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Virgil C. Summer Nuclear Station (VCSNS) Units 2 and 3
Combined License Nos. NPF-93 and NPF-94
Docket Nos. 52-027 & 52-028

Subject: LAR 13-32 Request for License Amendment and Exemption: Liquid
Radwaste System Consistency Changes

Reference: 1. Southern Nuclear Operating Company, Vogtle Electric Generating
Plant Units 3 and 4 Request for License Amendment and Exemption
Liquid Radwaste System Consistency Changes (LAR-13-015) dated
August 6, 2013.

In accordance with the provisions of 10 CFR 50.90, South Carolina Electric & Gas Company (SCE&G) requests an amendment to the Virgil C. Summer Nuclear Station (VCSNS) Units 2 and 3 combined licenses (COLs) (License Nos. NPF-93 and NPF-94, respectively). This amendment request proposes to depart from certified AP1000 Design Control Document (DCD) Tier 1 material, and to revise the associated material included in Appendix C of the VCSNS Units 2 and 3 COLs. The proposed amendment would also depart from associated DCD Tier 2 material previously incorporated into the VCSNS Units 2 and 3 Updated Final Safety Analysis Report (UFSAR). The proposed amendment would allow changes to information relevant to the Liquid Radwaste System to align Tier 1 with Tier 2 material and promote consistency within Tier 1 material. Because this impacts Tier 1 of the Plant-Specific DCD and Appendix C of the COL, this activity has been determined to require prior NRC approval. Also, because the change requires a departure from Tier 1 information, an exemption is requested from the requirements of the Generic DCD Tier 1 in accordance with 52.63(b)(1).

The Description, Technical Evaluation, Regulatory Evaluation (including Significant Hazards Consideration), and Environmental Considerations for the proposed changes in the License Amendment Request (LAR) are contained in Enclosure 1 to this letter. Further justification for the associated exemption request is provided in Enclosure 2 to this letter. The proposed markups depicting the requested changes to Tier 1, COL Appendix C, and the UFSAR are contained in Enclosure 3 to this letter. This proposed change is consistent and identical in technical content with the License Amendment Request requested by Southern Nuclear Operating Company identified in Reference 1.

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In order to support the VCSNS Unit 2 construction schedule, SCE&G requests NRC staff review and approval of the license amendment by November 4, 2013. This license amendment will be implemented by SCE&G within 30 days of approval.

In accordance with 10 CFR 50.91, SCE&G is notifying the State of South Carolina of this LAR by transmitting a copy of this letter and enclosures to the designated State Official.

This letter contains no regulatory commitments.

Should you have any questions, please contact Ms. April R. Rice by telephone at (803) 941-9858, or by email at arice@scana.com.

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

Executed on this 30 day of August, 2013.

Sincerely,



Alfred M. Paglia
Manger, Nuclear Licensing
New Nuclear Deployment

JGE/AMP/jge

- Enclosure 1: Virgil C. Summer Nuclear Station Units 2 and 3 – Request for License Amendment Regarding Liquid Radwaste System Consistency Changes (LAR-13-032)
- Enclosure 2: Virgil C. Summer Nuclear Station Units 2 and 3 – Exemption Request Regarding Liquid Radwaste System Consistency Changes
- Enclosure 3: Virgil C. Summer Nuclear Station Units 2 and 3 – Licensing Basis Documents Proposed Changes

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South Carolina Electric & Company

V. C. Summer Units 2 and 3

NND-13-0476

Enclosure 1

Request for License Amendment

Regarding

Liquid Radwaste System Consistency Changes

(LAR 13-32)

(14 Pages)

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Pursuant to 10 CFR 50.90, South Carolina Electric & Gas Company (SCE&G) hereby requests an amendment to Combined License (COL) Numbers NPF-93 and NPF-94 for the V.C. Summer Nuclear Station Units 2 and 3, respectively.

1. Summary Description

The proposed change would depart from the plant-specific Design Control Document (DCD) by making changes to the plant-specific Tier 1 and Combined License (COL) Appendix C description of the Liquid Radwaste System (WLS) by:

- 1) Changing the safety classification of the Passive Core Cooling System (PXS) and Chemical and Volume Control System (CVS) compartment drain hubs and the associated WLS drain function.
- 2) Changing the connection type from the PXS Compartments drains A and B to a header in order to match the Updated Final Safety Analysis Report (UFSAR) described design.
- 3) Changing the valve type for three valves in the Tier 1 figure to conform to design described in the UFSAR.
- 4) Changing the depiction of Tier 1 WLS valves to conform to Tier 1 figure conventions.

The proposed changes also require changes to information in the UFSAR. This enclosure requests approval of the license amendment necessary to implement these changes.

2. Detailed Description and Technical Evaluation

As discussed in UFSAR Section 11.2, the WLS is designed to control, collect, process, handle, store, and dispose of liquid radioactive waste generated as the result of normal operation, including anticipated operational occurrences. Furthermore, the UFSAR currently states the WLS serves three safety-related functions:

- Containment isolation
- Draining the passive core cooling system compartments to the containment sump to prevent flooding of these compartments and possible immersion of safety-related components.
- Back flow prevention check valves in the drain lines from the CVS compartment and the PXS compartments to the containment sump, which prevent cross flooding of these compartments. Each drain line has two check valves in series so that a single failure does not compromise the back flow prevention safety function.

The WLS is depicted in UFSAR Figures 11.2-1 and 11.2-2, and Tier 1 Figure 2.3.10-1.

2.1 PXS and CVS Compartment Drain Hub Classification

Detailed Description

The proposed change will clarify the safety classification of the drain hubs that are connected to the drain lines of the CVS compartment (Room 11209) and the PXS A and B compartments (Rooms 11206 and 11207, respectively) inside containment. This change also requires a change to the WLS system description to remove the safety function of compartment draining.

The safety classification break is specifically identified on Figure 11.2-2 (Sheet 1) at the downstream side of the second of two WLS check valves from each of the three compartment drains. The compartment drain hubs are located on the upstream side of the first of the two check valves and since there is no identification of the safety classification break between the drain hubs and the first check valves, the drain hubs could be interpreted as having the same safety classification as the drain piping and check valves. This is not consistent with the intended design in that the compartment drain hubs perform no safety-related function.

The AP1000 assignment of safety-related classifications, which is described in UFSAR Subsection 3.2.2, conforms to the requirements of 10 CFR 50.55a. This classification system provides an easily recognizable means of identifying the extent to which structures, systems, and components are related to industry and regulatory quality groups. UFSAR Table 3.2-1 provides a comparison of the AP1000 code classification letters and other safety classifications.

Table 1

<u>Plant-Specific Changes</u>	<u>Description of Proposed Change</u>
Tier 1 and COL App. C Figure 2.3.10-1	Add safety class break from AP1000 Class C to Non-Nuclear Safety (NNS) between the CVS and PXS compartment drain hubs and the drain lines by adding the drawing symbol "N/3" to indicate the drain hubs are nonsafety-related while the drain piping to the downstream side of the second check valve remains ASME Section III, Class 3.
UFSAR Table 3.2-3	Add entry for WLS floor drain hubs to indicate safety class.
UFSAR Subsection 11.2.1.1	Remove bullet describing draining the PXS compartments as a safety-related function.
UFSAR Figure 11.2-2 (Sheet 1)	Indicate safety class break from NNS (AP1000 Class D) to AP1000 Class C (ASME Section III, Class 3) between the CVS and PXS compartment drain hubs and drain lines along with a corresponding note.

Plant-Specific Changes

Description of Proposed Change

UFSAR Subsection 14.2.9.3.1 Remove bullet describing draining the PXS compartments as a safety-related function.

Technical Evaluation

The WLS contains drain lines from the PXS and CVS compartments within containment. These drain lines serve the function of draining the PXS compartments during operation to assist in overall floor drain collection, and for leakage detection of the Reactor Coolant Pressure Boundary (RCPB). Within each drain line are two safety-related check valves and piping, which perform the safety-related function of preventing cross flooding of the PXS and CVS compartments.

Currently, there is an inconsistency between the Tier 1 design description and UFSAR Subsections 11.2.1.1 and 14.2.9.3.1, which state that draining of the PXS compartments is a safety-related function. While the WLS does perform this function, it is incorrectly categorized as a safety-related function. Tier 1 Subsection 2.3.10 Item 6 does not identify this as a safety-related function. Analyses performed for these systems for Revision 19 of the AP1000 DCD support the determination that this is not a safety-related function. This is reflected in UFSAR Subsection 3.4.1.2.2.1 which states:

The total flood-up of either the PXS-A or PXS-B compartments from any source of water is acceptable and does not prevent the passive core cooling system from performing its required safe shutdown function.

The same discussion goes on to state:

When the flooding rate exceeds the ability of the floor drain lines to drain the water from the compartment, or in the event that the floor drain line is blocked, the water level in that compartment increases to the entrance curb elevation.

Should the flooding continue, the water overflows from that compartment to the maintenance floor at elevation 107'-2". The water overflowing to this level would immediately drain to the reactor coolant system compartment via the vertical access tunnel. There is no curb at the entrance to the vertical access tunnel; therefore, water on the maintenance floor (elevation 107'-2") flows freely into the reactor coolant system compartment. For LOCA events, flooding via this path continues to a level above the reactor coolant system cold legs.

This is further acknowledged by the containment flood-up level calculation which does not take into account any draining of the PXS compartments. Therefore, based on the calculation and the description provided elsewhere in the UFSAR, this function should not be categorized as safety-related.

With the function not considered safety-related, ANS 51.1 (1983) provides criteria for class breaks between Safety Class 2 or 3 components and nonsafety-related components. In accordance with the ANS 51.1 criteria, the class breaks between the drain hubs and drain piping do not impact the drain lines safety function to prevent back flow to the PXS and CVS compartments.

The proposed change will clarify that the drain hubs are nonsafety-related (Class D/NNS) and that the drain hubs are also the interface with the safety-related drain line (Class C/ASME III Class 3). The class break from non-nuclear safety (Class D/NNS) equipment to ASME III, Class 3 (Class C) piping is consistent with ANS 51.1 (1983 Edition), Section 3.3.2.1, Case 6, Subpart d, includes the following guidance:

From SC [Safety Class]-2 or SC-3 piping totally inside or outside the primary containment and not connected to the RCPB [reactor coolant pressure boundary] to any less stringent class, the interface is at the connection of the less stringent class equipment to the more stringent class equipment if failure of the less stringent class does not result in the loss of nuclear safety or an accident.

For the CVS and PXS compartments, connecting the nonsafety-related drain hubs to safety class piping is acceptable because a postulated failure of the drain hubs would not impact the safety function of the Class 3/Class C piping. The two check valves would remain functional, and would maintain the backflow prevention capability in each line. In addition, failure of these drain hubs would not directly cause an accident. Therefore, changing the safety designation of the drain hubs to nonsafety-related would not have an adverse impact on the safety-related functions of the WLS.

Furthermore, the removal of this safety function does not impact the condensate return analysis performed since the drain hubs were not credited in the analysis. Leak before break (LBB) capabilities are not impacted by this change as well. As stated within Section 5.2.5 of the UFSAR, the leak before break system is "nonsafety." If a seismic event was to occur, and the drain hubs were to fail, fluid will still be able to trickle down the drain hubs and into the safety related piping. The leakage will then drain into the lower room below the compartments. This is possible due to the safety piping that exists up to the end of the check valves which exist on each of these lines. Thus, the leakages will still be able to be detected through the use of the seismic category I level instruments

2.2 PXS Compartment Drain Piping Connection

Detailed Description

The proposed change would revise Tier 1, and the corresponding COL Appendix C, Figure 2.3.10-1 to conform to the design described in the UFSAR, in which the lines from the PXS compartment drains are hard-piped to the containment sump. Currently, Tier 1 Figure 2.3.10-1 depicts a piping separation between the drain lines from PXS Compartments A and B to the WLS sump. This connection is depicted as hard-piped on corresponding UFSAR Figure 11.2-2 (Sheet 1 of 8) and in the design documentation that was in effect when the AP1000 design was

certified (i.e., AP1000 DCD Revision 19).

Table 2

<u>Plant-Specific Changes</u>	<u>Description of Proposed Change</u>
Tier 1 and COL App. C Figure 2.3.10-1	Change the connection between PXS Compartments A and B to indicate a hard piped connection into the containment sump.

Technical Evaluation

This change is proposed to align the Tier 1, and COL Appendix C, figure with the previously approved DCD Tier 2 material. Having a hard-piped connection instead of an open funnel maintains the function of providing a drainage pathway from the PXS compartments. The piping downstream of the check valves is designated NNS as depicted in the above referenced Tier 1 and Tier 2 figures. The same codes and standards are maintained for the piping. Therefore, the change is acceptable because all functions are still maintained by the piping change.

2.3 WLS Valve Types

Detailed Description

Tier 1, and COL Appendix C, Figure 2.3.10-1 depicts three valves (WLS-PL-V055, WLS-PL-V057, and WLS-PL-V223) as diaphragm valves. Two of these valves are containment isolation valves, and are also shown as diaphragm valves in Tier 2 Figure 11.2-1. However, this is inconsistent with other portions of the licensing and design bases, which identify these three valves as plug valves. The proposed change would change the three valves from diaphragm valves to instead utilize plug valves. The proposed change would also revise Tier 1 Figure 2.3.10-1 and UFSAR (Tier 2) Figure 11.2-1 to depict the correct type of valve consistent with the other Tier 2 figure information.

Table 3

<u>Plant-Specific Changes</u>	<u>Description of Proposed Change</u>
Tier 1 and COL App C Figure 2.3.10-1	Change valve symbols for three diaphragm valves to plug valves. Note: Section 2.4 proposes a further change to use the Valve Symbols from Tier 1 Section 1.3.
UFSAR Figure 11.2-1	Revise two containment isolation valves near Containment Sump to indicate plug valves instead of diaphragm valves. (Consistent with Figure 11.2-2 Sheet 1)

Technical Evaluation

UFSAR Figure 11.2-2 (Sheets 1 through 8) provides a more detailed Piping and Instrumentation Diagram than those found in Tier 1 Figure 2.3.10-1 and UFSAR Figure 11.2-1. The two containment isolation valves, WLS-PL-V055 and WLS-PL-V057, located between the containment sump and the waste holdup tanks, are Class B valves which are necessary to achieve the safety-related containment isolation function. These valves are correctly depicted in UFSAR Figure 11.2-2 Sheet 1 as plug valves. UFSAR Figure 3.9-16 further identifies these valves as "Remote AO Plug" type valves. Thus, for consistency with these UFSAR figures and tables, it is proposed that these valves be changed in Tier 1 and Figure 11.2-1 to plug valves.

WLS-PL-V223 is the other valve identified in Tier 1 Figure 2.3.10-1 as a diaphragm valve and shown in UFSAR Figure 11.2-2 Sheet 8 as a plug valve. The purpose of Tier 1 Figure 2.3.10-1 is to show the functional arrangement of WLS. Valve WLS-PL-V223 does not perform any safety-related function, and changing the type of valve does not change the functionality of the system. Thus, changing WLS-PL-V223 from a diaphragm valve to a plug valve, will maintain consistency with the design described in the UFSAR without adversely impacting the design function of the WLS.

These three valves are designed, constructed, and tested in accordance with the same codes and standards identified in UFSAR Table 3.2-3. The valves will continue to perform their design function described in the UFSAR without any adverse effects. Therefore, the use of plug valves is appropriate and aligns the Tier 1 information to be consistent with the Tier 2 material.

Section 2.4 proposes further changes to the depiction of these valves in Tier 1.

2.4 WLS Figure Consistency

Detailed Description

The proposed change is to make the Tier 1 and corresponding COL Appendix C Figure 2.3.10-1 consistent with the Figure Legend in Tier 1 Section 1.3. Two valves (CVS-PL-V045, CVS-PL-V047) identified in Tier 1 Figure 2.3.10-1 conform to the UFSAR figures and design documentation, but are depicted using symbols that are different from those provided in the figure legend in Tier 1 Section 1.3. Thus, a change is proposed to alter the representation of the valves to use the generic valve depictions for consistency with the remainder of Tier 1.

It is also proposed to change the symbols for the valves identified in Section 2.3 (WLS-PL-V055, WLS-PL-V057, and WLS-PL-V223) to the generic valve symbol, consistent with Tier 1 Figure Legend. In addition to this change, it is proposed to add the valve tag numbers to Tier 1 Figure 2.3.10-1.

Along with this activity, Tier 1 Section 1.3, Figure Legend, states that components that are part of the system functional arrangement shown on Tier 1 figures but not

included in the system design commitments should be shown with dashed lines. Consistent with this approach, it is proposed that components (valves, filters) not discussed in the Design Commitment portion of Tier 1, and COL Appendix C, Table 2.3.10-4 be depicted with dashed lines.

Table 4

<u>Plant-Specific Changes</u>	<u>Description of Proposed Change</u>
Tier 1 and COL App. C Figure 2.3.10-1	Alter valve symbols and label valves CVS-PL-V045, CVS-PL-V047, WLS-PL-V055, and WLS-PL-V057 to match Tier 1 Figure Legend. Alter valve symbol for WLS-PL-V223 to match Tier 1 Figure Legend.
	Revise remaining symbols not addressed in Design Commitments to use dashed lines consistent with Section 1.3

Technical Evaluation

This change is proposed for consistency with the Tier 1 Figure Legend and does not involve any actual design change. The proposed valve symbol components are the same design as those displayed in Tier 2 information. The purpose of the Tier 1 figures is to show the functional arrangement of the WLS. These proposed changes do not affect the functional arrangement of the WLS. Thus, this change is editorial in nature for consistency with the balance of Tier 1 information. The proposed change to use the dashed lines to indicate the component not included in the design commitment is consistent with the current use of the dashed lines on this figure. Because this is only an editorial figure change and not a design change, there is no impact on any safety analyses, specifications, or design functions. There is also no change to any procedures or methods of control.

Based on the above discussion, the proposed changes do not affect the prevention and mitigation of accidents or their safety analyses. No safety-related function is adversely affected by this activity. The proposed changes do not involve or interface with any system, structure, or component (SSC) accident initiator or initiating sequence of events, and thus the probabilities of the accidents evaluated in the UFSAR are not affected. The proposed changes do not affect the radiological source terms (i.e., amounts and types of radioactive materials released, their release rates and release durations) used in the accident analyses, thus the consequences of accidents are not affected.

The changes to the affected drain hubs, drain lines, and components do not adversely affect any safety-related equipment or a fission product barrier. The drain lines continue to provide the drainage pathway from the compartments to the containment sump, and to provide backflow prevention from a potentially rising containment water level. The proposed changes will not adversely affect the ability of the affected valves to perform their design functions. The changes do not result in a new failure mode, malfunction, or sequence of events that could affect a

radioactive material barrier or safety-related equipment. The activity does not allow for a new fission product release path, result in a new fission product barrier failure mode, or create a new sequence of events that would result in significant fuel cladding failures.

The activity does not affect equipment whose failure could initiate an accident. The drains do not affect other safety-related equipment or a radioactive material barrier. Thus, no new failure is introduced, and no analysis is adversely affected. The proposed changes do not affect any other safety-related equipment, design code limit allowable value, any safety-related function or design analysis, nor do they affect any safety analysis input or result, or design/safety margin.

The proposed changes associated with this license amendment request do not affect the containment, control, channeling, monitoring, processing or releasing of radioactive and non-radioactive materials. No effluent release path is affected. The types and quantities of expected effluents are not changed. Therefore, radioactive or non-radioactive material effluents would not be affected.

Plant radiation zones (as described in UFSAR Section 12.3), controls under 10 CFR 20, and expected amounts and types of radioactive materials are not affected by the proposed changes. Therefore, individual and cumulative radiation exposures would not change.

The activity also has no effect on emergency plans or physical security plans. There is no change to any perimeter walls acting as a security barrier or other aspects of the structures that could affect physical security.

Summary

The proposed changes would revise the WLS safety functions, incorporate a piping class change between the CVS and PXS compartment drains, alter the connection type of the PXS compartment drains, revise the valve type of three WLS valves, and revise the Tier 1 WLS figure for consistency with the Tier 1 drawing conventions. These departures from the certified design would not cause a decrease in safety and would not adversely affect any safety-related equipment or function, radioactive material barrier, or safety analysis.

3. Technical Evaluation (Incorporated into Section 2, above)

4. Regulatory Evaluation

4.1 Applicable Regulatory Requirements/Criteria

10 CFR 52.98(f) requires NRC approval for any modification to, addition to, or deletion from the terms and conditions of a COL. This activity involves a departure from plant-specific Tier 1 information, and a corresponding change to COL Appendix C, Inspections, Tests, Analyses and Acceptance Criteria information; therefore, this activity requires a proposed amendment to the COL. Accordingly, NRC approval is required prior to making the plant-specific changes in this license amendment request.

10 CFR 52, Appendix D, Section VIII.B.5.a allows an applicant or licensee who references this appendix to depart from Tier 2 information, without prior NRC approval, unless the proposed departure involves a change to or departure from Tier 1 information, Tier 2* information, or the Technical Specifications, or requires a license amendment under paragraphs B.5.b or B.5.c of the section. This change involves a revision to plant-specific Tier 1 information (and corresponding COL Appendix C information), and thus requires NRC approval for the Tier 1 and involved Tier 2 departures.

10 CFR 50, Appendix A, General Design Criterion (GDC) 1 and 10 CFR 50.55a, as they relate to structures, systems, and components important to safety being designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety function to be performed. Because there are no changes from any standards identified in 10 CFR 50.55a, compliance with 10 CFR 50.55a is maintained.

10 CFR 50, Appendix A, GDC 56, Primary containment isolation, requires that each line that connects directly to the containment atmosphere and penetrates primary reactor containment shall be provided with containment isolation valves with various requirements and that isolation valves outside containment be located as close to the containment as practical. Because the only valve change proposed by this request is to valve types, compliance with GDC 56 is maintained.

4.2 Precedent

No precedent is identified.

4.3 Significant Hazards Consideration Determination

The proposed changes would revise the Combined Licenses (COLs) with regard to Tier 1 information, corresponding COL Appendix C information, and involved Tier 2 information. The changes would revise the safety function and classification of Liquid Radwaste System (WLS) drain hubs in the Chemical and Volume Control System (CVS) and Passive Core Cooling System (PXS) compartments. The changes would further modify the PXS compartment drain piping connection; WLS valve types, and the depiction of components (valves, filters) in the Tier 1 and COL Appendix C WLS figure.

An evaluation to determine whether or not a significant hazards consideration is involved with the proposed amendment was completed by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment," as discussed below:

4.3.1 Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

The design function of the WLS is containment isolation and the prevention of backflow in the drain lines from the CVS compartment and

the PXS compartment to the containment sump which prevents cross flooding of these compartments. The proposed changes to the WLS drainage function; the CVS and PXS compartment drain hubs; and the WLS valve types do not affect these design functions or any other system design function. Revising the drain hub safety classification, the PXS drains connection type, and the WLS valve types do not involve any accident initiating event or component failure. The changes to how components (valves, filters) are depicted in the figure provide consistency with the figure legend and do not alter any system functions. The system will utilize the same codes and standards previously used for the system. Since there are no impacts on accident initiating events or component failures, the probability of an accident previously evaluated is not affected. The radioactive material source terms and release paths used in the safety analyses are unchanged, thus the radiological releases in the Updated Final Safety Analysis Report (UFSAR) accident analyses are not affected.

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

4.3.2 Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed changes to the WLS system do not adversely affect the design or quality of any structure, system or component. Revising the WLS safety functions and re-classifying the drain hubs as nonsafety-related does not create a new fault or sequence of events that could result in a radioactive material release nor do the changes to the WLS piping connections, valve types and the depiction of components on the figure have any impact on any accident previously evaluated.

Therefore, the proposed amendment does not create the possibility of a new or different kind of accident.

4.3.3 Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No

The proposed changes to the WLS system drain hubs, piping connection, valve type, and Tier 1 figure depiction would not affect any radioactive material barrier. No safety analysis or design basis acceptance limit/criterion is challenged or exceeded by the proposed change, thus no margin of safety is reduced.

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

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

4.4 Conclusions

Based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public. The above evaluations demonstrate that the proposed changes can be accommodated without an increase in the probability or consequences of an accident previously evaluated, without creating the possibility of a new or different kind of accident from any accident previously evaluated, and without a significant reduction in a margin of safety. Having arrived at negative declarations with regard to the criteria of 10 CFR 50.92, this assessment determined that the proposed change does not involve a Significant Hazards Consideration.

5. Environmental Considerations

The proposed change would revise the Liquid Radwaste System (WLS) by changing the safety classification of the Passive Core Cooling System (PXS) and Chemical and Volume Control System (CVS) compartment drain hubs and the associated WLS drain function; changing the connection type from the PXS Compartments drains A and B to a header in order to match the Updated Final Safety Analysis Report (UFSAR) described design; changing the valve type for three valves in the Tier 1 figure to conform to design described in the UFSAR; and changing the depiction of Tier 1 WLS valves to conform to Tier 1 figure conventions.

This review supports a request to amend the Combined License (COL) numbers NPF-93 and NPF-94 for VCSNS Units 2 and 3, respectively, to allow departure from various elements of the certification information in Tier 1 of the generic AP1000 DCD and the corresponding elements in Appendix C of the COL. The proposed changes to Tier 1, Tier 2 and COL Appendix C material make changes to the WLS system.

This review has determined that the proposed departure requires an amendment from the VCSNS Units 2 and 3 COLs; however, a review of the anticipated construction and operational effects of the proposed amendment has determined that the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9), in that:

- (i) *There is no significant hazards consideration.*

As documented in Section 4.3, Significant Hazards Consideration Determination, of this license amendment request, an evaluation was completed to determine whether or not a significant hazards consideration is involved by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment." The Significant Hazards Consideration

determined that (1) the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated; (2) the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated; and (3) the proposed amendment does not involve a significant reduction in a margin of safety. Therefore, it is concluded that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

- (ii) *There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.*

The proposed changes are unrelated to any aspect of plant construction or operation that would introduce any change to effluent types (e.g., effluents containing chemicals or biocides, sanitary system effluents, and other effluents), or affect any plant radiological or non-radiological effluent release quantities. Furthermore, the proposed changes do not affect any effluent release path or diminish the functionality of any design or operational features that are credited with controlling the release of effluents during plant operation. Therefore, it is concluded that the proposed amendment does not involve a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite.

- (iii) *There is no significant increase in individual or cumulative occupational radiation exposure.*

The proposed changes to portions of the WLS design do not change the shielding function of any walls, floors, or structures in the containment building. Plant radiation zones (addressed in UFSAR Section 12.3) are not affected, nor are there any changes to the controls required under 10 CFR 20 that would result in a significant increase in occupational radiation exposure. Therefore, the proposed amendment does not involve a significant increase in individual or cumulative occupational radiation exposure.

Based on the above review of the proposed amendment, it has been determined that anticipated construction and operational effects of the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in the individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental impact statement or environmental assessment of the proposed exemption is not required.

6. References

- 1) American National Standard Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants, ANSI/ANS-51.1-1983

South Carolina Electric & Gas Company

V. C. Summer Units 2 and 3

NND-13-0476

Enclosure 2

Exemption Request

Regarding

Liquid Radwaste System Consistency Changes

(6 Pages)

1.0 Purpose

South Carolina Electric & Gas Company (the Licensee) requests a permanent exemption from the provisions of 10 CFR 52, Appendix D, Section III.B, "Design Certification Rule for the AP1000 Design, Scope and Contents," to allow a departure from elements of the certification information in Tier 1 of the Generic DCD. The regulation, 10 CFR 52, Appendix D, Section III.B, requires an applicant or licensee referencing Appendix D to 10 CFR Part 52 to incorporate by reference and comply with the requirements of Appendix D, including certification information in DCD Tier 1. The Tier 1 information for which a plant-specific departure and exemption is being requested includes changes to the Liquid Radwaste System description.

This request for exemption will apply the requirements of 10 CFR 52, Appendix D, Section VIII.A.4 to allow departures from generic Tier 1 information due to the following proposed changes to the system-based design description and Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) for the Liquid Radwaste System as shown in Figure 2.3.10-1:

- Figure 2.3.10-1
 - Changing the safety classification of the Passive Core Cooling System (PXS) and Chemical and Volume Control System (CVS) compartment drain hubs,
 - Changing the connection type from the PXS Compartments drains A and B to a header to match the design description,
 - Changing the valve types for three valves in the Tier 1 figure to conform to the design description and
 - Changing depiction of Tier 1 WLS components to conform to Tier 1 Figure Conventions

This request will provide for the application of the requirements for granting exemptions from design certification information, as specified in 10 CFR Part 52, Appendix D, Section VIII.A.4, and 10 CFR §§52.63, 52.7, and 50.12.

2.0 Background

The Licensee is the holder of Combined License Nos. NPF-93 and NPF-94, which authorize construction and operation of two Westinghouse Electric Company AP1000 nuclear plants, named V.C. Summer Nuclear Station (VCSNS) Units 2 and 3, respectively. During the detailed design phase of the Liquid Radwaste System (WLS) departures from AP1000 generic DCD Tier 2 and Tier 1 information were determined necessary to clarify the safety classification of WLS drain hubs and to identify the type of valves consistently in WLS figures. This activity requests exemption from the elements of the AP1000 certification (Tier 1) design information to allow a departure from the WLS as shown in the design description figures. The proposed departure would clarify that the WLS and CVS compartment drain hubs are nonsafety-related, change the connection type from the PXS compartments to a header, identify the type of valves consistent with Tier 2 information and revise the WLS figure to use symbols consistent with Tier 1 figure legend information.

3.0 Technical Justification of Acceptability

The WLS has components that receive and store radioactive or potentially radioactive liquid waste. The WLS performs the following safety-related functions:

- a) The WLS preserves containment integrity by isolation of the WLS lines penetrating the containment.
- b) Check valves in drains lines to the containment sump limit cross flooding of compartments.

The WLS will continue to meet its safety-related functions with the change in classification of the WLS and CVS compartment drain hubs to nonsafety-related. The identification of the nonsafety-related drain line to sump as hard-piped, the change in valve types, and the depiction of components consistent with the figure legend do not affect the existing system design function of containment isolation and the prevention of cross flooding of the CVS and PXS compartments

Detailed technical justification for this exemption is provided in Section 2 of the accompanying License Amendment Request in Enclosure 1.

4.0 Justification of Exemption

10 CFR Part 52, Appendix D, Section VIII.A.4 and 10 CFR 52.63(b)(1) govern the issuance of exemptions from elements of the certified design information for AP1000 nuclear power plants. Because the Licensee has identified changes to the Tier 1 information related to the Tier 2 departure discussed in Enclosure 1 of the accompanying License Amendment Request, an exemption from the certified design information in Tier 1 is needed.

10 CFR Part 52, Appendix D, and 10 CFR §§ 50.12, 52.7, and 52.63 state that the NRC may grant exemptions from the requirements of the regulations provided 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, App. 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. The plant-specific Tier 1 DCD will continue to reflect the approved licensing basis for the Licensee, and will maintain a consistent level of detail with that which is currently provided elsewhere in Tier 1 of the plant-specific DCD. Therefore, no adverse safety impact that would present any additional risk to the health and safety is present. The affected Design Description in the plant-specific Tier 1 DCD will also 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. 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) list 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 is 10 CFR 52, Appendix D, Section III.B, which requires that a licensee 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 VCSNS Units 2 and 3 COLs reference the AP1000 Design Certification Rule and incorporate 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.

The proposed changes to the Liquid Radwaste System (WLS) description maintain the design functions of the WLS, which are to provide containment isolation and prevent cross flooding of the CVS and PXS compartments. 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 will enable the licensee 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 WLS, it is likely that other AP1000 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 WLS associated with this request will continue to be maintained. This exemption request and the associated marked-up tables and figure demonstrate that the WLS 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.

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 description of the liquid radwaste system. The WLS continues to meet its design functions, which are to provide containment isolation and prevent cross flooding of the CVS and PXS compartments. Because these functions continue to be met, there is no reduction in the level of safety.

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

5.0 Risk Assessment

A risk assessment was determined to be not applicable to address the acceptability of this request.

6.0 Precedent

None.

7.0 Environmental Consideration

A review has determined that the proposed exemption would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed exemption does not involve (i) a significant hazards consideration, (ii) a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Specific justification is provided in Section 5 of the corresponding amendment request in Enclosure 1. Accordingly, the proposed exemption meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed exemption.

8.0 Conclusion

The proposed changes to Tier 1 are necessary to revise the Liquid Radwaste System design description in the plant-specific DCD Tier 1. The exemption request meets the requirements of 10 CFR 52.63, "*Finality of design certifications*," 10 CFR 52.7, "*Specific exemptions*," 10 CFR 50.12, "*Specific exemptions*," 10 CFR 51.22, and 10 CFR 52 Appendix D, "*Design Certification Rule for the AP1000*." Specifically, the exemption request meets the criteria of 10 CFR 50.12(a)(1) in that the request is authorized by law, presents no undue risk to public health and safety, and is consistent with the common defense and security. Furthermore, approval of this request does not result in a significant decrease in the level of safety, presents special circumstances, does not present a significant decrease in safety as a result of a reduction in standardization, and meets the eligibility requirements for categorical exclusion.

9.0 Reference

- 1.) Westinghouse Electric Company, "AP1000 Design Control Document," Rev 19, June 2011.

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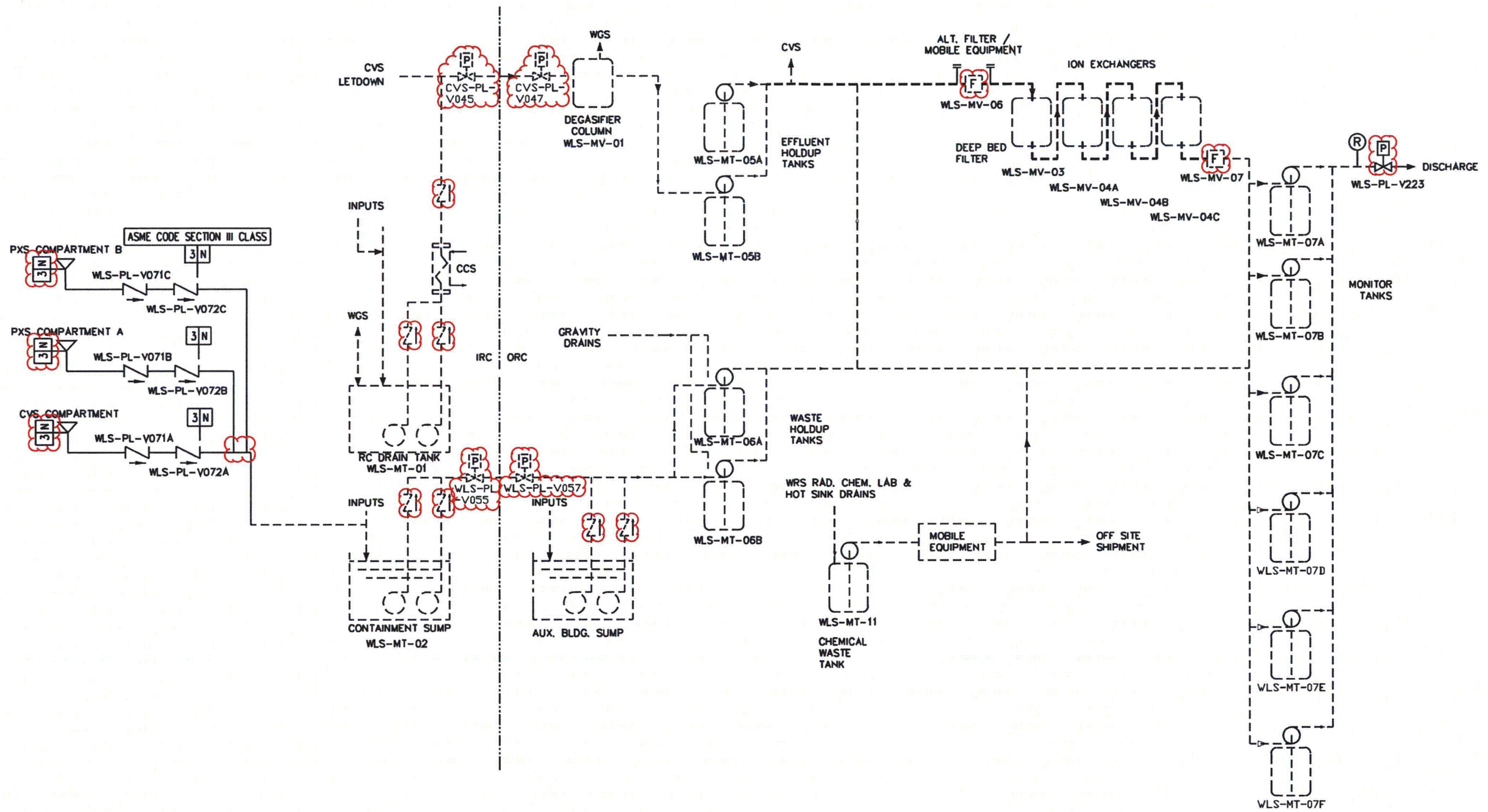
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Enclosure 3

Licensing Basis Documents - Proposed Changes

(LAR 13-32)

(7 pages)



UFSAR Tier 2 Table 3.2-3

AP1000 Classification of Mechanical and Fluid Systems, Components, and Equipment

(Sheet 74 of 75)

Tag Number	Description	AP1000 Class	Seismic Category	Principal Construction Code	Comments
***	***	***	***	***	***
n/a	Valves Providing WLS AP1000 Equipment Class D Function (local drain valves in Radwaste Building)	D	NS	ANSI 16.34	
<u>n/a</u>	<u>Floor Drain Hubs</u>	<u>D</u>	<u>NS</u>	<u>Manufacturer Std.</u>	
WLS-MT-02	Containment Sump	D	NS	ACI 349	ACI 349 Evaluation of Structural Boundary Only
***	***	***	***	***	***

UFSAR Section 11.2.1.1

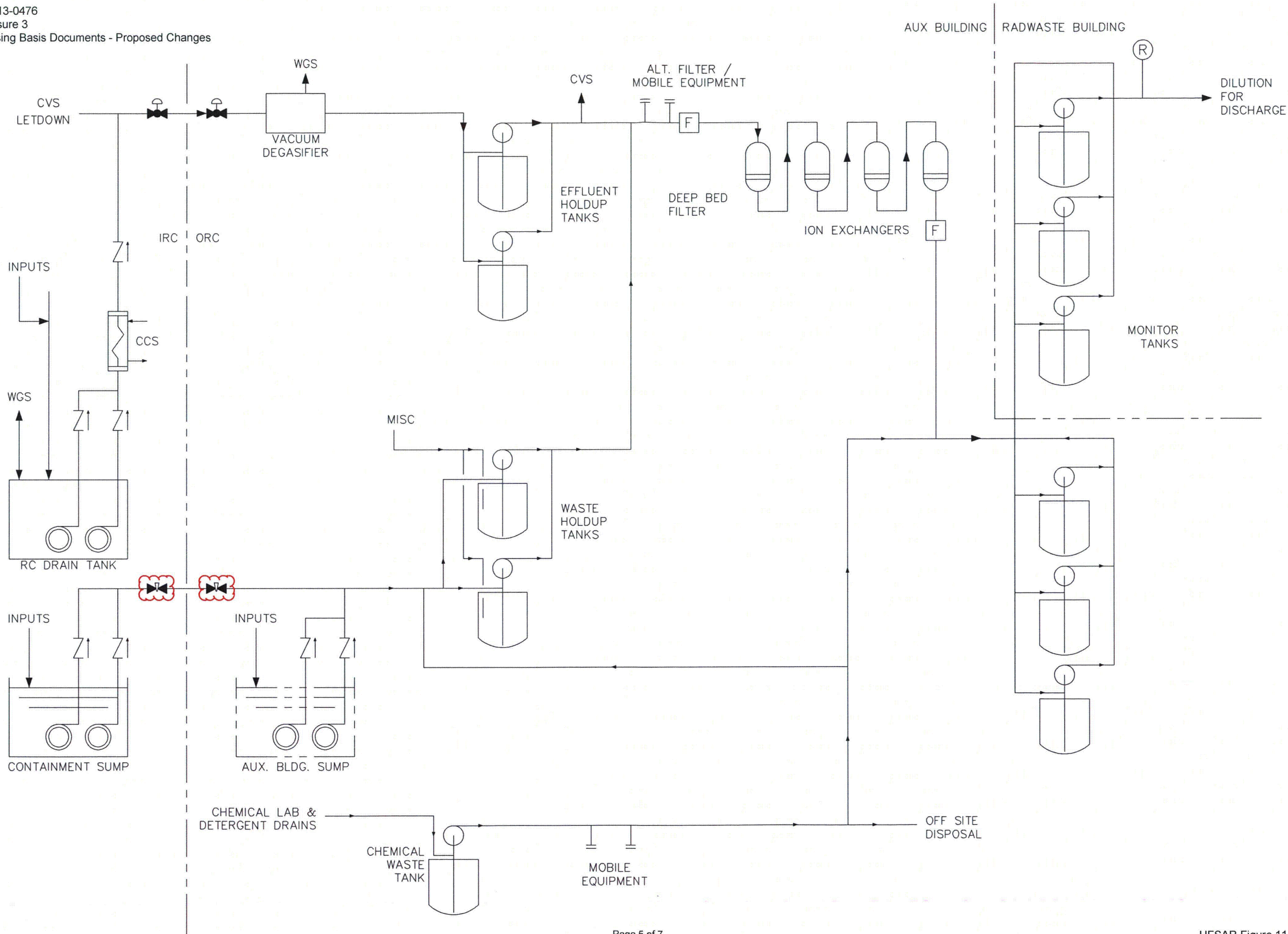
Safety Design Basis

Page 11.2-1

11.2.1.1 Safety Design Basis

The liquid radwaste system serves no safety-related functions except for:

- Containment isolation; see [Subsection 6.2.3](#).
- ~~Draining the passive core cooling system compartments to the containment sump to prevent flooding of these compartments and possible immersion of safety-related components.~~
- Back flow prevention check valves in the drain lines from the chemical and volume control system compartment and the passive core cooling system compartments to the containment sump, which prevent cross flooding of these compartments. Each drain line has two check valves in series so that a single failure does not compromise the back flow prevention safety function. See [Subsection 6.3.3.3.2](#) for a discussion of containment flooding.



UFSAR Section 14.2.9.3.1
Liquid Radwaste System Testing
Page 14.2-73

Purpose

The purpose of the liquid radwaste system testing is to verify that the as-installed components and associated piping, valves, and instrumentation properly perform the following safety-related function described in **Subsection 11.2.1.1**:

- ~~Drain the passive core cooling system compartments to the containment sump to prevent flooding of these compartments and possible immersion of safety-related components~~
- Prevent back flow through the drain lines from the containment sump to the chemical and volume control system compartment and the passive core cooling system compartments, in order to prevent cross flooding of these compartments

The liquid radwaste system testing is performed to verify that the as-installed components and associated piping, valves, and instrumentation properly perform the nonsafety-related functions described in **Subsection 11.2.1.2**, including receiving and processing reactor coolant system effluents, radioactive equipment and floor drains, and other radioactive liquid wastes from the plant.
