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November 5, 2004

NL-04-1762

Docket Nos.: 50-424
50-425

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

Vogtle Electric Generating Plant – Units 1 and 2
Additional Information Concerning Generic Letter 96-06,
Assurance of Equipment Operability and Containment Integrity
During Design Basis Accident Conditions

Ladies and Gentlemen:

By letter NL-04-0452 dated March 29, 2004, Southern Nuclear Operating Company (SNC) provided additional information concerning Generic Letter 96-06, Assurance of Equipment Operability and Containment Integrity During Design Basis Accident Conditions. Additional information was requested on May 11, 2004, by Mr. Christopher Gratton of the NRC. The requested information is provided in the enclosure to this letter.

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

Sincerely,

Don E. Grissette

DEG/kgl/daj

Enclosure: Additional Information Concerning GL 96-06

cc: Southern Nuclear Operating Company
Mr. J. T. Gasser, Executive Vice President
Mr. W. F. Kitchens, General Manager – Plant Vogtle
RType: CVC7000

U. S. Nuclear Regulatory Commission
Dr. W. D. Travers, Regional Administrator
Mr. C. Gratton, NRR Project Manager – Vogtle
Mr. G. J. McCoy, Senior Resident Inspector – Vogtle

A072

Vogtle Electric Generating Plant – Units 1 and 2
Additional Information Concerning GL 96-06

The following request was made by the NRC Staff to complete the Generic Letter (GL) 96-06 review for the Vogtle Electric Generating Plant (VEGP) response to GL 96-06 Request for Additional Information (Ref. 1).

NRC Request

In your response dated March 29, 2004, to our request for additional information, you indicated that Nuclear Service Cooling Water (NSCW) containment supply check valves are not credited with being "leak tight" and therefore, a surveillance to confirm that the check valves are leak tight is not necessary. However, your response dated March 29, 2004 does state that the analyses instead "assume there will be minimal draining through the supply lines."

Please:

1. *Identify the maximum back leakage through the NSCW containment supply check valves that is allowed consistent with the analysis that was performed, and establish surveillance requirements that periodically confirm (consistent with inservice testing program requirements) that the allowed seat leakage remains less than that assumed in the waterhammer analysis, or*

2. *Redo the waterhammer analysis without crediting the check valves for inhibiting void formation in the supply lines, and confirm that the check valves do not have to be credited for inhibiting back leakage.*

Follow-up discussions revealed the following additional request relative to debris blocking the closure of the NSCW to containment cooler check valves.

a. *Describe the system (closed), water quality, system cleanliness, location of valves in piping (horizontal/vertical and high/low point), periodic inspection/cleaning of system/basins*

b. *Describe any problems with valves seating in the past.*

c. *Discuss the possibility of inspecting all groups if the conditions warrant.*

SNC Response

1. The NSCW Containment Cooler Supply Check Valves were designed to meet a leakage specification of 16 cc/hr (approximately 0.0007 gpm) at 300 psig. A back leakage flow rate of 29 gpm per check valve would be required to adversely affect the drain-down calculations. Leakage to this extent (29 gpm) through a check valve in a gravity drain-down could only occur if a check valve becomes severely damaged or stuck open.

   The subject check valves are required to be in the in-service testing (IST) program. The ASME OM Code, Subsection ISTC 1.1, requires that the IST program include active and passive valves that are required to perform a specific function in shutting down a reactor to the cold shutdown condition, in maintaining the cold shutdown condition, or in mitigating the consequences of an accident. The subject valves are ASME Class II and have the nuclear safety function of closing to maintain water hammer forces within analyzed limits.

   The IST program requires an inspection of one of four vertical NSCW containment cooler supply check valves and one of two horizontal NSCW containment cooler supply check valves each outage beginning with 1R12 for Unit 1 and 2R11 for Unit 2.

a. The NSCW system consists of separate, redundant, 100-percent capacity trains comprised of cooling towers, pumps, piping, valves and instrumentation. Cooling water for each unit is normally pumped from the cooling tower basins, one for each train, by two of the three NSCW pumps provided in each train to the essential component coolers through the two redundant NSCW supply headers (train A and B). After removing heat from the components, the coolant is returned back to the cooling towers where the heat is rejected through direct contact with ambient air. Due to system losses from blowdown, cooling tower drift, tower evaporation, and leakage, a makeup water supply is required. The primary source of makeup water to the NSCW system is well water with a secondary makeup supply from the Savannah River. The well water is unfiltered, but is relatively clean and free of sediment. The NSCW system is also unfiltered. The NSCW system is periodically treated with a stabilized hypobromite biocide to control microbiological growth. The NSCW system is treated with tolytriazole as a copper corrosion inhibitor. In addition, SNC trends corrosion on coupons placed in the NSCW system. To date, the NSCW system has not experienced any appreciable corrosion problems.

During 1995, all four NSCW tower basins were inspected and a moderate amount of foreign material was removed. The types of foreign material removed included pieces of insulation, sheet metal, nails, tools, etc. In part, as a result of these inspections, corrective measures were implemented to minimize the amount of foreign material that could enter the NSCW tower basins. These corrective measures included the installation of debris screens with kick plates around the periphery of the NSCW tower basins and closing off access openings to the NSCW pumps. During March of 2002, a follow-up inspection was performed on the 1A NSCW tower basin. During this inspection, some debris was found (e.g., nails, wire brush, bolt, nut, etc.), but the amount of debris was significantly less than that found during the inspections performed in 1995. Based on the small amount of debris found during the 2002 inspection of the 1A NSCW tower basin, it was determined that the corrective measures implemented to minimize foreign material from entering the system were successful. Therefore, periodic inspections are not planned for the NSCW tower basins.

The only operational issue experienced with debris in the NSCW system has been due to clogging of small diameter orifices to the motor coolers of the containment spray, safety injection, and residual heat removal systems. The type of debris removed to date includes a small bird bone, pieces of spalled concrete, and small pieces of metal and hard plastic.

Several measures have been taken to minimize the potential for debris entering the system. Some of these include replacing grating over access ports to the pump pits with steel plates, installing debris screens with toe kicks at the windows to the NSCW tower basin, replacing pump sleeve bearings which had delaminated and created internally generated debris, and increasing the sensitivity of plant personnel to the consequences of debris entering the system. NSCW flow to the emergency core cooling system (ECCS) pump motor and lube oil coolers and the containment spray pump motor coolers is monitored monthly to ensure that these small diameter orifices are not blocked by debris.

The NSCW check valves to the containment coolers are located in both horizontal and vertical runs. Only the check valves located in horizontal runs could be affected by debris collection. The horizontally-oriented valves (two per unit) are not located in a low point which could trap debris. In the past, debris has been trapped in small diameter orifices to motor coolers not in the check valves to the NSCW coolers. The likelihood of these small debris particles accumulating or becoming stuck in these check valves is extremely remote.

b. Historical information has shown no significant seating issues. All twelve check valves have been included in the INPO SOER 86-03 Check Valve Monitoring Program (Vogtle procedure 83304-C). Under guidance of procedure 83304-C and PM SCL00492, one train (three valves) was inspected every fifth refueling outage, resulting in each valve being disassembled and inspected at least once. Although some of the internal components were corroded/missing (most noted - spring pins and hinge pin retaining rings), it was determined that this condition was caused by the manufacturer installing the incorrect material during original construction. The condition was analyzed, and it was determined that the condition would not cause the valves to fail. All corroded parts were replaced at the time of discovery, and subsequent inspections have indicated no additional issues with these parts.

   Check valve (2-1202-U4-473) was discovered to be leaking approximately 2 GPM during the 2R6 refueling outage (1998). Work order 29800825 was written to investigate and repair the condition. The valve internals were inspected, with no abnormal indications found. The disc and seat were blue checked, with satisfactory results. The inside of the valve body was chamfered (1/16") to allow the disc to make better contact with the seat. The valve has been inspected twice since, with no additional internal degradation or leakage noted.

c. The check valves to the containment coolers are located between the NSCW pump discharge check valves and the containment coolers. They are located at a variety of elevations and have orientations as shown in following chart.

Train	Tag number	Elevation	Orientation	Inspection
A	1/2-1202-U4-467	181'	Horizontal	Group 2
A	1/2-1202-U4-468	195'	Horizontal	Group 2
A	1/2-1202-U4-466	191'	Vertical	Group 1
B	1/2-1202-U4-471	191'	Vertical	Group 1
B	1/2-1202-U4-472	191'	Vertical	Group 1
B	1/2-1202-U4-473	188'	Vertical	Group 1

   SNC will use the guidance provided in NRC Generic Letter 89-04, Position 2, for grouping the subject valves for disassembly, inspection, and manual exercising. This grouping results in one group of 2-valves and one group of 4-valves due to orientation. SNC plans to inspect one valve from each group during each outage. This means every valve will be inspected at least every six years.

   Based on past INPO SOER 86-03 inspection results, SNC does not expect IST inspections to identify significant valve degradation. Per the SNC IST program, "If disassembly reveals that a valve has degraded, the remaining valve or valves in that group will be disassembled and inspected." This is in agreement with Position 2 of Generic Letter 89-04. SNC does not anticipate expanding inspections beyond that group.

However, if a serious problem is encountered that could also affect other valves, SNC would expand inspections as necessary. Problems with the NSCW check valves to the containment coolers will be evaluated for non-conforming conditions as part of the existing corrective action and ISI programs. If the valves are found to pose a risk to plant operability due to non-conforming conditions, the site will investigate and resolve the problem on the affected valve as well as other valves which could be affected by the problem.

References

1. SNC letter to NRC, LCV-0897-D, Request for Additional Information Concerning GL 96-06, October 28, 1998.

2. SNC letter to NRC, LCV-0897-H, Request for Additional Information Concerning GL 96-06, December 2, 2002.

3. SNC letter to NRC, NL-04-0452, Request for Additional Information Concerning GL 96-06, March 29, 2004.