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U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555-0001

**Vogtle Electric Generating Plant, Unit 2  
Emergency Technical Specification (TS) Revision Request  
Regarding TS 3.6.6, "Containment Spray and Cooling Systems"**

Ladies and Gentlemen:

Pursuant to 10 CFR 50.90 and 10 CFR 50.91(a)(5), Southern Nuclear Operating Company (SNC), hereby requests an emergency amendment to Vogtle Electric Generating Plant (VEGP) Unit 2 Technical Specifications (TS). The proposed one-time change to the TS contained herein revises Limiting Condition for Operation (LCO) 3.6.6, "Containment Spray and Cooling Systems," Action A Completion Time from 72 hours to a one-time 7 day Completion Time to allow repair on the VEGP Unit 2 Containment Spray Pump B. The proposed change is applicable to Unit 2 only. The pump was removed from service on June 23, 2008, at 0723 EST hours, to perform an inservice test (IST) and inservice inspection (ISI) leakage test. During the ISI, it was noted that the pump bearing was over heating and the pump seal was smoking. Disassembly and repair of the pump involves a number of major steps, including several hours for drain-down, that could force the maintenance schedule to exceed 72 hours.

A discussion of the proposed Technical Specification change and the basis for the emergency Technical Specification and Significant Hazards Considerations are provided in Enclosure 1. SNC has evaluated the proposed Technical Specifications change and has determined that it does not involve a significant hazards consideration as defined in 10 CFR 50.92. The basis for that determination is provided in Enclosure 1. SNC has also determined that operation with the proposed change will not result in any significant increase in the amount of effluents that may be released offsite and no significant increase in individual or cumulative occupational radiation exposure. Therefore, the proposed amendment is eligible for categorical exclusion as set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment is needed in connection with the approval of the proposed change. The basis for that determination is also provided in Enclosure

1. The marked-up and proposed TS pages are provided in Enclosure 2 and 3, respectively.

To avoid an unnecessary plant shutdown, SNC requests that the proposed TS change be reviewed and approved by 1500 EDT hours on June 25, 2008. The extended SNC Unit 2 Completion Time will expire upon returning the Unit 2 Containment Spray Pump B to operable status or on June 30, 2008 at 0723 EDT hours, whichever occurs first.

This letter contains no NRC commitments. If you have any questions, please advise.

Mr. T. E. Tynan states he is a Vice President 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



T. E. Tynan  
Vice President – Vogtle

Sworn to and subscribed before me this 24 day of June, 2008.

  
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Notary Public

Notary Public, Burke County, Georgia  
My commission expires: My Commission Expires January 13, 2012

TET/DRG/daj

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cc: Southern Nuclear Operating Company

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Vogtle Electric Generating Plant, Unit 2  
Emergency Technical Specification (TS) Revision Request  
Regarding TS 3.6.6, "Containment Spray and Cooling Systems"

Enclosure 1

Description of the Proposed Change

**Vogtle Electric Generating Plant, Unit 2  
Emergency Technical Specification (TS) Revision Request  
Regarding TS 3.6.6, “Containment Spray and Cooling Systems”**

**Enclosure 1**

**Description of the Proposed Change**

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Description of the Proposed Change

**1.0 Introduction**

Pursuant to 10 CFR 50.90 and 10 CFR 50.91(a)(5), Southern Nuclear Operating Company (SNC), hereby requests an emergency amendment to Vogtle Electric Generating Plant (VEGP) Unit 2 Technical Specifications (TS). The proposed change to the TS contained herein revises Limiting Condition for Operation (LCO) 3.6.6, "Containment Spray and Cooling Systems," Action A Completion Time from 72 hours to a one-time 7 day Completion Time to allow repair on the VEGP Unit 2 Containment Spray Pump B. The proposed change is applicable to Unit 2 only, and should be processed as an emergency change to prevent an unscheduled shutdown of VEGP Unit 2.

The proposed change qualifies for categorical exclusion from an environmental assessment as set forth in 10 CFR 51.22(c)(9). Therefore, no environmental impact statement or environmental assessment is needed in connection with the approval of the proposed change.

**2.0 Background**

On June 23, 2008 at 0723 EDT hours, the Unit 2 Containment Spray Pump B was removed from service to perform an inservice test (IST) and inservice inspection (ISI) leakage test. During the ISI, it was noted that the pump seal was over heating and damaged. Disassembly and repair of the pump involves a number of major steps that could force the maintenance schedule to exceed 72 hours. The required major steps are listed below:

1. Establish isolation, tag out and drain system;
2. Uncouple and disassemble pump;
3. Inspect cooling water flowpath;
4. Inspect and investigate cause;
5. Rebuild/repair pump;
6. Couple and align pump;
7. Release tagout and realign system;
8. Fill and vent; and
9. Perform functional test.

The Unit 2 Completion Time will expire on June 26, 2008 at 0723 EDT hours.

To return the Unit 2 Containment Spray Pump B to OPERABLE status, repairs must be completed, and post-maintenance testing must be performed. The time required to perform these activities listed above is currently scheduled for approximately 62 hours. However, if the pump rebuild requires replacement of the rotating element, the ASME OM Code will require development of an extensive pump curve which will necessitate full-flow testing. The capability to perform full-flow testing for containment spray while on line at Vogtle is not currently available. Therefore, either temporary piping will have to be staged to allow full-flow testing or SNC will have to seek relief from the ASME OM Code requirements. A one-time, 7 day Unit 2 Completion Time for TS 3.6.6, Action A,

## Description of the Proposed Change

to allow the Containment Spray Pump B to be inoperable is requested to permit the repair, testing, and return to service of the pump in the event that full-flow testing or some other contingency (e.g., parts do not fit, etc.) is required. The proposed extended Completion Time will expire upon returning the Containment Spray Pump B to OPERABLE status, or on June 30, 2008 at 0723 EDT hours, whichever occurs first. This one-time emergency TS change will prevent an unnecessary shutdown of VEGP Unit 2.

### **3.0 Need for Technical Specification Change**

The proposed one-time change to the VEGP Unit 2 Completion Time of Technical Specifications 3.6.6, Action A, is needed to avoid the unnecessary shutdown of the plant to complete Unit 2 Containment Spray Pump B repair activities. The change averts known risks from complex and infrequent plant shutdown and startup evolutions that would unnecessarily challenge plant systems.

### **4.0 Description of Proposed Change**

#### **4.1 Proposed Change**

Change Action A Completion Time from 72 hours to 7 days.

#### **4.2 System Description**

The containment spray system is composed of two redundant, full-capacity trains which are designed to ensure the accident peak pressure is below the containment design pressure and also reduce the post-accident containment building iodine concentrations so that offsite doses are less than 10 CFR 100 guidelines and control room doses are within GDC 19.

The containment spray system supplies borated water during injection and borated water mixed with trisodium phosphate during recirculation to the containment atmosphere. The spray system in combination with four of the eight containment air coolers (operating at reduced speed) is sized to provide adequate cooling with either or both of the two containment spray pumps in service. These pumps take suction from the refueling water storage tank. When the RWST empty alarm is received, suction of the containment spray pumps is aligned to pump water from the containment sump directly into the containment during the recirculation mode of operation.

Additional information on the design and operation of the system, along with a list of components served, can be found in the VEGP FSAR, Subsection 6.2.2.2.

#### **4.3 Basis for the Technical Specification Change**

Technical Specification (TS) 3.6.6, "Containment Spray and Cooling Systems" requires two containment spray trains and two containment cooling trains to be operable. The VEGP accident analysis assumes the occurrence of a single failure that results in the loss of one air cooling train and one

## Description of the Proposed Change

containment spray train. The analysis shows that the containment cooling system in conjunction with the containment spray system is capable of removing sufficient heat energy and subsequent decay heat from the containment atmosphere to ensure the accident peak pressure is below the containment design pressure and long term reduction of containment pressure.

The proposed one-time Completion Time change from 72 hours to 7 days for the Unit 2 Containment Spray Pump B to be inoperable to permit repair is based upon the availability of Containment Spray Train A and both trains of the containment cooling system. While in a time-limited Required Action Statement (RAS), an additional failure is not postulated since the inoperable train is equivalent to the single failure. In addition, the Train A containment spray pump was successfully tested and demonstrated operable on June 16, 2008. However, if the remaining containment spray train were to fail, there is sufficient margin in the ultimate strength of the Vogtle containment so that peak pressure would not challenge containment integrity. The main effect of loss of the remaining containment spray train would be iodine removal capability. Post-LOCA spray iodine removal is modeled in the radiological analyses in conjunction with iodine plateout as shown in FSAR Table 15.6.5-9. If the remaining spray train were to fail, iodine would continue to be removed via plateout, though at a rate slower than modeled in the design basis analysis. Additional iodine removal may also be available via the non-safety related containment preaccess filter system described in FSAR section 9.4.6. Once every 18 months a sample of the preaccess filter system charcoal is tested to verify its methyl iodide removal capability.

### **5.0 Risk Assessment**

The Vogtle Electric Generating Plant (VEGP) Probabilistic Risk Assessment model (PRA) does not model containment spray because containment spray is not required to prevent core damage or large early release. The PRA credits and models only the containment cooling units for containment heat removal in late release level 2 PRA scenarios. More details follow.

#### Impacts on Core Damage Frequency

For core damage frequency (CDF), containment cooling itself is not required for the prevention of core damage. Containment cooling units in the CDF model are only for distinguishing cases for two different situations of operator error in switching to ECCS recirculation. Analyses using the Modular Accident Analysis Program (MAAP) showed that if more than 5 out of 8 containment cooling units fail in a small break LOCA, containment spray would actuate and thus accelerate depletion of the Refueling Water Storage Tank (RWST). Accelerated depletion of the RWST inventory will reduce the available time for operators to switch ECCS recirculation, which in turn increase human error probability. Therefore, in the VEGP PRA model, different human error probabilities are used for failure to switch to ECCS recirculation, depending on success or failure of the containment

## Enclosure 1

### Description of the Proposed Change

cooling units. The containment cooling unit model is used to distinguish these two cases.

In fact, actuation of containment spray may have a deleterious impact on a small break LOCA risk. As explained above, actuation of containment spray during a small break LOCA, which could occur in the event that more than 5 of 8 containment cooling units fail, will accelerate the depletion of RWST inventory and increase human error probability in switching to ECCS recirculation. Increase in human error probability will increase the CDF.

If one containment spray pump is out of service when called upon for containment cooling in the event of failure of the containment cooling units, RWST inventory depletion would be slower because only one containment spray pump would draw water from the RWST, and operator would have more time for switching to recirculation than in the case when both containment spray pumps are running. Thus, CDF could be decreased because of a decrease in human error probability in switching to ECCS recirculation.

#### Impacts on Large Early Release Frequency

When considering the Level 2 portions of the PRA, containment spray is not modeled for containment heat removal; only the containment cooling units are modeled. However, failure or success of containment heat removal does not affect LERF because containment heat removal is only credited in non-LERF scenarios to prevent late containment failure. LERF scenarios include containment bypass scenarios and early containment failure scenarios and for such scenarios containment cooling either by containment cooling units or containment spray has no benefit.

Furthermore, containment spray actuation may actually increase LERF. This effect is the result of a condition where the containment spray pumps are started but fail to run, concurrent with the failure of the associated check valves to reseal after the pump failed which could result in a containment isolation failure. This scenario is modeled in PRA LERF model. Restating this point, if one containment spray pump is out of service, or can not be started, a potential failure of containment isolation will be avoided since the associated check valve would not be moved off its closed seat position (note, failure to reseal can only occur if the check valve is opened after a successful pump start). Therefore, LERF may be decreased with the unavailability of a containment spray pump.

#### Conclusion

Thus, in the PRA, a containment spray pump being out of service would not increase CDF or LERF.

### **6.0 Regulatory Safety Analysis**

#### **6.1 No Significant Hazards Consideration**

## Enclosure 1

### Description of the Proposed Change

The proposed change will provide a one-time revision to the VEGP Unit 2 Completion Time of TS 3.6.6, Action A, to allow an inoperable Unit 2 B Train containment spray pump for 7 days. The extended Completion Time will permit repair of the Unit 2 pump.

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

The proposed change does not alter any plant equipment or operating practices in such a manner that the probability of an accident is increased. The proposed changes will not alter assumptions relative to the mitigation of an accident or transient event. The proposed change has no impact on CDF or LERF because the containment spray system is not required to prevent core damage or large early release. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

Based on the operability of the remaining containment spray train and the two containment cooling trains, the proposed change ensures that the accident analysis assumptions continue to be met. The systems' design and operation are not affected by the proposed changes. The safety analysis acceptance criteria are not altered by the proposed changes.

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

Based on the above, SNC concludes that the proposed change presents no 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.

### **6.2 Environmental Assessment**

This amendment request meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) as follows:

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### Description of the Proposed Change

- (i) The amendment involves no significant hazards consideration.

As described above, the proposed change involves no significant hazards consideration.

- (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 change does not involve the installation of any new equipment, or the modification of any equipment that may affect the types or amounts of effluents that may be released offsite. Therefore, there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

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

The proposed change does not involve plant physical changes, or introduce any new mode of plant operation. Therefore, there is no significant increase in individual or cumulative occupational radiation exposure.

Based on the above, SNC concludes that the proposed change meets the criteria specified in 10 CFR 51.22 for a categorical exclusion from the requirements of 10 CFR 51.22 relative to requiring a specific environmental assessment by the Commission.

### **7.0 Conclusion**

The proposed change will allow a one-time revision to the VEGP Unit 2 Completion Time for TS 3.6.6, Action A, to allow an inoperable containment spray train for 7 days. The extended Completion Time will permit the repair, testing and return to service of the Unit 2 containment spray pump.

The Plant Review Board has reviewed the proposed change to the Technical Specifications and have concluded that it does not involve a significant hazard consideration and will not endanger the health and safety of the public.

Vogtle Electric Generating Plant, Unit 2  
Emergency Technical Specification (TS) Revision Request  
Regarding TS 3.6.6, "Containment Spray and Cooling Systems"

Enclosure 2

Marked-Up Technical Specifications Page

3.6 CONTAINMENT SYSTEMS

3.6.6 Containment Spray and Cooling Systems

LCO 3.6.6 Two containment spray trains and two containment cooling trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	72 hours* <u>AND</u> 6 days from discovery of failure to meet the LCO*
B. One containment cooling train inoperable.	B.1 Restore containment cooling train to OPERABLE status.	72 hours <u>AND</u> 6 days from discovery of failure to meet the LCO
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours  84 hours

\* [For the VEGP Unit 2 June 23, 2008 entry into Technical Specification 3.6.6, the Containment Spray Pump B may be inoperable for a period not to exceed 7 days.](#)

Vogtle Electric Generating Plant, Unit 2  
Emergency Technical Specification (TS) Revision Request  
Regarding TS 3.6.6, "Containment Spray and Cooling Systems"

Enclosure 3

Clean Typed Technical Specifications Page

3.6 CONTAINMENT SYSTEMS

3.6.6 Containment Spray and Cooling Systems

LCO 3.6.6            Two containment spray trains and two containment cooling trains shall be OPERABLE.

APPLICABILITY:    MODES 1, 2, 3, and 4.

**ACTIONS**

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	72 hours* <u>AND</u> 6 days from discovery of failure to meet the LCO*
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C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours  84 hours

\* For the VEGP Unit 2 June 23, 2008 entry into Technical Specification 3.6.6, the Containment Spray Pump B may be inoperable for a period not to exceed 7 days.