PMTurkeyCOLPEm Resource

From: Franzone, Steve <Steve.Franzone@fpl.com>
Sent: Tuesday, June 21, 2016 10:13 PM
To: Comar, Manny
Cc: TurkeyCOL Resource; Burski, Raymond; Maher, William
Subject: [External_Sender] ISG-11 Departures
Attachments: List of ISG-11 Departures for Part 7.pdf

Manny
I have attached the ISG-11 related departures & exemptions. The attachment is in the same format as you would see in Part 7 of the COLA.
If you have any questions please contact myself or Ray Burski (561-904-3786).

Thanks

Steve Franzone

NNP Licensing Manager - COLA

"Democracy is two wolves and a lamb voting on what to have for lunch. Liberty is a well-armed lamb contesting the vote." ~Ben Franklin

561.904.3793 (office)

754.204.5996 (cell)

Hearing Identifier: TurkeyPoint_COL_Public
Email Number: 1200

Mail Envelope Properties (DEC707C5CF603B4AA6194131A65C7C525AD3D04E)

Subject: [External_Sender] ISG-11 Departures
Sent Date: 6/21/2016 10:12:52 PM
Received Date: 6/21/2016 10:13:05 PM
From: Franzone, Steve

Created By: Steve.Franzone@fpl.com

Recipients:
"TurkeyCOL Resource" <TurkeyCOL.Resource@nrc.gov>
Tracking Status: None
"Burski, Raymond" <RAYMOND.BURSKI@fpl.com>
Tracking Status: None
"Maher, William" <William.Maher@fpl.com>
Tracking Status: None
"Comar, Manny" <Manny.Comar@nrc.gov>
Tracking Status: None

Post Office: GOXSA1810.fplu.fpl.com

Files	**Size**	**Date & Time**
MESSAGE	1097	6/21/2016 10:13:05 PM
List of ISG-11 Departures for Part 7.pdf	989684	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Turkey Point Units 6 & 7

COL Application

Part 7

Departures and Exemption Requests

The following departures are described and evaluated in Part A, STD and PTN Departures, of this report.

A.1 Departures That Can Be Implemented Without Prior NRC Approval

Departure Number	Description
PTN DEP 6.3-1	Quantification of the term “indefinitely” as used in the DCD for maintenance of safe shutdown conditions using the PRHR HX during non-LOCA accidents.

A.2 Departures That Require NRC Approval Prior to Implementation

Departure Number	Description
PTN DEP 3.2-1	Addition of downspouts to the condensate return portion of the Passive Core Cooling System
PTN DEP 6.2-1	The ITAAC Acceptance Criteria for the in-containment PXS compartment vents are revised to reflect the current plant configuration.
PTN DEP 6.4-1	Main Control Room Operator Dose
PTN DEP 6.4-2	Main Control Room Heatup
PTN DEP 7.3-1	Compliance with IEEE 603

The following exemptions are being requested in Part B, Turkey Point Units 6 & 7 Exemption Requests, of this report.

B. Turkey Point Units 6 & 7 Exemption Requests

Exemption Number	Description
B.5	Combustible Gas Control in Containment
B.6	Source Range Neutron Flux Doubling Block Permissive
B.7	Main Control Room Heatup
B.8	Containment Cooling Changes in regard to Passive Core Cooling System Condensate Return
B.9	Main Control Room Dose

A.1 Departures That Can Be Implemented Without Prior NRC Approval

Departure Number	Description
PTN DEP 6.3-1	Quantification of the term “indefinitely” as used in the DCD for maintenance of safe shutdown conditions using the PRHR HX during non-LOCA accidents.

Departure Number PTN DEP 6.3-1

AFFECTED DCD/FSAR SECTIONS:

Subsection 5.4.14.1, Subsections 6.3.1.1.1, 6.3.1.2, 6.3.1.3, 6.3.2.1.1, and 6.3.3.4.1, Subsection 7.4.1.1, Table 9.5.1-1 (Sheet 11), Subsection 15.2.6.1, Table 19.59-18 (Sheet 6), and Subsection 19E.4.10.2

SUMMARY OF DEPARTURE:

The Passive Residual Heat Removal Heat Exchanger (PRHR HX) has a functional requirement to be able to bring the AP1000 plant to a stable condition for events not involving a loss of coolant (i.e., non-LOCA event), DCD 6.3.1.1.4. The DCD in Subsection 6.3.1.1.1 further states “The PRHR HX in conjunction with the passive containment cooling system, is designed to remove decay heat for an indefinite time in a closed-loop mode of operation.” Additional evaluations have been subsequently performed that have identified that the use of the term “indefinite” does not describe the predicted PRHR HX long term operation properly. The word “indefinite” can be defined as an “unknown” or “unidentified” length of time; “indefinite” does not mean “infinite” which means having no boundaries or limits in time. The word “indefinite” in regards to PRHR HX long term operation needs to be changed with a definitive time period.

SCOPE/EXTENT OF DEPARTURE:

There are additional areas in the DCD that use the term “indefinite” in reference to long term PRHR HX operation that need to be changed in a departure to the DCD to more accurately reflect the PRHR HX long term operation during a non-LOCA event. The changes needed for the DCD departure PTN DEP 6.3-1 to incorporate this information include the following FSAR Sections or Tables:

Section 5.4.14.1
Section 6.3.1.1.1
Section 6.3.1.2
Section 6.3.1.3
Section 6.3.2.1.1
Section 6.3.3.4.1
Section 7.4.1.1
Table 9.5.1-1R
Section 15.2.6.1
Table 19.59-18R
Section 19E.4.10.2

Departure Number: PTN DEP 6.3-1 (continued)

DEPARTURE JUSTIFICATION:

Recent PRHR HX evaluations performed under a variety of operating scenarios identified 14 days would be a conservative replacement time period for “indefinite”. The Westinghouse evaluation of the PRHR HX operation under non-bounding, conservative conditions demonstrates the ability to keep the average RCS temperature in safe shutdown conditions for greater than 14 days under passive conditions (no operator action). The evaluation does indicate that if no action is taken, the average RCS temperature will increase at some point after 15 days but the PRHR HX operation would still keep the average RCS temperature below 420°F for a longer period of time of approximately 20 days (420°F is identified as the RCS temperature objective for safe shutdown). If no action is able to be taken after this period of time and there is adverse trending of RCS conditions that might be indicative of leading to an unstable condition, the operators do still have the ability to initiate Automatic Depressurization System (ADS), go to open loop cooling and retain the plant in a stable condition.

DEPARTURE EVALUATION:

This Tier 2 departure is associated with defining the term “indefinite” as a conservative but specific duration (greater than 14 days). The departure results in a change to the DCD that does not impact the required design function (i.e., containment cooling condensate return). Accordingly, it does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD.
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety and previously evaluated in the plant-specific DCD.
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD.
4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD.
5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD.
6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD.
7. Result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered.

Departure Number: PTN DEP 6.3-1 (continued)

8. Result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses.

This departure does not affect resolution of a severe accident issue identified in the plant-specific DCD. Therefore, this departure has no safety significance.

NRC APPROVAL REQUIREMENT:

This departure does not require NRC approval pursuant to 10 CFR Part 52, Appendix D, Section VIII.B.5.

A.2 Departures That Require NRC Approval Prior to Implementation

Departure Number	Description
PTN DEP 3.2-1	Addition of downspouts to the condensate return portion of the Passive Core Cooling System
PTN DEP 6.2-1	The ITAAC Acceptance Criteria for the in-containment PXS compartment vents are revised to reflect the current plant configuration.
PTN DEP 6.4-1	Main Control Room Operator Dose
PTN DEP 6.4-2	Main Control Room Heatup
PTN DEP 7.3-1	Compliance with IEEE 603

Departure Number PTN DEP 3.2-1

AFFECTED DCD/FSAR SECTIONS:

Tier 1 Table 2.2.3-1 and Table 2.2.3-2, Tier 2 Subsections 1.9.4.2.2 and 1.9.5.1.5, Table 3.2-3 (Sheet 16 of 75), Figure 3.8.2-1 (Sheet 3), Subsections 5.4.5.2.1, 5.4.11.2 and 5.4.14.1, Subsections 6.3.1.1.1, 6.3.1.1.4, 6.3.1.1.6, 6.3.1.2, 6.3.1.3, 6.3.2.1, 6.3.2.1.1, 6.3.2.2.5, 6.3.2.2.7, 6.3.2.8, 6.3.3, and 6.3.3.2.1.1, Chapter 6, Figure 6.3-1 (Sheets 1 through 3), Figure 6.3-2 (Not Used), Section 7.4, Subsection 7.4.1.1, Table 14.3-2 (Sheets 7 and 8 of 17), Subsections 15.0.13 and 15.2, Chapter 16 (TS Surveillance Requirement 3.5.4.7, TS Bases B 3.3.3 and B 3.5.4), Subsections 19E.2.3.2.6 and 19E.4.10.2, Table 19E.4.10-1, and Figures 19E.4.10-1 through 19E.4.10-4.

SUMMARY OF DEPARTURE:

Modifications to the Polar Crane Girder (PCG), Internal Stiffener, and Passive Core Cooling System (PXS) gutter were made. The fabrication holes at the top surface of the PCG and in the stiffener are blocked, drainage holes in the bottom of the PCG boxes are blocked, and flow communication holes between PCG boxes are added. A downspout piping network is added to collect and transport condensation from the top and interior of the PCG and the stiffener to the PXS Collection Boxes. Eight new PXS downspout screens are added at the entrance of each of the downspouts at the top of the PCG and the stiffener to prevent any larger debris from blocking the downspout piping. Visual inspection requirements to verify that the return flow to the IRWST will not be restricted by debris have been added to the Technical Specifications and Technical Specification Bases. In addition, clarification of long-term safe-shutdown conditions is provided.

SCOPE/EXTENT OF DEPARTURE:

Upon actuation of the Passive Residual Heat Removal Heat Exchanger (PRHR HX), a series of air-operated valves are actuated to isolate the normal gutter drain path to the Liquid Radwaste System, and divert condensation to the In-containment Refueling Water Storage Tank (IRWST). It is important that sufficient condensate return is achieved during non-loss of coolant accident (LOCA) PRHR HX operation, since reduction of IRWST level to below the top of the tubes will begin to degrade the heat exchanger performance to the point where safe shutdown (<420 deg F in <36 hours) may not be achieved.

As steaming in the containment begins, following initiation of PRHR HX operation and saturation of the IRWST, there are a number of mechanisms, both thermodynamic and geometric, that can prevent the condensed steam from returning to the IRWST. The mechanisms are as follows:

Departure Number: PTN DEP 3.2-1 (continued)

a. Steam to pressurize the containment
b. Steam condensation on Passive Heat Sinks
c. Raining from the containment roof, Containment ring misalignment
d. Losses at the Polar Crane Girder and Stiffener
e. Losses at support plates attached to the containment vessel
f. Losses at the Equipment Hatch and Personnel Airlock
g. Losses at entry to IRWST gutter

Losses due to pressurization and condensation on heat sinks are quantified with development of two new calculations. One additional existing calculation was revised based on the results of the new calculations in order to quantify the PRHR HX performance with the revised value of the condensate return and to ensure that the safe shutdown requirements are met. Additionally, analyses were performed which confirm the achievement of the PRHR performance requirements when heat losses are modeled.

A full scale section of the containment wall was constructed to test condensate losses. As a result of the condensate return testing, modifications to the Polar Crane Girder (PCG), Internal Stiffener, and Passive Core Cooling System (PXS) gutter designs are made. The fabrication holes at the top surface of the PCG and in the stiffener are blocked, drainage holes in the bottom of the PCG boxes are blocked, and flow communication holes between PCG boxes are added. A downspout piping network is added to collect and transport condensation from the top and interior of the PCG and the stiffener to the PXS Collection Boxes. Eight new PXS downspout screens are added at the entrance of each of the downspouts at the top of the PCG and the stiffener to prevent any larger debris from blocking the downspout piping. Visual inspection requirements to verify that the return flow to the IRWST will not be restricted by debris have been added to the Technical Specifications and Technical Specification Bases.

In addition to the condensate return changes, clarification of long-term safe shutdown conditions is provided. This clarification identifies the time frames in which the PRHR HX, ADS and passive injection/recirculation can be relied upon to ensure long-term safe shutdown requirements are met.

Departure Number: PTN DEP 3.2-1 (continued)

DEPARTURE JUSTIFICATION:

The proposed change does not involve a significant reduction in the margin of safety. The proposed change does not reduce the redundancy or diversity of any safety-related SSCs. The proposed changes increase the amount of condensate available in the IRWST after the initiation of a design basis event compared to the design described in the AP1000 DCD Revision 19. Though the fraction of condensate returned is smaller than originally assumed, the proposed changes provide sufficient condensate return flow to maintain adequate IRWST water level for those events using the PRHR HX cooling function. While lower condensate return rates result in an earlier transition to PRHR HX uncovery, the long-term shutdown temperature evaluation results show that the PRHR HX would continue to meet its acceptance criteria.

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) approval of the change will not be inimical to the common defense and security or to the health and safety of the public.

DEPARTURE EVALUATION:

This Tier 2 departure performs modifications to the PCG, Internal Stiffener, and PXS gutter designs. The fabrication holes at the top surface of the PCG and in the stiffener are blocked, drainage holes in the bottom of the PCG boxes are blocked, and flow communication holes between PCG boxes are added. A downspout piping network is added to collect and transport condensation from the top and interior of the PCG and the stiffener to the PXS Collection Boxes. Eight new PXS downspout screens are added at the entrance of each of the downspouts at the top of the PCG and the stiffener to prevent any larger debris from blocking the downspout piping. Visual inspection requirements to verify that the return flow to the IRWST will not be restricted by debris have been added to Technical Specifications and Technical Specification Bases. This departure also provides clarification of long-term safe shutdown conditions. The proposed change does not involve a significant reduction in the margin of safety. The proposed change does not reduce the redundancy or diversity of any safety-related SSCs. The proposed changes increase the amount of condensate available in the IRWST after the initiation of a design basis event compared to the original design. Though the fraction of condensate returned is less than assumed in the original design, the proposed design does not result in significantly degraded overall PXS performance, in that the ability to achieve safe shutdown within the required time frame is accomplished. Therefore, this departure does not:

Departure Number: PTN DEP 3.2-1 (continued)

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD.
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety and previously evaluated in the plant-specific DCD.
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD.
4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD.
5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD.
6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD.
7. Result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered.
8. Result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses.

This Departure does not affect resolution of a severe accident issue identified in the plant-specific DCD. Therefore, this Departure has no safety significance.

NRC APPROVAL REQUIREMENT:

This departure requires an exemption from the requirements of 10 CFR Part 52, Appendix D, Section III.B, which requires compliance with Tier 1 requirements of the AP1000 DCD and the generic Technical Specifications. Therefore, an exemption is requested in Part B of this COL Application Part.

Departure Number: PTN DEP 6.2-1

AFFECTED DCD/FSAR SECTIONS:

Tier 1 Table 2.3.9-3, Tier 2 Subsections 6.2.4.5.1 and 19.41.7

SUMMARY OF DEPARTURE:

The Containment Hydrogen Control System (VLS) has a function to limit the hydrogen concentration in containment following a severe accident so that it does not result in a failure of the containment shell (DCD Subsection 6.2.4). A severe accident (considered to be a beyond design basis event) involves a major core degradation or core melt that results in hydrogen production among other effects. A severe accident involving major core degradation/core melt is not a design basis accident; however, the VLS contains design features to address this scenario. The VLS promotes hydrogen burning soon after reaching the lower flammability limit. Burning off hydrogen at lower flammability limits is intended to prevent the hydrogen from reaching high concentration levels and potential adverse effects on containment integrity. There are hydrogen igniters positioned around various areas of containment to be able to burn off hydrogen in a controlled manner to help preserve containment integrity.

Openings in the ceilings of the Passive Core Cooling System (PXS) valve/accumulator rooms A and B (identified as Rooms 11206 and 11207, respectively) communicate with the room above where the CMTs are located (Room 11300). These openings allow access for hydrogen to vent. Igniters are placed in these areas to allow the hydrogen to ignite and burn. Evolution of the AP1000 configuration moved some equipment and room layouts such that the existing VLS ITAAC and Subsections 6.2.4.5.1 and 19.41.7 wording is no longer consistent with the revised plant design. The CMT-A opening in Room 11206 was moved closer to the containment shell while the equipment hatch opening in the same room was moved farther away, and a weir was added for flood protection (not related to hydrogen venting). The CMT-B opening in Room 11207 was moved farther away from the containment shell.

The changes proposed to the DCD by this departure reflect the current vent path configuration in Rooms 11206 and 11207, and provide clarification of “primary openings” in Rooms 11206 and 11207.

SCOPE/EXTENT OF DEPARTURE:

The changes to the DCD addressed by Departure 6.2-1 revise Tier 1 ITAAC Table 2.3.9-3, Item 3, Acceptance Criteria iii and Tier 2 Subsections 6.2.4.5.1 and 19.41.7 to reflect the actual vent path configuration, clarify the meaning of primary openings for Rooms 11206 and 11207, identify the vent path locations will be verified by pre-operational inspection, and hydrogen released from these vent paths will not challenge the integrity of the containment shell.

Departure Number: PTN DEP 6.2-1 (continued)

DEPARTURE JUSTIFICATION:

The proposed changes correct information in the DCD regarding the plant layout of the primary openings in Containment Rooms 11206 and 11207 that will be used to vent hydrogen; specifically, changes involve the distance between the openings and the containment shell and clarifies what is designated as a primary opening for these rooms. An analysis demonstrates ignition of hydrogen venting through these openings will not result in failure of the containment shell.

The proposed changes will not increase the frequency of occurrence of an accident, nor result in a malfunction of a structure, system or component (SSC). The proposed changes regarding the primary openings layout information to be applied to pre-operational measurements and clarification of the primary openings will not result in an accident or malfunction of an SSC. The revised hydrogen vent locations will not result in containment shell failure and as such, will not impact a design basis limit for a fission product barrier. The updated DCD language for primary openings used for venting hydrogen is supported by analysis and does not affect resolution of an ex-vessel severe accident design feature.

DEPARTURE EVALUATION:

The proposed changes correct information in the DCD regarding the plant layout of the primary openings in Containment Rooms 11206 and 11207 that will be used to vent hydrogen during a beyond design basis event (severe accident). Pre-operational measurements will verify the location of these openings, and an analysis demonstrates postulated hydrogen releases through these openings do not result in a failure of the containment shell.

Therefore, this departure does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD.
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD.
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD.
4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD.
5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD.

Departure Number: PTN DEP 6.2-1 (continued)

6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD.
7. Result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered.
8. Result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses.
9. Affect resolution of an ex-vessel severe accident design feature identified in the plant-specific DCD.

Therefore, this departure has no safety significance.

NRC APPROVAL REQUIREMENT:

This departure requires an exemption from the requirements of 10 CFR Part 52, Appendix D, Section III.B, which requires compliance with Tier 1 requirements of the AP1000 DCD. Therefore, an exemption is requested in Part B of this COL Application Part.

Departure Number PTN DEP 6.4-1

AFFECTED DCD/FSAR SECTIONS:

Tier 1 Subsection 2.2.5, Tier 1 Table 2.2.5-1, Tier 1 Table 2.2.5-5, Tier 1 Subsection 2.7.1, Tier 2 Table 1.6-1, Subsection 1.9.4.2.3, Appendix 1A, Subsection 3.1.2, Subsection 6.4, Subsection 6.4.2.6, Subsection 6.4.3.2, Subsection 6.4.4, Table 6.4-2, Subsection 7.3.1.2.17, Subsection 9.2.6.1.1, Subsection 9.4.1.1.1, Subsection 9.4.1.1.2, Subsection 9.4.1.2.1.1, Subsection 9.4.1.2.3.1, Figure 9.4.1-1 (Sheet 5 of 7), Table 11.1-4, Table 11.1-5, Table 11.1-6, Subsection 11.5.1.1, Subsection 11.5.2.3.1, Subsection 12.2.1.3.1, Subsection 12.2.1.3.2, Table 12.2-28, Table 12.2-29, Subsection 12.3.2.2.7, Figure 12.3-1 (Sheet 6 of 16), Table 14.3-7 (Sheet 2 of 3), Subsection 15.0.11.1, Subsection 15.0.11.6, Table 15.0-2, Subsection 15.1.5.4.1, Subsection 15.1.5.4.6, Table 15.1.5-1, Subsection 15.3.3.3.1, Table 15.3-3 (Sheet 1 of 2), Subsection 15.4.8.1.1.3, Subsection 15.4.8.1.2, Subsection 15.4.8.2, Subsection 15.4.8.2.1, Subsection 15.4.8.2.1.1, Subsection 15.4.8.2.1.2, Subsection 15.4.8.2.1.3, Subsection 15.4.8.2.1.4, Subsection 15.4.8.2.1.5, Subsection 15.4.8.2.1.7, Subsection 15.4.8.2.1.8, Subsection 15.4.8.2.1.9, Subsection 15.4.8.3, Subsection 15.4.8.3.1, Subsection 15.4.8.3.5, Subsection 15.4.8.3.6, Subsection 15.4.10, Table 15.4-1 (Sheets 2 and 3 of 3), Table 15.4-3 (Not Used), Table 15.4-4 (Sheets 1 and 2 of 2), Figure 15.4.8-1, Figure 15.4.8-2, Figure 15.4.8-3, Figure 15.4.8-4 (Not used), Subsection 15.6.2.6, Subsection 15.6.3.3.1, Subsection 15.6.3.3.6, Subsection 15.6.5.3.2, Subsection 15.6.5.3.5, Subsection 15.6.5.3.8.1, Subsection 15.6.5.3.8.2, Subsection 15.6.6, Table 15.6.2-1, Table 15.6.3-3, Table 15.6.5-2 (Sheets 1-3 of 3), Table 15.6.5-3, Subsection 15.7.4.5, Table 15.7-1, Subsection 15A.3.1.2, Subsection 15B.1, Chapter 16 LCO 3.7.4, SR 3.7.4.1, Bases 3.4.10, Bases 3.7.4, Bases 3.7.6.

SUMMARY OF DEPARTURE:

If high levels of particulate or iodine radioactivity are detected in the main control room supply air duct that could lead to exceeding General Design Criterion (GDC) 19 operator dose limits (5 rem), the protection and safety monitoring system (PMS) automatically actuates the VES to ensure compliance. The VES design includes a passive filtration feature consisting of a HEPA filter in series with a charcoal adsorber and a postfilter which work to remove particulate and iodine from the air to reduce potential control room dose during VES operation.

During AP1000 design finalization, a number of issues were identified challenging the ability of the certified design to limit operator dose to less than 5 rem. In order to address these issues, site-specific revisions to the AP1000 design and associated dose consequence analyses presented in DCD Revision 19 are made to ensure that operator dose following a DBA is maintained below the 5 rem GDC limit for the duration of the event. Some design changes apply

Departure Number PTN DEP 6.4-1 (continued)

to all MCR design basis accidents and ventilation system alignments evaluated in DCD Section 6.4, while others are design basis accident specific.

A. Changes Impacting All MCR Design Basis Events

AP1000 generic changes impacting all MCR operator dose evaluations presented in DCD Section 6.4 and Chapter 15 required to address MCR dose analysis errors include:

1. Radiation contributions from HVAC filters were not considered in MCR dose calculation results reported in DCD Revision 19 Section 6.4. Regulatory Guide 1.183 indicates that these contributions should be considered in plant design. The radiological dose analyses are therefore revised to include direct radiation contributions from radioactive material postulated to accumulate on filters in the VES and VBS HVAC systems during design basis events.
2. In order to reduce the MCR operator direct radiation dose contribution from radioactive material postulated to accumulate on VES filter media during design basis events, shielding is added around the filters and is accounted for in the revised radiation analysis model. Consequence analyses considering filter contributions assume that control room occupants are located below these filters, using the defined occupancy factors (DCD Revision 19, Table 15.6.5-2, Sheet 2 of 3).
3. In order to partially offset increases in calculated MCR operator dose due to consideration of direct radiation from VES filter media and other corrections identified in this response, the VES filter efficiency for organic iodine is increased from 30% to 90% (DCD Revision 19 Table 15.6.5-2, Sheet 2 of 3). DCD Revision 19 post accident dose analyses applied an organic iodine filter efficiency of 30% to VES filtration units based on Regulatory Guide 1.52 Revision 2 and a conservative assumption that relative humidity within the MCR could exceed 95% following an accident. As part of AP1000 detailed design, environmental conditions have been evaluated to show that the humidity within the MCR is not expected to exceed 95%. Further, humidity is not expected to exceed 60% within the first 72 hours of an event, the time frame during which the filter would be operating, or exceed 95% at any time post accident. Thus, the higher filter efficiency can be credited in the MCR dose analyses consistent with Regulatory Guide 1.52 Revision 2. Additionally, it is noted that the analyses model an “overall” efficiency for each chemical form being filtered (elemental, organic, particulate). This overall efficiency accounts for filter media sizing (e.g. charcoal bed depth) and the potential for bypass around the filter.

Departure Number PTN DEP 6.4-1 (continued)

4. During AP1000 detailed design and re-evaluation of MCR doses to include consideration of HVAC filter contributions (Item A.1.), it was determined that the VBS radiation monitor setpoints applied in MCR dose calculations supporting DCD Revision 19 were not selected in a manner that a) ensures compliance with the GDC-19 for all postulated accident conditions including Design Basis Accidents (DBAs) evaluated in DCD Revision 19 Chapter 15, or b) fully supports the AP1000 design objective to use VBS supplemental filtration mode (SFM) when available rather than VES actuation to provide the MCR radiological protection function.

   For postulated accident conditions involving a reduced source term or release rate other than evaluated for DBAs as part of the certified design, there may not be sufficient radioactivity within the MCR Envelope to prompt actuation of VES, and yet, enough radioactivity could exist that would lead to operator doses in excess of 5 rem without manual actuation. The radiation monitor setpoint values are therefore updated to ensure VBS or VES filtration mode actuation occurs for any radiological release event that could result in MCR operator doses in excess of GDC-19.

   One of the fundamental objectives of VBS as described in DCD Revision 19 Section 9.4.1 is to "...minimize the potential for actuation of the main control room emergency habitability system...". This change uses a non-safety High-1 signal to actuate VBS SFM and the existing safety-related signal (High-2) to actuate VES in a manner that ensures High-2 would only be reached if VBS SFM was not functioning properly or is insufficient. This change also addresses release scenarios where high concentrations of particulates or iodine may exist with low levels of noble gas. If such a release occurred without this VBS setpoint logic change, direct VES actuation could be induced without the opportunity for VBS SFM to be actuated.

B. Large Break Loss of Coolant Accident (LOCA) Dose Consequence Changes

AP1000 generic changes impacting the LOCA MCR operator dose evaluations presented in DCD Sections 6.4 and 15.6.5 required to address MCR dose analysis errors include:

1. Dose contributions from adjacent structure direct and skyshine radiation included MCR operator dose results for LOCA as reported in DCD Revision 19 are based upon AP600 post-accident dose calculations and assume the presence of shielding that was not included in the AP1000 design. Post-accident radiological dose calculations are therefore changed to use updated AP1000 detailed design inputs and analyses for skyshine and direct radiation. The added dose incurred by this change is partially offset by other proposed changes.

Departure Number PTN DEP 6.4-1 (continued)

2. In order to partially offset increases in calculated MCR operator dose due to consideration of direct radiation from VES filter media and other corrections identified in this response, changes are made to the containment elemental iodine removal coefficient and re-suspension models supporting the DCD Revision 19 LOCA dose analysis.

   Changes are made to the IRWST iodine re-evolution model. The changes involve a) the water/vapor partition factor modeled for elemental iodine and b) the timing associated with the conversion of elemental iodine to organic iodine and its availability for release. These refinements and modeling changes define the production of organic iodine based on re-evolved elemental iodine.

   The iodine source term applied in the LOCA dose analysis supporting DCD Revision 19 is based upon the NUREG-1465 source term described in Regulatory Guide 1.183. The analysis models a staged release of core activity (i.e., gap release and early in-vessel) to the containment atmosphere over the first ~2 hours following the start of the event. The chemical form of iodine released is assumed to be 95% particulate, 4.85% elemental, and 0.15% organic, consistent with Regulatory Guide 1.183. Particulate removal via passive processes (i.e. diffusiophoresis, thermophoresis, and sedimentation) and elemental iodine removal via deposition are modeled. Organic iodine removal via processes other than decay or leakage from containment is not modeled.

   Particulates removed to the containment shell are assumed to be washed off the shell by the flow of water resulting from condensing steam (i.e. condensate flow). The particulates may be either washed into the sump, which is controlled to a pH $\geq$7 post-accident or into the IRWST, which is not pH controlled post-accident. Due to the assumed conditions in the IRWST, the particulate iodine washed into the IRWST may chemically convert to an elemental form and re-evolve, subject to partitioning, as airborne. A portion (3%) of that airborne elemental iodine is then assumed to convert to an organic form. This is consistent with elemental organic split assumed for the initial release from the core (4.85/0.15 = 97/3) and is consistent with the Regulatory Guide 1.183 guidance for other events.

   The calculational approach to account for the iodine that is assumed to re-evolve from the IRWST post-LOCA is overly conservative in the certified design analysis. The certified design analysis applies a water-vapor partition factor of 5 for elemental iodine and neglects the time dependent formation of organic iodine from elemental iodine; the organic iodine that would be formed over time is assumed to be present at time zero.

Departure Number PTN DEP 6.4-1 (continued)

NUREG-1465 states that “It is unduly conservative to assume that organic iodine is not removed at all from containment atmosphere, once generated, since such an assumption can result in an overestimate of the long-term doses to the thyroid.” The revised analysis approach applies a conservative water/vapor elemental iodine partition factor of 10, selected to conservatively bound the time-dependent partition factors calculated using the NUREG/CR-5950 models and IRWST temperature and pH as a function of time. Additionally, the conversion of elemental iodine to organic iodine is modeled on a time-dependent basis in which 3% of the evolved elemental iodine is assumed to convert to an organic form upon its release to containment. It is noted that this does not impact the percentage of iodine assumed to convert to the organic form.

The passive containment elemental iodine deposition removal coefficient is also increased from the 1.7 hr^{-1} value applied in DCD Revision 19 LOCA dose calculations to 1.9 hr^{-1}. The larger elemental iodine removal rate constant is calculated based on a larger containment deposition surface area documented during the AP1000 detailed design. The DCD Revision 19 elemental iodine removal rate constant was based on an assumed 219,000 ft^2 deposition surface area. Updated detailed design calculations have documented a 251,000 ft^2 deposition surface area.

C. Main Steam Line Break (MSLB) Dose Consequence Changes

AP1000 generic changes impacting the MSLB MCR operator dose evaluations presented in DCD Sections 6.4 and 15.1.5 required to address MCR dose analysis errors include:

1. The AP1000 steam line break accident analysis described in DCD Revision 19 assumes a 10 minute faulted steam generator (SG) blowdown based on a Hot Zero Power (HZP) SG mass released at an average rate. This HZP case is conservative for offsite dose. It was determined, however, that a full power SG mass could lead to SG dry-out occurring at ~200 seconds. Earlier dry-out is more limiting for the purposes of operator post-accident dose calculations. To ensure a conservative dose for both offsite and MCR, the HZP initial mass was retained, a bounding release rate was modeled until 300 seconds, and any remaining activity was released thereafter.
2. In order to offset increases in calculated MCR operator dose for MSLB due to consideration of a bounding release rate and other corrections identified in this response, the Technical Specification limit for secondary iodine activity is reduced from 0.1 to 0.01 microcurie/gram dose equivalent (DE) I-131 (Limiting Condition for Operation (LCO) 3.7.4).

Departure Number PTN DEP 6.4-1 (continued)

The current Technical Specification (TS) limit for secondary iodine activity is 0.1 µCi/g dose equivalent (DE) I-131 (LCO 3.7.4). This is a standard value, however the TS bases refer to the steam line break analysis; in other words, the steam line break analysis defines the level of secondary activity that is acceptable. The maximum secondary activity is also limited by other TS limits. Specifically, the primary coolant specific activity concentration limit of 1 µCi/g DE I-131 (based on the design basis fuel defect of 0.25%) and the TS primary to secondary leakage limit of 300 gallons per day.

Using these values, the secondary side coolant activity is calculated to be 8.3E-4 µCi/g DE I-131, which is orders of magnitude below the current TS limit. The TS limit for secondary iodine activity is therefore revised from 0.1 µCi/g DE I-131 to 0.01 µCi/g DE I-131. The change does not impact the operational margin, as the secondary side specific activity is limited to values lower than the new proposed TS limit by the TS primary to secondary leakage limit and the design basis fuel defect. The revised value of 0.01 µCi/g DE I-131 is within the detection capability of existing instrumentation and is significantly above the typical secondary coolant activities observed at operating plants. No additional sampling or modifications to the frequency of LCO 3.7.4 are needed.

D. Rod Ejection Accident (REA) Dose Consequence Changes

AP1000 generic changes impacting the REA MCR operator dose evaluations presented in DCD Sections 6.4 and 15.4.8 required to address MCR dose analysis errors include:

1. The method for performing the REA dose analysis has changed from that applied in DCD Revision 19. As stated in NUREG-1793, the NRC accepted the use of NUREG-0800 Section 4.2 Revision 2 for design certification of the AP1000 plant. However, in NUREG-1793 Supplement 2 it is stated that:

   > “For COL applicants or licensees who reference the AP1000 or AP600 certified designs, the staff will review any change or departure from the certified design that requires prior NRC approval as specified in Section VIII of Appendices C and D to 10 CFR Part 52, respectively.
   >
   > The staff will evaluate the reactivity-initiated accidents such as rod ejection accidents based on the acceptance criteria in effect 6 months before docketing the amendment request, such as the interim acceptance criteria specified in Appendix B to NUREG-0800 Section 4.2, Revision 3, if a change or departure in fuel design or other aspects is proposed that requires a reevaluation of final safety evaluation report Chapter 4, “Reactor,” or Chapter 15, “Transient and Accident Analysis.”

Departure Number PTN DEP 6.4-1 (continued)

Due to the need to incorporate other design changes in the REA MCR operator dose calculations, NUREG-0800 Section 4.2 Revision 3 is used for recalculation of the rod ejection dose analysis, which results in a significant impact to the rod ejection dose analysis. NUREG-0800 Section 4.2 Revision 3 precludes fuel melt, providing a dose benefit, but also connects the source term to the fuel enthalpy increase, which is a significant dose penalty. The dominant contributor to the increased dose is the increase by a factor of more than 5 in alkali metal releases.

2. The full-power moisture carryover from the steam generators used in the AP1000 REA dose analysis was increased from 0.1% to 0.35%. This input is used to calculate alkali metal releases from the SGs in the AP1000 REA dose analysis. This input was updated to be consistent with the updated AP1000 plant design.

3. The REA dose analysis results are updated to account for a reduction in the Technical Specification limit for secondary iodine activity from 0.1 to 0.01 microcurie/gram dose equivalent (DE) I-131 as described for the updated MSLB analysis in Item C.2., above.

4. The radial peaking factor has been adjusted to a value of 1.75. This provides a more conservative input than the DCD Revision 19 value and provides additional future core design margin.

5. The passive containment elemental iodine deposition removal coefficient is also increased from the 1.7 hr^{-1} value applied in DCD Revision 19 LOCA dose calculations to 1.9 hr^{-1}. The larger elemental iodine removal rate constant is calculated based on a larger containment deposition surface area documented during the AP1000 detailed design. The DCD Revision 19 elemental iodine removal rate constant was based on an assumed 219,000 ft^2 deposition surface area. Update detailed design calculations have documented a 251,000 ft^2 deposition surface area.

E. Steam Generator Tube Rupture (SGTR) Dose Consequence Changes

AP1000 generic changes impacting the SGTR MCR operator dose evaluations presented in DCD Sections 6.4 and 15.6.3 required to address MCR dose analysis errors include:

1. The full-power moisture carryover from the intact steam generator used in the AP1000 SGTR dose analysis was increased from 0.1% to 0.35%. This input is used to calculate alkali metal releases from non-faulted SG in the AP1000 SGTR dose analysis. This input was updated to be consistent with the updated AP1000 plant design.

Departure Number PTN DEP 6.4-1 (continued)

2. The full-power moisture carryover from the ruptured loop steam generator used in the AP1000 SGTR dose analysis was increased from 0.1% to 0.35%. This input is used to calculate alkali metal releases from the faulted SG in the AP1000 SGTR dose analysis. This input was updated to be consistent with the updated AP1000 plant design.

3. The SGTR results are updated to account for a reduction in the Technical Specification limit for secondary iodine activity from 0.1 to 0.01 microcurie/gram dose equivalent (DE) I-131 as described for the updated MSLB analysis in Item C.2., above.

F. Locked Rotor Accident Dose Consequence Changes

AP1000 generic changes impacting the locked rotor MCR operator dose evaluations presented in DCD Sections 6.4 and 15.3.3 required to address MCR dose analysis errors include:

1. The full-power moisture carryover from the steam generators used in the AP1000 locked rotor dose analysis was increased from 0.1% to 0.35%. This input was updated to be consistent with the updated AP1000 plant design.

2. The locked rotor results are updated to account for a reduction in the Technical Specification limit for secondary iodine activity from 0.1 to 0.01 microcurie/gram dose equivalent (DE) I-131 as described for the updated MSLB analysis in Item C.2., above.

3. The radial peaking factor has been adjusted to a value of 1.75. This provides a more conservative input than the DCD Revision 19 value and provides additional future core design margin.

G. Small Line Break Outside Containment Dose Consequence Changes

AP1000 generic changes impacting the small line break outside containment MCR operator dose evaluations presented in DCD Sections 6.4 and 15.6.2 required to address MCR dose analysis errors include:

1. The fraction of reactor coolant flashed was increased from the value used in DCD Revision 19 supporting calculations of 0.41 to 0.47 based on the updated detailed design. The certified design analysis used vessel average temperature (T_{avg}) as the basis for the flashing fraction. It was determined that the sample lines draw from the hot leg, thus, a hot leg temperature (which is greater than T_{avg}) was used.

Departure Number PTN DEP 6.4-1 (continued)

H. Fuel Handling Accident (FHA) Dose Consequence Changes

AP1000 generic changes impacting the FHA MCR operator dose evaluations presented in DCD Sections 6.4 and 15.7.4 required to address MCR dose analysis errors include:

1. The radial peaking factor has been adjusted to a value of 1.75. This provides a more conservative input than the DCD Revision 19 value and provides additional future core design margin.
2. No unique accident specific changes.

In addition to the required changes summarized above, other generic changes associated with AP1000 detailed design are incorporated in revised MCR dose calculations. These include:

a) The MCR pressure boundary consists of the main control area, operator work area, mezzanine, operator break room, shift manager's office, kitchen area, and restrooms. The vestibule to enter the MCR and stairwell to the remote shutdown room is outside of the MCR pressure boundary. The MCR and MCR HVAC volumes are recalculated based on updated detailed design data, and are used as input to revised post-accident operator dose analyses.

b) The VBS normal operation to VBS SFM switchover time and the response time to actuate VES used in DCD Revision 19 supporting analyses have been determined to be non-bounding. The certified design analyses used assumed/expected values that were ultimately not supportable by the updated detailed design. System-level requirements are developed for switch over and response times; these system-level requirements account for sample transport time, radiation detector response time, I&C response times, and VBS/VES equipment actuations (e.g. valves, dampers, etc.). The dose analyses for cases considering VBS SFM are revised to include a longer delay time between the point when airborne radioactivity in the control room reaches the High-1 setpoint concentration and when the VBS SFM is operational. The dose analyses for cases considering VES are revised to include a longer response time between the point when the High-2 setpoint is reached and when the VES is operational.

Departure Number PTN DEP 6.4-1 (continued)

c) DCD Revision 19 post accident dose calculations model a normal VBS inflow rate of 1925 cfm until MCR isolation. This is the path for the released activity to enter the MCR. This value is based on an assumed preliminary design value of 1750 cfm and adding a 10% penalty to account for instrumentation uncertainty. A VBS outside air intake flow rate calculated as part of detailed design indicates a nominal outside air flow rate of 1320 cfm. The normal VBS outside air flow rate assumption used in the accident operator dose calculations is therefore decreased accordingly. It is noted that during plant start-up, the HVAC system is balanced and dampers that have specific criteria under certain modes of operation are adjusted to have a preset position which can then be controlled from the MCR. To address a potential inaccuracy of the damper positioning, a nominal value of 1500 cfm is established for the normal VBS outside air flow rate. For dose analyses, the assumed normal VBS outside air flow rate will therefore be 1650 cfm, which corresponds to 1500 cfm +10%.

d) The VBS ancillary fan MCR air intake flow rate is also increased to 1900 cfm. The previous assumption of 1700 cfm had been specified as a minimum as part of the detailed design. For conservatism, the 1700 cfm was increased by 10% and rounded up to 1900 cfm.

Although these changes are considered as part of the updated MCR dose calculations, they are being implemented as general detailed design updates and are not specifically implemented to offset impacts of errors otherwise being addressed as part of this RAI response.

DEPARTURE JUSTIFICATION:

The proposed changes do not involve a significant reduction in the margin of safety. The proposed changes do not reduce the redundancy or diversity of any safety-related SSCs. The proposed changes improve the mitigating capabilities of the MCR Habitability System and address the MCR dose analysis errors. The MCR dose to the operators slightly decreases for the limiting DBA (LBLOCA) and the analysis shows that the results do not exceed the GDC-19 requirements of 5 rem.

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) approval of the change will not be inimical to the health and safety of the public or to the common defense and security.

Departure Number PTN DEP 6.4-1 (continued)

DEPARTURE EVALUATION:

This Tier 2 departure makes the changes stated above. The departure does not involve a significant reduction in the margin of safety and does not reduce the redundancy or diversity of any safety-related SSCs. Analysis results show that the MCR dose does not exceed GDC requirements of 5 rem. Therefore:

1. This proposed departure does not impact the frequency of occurrence of an accident previously evaluated in the plant-specific DCD. Therefore there is not more than a minimal increase in the frequency of occurrence.

2. This proposed departure does not impact the likelihood of a malfunction of an SSC. Shielding is a passive function that does not impact HVAC function and is designed to remain in place under seismic conditions. The switchover times from normal HVAC in the control room (VBS) to either the VBS supplemental filtration mode or to the emergency habitability system (VES) are analyzed to determine conservative setpoints to establish bounding system-level requirements for each system participating in the switchover.

3. New analyses determined that the radiation dose to the operator during the limiting DBA (LBLOCA) decreased from 4.41 rem to 4.33 rem and continues to meet the GDC limit of 5 rem. However, the radiation dose to the operator during the rod ejection accident increased from 1.8 to 3.6 rem. Therefore, this departure does result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD.

4. Potential malfunctions of the HVAC system operation and switchover modes were analyzed and evaluated, and there were no design changes affecting or increasing source terms. Therefore, this departure will not result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD.

5. This departure does not impact the possibility of accidents, and therefore does not create a possibility for an accident of a different type than previously evaluated in the plant-specific DCD.

6. The operability of the HVAC system with the different modes of operation (VBS w/SFM vs. VES) along with the interface of the RMS was analyzed and evaluated for adverse effects. It was determined that this departure would not create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD.

Departure Number PTN DEP 6.4-1 (continued)

7. This departure does not result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered.

8. This departure proposes a refinement of the iodine evolution/re-evolution model, and a new computer code is used for recalculation of the rod ejection dose analysis. The use of the new iodine model and new rod ejection computer code is therefore considered to be a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses.

This departure does not affect resolution of a severe accident issue identified in the plant-specific DCD. Therefore, this departure has no safety significance.

NRC APPROVAL REQUIREMENT:

This departure requires an exemption from the requirements of 10 CFR Part 52, Appendix D, Section III.B, which requires compliance with Tier 1 requirements of the AP1000 DCD and the generic Technical Specifications. Therefore, an exemption is requested in Part B of this COL Application Part. This departure also requires NRC approval pursuant to 10 CFR Part 52, Appendix D, Section VIII.B.5.

Departure Number PTN DEP 6.4-2:

Affected DCD/FSAR Sections: Tier 1 Tables 2.2.5-1, 2.2.5-4, 2.5.2-3, 2.5.2-4
Tier 2 Table 3.7.3-1 (Sheets 1 and 2 of 3), Table 3.9-12 (Sheet 6 of 7), Table 3.9-16 (Sheet 23 of 26), Table 3.9-17, Table 3.11-1 (Sheets 17, 30 and 47 of 51), Figure 3D.5-1 (Sheet 1 of 3), Table 3I.6-2 (Sheet 11 of 28), Table 3I.6-3 (Sheets 10 and 28 of 32), Subsections 6.4.2.2, 6.4.2.3, 6.4.3.2, 6.4.4, 6.4.5.1, 6.4.5.3 and 6.4.8, Table 6.4-3, Figure 7.2-1 (Sheet 13 of 21), Subsection 7.3.1.2.17, Table 7.3-1 (Sheet 7 of 9), Table 7.3-3 (Sheet 2 of 2), Table 7.5-1 (Sheet 11 of 12), Table 7.5-7 (Sheet 4 of 4), Subsections 9.3.1.1.2, 9.4.1.1.2, 9.4.1.2.3.1 and 14.2.9.1.6, Table 14.3-7 (Sheet 1 of 3), TS 3.3.2, TS 3.7.6, TS B 3.3.2, TS B 3.7.6, TS Figure B 3.7.6-2.

SUMMARY OF DEPARTURE:

The AP1000 Design Control Document (DCD), Revision 19 describes a Main Control Room (MCR) Emergency Habitability System (VES) design objective of maintaining a habitable environment in the main control room envelope (MCRE) for 72 hours after VES actuation. The MCRE temperature modeling was based on a scenario with normal ac power not available and therefore, no heat contribution from normal ac powered loads. However, a more limiting event has been identified where the VES actuates, resulting in the isolation of the MCRE, without a loss of normal ac power. With normal ac power available, all equipment in the MCRE continues to generate heat, potentially raising the temperature above the human engineering design and equipment qualification guidelines for temperature that are referenced in the DCD. Also, the original MCRE temperature modeling was based on the AP600 configuration. AP1000 design evolution and finalization, which included the addition of sixteen new wall panel displays, has increased the heat load in the MCRE.

In order to address these issues, a departure from information presented in the generic DCD is necessary. This departure makes several changes to ensure that the VES can perform its design functions. These changes consist of adding load shedding devices, raising equipment qualification (EQ) temperature requirements, revising Technical Specifications (TS) and reclassifying VES components. These changes will make the VES system more robust and will ensure that habitability and EQ requirements are met in the most limiting event scenario.

SCOPE/EXTENT OF DEPARTURE:

There are 4 basic changes proposed by this departure:

1. Non-essential equipment in the MCRE will be automatically de-energized by new load shedding devices.

Departure Number: PTN DEP 6.4-2 (continued)

2. TS will be modified to ensure that MCRE exterior temperatures do not exceed values assumed in supporting calculations, to ensure the quality of the air in the VES storage

tanks and to ensure availability of the new VES load shedding function.

3. The EQ temperature requirement for safety related equipment in the MCRE will be increased.

4. Two valves in the VES system will be re-classified to "active" valves to facilitate offsite support following the depletion of compressed air in the VES.

Change 1 - Load Shedding:

To compensate for the increased heat loads, new load shedding equipment will be added to automatically shed non-essential, non-safety related loads, beginning upon actuation of VES. The new load shedding equipment is safety related and designed with the requisite redundancy, separation, isolation, and equipment qualification requirements. With these non-essential, non-safety related loads shed as described, the temperature modeling concludes that the 72 hour VES design objective for habitability will be met. However, even with the load shedding, the heat generation rate for the AP1000 design is greater than originally assumed, so values included in AP1000 DCD Tier 1 and Tier 2 tables will be revised.

Change 2 - TS Changes:

Ongoing construction of the AP1000 has revealed that insulating materials on some of the exterior walls of the MCRE cannot be installed as indicated in the DCD. To compensate for the loss of insulating materials, assumptions were made in the revised MCRE heat up calculations concerning maximum initial room temperatures outside the MCRE prior to a VES actuation.

These assumptions were determined to require new TS actions and surveillances addressing room temperature, the new electrical load shed function and air quality in the VES storage tanks.

Change 3: Equipment Qualification Temperature Requirement:

Utilizing the load shedding scheme described in Change 1, the MCRE will remain below the MCRE's maximum habitability temperature limit for the 72 hour design basis of VES. After 72 hours, the Nuclear Island Non-Radioactive Ventilation System (VBS) can be aligned to circulate air into the MCRE from outside the plant. Based on maximum anticipated outdoor temperature, the calculated temperature in the MCRE could reach a maximum of 110°F. Therefore, a new temperature requirement of 110°F is established for EQ of safety related equipment located in the MCRE. This will ensure that equipment will operate as required.

Departure Number: PTN DEP 6.4-2 (continued)

Change 4: Two Valves Reclassified:

The capability of offsite support is expanded by reclassifying two VES manual valves. These valves are to be changed from “non-active” valves to “active” valves in order to maintain open and close capabilities following design basis accidents. With this re-classification, these manually operated valves provide a connection for offsite support during the post 72 hour operation of VES. Changing the classification impacts a Tier 1 table in the DCD.

DEPARTURE JUSTIFICATION:

The proposed changes do not involve a significant reduction in the margin of safety. The proposed changes do not reduce the redundancy or diversity of any safety-related structures, systems or components (SSCs). The proposed changes ensure that the VES system can perform its design functions including maintaining an environment suitable for MCRE habitability and EQ.

Based on these considerations: (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) approval of the change will not be inimical to the common defense and security or to the health and safety of the public.

DEPARTURE EVALUATION:

This departure adds safety related equipment to shed non-essential, non-safety related loads, increases the EQ temperature requirements for safety related equipment in the MCRE, and provides for a connection for offsite support following depleting of VES compressed air. This departure also adds TS actions and surveillances to ensure temperature limits are not exceeded and that equipment operates as designed. These changes will ensure that the MCRE habitability and EQ requirement are met in the most limiting event scenario. The departure does not involve a significant reduction in the margin of safety and does not reduce the redundancy or diversity of any safety-related SSCs. Therefore, this departure does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD.
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety and previously evaluated in the plant-specific DCD.
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD.

Departure Number: PTN DEP 6.4-2 (continued)

4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD.
5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD.
6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD.
7. Result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered.
8. Result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses.

This departure does not affect resolution of a severe accident issue identified in the plant-specific DCD. Therefore, this departure has no safety significance.

NRC APPROVAL REQUIREMENT:

This departure requires an exemption from the requirements of 10 CFR Part 52, Appendix D, Section III.B, which requires compliance with Tier 1 requirements of the AP1000 DCD and the generic Technical Specifications. Therefore, an exemption is requested in Part B of this COL Application Part.

Departure Number: PTN DEP 7.3-1

AFFECTED DCD/FSAR SECTIONS:

DCD Figure 7.2-1 (Sheet 3 of 21), Table 7.3-1 (Sheets 6 and 7 of 9), Table 7.3-2 (Sheet 1 of 4), Subsections 7.3.1.2.14, 9.3.6.3.7, 9.3.6.4.5.1, 9.3.6.7, Table 14.3-2 (Sheets 9 and 12 of 17), Chapter 16 (TS Table 3.3.2-1 (Pages 9 and 10 of 13), TS Bases B 3.3.1 and B 3.3.2), and Subsection 19E.2.7.2.

Discussion and justification for each of these requests is provided in the following pages.

SUMMARY OF DEPARTURE:

IEEE 603 is a standard for safety systems imposed directly by 10 CFR part 50.55a(h). Clause 6.6 of this standard establishes three requirements for “Operating Bypasses”. This logic is included for many PMS functions to permit them to be blocked, so normal plant operations can occur without the unnecessary and onerous actuation of safety systems. Portions of the block/reset associated with the flux doubling logic does not comply with IEEE 603 Section 6.6. A permissive is required for bypasses in safety systems. The flux doubling actuation bypass does not have a permissive to prevent operating the bypass for the function.

With regard to IEEE 603 - 1991, the source range nuclear instrumentation includes a flux doubling function, the P-6 permissive instates this actuation. This actuation, when blocked, automatically reinstates the function when reset by P-6, which satisfies a part of IEEE 603 for automatic removal of the block. However, this function does not employ an operating bypass permissive to prevent blocking the function; or actuating the function when the conditions are not met.

SCOPE/EXTENT OF DEPARTURE:

Changes are made to ensure compliance with IEEE 603 and to support normal plant operation needs, as follows:

1. Add a new permissive, P-8, to permit blocking the flux logic during reactor startup. (Prevents blocking of flux doubling below 551°F RCS temperature for reactor startup, 510°F is the minimum temperature for criticality)
2. Add logic that will cause the PMS to force CVS valves 136A and 136B closed if the flux doubling logic is blocked during shutdown conditions (< 551°F). (Actuation if flux doubling is bypassed below 551°F RCS temperature, which is one option from IEEE 603, the other is to prevent the blocking, and this design change actuates the function).

Departure Number: PTN DEP 7.3-1 (continued)

3. Include new permissive and actuation in Tech Specs, and describe the changes in Tier 2 information.

DEPARTURE JUSTIFICATION:

Preventing criticality from an inadvertent RCS dilution is the design function and the Source Range Neutron Flux doubling function is an input to it. Adding a permissive, as required by IEEE 603 -1991, for blocking this function when plant conditions require it to be active, prevents dilution water being added to the RCS. When blocked with an RCS temperature less than 551°F (Tech Spec minimum temperature for criticality), the demineralized water dilution valves are closed. This change satisfies IEEE 603 - 1991, Clause 6.6, and is consistent with accident analyses, as described in Chapter 19 and maintains reactor protection as required. This change provides protection from blocking the source range flux doubling signal when required for plant operation. Therefore, there are not any adverse effects on the design function.

Procedures currently provide guidance for operation of the flux doubling feature during plant operations and will continue to do so. Therefore, this is not an adverse change to procedures which control the Chemical and Volume Control System (CVS) during plant startup. This departure does not involve revising or replacing a described evaluation of methodology used for RCS inadvertent dilution. This change is consistent with the DCD analysis for inadvertent RCS dilution and does not affect any evaluation methodology. This activity does not involve a test or experiment not described in the plant-specific DCD, and is within the reference bounds of the design bases for preventing inadvertent dilution.

DEPARTURE EVALUATION:

This departure makes the changes stated above. The departure does not involve a significant reduction in the margin of safety and does not reduce the redundancy or diversity of any safety-related SSCs. Therefore, this departure does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD.
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety and previously evaluated in the plant-specific DCD.
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD.
4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD.

Departure Number: PTN DEP 7.3-1 (continued)

5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD.
6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD.
7. Result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered.
8. Result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses.

This departure does not affect resolution of a severe accident issue identified in the plant-specific DCD. Therefore, this departure has no safety significance.

NRC APPROVAL REQUIREMENT:

This departure requires an exemption from the requirements of 10 CFR Part 52, Appendix D, Section III.B, which requires compliance with generic Technical Specifications of the AP1000 DCD. Therefore, an exemption is requested in Part B of this COL Application Part.

B. Turkey Point Units 6 & 7 Exemption Requests

FPL requests the following exemptions:

Exemption Number	Description
B.5	Combustible Gas Control in Containment
B.6	Source Range Neutron Flux Doubling Block Permissive
B.7	Main Control Room Heatup
B.8	Containment Cooling Changes in regard to Passive Core Cooling System Condensate Return
B.9	Main Control Room Dose

Discussion and justification for each of these requests is provided in the following pages.

B.5) COMBUSTIBLE GAS CONTROL IN CONTAINMENT

Applicable Regulation(s): 10 CFR Part 52, Appendix D, Section III.B

Specific wording from which exemption is requested:

> "III. Scope and Contents
>
> B. An applicant or licensee referencing this appendix, in accordance with Section IV of this appendix, shall incorporate by reference and comply with the requirements of this appendix, including Tier 1, Tier 2 (including the investment protection short-term availability controls in Section 16.3 of the DCD), and the generic TS except as otherwise provided in this appendix. Conceptual design information in the generic DCD and the evaluation of severe accident mitigation design alternatives in appendix 1B of the generic DCD are not part of this appendix."

Pursuant to 10 CFR § 52.63(b)(1), an exemption from elements of the design as certified in the 10 CFR Part 52, Appendix D, design certification rule is requested for a plant-specific Tier 1 non-material departure from the AP1000 DCD for Tier 1 information. This exemption request is in accordance with the provisions of 10 CFR § 50.12, 10 CFR § 52.7, and 10 CFR Part 52, Appendix D.

Discussion:

The changes requested to Tier 1 Table 2.3.9-3 and associated Tier 2 changes to Subsections 6.2.4.5.1 and 19.41.7 provide a revised acceptance criteria for hydrogen venting inside containment, provide reasonable assurance that the facility has been constructed and will be operated in conformity with the applicable design criteria, codes and standards, and demonstrate acceptable Containment Hydrogen Control System performance during design basis scenarios.

Conclusion:

FPL evaluated this exemption request in accordance with 10 CFR Part 52, Appendix D, Section VIII.A.4, 10 CFR § 50.12, 10 CFR § 52.7 and 10 CFR § 52.63, which state that the NRC may grant exemptions from the requirements of the regulations provided the following six conditions are met: 1) the exemption is authorized by law [§ 50.12(a)(1)]; 2) the exemption will not present an undue risk to the health and safety of the public [§ 50.12(a)(1)]; 3) the exemption is consistent with the common defense and security [§ 50.12(a)(1)]; 4) special circumstances are present [§ 50.12(a)(2)]; 5) the special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption [§ 52.63(b)(1)]; and 6) the design change will not result in a significant decrease in the level of safety [Part 52, Appendix D,

VIII.A.4]. The requested exemption satisfies the criteria for granting specific exemptions, as described below.

1) This exemption is authorized by law

The NRC has authority under 10 CFR §§ 50.12, 52.7, and 52.63 to grant exemptions from the requirements of NRC regulations. Specifically, 10 CFR §§ 50.12 and 52.7 state that the NRC may grant exemptions from the requirements of 10 CFR Part 52 upon a proper showing. No law exists that would preclude the changes covered by this exemption request. Additionally, granting of the proposed exemption does not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations.

Accordingly, this requested exemption is “authorized by law,” as required by 10 CFR § 50.12(a)(1).

2) This exemption will not present an undue risk to the health and safety of the public

The proposed exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would allow changes to elements of the plant-specific Tier 1 DCD to depart from the AP1000 certified (Tier 1) design information. The plant-specific Tier 1 DCD will continue to reflect the approved licensing basis for the applicant, and will maintain a consistent level of detail with that which is currently provided elsewhere in Tier 1 of the plant-specific DCD. Because the change to the ITAAC acceptance criteria in Tier 1 Table 2.3.9-3 maintains the design margins of the Containment Hydrogen Control System, the changed acceptance criteria will ensure the protection of the health and safety of the public. Therefore, no adverse safety impact which would present any additional risk to the health and safety of the public is present. The affected Design Description in the plant-specific Tier 1 DCD will continue to provide the detail necessary to support the performance of the associated ITAAC.

Therefore, the requested exemption from 10 CFR 52, Appendix D, Section III.B would not present an undue risk to the health and safety of the public.

3) The exemption is consistent with the common defense and security

The exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would change elements of the plant-specific Tier 1 DCD by departing from the AP1000 certified (Tier 1) design information relating to the control of combustible gas inside containment. The exemption does not alter the design, function, or operation of any structures or plant equipment that are necessary to maintain a secure status of the plant. The proposed exemption has no impact on plant security or safeguards procedures.

Therefore, the requested exemption is consistent with the common defense and security.

4) Special circumstances are present

10 CFR § 50.12(a)(2) lists six “special circumstances” for which an exemption may be granted. Pursuant to the regulation, one of these special circumstances must be present in order for the NRC to consider granting an exemption request. The requested exemption meets the special circumstances of 10 CFR § 50.12(a)(2)(ii). That subsection defines special circumstances as when “Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.”

The rule under consideration in this request for exemption from Tier 1 Table 2.3.9-3 is 10 CFR 52, Appendix D, Section III.B, which requires that an applicant referencing the AP1000 Design Certification Rule (10 CFR Part 52, Appendix D) shall incorporate by reference and comply with the requirements of Appendix D, including Tier 1 information. The Turkey Point Units 6 and 7 COLA references the AP1000 Design Certification Rule and incorporates by reference the requirements of 10 CFR Part 52, Appendix D, including Tier 1 information. The underlying purpose of Appendix D, Section III.B is to describe and define the scope and contents of the AP1000 design certification, and to require compliance with the design certification information in Appendix D to maintain the level of safety in the design.

The proposed change to the ITAAC acceptance criteria for combustible gas control maintains the design margins of the Containment Hydrogen Control System. This change does not impact the ability of any structures, systems, or components to perform their functions or negatively impact safety. Accordingly, this exemption from the certification information in Tier 1 Subsection Table 2.3.9-3 will enable the applicant to safely construct and operate the AP1000 facility consistent with the design certified by the NRC in 10 CFR 52, Appendix D.

Therefore, special circumstances are present, because application of the current generic certified design information in Tier 1 as required by 10 CFR Part 52, Appendix D, Section III.B, in the particular circumstances discussed in this request is not necessary to achieve the underlying purpose of the rule.

5) The special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption

Based on the nature of the changes to the plant-specific Tier 1 information and the understanding that these changes support the design function of the Containment Hydrogen Control System, other AP1000 applicants and licensees will likely request this exemption. However, if this is not the case, the special circumstances continue to outweigh any decrease in safety from the reduction in standardization because the key design functions of the Containment Hydrogen Control System associated with this request will continue to be maintained. This exemption request and the associated marked-up Tier 1 Table 2.3.9-3 demonstrates that the Containment

Hydrogen Control System function continues to be maintained following implementation of the change from the generic AP1000 DCD, thereby minimizing the safety impact resulting from any reduction in standardization.

Therefore, the special circumstances associated with the requested exemption outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption. In fact, as described in Condition 6 below, the exemption will result in no reduction in the level of safety.

6) The design change will not result in a significant decrease in the level of safety.

The exemption revises the plant-specific DCD Tier 1 information by revising the acceptance criteria for an ITAAC in Table 2.3.9-3. There is no physical change to the plant associated with the change to the ITAAC acceptance criteria. Because the Containment Hydrogen Control System function is met, there is no reduction in the level of safety. Therefore, the change will not result in a significant decrease in the level of safety.

As demonstrated above, this exemption request satisfies NRC requirements for an exemption to the design certification rule for the AP1000 plant.

B.6) SOURCE RANGE NEUTRON FLUX DOUBLING BLOCK PERMISSIVE

Applicable Regulation(s): 10 CFR Part 52 Appendix D, Section III.B

Specific wording from which exemption is requested:

"III. Scope and Contents

B. An applicant or licensee referencing this appendix, in accordance with Section IV of this appendix, shall incorporate by reference and comply with the requirements of this appendix, including Tier 1, Tier 2 (including the investment protection short-term availability controls in Section 16.3 of the DCD), and the generic TS except as otherwise provided in this appendix. Conceptual design information in the generic DCD and the evaluation of severe accident mitigation design alternatives in appendix 1B of the generic DCD are not part of this appendix."

Pursuant to 10 CFR § 52.63(b)(1), an exemption from elements of the design as certified in the 10 CFR Part 52, Appendix D, design certification rule is requested from the AP1000 DCD for a departure from the generic TS. These material departures involve the addition of a permissive to the source range flux doubling function to prevent bypassing the CVS makeup isolation actuation upon a source range flux doubling to more effectively perform its design function and provide reactor protection as analyzed. The departures include a change to TS Table 3.3.2-1 which involves adding the P-8 permissive to the instrument Table. This exemption request is in accordance with the provisions of 10 CFR § 50.12, 10 CFR § 52.7, and 10 CFR Part 52, Appendix D.

Discussion:

The changes requested to Tier 2, to Figure 7.2-1 (Sheet 3 of 21), Subsection 7.3.1.2.14, Table 7.3-1 (Sheet 6 of 9), Table 7.3-1 (Sheet 7 of 9), Table 7.3.2 (Sheet 1 of 4), Subsection 9.3.6.3.7, Subsection 9.3.6.4.5.1, Subsection 9.3.6.7, Table 14.3-2 (Sheet 9 of 17), Table 14.3-2 (Sheet 12 of 17), Subsection 19E.2.7.2, Technical Specifications Table 3.3.2-1 (Page 9, 10 of 13), and Tech Spec Bases Sections B 3.3.1 and B 3.3.2, provide additional equipment and TS requirements, provide reasonable assurance that the facility has been constructed and will be operated in conformity with the applicable design criteria, codes and standards, and demonstrate acceptable performance during design basis scenarios and reactor startup.

Conclusion:

This exemption request is evaluated in accordance with 10 CFR Part 52, Appendix D, Section VIII.A.4, 10 CFR § 50.12, 10 CFR § 52.7 and 10 CFR § 52.63, which state that the NRC

may grant exemptions from the requirements of the regulations provided the following six conditions are met: 1) the exemption is authorized by law [§ 50.12(a)(1)]; 2) the exemption will not present an undue risk to the health and safety of the public [§ 50.12(a)(1)]; 3) the exemption is consistent with the common defense and security [§ 50.12(a)(1)]; 4) special circumstances are present [§ 50.12(a)(2)]; 5) the special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption [§ 52.63(b)(1)]; and 6) the design change will not result in a significant decrease in the level of safety [Part 52, Appendix D, VIII.A.1]. The requested exemption satisfies the criteria for granting specific exemptions, as described below.

1. This exemption is authorized by law.

The NRC has authority under 10 CFR §§ 50.12, 52.7, and 52.63 to grant exemptions from the requirements of NRC regulations. Specifically, 10 CFR §§ 50.12 and 52.7 state that the NRC may grant exemptions from the requirements of 10 CFR Part 52 upon a proper showing. No law exists that would preclude the changes covered by this exemption request. Additionally, granting of the proposed exemption does not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations.

Accordingly, this requested exemption is “authorized by law,” as required by 10 CFR § 50.12(a)(1).

2. This exemption will not present an undue risk to the health and safety of the public.

The proposed exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would allow changes to elements of the generic Technical Specifications to depart from the AP1000 certified (Tier 2) information. The plant-specific Tier 1 DCD will continue to reflect the approved licensing basis for the applicant, and will maintain a consistent level of detail with that which is currently provided elsewhere in Tier 1 of the plant-specific DCD. Because the change to the source range flux doubling function description maintains its design functions, the changed design will ensure the protection of the health and safety of the public. Therefore, no adverse safety impact which would present any additional risk to the health and safety of the public is present. The affected Design Description in the generic Technical Specifications will continue to provide the detail necessary to support the performance of the function requirements.

Therefore, the requested exemption from 10 CFR 52, Appendix D, Section III.B would not present an undue risk to the health and safety of the public.

3. The exemption is consistent with the common defense and security.

The exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would change elements of the generic Technical Specifications by departing from the AP1000 certified design

information relating to the flux doubling portion of the source ranges neutron flux and departing from the Tier 2 generic TS to include operability requirements of added plant equipment (P-8 permissive). The exemption does not alter the design, function, or operation of any structures or plant equipment that are necessary to maintain a safe and secure status of the plant. The proposed exemption has no impact on plant security or safeguards procedures. Therefore, the requested exemption is consistent with the common defense and security.

4. Special circumstances are present.

10 CFR § 50.12(a)(2) lists six “special circumstances” for which an exemption may be granted. Pursuant to the regulation, it is necessary for one of these special circumstances to be present in order for the NRC to consider granting an exemption request. The requested exemption meets the special circumstances of 10 CFR § 50.12(a)(2)(ii). That subsection defines special circumstances as when “Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.”

The rule under consideration in this request for exemption from Tier 2 generic TS is 10 CFR 52, Appendix D, Section III.B, which requires an applicant referencing the AP1000 Design Certification Rule (10 CFR Part 52, Appendix D) shall incorporate by reference and comply with the requirements of Appendix D, including Tier 1 information and generic TS. The Turkey Point Units 6 & 7 COLA references the AP1000 Design Certification Rule and incorporates by reference the requirements of 10 CFR Part 52, Appendix D, including Tier 1 information and generic TS. The underlying purpose of Appendix D, Section III.B, is to describe and define the scope and contents of the AP1000 design certification, and to require compliance with the design certification information in Appendix D to maintain the level of safety in the design.

The proposed changes to the source range neutron flux doubling function maintain the design margins. This change does not impact the ability of any structures, systems, or components to perform their functions or negatively impact safety. Accordingly, this exemption from the certification information in Tier 2 TS Table 3.3.2-1 will enable the applicant to safely construct and operate the AP1000 facility consistent with the design certified by the NRC in 10 CFR 52, Appendix D.

Therefore, special circumstances are present, because application of the generic TS as required by 10 CFR Part 52, Appendix D, Section III.B in the particular circumstances discussed in this request is not necessary to achieve the underlying purpose of the rule.

5. The special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption.

Based on the nature of the changes to the plant-specific Tier 2 and the generic TS and the understanding that these changes support the design function of the source range neutron flux doubling, it is likely that other AP1000 applicants and licensees will request this exemption. However, if this is not the case, the special circumstances continue to outweigh any decrease in safety from the reduction in standardization because the key design functions of the source range neutron flux doubling associated with this request will continue to be maintained. This exemption request and the associated TS marked-up tables demonstrate the source range neutron flux doubling function continues to be maintained following implementation of the change from the generic AP1000 DCD, thereby minimizing the safety impact resulting from any reduction in standardization.

Therefore, the special circumstances associated with the requested exemption outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption. In fact, as described in Condition 6, below, the exemption will result in no reduction in the level of safety.

6. The design change will not result in a significant decrease in the level of safety.

The exemption revises the generic Technical Specifications by adding components to TS Table 3.3.2-1. Because the Source Range neutron flux doubling design function is met, there is no reduction in the level of safety.

Therefore, the design change and associated change to the TS will not result in a significant decrease in the level of safety. As demonstrated above, this exemption request satisfies NRC requirements for an exemption to the design certification rule for the AP1000.

B.7) MAIN CONTROL ROOM HEATUP

Applicable Regulation(s): 10 CFR Part 52, Appendix D, Section III.B

Specific wording from which exemption is requested:

"III. Scope and Contents

B. An applicant or licensee referencing this appendix, in accordance with Section IV of this appendix, shall incorporate by reference and comply with the requirements of this appendix, including Tier 1, Tier 2 (including the investment protection short-term availability controls in Section 16.3 of the DCD), and the generic TS except as otherwise provided in this appendix. Conceptual design information in the generic DCD and the evaluation of severe accident mitigation design alternatives in appendix 1B of the generic DCD are not part of this appendix."

Pursuant to 10 CFR § 52.63(b)(1), an exemption from elements of the design as certified in the 10 CFR Part 52, Appendix D, design certification rule is requested for plant-specific Tier 1 departures from the AP1000 DCD for Tier 1 information and for material departures from the generic Technical Specification (TS).

Discussion:

The proposed changes are to Tier 1 Tables 2.2.5-1, 2.2.5-4, 2.5.2-3 and 2.5.2-4, and TS 3.3.2 and 3.7.6. These changes ensure the Main Control Room Emergency Habitability System (VES) design functions to: 1) maintain heat loads within the main control room envelope (MCRE) within design basis assumptions to limit the heat-up of the room, 2) ensure a 72-hour supply of breathable quality air for the occupants of the MCRE, 3) maintain the MCRE pressure boundary at a positive pressure with respect to the surrounding areas with a discharge of air through the main control room (MCR) vestibule, and 4) provide a passive recirculation flow of MCRE air to maintain MCR dose rates below an acceptable level during VES operation.

Conclusion:

FPL evaluated this exemption request in accordance with 10 CFR Part 52, Appendix D, Section VIII.A.4, 10 CFR § 50.12, 10 CFR § 52.7 and 10 CFR § 52.63, which state that the NRC may grant exemptions from the requirements of the regulations provided the following six conditions are met: 1) the exemption is authorized by law [§ 50.12(a)(1)]; 2) the exemption will not present an undue risk to the health and safety of the public [§ 50.12(a)(1)]; 3) the exemption is consistent with the common defense and security [§ 50.12(a)(1)]; 4) special circumstances are present [§ 50.12(a)(2)]; 5) the special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption [§ 52.63(b)(1)]; and 6) the

design change will not result in a significant decrease in the level of safety [Part 52, Appendix D, VIII.A.4]. The requested exemption satisfies the criteria for granting specific exemptions, as described below.

1. This exemption is authorized by law.

The NRC has authority under 10 CFR §§ 50.12, 52.7, and 52.63 to grant exemptions from the requirements of NRC regulations. Specifically, 10 CFR §§ 50.12 and 52.7 state that the NRC may grant exemptions from the requirements of 10 CFR Part 52 upon a proper showing. No law exists that would preclude the changes covered by this exemption request. Additionally, granting of the proposed exemption does not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations. Accordingly, this requested exemption is "authorized by law," as required by 10 CFR § 50.12(a)(1).

2. This exemption will not present an undue risk to the health and safety of the public.

The proposed exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would allow changes to elements of the plant-specific DCD Tier 1 design information and generic TS. The plant-specific Tier 1 DCD will continue to reflect the approved licensing basis for the applicant, and will maintain a consistent level of detail with that which is currently provided elsewhere in Tier 1 of the plant-specific DCD. Because the change to the VES system description and associated TS changes maintain VES design functions, the changed design will ensure the protection of the health and safety of the public.

Therefore, no adverse safety impact which would present any additional risk to the health and safety of the public is present. The affected Design Description in the plant-specific Tier 1 DCD will continue to provide the detail necessary to support the performance of the associated ITAAC. Therefore, the requested exemption from 10 CFR 52, Appendix D, Section III.B would not present an undue risk to the health and safety of the public.

3. The exemption is consistent with the common defense and security.

The exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would change elements of the plant-specific DCD Tier 1 design information relating to the operation of the VES and generic TS. The exemption does not alter the design, function, or operation of any structures or plant equipment that are necessary to maintain a secure status of the plant. The proposed exemption has no impact on plant security or safeguards procedures. Therefore, the requested exemption is consistent with the common defense and security.

4. Special circumstances are present.

10 CFR § 50.12(a)(2) lists six “special circumstances” for which an exemption may be granted. Pursuant to the regulation, it is necessary for one of these special circumstances to be present in order for the NRC to consider granting an exemption request. The requested exemption meets the special circumstances of 10 CFR§ 50.12(a)(2)(ii). That subsection defines special circumstances as when “Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.”

The rule under consideration in this request for exemption from Tier 1 subsections 2.2.5 and 2.5.2, and the generic TS is 10 CFR 52, Appendix D, Section III.B, which requires that an applicant referencing the AP1000 Design Certification Rule (10 CFR Part 52, Appendix D) shall incorporate by reference and comply with the requirements of Appendix D, including Tier 1 information and generic TS. The Turkey Point Units 6 and 7 COLA references the AP1000 Design Certification Rule and incorporates by reference the requirements of 10 CFR Part 52, Appendix D, including Tier 1 information and generic TS. The underlying purpose of Appendix D, Section III.B is to describe and define the scope and contents of the AP1000 design certification, and to require compliance with the design certification information in Appendix D to maintain the level of safety in the design.

The proposed changes maintain the design functions of the VES. This change does not impact the ability of any structures, systems, or components to perform their functions or negatively impact safety. Accordingly, this exemption from the certification information in Tier 1 subsections 2.2.5 and 2.5.2 and from generic TS will enable the applicant to safely construct and operate the AP1000 facility consistent with the design certified by the NRC in 10 CFR 52, Appendix D.

Therefore, special circumstances are present, because application of the current generic certified design information in Tier 1 and the generic TS as required by 10 CFR Part 52, Appendix D, Section III.B, in the particular circumstances discussed in this request is not necessary to achieve the underlying purpose of the rule.

5. The special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption.

Based on the nature of the changes to the plant-specific Tier 1 information and generic TS and the understanding that these changes support the design function of the VES, it is likely that other AP1000 applicants and licensees will request this exemption. However, if this is not the case, the special circumstances continue to outweigh any decrease in safety from the reduction in standardization because the key design functions of the VES associated with this request will continue to be maintained. This exemption request and the associated DCD and TS changes

demonstrate that the VES function continues to be maintained following implementation of the change from the generic AP1000 DCD, thereby minimizing the safety impact resulting from any reduction in standardization.

Therefore, the special circumstances associated with the requested exemption outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption. In fact, as described in Condition 6 below, the exemption will not result in a reduction in the level of safety.

6. The design change will not result in a significant decrease in the level of safety.

The exemption revises the plant-specific DCD Tier 1 information by enabling the VES to more effectively perform its design functions. This exemption also revises the generic TS to ensure equipment operability and temperature conditions are maintained. Because the VES design functions are met, there is no reduction in the level of safety.

Therefore, the design change and change to the TS will not result in a significant decrease in the level of safety.

As demonstrated above, this exemption request satisfies NRC requirements for an exemption to the design certification rule for the AP1000.

B.8) CONTAINMENT COOLING CHANGES IN REGARD TO PASSIVE CORE COOLING SYSTEM CONDENSATE RETURN

Applicable Regulation(s): 10 CFR Part 52 Appendix D, Section III.B

Specific wording from which exemption is requested:

> "III. Scope and Contents
>
> B. An applicant or licensee referencing this appendix, in accordance with Section IV of this appendix, shall incorporate by reference and comply with the requirements of this appendix, including Tier 1, Tier 2 (including the investment protection short-term availability controls in Section 16.3 of the DCD), and the generic TS except as otherwise provided in this appendix. Conceptual design information in the generic DCD and the evaluation of severe accident mitigation design alternatives in appendix 1B of the generic DCD are not part of this appendix."

Pursuant to 10 CFR § 52.63(b)(1), an exemption from elements of the design as certified in the 10 CFR Part 52, Appendix D, design certification rule is requested for plant-specific Tier 1 material departures from the AP1000 DCD for Tier 1 information and for a material departure from the generic Technical Specifications. These material departures are contained in Tier 1 Subsection 2.2.3, Tables 2.2.3-1 and 2.2.3-2, and involve the addition of components to the condensate return design to enable the Passive Core Cooling System to more effectively perform its design functions. The material departures also include a change to Technical Specifications Surveillance Requirement 3.5.4.7 which involves adding the downspout screens. This exemption request is in accordance with the provisions of 10 CFR § 50.12, 10 CFR § 52.7, and 10 CFR Part 52, Appendix D.

Discussion:

The changes requested to Tier 1 Table 2.2.3-1 and Table 2.2.3-2 and associated Tier 2 changes to Subsections 1.9.4.2.2 and 1.9.5.1.5, Table 3.2-3, Figure 3.8.2-1, Subsections 5.4.5.2.1, 5.4.11.2 and 5.4.14.1, Subsections 6.3.1.1.1, 6.3.1.1.4, 6.3.1.1.6, 6.3.1.2, 6.3.1.3, 6.3.2.1, 6.3.2.1.1, 6.3.2.2.5, 6.3.2.2.7, 6.3.2.8, 6.3.3, and 6.3.3.2.1.1 and Figures 6.3-1 and 6.3-2, Section 7.4, Subsection 7.4.1.1, Table 14.3-2, Subsections 15.0.3 and 15.2, Technical Specifications Surveillance Requirement 3.5.4.7, Technical Specifications Bases B 3.3.3 and B 3.5.4, Subsections 19E.2.3.2.6 and 19E.4.10.2, Table 19E.4.10-1, and Figures 19E.4.10-1 through 19E.4.10-4 provide additional equipment and surveillance requirements, provide reasonable assurance that the facility has been constructed and will be operated in conformity with the applicable design criteria, codes and standards, and demonstrate acceptable Passive Core Cooling System (PXS) system performance during design basis scenarios.

Conclusion:

This exemption request is evaluated in accordance with 10 CFR Part 52, Appendix D, Section VIII.A.4, 10 CFR § 50.12, 10 CFR § 52.7 and 10 CFR § 52.63, which state that the NRC may grant exemptions from the requirements of the regulations provided the following six conditions are met: 1) the exemption is authorized by law [§ 50.12(a)(1)]; 2) the exemption will not present an undue risk to the health and safety of the public [§ 50.12(a)(1)]; 3) the exemption is consistent with the common defense and security [§ 50.12(a)(1)]; 4) special circumstances are present [§ 50.12(a)(2)]; 5) the special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption [§ 52.63(b)(1)]; and 6) the design change will not result in a significant decrease in the level of safety [Part 52, Appendix D, VIII.A.1]. The requested exemption satisfies the criteria for granting specific exemptions, as described below.

1) This exemption is authorized by law

   The NRC has authority under 10 CFR §§ 50.12, 52.7, and 52.63 to grant exemptions from the requirements of NRC regulations. Specifically, 10 CFR §§ 50.12 and 52.7 state that the NRC may grant exemptions from the requirements of 10 CFR Part 52 with proper justification. No law exists that would preclude the changes covered by this exemption request. Additionally, granting of the proposed exemption does not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations.

   Accordingly, this requested exemption is "authorized by law," as required by 10 CFR § 50.12(a)(1).

2) This exemption will not present an undue risk to the health and safety of the public

   The proposed exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would allow changes to elements of the plant-specific Tier 1 DCD to depart from the AP1000 certified (Tier 1) design information and a change to a Technical Specifications Surveillance Requirement to depart from the AP1000 certified (Tier 2) information. The plant-specific Tier 1 DCD will continue to reflect the approved licensing basis for the applicant, and will maintain a consistent level of detail with that which is currently provided elsewhere in Tier 1 of the plant-specific DCD. Because the change to the condensate return portion of the passive core cooling system description maintains its design functions, the changed design will ensure the protection of the health and safety of the public. Therefore, no adverse safety impact which would present any additional risk to the health and safety is present. The affected Design Description in the plant-specific Tier 1 DCD will continue to provide the detail necessary to support the performance of the associated ITAAC.

Therefore, the requested exemption from 10 CFR 52, Appendix D, Section III.B would not present an undue risk to the health and safety of the public.

3) The exemption is consistent with the common defense and security

The exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would change elements of the plant-specific Tier 1 DCD by departing from the AP1000 certified (Tier 1) design information relating to the condensate return portion of the passive core cooling system and departing from the Tier 2 generic Technical Specifications to include surveillance of added plant equipment. The exemption does not alter the design, function, or operation of any structures or plant equipment that are necessary to maintain a safe and secure status of the plant. The proposed exemption has no impact on plant security or safeguards procedures.

Therefore, the requested exemption is consistent with the common defense and security.

4) Special circumstances are present

10 CFR § 50.12(a)(2) lists six “special circumstances” for which an exemption may be granted. Pursuant to the regulation, it is necessary for one of these special circumstances to be present in order for the NRC to consider granting an exemption request. The requested exemption meets the special circumstances of 10 CFR § 50.12(a)(2)(ii). That Subsection defines special circumstances as when “Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.”

The rule under consideration in this request for exemption from Tier 1 Subsection 2.2.3, Tables 2.2.3-1 and 2.2.3-2, and the Tier 2 generic Technical Specifications is 10 CFR 52, Appendix D, Section III.B, which requires that an applicant referencing the AP1000 Design Certification Rule (10 CFR Part 52, Appendix D) shall incorporate by reference and comply with the requirements of Appendix D, including Tier 1 information and generic Technical Specifications. The Turkey Point Units 6 and 7 COLA references the AP1000 Design Certification Rule and incorporates by reference the requirements of 10 CFR Part 52, Appendix D, including Tier 1 information and generic Technical Specifications. The underlying purpose of Appendix D, Section III.B is to describe and define the scope and contents of the AP1000 design certification, and to require compliance with the design certification information in Appendix D to maintain the level of safety in the design.

The proposed changes to the condensate return portion of the passive core cooling system maintain the design margins of the Passive Core Cooling System. This change does not impact the ability of any structures, systems, or components to perform their functions or

negatively impact safety. Accordingly, this exemption from the certification information in Tier 1 Subsection 2.2.3, Tables 2.2.3-1 and 2.2.3-2, and Technical Specifications Surveillance Requirement 3.5.4.7 will enable the applicant to safely construct and operate the AP1000 facility consistent with the design certified by the NRC in 10 CFR 52, Appendix D.

Therefore, special circumstances are present, because application of the current generic certified design information in Tier 1 and the generic Technical Specification as required by 10 CFR Part 52, Appendix D, Section III.B, in the particular circumstances discussed in this request is not necessary to achieve the underlying purpose of the rule.

5) The special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption

Based on the nature of the changes to the plant-specific Tier 1 information and Tier 2 generic Technical Specifications and the understanding that these changes support the design function of the Passive Core Cooling System, it is likely that other AP1000 applicants and licensees will request this exemption. However, if this is not the case, the special circumstances continue to outweigh any decrease in safety from the reduction in standardization because the key design functions of the Passive Core Cooling System associated with this request will continue to be maintained. This exemption request and the associated marked-up tables and Technical Specifications Surveillance Requirements demonstrate that the Passive Core Cooling System function continues to be maintained following implementation of the change from the generic AP1000 DCD, thereby minimizing the safety impact resulting from any reduction in standardization.

Therefore, the special circumstances associated with the requested exemption outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption. In fact, as described in Condition 6 below, the exemption will result in no reduction in the level of safety.

6) The design change will not result in a significant decrease in the level of safety.

The exemption revises the plant-specific DCD Tier 1 information by adding components to Subsection 2.2.3, Tables 2.2.3-1 and 2.2.3-2, which were added to the condensate return design to enable the Passive Core Cooling System to more effectively perform its design functions. This exemption also revises the generic Technical Specifications Surveillance Requirement 3.5.4.7 to add the downspout screens to the surveillance. Because the Passive Core Cooling System design functions are met, there is no reduction in the level of safety.

Therefore, the design change and associated change to the Technical Specifications will not result in a significant decrease in the level of safety.

As demonstrated above, this exemption request satisfies NRC requirements for an exemption to the design certification rule for the AP1000.

B.9) MAIN CONTROL ROOM DOSE

Applicable Regulation(s): 10 CFR Part 52, Appendix D, Section III.B

Specific wording from which exemption is requested:

> "III. Scope and Contents
>
> B. An applicant or licensee referencing this appendix, in accordance with Section IV of this appendix, shall incorporate by reference and comply with the requirements of this appendix, including Tier 1, Tier 2 (including the investment protection short-term availability controls in Section 16.3 of the DCD), and the generic TS except as otherwise provided in this appendix. Conceptual design information in the generic DCD and the evaluation of severe accident mitigation design alternatives in appendix 1B of the generic DCD are not part of this appendix."

Pursuant to 10 CFR § 52.63(b)(1), an exemption from elements of the design as certified in the 10 CFR Part 52, Appendix D, design certification rule is requested for plant-specific Tier 1 departures from the AP1000 DCD for Tier 1 information and for a material departure from the generic TS. The Tier 1 departures are contained in Tier 1 Subsection 2.7.1 involving the revision of main control room emergency habitability system (VES) actuation signal name, and Tier 1 Subsection 2.2.5, Tier 1 Tables 2.2.5-1 and 2.2.5-5 involving the addition of VES filter shielding. The departures also include a change to TS LCO 3.7.4 and TS SR 3.7.4.1 which involves lowering allowable secondary iodine activity. This exemption request is in accordance with the provisions of 10 CFR § 50.12, 10 CFR § 52.7, and 10 CFR Part 52, Appendix D.

Discussion:

The changes requested to Tier 1 Subsections 2.7.1 and 2.2.5, Tier 1 Tables 2.2.5-1 and 2.2.5-5, TS LCO 3.7.4 and TS SR 3.7.4.1 provide reasonable assurance that the facility has been constructed and will be operated in conformity with the applicable design criteria, codes and standards, and demonstrate acceptable main control room operator dose during design basis scenarios.

Conclusion:

This exemption request is evaluated in accordance with 10 CFR Part 52, Appendix D, Section VIII.A.4, 10 CFR § 50.12, 10 CFR § 52.7 and 10 CFR § 52.63, which state that the NRC may grant exemptions from the requirements of the regulations provided the following six conditions are met: 1) the exemption is authorized by law [§ 50.12(a)(1)]; 2) the exemption will not present an undue risk to the health and safety of the public [§ 50.12(a)(1)]; 3) the exemption is consistent with the common defense and security [§ 50.12(a)(1)]; 4) special circumstances are

present [§ 50.12(a)(2)]; 5) the special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption [§ 52.63(b)(1)]; and 6) the design change will not result in a significant decrease in the level of safety [Part 52, Appendix D, VIII.A.1]. The requested exemption satisfies the criteria for granting specific exemptions, as described below.

1) This exemption is authorized by law.

   The NRC has authority under 10 CFR §§ 50.12, 52.7, and 52.63 to grant exemptions from the requirements of NRC regulations. Specifically, 10 CFR §§ 50.12 and 52.7 state that the NRC may grant exemptions from the requirements of 10 CFR Part 52 upon a proper showing. No law exists that would preclude the changes covered by this exemption request. Additionally, granting of the proposed exemption does not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations.

   Accordingly, this requested exemption is “authorized by law,” as required by 10 CFR § 50.12(a)(1).

2) This exemption will not present an undue risk to the health and safety of the public.

   The proposed exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would allow changes to elements of the plant-specific Tier 1 DCD to depart from the AP1000 certified (Tier 1) design information and a change to a TS LCO and SR to depart from the AP1000 certified (Tier 2) information. The plant-specific Tier 1 DCD will continue to reflect the approved licensing basis for the applicant, and will maintain a consistent level of detail with that which is currently provided elsewhere in Tier 1 of the plant-specific DCD. Because the change maintains the capability of the Main Control Room Emergency Habitability System and Nuclear Island Nonradioactive Ventilation System to perform their design functions, the changed design will ensure the protection of the health and safety of the public. Therefore, no adverse safety impact which would present any additional risk to the health and safety is present.

   Therefore, the requested exemption from 10 CFR 52, Appendix D, Section III.B would not present an undue risk to the health and safety of the public.

3) The exemption is consistent with the common defense and security.

   The exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would change elements of the plant-specific Tier 1 DCD by departing from the AP1000 certified (Tier 1) design information relating to the Nuclear Island Nonradioactive Ventilation System and VES shielding and by departing from the generic TS to lower the allowable secondary iodine

activity. The exemption does not alter the design, function, or operation of any structures or plant equipment that are necessary to maintain a safe and secure status of the plant. The proposed exemption has no impact on plant security or safeguards procedures.

Therefore, the requested exemption is consistent with the common defense and security.

4) Special circumstances are present.

10 CFR § 50.12(a)(2) lists six “special circumstances” for which an exemption may be granted. Pursuant to the regulation, it is necessary for one of these special circumstances to be present in order for the NRC to consider granting an exemption request. The requested exemption meets the special circumstances of 10 CFR § 50.12(a)(2)(ii). That subsection defines special circumstances as when “Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.”

The rule under consideration in this request for exemption from Tier 1 Subsections 2.7.1 and 2.2.5, Tier 1 Tables 2.2.5-1 and 2.2.5-5 and the generic TS is 10 CFR 52, Appendix D, Section III.B, which requires that an applicant referencing the AP1000 Design Certification Rule (10 CFR Part 52, Appendix D) shall incorporate by reference and comply with the requirements of Appendix D, including Tier 1 information and generic TS. The Turkey Point Units 6 & 7 COLA references the AP1000 Design Certification Rule and incorporates by reference the requirements of 10 CFR Part 52, Appendix D, including Tier 1 information and generic TS. The underlying purpose of Appendix D, Section III.B is to describe and define the scope and contents of the AP1000 design certification, and to require compliance with the design certification information in Appendix D to maintain the level of safety in the design.

The proposed change to the name of the actuation signal does not impact the design functions of the Nuclear Island Nonradioactive Ventilation System. The proposed change to add the VES shielding to the Tier 1 VES design description maintains the design functions of the VES. These changes do not impact the ability of any structures, systems, or components to perform their functions or negatively impact safety. Accordingly, this exemption from the certification information in Tier 1 Subsections 2.7.1 and 2.2.5, Tier 1 Tables 2.2.5-1 and 2.2.5-5, TS LCO 3.7.4 and TS SR 3.7.4.1 will enable the applicant to safely construct and operate the AP1000 facility consistent with the design certified by the NRC in 10 CFR 52, Appendix D.

Therefore, special circumstances are present, because application of the current generic certified design information in Tier 1 and the generic TS as required by 10 CFR Part 52, Appendix D, Section III.B, in the particular circumstances discussed in this request is not necessary to achieve the underlying purpose of the rule.

5) The special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption.

   Based on the nature of the changes to the plant-specific Tier 1 information and generic TS and the understanding that these changes support the design function of the Main Control Room Emergency Habitability System and Nuclear Island Nonradioactive Ventilation System and establish limits for the specific activity in the secondary system, it is likely that other AP1000 applicants and licensees will request this exemption. However, if this is not the case, the special circumstances continue to outweigh any decrease in safety from the reduction in standardization because the key design functions of the Main Control Room Emergency Habitability System and Nuclear Island Nonradioactive Ventilation System associated with this request will be maintained with the implementation of these changes. This exemption request and the associated TS LCO and TS SR changes demonstrate that the Main Control Room Emergency Habitability System and Nuclear Island Nonradioactive Ventilation System functions continue to be maintained following implementation of the change from the generic AP1000 DCD, thereby minimizing the safety impact resulting from any reduction in standardization.

   Therefore, the special circumstances associated with the requested exemption outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption. In fact, as described in condition 6 below, the exemption will result in no reduction in the level of safety.

6) The design change will not result in a significant decrease in the level of safety.

   The exemption revises the plant-specific DCD Tier 1 information by adding a shielding design function to Subsection 2.2.5 and by changing the name of the actuation signal (High-2) for isolating the main control room penetrations in Subsection 2.7.1. This change does not alter the ability of the Main Control Room Emergency Habitability System or Nuclear Island Nonradioactive Ventilation System to maintain their design functions. This exemption also revises the generic TS LCO 3.7.4 and TS SR 3.7.4.1 to lower the allowable secondary iodine activity. Because these functions are met, there is no reduction in the level of safety.

   Therefore, the design and TS changes will not result in a significant decrease in the level of safety.

   As demonstrated above, this exemption request satisfies NRC requirements for an exemption to the design certification rule for the AP1000 design