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September 1, 2015
Docket Nos.: 52-025
52-026

ND-15-1632
10 CFR 50.90
10 CFR 52.97

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: Revision to Vogtle 3 and 4
Plant-Specific Emergency Planning ITAAC (LAR-15-014)

Ladies and Gentlemen:

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 the VEGP 3 and 4 Combined Licenses (COLs) for VEGP Units 3 and 4, Numbers NPF-91 and NPF-92, respectively.

The requested amendment will revise the VEGP 3 and 4 plant-specific emergency planning inspections, tests, analyses, and acceptance criteria (ITAAC) in Appendix C of the VEGP Units 3 and 4 COLs. Changes to the plant-specific emergency planning ITAAC are proposed to remove the copy of UFSAR Table 7.5-1, "Post-Accident Monitoring System," from Appendix C of the VEGP Units 3 and 4 COLs.

The description, technical evaluation, regulatory evaluation (including the Significant Hazards Consideration determination), and environmental considerations for the proposed changes in the License Amendment Request (LAR) are contained in Enclosure 1. Enclosure 2 provides markups of the proposed changes to the VEGP Unit 3 plant-specific emergency planning ITAAC contained in Unit 3 COL, Appendix C, "Vogtle Electric Generating Plant Unit 3 Inspections, Tests, Analyses, and Acceptance Criteria." Enclosure 3 provides markups of the proposed changes to the VEGP Unit 4 plant-specific emergency planning ITAAC contained in Unit 4 COL, Appendix C, "Vogtle Electric Generating Plant Unit 4 Inspections, Tests, Analyses, and Acceptance Criteria."

This letter contains no regulatory commitments.

SNC requests staff approval of the license amendment by February 29, 2016 to support completion of construction of structures, systems, and components (SSCs) affected by departures related to the affected UFSAR tables. SNC expects to implement the proposed amendment (through incorporation into the VEGP 3 and 4 COLs) within 30 days of approval of the proposed 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. Brian H. Whitley states that: he is the Regulatory Affairs Director of Southern Nuclear Operating Company; he 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

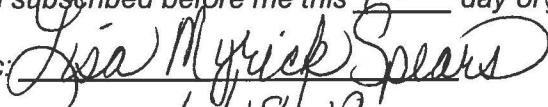


B. H. Whitley

BHW/TEA/ljs

Sworn to and subscribed before me this 1st day of September 2015

Notary Public:



My commission expires: 6/18/19



- Enclosures:
- 1) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Request for License Amendment: Regarding Revision to Vogtle 3 and 4 Plant-Specific Emergency Planning ITAAC (LAR-15-014)
 - 2) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Revision to Unit 3 COL Appendix C – Proposed Changes – Markups (LAR-15-014)
 - 3) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Revision to Unit 4 COL Appendix C – Proposed Changes – Markups (LAR-15-014)

U.S. Nuclear Regulatory Commission

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Southern Nuclear Operating Company
Vogtle Electric Generating Plant (VEGP) Units 3 and 4

ND-15-1632

Enclosure 1

Request for License Amendment:

Regarding

Revision to Vogtle 3 and 4 Plant-Specific Emergency Planning ITAAC

(LAR-15-014)

(This enclosure contains 8 pages)

ND-15-1632

Enclosure 1

LAR-15-014: Request for License Amendment – Revision to Vogtle 3 and 4 Plant-Specific
Emergency Planning ITAAC

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ND-15-1632

Enclosure 1

LAR-15-014: Request for License Amendment – Revision to Vogtle 3 and 4 Plant-Specific Emergency Planning ITAAC

Pursuant to 10 CFR 50.90, Southern Nuclear Operating Company (SNC) 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 will revise the VEGP 3 and 4 plant-specific emergency planning inspections, tests, analyses, and acceptance criteria (ITAAC) in Appendix C of the VEGP Units 3 and 4 COLs. Changes to the plant-specific emergency planning (EP) ITAAC are proposed to remove the copy of Updated Final Safety Analysis Report (UFSAR) Table 7.5-1, “Post-Accident Monitoring System,” from Appendix C of the VEGP Units 3 and 4 COLs. This will make the ITAAC consistent with industry precedent and still maintain appropriate regulatory controls on UFSAR Table 7.5-1.

2. Detailed Description

The VEGP 3 and 4 emergency planning ITAAC were approved by the NRC with issuance of the Southern Nuclear Operating Company Vogtle Electric Generating Plant Early Site Permit (ESP) and Limited Work Authorization [ML092290157]. The approved emergency planning ITAAC acceptance criteria referenced a table from the approved emergency plan, but a copy of the table was not included in the emergency planning ITAAC itself. The VEGP 3 and 4 Combined License (COL) was approved by the NRC with the issuance of the Unit 3 and 4 COLs [ML112991110 and ML113060412, respectively]. Appendix C to the COLs contains the emergency planning ITAAC. When Appendix C to the COLs [ML112991102 and ML113060437, respectively] was issued, a copy of the table referenced in the EP ITAAC was included in Appendix C. The EP ITAAC contained in Appendix C were subsequently amended to change the reference from a table in the emergency plan to UFSAR Table 7.5-1 [ML14245A089 and ML14245A093, respectively]. The amended EP ITAAC included a copy of UFSAR Table 7.5-1.

Unit 3 and Unit 4 EP ITAAC E.3.9.01.01.01, E.3.9.05.01.03, E.3.9.05.02.02, and E.3.9.06.00.01 acceptance criteria reference UFSAR Table 7.5-1, “Post-Accident Monitoring System.” As a result, Appendix C of the VEGP Units 3 and 4 COLs, contain a copy of UFSAR Table 7.5-1. Consequently, all changes to UFSAR Table 7.5-1 require a license amendment. However, as the design matures, the exact list of variables needed to evaluate emergency situations may change either through addition of variables or by deletion of variables that are no longer needed. These changes could be evaluated under the provisions of 10 CFR 52, Appendix D, Section VIII.B.5 or 10 CFR 50.59, as applicable, and 10 CFR 50.54(q) without automatically requiring a license amendment.

It should be noted that, on May 1, 2015, the NRC issued a COL for the Unit 3 Enrico Fermi Nuclear Plant [ML15084A170]. Appendix C to the Fermi COL contains the ITAAC associated with emergency planning [ML15084A169]. The acceptance criteria for EP ITAAC 1724 contain a reference to Table II.B-1 of the Fermi 3 Combined license Application Emergency Plan. The referenced table is not included in Appendix C of the Fermi 3 COL.

3. Technical Evaluation

10 CFR 52.97(b) requires that the Commission identify within the combined license the inspections, tests, and analyses, including those applicable to emergency planning, that the licensee shall perform, and the acceptance criteria that, if met, are necessary and sufficient to provide reasonable assurance that the facility has been constructed and will be operated in conformity with the license, the provisions of the Act, and the Commission's rules and regulations. Regulatory guidance for the content of EP ITAAC is contained in NUREG-0800, Subsection 14.3.10, "Emergency Planning - Inspections, Tests, Analyses, and Acceptance Criteria." Neither 10 CFR 52.97(b) nor NUREG-0800, Subsection 14.3.10 specify that tables referenced in the EP ITAAC be included in the ITAAC itself.

Proposed changes to UFSAR Table 7.5-1 would be evaluated under the provision of 10 CFR Part 52, Appendix D, Section B.5 for plant-specific Design Control Document (DCD) content and under the provisions of 10 CFR 50.59 for site-specific UFSAR content. In addition, proposed changes to UFSAR Table 7.5-1 would be evaluated for impacts to the emergency plan, and should an impact be identified, the change would be further evaluated under the provisions of 10 CFR 50.54(q). Consequently, removing UFSAR Table 7.5-1 from Appendix C of the Units 3 and 4 COLs will not reduce the level of safety afforded by the EP ITAAC.

Summary:

The proposed changes to Appendix C of the VEGP 3 and 4 COLs are in compliance with applicable ITAAC regulations and meet the requirements of supporting regulatory guidance. The proposed changes do not affect the design of a system, structure, or component (SSC) used to meet the design bases of the nuclear plant, nor do the changes affect the construction or operation of the nuclear plant. Therefore, based on the technical evaluation above and the regulatory analysis provided in Section 4.1 below, the proposed changes to Appendix C of the VEGP 3 and 4 COLs are acceptable.

4. Regulatory Evaluation

4.1 Applicable Regulatory Requirements/Criteria

10 CFR 52.97(b) requires that the Commission identify within the combined license the inspections, tests, and analyses, including those applicable to emergency planning, that the licensee shall perform, and the acceptance criteria that, if met, are necessary and sufficient to provide reasonable assurance that the facility has been constructed and will be operated in conformity with the license, the provisions of the Act, and the Commission's rules and regulations. Based on the technical evaluations provided in Section 3 above, the proposed changes to Appendix C of the VEGP 3 and 4 COLs continue to meet the requirements of 10 CFR 52.97(b).

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

4.2 Precedent

As noted above, on May 1, 2015, the NRC issued a COL for the Unit 3 Enrico Fermi Nuclear Plant [ML15084A170]. Appendix C to the Fermi COL contains the ITAAC associated with emergency planning [ML15084A169]. The acceptance criteria for EP ITAAC 1724 contain a reference to Table II.B-1 of the Fermi 3 Combined License Application Emergency Plan. The referenced table is not included in Appendix C of the Fermi 3 COL.

4.3 Significant Hazards Consideration Determination

The requested amendment will revise the Vogtle Electric Generating Plant (VEGP) 3 and 4 plant-specific emergency planning inspections, tests, analyses, and acceptance criteria (ITAAC) in Appendix C of the VEGP Units 3 and 4 Combined Licenses (COLs). Changes to the plant-specific emergency planning ITAAC are proposed to remove the copy of Updated Final Safety Analysis Report (UFSAR) Table 7.5-1. There is no physical change to the plant itself.

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 VEGP 3 and 4 emergency planning inspections, tests, analyses, and acceptance criteria (ITAAC) provide assurance that the facility has been constructed and will be operated in conformity with the license, the provisions of the Act, and the Commission's rules and regulations. The proposed change to remove the copy of UFSAR Table 7.5-1 from Appendix C of the VEGP COLs does not affect the design of a system, structure, or component (SSC) used to meet the design bases of the nuclear plant. Nor do the changes affect the construction or operation of the nuclear plant itself, so there is no change to the probability or consequences of an accident previously evaluated. Removing the copy of UFSAR Table 7.5-1 from Appendix C of the COLs does not affect prevention and mitigation of abnormal events, e.g., accidents, anticipated operational occurrences, earthquakes, floods and turbine missiles, or their safety or design analyses. No safety-related SSC or function is adversely affected. The changes do not involve nor interface with any SSC accident initiator or initiating sequence of events, and thus, the probabilities of the accidents evaluated in the UFSAR are not affected. Because the changes do not involve any safety-related SSC or function used to mitigate an accident, the consequences of the accidents evaluated in the UFSAR are not affected.

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

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

Response: No

The VEGP 3 and 4 emergency planning ITAAC provide assurance that the facility has been constructed and will be operated in conformity with the license, the provisions of the Act, and the Commission's rules and regulations. The changes do not affect the design of an SSC used to meet the design bases of the nuclear plant, nor do the changes affect the construction or operation of the nuclear plant. Consequently, there is no new or different kind of accident from any accident previously evaluated. The changes do not affect safety-related equipment, nor do they affect equipment which, if it failed, could initiate an accident or a failure of a fission product barrier. In addition, the changes do not result in a new failure mode, malfunction or sequence of events that could affect safety or safety-related equipment.

No analysis is adversely affected. No system or design function or equipment qualification is adversely affected by the changes. This activity will not allow for a new fission product release path, result in a new fission product barrier failure mode, nor create a new sequence of events that would result in significant fuel cladding failures.

Therefore, the proposed 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 VEGP 3 and 4 emergency planning ITAAC provide assurance that the facility has been constructed and will be operated in conformity with the license, the provisions of the Act, and the Commission's rules and regulations. The changes do not affect the assessments or the plant itself. The changes do not adversely interface with safety-related equipment or fission product barriers. No safety analysis, design basis limit or acceptance criterion are challenged or exceeded by the proposed change.

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

4.4 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. Pursuant to 10 CFR 50.92, the requested change does not involve a Significant Hazards Consideration.

5. Environmental Considerations

The requested license amendment proposes to remove the copy of Updated Final Safety Analysis Report (UFSAR) Table 7.5-1 from Appendix C of the VEGP 3 and 4 COLs. UFSAR Table 7.5-1 is referenced in emergency planning inspections, tests, analyses, and acceptance criteria (ITAAC).

The VEGP 3 and 4 emergency planning ITAAC provide assurance that the facility has been constructed and will be operated in conformity with the license, the provisions of the Act, and the Commission's rules and regulations. There is no physical change to the plant itself; there is no effect on how a system, structure, or component (SSC) is used to meet the design bases of the nuclear plant, nor is there an effect on the construction or operation of the nuclear plant. Therefore, the changes do not affect the assessments or the plant itself.

The proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9), in that:

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

As documented in Section 4.3, Significant Hazards Consideration Determination, of this license amendment request, an evaluation was completed to determine whether or not a significant hazards consideration is involved by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment." As noted above, the proposed change will not affect how a SSC is used to meet the design bases of the nuclear plant, nor is there an effect on the construction or operation of the nuclear plant. 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 requested license amendment proposes to remove the copy of UFSAR Table 7.5-1 from Appendix C of the VEGP 3 and 4 COLs. As noted above, the proposed change will not affect how a SSC is used to meet the design bases of the nuclear plant, nor is there an effect on the construction or operation of the nuclear plant. The VEGP 3 and 4 emergency planning ITAAC 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, 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 requested license amendment proposes to remove the copy of UFSAR Table 7.5-1 from Appendix C of the VEGP 3 and 4 COLs. As noted above, the proposed change will not affect how a SSC is used to meet the design bases of the nuclear plant, nor is there an effect on the construction or operation of the nuclear plant. Consequently, the changes to Appendix C of the VEGP 3 and 4 COLs have no effect on individual or cumulative occupational radiation exposure during plant operation. 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 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

None

Southern Nuclear Operating Company
Vogtle Electric Generating Plant (VEGP) Units 3 and 4

ND-15-1632

Enclosure 2

Revision to Unit 3 COL Appendix C
Proposed Changes – Markups

(LAR-15-014)

(This enclosure contains 13 pages)

Revision to Unit 3 COL Appendix C

Remove UFSAR Table 7.5-1, Post-Accident Monitoring System, beginning on page C-474:

UFSAR Table 7.5-1 (Sheet 1 of 12) Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
RCS wide-range pressure	0-3300 psig	B1, B2, D2, C1, F2	Harsh	Yes	3 (Note-4)	1E	Yes	Located inside containment
RCS T _H (Wide Range)	50-700°F	B1, B2, D2, F2	Harsh	Yes	2	1E	Yes	Diverse Measurement- Core exit temperature
RCS T _C (Wide Range)	50-700°F	B1, B2, D2, F2	Harsh	Yes	3 (Note-4)	1E	Yes	
Steam generator water level (wide range)	0-100% of span	D2, F3	Harsh	Yes	1/steam generator	1E	Yes	
Steam generator water level (narrow range)	0-100% of span	D2, F2	Harsh	Yes	1/steam generator	1E	Yes	
Pressurizer level	0-100% of span	B1, D2, F2	Harsh	Yes	3 (Note-4)	1E	Yes	
Pressurizer reference leg temperature	50-420°F	B1, D2	Harsh	Yes	3 (Note-4)	1E	Yes	
Neutron flux	10 ⁻⁶ - 200% power	B1	Harsh	Yes	3 (Note-4)	1E	Yes	
Control rod position	0-267 steps	B3, D3	None	None	1/control rod	Non-1E	No	
Containment water level	El. 72 ft. to 110 ft. in discrete steps	B1, C1, F2	Harsh	Yes	3 (Note-4)	1E	Yes	

UFSAR Table 7.5-1 (Sheet 2 of 12) Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
Core-exit temperature	200-2300°F	B1, C1, F2	Harsh	Yes	2/quadrant per-Division	1-E	Yes	
PRHR-HX inlet- temperature	50-650°F	D3	None	None	1	Non-1E	No	Primary- indication-is- RCS-T _H
PRHR-HX outlet- temperature	50-500°F	B1, D2	Harsh	Yes	1	1E	Yes	Diverse-variable to-PRHR-flow
PRHR-flow	700-3000-gpm	B1, D2, F2	Harsh	Yes	2	1-E	Yes	Diverse- measurement:- PRHR-outlet- temperature
IRWST-water-level	0-100% of-span	B1, D2, F2	Harsh	Yes	3 (Note-4)	1E	Yes	
RCS-subcooling (Note-6)	200°F Sub-cooling- to-35°F super-heat	B1, F2	Harsh	Yes	2	1E	Yes	Diverse- measurement:- Core-exit- temperature-&- wide-range-RCS pressure
Passive-containment- cooling-water-flow	0-150-gpm	B1, D2	Mild	Yes	1 (Note-1)	1E	Yes	
PCS-storage-tank-water- level	5-100% of tank- height	B1, D2	Mild	Yes	2	1-E	Yes	Diverse- measurement:- PCS-flow
IRWST surface- temperature	50-300°F	D3	None	None	1	Non-1E	No	
IRWST bottom- temperature	50-300°F	D3	None	None	1	Non-1E	No	
Steam-line-pressure	0-1300-psig	F2	Harsh/ Mild (Note-8)	Yes	1/steam generator (Note-11)	1E	No	

UFSAR Table 7.5-1 (Sheet 3 of 12)								
Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note 2)	Remarks
			Environmental	Seismic				
Startup feedwater flow	0-600-gpm	F2	Mild	Yes	1/steam generator (Note 11)	1E	No	
Startup feedwater control valve status	Open/ Closed	D2, F3	Harsh	Yes	1/valve (Note 7)	1E	Yes	
Containment pressure	-5 to 10 psig	B1, C2, D2, F2	Mild	Yes	3 (Note 4)	1E	Yes	
Containment pressure (extended range)	0 to 240 psig	C1	Mild	Yes	3 (Note 4)	1E	Yes	
Containment area radiation (high range)	10 ⁰ -10 ⁷ R	C1, E2, F2	Harsh	Yes	3 (Note 4)	1E	Yes	
Reactor vessel hot leg water level	0-100% of span	B2, B3	Harsh	Yes	1	1E	Yes	Two instruments are provided
Plant vent radiation level	(Note 3)	C2, E2	Mild	None	1	Non-1E	No	
Remotely operated containment isolation valve status	Open/ Closed	B1, D2	Harsh/mild	Yes	1/valve (Note 7)	1E	Yes	Separate divisions on series valves
Containment vacuum relief valves	Open/ Closed	D2	Mild	Yes	1/valve (Note 7)	1E	Yes	
Boundary environs radiation		C3, E3	None	None	N/A	Non-1E	No	Conforms to Regulatory Guide 1.97, Revision 3
<ul style="list-style-type: none"> ● Airborne Radiohalogens and Particulates (portable sampling with onsite analysis capability) ● Radiation (portable instrumentation) ● Radioactivity (portable instrumentation) 	<ul style="list-style-type: none"> 10⁰ to 10³ μCi/cc 10² to 10⁴ R/hr, photons 10³ to 10⁴ rads/hr, beta and low energy Photons Multichannel gamma ray spectrometer 							

UFSAR Table 7.5-1 (Sheet 4 of 12)								
Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
Hydrogen concentration	0-20%	C3	None	None	1	Non-IE	No	Three-instruments are provided
Class-IE de-switchboard voltages	0-300 Vdc	D2	Mild	Yes	1/ switchboard	IE	Yes	
Diesel generator status	On/Off	F3	None	None	1/diesel generator	Non-IE	No	
Diesel generator load	0-6000 kW	F3	None	None	1/diesel generator	Non-IE	No	
Voltage for diesel-backed buses	0-8600V	F3	None	None	3/bus	Non-IE	No	
Power supply to diesel-backed buses	On/Off	F3	None	None	1/supply source/bus	Non-IE	No	
RCP bearing water temperature	70-450°F	F3	Mild	Yes	1/RCP (Note-10)	IE	Yes	
RCP breaker status	Open/ Closed	D2, F3	Mild	Yes	1/breaker (Note-11)	IE	No	
Reactor trip breaker status	Open/ Closed	D2	Mild	Yes	1/breaker (Note-11)	IE	No	
MCR air storage bottle pressure	0-5000 psig	D2	Mild	None	1	Non-IE	No	Two-instruments are provided
Turbine stop valve status	Open/ Closed	D2	None (Note-12)	None	1/valve	Non-IE	No	
Turbine control valve status	Open/ Closed	D2	None (Note-12)	None	1/valve	Non-IE	No	
Pressurizer pressure	1700-2500 psig	B1, D2	Harsh	Yes	3 (Note-4)	IE	Yes	
Pressurizer safety valve status	Open/ Closed	D2	Harsh	None	1/valve	Non-IE	No	
Pressurizer heater power (current)	0-800 amps	F3	None	None	1/group	Non-IE	No	

UFSAR Table 7.5-1 (Sheet 5 of 12)								
Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
Steam-generator PORV- status	Open/ Closed	D2, F3	Harsh	Yes	1/valve (Note-7)	1E	Yes	
Steam-generator PORV- block valve status	Open/ Closed	D2, F3	Harsh	Yes	1/valve (Note-7)	1E	Yes	
Steam-generator safety- valve status	Open/ Closed	D2	Harsh	None	1/valve	Non-1E	No	
Main feedwater isolation- valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1-E	Yes	
Main feedwater flow	0-9x10 ⁶ lb/hr	F3	None	None	1/feedline	Non-1E	No	
Main feedwater control- valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1-E	Yes	
Steam-generator- blowdown isolation- valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1-E	Yes	
Steam flow	0-9x10 ⁶ lb/hr	F3	None	None	1/steam generator	Non-1E	No	
Main steam line isolation valve status	Open/ Closed	D2, F3	Harsh	Yes	1/valve (Note-7)	1E	Yes	
Main steam line isolation bypass valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
Main feedwater pump- status	On/Off	D2, F3	Mild	None	1/pump	Non-1E	No	
Main to startup- feedwater crossover- valve status	Open/ Closed	D2, F3	Mild	None	1/valve	Non-1E	No	
Startup feed- water pump status	On/Off	F3	None	None	1/pump	Non-1E	No	
Circulating water pump- status	On/Off	F3	None	None	1/pump	Non-1E	No	
Condenser backpressure	0-1 atm	F3	None	None	1	Non-1E	No	

UFSAR Table 7.5-1 (Sheet 6 of 12)								
Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note 2)	Remarks
			Environmental	Seismic				
Startup feedwater- Isolation valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note 7)	1E	Yes	
Condenser steam dump valve status	Open/ Closed	D2, F3	Mild	None	1/valve	Non-1E	No	
Condensate storage tank- water level	0-100% of span	F3	None	None	1	Non-1E	No	
PCS water storage tank- isolation valve status- (Non-MOV)	Open/ Closed	D2	Mild	Yes	1/valve (Note 7)	1E	Yes	
PCS water storage tank- series isolation valve- status (MOV)	Open/ Closed	D2	Mild	Yes	1/valve (Note 7)	1E	Yes	
Containment- temperature	32-400°F	D2, F3	Harsh	None	1	Non-1E	No	
CCS surge tank level	0-100% of span	F3	None	None	1	Non-1E	No	
CCS flow	0-15,000 gpm	F3	None	None	1	Non-1E	No	
CCS pump status	On/Off	F3	None	None	1/pump	Non-1E	No	
CCS flow to RNS valve- status	Open/ Closed	F3	None	None	1/valve	Non-1E	No	
CCS flow to RCPs valve- status	Open/ Closed	F3	None	None	1/valve	Non-1E	No	
CCS pump inlet- temperature	50-200°F	F3	None	None	1	Non-1E	No	
CCS heat exchanger- outlet temperature	50-130°F	F3	None	None	1	Non-1E	No	
Containment fan cooler- status	On/Off	F3	None	None	1/fan	Non-1E	No	

UFSAR Table 7.5-1 (Sheet 7 of 12)								
Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
Water-cooled-chiller-status	On/Off	F3	None	None	1/chiller	Non-IE	No	
Water-cooled-chilled-water-pump-status	On/Off	F3	None	None	1/pump	Non-IE	No	
Water-cooled-chilled-water-valve-status	Open/Closed	F3	None	None	1/valve	Non-IE	No	
Spent-fuel-pool-pump-flow	0-1500-gpm	F3	None	None	1/pump	Non-IE	No	
Spent-fuel-pool-temperature	50-250°F	F3	None	None	1	Non-IE	No	
Spent-fuel-pool-water-level	0-100% of span	D2, F3	Mild	Yes	3 (Note-4)	IE	Yes	
SFS-to-SGS-compartment-valve-status	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	IE	Yes	
SFS-to-cont.-sump-valve-status	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	IE	Yes	
SFS-floodup-valve-status	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	IE	Yes	
CMT-discharge-isolation-valve-status	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	IE	Yes	
CMT-inlet-isolation-valve-status	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	IE	Yes	
CMT-upper-water-level-sensor	74.5% – 64% of Volume	D2, F2	Harsh	Yes	1/tank	IE	Yes	
CMT-lower-water-level-sensor	27% – 17% of Volume	D2, F2	Harsh	Yes	1/tank	IE	Yes	
IRWST-injection-isolation-valve (Squib)	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	IE	Yes	
IRWST-line-isolation-valve-status (MOV)	Open/Closed	D3	None	None	1/valve	Non-IE	No	

UFSAR Table 7.5-1 (Sheet 8 of 12) Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
ADS: first, second and third stage valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
ADS fourth stage valve status (Non-MOV)	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
ADS fourth stage valve status (MOV)	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
PRHR-HX inlet isolation valve status	Open/ Closed	D2	Harsh	Yes	1 (Note-7)	1E	Yes	
PRHR-HX control valve status	Position	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
IRWST gutter bypass isolation valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
Accumulator pressure	100-800 psig	D2	Harsh	None	1/tank	Non-1E	No	
Accumulator isolation valve status	Open/ Closed	D3	None	None	1/valve	Non-1E	No	
Accumulator vent valve status	Open/ Closed	F3	None	None	1/valve	Non-1E	No	
Pressurizer spray valve status	Open/ Closed	F3	None	None	1/valve	Non-1E	No	
Auxiliary spray line isolation valve status	Open/ Closed	D2, F3	Harsh	Yes	1 (Note-7)	1E	Yes	
Purification stop valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-11)	1E	No	

UFSAR Table 7.5-1 (Sheet 9 of 12)								
Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
Containment-recirculation isolation-valve status (Non-MOV)	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
Containment-recirculation isolation-valve status (MOV)	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
Purification-return-line-stop-valve status	Open/Closed	D2	Harsh	None	1	Non-1E	No	
Boric acid tank level	0-100%	F3	None	None	1	Non-1E	No	
Demineralized water isolation valve status	Open/Closed	D2	Mild	Yes	1/valve (Note-7)	1E	Yes	
Boric acid flow	0-175 gpm	F3	None	None	1	Non-1E	No	
Makeup blend valve status	Position	F3	None	None	1	Non-1E	No	
Makeup flow	0-175 gpm	F3	None	None	1	Non-1E	No	
Makeup pump status	On/Off	F3	None	None	1/pump	Non-1E	No	
Makeup flow control valve status	Position	F3	None	None	1	Non-1E	No	
Letdown flow	0-120 gpm	F3	None	None	1	Non-1E	No	
RNS hot leg suction isolation valve status	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
RNS flow	0-3000 gpm	F3	None	None	1/pump	Non-1E	No	
RCS sampling line isolation valve status	Open/Closed	E3	Harsh	None	1/valve	Non-1E	No	

UFSAR Table 7.5-1 (Sheet 10 of 12) Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
IRWST to RNS suction-valve status	Open/ Closed	B1, F3	Harsh	Yes	1 (Note-7)	1E	Yes	
RNS discharge to-IRWST valve status	Open/ Closed	F3	None	None	1/valve	Non-1E	No	
RNS pump status	On/Off	F3	None	None	1/pump	Non-1E	No	
Reactor vessel head vent-valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
MCR return air isolation-valve status	Open/ Closed	D2, F3	Mild	Yes	1/valve (Note-7)	1E	Yes	
MCR toilet exhaust-isolation valve status	Open/ Closed	D2	Mild	Yes	1/valve (Note-7)	1E	Yes	
MCR supply air isolation valve status	Open/ Closed	D2, F3	Mild	Yes	1/valve (Note-7)	1E	Yes	
MCR differential-pressure	-1' to +1' wg	D2	Mild	Yes	2	1E	Yes	
MCR air delivery-flowrate	0-80 cfm	D2	Mild	Yes	2	1E	Yes	
MCR pressure relief-isolation valve status	Open/ Closed	D2	Mild	Yes	1/valve	1E	Yes	
MCR air delivery-isolation valve status	Open/ Closed	D2	Mild	Yes	1/valve (Note-7)	1E	Yes	
Instrument air header-pressure	0-125 psig	F3	None	None	1	Non-1E	No	
Service water flow	0-10,000 gpm	F3	None	None	1/pump	Non-1E	No	
Service water pump-status	On/Off	F3	None	None	1/pump	Non-1E	No	

UFSAR Table 7.5-1 (Sheet 11 of 12) Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
Service-water-pump-discharge-valve-status	Open/Closed	E3	None	None	1/valve	Non-IE	No	
Service-water-pump-discharge-temperature	50-150°F	E3	None	None	1/pump	Non-IE	No	
Main control room-supply-air-radiation	Note 5	E3, E3	Mild	Yes	2 (Note-9)	IE	No	
Plant-vent-air-flow	0-110% design-flow	E2	Mild	None	1	Non-IE	No	
Turbine-island-vent-discharge-radiation-level	10 ⁻⁶ - 10 ⁺⁵ μCi/cc	C2, E2	Mild	None	1	Non-IE	No	
Steam-generator-blowdown-discharge-radiation	10 ⁻⁶ - 10 ⁺¹ μCi/cc	E2	Mild	None	1	Non-IE	No	
Steam-generator-blowdown-brine-radiation-level	10 ⁻⁶ - 10 ⁺¹ μCi/cc	E2	Mild	None	1	Non-IE	No	
Main-steam-line-radiation-level	10 ⁻¹ -10 ² μCi/cc	C2, E2	Mild	None	1/line	Non-IE	No	
Control-support-area-radiation	10 ⁻¹ -1 ⁺ mR/hr	E3	None	None	1	Non-IE	No	
Meteorological-parameters ● Wind Speed ● Wind Direction ● Differential Temperature	0-100 mph- (±0.5 mph) 0°-540° (±2.43°) -9.4°F to 19.4°F (±0.212°F)	E3	None	None	2 (1@ 10 m- and 1 @ 60 m) 2 (1@ 10 m- and 1 @ 60 m) 1 (10-60 m)	Non-IE	No	Conforms to Regulatory Guide 1.97, Revision 3

UFSAR Table 7.5-1 (Sheet 12 of 12) Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note 2)	Remarks
			Environmental	Seismic				
Primary sampling station area radiation level	10 ⁺¹ –10 ⁷ mR/hr	E3	None	None	1	Non-IE	No	
VES passive air filtration flow	0-2000 cfm	E3	None	None	1	Non-IE	No	

Notes:

1. Total flow measurement is obtained from the sum of four branch flow devices.
2. The same information is available in the control support area via the monitor bus. Information available on the qualified data processing system is also available at the remote shutdown workstation.
3. Noble gas: 10⁺² to 10⁺⁷ µCi/cc
Particulate: 10⁺² to 10⁺⁷ µCi/cc
Iodines: 10⁺¹ to 10⁺⁶ µCi/cc
4. The number of instruments required after stable plant conditions is two. A third channel is available through temporary connections to resolve information ambiguity if necessary (See UFSAR Subsection 7.5.4).
5. Noble gas: 10⁺² to 10⁺⁷ µCi/cc
Particulate: 10⁺² to 10⁺⁷ µCi/cc
Iodines: 10⁺¹ to 10⁺⁶ µCi/cc
6. Degree of subcooling is calculated from RCS wide range pressure and core exit temperature.
7. This instrument is not required after 24 hours.
8. Two steam line pressure instruments per SG are located inside containment, and are qualified for a harsh environment. Two steam line pressure instruments per SG are located outside containment (not in MSIV compartment), and are qualified for a mild environment.
9. MCR supply air radiation monitoring is not required after MCR has been isolated.
10. This instrument is only required when non-safety power is available.
11. This instrument is not required if non-Class 1 E UPS power is not available.
12. These devices are backup verification to qualified system status parameters. These devices are purchased to perform in their anticipated service environments for the plant conditions for which they must function.

Southern Nuclear Operating Company
Vogtle Electric Generating Plant (VEGP) Units 3 and 4

ND-15-1632

Enclosure 3

Revision to Unit 4 COL Appendix C
Proposed Changes – Markups

(LAR-15-014)

(This enclosure contains 13 pages)

Revision to Unit 4 COL Appendix C

Remove UFSAR Table 7.5-1, Post-Accident Monitoring System, beginning on page C-472:

UFSAR Table 7.5-1 (Sheet 1 of 12) Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note 2)	Remarks
			Environmental	Seismic				
RCS wide range pressure	0-3300 psig	B1, B2, D2, C1, F2	Harsh	Yes	3 (Note 4)	1E	Yes	Located inside containment
RCS T _H (Wide Range)	50-700°F	B1, B2, D2, F2	Harsh	Yes	2	1E	Yes	Diverse Measurement- Core exit temperature
RCS T _C (Wide Range)	50-700°F	B1, B2, D2, F2	Harsh	Yes	3 (Note 4)	1E	Yes	
Steam generator water level (wide range)	0-100% of span	D2, F3	Harsh	Yes	1/steam generator	1E	Yes	
Steam generator water level (narrow range)	0-100% of span	D2, F2	Harsh	Yes	1/steam generator	1E	Yes	
Pressurizer level	0-100% of span	B1, D2, F2	Harsh	Yes	3 (Note 4)	1E	Yes	
Pressurizer reference leg temperature	50-420°F	B1, D2	Harsh	Yes	3 (Note 4)	1E	Yes	
Neutron flux	10 ⁻⁶ -200% power	B1	Harsh	Yes	3 (Note 4)	1E	Yes	
Control rod position	0-267 steps	B3, D3	None	None	1/control rod	Non-1E	No	
Containment water level	El. 72 ft. to 110 ft. in discrete steps	B1, C1, F2	Harsh	Yes	3 (Note 4)	1E	Yes	

UFSAR Table 7.5-1 (Sheet 2 of 12) Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
Core-exit temperature	200-2300°F	B1, C1, F2	Harsh	Yes	2/quadrant per-Division	1-E	Yes	
PRHR-HX inlet- temperature	50-650°F	D3	None	None	1	Non-1E	No	Primary- indication-is- RCS-T _H
PRHR-HX outlet- temperature	50-500°F	B1, D2	Harsh	Yes	1	1E	Yes	Diverse-variable to-PRHR-flow
PRHR-flow	700-3000-gpm	B1, D2, F2	Harsh	Yes	2	1-E	Yes	Diverse- measurement:- PRHR-outlet- temperature
IRWST-water-level	0-100% of-span	B1, D2, F2	Harsh	Yes	3 (Note-4)	1E	Yes	
RCS-subcooling (Note-6)	200°F Sub-cooling- to-35°F super-heat	B1, F2	Harsh	Yes	2	1E	Yes	Diverse- measurement:- Core-exit- temperature-&- wide-range-RCS pressure
Passive containment- cooling-water-flow	0-150-gpm	B1, D2	Mild	Yes	1 (Note-1)	1E	Yes	
PCS-storage-tank-water- level	5-100% of tank- height	B1, D2	Mild	Yes	2	1-E	Yes	Diverse- measurement:- PCS-flow
IRWST surface- temperature	50-300°F	D3	None	None	1	Non-1E	No	
IRWST bottom- temperature	50-300°F	D3	None	None	1	Non-1E	No	
Steam line pressure	0-1300-psig	F2	Harsh/ Mild (Note-8)	Yes	1/steam generator (Note-11)	1E	No	

UFSAR Table 7.5-1 (Sheet 3 of 12)								
Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note 2)	Remarks
			Environmental	Seismic				
Startup feedwater flow	0-600-gpm	F2	Mild	Yes	1/steam generator (Note 11)	1E	No	
Startup feedwater control valve status	Open/Closed	D2, F3	Harsh	Yes	1/valve (Note 7)	1E	Yes	
Containment pressure	-5 to 10 psig	B1, C2, D2, F2	Mild	Yes	3 (Note 4)	1E	Yes	
Containment pressure (extended range)	0 to 240 psig	C1	Mild	Yes	3 (Note 4)	1E	Yes	
Containment area radiation (high range)	10 ⁰ -10 ⁷ R	C1, E2, F2	Harsh	Yes	3 (Note 4)	1E	Yes	
Reactor vessel hot leg water level	0-100% of span	B2, B3	Harsh	Yes	1	1E	Yes	Two instruments are provided
Plant vent radiation level	(Note 3)	C2, E2	Mild	None	1	Non-1E	No	
Remotely operated containment isolation valve status	Open/Closed	B1, D2	Harsh/mild	Yes	1/valve (Note 7)	1E	Yes	Separate divisions on series valves
Containment vacuum relief valves	Open/Closed	D2	Mild	Yes	1/valve (Note 7)	1E	Yes	
Boundary environs radiation		C3, E3	None	None	N/A	Non-1E	No	Conforms to Regulatory Guide 1.97, Revision 3
<ul style="list-style-type: none"> ● Airborne Radiohalogens and Particulates (portable sampling with onsite analysis capability) ● Radiation (portable instrumentation) ● Radioactivity (portable instrumentation) 	<p>10⁰ to 10⁻³ μCi/cc</p> <p>10⁻³ to 10⁴ R/hr, photons 10³ to 10⁷ rads/hr, beta and low energy Photons</p> <p>Multichannel gamma ray spectrometer</p>							

UFSAR Table 7.5-1 (Sheet 4 of 12)								
Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
Hydrogen concentration	0-20%	C3	None	None	1	Non-IE	No	Three-instruments are provided
Class-IE de-switchboard voltages	0-300 Vde	D2	Mild	Yes	1/ switchboard	IE	Yes	
Diesel generator status	On/Off	F3	None	None	1/diesel generator	Non-IE	No	
Diesel generator load	0-6000 kW	F3	None	None	1/diesel generator	Non-IE	No	
Voltage for diesel-backed buses	0-8600V	F3	None	None	3/bus	Non-IE	No	
Power supply to diesel-backed buses	On/Off	F3	None	None	1/supply source/bus	Non-IE	No	
RCP bearing water temperature	70-450°F	F3	Mild	Yes	1/RCP (Note-10)	IE	Yes	
RCP breaker status	Open/ Closed	D2, F3	Mild	Yes	1/breaker (Note-11)	IE	No	
Reactor trip breaker status	Open/ Closed	D2	Mild	Yes	1/breaker (Note-11)	IE	No	
MCR air storage bottle pressure	0-5000 psig	D2	Mild	None	1	Non-IE	No	Two-instruments are provided
Turbine stop valve status	Open/ Closed	D2	None (Note-12)	None	1/valve	Non-IE	No	
Turbine control valve status	Open/ Closed	D2	None (Note-12)	None	1/valve	Non-IE	No	
Pressurizer pressure	1700-2500 psig	B1, D2	Harsh	Yes	3 (Note-4)	IE	Yes	
Pressurizer safety valve status	Open/ Closed	D2	Harsh	None	1/valve	Non-IE	No	
Pressurizer heater power (current)	0-800 amps	F3	None	None	1/group	Non-IE	No	

UFSAR Table 7.5-1 (Sheet 5 of 12)								
Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
Steam-generator PORV- status	Open/ Closed	D2, F3	Harsh	Yes	1/valve (Note-7)	1E	Yes	
Steam-generator PORV- block valve status	Open/ Closed	D2, F3	Harsh	Yes	1/valve (Note-7)	1E	Yes	
Steam-generator safety- valve status	Open/ Closed	D2	Harsh	None	1/valve	Non-1E	No	
Main feedwater isolation- valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1-E	Yes	
Main feedwater flow	0-9x10 ⁶ lb/hr	F3	None	None	1/feedline	Non-1E	No	
Main feedwater control- valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1-E	Yes	
Steam-generator- blowdown isolation- valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1-E	Yes	
Steam flow	0-9x10 ⁶ lb/hr	F3	None	None	1/steam generator	Non-1E	No	
Main steam line isolation valve status	Open/ Closed	D2, F3	Harsh	Yes	1/valve (Note-7)	1E	Yes	
Main steam line isolation bypass valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
Main feedwater pump- status	On/Off	D2, F3	Mild	None	1/pump	Non-1E	No	
Main to startup- feedwater crossover- valve status	Open/ Closed	D2, F3	Mild	None	1/valve	Non-1E	No	
Startup feed- water pump status	On/Off	F3	None	None	1/pump	Non-1E	No	
Circulating water pump- status	On/Off	F3	None	None	1/pump	Non-1E	No	
Condenser backpressure	0-1 atm	F3	None	None	1	Non-1E	No	

UFSAR Table 7.5-1 (Sheet 6 of 12)								
Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note 2)	Remarks
			Environmental	Seismic				
Startup feedwater- Isolation valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note 7)	1E	Yes	
Condenser steam dump valve status	Open/ Closed	D2, F3	Mild	None	1/valve	Non-1E	No	
Condensate storage tank- water level	0-100% of span	F3	None	None	1	Non-1E	No	
PCS water storage tank- isolation valve status- (Non-MOV)	Open/ Closed	D2	Mild	Yes	1/valve (Note 7)	1E	Yes	
PCS water storage tank- series isolation valve- status (MOV)	Open/ Closed	D2	Mild	Yes	1/valve (Note 7)	1E	Yes	
Containment- temperature	32-400°F	D2, F3	Harsh	None	1	Non-1E	No	
CCS surge tank level	0-100% of span	F3	None	None	1	Non-1E	No	
CCS flow	0-15,000 gpm	F3	None	None	1	Non-1E	No	
CCS pump status	On/Off	F3	None	None	1/pump	Non-1E	No	
CCS flow to RNS valve- status	Open/ Closed	F3	None	None	1/valve	Non-1E	No	
CCS flow to RCPs valve- status	Open/ Closed	F3	None	None	1/valve	Non-1E	No	
CCS pump inlet- temperature	50-200°F	F3	None	None	1	Non-1E	No	
CCS heat exchanger- outlet temperature	50-130°F	F3	None	None	1	Non-1E	No	
Containment fan cooler- status	On/Off	F3	None	None	1/fan	Non-1E	No	

UFSAR Table 7.5-1 (Sheet 7 of 12)								
Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
Water-cooled-chiller-status	On/Off	F3	None	None	1/chiller	Non-IE	No	
Water-cooled-chilled-water-pump-status	On/Off	F3	None	None	1/pump	Non-IE	No	
Water-cooled-chilled-water-valve-status	Open/Closed	F3	None	None	1/valve	Non-IE	No	
Spent-fuel-pool-pump-flow	0-1500-gpm	F3	None	None	1/pump	Non-IE	No	
Spent-fuel-pool-temperature	50-250°F	F3	None	None	1	Non-IE	No	
Spent-fuel-pool-water-level	0-100% of span	D2, F3	Mild	Yes	3 (Note-4)	IE	Yes	
SFS-to-SGS-compartment-valve-status	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	IE	Yes	
SFS-to-cont.-sump-valve-status	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	IE	Yes	
SFS-floodup-valve-status	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	IE	Yes	
CMT-discharge-isolation-valve-status	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	IE	Yes	
CMT-inlet-isolation-valve-status	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	IE	Yes	
CMT-upper-water-level-sensor	74.5% – 64% of Volume	D2, F2	Harsh	Yes	1/tank	IE	Yes	
CMT-lower-water-level-sensor	27% – 17% of Volume	D2, F2	Harsh	Yes	1/tank	IE	Yes	
IRWST-injection-isolation-valve (Squib)	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	IE	Yes	
IRWST-line-isolation-valve-status (MOV)	Open/Closed	D3	None	None	1/valve	Non-IE	No	

UFSAR Table 7.5-1 (Sheet 8 of 12)								
Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
ADS: first, second and third stage valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
ADS fourth stage valve status (Non-MOV)	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
ADS fourth stage valve status (MOV)	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
PRHR-HX inlet isolation valve status	Open/ Closed	D2	Harsh	Yes	1 (Note-7)	1E	Yes	
PRHR-HX control valve status	Position	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
IRWST gutter bypass isolation valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
Accumulator pressure	100-800-psig	D2	Harsh	None	1/tank	Non-1E	No	
Accumulator isolation valve status	Open/ Closed	D3	None	None	1/valve	Non-1E	No	
Accumulator vent valve status	Open/ Closed	F3	None	None	1/valve	Non-1E	No	
Pressurizer spray valve status	Open/ Closed	F3	None	None	1/valve	Non-1E	No	
Auxiliary spray line isolation valve status	Open/ Closed	D2, F3	Harsh	Yes	1 (Note-7)	1E	Yes	
Purification stop valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-11)	1E	No	

UFSAR Table 7.5-1 (Sheet 9 of 12) Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
Containment-recirculation isolation-valve status (Non-MOV)	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
Containment-recirculation isolation-valve status (MOV)	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
Purification-return-line-stop-valve status	Open/Closed	D2	Harsh	None	1	Non-1E	No	
Boric acid tank level	0-100%	F3	None	None	1	Non-1E	No	
Demineralized water isolation valve status	Open/Closed	D2	Mild	Yes	1/valve (Note-7)	1E	Yes	
Boric acid flow	0-175 gpm	F3	None	None	1	Non-1E	No	
Makeup blend valve status	Position	F3	None	None	1	Non-1E	No	
Makeup flow	0-175 gpm	F3	None	None	1	Non-1E	No	
Makeup pump status	On/Off	F3	None	None	1/pump	Non-1E	No	
Makeup flow control valve status	Position	F3	None	None	1	Non-1E	No	
Letdown flow	0-120 gpm	F3	None	None	1	Non-1E	No	
RNS hot leg suction isolation valve status	Open/Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
RNS flow	0-3000 gpm	F3	None	None	1/pump	Non-1E	No	
RCS sampling line isolation valve status	Open/Closed	E3	Harsh	None	1/valve	Non-1E	No	

UFSAR Table 7.5-1 (Sheet 10 of 12) Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
IRWST to RNS suction-valve status	Open/ Closed	B1, F3	Harsh	Yes	1 (Note-7)	1E	Yes	
RNS discharge to-IRWST valve status	Open/ Closed	F3	None	None	1/valve	Non-1E	No	
RNS pump status	On/Off	F3	None	None	1/pump	Non-1E	No	
Reactor vessel head vent-valve status	Open/ Closed	D2	Harsh	Yes	1/valve (Note-7)	1E	Yes	
MCR return air isolation-valve status	Open/ Closed	D2, F3	Mild	Yes	1/valve (Note-7)	1E	Yes	
MCR toilet exhaust-isolation valve status	Open/ Closed	D2	Mild	Yes	1/valve (Note-7)	1E	Yes	
MCR supply air isolation valve status	Open/ Closed	D2, F3	Mild	Yes	1/valve (Note-7)	1E	Yes	
MCR differential-pressure	-1' to +1' wg	D2	Mild	Yes	2	1E	Yes	
MCR air delivery-flowrate	0-80 cfm	D2	Mild	Yes	2	1E	Yes	
MCR pressure relief-isolation valve status	Open/ Closed	D2	Mild	Yes	1/valve	1E	Yes	
MCR air delivery-isolation valve status	Open/ Closed	D2	Mild	Yes	1/valve (Note-7)	1E	Yes	
Instrument air header-pressure	0-125 psig	F3	None	None	1	Non-1E	No	
Service water flow	0-10,000 gpm	F3	None	None	1/pump	Non-1E	No	
Service water pump-status	On/Off	F3	None	None	1/pump	Non-1E	No	

UFSAR Table 7.5-1 (Sheet 11 of 12) Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
Service water pump- discharge valve status	Open/Closed	E3	None	None	1/valve	Non-IE	No	
Service water pump- discharge temperature	50-150°F	E3	None	None	1/pump	Non-IE	No	
Main control room- supply air radiation	Note 5	E3, E3	Mild	Yes	2 (Note-9)	IE	No	
Plant vent air flow	0-110% design- flow	E2	Mild	None	1	Non-IE	No	
Turbine island vent- discharge radiation level	10 ⁻⁶ - 10 ⁺⁵ μCi/ce	C2, E2	Mild	None	1	Non-IE	No	
Steam generator- blowdown discharge- radiation	10 ⁻⁶ - 10 ⁺¹ μCi/ce	E2	Mild	None	1	Non-IE	No	
Steam generator- blowdown brine- radiation level	10 ⁻⁶ - 10 ⁺¹ μCi/ce	E2	Mild	None	1	Non-IE	No	
Main steam line- radiation level	10 ⁻¹ -10 ² μCi/ce	C2, E2	Mild	None	1/line	Non-IE	No	
Control support area- radiation	10 ⁻¹ -10 ⁴ mR/hr	E3	None	None	1	Non-IE	No	
Meteorological- parameters		E3	None	None		Non-IE	No	
<ul style="list-style-type: none"> ● Wind Speed ● Wind Direction ● Differential Temperature 	0-100 mph- (±0.5 mph) 0°-540° (±2.43°) -9.4°F to 19.4°F (±0.212°F)				2 (1@ 10 m- and 1 @ 60 m) 2 (1@ 10 m- and 1 @ 60 m) 1 (10-60 m)			Conforms to Regulatory- Guide 1.97, Revision 3

UFSAR Table 7.5-1 (Sheet 12 of 12) Post-Accident Monitoring System								
Variable	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note-2)	Remarks
			Environmental	Seismic				
Primary sampling station area radiation level	10 ⁺¹ –10 ⁻⁷ mR/hr	E3	None	None	4	Non-IE	No	
VES passive air filtration flow	0-2000 cfm	E3	None	None	4	Non-IE	No	

Notes:

1. Total flow measurement is obtained from the sum of four branch flow devices.
2. The same information is available in the control support area via the monitor bus. Information available on the qualified data processing system is also available at the remote shutdown workstation.
3. Noble gas: 10⁻⁷ to 10⁶ μCi/ee
Particulate: 10⁻¹² to 10⁻⁷ μCi/ee
Iodines: 10⁻¹¹ to 10⁻⁶ μCi/ee
4. The number of instruments required after stable plant conditions is two. A third channel is available through temporary connections to resolve information ambiguity if necessary (See UFSAR Subsection 7.5.4).
5. Noble gas: 10⁻⁷ to 10⁻¹ μCi/ee
Particulate: 10⁻¹² to 10⁻⁷ μCi/ee
Iodines: 10⁻¹¹ to 10⁻⁵ μCi/ee
6. Degree of subcooling is calculated from RCS wide range pressure and core exit temperature.
7. This instrument is not required after 24 hours.
8. Two steam line pressure instruments per SG are located inside containment, and are qualified for a harsh environment. Two steam line pressure instruments per SG are located outside containment (not in MSIV compartment), and are qualified for a mild environment.
9. MCR supply air radiation monitoring is not required after MCR has been isolated.
10. This instrument is only required when non-safety power is available.
11. This instrument is not required if non-Class 1 E-UPS power is not available.
12. These devices are backup verification to qualified system status parameters. These devices are purchased to perform in their anticipated service environments for the plant conditions for which they must function.