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January 6, 2014
RC-13-0189

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

ATTN: Shawn Williams

Subject: VIRGIL C. SUMMER NUCLEAR STATION UNIT 1 (VCSNS)
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
REQUEST RELIEF FROM ASME CODE REQUIREMENTS IN
VCSNS 4TH TEN YEAR INSERVICE INSPECTION INTERVAL
RR-4-04 (P) IST Class 2 and 3 Pump Testing Requirements
Using OMN-18

Reference: Letter from T. D. Gatlin (VCSNS) to Document Control Desk (NRC),
"Request Relief from ASME Code Requirements in VCSNS 4th Ten
Year Inservice Inspection Interval," dated May 16, 2013 (RC-13-0069)
[ML13140A008]

Dear Sir or Madam:

Pursuant to 10 CFR 50.55a, "Codes and Standards," paragraphs (a)(3)(i) and (a)(3)(ii), South Carolina Electric & Gas Company, acting for itself and as an agent for South Carolina Public Service Authority, hereby requests NRC approval of the attached relief request associated with the fourth inservice testing (IST) interval. The fourth interval of the VCSNS, Unit 1, IST Program will comply with the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (i.e., OM Code), 2004 Edition with addenda through 2006, which is the latest edition and addenda of the ASME OM Code incorporated by reference in 10 CFR 50.55a(b)(3). The bases for the relief request are provided within the Attachment.

VCSNS Unit 1 submitted RR-4-02 (P) as referenced, but neglected to include all applicable pumps. RR-4-02 (P) and RR-4-04 (P) will cover all IST Class 2 and 3 pumps using testing requirements from OMN-18.

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No new commitments are being made to the NRC by this letter. If you should have any questions, please contact Mr. Bruce L. Thompson at (803) 931-5042.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Tom Gatlin', with a long horizontal flourish extending to the right.

Thomas D. Gatlin

WLT/TDG/ts

Attachment:

RR-4-04 (P) IST Class 2 and 3 Pump Testing Requirements Using OMN-18

c: K. B. Marsh
S. A. Byrne
J. B. Archie
N. S. Carns
J. H. Hamilton
J. W. Williams
W. M. Cherry
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NRC Resident Inspector
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NSRC
RTS (CR-13-04777)
File (810.19-2)
PRSF (RC-13-0189)

SOUTH CAROLINA ELECTRIC & GAS CO. (SCE&G)
VIRGIL C. SUMMER NUCLEAR STATION UNIT 1 (VCSNS)

RR-4-04 (P) IST Class 2 and 3 Pump Testing Requirements Using OMN-18

1. ASME Code Component(s) Affected

XPP0048C, HVAC Chilled Water Pump, (Centrifugal / Group A / Class 3).

Previously reviewed under ML13140A008:

XPP0013A & B, Boric Acid Transfer Pumps (Centrifugal / Group A / Class 3).

XPP0038A & B, Reactor Building Spray Pumps, (Centrifugal / Group AB / Class 2).

XPP0039A, B & C, Service Water Pumps, (Vertical Line Shaft / Group A / Class 3).

XPP0045A & B, Service Water Booster Pumps, (Centrifugal / Group AB / Class 3).

XPP0048A & B, HVAC Chilled Water Pumps, (Centrifugal / Group A / Class 3).

Component/System Function

Provide minimum flow to meet system requirements under accident conditions

2. Applicable Code Edition and Addenda

ASME OM Code-2004 Edition, with Addenda through OMb-2006.

3. Applicable Code Requirement(s)

ISTB-3300	"Reference Values," states, in part, that "Reference values shall be established within ± 20 percent of pump design flow rate for the comprehensive test," and "Reference values shall be established within ± 20 percent of pump design flow for the Group A and Group B tests, if practicable."
ISTB-3400	"Frequency of Inservice Tests", states that an inservice test shall be run on each pump as specified in Table ISTB-3400-1.
Table ISTB-3400-1	Requires Group A and Group B tests to be performed quarterly and a comprehensive test to be performed biennially.
Table ISTB-3510-1	"Required Instrument Accuracy," specifies the instrument accuracies for Group A, Group B, comprehensive, and preservice tests.
Table ISTB-5121-1	"Centrifugal Pump Test Acceptance Criteria" defines the required acceptance criteria for Group A, Group B, and Comprehensive Tests for centrifugal pumps.

Table ISTB-5221-1	"Vertical Line Shaft Centrifugal Pumps Test Acceptance Criteria" defines the required acceptance criteria for Group A, Group B, and Comprehensive Tests for Vertical Line Shaft centrifugal pumps.
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4. Reason for Request

The ASME Code committees have approved Code Case OMN-18, Alternate Testing Requirements for Pumps Tested Quarterly within ± 20 percent of Design Flow. This Code Case has not been approved for use in Regulatory Guide 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code," June 2003.

This Code Case allows the Owner to not perform the Comprehensive Pump Test (CPT) with the associated acceptance criteria, if the quarterly test is performed at ± 20 percent of design flow and the instrumentation meets the accuracy requirements of Table ISTB-3510-1 for the comprehensive and preservice tests. The basis for the testing strategy in this Code Case is that a quarterly Group A pump test, performed at the CPT flow rate with more accurate instrumentation, is more effective in assessing a pump's operational readiness than a standard Group A test in conjunction with a biennial CPT.

Additionally, ISTB allows the Owner to categorize the pumps in their program. As such, an Owner could categorize a pump that otherwise meets the requirements of Group B, as a Group A (or AB) pump, and test according to the provisions of Code Case OMN-18. In doing this, the owner is obtaining additional data (vibration and flow or differential pressure) quarterly, rather than once every two years.

As a result of the increased requirements on the parameters imposed by the proposed alternative during applicable quarterly tests, there is no added value in performing the biennial comprehensive test on the subject pumps.

5. Proposed Alternative and Basis for Use

VCSNS is proposing to utilize the provisions of Code Case OMN-18 and perform a modified Group A test in lieu of performing the Code-required CPT. The modified Group A test will be run at ± 20 percent of the pump's design flow rate using ± 0.5 percent accurate digital gauges or better to determine the pump differential pressure. Vibration tests will be performed with the same vibration acceptance criteria as the standard Group A pump test. Additionally, VCSNS will utilize an Acceptable Range High limit of 106 percent or lower for quarterly testing, which is also consistent with the planned Code change applicable to CPT.

The use of more accurate pressure gauges and a more limiting Acceptable Range during every modified quarterly Group A test compensates for the elimination of the CPT. The CPT has a more limiting Acceptable Range upper bound for differential pressure of 103 percent. Regular testing with more accurate instrumentation and tighter acceptance criteria will provide for better trending of pump performance. Instead of performing seven tests with pressure instruments with ± 2 percent accuracy and then performing the eighth test with pressure instruments with a minimum of ± 0.5 percent accuracy, all eight tests will be performed with the same ± 0.5 percent accurate digital instruments or better. Due to the improved accuracy, consistent testing methodology, and the addition of quarterly vibration monitoring on Group AB pumps, deviations in actual pump performance indicative of impending degradation are more easily recognized during quarterly performance trending activities.

The provisions of this request as an alternative to the requirements of ISTB-3400 and Tables ISTB-3400-1, ISTB-5121-1, & ISTB-5221-1 provides a reasonable alternative to the Code requirements based on the determination that the proposed alternative will provide adequate indication of pump performance, permit detection of component degradation, and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(a)(3)(i), VCSNS requests approval of this alternative to the specific ISTB requirements identified in this request.

6. Duration of Proposed Alternative

The proposed alternative identified will be utilized during the fourth IST interval which is scheduled to begin January 1, 2014 and conclude on December 31, 2023.

7. Precedents

The following relief requests were approved by the NRC in the recent past:

1. Relief Request (PR-01) was approved for the Oyster Creek Nuclear Generating Station as discussed in the U.S. Nuclear Regulatory Commission Safety Evaluation Report dated June 21, 2012 (TAC NO. ME7616).
2. Relief Request (PR-9) was approved for the St. Lucie, Units 1 and 2 as discussed in the U.S. Nuclear Regulatory Commission Safety Evaluation Report dated July 1, 2011 (TAC NOS. ME5190 and ME5191).

3. Relief Request (PR-3) was approved for the Perry Nuclear Power Plant, Unit 1, as discussed in the U.S. Nuclear Regulatory Commission Safety Evaluation Report dated October 8, 2009 (TAC NO. ME0820).
4. Reference letter from T. D. Gatlin (VCSNS) to Document Control Desk (NRC), "Request Relief from ASME Code Requirements in VCSNS 4th Ten Year Inservice Inspection Interval," dated May 16, 2013 (RC-13-0069) [ML13140A008].
5. Relief Request RR-4-02 (P) was approved for the Virgil C. Summer Nuclear Station Unit 1, as discussed in the U.S. Nuclear Regulatory Commission Safety Evaluation Report dated November 5, 2013 (TAC NO. MF1901).