

May 21, 2004 RC-04-0074

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

ATTN: Ms. K. R. Cotton

Dear Sir / Madam:

Subject:

VIRGIL C. SUMMER NUCLEAR STATION

DOCKET NO. 50/395

OPERATING LICENSE NO. NPF-12

LICENSE AMENDMENT REQUEST - LAR 03-4159

ELIMINATION OF HYDROGEN RECOMBINERS AND CHANGE TO HYDROGEN ANALYZERS USING THE CONSOLIDATED LINE ITEM

IMPROVEMENT PROCESS (CLIIP)

Pursuant to 10 CFR 50.90, South Carolina Electric & Gas Company (SCE&G), acting for itself and as agent for South Carolina Public Service Authority, hereby requests an amendment to the Virgil C. Summer Nuclear Station (VCSNS) Technical Specifications (TS).

The proposed amendment will delete the Technical Specification requirements related to the hydrogen recombiners and hydrogen analyzers. The proposed Technical Specification changes support implementation of the revisions to 10 CFR 50.44, "Standards for Combustible Gas Control System in Light-Water-Cooled Power Reactors," that became effective on October 16, 2003. The changes are consistent with Revision 1 of NRC-approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-447, "Elimination of Hydrogen Recombiners and Change to Hydrogen and Oxygen Monitors." The availability of this Technical Specification improvement was announced in the Federal Register on September 25, 2003, (68 FR 55416) as part of the consolidated line item improvement process (CLIIP).

SCE&G's evaluation of the proposed changes is provided in the Attachment I to this letter. The attachment provides a description of the proposed changes, the requested confirmation of applicability, and plant-specific verifications and commitments. The proposed Technical Specification changes are presented in Attachments II and III. New regulatory commitments associated with this request are provided in Attachment IV. Implementation of TSTF-447 also involves changes to the Technical Specification Bases. The Technical Specification Bases changes will be submitted with a future update in accordance with Technical Specification 6.8.4i, "Technical Specifications (TS) Bases Control Program."

The proposed amendment has been reviewed by the VCSNS review committees. SCE&G has notified the State of South Carolina in accordance with 10CFR50.91(b).

SCE&G requests approval of the proposed amendments by March 30, 2005, so that sufficient time is provided to include consideration of the proposed amendments in the work planning



Document Control Desk LAR 03-4159 RC-04-0074 Page 2 of 2

process for the next VCSNS refueling outage, which is scheduled for the Spring of 2005. Once approved, the amendments shall be implemented within 60 days.

If you have any questions or require additional information, please contact Mr. Ronald B. Clary at (803)-345-4757.

I certify under penalty of perjury that the information contained herein is true and correct.

S/21/04 Stephen A. Byrne

AJC/SAB/dr

Enclosures:

Attachment(s): 4

1. Evaluation of the proposed change

2. Proposed Technical Specification Change - Mark-up

3. Proposed Technical Specification Change - Retyped

4. List of Regulatory Commitments

c: N. O. Lorick

N. S. Carns

T. G. Eppink (w/o Attachments)

R. J. White

Regional Administrator

K. R. Cotton

NRC Resident Inspector

P. Ledbetter

K. M. Sutton

T. P. O'Kelley

RTS (LAR 03-4159)

File (813.20)

DMS (RC-04-0074)

Document Control Desk Attachment I LAR 03-4159 RC-04-0074 Page 1 of 4

Description and Assessment

1.0 INTRODUCTION

The proposed License amendment deletes the V. C. Summer Nuclear Station (VCSNS) Technical Specifications (TS) 3.6.5.2 and Surveillance Requirement (SR) 4.6.5.2 for the containment hydrogen recombiners, TS 3.3.3.6.b.2 for the containment hydrogen monitor limiting conditions for operability, Table 3.3-10, item 4, for the reactor building hydrogen concentration instrument channel requirements, and Index item 3/4 6.5, Combustible Gas Control. The proposed TS changes support implementation of the revisions to 10 CFR 50.44, Standards for Combustible Gas Control System in Light-Water-Cooled Power Reactors, which became effective on October 16, 2003.

The changes are consistent with Revision 1 of NRC-approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-447, Elimination of Hydrogen Recombiners and Change to Hydrogen and Oxygen Monitors. The availability of this TS improvement was announced in the Federal Register on September 25, 2003 as part of the consolidated line item improvement process (CLIIP).

2.0 DESCRIPTION OF PROPOSED AMENDMENT

Consistent with the NRC-approved Revision 1 of TSTF-447, the proposed TS changes include:

1.	Index 3/4 6.5	Combustible Gas Control	Deleted
2.	TS 3.3.3.6.b.2	Accident Monitoring Instrumentation	Deleted
3.	Table 3.3-10, Item 4	Accident Monitoring Instrumentation	Deleted
4.	TS 3.6.5.2	Electric Hydrogen Recombiners	Deleted
5.	SR 4.6.5.2	Electric Hydrogen Recombiners	Deleted

The proposed Technical Specification changes are provided in Attachments II and III. The proposed changes to the TS are shown with a strike-through or by page deletions.

As a result of the above changes to the TS requirements, changes to the TS Bases to delete the related discussions concerning combustible gas control will also be required. The TS Bases changes will be submitted with a future update in accordance with TS 6.8.4i, "Technical Specification (TS) Bases Control Program."

3.0 BACKGROUND

The background for this application is adequately addressed by the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

Document Control Desk Attachment I LAR 03-4159 RC-04-0074 Page 2 of 4

4.0 REGULATORY REQUIREMENTS AND GUIDANCE

The applicable regulatory requirements and guidance associated with this application are adequately addressed by the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

5.0 TECHNICAL ANALYSIS

SCE&G has reviewed the safety evaluation (SE) published on September 25, 2003 (68 FR 55416) as part of the CLIIP Notice of Availability. This verification included a review of the NRC staff's SE, as well as the supporting information provided to support TSTF-447. SCE&G has concluded that the justifications presented in the TSTF proposal and the SE prepared by the NRC staff are applicable to the VCSNS and justify this amendment for the incorporation of the changes to the VCSNS TS.

6.0 REGULATORY ANALYSIS

A description of this proposed change and its relationship to applicable regulatory requirements and guidance was provided in the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

6.1 Verification and Commitments

As discussed in the model Safety Evaluation published in the *Federal Register* on September 25, 2003 (68 FR 55416) for this TS improvement, SCE&G is making the following verifications and regulatory commitments:

SCE&G has verified that a hydrogen monitoring system capable of diagnosing beyond design-basis accidents is installed at VCSNS and is making a regulatory commitment to maintain that capability.

The hydrogen analyzers installed at VCSNS are capable of monitoring the hydrogen concentration within the containment within the indicating range of 0 to 10% hydrogen. This range was previously approved by the NRC as acceptable and remains sufficient to support this license amendment request. For severe accident conditions that could potentially produce hydrogen concentrations in containment beyond this range, computational aids are included in the VCSNS Severe Accident Mitigation Guidelines to estimate the hydrogen concentration based on bounding fractions of fuel cladding/water reaction when the core has been uncovered and reflooded.

In addition, the VCSNS Post Accident Sampling Contingency Plan, established as part of the elimination of the Post Accident Sampling System, includes

Document Control Desk Attachment I LAR 03-4159 RC-04-0074 Page 3 of 4

ŧ

provisions for obtaining grab samples of the containment atmosphere, which can be used to supplement the hydrogen monitors.

The requirements for maintaining a hydrogen monitoring system capable of diagnosing beyond design basis accidents as described above will be included in the VCSNS updated Final Safety Analysis Report (FSAR). This regulatory commitment will be implemented with the proposed amendment implementation (Refer to Attachment 4, List of Regulatory Commitments). When implementing the proposed amendments, SCE&G does not intend to relocate the current VCSNS Technical Specification requirements for the hydrogen recombiners into another Licensee controlled document. Changes to the VCSNS FSAR sections describing the use of hydrogen recombiners for combustible gas control will be made under 10 CFR 50.59.

VCSNS does not have an inerted containment. The VCSNS containment is an atmospheric designed containment.

7.0 NO SIGNIFICANT HAZARDS CONSIDERATION

SCE&G has reviewed the proposed no significant hazards consideration determination published on September 25, 2003, (68 FR 55416) as part of the CLIIP. SCE&G has concluded that the proposed determination presented in the notice is applicable to VCSNS, and the determination is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

8.0 ENVIRONMENTAL CONSIDERATION

SCE&G has reviewed the environmental evaluation included in the model SE published on September 25, 2003 (68 FR 55416) as part of the CLIIP. SCE&G has concluded that the Staff's findings presented in that evaluation are applicable to VCSNS and the evaluation is hereby incorporated by reference for this application.

9.0 PRECEDENT

This license amendment request is being made in accordance with the CLIPP. SCE&G is not proposing variations or deviations from the TS changes described in TSTF-447 or the NRC staff's model SE published on September 25, 2003 (68 FR 55416) other than those differences in the proposed TS changes that result because the VCSNS TS do not match the format of the Improved Standard Technical Specifications for Westinghouse Plants. The VCSNS proposed TS changes only deletes the hydrogen analyzer and hydrogen recombiner requirements from the TS which is consistent with the NRC approved changes in TSTF-447, Revision 1.

Document Control Desk Attachment I LAR 03-4159 RC-04-0074 Page 4 of 4

10.0 REFERENCES

- 1. <u>Federal Register</u> Notice: Notice of Availability of Model Application Concerning Technical Specification Improvement to Eliminate Hydrogen Recombiner Requirement, and Relax the Hydrogen and Oxygen Monitor Requirements for Light Water Reactors Using the Consolidated Line Item Improvement Process, published, September 25, 2003 (68 FR 55416).
- 2. 10 CFR 50.44, "Standards for Combustible Gas Control System in Light-Water-Cooled Power Reactors."
- 3. Industry/Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-447, "Elimination of Hydrogen Recombiners and Change to Hydrogen and Oxygen Monitors," Revision 1, August 2003.

Document Control Desk Attachment II LAR 03-4159 RC-04-0074 Page 1 of 5

ATTACHMENT II

PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP)

Attachment to License Amendment No. XXX To Facility Operating License No. NPF-12 Docket No. 50-395

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages	Insert Pages
VII	VII
3/4 3-56	3/4 3-56
3/4 3-57	3/4 3-57
3/4 6-22	3/4 6-22

SCE&G -- EXPLANATION OF CHANGES

	l .	i	· ·	
<u>Page</u>	Affected Section	<u>Bar</u> <u>#</u>	Description of Change	Reason for Change
VII	Index	1	Revising Index to delete 3/4 6.5	Incorporate guidance TSTF-447.
3/4 3-56	3.3.3.6	1	Revising Action to delete b.2	Incorporate guidance TSTF-447.
3/4 3-57	Table 3.3- 10, Item 4	1	Revising Table to delete Item 4	Incorporate guidance TSTF-447.
3/4 6-22	3.6.5.2 4.6.5.2	1	Delete entire page	Incorporate guidance TSTF-447.

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

SECTION	<u>PAGE</u>
3/4.6	CONTAINMENT SYSTEMS
3/4.6.1	PRIMARY CONTAINMENT
	Containment Integrity
	Containment Leakage
	Containment Air Locks
	Internal Pressure
	Air Temperature
	Containment Structural Integrity 3/4 6-8
	Containment Ventilation System
3/4 6.2	DEPRESSURIZATION AND COOLING SYSTEMS
	Reactor Building Spray System 3/4 6-12
	Spray Additive System
	Reactor Building Cooling System 3/4 6-14
3/4.6.3	PARTICULATE IODINE CLEANUP SYSTEM 3/4 6-15
3/4 6.4	CONTAINMENT ISOLATION VALVES
3/4 6.5	COMBUSTIBLE GAS CONTROL
	Flectric Hydrogen Recombiners 3/4 6-22

Delde

INSTRUMENTATION

ACCIDENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.6 The acci and monitoring instrumentation channels shown in Table 3.3-10 shall be OPERABLE.

APPLICABILITY MODES 1, 2, and 3.

ACTION:

- a. With the number of OPERABLE accident monitoring channels less than the Required Number of Channels shown on Table 3.3-10, either restore the inoperable channel(s) to OPERABLE-status within 30 days or submit a Special Report within the following 14 days from the time the action is required. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plant and schedule for restoring the instrumentation channels to operable status.
- b.1 With the number of OPERABLE Reactor Building radiation monitoring channels less than the Minimum Channels Operable requirement of Table 3.3-10, either restore the inoperable channel(s) to OPERABLE status within 72 hours, or:
 - i) Initiate the preplanned alternate method of monitoring the appropriate parameter(s), and
 - ii) Submit a Special Report to the Commission pursuant to Decification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the system to OPERABLE status.



- b.2 With the number of Hydrogen monitoring channels less than the Minimum Channels Operable requirement of Table 3.3-10, restore at least one monitor to operable status within 72 hours or be in at least HOT STANDBY within the next 6 hours, and in HOT SHUTDOWNwithin the next 12 hours.
- b.3 With the number of OPERABLE accident monitoring channels less than the Minimum Channels Operable requirement of Table 3.3-10, either restore the inoperable channels to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the next 12 hours.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.6 Each accident monitoring instrumentation channel shall be demonstrated OPERABLE by performing a monthly CHANNEL CHECK and a CHANNEL CALIBRATION every refueling outage. The Reactor Building Radiation Level Instrumentation CHANNEL CALIBRATION may consist of an electronic calibration of the channel, not including the detector, for the range decades above 10R/hr and a single point calibration of the detector below 10R/hr with an installed or portable gamma source.

TABLE 3.3-10

SUMMER		ACCIDENT MONITORING INSTRUMENTATION				
. UNIT	•	INSTRUMENT	REQUIRED NO. OF CHANNELS	MINIMUM CHANNELS OPERABLE		
H	1.	Reactor Building Pressure - Narrow Range Instrument Loop/Indicator: Channel D IPT-951/IPI-951 Channel B IPT-952/IPI-952	. 2	1		
	2.	Reactor Building Pressure - Wide Range Instrument Loop/Indicator: Channel D IPT-954A/IPI-954A Channel E IPT-954B/IPI-954B	2	. 1		
3/4 3-57	3.	Reactor Building Radiation Level - High Range Instrument Loop/Indicator: Channel A RMG-18 Channel B RMG-7	2	1		
Delete	4.	Reactor Building Hydrogen Concentration Instrument Loop/Indicator: Channel A IAE-8263A/ICI-8257 Channel-B-IAE-8263B/ICI-8258	2	1		
Amen	5.	Reactor Building/RHR Sump Level Instrument Loop/Indicator: Channel A ILT-1969/ILI-1969 Channel B ILT-1970/ILI-1970	2	1		
Amendment No. 118	6.	Reactor Coolant Outlet Temperature - THot- Wide Range Instrument Loop/Indicator: Channel A ITE-413/ITI-413 Channel A ITE-423/ITI-423 Channel E ITE-433/ITR-413	2	1		
ω	7.	Reactor Coolant Inlet Temperature - TCold - Wide Range Instrument/Loop Indicator: Channel E ITE-410/ITI-410 Channel E ITE-420/ITI-420 Channel E ITE-430/ITR-410	2	1		

DELETE ENTIRE PAGE

CONTAINMENT SYSTEMS

ELECTRIC HYDROGEN RECOMBINERS

LIMITING CONDITION FOR OPERATION

3.6.5.2 Two independent post accident hydrogen recombiner_systems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

With one hydrogen recombiner system inoperable, restore the inoperable system to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours.

SURVEILLANCE REQUIREMENTS

- 4.6.5.2 Each hydrogen recombiner system shall be demonstrated OPERABLE:
 - a. At least once per 6 months by verifying, during a recombiner system functional test, that the minimum heater sheath temperature increases to greater than or equal to 700°F within 90 minutes. Upon reaching 700°F, increase the power setting to maximum power for 2 minutes and verify that the power meter reads greater than or equal to 60 Kw.
 - b. At least once per 18 months by:
 - 1. Performing a CHANNEL CALIBRATION of all recombiner instrumentation and control circuits,
 - Verifying through a visual examination that there is no evidence of abnormal conditions within the recombiner enclosure (i.e., loose wiring or structural connections, deposits of foreign materials, etc.), and
 - 3. Verifying the integrity of all heater electrical circuits by parforming a resistance to ground test following the above required functional test. The resistance to ground for any heater phase shall be greater than or equal to 10,000 ohms.

Document Control Desk Attachment III LAR 03-4159 RC-04-0074 Page 1 of 5

ATTACHMENT III PROPOSED TECHNICAL SPECIFICATION CHANGES (RETYPED)

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

SECTION		
3/4.6	CONTAINMENT SYSTEMS	
3/4.6.1	PRIMARY CONTAINMENT	
	Containment Integrity	3/4 6-1
	Containment Leakage	3/4 6-2
	Containment Air Locks	3/4 6-4
	Internal Pressure	3/4 6-6
	Air Temperature	3/4 6-7
	Containment Structural Integrity	3/4 6-8
	Containment Ventilation System	3/4 6-11
3/4.6.2	DEPRESSURIZATION AND COOLING SYSTEMS	
	Reactor Building Spray System	3/4 6-12
	Spray Additive System	3/4 6-13
	Reactor Building Cooling System	3/4 6-14
3/4.6.3	PARTICULATE IODINE CLEANUP SYSTEM	3/4 6-15
3/4.6.4	CONTAINMENT ISOLATION VALVES	3/4 6-17
3/4.6.5	Deleted	

INSTRUMENTATION

ACCIDENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.6 The accident monitoring instrumentation channels shown in Table 3.3-10 shall be OPERABLE.

APPLICABILITY MODES 1, 2, and 3.

ACTION:

- a. With the number of OPERABLE accident monitoring channels less than the Required Number of Channels shown on Table 3.3-10, either restore the inoperable channel(s) to OPERABLE status within 30 days or submit a Special Report within the following 14 days from the time the action is required. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels to operable status.
- b.1 With the number of OPERABLE Reactor Building radiation monitoring channels less than the Minimum Channels Operable requirement of Table 3.3-10, either restore the inoperable channel(s) to OPERABLE status within 72 hours, or:
 - i) Initiate the preplanned alternate method of monitoring the appropriate parameter(s), and
 - ii) Submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the system to OPERABLE status.

b.2 Deleted

- b.3 With the number of OPERABLE accident monitoring channels less than the Minimum Channels Operable requirement of Table 3.3-10, either restore the inoperable channels to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the next 12 hours.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.6 Each accident monitoring instrumentation channel shall be demonstrated OPERABLE by performing a monthly CHANNEL CHECK and a CHANNEL CALIBRATION every refueling outage. The Reactor Building Radiation Level Instrumentation CHANNEL CALIBRATION may consist of an electronic calibration of the channel, not including the detector, for the range decades above 10R/hr and a single point calibration of the detector below 10R/hr with an installed or portable gamma source.

TABLE 3.3-10

ACCIDENT MONITORING INSTRUMENTATION

SUMME		INSTRUMENT	REQUIRED NO. OF <u>CHANNELS</u>	MINIMUM CHANNELS OPERABLE
SUMMER - UNIT 1	1.	Reactor Building Pressure - Narrow Range Instrument Loop/Indicator: Channel D IPT-951/IPI-951 Channel B IPT-952/IPI-952	2	1
	2.	Reactor Building Pressure - Wide Range Instrument Loop/Indicator: Channel D IPT-954A/IPI-954A Channel E IPT-954B/IPI-954B	2	1
(3)	3.	Reactor Building Radiation Level - High Range Instrument Loop/Indicator: Channel A RMG-18 Channel B RMG-7	2	1
3/4 3-57	4.	Deleted		
7	5.	Reactor Building/RHR Sump Level Instrument Loop/Indicator: Channel A ILT-1969/ILI-1969 Channel B ILT-1970/ILI-1970	2	1
Amend	6.	Reactor Coolant Outlet Temperature - T _{Hot} - Wide Range Instrument Loop/Indicator: Channel A ITE-413/ITI-413 Channel A ITE-423/ITI-423 Channel E ITE-433/ITR-413	2	1
Amendment No. 118,	7.	Reactor Coolant Inlet Temperature - T _{Cold} - Wide Range Instrument Loop/Indicator: Channel E ITE-410/ITI-410 Channel E ITE-420/ITI-420 Channel E ITE-430/ITR-410	2	1

THIS PAGE INTENTIONALLY LEFT BLANK

Document Control Desk Attachment IV LAR 03-4159 RC-04-0074 Page 1 of 1

ATTACHMENT IV

LIST OF REGULATORY COMMITMENTS

SCE&G will comply with the requirements addressed in the <u>Federal Register</u> Notice of Availability of Model Application Concerning Technical Specification Improvement to Eliminate Hydrogen Recombiner Requirement, and Relax the Hydrogen and Oxygen Monitor Requirements for Light Water Reactors Using the Consolidated Line Item Improvement Process, published September 25, 2003 (68 FR 55416).

Requirements for maintaining a hydrogen monitoring system capable of diagnosing beyond design basis accidents will be included in the VCSNS Final Safety Analysis Report. This action will be completed consistent with the approved implementation date for this submittal.