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Docket Nos.: 52-025
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ND-18-0373
10 CFR 50.90
10 CFR 52.63

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

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4
Request for License Amendment and Exemption:
Updates to Tier 1 Table 2.5.2-3 (LAR-18-010)

Ladies and Gentlemen:

Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC), the licensee for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, requests an amendment to Combined License Numbers NPF-91 and NPF-92, for VEGP Units 3 and 4, respectively. The requested amendment proposes changes to the Updated Final Safety Analysis Report (UFSAR) in the form of departures from the plant-specific Design Control Document (DCD) Tier 2 information and involves changes to the VEGP Units 3 and 4 plant-specific Tier 1 information (and associated COL Appendix C information). Pursuant to the provisions of 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 also requested for the plant-specific DCD Tier 1 material departures.

The requested amendment and exemption propose changes to plant-specific Tier 1 (and COL Appendix C) Table 2.5.2-3, "PMS Automatically Actuated Engineered Safety Features," to revise the nomenclature for "Auxiliary Spray and Letdown Purification Line Isolation" and to include "Component Cooling System Containment Isolation Valve Closure."

Enclosure 1 provides the description, technical evaluation, regulatory evaluation (including the Significant Hazards Consideration Determination), and environmental considerations for the proposed changes.

Enclosure 2 provides the background and supporting basis for the requested exemption.

Enclosure 3 provides the proposed changes to the licensing basis documents.

Enclosure 4 provides Technical Specification Bases changes for information only.

This letter contains no regulatory commitments. This letter has been reviewed and confirmed to not contain security-related information.

SNC requests NRC staff review and approval of the license amendment request (LAR) no later than October 31, 2018. Approval by this date will support activities related to the affected Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC). SNC expects to implement the proposed amendment within 30 days of approval of the LAR.

In accordance with 10 CFR 50.91, SNC is notifying the State of Georgia of this LAR by transmitting a copy of this letter and enclosures to the designated State Official.

Should you have any questions, please contact Mr. Wesley Sparkman at (205) 992-5061.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 20th of April 2018.

Respectfully submitted,



Brian H. Whitley
Director, Regulatory Affairs
Southern Nuclear Operating Company

- Enclosures: 1) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Request for License Amendment: Updates to Tier 1 Table 2.5.2-3 (LAR-18-010)
- 2) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Exemption Request: Updates to Tier 1 Table 2.5.2-3 (LAR-18-010)
- 3) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Proposed Changes to the Licensing Basis Documents (LAR-18-010)
- 4) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Technical Specification Bases Changes (LAR-18-010) (For Information Only)

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Southern Nuclear Operating Company

ND-18-0373

Enclosure 1

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Request for License Amendment:

Updates to Tier 1 Table 2.5.2-3

(LAR-18-010)

(Enclosure 1 consists of 11 pages, including this cover page)

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Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC, or the "Licensee") hereby requests an amendment to Combined License (COL) Nos. NPF-91 and NPF-92 for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively.

1. SUMMARY DESCRIPTION

The requested amendment proposes changes to plant-specific Tier 1 (and COL Appendix C) Table 2.5.2-3, "PMS Automatically Actuated Engineered Safety Features," to revise the nomenclature for "Auxiliary Spray and Letdown Purification Line Isolation" and to include "Component Cooling System Containment Isolation Valve Closure."

The proposed amendment would revise the licensing basis information regarding the following:

- Updated Final Safety Analysis Report (UFSAR) Figure 7.2-1 (Sheet 12), Subsections 7.3.1.2.15 and 7.3.1.2.18, and Table 7.3-1 Item 17 to consistently provide the appropriate nomenclature for the Protection and Safety Monitoring System (PMS) Engineered Safety Features (ESF) "Auxiliary Spray and Purification Line and Zinc/Hydrogen Addition Isolation" signals,
- Involved changes to COL Appendix C (and associated plant-specific Tier 1) Table 2.5.2-3 to consistently identify the PMS Engineered Safety Features nomenclature for the "Auxiliary Spray and Purification Line and Zinc/Hydrogen Addition Isolation" signals, and
- COL Appendix C Table 2.5.2-3 to add the Component Cooling System (CCS) Containment Isolation Valve Closure signal to the PMS Automatically Actuated Engineered Safety Features. As such, this actuation signal will be included in Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.5.02.06b to confirm that appropriate PMS signals are generated once test signals reach specified limits.

The requested amendment requires changes to the UFSAR in the form of departures from the plant-specific DCD Tier 2 information (as detailed in Section 2) and involves changes to COL Appendix C. This enclosure requests approval of the license amendment necessary to implement the Tier 2 UFSAR changes and the involved COL Appendix C changes.

This enclosure requests approval of the license amendment necessary to implement these changes.

2. DETAILED DESCRIPTION and TECHNICAL EVALUATION

A. Chemical and Volume Control System (CVS) Clarification Changes to COL Appendix C Table 2.5.2-3 and Related UFSAR Locations

Two CVS isolation signals, "Auxiliary Spray Isolation" and "Purification Line Isolation," isolate CVS pipe lines which could serve as potential pathways for reactor coolant leakage. These isolations prevent potential additional decrease of reactor coolant inventory after Low-1 pressurizer level is reached. The isolation signals are applied to valves located along the CVS purification loop, auxiliary spray line, zinc addition line, and hydrogen addition line, as discussed below:

- Auxiliary Spray Line: Pressurizer auxiliary spray line isolation valve CVS-PL-V084 is actuated upon receipt of an Auxiliary Spray Isolation signal. This functionality protects the reactor coolant system (RCS) reactor coolant pressure boundary.
- Purification Loop: Purification stop valves CVS-PL-V001, V002, and V003 isolate the purification flow entering the CVS from the RCS upon receipt of a Purification Line Isolation signal. The valves serve as reactor coolant pressure boundary isolation valves when in the closed position.
- Zinc Addition Line: Two zinc injection containment isolation valves provide containment isolation of the zinc injection line upon receipt of a Purification Isolation signal. CVS-PL-V092 is located outside of containment and isolation valve CVS-PL-V094 is located inside containment.
- Hydrogen Addition Line: Hydrogen injection containment isolation valve CVS-PL-V219 is located outside of containment and functions to provide containment isolation of the hydrogen injection line upon receipt of a Purification Isolation signal.

The purification line isolation signal was initially applied only to the purification loop, but was extended to the zinc and hydrogen lines as part of SNC LAR 13-002 changes, which were approved in Amendment 12.

The addition of the logic to the zinc and hydrogen valves is reflected in UFSAR Figure 7.2-1 (Sheet 12), UFSAR Table 7.3-2, and UFSAR Subsection 9.3.6.3.7. Additionally, COL Appendix C Table 2.3.2-1 reflects the zinc injection containment isolation valves CVS-PL-V092 and V094 and hydrogen injection containment isolation valve CVS-PL-V219 with PMS control capabilities.

As part of the LAR 13-002 changes, UFSAR Figure 7.2-1 (Sheet 12) currently identifies the signal as "Purification Line and Zinc and Hydrogen Addition Lines Isolation Valve Isolation." This naming convention does not match the naming convention found in design documentation for this signal. CVS design documentation refers to the signal as "Purification Line and Zinc/Hydrogen Addition Isolation." Therefore, it is proposed to editorially change UFSAR Figure 7.2-1 (Sheet 12) to match this nomenclature. This editorial change is proposed to align UFSAR Figure 7.2-1 (Sheet 12) with the nomenclature used in supporting design documentation.

Although LAR 13-002 revised the nomenclature shown on UFSAR Figure 7.2-1 (Sheet 12), several other references to this signal require consistent nomenclature changes. UFSAR Subsection 7.3.1.2.15, Subsection 7.3.1.2.18, UFSAR Table 7.3-1, and TS Bases 3.3.8 contain references to the name of the signal as "Letdown Purification Line Isolation" or "Purification Line Isolation." In order to maintain consistency with the updated nomenclature as proposed in UFSAR Figure 7.2-1 (Sheet 12), it is proposed to revise each location to consistently reference "Purification Line and Zinc/Hydrogen Addition Isolation."

Additionally, COL Appendix C Table 2.5.2-3 identifies "Auxiliary Spray and Letdown Purification Line Isolation" as a PMS Automatically Actuated Engineered Safety Feature. Therefore, the UFSAR Subsection 7.3.1.2.18 signal name change proposed above involves COL Appendix C Table 2.5.2-3. It is proposed to change COL Appendix C Table 2.5.2-3 to reference "Auxiliary Spray and Purification Line and Zinc/Hydrogen

Addition Isolation” for consistency with the nomenclature used in the Tier 2 design descriptions of the signals.

The changes to the engineered safety features actuation system (ESFAS) nomenclature are for clarity purposes only. The changes do not modify the design of a valve or change an application of PMS logic to the CVS valves.

Additionally, it has been identified that the text within UFSAR Subsection 7.3.1.2.18 discusses valves located along the purification line as being isolated by the signal described above but does not include the zinc and hydrogen valves consistent with LAR 13-002 changes. Therefore, both the zinc addition and hydrogen addition lines are shown added to the discussion of lines affected by Purification Line Isolation for completeness and consistency with the actual design.

Description of any Changes to Current Licensing Basis Documents

- COL Appendix C Table 2.5.2-3 replaces “Auxiliary Spray and Letdown Purification Line Isolation” with “Auxiliary Spray and Purification Line and Zinc/Hydrogen Addition Isolation.”
- UFSAR Figure 7.2-1 (Sheet 12), is changed to add “and Zinc/Hydrogen Addition” to the “Purification Line Isolation” signal.
- UFSAR Subsection 7.3.1.2.15 changes the name of “Auxiliary Spray and Letdown Purification Line Isolation” to be “Auxiliary Spray and Purification Line and Zinc/Hydrogen Addition Isolation.”
- UFSAR Subsection 7.3.1.2.18 changes the name of “Auxiliary Spray and Letdown Purification Line Isolation” to be “Auxiliary Spray and Purification Line and Zinc/Hydrogen Addition Isolation.”
- UFSAR Subsection 7.3.1.2.18 revises discussion of the valves affected by the isolation signals to include the zinc and hydrogen isolation valves.
- UFSAR Table 7.3-1, Item 17, changes the reference of “Auxiliary Spray and Purification Line Isolation (Figure 7.2-1, Sheet 12)” to “Auxiliary Spray and Purification Line and Zinc/Hydrogen Addition Isolation (Figure 7.2-1, Sheet 12)”

Additionally, conforming changes to the Technical Specification Bases are shown in Enclosure 4 for information only.

B. Component Cooling Water System (CCS) Changes to COL Appendix C Table 2.5.2-3

The reactor coolant pump (RCP) heat exchangers remove heat from the RCPs during normal plant operation. The CCS cools the shell side of the heat exchanger to remove the heat from the pump motor assembly. The heated CCS water is then pumped to the CCS heat exchangers, which are located outside the containment building, where the water is cooled and returned to the RCP heat exchangers for continued RCP cooling.

The CCS heat exchanger is located outside of containment; therefore, a leak in one of the RCP heat exchangers can provide a leakage path for reactor coolant outside of containment. The Component Cooling System Containment Isolation Valve Closure signal is provided to prevent leakage outside of containment during this scenario. If a

significant leak in the RCP heat exchangers occurs, the flow of water within the pump causes the pump bearing water temperature to increase. Upon detection of RCP high bearing water temperature for a reactor coolant pump, the Component Cooling System Containment Isolation Valve Closure signal is generated to isolate the CCS containment isolation valves and to prevent flow of reactor coolant outside of containment.

The Component Cooling System Containment Isolation Valve Closure signal is not included in the list of PMS Automatically Actuated Engineered Safety Features in COL Appendix C Table 2.5.2-3. COL Appendix C Table 2.5.2-3 and Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.5.02.06b identify ESFAS which should be tested to confirm that appropriate PMS signals are generated once test signals reach specified limits. The Component Cooling System Containment Isolation Valve Closure signal is described in UFSAR Subsection 7.3.1.2.25 and Table 7.3-1, and depicted in UFSAR Figure 7.2-1 (Sheet 5), as actuating upon RCP high bearing water temperature. Therefore, consistent with the approved plant design, the COL Appendix C Table 2.5.2-3 listing for required PMS Automatically Actuated Engineered Safety Features signals is proposed to include the Component Cooling System Containment Isolation Valve Closure signal for completeness.

Description of Proposed Changes to Current Licensing Basis Documents

COL Appendix C Changes:

- Table 2.5.2-3: Add “Component Cooling System Containment Isolation Valve Closure”

Summary

This amendment request proposes to editorially rename the Letdown Purification Line Isolation signal to match the design documentation. This amendment request also proposes to clarify text related to the CVS equipment that is actuated by the CVS signal.

For CCS, this amendment request proposes to add Component Cooling System Containment Isolation Valve Closure to the list of PMS Automatically Actuated Engineered Safety Features listed in COL Appendix C Table 2.5.2-3.

A review determined that these proposed changes would have no impact on the AP1000 plant PRA presented in UFSAR Chapter 19, including the Fire PRA, results and insights (e.g., core damage frequency (CDF) and large release frequency (LRF)). The proposed changes to COL Appendix C provide certainty that PMS automatically actuated ESFAS as discussed in UFSAR Subsection 7.3.1.2.18 are contained in respective ITAAC requirements. The proposed changes to the UFSAR and COL Appendix C do not impact any initiating event and do not introduce any new failure modes or mechanisms. There are no physical modifications to any structure, system, or component (SSC) as described in the UFSAR. Therefore, there is no impact to or addition of any SSC that is considered to be Design Reliability Assurance Program (D-RAP) risk significant. There is no interface with the diverse actuation system (DAS), and no change to the design functions of the DAS to provide diverse reactor protection system functions.

The proposed changes do not affect any function or feature used for the prevention and mitigation of accidents or their safety analyses. There are no physical modifications to any SSC

as described in the UFSAR. Therefore, no safety-related SSC or function is involved. The proposed changes do not result in any increase in the probability of an analyzed accident occurring, and do not require a change in the analyses of normal operation and anticipated operational occurrences. 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.

The proposed changes do not require a change to procedures or method of control that affects the performance of any safety-related design function as described in the UFSAR. There are no physical modifications to any SSC function as described in the UFSAR. The physical operational requirements of the plant, including as-installed inspections, testing, and maintenance requirements, as described in the UFSAR are not changed. Therefore, there are no changes to procedures or a method of control that impact the licensing basis.

The proposed changes do not interface with or affect safety-related equipment or a fission product barrier. There are no physical modifications to any SSC as described in the UFSAR, and the described analytical methods are consistent with the current licensing basis as described in the UFSAR and comply with the regulatory requirements described in the UFSAR. The proposed changes do not result in a new failure mode, malfunction or sequence of events that could adversely affect a radioactive material barrier or safety-related equipment. The proposed changes do 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 proposed changes do not affect safety-related equipment or equipment whose failure could initiate an accident. There are no physical modifications to any SSC as described in the UFSAR that would adversely affect safety-related equipment or a radioactive material barrier. The proposed changes do not affect any safety-related equipment, design code limit allowable value, safety-related function or design analysis, nor do they affect any safety analysis input or result, or design/safety margin.

There are no radiation zone changes or radiological access control changes required because of these proposed changes. There are no physical modifications to any SSC as described in the UFSAR that may affect the radiation protection requirements, and thus there are no changes required to the radiation protection design features described in UFSAR Section 12.3. There are no fire area changes required because of these proposed changes. The proposed changes do not require any changes to the fire protection analysis described in UFSAR Appendix 9A.

There is no change to the risk significant designation of SSCs within the Design Reliability Assurance Program as described in UFSAR Table 17.4-1.

The proposed changes 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 are not affected.

The proposed changes do not affect plant radiation zones, controls under 10 CFR Part 20, and expected amounts and types of radioactive materials. Therefore, individual and cumulative radiation exposures do not change.

The proposed changes do not affect the results of the aircraft impact assessment described in UFSAR Subsection 19F.4.

The proposed changes have no impact on the emergency plan or the physical security plan implementation, because there are no changes to physical access to credited equipment inside the Nuclear Island (including containment or the auxiliary building) and no impact to plant personnel's ability to respond to any plant operations or security event.

The proposed changes do not affect any safety-related equipment or function, design function, radioactive material barrier, or safety analysis.

3. TECHNICAL EVALUATION (Included in Section 2)

4. REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

10 CFR 52.98(c) requires NRC approval for any modification to, addition to, or deletion from the terms and conditions of a Combined License (COL). This amendment request involves a change to COL Appendix C information (and associated plant-specific Tier 1 information); and therefore, 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 (TS), or requires a license amendment under paragraphs B.5.b or B.5.c of the section. The proposed change involves a change to plant-specific Tier 1 information. Therefore, this amendment request requires prior NRC approval.

The proposed changes have been evaluated to determine whether applicable regulations continue to be met. It was determined that the proposed changes do not affect conformance with the General Design Criteria (GDC) differently than described in the plant-specific DCD or UFSAR.

10 CFR Part 50, Appendix A, GDC 13, "Instrumentation and Control," requires that instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems. The proposed changes assure the continued ability of the PMS to monitor interacting variables and systems. Therefore, the proposed changes comply with the requirements of GDC 13.

10 CFR Part 50, Appendix A, GDC 20, "Protection System Functions," requires that the protection system shall be designed (1) to initiate automatically the operation of appropriate systems including the reactivity control systems, to assure that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences, and (2) to sense accident conditions and to initiate the operation of systems and components important to safety. The proposed change supports the ability of the PMS to detect accident conditions and automatically initiate systems to mitigate the effects of the accident. Therefore, the proposed change complies with the requirements of GDC 20.

4.2 Precedent

There are no identified precedents for the changes in this request.

4.3 Significant Hazards Consideration

The proposed amendment would revise the licensing basis information regarding the following:

- Updated Final Safety Analysis Report (UFSAR) Figure 7.2-1 (Sheet 12), Sections 7.3.1.2.15 and 7.3.1.2.18, and Table 7.3-1 Item 17 to consistently provide the appropriate nomenclature for the Protection and Safety Monitoring System (PMS) Engineered Safety Features (ESF) “Auxiliary Spray and Purification Line and Zinc/Hydrogen Addition Isolation” signals,
- Involved changes to COL Appendix C (and associated plant-specific Tier 1) Table 2.5.2-3 to consistently identify the PMS Engineered Safety Features nomenclature for the “Auxiliary Spray and Purification Line and Zinc/Hydrogen Addition Isolation” signals, and
- COL Appendix C Table 2.5.2-3 to add the Component Cooling System (CCS) Containment Isolation Valve Closure signal to the PMS Automatically Actuated Engineered Safety Features. As such, this actuation signal will be included in Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.5.02.06b to confirm that appropriate PMS signals are generated once test signals reach specified limits.

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 proposed nomenclature changes reflect the current plant design. These changes provide consistency with the approved plant design. The changes do not affect the operation of any systems or equipment that initiate an analyzed accident or alter any structures, systems, and components (SSCs) accident initiator or initiating sequence of events. The proposed changes do not result in any increase in probability of an analyzed accident occurring. Therefore, the requested 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 nomenclature changes reflect the current plant design. These changes provide consistency with the approved plant design. The proposed

changes do not affect plant electrical systems, and do not affect the design function, support, design, or operation of mechanical and fluid systems. The proposed changes do not result in a new failure mechanism or introduce any new accident precursors. No design function described in the UFSAR is affected by the proposed changes. Therefore, the requested amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

Response: No

The proposed nomenclature changes reflect the current plant design. These changes provide consistency with the approved plant design. No safety analysis or design basis acceptance limit/criterion is involved. 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. Therefore, it is concluded that the requested 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.

5. ENVIRONMENTAL CONSIDERATIONS

The requested amendment requires changes to the Updated Final Safety Analysis Report (UFSAR) and involves changes to Combined License (COL) Appendix C to reflect the existing plant design. These changes regard the nomenclature for a Protection and Safety Monitoring System (PMS) Automatically Actuated Engineered Safety Features signal and inclusion of a signal not previously listed.

A review has determined that the proposed changes require an amendment to the COL. However, a review of the anticipated construction and operational effects of the requested amendment has determined that the requested 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, 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 in the requested amendment do not affect or alter any walls, floors, or other structures that provide shielding. Plant radiation zones and controls under 10 CFR 20 preclude 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 do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6. REFERENCES

None.

Southern Nuclear Operating Company

ND-18-0373

Enclosure 2

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Exemption Request:

Updates to Tier 1 Table 2.5.2-3

(LAR-18-010)

(This Enclosure consists of 7 pages, including this cover page)

1.0 Purpose

Southern Nuclear Operating Company (SNC) (the Licensee) requests a permanent exemption from the provisions of 10 CFR 52, Appendix D, *Design Certification Rule for the AP1000 Design*, Section III, *Scope and Contents*, to allow a departure from elements of the certification information in Tier 1 of the generic AP1000 Design Control Document (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 certified information in DCD Tier 1. The Tier 1 information for which a plant-specific departure and exemption is being requested includes revisions to plant-specific Tier 1 Table 2.5.2-3, "PMS Automatically Actuated Engineered Safety Features," to revise the nomenclature for "Auxiliary Spray and Letdown Purification Line Isolation" and to include "Component Cooling System Containment Isolation Valve Closure."

This request for exemption provides the technical and regulatory basis to demonstrate that 10 CFR 52.63, §52.7, and §50.12 requirements are met and will apply the requirements of 10 CFR 52, Appendix D, Section VIII.A.4 to allow departures from generic Tier 1 information due to proposed changes to Tier 1 Table 2.5.2-3.

2.0 Background

The Licensee is the holder of Combined License Nos. NPF-91 and NPF-92, which authorize construction and operation of two Westinghouse Electric Company AP1000 nuclear plants, named Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively.

As described in plant-specific Tier 1 and UFSAR Chapter 7, the protection and safety monitoring system (PMS) initiates reactor trip and actuation of engineered safety features in response to plant conditions monitored by process instrumentation and provides safety-related displays. In part, the PMS initiates automatic actuation of engineered safety features, as identified in Tier 1 Table 2.5.2-3, when plant process signals reach specified limits.

The requested exemption involves changes to plant-specific Tier 1 Table 2.5.2-3, "PMS Automatically Actuated Engineered Safety Features," to revise the nomenclature for "Auxiliary Spray and Letdown Purification Line Isolation" and to add "Component Cooling System Containment Isolation Valve Closure."

The purification line isolation signal was initially applied only to the purification loop, but was extended to the zinc and hydrogen lines as part of SNC LAR 13-002, approved in Amendment 12. That Amendment revised UFSAR Figure 7.2-1 to revise PMS logic signal text from "Purification Line Isolation" to "Purification Line and Zinc and Hydrogen Addition Lines Isolation."

The reactor coolant pump (RCP) heat exchangers remove heat from the RCPs during normal plant operation. The Component Cooling Water System (CCS) cools the shell side of the heat exchanger to remove the heat from the pump motor assembly. The heated CCS water is then pumped to the CCS heat exchangers, which are located outside the containment building, where the water is cooled and returned to the RCP heat exchangers

for continued RCP cooling. The Component Cooling System Containment Isolation Valve Closure signal is not included in the list of PMS automatically actuated engineered safety features in Tier 1 Table 2.5.2-3. Tier 1 Table 2.5.2-3 and Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.5.02.06b identify ESFAS which should be tested to confirm that appropriate PMS signals are generated once test signals reach specified limits.

3.0 Technical Justification of Acceptability

Tier 1 Table 2.5.2-3 identifies "Auxiliary Spray and Letdown Purification Line Isolation" as the PMS automatically actuated engineered safety features signal. It is proposed to change Tier 1 Table 2.5.2-3 to reference "Auxiliary Spray and Purification Line and Zinc/Hydrogen Addition Isolation" for consistency with the nomenclature used in the previously amended design descriptions of the signal.

The Component Cooling System Containment Isolation Valve Closure signal is described in UFSAR Subsection 7.3.1.2.25 and Table 7.3-1, and depicted in UFSAR Figure 7.2-1 (Sheet 5), as actuating upon RCP high bearing water temperature. Therefore, consistent with the approved plant design, the Tier 1 Table 2.5.2-3 listing for required PMS Automatically Actuated Engineered Safety Features signals is proposed to include the Component Cooling System Containment Isolation Valve Closure signal for completeness.

Detailed technical justification supporting this request for exemption is provided in Section 2 of the associated License Amendment Request in Enclosure 1 of this letter.

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. Since SNC has identified changes to the Tier 1 information as 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.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 52.63, §52.7, and §50.12 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 DCD Tier 1 will continue to reflect the approved licensing basis for VEGP Units 3 and 4, and will maintain a consistent level of detail with that which is currently provided elsewhere in Tier 1 of the DCD. Therefore, the affected plant-specific DCD Tier 1 ITAAC will continue to serve its required purpose.

The revisions to Tier 1 Table 2.5.2-3 listing of PMS automatically actuated engineered safety features signals do not represent any adverse impact to the design function of PMS and will continue to protect the health and safety of the public in the same manner. The revisions do not introduce any new industrial, chemical, or radiological hazards that would represent a public health or safety risk, nor do they modify or remove any design or operational controls or safeguards intended to mitigate any existing on-site hazards. Furthermore, the proposed change would 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 fuel cladding failures. Accordingly, this change does not present an undue risk from any existing or proposed equipment or systems.

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 requested exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would allow the licensee to depart from elements of the plant specific DCD Tier 1 design information. The proposed exemption does not adversely affect 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 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 VEGP Units 3 and 4 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 exemption would revise Tier 1 Table 2.5.2-3 listing of PMS automatically actuated engineered safety features signals. The proposed revisions maintain the required design functions of the PMS. The revisions to Tier 1 Table 2.5.2-3 ensure the appropriate PMS automatically actuated engineered safety features signals are tested per Tier 1 Table 2.5.2-3 and Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.5.02.06b, which identify that the PMS initiates automatic actuation of engineered safety features, as identified in Table 2.5.2-3, when plant process signals reach specified limits. The proposed changes do not adversely affect any function or feature used for the prevention and mitigation of accidents or their safety analyses. No safety-related structure, system, or component (SSC) or function is adversely affected. The proposed changes do not adversely affect any SSC accident initiator or initiating sequence of events related to the accidents evaluated. 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 does not serve 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 PMS, it is expected that this exemption may be requested by other AP1000 licensees and applicants. However, even if other AP1000 licensees and applicants do not request this same exemption, the special circumstances will continue to outweigh any decrease in safety from the reduction in standardization because the key design functions of the structures

associated with this request will continue to be maintained. Furthermore, the justification provided in the license amendment request and this exemption request and the associated mark-ups demonstrate that there is a limited change from the standard information provided in the generic AP1000 DCD, which is offset by the special circumstances identified above.

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 Tier 1 Table 2.5.2-3 listing of PMS automatically actuated engineered safety features signals. The revisions do not change the design requirements of the PMS. Because these functions continue to be met, there is no reduction in the level of safety.

5.0 Risk Assessment

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

6.0 Precedent Exemptions

None

7.0 Environmental Consideration

The Licensee requests a departure from elements of the certified information in Tier 1 of the generic AP1000 DCD. The Licensee has determined that the proposed departure would require a permanent exemption from the requirements of 10 CFR 52, Appendix D, *Design Certification Rule for the AP1000 Design, Section III, Scope and Contents*, with respect to installation or use of facility components located within the restricted area, as defined in 10 CFR Part 20, or which changes an inspection or a surveillance requirement; however, the Licensee evaluation of the proposed exemption has determined that the proposed exemption meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9).

Based on the above review of the proposed exemption, the Licensee has determined that the proposed exemption does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed exemption 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.

Specific details of the environmental considerations supporting this request for exemption are provided in Section 5.0 of the associated License Amendment Request provided in Enclosure 1 of this letter.

8.0 Conclusion

The proposed changes to Tier 1 are necessary to revise the inspections and acceptance criteria on the SFP safety-related makeup sources. 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*, and 10 CFR 52 Appendix D, *Design Certification Rule for the AP1000 Design*. 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, as well as providing the special circumstances criteria of 10 CFR 50.12(a)(2)(ii). Furthermore, approval of this request does not result in a significant decrease in the level of safety, satisfies the underlying purpose of the AP1000 Design Certification Rule, and does not present a significant decrease in safety as a result of a reduction in standardization.

9.0 References

None

Southern Nuclear Operating Company

ND-18-0373

Enclosure 3

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

**Proposed Changes to the Licensing Basis Documents
(LAR-18-010)**

Note:

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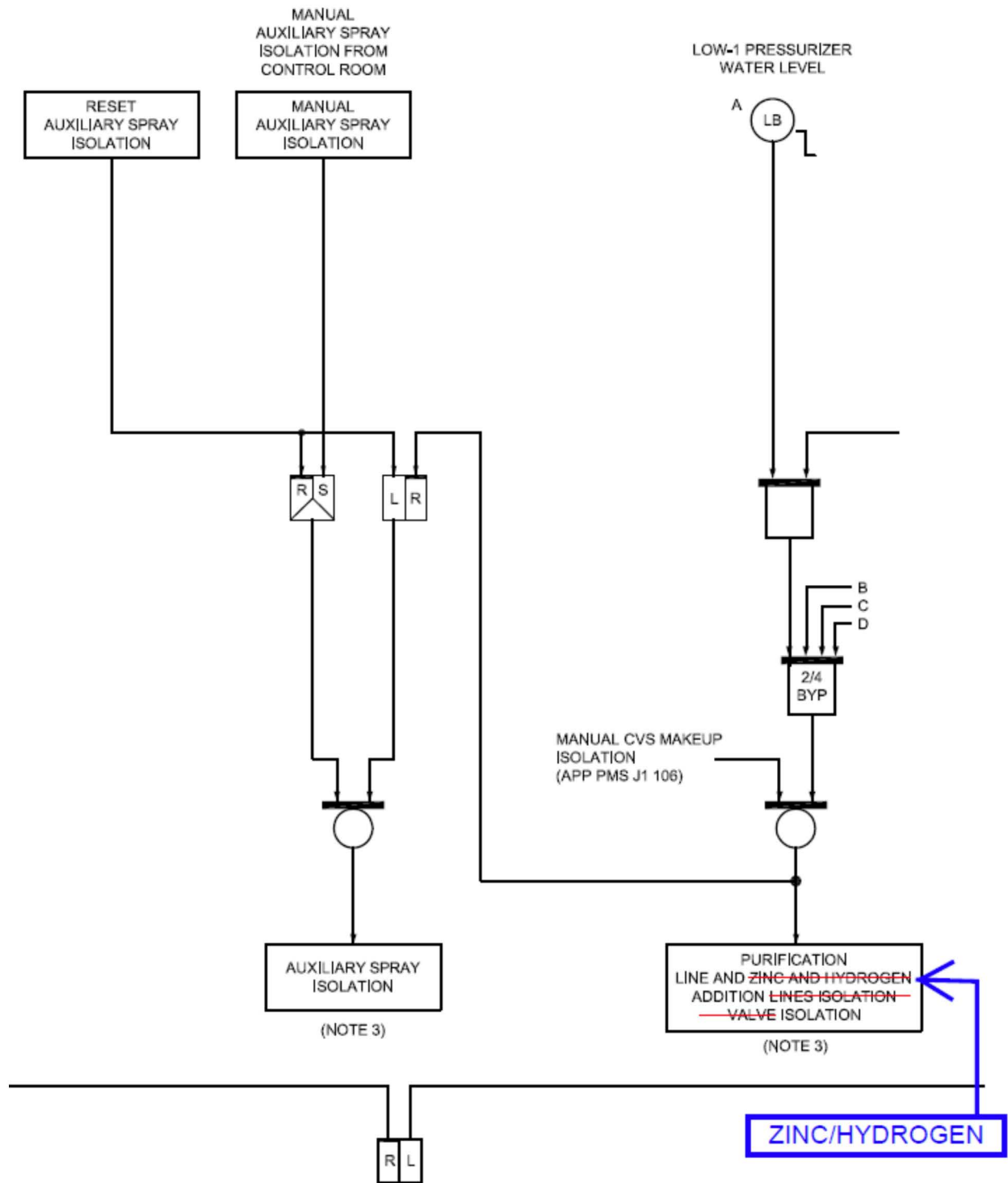
Omitted text is shown as three asterisks (*...*)

(Enclosure 3 consists of 5 pages, including this cover page)

COL Appendix C, and Plant-Specific Tier 1, Table 2.5.2-3

Table 2.5.2-3 PMS Automatically Actuated Engineered Safety Features	
* ... * Main Control Room Isolation, Air Supply Initiation, and Electrical Load De-energization Auxiliary Spray and Letdown Purification Line and Zinc/Hydrogen Addition Isolation	
* ... * Component Cooling System Containment Isolation Valve Closure	

UFSAR Figure 7.2-1, Sheet 12



UFSAR 7.3.1.2.15

7.3.1.2.15 Chemical and Volume Control System Makeup Isolation

A signal to close the makeup line containment isolation valves of the chemical and volume control system is generated from any of the following conditions:

* * *

Condition 5 consists of two momentary controls. This action also initiates auxiliary spray and ~~letdown~~ purification line [and zinc/hydrogen addition](#) isolation (Subsection 7.3.1.2.18).

UFSAR 7.3.1.2.18

7.3.1.2.18 Auxiliary Spray and ~~Letdown~~ Purification Line [and Zinc/Hydrogen Addition](#) Isolation

A signal to isolate the auxiliary spray ~~and letdown purification~~ [purification, zinc addition, and hydrogen addition](#) lines is generated upon the coincidence of pressurizer level below the Low-1 setpoint in any two of four divisions. This helps to maintain reactor coolant system inventory. This function can be manually blocked when the pressurizer water level is below the P-12 setpoint. This function is automatically unblocked when the pressurizer water level is above the P-12 setpoint. The automatic auxiliary spray isolation signal can be reset by the operator, after actuation of the auxiliary spray isolation valve, by using the reset control. This will allow the operators to use the auxiliary spray to rapidly depressurize the reactor coolant system. The operator can also manually initiate auxiliary spray isolation. The functional logic relating to this is illustrated in Figure 7.2-1, sheet 12.

The auxiliary spray and ~~letdown~~ purification line [and zinc/hydrogen addition](#) isolation signal is also generated upon manual actuation of chemical and volume control system makeup isolation (Subsection 7.3.1.2.15).

UFSAR Table 7.3-1

**Table 7.3-1 (Sheet 7 of 8)
 Engineered Safety Features Actuation Signals**

Actuation Signal	No. of Divisions/ Controls	Actuation Logic	Permissives and Interlocks
17. Auxiliary Spray and Purification Line <u>and Zinc/Hydrogen Addition</u> Isolation (Figure 7.2-1, Sheet 12)			
a. Low ¹⁰ pressurizer level	4	2/4-BYP ¹	Manual block permitted below P-12 Automatically unblocked above P-12
b. Manual initiation of chemical and volume control system makeup isolation	(See item 14e)		
* * *	* * *		

Southern Nuclear Operating Company

ND-18-0373

Enclosure 4

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Technical Specification Bases Changes

(LAR-18-010)

(For Information Only)

Note:

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Deleted text is shown as ~~Red Strikethrough~~

Omitted text is shown as three asterisks (*...*...*)

(Enclosure 4 consists of 2 pages, including this cover page)

Technical Specification Bases 3.3.8

Auxiliary Spray and Purification Line [and Zinc/Hydrogen Addition](#) Isolation

The CVS maintains the RCS fluid purity and activity level within acceptable limits. The CVS purification line receives flow from the discharge of the RCPs. The CVS also provides auxiliary spray to the pressurizer. To preserve the reactor coolant pressure in the event of a break in the CVS loop piping, the ~~purification line and the~~ auxiliary spray line, [purification line, zinc addition line, and hydrogen addition line](#) are isolated to help maintain reactor coolant system inventory.

Auxiliary Spray and Purification Line [and Zinc/Hydrogen Addition](#) Isolation is actuated on the following signals:

- Pressurizer Water Level – Low; and

* * *

6. Pressurizer Water Level – Low

A signal to isolate the purification line, [the auxiliary spray line, the zinc addition line, and the hydrogen addition line](#) ~~and the auxiliary spray line~~ is generated upon the coincidence of pressurizer level below the Low setpoint in any two-out-of-four divisions.

The Auxiliary Spray and Purification Line [and Zinc/Hydrogen Addition](#) Isolation ESFAS protective function is actuated by Pressurizer Water Level – Low.

* * *