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SOUTHERN COMPANY

OCT 0 9 2012

Docket Nos.: 52-025
52-026

ND-12-0915
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:
Changes to the Primary Sampling System (PSS) (LAR-12-012)

Ladies and Gentlemen:

In accordance with the provisions of 10 CFR 50.90, Southern Nuclear Operating Company (SNC), hereby requests an amendment to the combined licenses (COLs) for Vogtle Electric Generating Plant (VEGP) Units 3 and 4 (License Numbers NPF-91 and NPF-92, respectively). This amendment request proposes to depart from approved Design Control Document (DCD) Tier 2 material that has been previously incorporated into the VEGP Units 3 and 4 Updated Final Safety Analysis Report (UFSAR) and the associated certified Tier 1 material that is involved with this Tier 2 material, and to revise the associated material that has been included in Appendix C of the VEGP Units 3 and 4 COLs. 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 these plant-specific DCD Tier 1 material departures.

The proposed departures consist of changes to plant-specific Tier 1 (and COL Appendix C) and Updated Final Safety Analysis Report (UFSAR) tables and figures to: 1) replace the Primary Sampling System (PSS) containment air return check valve with a solenoid operated valve (SOV), 2) redesign the PSS inside containment header and add a PSS containment penetration, and 3) add sample source isolation valves upstream of the solenoid operated PSS sample isolation valves. Enclosure 1 provides the description, technical evaluation, and regulatory evaluation (including the Significant Hazards Consideration determination) for the proposed changes. Enclosure 2 provides the background and supporting basis for the requested exemption. Enclosure 3 provides markups depicting the requested changes to the plant-specific Tier 1, Unit 3 and 4 COL Appendix C, and UFSAR tables and figures. This letter contains no regulatory commitments.

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SNC requests staff approval of the license amendment and associated exemption by March 27, 2013, to support installation of the first ring of the Unit 3 containment vessel. Delayed approval of this license amendment could result in a delay in the installation of the containment vessel.

SNC expects to implement the proposed amendment (through incorporation into the licensing basis documents; e.g., the plant-specific DCD and COL Appendix C) within 30 days of approval of the requested changes. 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 A. Sparkman at (205) 992-5061.

Mr. C. R. Pierce states that he is the Regulatory Affairs Director of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

C. R. Pierce

CRP/TEA/kms

Sworn to and subscribed before me this 9th *day of* October, *2012*

Notary Public: Shondra D. Chester

My commission expires: 2/12/2014

SHONDRA D. CHESTER NOTARY PUBLIC BIBB COUNTY, GEORGIA

Enclosures
1: Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Request for License Amendment Regarding Changes to the Primary Sampling System (LAR-12-012)
2: Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Exemption Request Regarding Changes to the Primary Sampling System
3: Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Proposed Changes to Licensing Basis Documents (LAR-12-012)

cc: Southern Nuclear Operating Company/ Georgia Power Company
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Southern Nuclear Operating Company

ND-12-0915

Enclosure 1

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Request for License Amendment Regarding Changes to the Primary Sampling System (LAR-12-012)

Table of Contents

Pursuant to 10 CFR 50.90, Southern Nuclear Operating Company (SNC) 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 proposed changes would alter the design of the facility by 1) replacing the Primary Sampling System (PSS) Containment Air Return Check Valve PSS-PL-V024 with a solenoid operated valve (SOV), 2) redesigning the PSS inside containment header and adding a PSS containment penetration, and 3) adding sample source isolation valves upstream of the solenoid operated PSS sample isolation valves. The changes require a departure from the Updated Final Safety Analysis Report (UFSAR) Table 3.2-3, Subsection 3.9.1.1.1.18, Table 3.9-1, Table 3.9-12, Table 3.9-16, Table 3.9-16 footnotes, Table 3.11-1, Table 3I.6-2, Table 3I.6-3, Table 6.2.3-1, Table 9.2.2-2, Subsection 9.3.3.3, Subsection 9.3.3.7, Table 9.3.1-1, Figure 9.3.3-1, Table 9A-2, and Figure 11.5-3, which also require a departure from the plant-specific Tier 1 Figure 2.2.1-1, Table 2.2.1-2, Section 2.3.13, Table 2.3.13-1, Table 2.3.13-3, and Figure 2.3.13-1 along with the corresponding changes to COL Appendix C. This enclosure requests approval of the license amendment necessary to implement this change.

2. Detailed Description

Changing PSS-PL-V024 from a check valve to a SOV

The PSS return line has insufficient air flow during normal containment atmosphere sampling to maintain the check valve (PSS-PL-V024) in the fully open (keep the valve disk against the valve stop) position. This normal operation condition will cause the valve to constantly cycle (chatter) and potentially fail prematurely. A power-operated type valve is better suited for high cycle, low flow conditions and addresses all of the valve functional requirements. Therefore, it is proposed that the valve type for PSS-PL-V024 be changed from a check valve to a globe solenoid-operated valve (SOV).

The inside containment atmosphere sample return isolation valve (PSS-PL-V024) would be changed from a check valve to a normally open, solenoid-operated globe valve. The outside containment atmosphere sample return isolation valve (PSS-PL-V023) continues to be a normally open, air-operated globe valve. The failure mode of both valves will be in the closed position to isolate containment. Depending on the type of sampling process, the valves isolate either liquid sampling flow or containment air sampling flow (during post-accident operations liquid sample flow is returned to containment via the containment atmosphere return line).

A SOV is a better suited type of valve for this application because it will be normally open, it will not experience the high cycle conditions and it will not be adversely impacted by the low flow conditions.

The typical SOV globe valve preferred flow direction is with flow over the seat which assists in maintaining the seat in the closed position. PSS-PL-V024 will be installed so that the flow will be in the preferred direction (flow over seat) during accident conditions to maintain its containment isolation function. Conversely this valve will be in the non-preferred direction (flow under seat) for normal containment air sampling and post-accident liquid

sampling. The valve orientation also will preclude the need for an additional pressure relief valve in the line because the SOV seat would crack open and protect the line from over pressurization during liquid sampling and a loss-of-coolant-accident (LOCA) (i.e., the line pressure would overcome the weight of the SOV plunger/disc assembly and spring force holding the valve closed). The SOV will be specified to have a cracking pressure less than the rated pressure/temperature limit of the sample line. Valve seat leakage requirements are not critical for the valve in the normal flow (flow under the seat) direction. PSS-PL-V024 will be a Class 1E SOV, with Class 1E open/close position indication switches and containment isolation control signals powered from Class 1E Division B.

Adding sample source isolation valves upstream of the solenoid operated PSS sample isolation valves

It is not possible, under normal high-energy maintenance guidelines, to repair the PSS with the Reactor Coolant System (RCS) at pressure. Because the most likely failure of the PSS is the failure of a solenoid coil, and there are no redundant flow paths for several of the sample lines, application of series instrument valves is appropriate. Because the samples utilize 1inch valves, series isolation of the sample isolation solenoids would only require one instrument valve in the PSS. Based on radiological conditions and associated accessibility of the root valves, some sample paths may require the plant to be in Mode 3 for maintenance isolations to be placed in effect. It is proposed that sample source isolation valves be added to the design to address this issue.

It is proposed that RCS Pressurizer Liquid Sample Source Isolation Valve (PSS-PL-V013) be added. This normally open, manual globe valve would be located inside containment. The valve would isolate the RCS pressurizer liquid sample line inside containment so that maintenance can be performed on the associated solenoid-operated sample isolation valve while at power. The valve would be classified as AP1000 Safety Class B (ASME III, Class 2) and would have welded connections.

It is proposed that RCS Hot Leg Sample Source Isolation Valves (PSS-PL-V014A, V014B) be added. These normally open, manual globe valves would be located inside containment. The valves would isolate the RCS hot leg liquid sample lines inside containment so that maintenance can be performed on the associated solenoid-operated sample isolation valves while at power. The valves would be classified as AP1000 Safety Class B (ASME III, Class 2) and would have welded connections.

It is proposed that Passive Core Cooling System (PXS) Accumulator Sample Source Isolation Valves (PSS-PL-V015A, V015B) be added. These normally open, manual globe valves would be located inside containment. The valves would isolate the sample flow from the liquid region of each of the two accumulators so that maintenance can be performed on the associated solenoid-operated sample isolation valves while at power. The valves would be classified as AP1000 Safety Class C (ASME III, Class 3) and would have welded connections.

It is proposed that PXS Core Makeup Tank Sample Source Isolation Valves (PSS-PL-V016A, V016B, V016C, V016D) be added. These normally open, manual globe valves would be located inside containment. The valves would isolate the sample flow from the upper and lower regions of each of the two PXS core makeup tanks so that maintenance can be performed on the associated solenoid-operated sample isolation valves while at power. The valves would be classified as AP1000 Safety Class B (ASME III, Class 2) and would have welded connections.

Redesigning the PSS inside-containment header and adding an additional containment penetration

Zinc is injected into the primary systems of PWRs to reduce radiation source term and to mitigate primary water stress corrosion cracking in susceptible materials. Zinc performs this role by being incorporated into primary system wetted surfaces.

The current design of the PSS uses one containment penetration. The current design samples from eleven different locations through one common header. The functional design is based on the use of grab samples for monitoring of all primary samples. This is considered adequate for conditions where 1) adequate purge flow is used to address concerns over cross-contamination and 2) the parameter being sampled is a soluble constituent of the liquid being collected.

Due to the use of a common header, fluid of different chemical compositions will be purged through common tubing. This will affect the deposited/accumulated zinc layer and remove any chemical equilibrium achieved. Also, zinc absorption is affected by thermal gradient. If samples are taken intermittently (grab samples) then the oxide layers and their zinc constituents will be affected by thermal transients. Consequently, the AP1000 PSS hot leg sample lines would have to be purged for greater than eight hours per sample to provide confidence in the sample results.

The most applicable alternative would be the provision of long-term sampling flow from one of the RCS hot legs to equalize, and maintain equalization, of the PSS tubing. The proposed alternative would be to install a new flow path (including a new containment penetration) to the PSS sampling equipment which would allow for a continuous flow of RCS coolant from the hot legs.

Rearrangement of the PSS in-containment sample header is proposed to mitigate the effects of a potential failure of the proposed normally-energized PSS sample isolation solenoid valve. If a normally-energized sample isolation solenoid valve were to fail (i.e., solenoid coil failure), the respective valve would close and isolate the constant PSS flow path.

The PSS sample header inside containment would be redesigned to facilitate a second containment penetration. The redesign of the PSS would involve:

- New containment penetration and isolation valve
- Relocation of the delay coils
- Revised designation of PSS-V012A as a solenoid valve from a check valve
- Rerouting of tube lines inside containment
- Rerouting of the RCS Hot Leg sample tubing into the PSS sample header
- Addition of a flow meter for input into the RCS leak rate calculation

Equipment Added

1 – ASME Section III Class 3 solenoid-operated valve similar to PSS-V004A/B
1 – Containment Penetration equivalent to PSS-PY-C01
1 – ASME Section III Class 2 air-operated tubing valve similar to PSS-V011
1 – Sample Cooler to the Sample Conditioning Rack PSS-MS-02
1 – Non-1E flow meter

Equipment Removed

1 – ASME Section III Class 3 check valve

Rearrangement of the in-containment PSS header would have several advantages for control of the PSS:

- The RCS hot leg sample connections provide redundancy in the event of a sample isolation solenoid (PSS-V001A/B) failure.
- Through the use of the proposed PSS-V012A solenoid, failure of the PSS-PY-C04 containment penetration will not prohibit acquisition of RCS grab samples from either hot leg.
- Through the location of the PSS-V012A solenoid, a minimum of two-valve isolation is available between the RCS hot leg samples and the borated PXS samples. This provides increased confidence that valve leak-by contamination of RCS samples would not occur.
- Sharing of a delay coil would not require the addition of any in-containment equipment.

The additional penetration (PSS-PY-C04) would be identical to the current PSS penetration (PSS-PYC01) and placed near the existing penetration PSS-PY-C01.

The installation of a new flow path to the PSS sampling equipment will allow for a continuous flow of RCS coolant. Coolant flow velocities can be reduced below the nominal 6 ft/sec requirement, because this would be a tempering/conditioning flow and not a purging/sampling flow. This reduction in flow rate coupled with the reduction in 1inch piping will reduce the daily PSS effluent to less than the Liquid Radwaste System (WLS) design limit of 200 gallons per day (gpd). As a result, the conclusions of the radwaste system design and station environmental impacts would not be affected.

A new outside reactor containment (ORC) isolation valve PSS-PL-V011(A) would be located near the existing ORC isolation valve PSS-PL-V011(B). It would be a normally open, air-operated, globe valve. The valve would fail in the closed position to isolate containment. It would be classified as AP1000 Safety Class B (ASME III, Class 2).

A new liquid sample isolation valve PSS-PL-V012(A) would replace the existing PSS-PL-012(A) check valve and would be a normally closed, solenoid-operated, globe valve and located inside containment. The valve would fail in the closed position. The valve would isolate the liquid grab sample source header from the continuous liquid sample (RCS hot legs 1 and 2) source header inside containment. This valve would be classified as AP1000 Safety Class C (ASME III, Class 3).

A non-Class 1E flow transmitter would be added to the scope of the sampling packages, and would be limited to the continuous flow path. This flow meter would provide real-time flow indication to the Plant Control System (PLS) for use in the RCS leak detection calculation. Since the flow through PSS is not leakage, the flow must be accounted for in the calculation.

Using a constant RCS effluent via the PSS would increase the number of Chemical and Volume Control System (CVS) makeup actuations over plant life to 2 CVS cycles per week, or 5640 total makeup transient cycles. UFSAR Tier 2 Subsection 3.9.1.1.1.18 shows the total number of occurrences of the makeup transient is 2820, which corresponds to once per week. UFSAR Tier 2 Table 3.9-1 shows 2820 total reactor coolant system makeup cycles. These values would have to be changed to 5640; however, the pressurizer is qualified for these increased makeup cycles.

PSS lines T005A (Common Primary Sample line A), T005B (Common Primary Sample line B), T031 (Containment Atmosphere Sample Line), and L038 (Containment Atmosphere Return

Line) are proposed to be added to Tier 1 Table 2.2.1-2 because they are also part of the containment system. Table 2.2.1-2 lists the ASME Section III piping that separates the containment atmosphere from the outside environment during design basis accidents.

The proposed Tier 1 change:

- Revise PSS-PL-V024 valve type to SOV - Figure 2.2.1-1, Section 2.3.13, Table 2.3.13-1, Table 2.3.13-3, Figure 2.3.13-1
- Add a PSS containment penetration with its test valves, isolation valve and additional PSS sampling equipment and piping - Figure 2.2.1-1, Table 2.2.1-2, Table 2.3.13-1, Figure 2.3.13-1

3. Technical Evaluation

System Description

The Primary Sampling System (PSS) provides the safety-related function of preserving containment integrity by isolation of the PSS lines penetrating containment. The PSS provides the nonsafety-related function of providing the capability of obtaining reactor coolant and containment atmosphere samples.

The PSS Containment Air Return Check Valve APP-PSS-PL-V024 is located inside containment and functions to prevent any containment sump backflow from entering the PSS sample return line. The valve also functions as a containment isolation valve, independent of any operator action. The return line functions to either convey/isolate liquid sampling flow or containment air sampling flow depending on the type of sampling process.

The major function of the containment isolation system of the AP1000 is to provide containment isolation to allow the normal or emergency passage of fluids through the containment boundary while preserving the integrity of the containment boundary, if required. This prevents or limits the escape of fission products that may result from postulated accidents. The containment isolation system consists of the piping, valves, and actuators that isolate the containment. The design of the containment isolation system satisfies the requirements of NUREG 0737, as discussed in Section 6.2.3 of the Updated Final Safety Analysis Report (UFSAR).

Applicable Tier 2 and Associated Tier 1 Text, Table and Figure Departure Changes

Changing APP-PSS-PL-V024 from a check valve to a SOV

Tier	UFSAR Departure	Description of Change
UFSAR Tier 1	Figure 2.2.1-1	Revise PSS-PL-V024 valve type to SOV
UFSAR Tier 1	Section 2.3.13 Primary Sampling System	Delete description/reference to check valve (delete item 11.a)
UFSAR Tier 1	Table 2.3.13-1	Revise PSS-PL-V024 valve description and requirements
UFSAR Tier 1	Table 2.3.13-3 ITAAC 11.a.	Delete description/reference to check valve (Delete ITAAC 11.a)
UFSAR Tier 1	Figure 2.3.13-1	Revise PSS-PL-V024 valve type to SOV.
UFSAR Tier 2	Table 3.2-3	Revise PSS-PL-V024 valve description

Tier	UFSAR Departure	Description of Change
UFSAR Tier 2	Table 3.9-12	Revise PSS-PL-V024 valve description
UFSAR Tier 2	Table 3.9-16	Revise PSS-PL-V024 valve description and IST requirements and notes
UFSAR Tier 2	Table 3.11-1	Revise PSS-PL-V024 valve description and requirements
UFSAR Tier 2	Table 3I.6-2	Revise PSS-PL-V024 valve description and requirements
UFSAR Tier 2	Table 6.2.3-1	Add PSS-PL-V024 requirements
UFSAR Tier 2	Figure 9.3.3-1	Revise PSS-PL-V024 valve type to SOV.
UFSAR Tier 2	Table 9A-2	Add PSS-PL-V024 requirements
UFSAR Tier 2	Figure 11.5-3	Revise check valve symbol to valve symbol

Adding sample source isolation valves upstream of the solenoid-operated PSS sample isolation valves / Re-designing the PSS inside containment header and adding an additional containment penetration

Tier	UFSAR Departure	Description of Change
UFSAR Tier 1	Figure 2.2.1-1	Remove the existing sample line at the discharge line of valve PSS-PL-V010A and change the discharge of valve PSS-PL-V010A to a new additional containment penetration P16 and containment isolation valve PSS-PL-V011A. The existing PSS-PL-V011 is renamed PSS-PL-V011B
UFSAR Tier 1	Table 2.2.1-2	Add PSS-PL-T005A/B, PSS-PL-T031, and PSS-PL-L038
UFSAR Tier 1	Table 2.3.13-1	Rename PSS-PL-V011 to PSS-PL-V011B and add a liquid sample line containment isolation valve PSS-PL-011A with valve description and requirements. Adjust ORC/IRC descriptions
UFSAR Tier 1	Figure 2.3.13-1	Remove the sample line between the discharge of PSS-PL-V010B and PSS-PL-V010A, relocate PSS-PL-V001B next to PSS-PL-V001A, add an additional containment penetration and containment isolation valve ORC, PSS-PL-V011A, to the discharge line of valve PSS-PL-V010A, and change the name of PSS-PL-V011 to PSS-PL-011B.
UFSAR Tier 2	Table 3.2-3	Add a containment penetration, nine sample isolation valves, an additional containment isolation valve, PSS-PL-V011A, rename PSS-PL-V011 to PSS-PL-V011B and change PSS-PL-V012A from a Liquid Sample Check Valve to a Liquid Sample Isolation Valve
UFSAR Tier 2	Subsection 3.9.1.1.1.18	Revise to show the total number of occurrences of the makeup transient is 5640, which corresponds to twice per week

Tier	UFSAR Departure	Description of Change
UFSAR Tier 2	Table 3.9-1	Revise to show 5640 total reactor coolant system makeup cycles
UFSAR Tier 2	Table 3.9-12	Add containment isolation valve PSS-PL-V011A and rename PSS-PL-V011 to PSS-PL-V011B
UFSAR Tier 2	Table 3.9-16	Add containment isolation valve PSS-PL-V011A and rename PSS-PL-V011 to PSS-PL-V011B
UFSAR Tier 2	Table 3.11-1	Add containment isolation valve PSS-PL-V011A, rename PSS-PL-V011 to PSS-PL-V011B and add sample isolation valves. Change PSS-PL-V012A from a Liquid Sample Check Valve to a Liquid Sample Isolation Valve
UFSAR Tier 2	Table 3I.6-2	Add containment isolation valve PSS-PL-V011A and rename PSS-PL-V011 to PSS-PL-V011B.
UFSAR Tier 2	Table 3I.6-3	Add containment isolation valve PSS-PL-V011A, rename PSS-PL-V011 to PSS-PL-V011B and add sample isolation valves
UFSAR Tier 2	Table 6.2.3-1	Add containment isolation valve PSS-PL-V011A and rename PSS-PL-V011 to PSS-PL-V011B.
UFSAR Tier 2	Table 9.2.2-2	Add sample cooler B and change the original sample cooler to sample cooler A
UFSAR Tier 2	Subsection 9.3.3.3	Revise the number of lines penetrating containment and their purpose. Revise to pluralize the outside containment isolation valves and sample coolers.
UFSAR Tier 2	Subsection 9.3.3.7	Add the word "respective" to reflect that there is more than one sample header, each with a temperature indicator that provides a signal to close the outside containment isolation valve for that header.
UFSAR Tier 2	Table 9.3.1-1	Add containment isolation valve PSS-PL-V011A and rename PSS-PL-V011 to PSS-PL-V011B
UFSAR Tier 2	Figure 9.3.3-1	Remove the sample line between the discharge of PSS-PL-V010B and PSS-PL-V010A, relocate PSS-PL-V001B next to PSS-PL-V001A, add an additional containment penetration, C04, and containment isolation valve ORC, PSS-PL-V011A, to the discharge line of valve PSS-PL-V010A, add sample isolation valves PSS-PL-V013, PSS-PL-V014A, PSS-PL-V014B, PSS-PL-V015A, PSS-PL-V015B, PSS-PL-V016A, PSS-PL-V016B, PSS-PL-V016C, PSS-PL-V016D and change the name of PSS-PL-V011 to PSS-PL-011B.
UFSAR Tier 2	Table 9A-2	Add containment isolation valve PSS-PL-V011B and rename PSS-PL-V011 to PSS-PL-V011A

Supporting Technical Details

Changing PSS-PL-V024 from a check valve to a SOV

Changing PSS-PL-V024 from a check valve to a normally open/ fail close solenoid-operated valve (SOV) does not adversely affect any structure, system or component (SSC) design function described in the UFSAR. This activity is expected to improve system reliability because the check valve would have experienced high cycle conditions, potentially leading to premature failure. The SOV is a better suited type of valve for this application because it would be normally open, it would not experience the high cycle conditions, and it would not be adversely impacted by the low flow conditions.

This valve would be similar to existing SOV containment isolation valves that serve similar functions. The valve would function to isolate containment independent of operator action. The SOV would conform to ASME Code Section III, would be seismic Category I and qualified for harsh environment. The ITAAC of Tier 1 Table 2.2.13-1 would apply. The remotely operated containment isolation valves inside containment are designated as solenoid-operated to ensure that they will function in the environment anticipated to exist following a design-basis accident or a severe accident. They would fail in the closed position to accomplish their safety-related function on a loss of power. Furthermore, operation is independent of potential losses of the instrument air system, or material failures within the instrument air system or an air-operated valve, due to the environmental conditions. The remotely operated valves receive a containment isolation signal generated by the protection and safety monitoring system (PMS) and are powered by a Class-1E power source. Containment isolation valves in the PSS are environmentally qualified for the worst-case post-accident environment to which they may be exposed. Environmental qualification is in accordance with AP1000 Plant Equipment Qualification Methodology. The Primary Sampling System will continue to provide the safety-related function of preserving containment integrity by isolation of the PSS lines penetrating containment.

The proposed removal of the check valve and addition of a SOV containment isolation valve would not adversely affect the containment vessel's design functions. The activity 1) would not affect the containment vessel's ability to prevent the containment from exceeding its design pressure following postulated design basis accidents, 2) would not affect the containment vessel's ability to contain the release of airborne radioactivity and provide shielding for the reactor core and the reactor coolant system during normal operations, 3) would not affect the containment vessel's ability to provide a high degree of leak tightness and protect against postulated missiles from external sources, 4) would not affect the containment vessel's ability to withstand the loads and load combinations described in UFSAR Table 3.8.2-1, Load Combinations and Service Limits for Containment Vessel , 5) would not affect the PCS's ability to provide the safety grade ultimate heat sink for the removal of the reactor coolant system sensible heat, core decay heat, and decay heat associated with accident sources, and 6) would not affect the Aircraft Impact Assessment (AIA).

The activity would not change the codes and standards used for the design of the containment vessel or the SOV isolation valve.

While the method of control of PSS-PL-V024 would be changed from a check valve to an SOV, this change would improve the valve's method of control, and would not adversely affect a design function as described in the UFSAR. Absent this activity, the valve would

constantly cycle and likely fail prematurely. The power-operated valve improves the method of operation by allowing it to perform its intended function without excessive maintenance.

PSS-PL-V024 would continue to isolate containment, independent of any operator action. If the solenoid should fail, the valve would fail in the closed position. Adding to the method of control, (i.e., remotely operated valves receive a containment isolation signal generated by the protection and safety monitoring system (PMS)) would not constitute an adverse impact on the valve's method of control. This valve's method of control is consistent with other containment isolation valves. Containment isolation valves in the PSS are environmentally qualified for the worst-case post-accident environment to which they may be exposed. Environmental qualification is in accordance with AP1000 Plant Equipment Qualification Methodology and is powered from a Class-1E power source. The PSS containment isolation valves would have the capability to be reset on a valve-by-valve basis. This feature would permit the reopening of these valves after receipt of a containment isolation signal without clearing the isolation signal to other non-PSS containment isolation valves. In the event of a containment isolation signal, the sample line would be automatically isolated, but provisions are available in PMS to manually bypass the containment isolation signal so that control is handed back to the sampling operator in order to take a sample.

The safety-related design function of the sample return containment isolation valve; i.e., to transfer closed to maintain contain the containment boundary, will continue to be satisfied by PSS-PL-V024, although the valve's method of control will change. Because PSS-PL-V024 was the only check valve listed in Tier 1 Table 2.3.13-1, PSS system-based design description and associated Tier 1, Table 2.3.13-3, ITAAC 11.a) is no longer applicable to this system. However, following implementation of the proposed change, the safety-related design function of this valve will be addressed by PSS system-based design description 11.b), and the valve's ability to perform this design function will be validated by the corresponding Tier 1, Table 2.3.13-3, ITAAC 11.b).

This activity would not involve a change to a method of evaluation or test or experiment. This activity would not adversely affect a design feature credited in the ex-vessel severe accident assessment in the UFSAR.

Adding sample source isolation valves upstream of the solenoid operated PSS sample isolation valves

The addition of the sample source isolation valves would not adversely affect any SSC design function described in the UFSAR. These valves would be added so that maintenance can be performed on the associated solenoid-operated sample isolation valve at power. The valves would be classified as AP1000 Safety Class B (ASME III, Class 2) and would be normally open, manual globe valves. The new sample source isolation valves perform no safety function, and their addition would have no affect on the safety-related function of isolating the PSS lines for containment isolation. They would have no affect on chemistry samples obtained through the lines. This activity would not modify a method of control of any SSC, would not change a method of evaluation, and would not involve a test or experiment. This activity would not adversely affect a design feature credited in the ex-vessel severe accident assessment in the UFSAR.

Redesigning the PSS inside containment header and adding an additional containment penetration

The redesign of the PSS inside containment header and additional containment penetration would not adversely affect any design function described in the UFSAR. These changes would provide several improvements including allowing for more accurate Reactor Coolant System sampling.

The safety related design function of Primary Sampling System is containment integrity. The additional containment penetration would be identical in form, fit and function to the existing PSS sampling containment penetrations. The nominal 1-inch diameter containment penetration will allow the passage of a ¼-inch liquid sample tubing line, similar to the common primary sample line penetration PSS-PY-C01. The containment penetration and attached containment isolation components would be designed constructed and tested using the same requirements of similar function existing PSS containment penetrations and isolation components. The containment penetration would conform to ASME Code Section III and would be seismic Category I. The containment isolation components would be subject to the applicable ITAAC of Tier 1 Table 2.3.13-3.

The additional containment penetration will not adversely affect containment leakage rate tests. The AP1000's maximum allowable primary containment leakage rate shall be 0.10% of primary containment air weight per day. The size of the added PSS penetration will be small compared to other potential leak paths. Based on conservative assumptions, the additional penetration will not jeopardize the AP1000's ability to meet the allowable leakage rate limit. The constructed plant will be verified against this limit through a series of leakage rate tests. An overall containment leak rate test program to capture all containment leak rates will be established. There will be tests to determine containment leak rate. An overall test where the containment vessel is pressurized to check for leak rate through all containment pathways (Type A test) will be completed. This will be used to determine leakage through pathways such as containment welds. There will also be tests on each individual penetration throughout containment. This will be done by isolating and leak rate testing each containment isolation valve (Type C test). It will also be done for all other non-valve equipment penetrating containment such as equipment hatches, airlocks, etc (Type B test). Each penetration will be assigned an allowable administrative leak rate limit. The total of all the individual leak rate tests will be summed to confirm the as-built plant is maintained under the allowable leak rate. These tests will be completed based on set intervals established by 10 CFR 50, Appendix J requirements and ANS 56.8 guidelines. .

The addition of the containment penetration and isolation valve would not adversely affect the containment vessel's design functions. The requirements as described in UFSAR subsection 3.8.2.1.5, 'Mechanical Penetrations' would continue to be met. The requirements as described in the UFSAR subsection 3.8.2.4.2.5, 'Mechanical and Electrical Penetrations' would continue to be met. The activity 1) would not affect the containment vessel's ability to prevent the containment from exceeding its design pressure following postulated design basis accidents, 2) would not affect the containment vessel's ability to contain the release of airborne radioactivity and provide shielding for the reactor core and the reactor coolant system during normal operations, 3) would not affect the containment vessel's ability to provide a high degree of leak tightness and protect against postulated missiles from external sources, 4) would not affect the containment vessel's ability to withstand the loads and load combinations described in UFSAR Table 3.8.2-1, 'Load Combinations and Service Limits for Containment Vessel,' 5) would not affect the PCS's ability to provide the safety grade

ultimate heat sink for the removal of the reactor coolant system sensible heat, core decay heat, and decay heat associated with accident sources, and 6) would not affect the AIA. The penetrations would be within the 'protected' reinforced concrete portion of the shield building wall (i.e., within the auxiliary building) and, therefore, would not directly affect the AIA.

A new ORC isolation valve (PSS-PL-V011A) would be added near the existing ORC isolation valve (PSS-PL-V011B). It would be a normally open, air operated, globe valve. The valve would fail in the closed position to isolate containment. It is classified as AP1000 Safety Class B (ASME III, Class 2). This valve would be similar to existing ORC isolation valve and would serve a similar function. ORC isolation valves are not required to be qualified for a harsh environment due to their location, but will be qualified for their environment, and, therefore, would be expected to be operational following a design-basis or severe accident condition.

A new liquid sample isolation valve PSS-PL-V012A would replace the existing PSS-PL-V012A check valve and would be a normally closed, solenoid-operated, globe valve located inside containment. The valve would fail in the closed position. The valve would isolate the liquid grab sample source header from the continuous liquid sample (RCS hot legs 1 and 2) source header inside containment. This valve would be classified as AP1000 Safety Class C (ASME III, Class 3). This valve would not be a containment isolation valve.

The activity would not change the codes and standards used for the design of the containment vessel or the containment isolation function.

The use of a constant RCS effluent via the PSS would increase the number of Chemical and Volume Control System (CVS) makeup actuations over plant life to 2 CVS cycles per week, or 5640 total makeup transient cycles, for a period consistent with the basis for the certified design. The pressurizer is qualified for the increased makeup cycles.

Therefore, the proposed change would not adversely affect a design function of a SSC.

The method of control of liquid sample isolation valve PSS-PL-V012A would be changed (check valve to SOV) but would not adversely affect the performance or related procedures of any design function as described in the DCD or UFSAR. This valve would not be a containment isolation valve. It would be normally closed and if the solenoid should fail, the valve would fail in the closed position.

The method of sampling the RCS would change from grab samples to a continuous RCS flow and will require related PSS manipulation procedure changes that are below the DCD level of detail. This would be an improvement because it would eliminate lengthy sample purge times and it would improve the accuracy of RCS samples.

This activity would not involve a change to a method of evaluation or test or experiment. This activity would not adversely affect an SSC design feature credited in the ex-vessel severe accident assessment (EVSA) in the UFSAR.

Summary

As discussed above, the proposed changes do not adversely affect any design function. The departure does not involve an adverse change to the method of evaluation for establishing design bases or safety analyses. It does not represent a change to a design feature credited in the ex-vessel severe accident assessment. Tests, experiments, and procedures described in the licensing basis are unchanged by this activity.

4. Regulatory Evaluation

4.1 Significant Hazards Consideration

The proposed changes would revise the Combined Licenses (COLs) for Vogtle Electric Generating Plant (VEGP) Units 3 and 4 by revising the Primary Sampling System (PSS) configuration by: 1) replacing the PSS containment air return check valve with a solenoid-operated valve (SOV), 2) redesigning the PSS inside-containment header and adding a PSS containment penetration, and 3) adding sample source isolation valves upstream of the solenoid-operated PSS sample isolation valves

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:

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

Response: No

The PSS provides the safety-related function of preserving containment integrity by isolation of the PSS lines penetrating containment. The proposed amendment will enhance the ability of the PSS to perform its nonsafety-related function of providing the capability to obtain reactor coolant and containment atmosphere samples, while maintaining the ability of the PSS to perform its safety-related containment isolation function. The redesigned inside-containment header and additional sample source isolation valves do not affect the safety-related function of isolating the PSS lines for containment isolation. The components added by this proposed activity, including tubing, sample source isolation valves, and the solenoid-operated containment isolation valve, are designed to the same codes and standards as other components addressed in the certified design that perform similar functions. The additional PSS containment penetration is a passive extension of containment and is identical in form, fit, and function to other PSS sampling containment penetrations currently addressed in the certified design. The addition of a new PSS containment penetration will not change the maximum allowable leakage rate allowed by Technical Specifications and verified periodically in accordance with regulations. Furthermore, the proposed PSS configuration changes will neither impact any accident source term parameter or fission product barrier nor affect radiological dose consequence analysis.

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

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

Response: No

The solenoid-operated containment isolation valve is similar to other SOVs employed in other applications that serve similar functions. Based on the acceptability of credible failure modes for similar SOVs, it was determined that the use of an SOV for this PSS containment isolation application would not initiate a new type of accident. The additional containment penetration is also similar in form, fit, and function to other PSS sampling containment penetrations that have been evaluated and found acceptable in the current certified AP1000 plant design. Finally, the redesigned inside-containment header and additional sample source isolation valves do not change the intended operation of the PSS, and therefore, do not create any new malfunctions, failure mechanisms, or accident initiators.

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

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

Response: No

The containment isolation function is not changed by this activity and is bounded by the existing design. The proposed PSS containment penetration is similar in form, fit, and function to other containment penetrations in similar applications in the current certified AP1000 plant design. The additional PSS containment penetration is an engineered passive extension of containment, and, therefore, does not affect containment or its ability to perform its design function. The addition of these PSS components, including the solenoid-operated containment isolation valve, the additional PSS containment penetration, and the associated tubing and sample source isolation valves do not exceed or alter a design basis or safety limit. Because the containment isolation function, containment leakage rate limit, potential containment leakage, and protective shielding are not changed by this activity and are bounded by the existing design, there is no change to any current margins.

Therefore, the proposed activity 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.

4.2 Applicable Regulatory Requirements/Criteria

10 CFR 50, Appendix A, General Design Criterion (GDC) *1, Quality standards and records*, requires structures, systems, and components important to safety shall be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed. Because replacing the PSS Containment Air Return Check Valve PSS-PL-V024 with an SOV, adding a PSS containment penetration and additional PSS sampling equipment and piping, and adding the sampling source isolation valves will be designed, fabricated, erected and tested to quality standards commensurate with the importance of their safety functions, these changes do not affect compliance with GDC 1.

10 CFR 50, Appendix A, GDC *2, Design bases for protection against natural phenomena*, requires structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions. The design bases for these structures, systems, and components shall reflect: (1) Appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, (2) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena and (3) the importance of the safety functions to be performed.

Because the additional PSS components, including the solenoid-operated containment isolation valve, the additional PSS containment penetration, and the associated tubing and sample source isolation valves are similar to the existing PSS components in similar applications in form, fit, and function, the proposed change does not affect compliance with GDC 2.

10 CFR 50, Appendix A, GDC *16—Containment design*, requires reactor containment and associated systems be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require. Because the additional PSS components, including the solenoid-operated containment isolation valve, the additional PSS containment penetration, and the associated tubing and sample source isolation valves are similar to the existing PSS components in similar applications in form, fit, and function, the proposed change does not affect compliance with GDC 16.

10 CFR 50, Appendix A, GDC *50—Containment design basis*, requires the reactor containment structure, including access openings, penetrations, and the containment heat removal system be designed so that the containment structure and its internal compartments can accommodate, without exceeding the design leakage rate and with sufficient margin, the calculated pressure and temperature conditions resulting from any loss-of-coolant accident. Because the additional PSS components, including the solenoid-operated containment isolation valve, the additional PSS containment penetration, and the associated tubing and sample source isolation valves are similar to the existing PSS components in similar applications in form, fit, and function, the proposed change does not affect compliance with GDC 50.

10 CFR 50, Appendix A, GDC *53—Provisions for containment testing and inspection*, requires the reactor containment be designed to permit (1) appropriate periodic inspection of all important areas, such as penetrations, (2) an appropriate surveillance program, and (3) periodic testing at containment design pressure of the leak tightness of penetrations which have resilient seals and expansion bellows. Because the additional PSS components, including the solenoid-operated containment isolation valve and the additional PSS containment penetration are similar to the existing PSS components in similar applications in form, fit, and function, the proposed change will permit periodic inspection and testing of the affected containment penetrations consistent with existing PSS containment penetrations, and this proposed change does not affect compliance with GDC 53.

4.3 Precedent

No precedent is identified.

4.4 Conclusions

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

5. Environmental Considerations

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, facility construction and operation following implementation of the proposed amendment 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. Accordingly, SNC evaluation of the proposed amendment has determined that the proposal 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 4.1, 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 amendment 1) replaces the PSS Containment Air Return Check Valve PSS-PL-V024 with an SOV, 2) redesigns the PSS inside containment header and adding a PSS containment penetration, and 3) adds sample source isolation valves upstream of the solenoid operated PSS sample isolation valves. The changes to the PSS affect features of the plant that are unrelated to any aspects of plant construction or operation that would introduce any changes 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, these changes do not 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 change to replace the PSS Containment Air Return Check Valve, PSS-PL-V024 with an SOV does not significantly increase radiation exposure in the vicinity of the valve or activity within the containment return line. The proposed change to redesign the PSS inside-containment header does not significantly increase radiation exposure, because the PSS delay coils continue to provide adequate effluent transit time for N-16 decay. The proposed change to add sample source isolation valves upstream of the solenoid-operated sample isolation valves does not significantly increase radiation exposure in the vicinity of the new valves or the activity within the sample lines. Consequently, these changes have no effect on individual or cumulative occupational radiation exposure during plant operation. Therefore, it is concluded that 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, SNC has determined that 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 amendment is not required.

6. References

1.) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 Updated safety Analysis Report (UFSAR), Revision 1, June 2012.

Southern Nuclear Operating Company

ND-12-0915

Enclosure 2

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Exemption Request
Regarding Changes to the Primary Sampling System

1.0 Purpose

SNC 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 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. Tier 1 includes ITAAC that must be satisfactorily performed prior to fuel load. The design details to be verified by these ITAAC are specified in the text, tables, and figures that are referenced in each individual ITAAC. The Tier 1 departure includes changes to detailed information that supports existing ITAAC, such as changes to valve type designations, line configurations for the Primary Sampling System (PSS), an additional containment penetration, and similar supporting information.

This request for exemption will apply the requirements of 10 CFR 52, Appendix D, Section VIII.A.4 to allow changes to Tier 1 information due to the following proposed changes to the system-based design descriptions and Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) figures and tables:

- Table 2.2.1-2
  - Add lines PSS-PL-T005A/B, Common Primary Sample Line A/B, PSS-PL-T031, Containment Atmosphere Sample Line, and PSS-PL-L038. Containment Atmosphere Return Line
- Figure 2.1.1-1, Containment System,
  - Revised to show PSS-PL-V024 valve type as an SOV
  - Remove the existing sample line at the discharge of valve PSS-PL-V010A
  - Route the discharge of valve PSS-PL-V010A through a new containment penetration, P16, and to containment isolation valve PSS-PL-V011A
  - Rename the existing PSS-PL-V011 to PSS-PL-V011B
- Design description Section 2.3.13, Primary Sampling System
  - Revise to delete the description/reference to the check valve identified in Table 2.3.13-1 (i.e., Delete 11.a)
- Table 2.3.13-1
  - Revise PSS-PL-V024 valve description and requirements
  - Rename PSS-PL-V011 to PSS-PL-V011B
  - Add a liquid sample line containment isolation valve PSS-PL-V011A, with valve description and requirements.
  - Relocate ORC/IRC abbreviation definitions
- Table 2.3.13-3 – Delete Design Commitment and ITAAC related to the check valve identified in Table 2.3.13-1 (i.e., Delete ITAAC 11.a)
- Figure 2.3.13-1
  - Show PSS-PL-V024 valve type as an SOV
  - Remove the sample line between the discharge of PSS-PL-V010B and PSS-PL-V010A

- Change the tag number of PSS-PL-V011 to PSS-PL-V011B
- Add an additional containment penetration and containment isolation valve ORC, PSS-PL-V011A, to the discharge line of valve PSS-PL-V010A
- Relocate PSS-PL-V001B next to PSS-PL-V001A

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, 10 CFR 52.63, §52.7, and §50.12.

2.0 Background

SNC is the holder of Combined License (COL) 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. During the detailed design phase of the Primary Sampling System (PSS), departures from AP1000 generic DCD Tier 2 information were determined necessary to improve the reliability of a containment isolation valve and improve the sampling capability of the system. This activity requests exemption from the generic DCD Tier 1 tables and figures that support the COL Appendix C ITAAC to allow an accurate reflection of the proposed departures from the associated Tier 2 material.

An exemption from elements of the AP1000 certification (Tier 1) design information to allow a departure to tables and figures referenced in the containment system and primary sampling system system-based design descriptions and ITAAC is requested to maintain a consistent level of detail in COL Appendix C, Inspections, Tests, Analyses, and Acceptance Criteria, with the level of detail that is currently provided elsewhere in COL Appendix C and Tier 1 of the plant-specific DCD.

3.0 Technical Justification of Acceptability

The Primary Sampling System (PSS) provides the safety-related function of preserving containment integrity by isolation of the PSS lines penetrating containment. The PSS provides the nonsafety-related function of providing the capability of obtaining reactor coolant and containment atmosphere samples.

As described in the associated License Amendment Request, the proposed departures to the PSS represent an improvement in the operability, reliability, and maintainability of the nonsafety-related functions while maintaining the safety-related functions.

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 SNC has identified a need for plant-specific departures from the Tier 1 information related to the Primary Sampling System as a result of design finalization activities, an exemption to 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)(ii)]; 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 to change the design of the Primary Sampling System 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 Tier 1 DCD 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 plant-specific DCD. Because the changes to the PSS design do not represent any adverse impact to the containment design function, the containment will continue to protect the health and safety of the public in the same manner. Therefore, no adverse safety impact which would present any additional risk to the health and safety of the public is present. The affected ITAAC in the plant-specific Tier 1 DCD will also continue to provide the detail necessary to support their performance.

   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 plant equipment that is 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 "[a]pplication 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.

The proposed changes to the Primary Sampling System facilitate operation by improving operability, reliability, and maintainability of the non-safety related functions while maintaining safety-related functions. Accordingly, this exemption from the certification information will enable the licensee to safely construct, maintain, and operate the AP1000 facility consistent with the design certified by the NRC in 10 CFR Part 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 are needed to support effective and reliable operation of the Primary Sampling System (PSS), it is likely that this exemption will be requested by other AP1000 licensees. However, if this is not the case, the special circumstances continue to outweigh any decrease in safety from the reduction in standardization because the key design functions of the Containment System (CNS) and the PSS associated with this request will continue to be maintained. This exemption request and the associated marked-up tables and figure demonstrate that there is a minimal change from the generic AP1000 DCD, minimizing the reduction in standardization and consequently the safety impact from the reduction.

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 depicting the PSS design changes including an additional containment penetration in the appropriate Tier 1 figures and presenting these PSS changes and their key attributes in the applicable Tier

1 tables. The containment penetration and associated piping and valves are consistent in design and application with containment penetrations already approved as part of the DCD as documented in NUREG-1793 Section 6.2.4. A review of these design changes has determined that they will not have an adverse impact on the design functions associated with the CNS or PSS. Because there is no adverse impact on the design function of these structures, systems, or components (SSCs), 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 amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed exemption does not involve (i) a significant hazards consideration, (i) 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 license amendment request. 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 ITAAC text, tables, and figures in the plant-specific Tier 1 DCD. The license amendment request associated with this proposed exemption revises the plant-specific DCD Tier 1 information by changing a Primary Sampling System containment isolation valve from a check valve to a solenoid-operated valve, adding additional sampling lines, redesigning the PSS in-containment header and adding an additional containment penetration, and adding sample source isolation valves. 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." 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 References

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

2.) NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design," September 2004.

Southern Nuclear Operating Company

ND-12-0915

Enclosure 3

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Licensing Basis Documents - Proposed Changes
(LAR-12-012)

(Note that the sheet numbers and the total number of sheets for the marked-up Tables provided in this Enclosure may be changed by the incorporation of this and other departures. These changes are considered editorial and do not require evaluation in this submittal.)

Tier 1 Table 2.2.1-2

(This change is also incorporated into VEGP Unit 3 and Unit 4 COLs, Appendix C)

[VEGP Tier 1, pg. 2.2.1-11]

[VEGP Unit 3 COL, Appendix C, pg. C-95]

[VEGP Unit 4 COL, Appendix C, pg. C-95]

Table 2.2.1-2

Line Name	Line Number	ASME Code Section III
* * *		
Fire Protection Supply to Containment	FPS-PL-L107	Yes
Containment Atmosphere Return Line	PSS-PL-L038	Yes
Common Primary Sample Line A/B	PSS-PL-T005A/B	Yes
Containment Atmosphere Sample Line	PSS-PL-T031	Yes
Spent Fuel Pool Cooling Discharge	SFS-PL-L017	Yes
* * *		

Tier 1 Figure 2.2.1-1, "Containment System"

(This change is also incorporated into VEGP Unit 3 and Unit 4 COLs, Appendix C)

[DCD Tier 1, pg. 2.2.1-19]

[VEGP Unit 3 COL, Appendix C, pg. C-101]

[VEGP Unit 4 COL, Appendix C, pg. C-101]

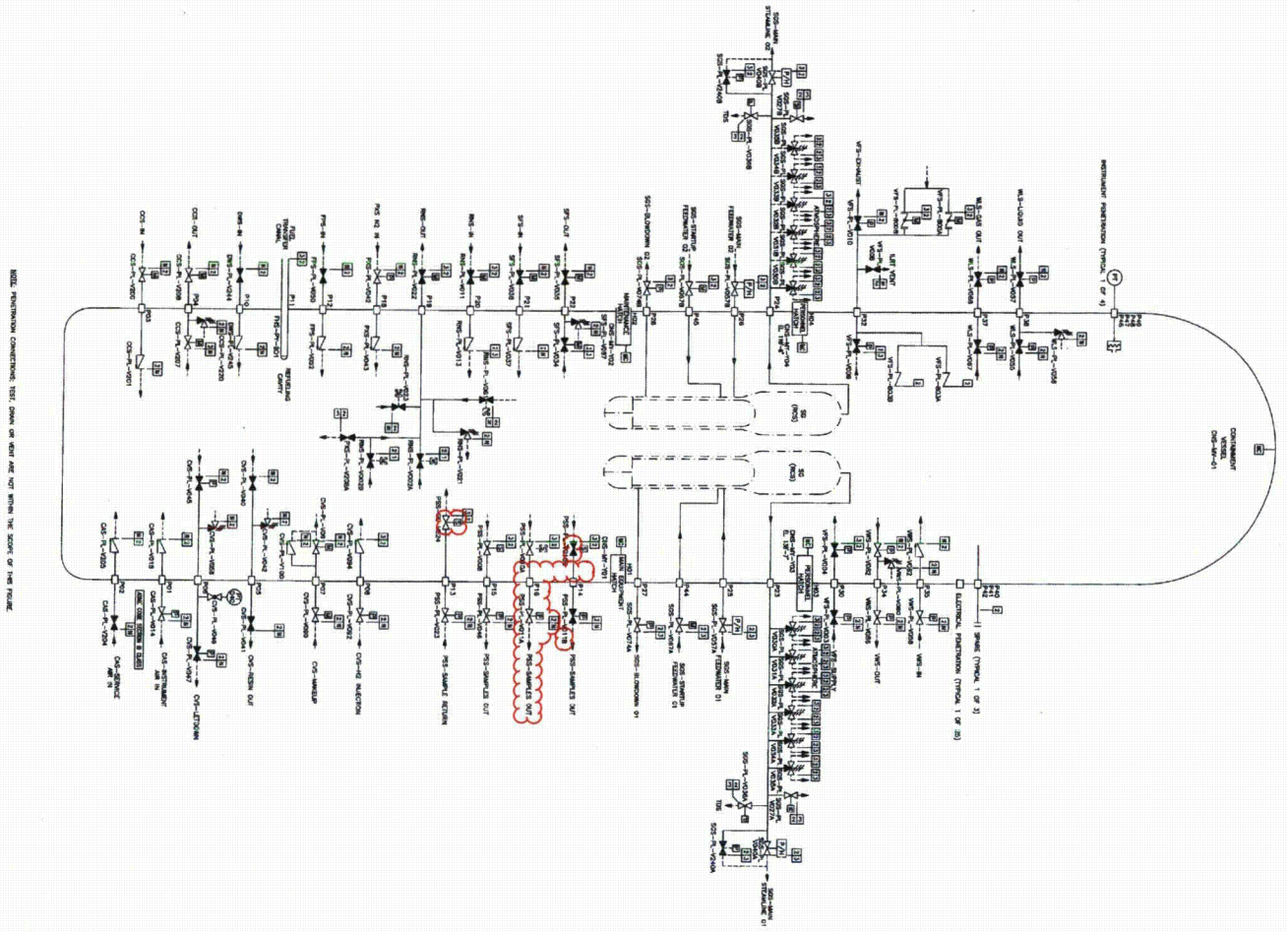

Figure 2.2.1-1
Containment System

Tier 1 Subsection 2.3.13, "Primary Sampling System"

(This change is also incorporated into VEGP Unit 3 and Unit 4 COLs, Appendix C)

[DCD Tier 1, pg. 2.3.13-2]

[VEGP Unit 3 COL, Appendix C, pg. C-263]

[VEGP Unit 4 COL, Appendix C, pg. C-263]

11. a) Deleted. ~~The check valve identified in Table 2.3.13-1 perform an active safety-related function to change position as indicated in the table.~~

Tier 1 Table 2.3.13-1

(This change is also incorporated into VEGP Unit 3 and Unit 4 COLs, Appendix C)

[DCD Tier 1, pg. 2.3.13-3]

[VEGP Unit 3 COL, Appendix C, pg. C-264]

[VEGP Unit 4 COL, Appendix C, pg. C-264]

(Note: the valves in this table have been rearranged such that they are listed in alpha-numeric order.)

Table 2.3.13-1

Equipment Name	Tag No.	ASME Code Section III	Seismic Cat. I	Remotely Operated Valve	Class 1E/ Qual for Harsh Envir.	Safety-Related Display	Control PMS/DAS	Active Function	Loss of Motive Power Position
Containment Air Sample Containment Isolation Valve Inside Reactor Containment (IRC)	PSS-PL-V008	Yes	Yes	Yes	Yes/Yes	Yes (Valve Position)	Yes/No	Transfer Closed	Closed
Liquid Sample Line Containment Isolation Valve ~~Inside Reactor Containment (~~IRC~~)~~	PSS-PL-V010A	Yes	Yes	Yes	Yes/Yes	Yes (Valve Position)	Yes/No	Transfer Closed	Closed
Liquid Sample Line Containment Isolation Valve IRC	PSS-PL-V010B	Yes	Yes	Yes	Yes/Yes	Yes (Valve Position)	Yes/No	Transfer Closed	Closed
Liquid Sample Line Containment Isolation Valve Outside Reactor Containment (ORC)	PSS-PL-V011A	Yes	Yes	Yes	Yes/No	Yes (Valve Position)	Yes/No	Transfer Closed	Closed

Table 2.3.13-1									
Equipment Name	**Tag No.**	**ASME Code Section III**	**Seismic Cat. I**	**Remotely Operated Valve**	**Class 1E/ Qual for Harsh Envir.**	**Safety-Related Display**	**Control PMS/DAS**	**Active Function**	**Loss of Motive Power Position**
Liquid Sample Line Containment Isolation Valve ~~Outside Reactor Containment (~~ORC~~)~~	PSS-PL-V011B	Yes	Yes	Yes	Yes/No	Yes (Valve Position)	Yes/No	Transfer Closed	Closed
Sample Return Line Containment Isolation Valve ORC	PSS-PL-V023	Yes	Yes	Yes	Yes/No	Yes (Valve Position)	Yes/No	Transfer Closed	Closed
Sample Return Containment Isolation ~~Check~~ Valve IRC	PSS-PL-V024	Yes	Yes	Yes ~~No~~	Yes/Yes ~~/~~	Yes (Valve Position) ~~No~~	Yes/No ~~/~~	Transfer Closed	Closed
Air Sample Line Containment Isolation Valve ORC	PSS-PL-V046	Yes	Yes	Yes	Yes/No	Yes (Valve Position)	Yes/No	Transfer Closed	Closed

Tier 1 Table 2.3.13-3

"Primary Sampling System - Inspections, Tests, Analyses, and Acceptance Criteria"

(This change is also incorporated into VEGP Unit 3 and Unit 4 COLs, Appendix C)

[DCD Tier 1, pg. 2.3.13-7]

[VEGP Unit 3 COL, App. C, pg. C-267, Table 2.3.13-3, No. 474, ITAAC No. 2.3.13.11a]

[VEGP Unit 4 COL, App. C, pg. C-267, Table 2.3.13-3, No. 474, ITAAC No. 2.3.13.11a]

Table 2.3.13-3 (cont.) Inspections, Tests, Analyses, and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
* * *		
11.a) Deleted ~~The check valve identified in Table 2.3.13-1 performs an active safety-related function to change position as indicated in the table.~~	~~Exercise testing of the check valve with an active safety function identified in Table 2.3.13-1 will be performed under preoperational test pressure, temperature, and fluid flow conditions.~~	~~The check valve changes position as indicated in Table 2.3.13-1.~~
* * *		

Tier 1 Figure 2.3.13-1

"Primary Sampling System"

(This change is also incorporated into VEGP Unit 3 and Unit 4 COLs, Appendix C)

[DCD Tier 1, pg. 2.3.13-8]

[VEGP Unit 3 COL, Appendix C, pg. C-268]

[VEGP Unit 4 COL, Appendix C, pg. C-268]

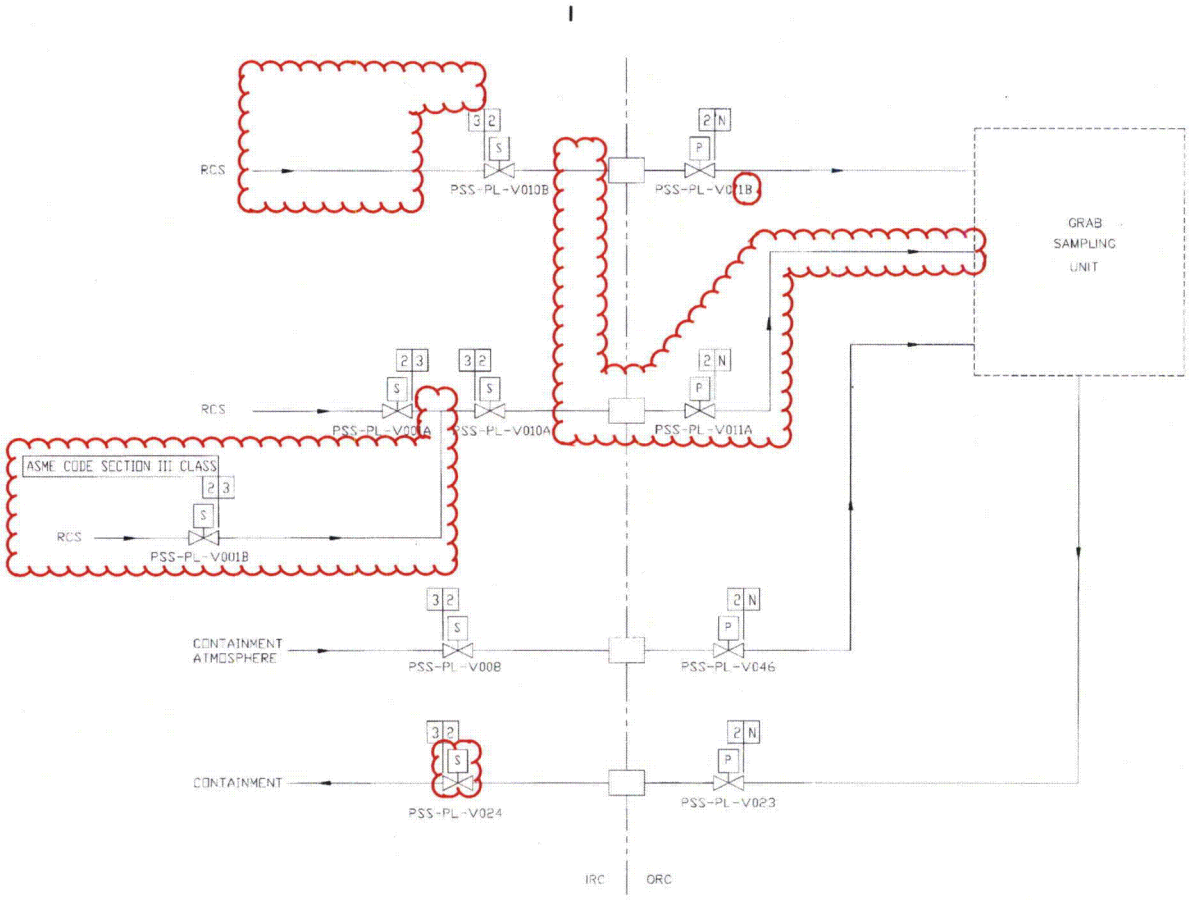

Figure 2.3.13-1
Primary Sampling System

UFSAR Table 3.2-3 (Sheet 14 of 75)

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

Table 3.2-3 (Sheet 14 of 75)
AP1000 CLASSIFICATION OF MECHANICAL AND FLUID SYSTEMS, COMPONENTS, AND EQUIPMENT

Tag Number	Description	AP1000 Class	Seismic Category	Principal Construction Code	Comments
Primary Sampling System (Continued)					
* * *					
PSS-PL-V010B	Liquid Sample Line Containment Isolation IRC	B	I	ASME III-2	
PSS-PL-V011A	Liquid Sample Line Containment Isolation ORC	B	I	ASME III-2	
PSS-PL-V011B	Liquid Sample Line Containment Isolation ORC	B	I	ASME III-2	
PSS-PL-V012A	Liquid Sample Isolation ~~Check~~ Valve	C	I	ASME III-3	
PSS-PL-V012B	Liquid Sample Check Valve	C	I	ASME III-3	
PSS-PL-V013	RCS Pressurizer Sample Isolation Valve	B	I	ASME III-2	
PSS-PL-V014A	RCS Hot Leg 1 Sample Isolation Valve	B	I	ASME III-2	
PSS-PL-V014B	RCS Hot Leg 2 Sample Isolation Valve	B	I	ASME III-2	
PSS-PL-V015A	PXS Accumulator Sample Isolation Valve	C	I	ASME III-3	
PSS-PL-V015B	PXS Accumulator Sample Isolation Valve	C	I	ASME III-3	
PSS-PL-V016A	PXS CMT A Sample Isolation Valve	B	I	ASME III-2	
PSS-PL-V016B	PXS CMT B Sample Isolation Valve	B	I	ASME III-2	
PSS-PL-V016C	PXS CMT A Sample Isolation Valve	B	I	ASME III-2	
PSS-PL-V016D	PXS CMT B Sample Isolation Valve	B	I	ASME III-2	
* * *					

UFSAR Table 3.2-3 (Sheet 14 of 75) (continued)

Table 3.2-3 (Sheet 14 of 75)
AP1000 CLASSIFICATION OF MECHANICAL AND FLUID SYSTEMS, COMPONENTS, AND EQUIPMENT

Tag Number	Description	AP1000 Class	Seismic Category	Principal Construction Code	Comments
Primary Sampling System (Continued)					
* * *					
PSS-PL-V023	Sample Return Line Containment Isolation ORC	B	I	ASME III-2	
PSS-PL-V024	Sample Return Containment Isolation ~~Check~~ IRC	B	I	ASME III-2	
* * *					
PSS-PY-C03	Containment Atmosphere Sample Line Penetration	B	I	ASME III, 2	
PSS-PY-C04	RCS Hot Leg Sample Line Penetration	B	I	ASME III, MC	
* * *					

UFSAR Section 3.9.1.1.1.18

"Reactor Coolant System Makeup"

Revise the first paragraph, as follows:

The chemical and volume control system makeup subsystem is used to accommodate normal minor leakage from the reactor coolant system. On a low programmed pressurizer level signal one of the chemical and volume control system makeup pumps starts automatically in order to provide makeup. The pump automatically stops when the pressurizer level increases to the high programmed setpoint. The addition of the makeup water to the reactor coolant system via the chemical and volume control system purification loop and attendant changes in reactor coolant system parameters constitute the reactor coolant system makeup design transient. The total number of occurrences of the makeup transient is 5640 ~~2820~~, which corresponds to twice ~~once~~ per week during the plant design objective of 60 years assuming a 90 percent availability factor for the plant.

UFSAR Table 3.9-1 (Sheet 1 of 2)

"Reactor Coolant System Design Transients"

Table 3.9-1 (Sheet 1 of 2)

REACTOR COOLANT SYSTEM DESIGN TRANSIENTS

Event	Cycles
* * *	
Reactor coolant system makeup	5640 ~~2820~~
* * *	

UFSAR Table 3.9-12 (Sheet 2 of 7)

"List of ASME Class 1, 2, and 3 Active Valves"

Table 3.9-12 (Sheet 2 of 7)

LIST OF ASME CLASS 1, 2, AND 3 ACTIVE VALVES

Valve No.	Description	Function[(a)]
* * *		
Primary Sampling System		
* * *		
PSS-PL-V011A	Containment Isolation – Liquid Sample Line	2
PSS-PL-V011B	Containment Isolation – Liquid Sample Line	2
PSS-PL-V023	Containment Isolation – Sample Return Line	2
PSS-PL-V024	Containment Isolation – Sample Return Line ~~Check~~	2
* * *		

UFSAR Table 3.9-16 (Sheet 8 of 26)

"Valve Inservice Test Requirements"

Table 3.9-16 (Sheet 8 of 26)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve/Actuator Type	Safety-Related Missions	Safety Functions[2]	ASME Class/ IST Category	Inservice Testing Type and Frequency	IST Notes
			* * *				
PSS-PL-V010A	Liquid Sample Line Containment Isolation IRC	Remote SO GLOBE	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	Class 2 Category A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test Exercise Full Stroke/Quarterly Failsafe Test/Quarterly Operability Test	27, 31
			* * *				
PSS-PL-V011A	Liquid Sample Line Containment Isolation ORC	Remote AO GLOBE	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	Class 2 Category A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test Exercise Full Stroke/Quarterly Failsafe Test/Quarterly Operability Test	27, 31
PSS-PL-V011B	Liquid Sample Line Containment Isolation ORC	Remote AO GLOBE	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	Class 2 Category A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test Exercise Full Stroke/Quarterly Failsafe Test/Quarterly Operability Test	27, 31
			* * *				
PSS-PL-V024	Sample Return Line Containment Isolation ~~Check~~ IRC	Remote SO GLOBE ~~Check~~	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	Class 2 Category A~~C~~	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test ~~Check Exercise/Refueling Shutdown~~ Exercise Full Stroke/Quarterly Failsafe Test/Quarterly Operability Test	~~19,~~ 27, 31

UFSAR Table 3.9-16

"Valve Inservice Test Requirements (Notes)"

Revise Note 19, as shown:

19. Deleted. ~~Primary sampling system containment isolation check valve (PSS-V024) is located inside containment and considerable effort is required to install test equipment and cap the discharge line. Exercise testing is not performed during cold shutdown operations for the same reasons. These valves are exercised during refueling conditions when the radiation levels are reduced.~~

UFSAR Table 3.11-1 (Sheet 21 of 51)

"Environmentally Qualified Electrical and Mechanical Equipment"

Table 3.11-1 (Sheet 21 of 51)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP1000 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
* * *					
Containment Isolation – Liquid Sample Line	PSS-PL-V010B	1	ESF	4 mos	M*
Limit Switch	PSS-PL-V010B-L	1	PAMS	1 yr	E*
Solenoid Operator	PSS-PL-V010B-S	1	ESF	5 min	E*
Containment Isolation – Liquid Sample Line	PSS-PL-V011A	6	ESF	2 wks	M S**
Limit Switch	PSS-PL-V011A-L	6	PAMS	2 wks	E**
Solenoid Valve	PSS-PL-V011A-S	6	ESF	5 min	E**
Containment Isolation – Liquid Sample Line	PSS-PL-V011B	6	ESF	2 wks	M S**
Limit Switch	PSS-PL-V011B-L	6	PAMS	2 wks	E**
Solenoid Valve	PSS-PL-V011B-S	6	ESF	5 min	E**
Containment Isolation – Sample Return Line	PSS-PL-V023	6	ESF	2 wks	M S**
Limit Switch	PSS-PL-V023-L	6	PAMS	2 wks	E**
Solenoid Valve	PSS-PL-V023-S	6	ESF	5 min	E**
Containment Isolation – Sample Return Line	PSS-PL-V024	1	ESF	4 mos	M*
Limit Switch	PSS-PL-V024-L	1	PAMS	1 yr	E*
Solenoid Operator	PSS-PL-V024-S	1	ESF	5 min	E*
* * *					

UFSAR Table 3.11-1 (Sheet 34 of 51)

"Environmentally Qualified Electrical and Mechanical Equipment"

Table 3.11-1 (Sheet 34 of 51)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP1000 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
* * *					
PXS CMT B Sample Isolation	PSS-PL-V005D	1	PB	1 yr	M*
Liquid Sample Isolation ~~Check~~ Valve	PSS-PL-V012A	1	PB	1 yr	M*
Liquid Sample Check Valve	PSS-PL-V012B	1	PB	1 yr	M*
RCS Pressurizer Sample Isolation Valve	PSS-PL-V013	1	PB	1 yr	M*
RCS Hot Leg 1 Sample Isolation Valve	PSS-PL-V014A	1	PB	1 yr	M*
RCS Hot Leg 2 Sample Isolation Valve	PSS-PL-V014B	1	PB	1 yr	M*
PXS Accumulator Sample Isolation Valve	PSS-PL-V015A	1	PB	1 yr	M*
PXS Accumulator Sample Isolation Valve	PSS-PL-V015B	1	PB	1 yr	M*
PXS CMT A Sample Isolation Valve	PSS-PL-V016A	1	PB	1 yr	M*
PXS CMT B Sample Isolation Valve	PSS-PL-V016B	1	PB	1 yr	M*
PXS CMT A Sample Isolation Valve	PSS-PL-V016C	1	PB	1 yr	M*
PXS CMT B Sample Isolation Valve	PSS-PL-V016D	1	PB	1 yr	M*
* * *					

UFSAR Table 3I.6-2 (Sheet 14 of 28)

"List of Potential High Frequency Sensitive AP1000 Safety-Related Electrical and Electro-Mechanical Equipment

Table 3I.6-2 (Sheet 14 of 28)

LIST OF POTENTIAL HIGH FREQUENCY SENSITIVE AP1000 SAFETY-RELATED ELECTRICAL AND ELECTRO-MECHANICAL EQUIPMENT

Description	AP1000 Tag Number
* * *	
Containment Isolation – Liquid Sample Line	
Limit Switch	PSS-PL-V010B-L
Solenoid Operator	PSS-PL-V010B-S
Containment Isolation – Liquid Sample Line	
Limit Switch	PSS-PL-V011A-L
Solenoid Valve	PSS-PL-V011A-S
Containment Isolation – Liquid Sample Line	
Limit Switch	PSS-PL-V011B-L
Solenoid Valve	PSS-PL-V011B-S
Containment Isolation – Sample Return Line	
Limit Switch	PSS-PL-V023-L
Solenoid Valve	PSS-PL-V023-S
Containment Isolation –Sample Return Line	
Limit Switch	PSS-PL-V024-L
Solenoid Operator	PSS-PL-V024-S
* * *	

UFSAR Table 3I.6-3 (Sheet 5 of 32)

"List of AP1000 Safety-Related Electrical and Mechanical Equipment Not High Frequency Sensitive"

Table 3I.6-3 (Sheet 5 of 32)

LIST OF AP1000 SAFETY-RELATED ELECTRICAL AND MECHANICAL EQUIPMENT NOT HIGH FREQUENCY SENSITIVE

Description	AP1000 Tag Number	Comment
* * *		
Containment Isolation – Liquid Sample Line	PSS-PL-V010B	2
Containment Isolation – Liquid Sample Line	PSS-PL-V011A	2
Containment Isolation – Liquid Sample Line	PSS-PL-V011B	2
* * *		

UFSAR Table 3I.6-3 (Sheet 14 of 32)

List of AP1000 Safety-Related Electrical and Mechanical Equipment Not High Frequency Sensitive

Table 3I.6-3 (Sheet 14 of 32)

LIST OF AP1000 SAFETY-RELATED ELECTRICAL AND MECHANICAL EQUIPMENT NOT HIGH FREQUENCY SENSITIVE

Description	AP1000 Tag Number	Comment
* * *		
PXS CMT B Sample Isolation	PSS-PL-V005D	2
Liquid Sample Isolation ~~Check~~ Valve	PSS-PL-V012A	2
Liquid Sample Check Valve	PSS-PL-V012B	2
RCS Pressurizer Sample Isolation Valve	PSS-PL-V013	2
RCS Hot Leg 1 Sample Isolation Valve	PSS-PL-V014A	2
RCS Hot Leg 2 Sample Isolation Valve	PSS-PL-V014B	2
PXS Accumulator Sample Isolation Valve	PSS-PL-V015A	2
PXS Accumulator Sample Isolation Valve	PSS-PL-V015B	2
PXS CMT A Sample Isolation Valve	PSS-PL-V016A	2
PXS CMT B Sample Isolation Valve	PSS-PL-V016B	2
PXS CMT A Sample Isolation Valve	PSS-PL-V016C	2
PXS CMT B Sample Isolation Valve	PSS-PL-V016D	2
* * *		

UFSAR Table 6.2.3-1 (Sheet 1 of 4)

"Containment Mechanical Penetrations and Isolation Valves"

Table 6.2.3-1 (Sheet 1 of 4)

CONTAINMENT MECHANICAL PENETRATIONS AND ISOLATION VALVES

System	Containment Penetration			Isolation Device						Test		
	Line	Flow	Closed System IRC	Valve/Hatch Identification	Pipe Length	DCD Subsection	Position N-S-A	Signal	Closure Times	Type[1] & Note	Medium	Direction
				* * *								
PSS	RCS/PXS~~PSX~~/CVS samples out	Out	No	PSS-PL-V010A	-	9.3.3	OC~~-~~C-C	T	std.	C	Air	Forward
				PSS-PL-V010B	-		C-C-C	T	std.			
				PSS-PL-V011A	13		C-C-C	T	std.			
				PSS-PL-V011B	13		OC~~-~~C-C	T	std.			
	Cont. air samples out	Out	No	PSS-PL-V046	13	9.3.3	O-C-C	T	std.	C	Air	Forward
				PSS-PL-V008	-		O-C-C	T	std.			
	RCS/Cont. air sample return	In	No	PSS-PL-V023	16	9.3.3	O-C-C	T	std.	C	Air	Forward
				PSS-PL-V024	-		O-C-C	T ~~None~~	std. ~~N/A~~			
				* * *								

UFSAR Table 9.2.2-2

"Plant Components Cooled by Component Cooling Water System"

Table 9.2.2-2

PLANT COMPONENTS COOLED BY COMPONENT COOLING WATER SYSTEM

Component	System
* * *	
Chiller B	VWS
Sample HX A	PSS
Sample HX B	PSS
* * *	

UFSAR Subsection 9.3.3.3

"Containment Isolation Valves"

Revise the second and third paragraphs of Subsection 9.3.3.3, as follows:

Four ~~Three~~ lines penetrate the containment. Two lines carry ~~One line carries~~ the liquid samples from their sources to the grab sampling unit or the laboratory. The third ~~second~~ line carries the containment air samples from their source to the sampling unit. The fourth ~~third~~ line returns the liquid or containment air sampling flows to the containment sump. The valves fail closed.

These valves close on a containment isolation signal. In addition, the outside containment isolation valves in the liquid sampling paths closes on a high sampling flow temperature or high radiation downstream of the sample coolers. This prevents the operator from working with high temperature fluid and minimizes the possibility of operator injury.

UFSAR Subsection 9.3.3.7

"Instrumentation Requirements"

Revise the second paragraph of Subsection 9.3.3.7, as follows:

> The temperature indicator inside the grab sampling unit provides a signal to close the respective outside containment isolation valve when the sampling flow temperature exceeds pre-set limits. Likewise, the radiation monitors also provide a signal to close the outside containment isolation valves when excessive radiation levels are detected, for operator protection.

UFSAR Table 9.3.1-1 (Sheet 1 of 2)

"Safety-Related Air-Operated Valves"

Table 9.3.1-1 (Sheet 1 of 2)

SAFETY-RELATED AIR-OPERATED VALVES

Valve Number	Normal/Failure Position	Function
* * *		
Primary Sampling System (PSS)		
PSS-PL-V011A	NO/FC	Containment Isolation – Liquid Sample Line
PSS-PL-V011B	NC/FC	Containment Isolation – Liquid Sample Line
* * *		

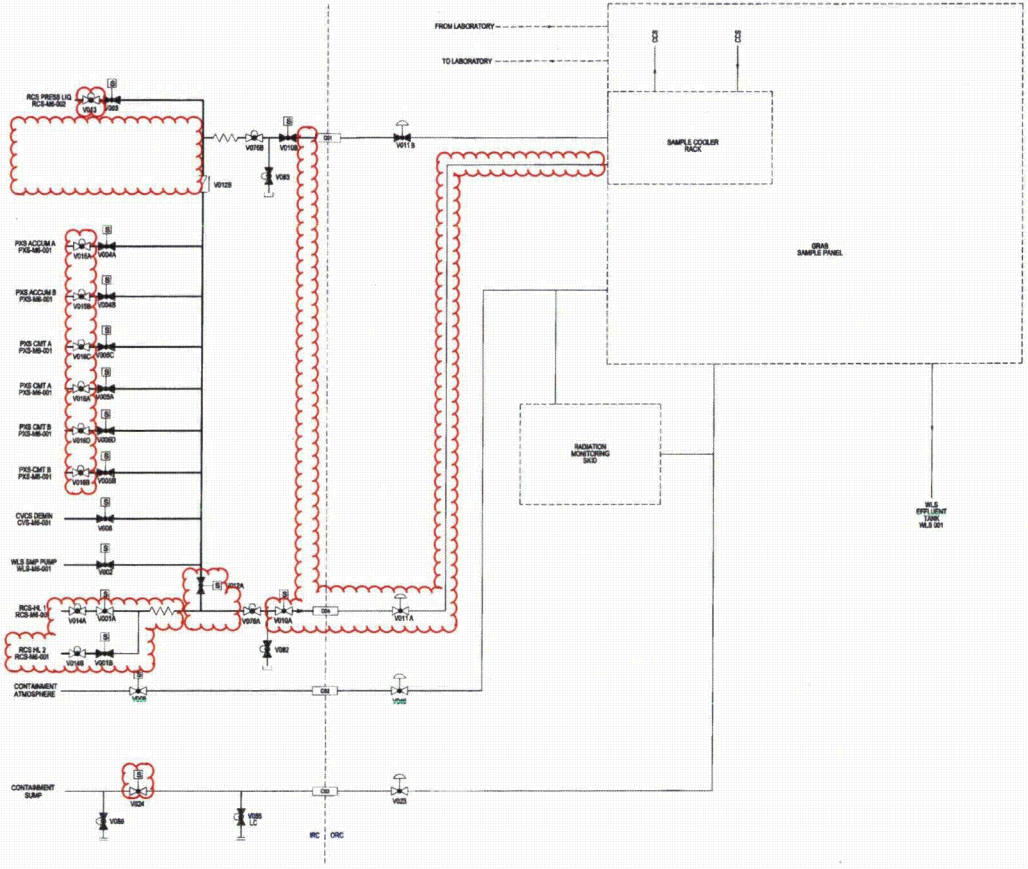

Figure 9.3.3-1

Simplified Sketch of the Primary Sampling System
(REF PSS 001)

UFSAR Table 9A-2 (Sheet 2 of 14)

"Safe Shutdown Components"

Table 9A-2 (Sheet 2 of 14)

SAFE SHUTDOWN COMPONENTS

Fire Area/ Fire Zone	System	Description	Class 1E Division			
			A	C	B	D
1000 AF 01/ 1100 AF 11300A	PSS	Containment Air Sample Cont. Isolation Valve			V008	
		Liquid Sample Line Cont. Isolation Valve			V010A	V010B
		Sample Return Line Cont. Isolation Valve			V024	
	VFS	Containment Purge Discharge Cont. Isolation Valve				V009
	* * *					

UFSAR Table 9A-2 (Sheet 8 of 14)

"Safe Shutdown Components"

Table 9A-2 (Sheet 8 of 14)

SAFE SHUTDOWN COMPONENTS

Fire Area/ Fire Zone	System	Description	Class 1E Division			
			A	C	B	D
1200 AF 01	PSS	Liquid Sample Line A Cont. Isolation Valve		V011A		
		Liquid Sample Line B Cont. Isolation Valve	V011B			
		Sample Return Line Cont. Isolation Valve	V023			
		Air Sample Line Cont. Isolation Valve	V046			
	* * *					

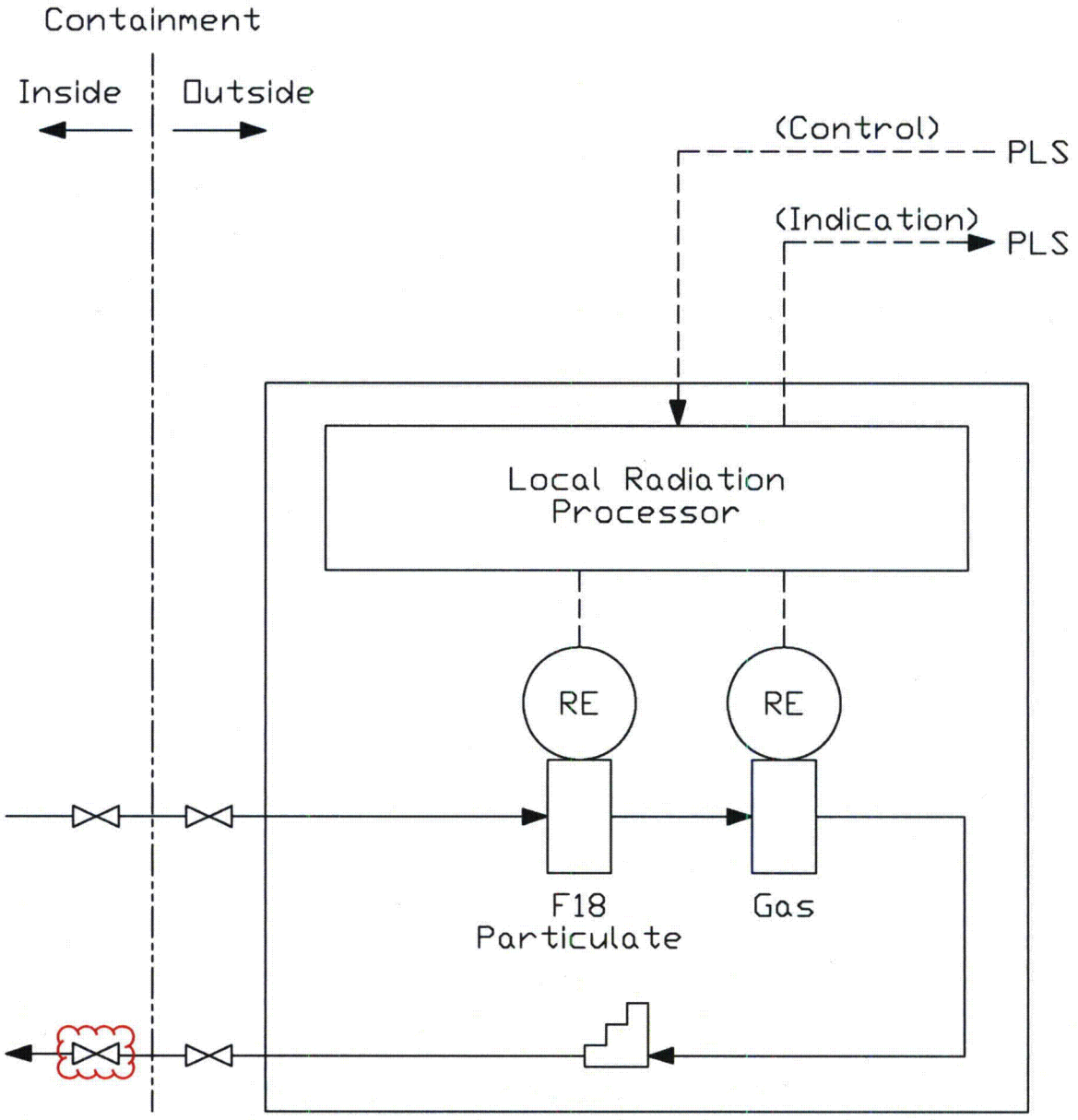

Figure 11.5-3

Containment Atmosphere Radiation Monitor