Reactor Vessel Water Level – High, Level 8 AV for TS 3.3.5.1, ECCS Instrumentation, and TS 3.3.5.3, Reactor Core Isolation Cooling (RCIC) System Instrumentation.

These changes would modify the Reactor Vessel Water Level – Low, Level 3 TS AV for the following functions (1) RPS Instrumentation Function 4 in TS Table 3.3.1.1-1, (2) ECCS Instrumentation Functions 4.d and 5.d in TS Table 3.3.5.1-1, (3) RPV Water Inventory Control Instrumentation Function 3.a in TS Table 3.3.5.2-1, and (4) Primary Containment Isolation Instrumentation Functions 2.a, 6.b, and 7.a in TS Table 3.3.6.1-1. The changes would also modify the Reactor Vessel Water Level – High, Level 8 TS AV for the following functions (1) ECCS Instrumentation Function 3.c in TS Table 3.3.5.1-1, and (2) RCIC System Instrumentation Function 2 in TS Table 3.3.5.3-1. The proposed amendment is necessary to resolve issues associated with setpoint drift of the installed pressure transmitters which measure the Reactor Vessel Water Level – Low, Level 3 and the Reactor Vessel Water Level – High, Level 8, thereby reducing the likelihood of the need to perform an unnecessary shutdown due to compliance with the TS which is not warranted for the plant configuration. The revision to the AVs does not affect the overall redundancy and diversity of the above listed instrumentation and does not deviate from what is assumed in the accident analyses.

2. Detailed Description

Reactor Vessel Water Level – Low, Level 3 signals are initiated from four level instruments 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. The Reactor Vessel Water Level – Low, Level 3 provides input to the RPS Instrumentation, ECCS Instrumentation, RPV Water Inventory Control Instrumentation, and Primary Containment Isolation Instrumentation.

Reactor Vessel Water Level – High, Level 8 signals are initiated from two level instruments 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. The Reactor Vessel Water Level – High, Level 8 provides input to the ECCS Instrumentation and RCIC System Instrumentation.

2.1 System Design and Operation

Reactor Vessel Water Level – Low, Level 3

Reactor Protection System Instrumentation (TS Table 3.3.1.1-1, Function 4):

Reactor Vessel Water Level – Low, Level 3 signals initiate a reactor scram to substantially reduce the heat generated in the fuel from fission. The first low water level setting (Low, Level 3) is selected to initiate isolation at the earliest indication of a possible breach in the reactor coolant pressure boundary, yet far enough below normal operational levels to avoid spurious isolation.

Two channels in each trip system arranged in a one-out-of-two logic, are required to be operable to ensure that no single instrument failure will preclude a scram from this function on a valid signal. The Reactor Vessel Water Level – Low, Level 3 Function is assumed in the Chapter 15 Update Final Safety Analysis Report (FSAR) analysis of the recirculation line break. The reactor scram on low level reduces the amount of energy required to be absorbed and, along with the actions of the ECCS, ensures that the fuel peak cladding temperature (PCT) remains below the limits of 10 CFR 50.46.

Emergency Core Cooling Systems Instrumentation (TS Table 3.3.5.1-1, Functions 4.d and 5.d):

Reactor Vessel Water Level – Low, Level 3 signals are initiated and tie into the Automatic Depressurization System (ADS) logic. The ADS logic in each trip system is arranged in two strings. To prevent spurious initiation of the ADS due to spurious Level 1 signals, one of the two strings in each trip system must also have a confirmed Level 3 signal before ADS initiation commences. Two channels of Reactor Vessel Water Level – Low, Level 3 Function are required to be operable only when the ADS is required to be operable to ensure that no single instrument failure can preclude ADS initiation.

The level instruments are set to actuate on decreasing reactor vessel water level. The AV is high enough to ensure that during normal operation the separator skirts are not uncovered (this protects available recirculation pump net positive suction head from significant carry under) and, for transients involving loss of all normal feedwater flow, initiation of the low pressure ECCS subsystems at Reactor Vessel Water – Low Low Low, Level 1 will not be required. Additionally, this AV is selected to reduce the amount of energy required to be absorbed and, along with the actions of the ECCS, ensures that the fuel PCT remains below the limits of 10 CFR 50.46.

Reactor Pressure Vessel (RPV) Water Inventory Control (*TS Table 3.3.5.2-1, Function 3.a):*

Reactor Vessel Water Level – Low, Level 3 signals are initiated from four level transmitters and may be credited for automatic isolation of penetration flow paths associated with the Residual Heat Removal (RHR) System. This function is only required to be operable when automatic isolation of the associated penetration flow path is credited in calculating drain time. While four channels (two channels per trip system) of the Reactor Vessel Water Level – Low, Level 3 Function are available, only two channels (all in the same trip system) are required to be operable.

Primary Containment Isolation Instrumentation (TS Table 3.3.6.1-1, Functions 2.a, 6.b, and 7.a):

Reactor Vessel Water Level – Low, Level 3 signals for isolation of the primary containment on Level 3 support actions to ensure that offsite and control room dose regulatory limits are not exceeded during a design basis loss of coolant accident (LOCA) event. The Reactor Vessel Water Level – Low, Level 3 Function associated with isolation is implicitly assumed in the Chapter 15 FSAR dose consequence analysis as these leakage paths are assumed to be isolated post LOCA. Four channels of Reactor Vessel Water Level – Low, Level 3 Function are available and are required to be operable to ensure that no single instrument failure can preclude the isolation function.

The RHR Shutdown Cooling System isolation on Reactor Vessel Water Level – Low, Level 3 supports actions to ensure that the RPV water level does not drop below the top of the active fuel during a vessel draindown event caused by a leak (e.g., pipe break or inadvertent valve opening). Four channels of the Reactor Vessel Water Level – Low, Level 3 Function are available and are required to be operable to ensure that no single instrument failure can preclude the isolation function.

The Traversing Incore Probe (TIP) System isolation function receives input from two reactor vessel water level channels. The outputs from the reactor vessel water level channels are connected into one two-out-of-two logic trip system. When the isolation function actuates, the TIP drive mechanisms will withdraw the TIPs, if inserted, and close the inboard TIP System isolation ball valves when the proximity probe senses the TIPs are withdrawn into the shield. The TIP System isolation ball valves are only open when the TIP System is in use. The outboard TIP System isolation valves are manual shear valves. Two channels of Reactor Vessel Water Level – Low, Level 3 Function are available and are required to be operable to ensure that no single instrument failure can initiate an inadvertent isolation actuation.

Reactor Vessel Water Level – High, Level 8

Emergency Core Cooling System Instrumentation (TS Table 3.3.5.1-1, Function 3.c):

High RPV water level indicates that sufficient cooling water inventory exists in the reactor vessel such that there is no danger to the fuel. The Level 8 signal is used to trip the Hight Pressure Coolant Injection (HPCI) turbine to prevent overflow into the main steam lines (MSLs). The high water level 8 trip only occurs when adequate water inventory is in the vessel.

Reactor Vessel Water Level – High, Level 8 signals for HPCI are initiated from two level instruments. Both Level 8 signals are required in order to trip HPCI. This ensures that no single instrument failure can preclude an HPCI initiation or trip. The Reactor Vessel Water Level – High, Level 8 AV is chosen to prevent flow from the HPCI System from overflowing into the MSLs. Two channels of Reactor Vessel Water Level-High, Level 8 Function are required to be operable only when HPCI is required to be operable.

Reactor Core Isolation Cooling System Instrumentation (Table 3.3.5.3-1, Function 2)

High RPV water level indicates that sufficient cooling water inventory exists in the reactor vessel such that there is no danger to the fuel. Therefore, the Level 8 signal is used to close the RCIC steam supply and cooling water supply valves to prevent overflow into the MSLs. The Reactor Vessel Water Level – High, Level 8 AV is high enough to preclude isolating the injection valve of the RCIC during normal operation, yet low enough to trip the RCIC System prior to water overflowing into the MSLs. The high water level 8 trip only occurs when adequate water inventory is in the vessel.

Two channels of Reactor Vessel Water Level – High, Level 8 Function are available and are required to be operable when RCIC is required to be operable to ensure that no single instrument failure can preclude RCIC initiation.

2.2 Current Technical Specifications Requirements

Reactor Vessel Water Level – Low, Level 3

Limiting Condition for Operation (LCO) 3.3.1.1 requires, for each unit, that the RPS instrumentation for each function in TS Table 3.3.1.1-1 be operable in the modes or plant conditions specified within the table for the instrumentation. As specified in TS Table 3.3.1.1-1, Function 4 instrumentation requires that 2 channels per trip system be operable in Modes 1 and 2. For Function 4 to be operable, the setpoint must be ≥ 11.5 inches.

LCO 3.3.5.1 requires, for each unit, that the ECCS instrumentation for each function in TS Table 3.3.5.1-1 be operable in the modes or plant conditions specified within the table for the

instrumentation. As specified in TS Table 3.3.5.1-1, Functions 4.d and 5.d instrumentation require that 1 channel be operable in Mode 1, and in Modes 2 and 3 with reactor steam dome pressure > 150 pounds per square inch gauge (psig). For Functions 4.d and 5.d to be operable, the setpoint must be ≥ 11.5 inches.

LCO 3.3.5.2 requires, for each unit, that the RPV Water Inventory Control instrumentation for each function in TS Table 3.3.5.2-1 be operable in the modes or plant conditions specified within the table for the instrumentation. As specified in TS Table 3.3.5.2-1, Function 3.a instrumentation requires that 2 channels in 1 trip system be operable when automatic isolation of the associated penetration flow path(s) is credited in calculating drain time. For Function 3.a to be operable, the setpoint must be ≥ 11.5 inches.

LCO 3.3.6.1 requires, for each unit, that the Primary Containment Isolation instrumentation for each function in TS Table 3.3.6.1-1 be operable in the modes or plant conditions specified within the table for the instrumentation. As specified in TS Table 3.3.6.1-1, Functions 2.a and 7.a instrumentation require that 2 channels per trip system be operable in Modes 1, 2, and 3. Function 6.b requires that 2 channels per trip system be operable in Mode 3. For Functions 2.a, 6.b, and 7.a to be operable, the setpoint must be ≥ 11.5 inches.

Reactor Vessel Water Level – High, Level 8

LCO 3.3.5.1 requires, for each unit, that the ECCS instrumentation for each function in TS Table 3.3.5.1-1 be operable in the modes or plant conditions specified within the table for the instrumentation. As specified in TS Table 3.3.5.1-1, Function 3.c instrumentation require that 2 channels be operable in Mode 1, and in Modes 2 and 3 with reactor steam dome pressure > 150 psig. For Function 3.c to be operable, the setpoint must be ≤ 55.5 inches.

LCO 3.3.5.3 requires, for each unit, that the RCIC System instrumentation for each function in TS Table 3.3.5.3-1 be operable in the Mode 1, and in Modes 2 and 3 with reactor steam dome pressure > 150 psig. As specified in TS Table 3.3.5.3.-1, Function 2 instrumentation require that 2 channels be operable. For Function 2 to be operable, the setpoint must be ≤ 55.5 inches.

2.3 Reason for the Proposed Change

The Reactor Vessel Water Level instruments (Low, Level 3 and High, Level 8) that feed into the RPS Instrumentation, ECCS Instrumentation, RPV Water Inventory Control Instrumentation, RCIC System Instrumentation, and Primary Containment Isolation Instrumentation initiation logic have a history of setpoint drift at SSES. Causal analyses, troubleshooting, and testing were performed by Susquehanna, Cameron-Barton, and General Electric personnel. Select instruments were replaced with new, however, it was found the instruments were still subject to drift in certain cases. It was ultimately determined that the setpoint drift is caused by temperature and humidity changes within the reactor building. The proposed change revises the

AV to account for the instrument drift while still maintaining margin to the Analytical Limit (AL).

The existing Chapter 15 FSAR design basis accident analyses use a Reactor Vessel Water Level – Low, Level 3 value of 8 inches above reactor vessel reference 0 level. The value of 8 inches represents the AL for the Reactor Vessel Water Level – Low, Level 3 trip. The existing analysis to determine the Reactor Vessel Water Level – Low, Level 3 AV at Susquehanna calculated the AV based on the AL of 8 inches plus the uncertainty of the level instruments resulting in an AV of approximately ≥ 9.2 inches. The results of the calculation, and ultimately the TS AV, included an additional 2.3 inches of margin between the AL and the AV for a final AV of ≥ 11.5 inches. This additional margin is considered conservative and exceeds the requirements of General Electric NEDC-31336P-A (Reference 1) which provides guidance for calculating AVs.

The Reactor Vessel Water Level – High, Level 8 signal prevents injection from HPCI and RCIC to prevent overflow into the MSLs. The value of 58.7 inches represents the AL for the Reactor Vessel Water Level – High, Level 8 trip. The existing analysis to determine the Reactor Vessel Water Level – High, Level 8 AV at Susquehanna calculated the AV based on the AL of 58.7 inches plus the uncertainty of the level instruments resulting in an AV of approximately ≤ 57.5 inches. The results of the calculation, and ultimately the TS AV, included an additional 2.0 inches of margin between the AL and the AV for a final AV of ≤ 55.5 inches. This additional margin is considered conservative and exceeds the requirements of General Electric NEDC-31336P-A which provides guidance for calculating AVs.

By revising the overly conservative AVs, the existing instrument setpoints can be maintained with the new additional margin between the trip setpoint and the AV to account for expected instrument drift due to environmental conditions. A historical drift analysis has been performed to establish a new drift term for the worst case of these instruments and is evaluated against the new recommended AVs. The proposed change will reduce the likelihood of the need to perform a plant shutdown due to compliance with the TS which is not warranted for the plant configuration.

2.4 Description of the Proposed Change

A change is proposed to the Reactor Vessel Water Level – Low, Level 3 AV for Function 4 in TS Table 3.3.1.1-1, Functions 4.d. and 5.d in TS Table 3.3.5.1-1, Function 3.a in TS Table 3.3.5.2-1, and Functions 2.a, 6.b, and 7.a in TS Table 3.3.6.1-1. The AV (i.e., ≥ 11.5 inches) is revised to require the AV be greater than or equal to 10 inches (i.e., ≥ 10 inches).

A change is also proposed to the Reactor Vessel Water Level – High, Level 8 AV for Function 3.c in TS Table 3.3.5.1-1 and Function 2 in TS Table 3.3.5.3-1. The AV (i.e., ≤ 55.5 inches) is revised to require the AV be less than or equal to 57.0 inches (i.e., ≤ 57.0 inches).

The proposed TS pages are provided in Attachments 2 and 3.

3. Technical Evaluation

3.1 Revision to Allowable Value

3.1.1 Revised Allowable Value

The instrument function AL is the value used in the safety analyses to demonstrate nuclear safety system performance is maintained. The AV and Nominal Trip Setpoints (NTSP) are chosen/calculated such that the instrument will function before reaching the AL under the worst case environmental/event conditions. NTSPs account for measurable instrument characteristics (e.g., drift, accuracy, repeatability).

The existing Reactor Vessel Water Level (Low, Level 3 and High, Level 8) AVs were calculated using General Electric NEDC-31336P-A. This NRC-approved topical report ensures that NTSPs and AVs are determined using consistent methods and provides the controls to ensure that the calculations and basis for these values are documented and retrievable. The existing AVs include conservative margin which exceeds the requirements of NEDC-31336P-A. This margin was used when calculating the new AVs, while still meeting the requirements of the NRC-approved topical report.

Reactor Vessel Water Level – Low, Level 3

The proposed change to the Reactor Vessel Water Level – Low, Level 3 lowers the AV for Function 4 in TS Table 3.3.1.1-1, Functions 4.d. and 5.d in TS Table 3.3.5.1-1, Function 3.a in TS Table 3.3.5.2-1, and Functions 2.a, 6.b, and 7.a in TS Table 3.3.6.1-1. No physical plant changes will be made to implement the requested TS change to the Reactor Vessel Water Level – Low, Level 3 AV, i.e., instruments and setpoints (except the AV) remain the same. Therefore, the previously established instrument NTSP will be the same as the existing. Table 1 displays the changes to the calculated parameters.

Table 1 – Changes to Calculated Low, Level 3 Parameters

Parameter	Current (inches)	Proposed (inches)
Analytical Limit	≥ 8	≥ 8
Allowable Value	≥ 11.5	≥ 10
Nominal Trip Setpoint	≥ 13	≥ 13

The Reactor Vessel Water Level – Low, Level 3 NTSP will remain unchanged at ≥ 13 inches. This provides additional margin between the NTSP and proposed TS AV.

Reactor Vessel Water Level – High, Level 8

The proposed change to the Reactor Vessel Water Level – High, Level 8 increases the AV for Function 3.c in TS Table 3.3.5.1-1 and Function 2 in TS Table 3.3.5.3-1. No physical plant changes will be made to implement the requested TS change to the Reactor Vessel Water Level – Low, High 8 AV, i.e., instruments and setpoints (except the AV) remain the same. Therefore, the previously established instrument NTSP will be the same as the existing. Table 2 displays the changes to the calculated parameters.

Table 2 – Changes to Calculated High, Level 8 Parameters

Parameter	Current (inches)	Proposed (inches)
Analytical Limit	≤ 58.7	≤ 58.7
Allowable Value	≤ 55.5	≤ 57.0
Nominal Trip Setpoint	≤ 54.0	≤ 54.0

The Reactor Vessel Water Level – High, Level 8 NTSP will remain unchanged at ≤ 54 inches. This provides additional margin between the NTSP and proposed TS AV.

4. Regulatory Evaluation

4.1 Applicable Regulatory Requirements/Criteria

General Design Criteria

During the applicable period of this proposed license amendment, SSES will maintain the ability to meet the applicable General Design Criteria (GDC) as described in FSAR Section 3.1.

GDC-13, Instrumentation and Control

Instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems. Appropriate controls shall be provided to maintain these variables and systems within prescribed operating ranges.

GDC-20, Protection System Functions

The protection system shall be designed (1) to initiate automatically the operation of appropriate systems including the reactivity control systems, to assure that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences and (2) to sense accident conditions and to initiate the operation of systems and components important to safety.

GDC-35, Emergency Core Cooling

A system to provide abundant emergency core cooling shall be provided. The system safety function shall be to transfer heat from the reactor core following any loss of reactor coolant at a rate such that (1) fuel and clad damage that could interfere with continued effective core cooling is prevented and (2) clad metal-water reaction is limited to negligible amounts.

Suitable redundancy in components and features, and suitable interconnections, leak detection, isolation, and containment capabilities shall be provided to assure that for onsite electric power system operation (assuming offsite power is not available) and for offsite electric power system operation (assuming onsite power is not available) the system safety function can be accomplished, assuming a single failure.

GDC-56, Primary Containment Isolation

Each line that connects directly to the containment atmosphere and penetrates primary reactor containment shall be provided with containment isolation valves as follows, unless it can be demonstrated that the containment isolation provisions for a specific class of lines, such as instrument lines, are acceptable on some other defined basis:

1) One locked closed isolation valve inside and one locked closed isolation valve outside containment; or
2) One automatic isolation valve inside and one locked closed isolation valve outside containment; or
3) One locked closed isolation valve inside and one automatic isolation valve outside containment. A simple check valve may not be used as the automatic isolation valve outside containment; or
4) One automatic isolation valve inside and one automatic isolation valve outside containment. A simple check valve may not be used as the automatic isolation valve outside containment.

Isolation valves outside containment shall be located as close to the containment as practical and upon loss of actuating power, automatic isolation valves shall be designed to take the position that provides greater safety.

Conclusion

The proposed change to the Reactor Vessel Water Level – Low, Level 3 and Reactor Vessel Water Level – High, Level 8 TS AVs will not impact any installed components at SSES. The Reactor Vessel Water – Low, Level 3 and Reactor Vessel Water Level – High, Level 8 Functions are not impacted by the proposed change which revises only the AV. The RPS, ECCS, RPV Water Inventory Control, RCIC, and Primary Containment Isolation systems will continue to be able to perform their intended function to mitigate the consequences of an event.

The NTSP minus the proposed as-found tolerance / historical drift (NTSP - t_{AF}) is more conservative than the AV. The as-found tolerance values associated with the setpoint changes are calculated in a manner consistent with NRC Regulatory Issue Summary (RIS) 2006-17 (Reference 4). Calibration adjustments will still be periodically performed as needed to ensure instrument calibration remains within a tolerance band per the TS surveillance requirements. The need for making calibration adjustments is determined by comparing as-found setpoint values with predetermined limits in accordance with RIS 2006-17.

4.2 Precedent

In Reference 3, the NRC granted approval to Browns Ferry for the amendment of the TS for the Reactor Vessel Water Level – Low, Level 3 Allowable Values. With that approval, Browns Ferry, Units 2 and 3, TS revised the AV for Reactor Vessel Water Level – Low, Level 3 instrumentation functions in TS Tables 3.3.1.1-1, 3.3.5.1-1, 3.3.5.2-1, and 3.3.6.1-1. During the application process, in Reference 2, Browns Ferry stated there was margin to be gained between the normal reactor vessel water level and Level 3 trip functions. Unlike Browns Ferry, this amendment is only requesting existing margin associated with the Reactor Vessel Water Level – Low, Level 3 and Reactor Vessel Water Level – High, Level 8 be captured with no change to the ALs or NTSPs. This amendment deviates from the Browns Ferry approval in that it requests a revision to the Reactor Vessel Water Level – High, Level 8 AV, however, the methodology used to determine the Reactor Vessel Water Level – High, Level 8 AV is consistent with that used to determine the Reactor Vessel Water Level – Low, Level 3 AV. Browns Ferry, Units 2 and 3, are both a Boiling Water Reactor 4 design, consistent with SSES, Units 1 and 2. Therefore, the approval for the Browns Ferry, Units 2 and 3, TS is applicable to the SSES, Units 1 and 2, TS.

4.3 No Significant Hazards Considerations Analysis

In accordance with the requirements of 10 CFR 50.90, Susquehanna Nuclear, LLC (Susquehanna), requests an amendment to the Technical Specifications (TS) for the Susquehanna Steam Electric Station (SSES), Units 1 and 2. The proposed amendment would modify the Reactor Vessel Water Level – Low, Level 3 TS Allowable Value (AV) for the Reactor Protection System (RPS) Instrumentation Function 4 in TS Table 3.3.1.1-1, Emergency Core Cooling System (ECCS) Instrumentation Functions 4.d and 5.d in TS Table 3.3.5.1-1, Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation Function 3.a in TS Table 3.3.5.2-1, and Primary Containment Isolation Systems Instrumentation Functions 2.a, 6.b, and 7.a in TS Table 3.3.6.1-1. The proposed amendment would also modify the Reactor Vessel Water Level – High, Level 8 TS AV for the ECCS Instrumentation Function 3.c in TS Table 3.3.5.1-1, and Reactor Core Isolation Cooling (RCIC) System Instrumentation Function 2 in TS Table 3.3.5.3-1. The proposed amendment is necessary to resolve issues associated with setpoint drift of the installed level transmitters which measure the Reactor Vessel Water Level, thereby reducing the likelihood of the need to perform an unnecessary shutdown due to compliance with the TS which is not warranted for the plant configuration.

Susquehanna has evaluated the proposed amendment against the standards in 10 CFR 50.92 and has determined that the operation of SSES in accordance with the proposed amendment presents no significant hazards. Susquehanna's evaluation against each of the criteria in 10 CFR 50.92 follows.

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

   Response: No

   The proposed change will modify the TS AV for Reactor Vessel Water Level – Low, Level 3 Instrumentation functions in TS Tables 3.3.1.1-1, 3.3.5.1-1, 3.3.5.2-1, and 3.3.6.1-1. The proposed change will also modify the TS AV for Reactor Vessel Water Level – High, Level 8 Instrumentation function in TS Tables 3.3.5.1-1 and 3.3.5.3-1. The modified Low, Level 3 AV continues to ensure that during normal operation the separator skirts are not uncovered and, for transients involving loss of all normal feedwater flow, and initiation of the low pressure ECCS subsystems at Reactor Vessel Water – Low Low Low, Level 1 will not be required. Additionally, the proposed AV will still ensure, along with the actions of the ECCS, that the fuel peak cladding temperature (PCT) remains below the limits of 10 CFR 50.46. The modified High, Level 8 AV continues to ensure the Level 8 signal prevents injection from the High Pressure Coolant Injection (HPCI) System and Reactor Core Isolation Cooling (RCIC) System to prevent overflow into the main steam lines (MSLs). The proposed change does not modify any structures, systems, or components (SSCs) installed at SSES, nor does it alter the manner in which any SSCs are operated. Thus, the capability of performing the design functions of the

RPS, ECCS, RPV Water Inventory Control, RCIC, and Primary Containment Isolation systems are not affected. The revision to the AVs does not affect the overall redundancy and diversity of the listed instrumentation and does not deviate from the existing Analytical Limits (ALs). Thus, the proposed change has no impacts on previously evaluated accidents.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

   Response: No

   The proposed change will modify the TS AV for Reactor Vessel Water Level – Low, Level 3 Instrumentation functions in TS Tables 3.3.1.1-1, 3.3.5.1-1, 3.3.5.2-1, and 3.3.6.1-1. The proposed change will also modify the TS AV for Reactor Vessel Water Level – High, Level 8 Instrumentation function in TS Tables 3.3.5.1-1 and 3.3.5.3-1. The modified Low, Level 3 AV continues to ensure that during normal operation the separator skirts are not uncovered and, for transients involving loss of all normal feedwater flow, and initiation of the low pressure ECCS subsystems at Reactor Vessel Water – Low Low Low, Level 1 will not be required. Additionally, the proposed AV will still ensure, along with the actions of the ECCS, that the fuel PCT remains below the limits of 10 CFR 50.46. The modified High, Level 8 AV continues to ensure the Level 8 signal prevents injection from the HPCI System and RCIC System to prevent overflow into the MSLs. The proposed change does not modify any SSCs installed at SSES, nor does it alter the manner in which any SSCs are operated. Thus, the capability of performing the design functions of the RPS, ECCS, RPV Water Inventory Control, RCIC, and Primary Containment Isolation systems are not affected. The revision to the AVs does not affect the overall redundancy and diversity of the listed instrumentation and does not deviate from the existing ALs.

   Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

   Response: No

   The proposed change will modify the TS AV for Reactor Vessel Water Level – Low, Level 3 Instrumentation functions in TS Tables 3.3.1.1-1, 3.3.5.1-1, 3.3.5.2-1, and 3.3.6.1-1. The proposed change will also modify the TS AV for Reactor Vessel Water Level – High, Level 8 Instrumentation function in TS Tables 3.3.5.1-1 and 3.3.5.3-1. The modified Low, Level 3 AV continues to ensure that during normal operation the separator skirts are not uncovered

and, for transients involving loss of all normal feedwater flow, and initiation of the low pressure ECCS subsystems at Reactor Vessel Water – Low Low Low, Level 1 will not be required. Additionally, the proposed AV will still ensure, along with the actions of the ECCS, that the fuel PCT remains below the limits of 10 CFR 50.46. The modified High, Level 8 AV continues to ensure the Level 8 signal prevents injection from the HPCI System and RCIC System to prevent overflow into the MSLs. The proposed change does not alter the manner in which safety limits or limiting conditions for operation are determined. The safety analysis assumptions and acceptance criteria are not affected by this change.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above evaluation, Susquehanna concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

4.4 Conclusions

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

5. Environmental Consideration

Susquehanna has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6. References

1. General Electric Topical Report NEDC-31336P-A, "General Electric Instrument Setpoint Methodology," dated September 1996 (ADAMS Accession Nos. ML072950103 [Proprietary] and ML073450560 [Non-Proprietary]).

2. Browns Ferry letter to NRC, "Application for amens to licenses DPR-52 & DPR-68, reducing allowable value used for reactor vessel water level – low, level 3 for several instrument functions," dated June 3, 1999 (ADAMS Accession Nos. ML18039A799).

3. NRC letter to Browns Ferry, "Browns Ferry Nuclear Plant, Units 2 and 3 – Issuance of Amendments Regarding Allowable Value for Reactor Vessel Water Level (TAC Nos. MA5697 and MA5698)," dated August 16, 1999 (ADAMS Accession No. ML020090452).

4. U.S. Nuclear Regulatory Commission, Regulatory Issue Summary 2006-17, "NRC Staff Position on the Requirements of 10 CFR 50.36, 'Technical Specifications,' Regarding Limiting Safety System Settings During Periodic Testing and Calibration of Instrument Channels," August 24, 2006 (ADAMS Accession No. ML051810077).

Attachment 2 of PLA-8144

Marked-Up Technical Specification Pages

Revised Technical Specifications Pages

Unit 1 TS Pages
3.3-8, 3.3-45, 3.3-46, 3.3-47, 3.3-47c, 3.3-51a 3.3-58, and 3.3-62

Unit 2 TS Pages
3.3-8, 3.3-45 3.3-46, 3.3-47, 3.3-47c, 3.3-51a, 3.3-58, and 3.3-62

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitors (continued)					
c. Neutron Flux-High	1	3[c]	F	SR 3.3.1.1.2 SR 3.3.1.1.3 SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.18	≤ 120% RTP
d. Inop	1,2	3[c]	G	SR 3.3.1.1.12	NA
e. 2-Out-Of-4 Voter	1,2	2	G	SR 3.3.1.1.2 SR 3.3.1.1.12 SR 3.3.1.1.15 SR 3.3.1.1.17	NA
f. OPRM Trip	≥ 23% RTP	3[c]	I	SR 3.3.1.1.2 SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.18 SR 3.3.1.1.19 SR 3.3.1.1.20	[d]
3. Reactor Vessel Steam Dome Pressure-High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≤ 1093 psig
4. Reactor Vessel Water Level-Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≥ ~~11.5~~ 10 inches
5. Main Steam Isolation Valve-Closure	1	8	F	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ 11% closed
6. Drywell Pressure-High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≤ 1.88 psig

(continued)

(c) Each APRM channel provides inputs to both trip systems.

(d) See COLR for OPRM period based detection algorithm (PBDA) setpoint limits.

Table 3.3.5.1-1 (page 3 of 5)
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. High Pressure Coolant Injection (HPCI) System					
a. Reactor Vessel Water Level — Low Low, Level 2	1, 2(d), 3(d)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -45 inches
b. Drywell Pressure — High	1, 2(d),3(d)	4	B	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 1.88 psig
c. Reactor Vessel Water Level — High, Level 8	1, 2(d), 3(d)	2	C	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ ~~55.5~~57.0 inches
d. Condensate Storage Tank Level — Low	1, 2(d), 3(d)	2	D	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 40.5 inches above tank bottom
e. Manual Initiation	1, 2(d), 3(d)	1	C	SR 3.3.5.1.5	NA

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

Table 3.3.5.1-1 (page 4 of 5)
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. Automatic Depressurization System (ADS) Trip System A					
a. Reactor Vessel Water Level — Low Low Low, Level 1	1, 2(d), 3(d)	2	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -136 inches
b. Drywell Pressure — High	1, 2(d), 3(d)	2	E	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 1.88 psig
c. Automatic Depressurization System Initiation Timer	1, 2(d), 3(d)	1	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 114 seconds
d. Reactor Vessel Water Level — Low, Level 3 (Confirmatory)	1, 2(d), 3(d)	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ ~~11.5~~ 10 inches
e. Core Spray Pump Discharge Pressure — High	1, 2(d), 3(d)	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 125 psig and ≤ 165 psig
f. Low Pressure Coolant Injection Pump Discharge Pressure — High	1, 2(d), 3(d)	4	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 115 psig and ≤ 135 psig
g. Automatic Depressurization System Drywell Pressure Bypass Actuation Timer	1, 2(d), 3(d)	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 450 sec
h. Manual Initiation	1, 2(d), 3(d)	2	F	SR 3.3.5.1.5	NA

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

Table 3.3.5.1-1 (page 5 of 5)
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					
a. Reactor Vessel Water Level — Low Low Low, Level 1	1, 2(d), 3(d)	2	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -136 inches
b. Drywell Pressure — High	1, 2(d), 3(d)	2	E	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 1.88 psig
c. Automatic Depressurization System Initiation Timer	1, 2(d), 3(d)	1	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 114 sec
d. Reactor Vessel Water Level — Low, Level 3 (Confirmatory)	1, 2(d), 3(d)	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ ~~11.5~~ 10 inches
e. Core Spray Pump Discharge Pressure — High	1, 2(d), 3(d)	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 125 psig and ≤ 165 psig
f. Low Pressure Coolant Injection Pump Discharge Pressure — High	1, 2(d), 3(d)	4	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 115 psig and ≤ 135 psig
g. Automatic Depressurization System Drywell Pressure Bypass Actuation Timer	1, 2(d), 3(d)	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 450 sec
h. Manual Initiation	1, 2(d), 3(d)	2	F	SR 3.3.5.1.5	NA

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

Table 3.3.5.2-1 (page 1 of 1)
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	ALLOWABLE VALUE
1. Not Used			
2. Not Used			
3. RHR System Isolation			
a. Reactor Vessel Water Level – Low, Level 3	(a)	2 in one trip system	≥ ~~11.5~~ 10 inches
4. Reactor Water Cleanup (RWCU) System Isolation			
a. Reactor Vessel Water Level – Low Low, Level 2	(a)	2 in one trip system	≥ -45 inches

(a) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

Table 3.3.5.3-1 (page 1 of 1)
Reactor Core Isolation System Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level – Low Low, Level 2	4	B	SR 3.3.5.3.1 SR 3.3.5.3.2 SR 3.3.5.3.4 SR 3.3.5.3.5	≥ -45 inches
2. Reactor Vessel Water Level – High Level 8	2	C	SR 3.3.5.3.1 SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.5	≤ ~~55.5~~57.0 inches
3. Condensate Storage Tank Level – Low	2	D	SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.5	≥ 36.0 inches above the tank bottom
4. Manual Initiation	1	C	SR 3.3.5.3.5	NA

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

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2.	Primary Containment Isolation					
a.	Reactor Vessel Water Level - Low, Level 3	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ ~~11.5~~ 10 inches
b.	Reactor Vessel Water Level - Low Low, Level 2	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≥ -45 inches
c.	Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≥-136 inches
d.	Drywell Pressure - High	1,2,3	2	H	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 1.88 psig
e.	SGTS Exhaust Radiation - High	1,2,3	1	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 31 mR/hr
f.	Manual Initiation	1,2,3	1	G	SR 3.3.6.1.5	NA

(continued)

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure – High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≤ 108 psig
b. Reactor Vessel Water Level – Low, Level 3	3	2	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ ~~11.5~~10 inches
c. Manual Initiation	3	1	G	SR 3.3.6.1.5	NA
7. Traversing Incore Probe Isolation					
a. Reactor Vessel Water Level – Low, Level 3	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ ~~11.5~~ 10 inches
b. Drywell Pressure – High	1,2,3	2	G	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 1.88 psig

Table 3.3.1.1-1 (page 2 of 3)

Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitors (continued)					
c. Neutron Flux—High	1	3[(c)]	F	SR 3.3.1.1.2 SR 3.3.1.1.3 SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.18	≤ 120% RTP
d. Inop	1,2	3[(c)]	G	SR 3.3.1.1.12	NA
e. 2-Out-Of-4 Voter	1,2	2	G	SR 3.3.1.1.2 SR 3.3.1.1.12 SR 3.3.1.1.15 SR 3.3.1.1.17	NA
f. OPRM Trip	≥ 23% RTP	3[(c)]	I	SR 3.3.1.1.2 SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.18 SR 3.3.1.1.19 SR 3.3.1.1.20	[(d)]
3. Reactor Vessel Steam Dome Pressure—High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≤ 1093 psig
4. Reactor Vessel Water Level—Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≥ ~~11.5~~10 inches
5. Main Steam Isolation Valve—Closure	1	8	F	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ 11% closed
6. Drywell Pressure—High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≤ 1.88 psig

(continued)

(c) Each APRM channel provides inputs to both trip systems.

(d) See COLR for OPRM period based detection algorithm (PBDA) setpoint limits.

Table 3.3.5.1-1 (page 3 of 5)

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. High Pressure Coolant Injection (HPCI) System					
a. Reactor Vessel Water Level-Low Low, Level 2	1, 2[(d)], 3[(d)]	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -45 inches
b. Drywell Pressure-High	1, 2[(d)],3[(d)]	4	B	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 1.88 psig
c. Reactor Vessel Water Level-High, Level 8	1 2[(d)], 3[(d)]	2	C	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ ~~55.5~~57.0 inches
d. Condensate Storage Tank Level-Low	1, 2[(d)], 3[(d)]	2	D	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 40.5 inches above tank bottom
e. Manual Initiation	1, 2[(d)], 3[(d)]	1	C	SR 3.3.5.1.5	NA

(continued)

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

Table 3.3.5.1-1 (page 4 of 5)

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. Automatic Depressurization System (ADS) Trip System A					
a. Reactor Vessel Water Level—Low Low Low, Level 1	1, 2[(d)], 3[(d)]	2	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -136 inches
b. Drywell Pressure—High	1, 2[(d)], 3[(d)]	2	E	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 1.88 psig
c. Automatic Depressurization System Initiation Timer	1, 2[(d)], 3[(d)]	1	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 114 seconds
d. Reactor Vessel Water Level—Low, Level 3 (Confirmatory)	1, 2[(d)], 3[(d)]	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ ~~11.5~~10 inches
e. Core Spray Pump Discharge Pressure—High	1, 2[(d)], 3[(d)]	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 125 psig and ≤ 165 psig
f. Low Pressure Coolant Injection Pump Discharge Pressure – High	1, 2[(d)], 3[(d)]	4	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 115 psig and ≤ 135 psig
g. Automatic Depressurization System Drywell Pressure Bypass Actuation Timer	1, 2[(d)], 3[(d)]	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 450 seconds
h. Manual Initiation	1, 2[(d)], 3[(d)]	2	F	SR 3.3.5.1.5	NA

(continued)

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

Table 3.3.5.1-1 (page 5 of 5)

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					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2(d), 3(d)	2	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -136 inches
b. Drywell Pressure—High	1, 2(d), 3(d)	2	E	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 1.88 psig
c. Automatic Depressurization System Initiation Timer	1, 2(d), 3(d)	1	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 114 sec
d. Reactor Vessel Water Level—Low, Level 3 (Confirmatory)	1, 2(d), 3(d)	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ ~~11.5~~10 inches
e. Core Spray Pump Discharge Pressure—High	1, 2(d), 3(d)	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 125 psig and ≤ 165 psig
f. Low Pressure Coolant Injection Pump Discharge Pressure—High	1, 2(d), 3(d)	4	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 115 psig and ≤ 135 psig
g. Automatic Depressurization System Drywell Pressure Bypass Actuation Timer	1, 2(d), 3(d)	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 450 seconds
h. Manual Initiation	1, 2(d), 3(d)	2	F	SR 3.3.5.1.5	NA

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

Table 3.3.5.2-1 (page 1 of 1)
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	ALLOWABLE VALUE
1. Not Used			
2. Not Used			
3. RHR System Isolation			
a. Reactor Vessel Water Level – Low, Level 3	(a)	2 in one trip system	≥ ~~11.5~~10 inches
4. Reactor Water Cleanup (RWCU) System Isolation			
a. Reactor Vessel Water Level – Low Low, Level 2	(a)	2 in one trip system	≥ -45 inches

(a) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

Table 3.3.5.3-1 (page 1 of 1)
Reactor Core Isolation System Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level – Low Low, Level 2	4	B	SR 3.3.5.3.1 SR 3.3.5.3.2 SR 3.3.5.3.4 SR 3.3.5.3.5	≥ -45 inches
2. Reactor Vessel Water Level – High Level 8	2	C	SR 3.3.5.3.1 SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.5	≤ ~~55.5~~57.0 inches
3. Condensate Storage Tank Level – Low	2	D	SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.5	≥ 36.0 inches above the tank bottom
4. Manual Initiation	1	C	SR 3.3.5.3.5	NA

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

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2.	Primary Containment Isolation					
a.	Reactor Vessel Water Level - Low, Level 3	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ ~~11.5~~10 inches
b.	Reactor Vessel Water Level - Low Low, Level 2	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≥ -45 inches
c.	Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≥-136 inches
d.	Drywell Pressure - High	1,2,3	2	H	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 1.88 psig
e.	SGTS Exhaust Radiation - High	1,2,3	1	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 31 mR/hr
f.	Manual Initiation	1,2,3	1	G	SR 3.3.6.1.5	NA

(continued)

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≤ 108 psig
b. Reactor Vessel Water Level - Low, Level 3	3	2	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ ~~11.5~~10 inches
c. Manual Initiation	3	1	G	SR 3.3.6.1.5	NA
7. Traversing Incore Probe Isolation					
a. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ ~~11.5~~10 inches
b. Drywell Pressure - High	1,2,3	2	G	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 1.88 psig

Attachment 3 of PLA-8144

Revised (Clean) Technical Specification Pages

Revised Technical Specifications Pages

Unit 1 TS Pages
3.3-8, 3.3-45, 3.3-46, 3.3-47, 3.3-47c, 3.3-51a, 3.3-58, and 3.3-62

Unit 2 TS Pages
3.3-8, 3.3-45, 3.3-46, 3.3-47, 3.3-47c, 3.3-51a, 3.3-58, and 3.3-62

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitors (continued)					
c. Neutron Flux-High	1	3[c]	F	SR 3.3.1.1.2 SR 3.3.1.1.3 SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.18	≤ 120% RTP
d. Inop	1,2	3[c]	G	SR 3.3.1.1.12	NA
e. 2-Out-Of-4 Voter	1,2	2	G	SR 3.3.1.1.2 SR 3.3.1.1.12 SR 3.3.1.1.15 SR 3.3.1.1.17	NA
f. OPRM Trip	≥ 23% RTP	3[c]	I	SR 3.3.1.1.2 SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.18 SR 3.3.1.1.19 SR 3.3.1.1.20	[d]
3. Reactor Vessel Steam Dome Pressure-High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≤ 1093 psig
4. Reactor Vessel Water Level-Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≥ 10 inches
5. Main Steam Isolation Valve-Closure	1	8	F	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ 11% closed
6. Drywell Pressure-High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≤ 1.88 psig

(continued)

(c) Each APRM channel provides inputs to both trip systems.

(d) See COLR for OPRM period based detection algorithm (PBDA) setpoint limits.

Table 3.3.5.1-1 (page 3 of 5)
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. High Pressure Coolant Injection (HPCI) System					
a. Reactor Vessel Water Level — Low Low, Level 2	1, 2[(d)], 3[(d)]	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -45 inches
b. Drywell Pressure — High	1, 2[(d)],3[(d)]	4	B	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 1.88 psig
c. Reactor Vessel Water Level — High, Level 8	1, 2[(d)], 3[(d)]	2	C	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 57.0 inches
d. Condensate Storage Tank Level — Low	1, 2[(d)], 3[(d)]	2	D	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 40.5 inches above tank bottom
e. Manual Initiation	1, 2[(d)], 3[(d)]	1	C	SR 3.3.5.1.5	NA

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

Table 3.3.5.1-1 (page 4 of 5)
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. Automatic Depressurization System (ADS) Trip System A					
a. Reactor Vessel Water Level — Low Low Low, Level 1	1, 2[(d)], 3[(d)]	2	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -136 inches
b. Drywell Pressure — High	1, 2[(d)], 3[(d)]	2	E	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 1.88 psig
c. Automatic Depressurization System Initiation Timer	1, 2[(d)], 3[(d)]	1	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 114 seconds
d. Reactor Vessel Water Level — Low, Level 3 (Confirmatory)	1, 2[(d)], 3[(d)]	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 10 inches
e. Core Spray Pump Discharge Pressure — High	1, 2[(d)], 3[(d)]	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 125 psig and ≤ 165 psig
f. Low Pressure Coolant Injection Pump Discharge Pressure — High	1, 2[(d)], 3[(d)]	4	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 115 psig and ≤ 135 psig
g. Automatic Depressurization System Drywell Pressure Bypass Actuation Timer	1, 2[(d)], 3[(d)]	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 450 sec
h. Manual Initiation	1, 2[(d)], 3[(d)]	2	F	SR 3.3.5.1.5	NA

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

Table 3.3.5.1-1 (page 5 of 5)
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					
a. Reactor Vessel Water Level — Low Low Low, Level 1	1, 2(d), 3(d)	2	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -136 inches
b. Drywell Pressure — High	1, 2(d), 3(d)	2	E	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 1.88 psig
c. Automatic Depressurization System Initiation Timer	1, 2(d), 3(d)	1	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 114 sec
d. Reactor Vessel Water Level — Low, Level 3 (Confirmatory)	1, 2(d), 3(d)	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 10 inches
e. Core Spray Pump Discharge Pressure — High	1, 2(d), 3(d)	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 125 psig and ≤ 165 psig
f. Low Pressure Coolant Injection Pump Discharge Pressure — High	1, 2(d), 3(d)	4	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 115 psig and ≤ 135 psig
g. Automatic Depressurization System Drywell Pressure Bypass Actuation Timer	1, 2(d), 3(d)	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 450 sec
h. Manual Initiation	1, 2(d), 3(d)	2	F	SR 3.3.5.1.5	NA

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

Table 3.3.5.2-1 (page 1 of 1)
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	ALLOWABLE VALUE
1. Not Used			
2. Not Used			
3. RHR System Isolation			
a. Reactor Vessel Water Level – Low, Level 3	(a)	2 in one trip system	≥ 10 inches
4. Reactor Water Cleanup (RWCU) System Isolation			
a. Reactor Vessel Water Level – Low Low, Level 2	(a)	2 in one trip system	≥ -45 inches

(a) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

Table 3.3.5.3-1 (page 1 of 1)
Reactor Core Isolation System Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level – Low Low, Level 2	4	B	SR 3.3.5.3.1 SR 3.3.5.3.2 SR 3.3.5.3.4 SR 3.3.5.3.5	≥ -45 inches
2. Reactor Vessel Water Level – High Level 8	2	C	SR 3.3.5.3.1 SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.5	≤ 57.0 inches
3. Condensate Storage Tank Level – Low	2	D	SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.5	≥ 36.0 inches above the tank bottom
4. Manual Initiation	1	C	SR 3.3.5.3.5	NA

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

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2.	Primary Containment Isolation					
a.	Reactor Vessel Water Level - Low, Level 3	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ 10 inches
b.	Reactor Vessel Water Level - Low Low, Level 2	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≥ -45 inches
c.	Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≥-136 inches
d.	Drywell Pressure - High	1,2,3	2	H	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 1.88 psig
e.	SGTS Exhaust Radiation - High	1,2,3	1	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 31 mR/hr
f.	Manual Initiation	1,2,3	1	G	SR 3.3.6.1.5	NA

(continued)

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure – High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≤ 108 psig
b. Reactor Vessel Water Level – Low, Level 3	3	2	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ 10 inches
c. Manual Initiation	3	1	G	SR 3.3.6.1.5	NA
7. Traversing Incore Probe Isolation					
a. Reactor Vessel Water Level – Low, Level 3	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ 10 inches
b. Drywell Pressure – High	1,2,3	2	G	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 1.88 psig

Table 3.3.1.1-1 (page 2 of 3)

Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitors (continued)					
c. Neutron Flux—High	1	3[(c)]	F	SR 3.3.1.1.2 SR 3.3.1.1.3 SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.18	≤ 120% RTP
d. Inop	1,2	3[(c)]	G	SR 3.3.1.1.12	NA
e. 2-Out-Of-4 Voter	1,2	2	G	SR 3.3.1.1.2 SR 3.3.1.1.12 SR 3.3.1.1.15 SR 3.3.1.1.17	NA
f. OPRM Trip	≥ 23% RTP	3[(c)]	I	SR 3.3.1.1.2 SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.18 SR 3.3.1.1.19 SR 3.3.1.1.20	[(d)]
3. Reactor Vessel Steam Dome Pressure—High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≤ 1093 psig
4. Reactor Vessel Water Level—Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≥ 10 inches
5. Main Steam Isolation Valve—Closure	1	8	F	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ 11% closed
6. Drywell Pressure—High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≤ 1.88 psig

(continued)

(c) Each APRM channel provides inputs to both trip systems.

(d) See COLR for OPRM period based detection algorithm (PBDA) setpoint limits.

Table 3.3.5.1-1 (page 3 of 5)

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. High Pressure Coolant Injection (HPCI) System					
a. Reactor Vessel Water Level-Low Low, Level 2	1, 2[(d)], 3[(d)]	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -45 inches
b. Drywell Pressure-High	1, 2[(d)],3[(d)]	4	B	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 1.88 psig
c. Reactor Vessel Water Level-High, Level 8	1 2[(d)], 3[(d)]	2	C	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 57.0 inches
d. Condensate Storage Tank Level-Low	1, 2[(d)], 3[(d)]	2	D	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 40.5 inches above tank bottom
e. Manual Initiation	1, 2[(d)], 3[(d)]	1	C	SR 3.3.5.1.5	NA

(continued)

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

Table 3.3.5.1-1 (page 4 of 5)

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. Automatic Depressurization System (ADS) Trip System A					
a. Reactor Vessel Water Level—Low Low Low, Level 1	1, 2[(d)], 3[(d)]	2	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -136 inches
b. Drywell Pressure—High	1, 2[(d)], 3[(d)]	2	E	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 1.88 psig
c. Automatic Depressurization System Initiation Timer	1, 2[(d)], 3[(d)]	1	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 114 seconds
d. Reactor Vessel Water Level—Low, Level 3 (Confirmatory)	1, 2[(d)], 3[(d)]	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 10 inches
e. Core Spray Pump Discharge Pressure—High	1, 2[(d)], 3[(d)]	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 125 psig and ≤ 165 psig
f. Low Pressure Coolant Injection Pump Discharge Pressure – High	1, 2[(d)], 3[(d)]	4	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 115 psig and ≤ 135 psig
g. Automatic Depressurization System Drywell Pressure Bypass Actuation Timer	1, 2[(d)], 3[(d)]	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 450 seconds
h. Manual Initiation	1, 2[(d)], 3[(d)]	2	F	SR 3.3.5.1.5	NA

(continued)

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

Table 3.3.5.1-1 (page 5 of 5)

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					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2[(d)], 3[(d)]	2	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -136 inches
b. Drywell Pressure—High	1, 2[(d)], 3[(d)]	2	E	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 1.88 psig
c. Automatic Depressurization System Initiation Timer	1, 2[(d)], 3[(d)]	1	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 114 sec
d. Reactor Vessel Water Level—Low, Level 3 (Confirmatory)	1, 2[(d)], 3[(d)]	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 10 inches
e. Core Spray Pump Discharge Pressure—High	1, 2[(d)], 3[(d)]	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 125 psig and ≤ 165 psig
f. Low Pressure Coolant Injection Pump Discharge Pressure—High	1, 2[(d)], 3[(d)]	4	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 115 psig and ≤ 135 psig
g. Automatic Depressurization System Drywell Pressure Bypass Actuation Timer	1, 2[(d)], 3[(d)]	2	F	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 450 seconds
h. Manual Initiation	1, 2[(d)], 3[(d)]	2	F	SR 3.3.5.1.5	NA

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

Table 3.3.5.2-1 (page 1 of 1)
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	ALLOWABLE VALUE
1. Not Used			
2. Not Used			
3. RHR System Isolation			
a. Reactor Vessel Water Level – Low, Level 3	(a)	2 in one trip system	≥ 10 inches
4. Reactor Water Cleanup (RWCU) System Isolation			
a. Reactor Vessel Water Level – Low Low, Level 2	(a)	2 in one trip system	≥ -45 inches

(a) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

Table 3.3.5.3-1 (page 1 of 1)
Reactor Core Isolation System Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level – Low Low, Level 2	4	B	SR 3.3.5.3.1 SR 3.3.5.3.2 SR 3.3.5.3.4 SR 3.3.5.3.5	≥ -45 inches
2. Reactor Vessel Water Level – High Level 8	2	C	SR 3.3.5.3.1 SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.5	≤ 57.0 inches
3. Condensate Storage Tank Level – Low	2	D	SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.5	≥ 36.0 inches above the tank bottom
4. Manual Initiation	1	C	SR 3.3.5.3.5	NA

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

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2.	Primary Containment Isolation					
a.	Reactor Vessel Water Level - Low, Level 3	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ 10 inches
b.	Reactor Vessel Water Level - Low Low, Level 2	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≥ -45 inches
c.	Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≥-136 inches
d.	Drywell Pressure - High	1,2,3	2	H	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 1.88 psig
e.	SGTS Exhaust Radiation - High	1,2,3	1	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 31 mR/hr
f.	Manual Initiation	1,2,3	1	G	SR 3.3.6.1.5	NA

(continued)

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≤ 108 psig
b. Reactor Vessel Water Level - Low, Level 3	3	2	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ 10 inches
c. Manual Initiation	3	1	G	SR 3.3.6.1.5	NA
7. Traversing Incore Probe Isolation					
a. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ 10 inches
b. Drywell Pressure - High	1,2,3	2	G	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 1.88 psig