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SCE&G®
A SCANA COMPANY

May 17, 2002
RC-02-0091

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

Attention: Ms. K. R. Cotton

Gentlemen:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS)
DOCKET NO. 50/395
OPERATING LICENSE NO. NPF-12
RESPONSE TO NRC BULLETIN 2002-01
REACTOR PRESSURE VESSEL HEAD DEGRADATION AND
REACTOR COOLANT PRESSURE BOUNDARY INTEGRITY

Reference:
1. SCE&G Letter to NRC (Document Control Desk), RC-01-0155, August 31, 2001; Response to NRC Bulletin 2001-01
2. PWR Materials Reliability Program Response to NRC Bulletin 2001-01 (MRP-48), EPRI, Palo Alto, CA: 2001. 1006284.
3. SCE&G Letter to NRC (Document Control Desk), RC-02-0055, April 3, 2002; 15 Day Response to NRC Bulletin 2002-01

The U. S. Nuclear Regulatory Commission (NRC) issued NRC Bulletin 2002-01 requiring pressurized water reactor (PWR) utilities to submit the following information to the NRC within 60 days after March 18, 2002:

> "*The basis for concluding that your boric acid inspection program is providing reasonable assurance of compliance with the applicable regulatory requirements discussed in Generic Letter 88-05 and this bulletin. If a documented basis does not exist, provide your plans, if any, for a review of your program.*"

South Carolina Electric & Gas Company (SCE&G) acting for itself and as agent for South Carolina Public Service Authority, hereby submits the attached in response to the bulletin.

These statements and matters set forth herein are true and correct to the best of my knowledge, information, and belief.

A095

Should you have questions, please call Mr. Arnie Cribb at (803) 345-4346.

Very truly yours,

Stephen A. Byrne

AJC/SAB
Attachment

c: N. O. Lorick
N. S. Carns
T. G. Eppink (w/o Attachment)
R. J. White
L. A. Reyes
K. R. Cotton
NRC Resident Inspector
K. M. Sutton
W. R. Higgins
K. O. Cozens (NEI)
NSRC
RTS (0-C-02-0703)
File (815.02)
DMS (RC-02-0091)

STATE OF SOUTH CAROLINA :
: TO WIT :
COUNTY OF FAIRFIELD :

I hereby certify that on the 17TH day of MAY 2002 before me, the subscriber, a Notary Public of the State of South Carolina personally appeared Stephen A. Byrne, being duly sworn, and states that he is Senior Vice President, Nuclear Operations of the South Carolina Electric & Gas Company, a corporation of the State of South Carolina, that he provides the foregoing response for the purposes therein set forth, that the statements made are true and correct to the best of his knowledge, information, and belief, and that he was authorized to provide the response on behalf of said Corporation.

WITNESS my Hand and Notarial Seal

James W. Jurkett, Jr
Notary Public

My Commission Expires

OCTOBER 2, 2010
Date

NUCLEAR EXCELLENCE - A SUMMER TRADITION!

60-Day Response to NRC Bulletin 2002-01 "Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity" for V. C. Summer Nuclear Station

The Bulletin required that PWR licensees provide the following information within 60 days of the date of the Bulletin:

The basis for concluding that your boric acid inspection program is providing reasonable assurance of compliance with the applicable regulatory requirements discussed in Generic Letter 88-05 and the bulletin. If a documented basis does not exist, provide your plans, if any, for a review of your program.

Response:

South Carolina Electric & Gas Company (SCE&G) submits the following 60 day response to Item 3.A of NRC Bulletin 2002-01, *REACTOR PRESSURE VESSEL HEAD DEGRADATION AND REACTOR COOLANT PRESSURE BOUNDARY INTEGRITY.* This response provides the basis for concluding that the VCSNS boric acid inspection program provides reasonable assurance of compliance with the applicable regulatory requirements discussed in Generic Letter 88-05 and NRC Bulletin 2002-01.

PROGRAM DEFINITION AND RESPONSIBILITY

VCSNS Generic Letter 88-05 Program is contained within two procedures. Plant Test Procedure (PTP) 151.001A outlines components to be inspected to identify possible boric acid induced corrosion during each refueling outage prior to the Reactor Coolant System (RCS) being cooled down and depressurized. Surveillance Test Procedure (STP) 250.001A is used to inspect for boric acid induced corrosion after RCS cooldown and depressurization, and after insulation or other obstructions which previously prevented complete viewing of the components to be inspected have been removed but prior to decontamination of the piping/components to be inspected. This STP is also used to perform a system leakage test on all ASME Class 1 piping and components associated with the reactor coolant system each refueling outage prior to plant startup after attaining normal operating pressure associated with 100% reactor power.

RCS leakage is detected utilizing plant leakage detection system equipment specified in Technical Specification (TS) 3.4.6.1. RCS leakage is tracked to meet the limits as required in TS 3.4.6.2. Demonstration that RCS leakage is within these limits is accomplished by utilization of various procedures written specifically to address TS 4.4.6.2.1 a through e and TS 4.4.6.2.2 a through d.

Boric acid inspections are procedurally controlled as discussed above. The program procedures call for the formulation of an inspection team consisting of members from the operations, mechanical maintenance, health physics, and/or quality control organizations.

TRAINING

Personnel from the mechanical maintenance, health physics, quality control and operations organizations perform the inspections in accordance with GL 88-05. These individuals are formally trained on procedures and procedure compliance. Within these procedures, the inspection methods, relevant design information and acceptance criteria are detailed. Inspection results that do not meet the initial acceptance criteria are then separately evaluated under the corrective action program by qualified individuals utilizing approved programs.

Industry operating experience from multiple sources is reviewed and evaluated for potential VCSNS impact. Action items are generated to incorporate applicable information into programs/procedures in accordance with operating experience procedures. Therefore, procedures reflect lessons learned throughout the industry as the operating experience is reviewed and the applicable information is incorporated into procedures.

INSPECTION SCOPE AND FREQUENCY

The frequency of the inspections is coordinated with the plant refueling schedule for each refueling outage. Initially, an inspection is performed early in each outage while the RCS is hot and pressurized between 2235 psig and 350 psig. A second inspection is performed after the RCS is cooled and depressurized below 350 psig.

The scope of the inspections is explicit. While the RCS is hot and pressurized, a walkdown is performed to visually inspect for evidence of boric acid leakage on specific components. Specific components identified in the procedures include major equipment bolted connections (e.g., steam generator and pressurizer manways, reactor vessel head and ductwork, RCS pumps, pressurizer spray and safety valves) and all accessible reactor coolant piping. In addition, general area inspections on all elevations are performed to identify evidence of boric acid leakage.

When the RCS is cooled below 200°F and depressurized below 350 psig, insulation is removed and a visual examination of all bolted connections listed above is conducted, including indications of boron induced corrosion. The inspection also includes examination of the studs, nuts, washers and cap screws for the reactor vessel head vent and isolation valves, the reactor vessel head closure studs, nut and washers, and the vessel head above the insulation.

RESPONSE TO LEAKAGE

Acceptance criteria for leakage containing boric acid are specified in the procedures. Maintenance work orders are generated to correct the items identified. In addition, all components displaying boric acid residue are entered into the VCSNS Corrective Action Program and evaluated for the appropriate action to be taken. The corrective action program requires the problem be identified, evaluated for impact and appropriate corrective action taken, including extent of condition, cleanup of any remaining boric acid residue, and appropriate repair method.

If accumulated boric acid is to be left on components and surfaces susceptible to corrosion, an engineering evaluation would be performed in accordance with the corrective action program. The activity would be dispositioned in accordance with the nonconformance notice program.

During RF13 an inspection of the area between the reactor vessel head and the insulation was performed using a remotely controlled camera. Results from that inspection are being provided under separate cover letter.

REVIEW OF PROGRAM EFFECTIVENESS

All items entered into the corrective action program, which includes identification of boric acid leaks, are subject to review by station supervision and management to ensure that the issues are properly prioritized such that a strategic application of resources can be applied to correct problems commensurate with their significance.

The boric acid inspection program identified evidence of boric acid on the insulation of the 'A' reactor coolant system hot leg during RF 12. This item was entered into the corrective action program and was followed to conclusion which ultimately lead to the source of the leak, subsequent cleanup and repair of the 'A' hot leg nozzle weld.

CONCLUSION

VCSNS has reviewed its response to Generic Letter (GL) 88-05, Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants, NUREG/CR5576, Survey of Boric Acid Corrosion of Carbon Steel Components in Nuclear Plants, and the boric acid inspection program elements. Based on the information provided in this response, VCSNS concludes that there is reasonable assurance that the station is in compliance with applicable regulatory requirements and our current licensing basis.