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SOUTHERN COMPANY
Energy to Serve Your World

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

Edwin I. Hatch Nuclear Plant - Unit 2
Nine-Month Supplemental (Post-Outage) Response to
NRC Generic Letter 2008-01

References:

1. NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" dated January 11, 2008.
2. Request for Extension of the Three-Month Response to NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" dated April 8, 2008.
3. Three-Month Response to NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" dated May 30, 2008.
4. NRC Letter to Dennis Madison concerning Response to Extension Request dated June 16, 2008 (TAC Nos. MD7833 and MD7834).
5. NRC Letter to Nuclear Energy Institute, dated July 8, 2008 (ML081830557).
6. Nine-Month Response to NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" dated October 10, 2008.

Ladies and Gentlemen:

The Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2008-01 (Reference 1) to request that each licensee evaluate the licensing basis, design, testing, and corrective actions for the emergency core cooling, decay heat removal, and containment spray systems to ensure that gas accumulation is maintained less than the amount that challenges operability of these systems, and that appropriate action is taken when conditions adverse to quality are identified.

Enclosure 1 is the Southern Nuclear Operating Company (SNC) supplemental response to the nine-month response letter. This supplemental response is being submitted within ninety days following the completion of the Edwin I. Hatch Nuclear Plant (HNP) Unit 2 refueling outage (2R20). Also included is additional information concerning activities that have occurred on HNP Unit 1.

In summary, SNC has concluded that the subject systems at HNP are operable and that HNP is currently in compliance with the licensing basis documentation and applicable regulations, including 10 CFR 50 Appendix B, Criteria III, V, XI, XVI, and XVII, with respect to the concerns outlined in GL 2008-01 regarding managing gas accumulation in these systems/functions.

This letter contains new NRC commitments described in Enclosure 2.

An additional nine-month supplemental (post outage) response will be prepared after the HNP Unit 1 Spring 2010 outage (1R24).

Mr. M. J. Ajluni states he is Nuclear Licensing Manager 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.

If you have any questions, please advise.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

Mark J. Ajluni

M. J. Ajluni
Manager, Nuclear Licensing

Sworn to and subscribed before me this 24th *day of* August, *2009.*

Patricia H. Raymond
Notary Public

My commission expires: 7-21-2012

MJA/PAH/lac

Enclosures:
1. HNP Unit 2 Nine-Month Supplemental (Post-Outage) Response to NRC Generic Letter 2008-01
2. Commitment Table

cc: Southern Nuclear Operating Company
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U. S. Nuclear Regulatory Commission
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Edwin I. Hatch Nuclear Plant
Supplemental Response to Nuclear Regulatory Commission
Generic Letter 2008-01

Enclosure 1

HNP Unit 2 Nine-Month Supplemental (Post-Outage)
Response to NRC Generic Letter 2008-01

Enclosure 1

HNP Unit 2 Nine-Month Supplemental (Post-Outage) Response to NRC Generic Letter 2008-01

This enclosure provides the Post-Outage Response to Generic Letter (GL) 2008-01, as requested by Nuclear Regulatory Commission (NRC) letter dated June 16, 2008 for actions that were deferred until the next refueling outage for Edwin I. Hatch Nuclear Plant (HNP) Unit 2.

The following information is provided in this enclosure:

- A description of the results of evaluations that were performed pursuant to GL 2008-01 on the previously incomplete activities, such as system piping walkdowns, HNP Unit 2 (see section A of this enclosure).

- A description of any additional corrective actions determined necessary to assure system operability and compliance with the quality assurance criteria in Sections III, V, XI, XVI, and XVII of Appendix B to 10 CFR Part 50 and the licensing basis and operating license with respect to the subject systems, including a schedule and a basis for that schedule (see section B.1 of this enclosure), and summary of any changes or updates to previous corrective actions, including any schedule change and the basis for the change. (See section B.2 of this enclosure).

- Also included is additional information concerning activities that have occurred on HNP Unit 1.

The original conclusions documented in the nine-month response have not changed; i.e., that the licensing basis, design, testing, and corrective action evaluations, and the corrective actions resulting from these evaluations performed in response to GL 2008-01 provide reasonable assurance that the HNP Emergency Core Cooling (ECCS) and Residual Heat Removal (RHR) systems will continue to perform their required safety functions. It should be noted that containment spray is an operating mode of the RHR system. In addition, the Reactor Core Isolation Cooling (RCIC) system was also evaluated.

This enclosure primarily discusses the results of design evaluation reviews conducted during the recent HNP Unit 2 refueling outage associated with previously uncompleted walkdown activities.

Enclosure 1

HNP Unit 2 Nine-Month Supplemental (Post-Outage)
Response to NRC Generic Letter 2008-01

A. EVALUATION RESULTS

1. Design Basis Documents

There have been no changes to the design basis documents, and thus there is no additional information to report, since the Southern Nuclear Operating Company (SNC) Nine-Month Response, dated October 10, 2008, to NRC GL 2008-01.

2. Confirmatory Walkdowns

a. The confirmatory walkdowns of the remaining sections of Unit 2 system piping have been completed. The walkdowns included confirmation of vent valves locations and orientation. No significant issues and no additional required modifications were identified. Piping elevations were evaluated using laser scanning methodology. The evaluation of the laser scanning results has been completed. The results will be incorporated into plant procedures by October 13, 2009.

b. The following is a summary of the results of venting utilized to ensure that voids in the identified high points were confirmed acceptable:

Prior to the Spring 2009 Unit 2 refueling outage, all critical locations in the Unit 1 and Unit 2 HPCI, RCIC, RHR, and Core Spray suction piping were inspected for voids via ultrasonic testing (UT). Two voids (one in each HPCI system) were discovered and evaluated. Even though the voids found were well below the acceptable limits, one vent valve was added to HNP Unit 2 during 2R20 and the addition of a vent valve for Unit 1 will be evaluated during the Unit 1 (1R24) refueling outage. UT inspections were also performed on certain locations in the discharge piping of these systems, with no voids found.

During the Unit 2 refueling outage, all critical locations on the Unit 2 HPCI, RCIC, RHR, and Core Spray systems were vented prior to plant startup. Successful venting for each of these systems was confirmed by UT.

During the outage UT inspections, gas voids were found in the Unit 2 "A" Core Spray piping upstream of 2E21-D003A (orifice) and between 2E21-D003A and 2E21-F004A (valve). Vent valves were subsequently installed in each of these locations and the similar locations on the "B" loop of Core Spray. These locations were subsequently successfully vented and confirmed by UT.

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B. DESCRIPTION AND SCHEDULE OF CORRECTIVE ACTIONS

1. Corrective Actions Completed

a. A generic guidance document for fill and vent was implemented. Subsequently, the information has been incorporated into the applicable ECCS pump operating and surveillance procedure.

2. Corrective Actions to be Completed, Schedule, and Basis for that Schedule

The corrective actions to be completed and schedules are:

a. A Corrective Action for procedure development/revision has been initiated to include requirements for periodic monitoring and trending of ECCS, RHR, and RCIC piping. This action will be complete by November 21, 2008.

Status:

Procedure 42EN-MON-001-0, "Monitoring and Trending of Gas Accumulation in Safety Injection Systems" was created, and monitoring was implemented for each unit. The procedure contains the overall gas voiding guidance. It contains specific acceptance criteria for monitored locations and overall acceptance criteria limits. The procedure lists locations that are monitored, using ultrasonic measurements, for gas voids, and lists locations that are monitored by performance of routine venting by Operations. The procedure also includes the frequency for monitoring and guidance for ultrasonic monitoring performed by engineering personnel. The procedure was implemented on November 19, 2008.

This Corrective Action for HNP Unit 2 is complete.

b. Corrective Action has been initiated to revise HNP procedures to provide assurance that gas in the affected systems suction piping is limited to within the acceptance criteria determined by the HNP specific analyses. Specifically, HPCI System post maintenance fill and vent procedures used to provide assurance that gas in the HPCI System suction piping is limited to within the acceptance criteria (including the impact of gas trapped in valve bonnets) will be revised based on the HNP specific analyses.

Procedural guidance will be provided by November 21, 2008.

Status:

Procedure 42EN-MON-001-0, "Monitoring and Trending of Gas Accumulation in Safety Injection Systems" has been implemented. The procedure provides guidance for identifying and evaluating the presence of voiding in critical system piping. It contains specific acceptance criteria for monitored locations within the HPCI system suction piping. The procedure lists locations that are monitored, using ultrasonic measurements, for gas voids. The procedure also includes the frequency for monitoring and guidance for ultrasonic monitoring performed by engineering personnel. The procedure was implemented on November 19, 2008.

The procedure, 34SO-E41-001-2, "High Pressure Coolant Injection (HPCI) System" used for filling and venting the HPCI system following post maintenance activities was reviewed. It was confirmed that this procedure when used in conjunction with 42EN-MON-001-0 above provided assurance that void in the HPCI suction piping will be limited to the acceptance criteria determined from HNP specific analysis.

This Corrective Action for HNP Unit 2 is complete.

c. A Corrective Action has been initiated to perform analyses, similar to the analysis performed for the HPCI System, to determine the pump suction acceptance criteria for the following HNP systems: RCIC, LPCI mode of RHR System operation, and CS. HNP post maintenance fill and vent procedures will be revised to provide assurance that gas in the affected systems suction piping is limited to within the acceptance criteria (including the impact of gas trapped in valve bonnets) determined by the HNP specific analyses.

The affected procedures will be revised within one hundred and twenty (120) days following receipt of the analyses results. Final corrective action will be discussed in our follow-up letter.

Status:

The analysis to determine the pump suction acceptance criteria for RCIC, the modes of RHR (including LPCI and Containment Spray), and Core Spray has been completed.

Procedure 42EN-MON-001-0, "Monitoring and Trending of Gas Accumulation in Safety Injection Systems" has been implemented for each unit. The procedure provides guidance for identifying and evaluating the presence of voiding in critical system piping. It contains specific acceptance criteria for monitored locations and overall acceptance criteria limits. The procedure lists locations that are monitored, using ultrasonic monitoring, for gas voids, and lists locations that are

monitored by performance of routine venting by Operations. The procedure also includes the frequency for monitoring and guidance for ultrasonic monitoring performed by engineering personnel and includes those locations that are flushed/dynamically vented and the flushing/dynamic venting frequency. The procedure was implemented on November 19, 2008.

This Corrective Action for HNP Unit 2 is complete.

d. A Corrective Action has been initiated to implement the Joint Owners Group methodology for evaluating pump discharge piping susceptible to pressure pulsation after pump start and to develop HNP specific acceptance criteria for discharge piping gas voids. HNP procedures will be revised to provide assurance that gas in the affected systems discharge piping is limited to within the acceptance criteria determined by the HNP specific application of the Joint Owner's Group program method. Air trapped in valve bonnets that could get in the discharge piping of the subject systems will be accounted for in the pump discharge void acceptance criteria established for HNP.

   The affected procedures will be revised within one hundred and twenty (120) days following receipt of the above results. Final corrective action will be discussed in our follow-up letter.

   Status:

   The ECCS, RHR, and RCIC pump discharge piping were evaluated to determine the potential for a significant water hammer event resulting from a void present in the system during a pump start. The evaluations provide an assessment of the maximum pressures that could result from both pump starts due to a receipt of an accident signal, as well as during pump surveillance testing. This information was used to determine the maximum gas volume that can be accumulated within the piping highpoints to prevent challenging the system relief valves and confirm the load on the piping system remains within the design of the piping restraints. The assessment of the relief valves is a function of the total gas volume in the system and therefore is system related. The evaluation for the piping loads is typically governed by the gas volume that could be accumulated in the highpoint with the largest volume. In this regard, a bounding (system related) criterion was determined. Selected highpoints will be monitored to provide reasonable assurance that the total gas volume is less than the system related criterion.

   The gas that could be collected in check valves was included in the total gas system volume (discussed above). The gas volumes that are collected in the bonnets of globe and gate valves were not included since they do not actively participate in the fluid stream and act as local surge suppressors that reduce the waterhammer impulse and therefore the piping loads.

The acceptance criteria for the discharge piping was incorporated into the HNP procedure 42EN-MON-001-0, "Monitoring and Trending of Gas Accumulation in Safety Injection System" on August 21, 2009.

This procedure revision encompasses HNP Units 1 and 2.

e. Based on the identification of the locations where gas can accumulate, and the gas intrusion mechanisms identified above, it was determined that currently no new vent valves should be installed in Unit 1 and that new vent valves should be installed at two (2) locations in Unit 2, and other locations in both units will be evaluated further to determine whether new vent valves should be added, or if these locations should be monitored.

   The new Unit 2 vent valves will be installed by the end of the Spring 2009 refueling outage.

   Status:

   Vent valves were installed at several locations on Unit 2 during the 2R19 outage.

   - A vent valve was installed on the discharge line of the RHR A to vent dead leg sections.
   - A vent valve was installed on the RHR B system to vent dead leg sections.
   - A vent valves was installed on the HPCI system suction line from the Suppression Chamber
   - A vent valve was installed on the RCIC system condensate pump discharge line.
   - Vent valves were installed in 3 locations on the Core Spray A injection lines.
   - Vent valves were installed in 3 locations on the Core Spray B injection lines.

   The installation of vent valves in similar locations on HNP Unit 1 will be evaluated prior to the Spring, 2010 Refueling Outage.

f. The evaluation of the other locations to determine if vent valves need to be installed or if these locations should be monitored will be completed by 120 days after the receipt of the engineering evaluation. Final corrective action will be discussed in our follow-up letter.

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3. Vent Valves

Vent valves were installed at several locations on Unit 2 during the 2R20 outage.

- A vent valve was installed on the discharge line of the RHR A system.
- A vent valve was installed on the discharge line of the RHR B system.
- A vent valve was installed on the HPCI system suction line from the Suppression Chamber.
- A vent valve was installed on the RCIC system condensate pump discharge line.
- Vent valves were installed in 3 locations on the Core Spray A injection lines.
- Vent valves were installed in 3 locations on the Core Spray B injection lines.

Installation of additional vent valves will be evaluated based on the results of system monitoring.

4. Procedures

Since the SNC Nine-Month Response letter dated October 10, 2008, the following HNP procedures were established to implement monitoring and trending of gas accumulation for the suction and discharge piping of the RHR, Core Spray, HPCI and RCIC systems.

42EN-MON-001-0, "Monitoring and Trending of Gas Accumulation in Safety Injection System."

NMP-ES-024-515, "Ultrasonic Examination Procedure for Liquid Level Measurement."

The Unit 1 and Unit 2 RHR, CS, HPCI, and RCIC system operating and venting procedures were also revised to incorporate utilization of added vent valves, improved venting practices, and information related to gas accumulation.

Status:

The review of the information contained in the engineering evaluation has been completed. No additional vent valve installation will be required. Additional monitoring locations identified by the evaluation will be incorporated into the applicable procedures by October 13, 2009.

This procedure revision will encompass HNP Units 1 and 2.

g. The Unit 2 inaccessible piping will be walked down during the Spring 2009 refueling outage.

Status:

Unit 2 walkdowns were completed during outage 2R20.

This Corrective Action for HNP Unit 2 is complete.

h. The walkdown results for the Unit 2 Spring 2009 outage will be evaluated and necessary modifications will be completed by the end of the refueling outage.

Status:

The walkdown results for inaccessible locations have been evaluated. No significant issues were identified and no additional modifications were identified.

This Corrective Action for HNP Unit 2 is complete.

i. The Unit 1 inaccessible piping will be walked down during the Spring 2010 refueling outage.

Status:

These walkdowns will be performed during the Spring 2010 outage. (1R24)

j. The walkdown results for the Unit 1 Spring 2010 outage will be evaluated and necessary modifications will be completed by the end of the refueling outage.

Status:

These modifications will be completed during the Spring 2010 outage based upon the above walkdown results. (1R24)

k. A Corrective Action for potential procedure revisions was initiated to evaluate the comments resulting from the operating procedure review. The Corrective Action will

require reviewing the comments to determine the scope of the necessary procedure revisions.

This Corrective Action will be completed by June 30, 2009.

Status:

This correction action to review the comments and to implement applicable procedure revisions has been completed.

This Corrective Action for HNP Unit 1 and Unit 2 is complete.

Conclusion

SNC has evaluated the applicable systems at HNP Unit 2 that perform the functions described in the GL and has concluded that these systems are operable.

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Supplemental Response to Nuclear Regulatory Commission
Generic Letter 2008-01

Enclosure 2

Commitment Table

Enclosure 2

Commitment Table

Commitment for HNP Unit 2	Type		Scheduled Completion Date
	One-Time Action	Continuing Compliance	
Revise plant procedures to incorporate additional monitoring locations as a result of laser scanning analysis.	X		October 13, 2009