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Callaway Plant

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June 11, 2010

ULNRC-05712

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

10 CFR 50.73(a)(2)(i)(B)

Ladies and Gentlemen:

DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
FACILITY OPERATING LICENSE NPF-30
LICENSEE EVENT REPORT 2010-006-00
ABSENCE OF VENT VALVE IN RHR HEAT EXCHANGER 'B'
DISCHARGE LINE RESULTED IN INCOMPLETE TS SURVEILLANCE

The enclosed licensee event report is submitted in accordance with 10CFR50.73(a)(2)(i)(B) to report a condition prohibited by Technical Specifications (TS), specifically, an incomplete TS surveillance per TS Surveillance Requirement (SR) 3.5.2.3 as a result of the absence of a vent valve in the Residual Heat Removal heat exchanger 'B' discharge line to the Reactor Coolant System cold legs 3 and 4 accumulator injection discharge header.

This letter does not contain new commitments.

Sincerely,

Fadi M Diya
Vice President - Nuclear Operations

KRA

Enclosure

cc: Mr. Elmo E. Collins, Jr.
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U.S. Nuclear Regulatory Commission
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NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2010

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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4. TITLE
Absence of vent valve in RHR heat exchanger 'B' discharge line resulted in incomplete TS surveillance

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	15	2010	2010	006	00	06	11	2010	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE
MODE 1

10. POWER LEVEL
100%

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
T.B. Elwood, Supervising Engineer, Regulatory Affairs and Licensing	314-225-1905

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED		15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)*	☒ NO				

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On April 15, 2010, during the performance of an inspection following the guidance of NRC Inspection Manual Temporary Instruction 2515/177-01, the NRC Resident Inspectors identified a location upstream of the 'B' RHR accumulator injection supply isolation valve, EJHV8809B, where the Emergency Core Cooling System (ECCS) surveillance procedure does not direct venting or the performance of ultrasonic testing (UT) to verify there is no accumulated gas. This resulted in the failure to verify the subject piping was full of water every 31 days as required by Technical Specification (TS) Surveillance Requirement (SR) 3.5.2.3. This condition therefore constituted a condition prohibited by the Technical Specifications, as TS SR 3.0.3 (for a missed surveillance) was neither able to be applied nor met.

An evaluation has determined that there were two causes of this event: inadequate design and inadequate performance monitoring. Corrective actions taken as a result of this condition include installation of a vent valve upstream of EJHV8809B and on line EJ-026-BCB-6". Corrective actions intended to reduce the probability of similar events occurring in the future include revisions to Operations procedures.

1. DESCRIPTION OF STRUCTURE(S), SYSTEM(S) AND COMPONENT(S):

The Emergency Core Cooling System (ECCS) at Callaway consists of four separate subsystems: accumulator safety injection [EIIS system: BQ], centrifugal charging (high head) [EIIS system: BQ], safety injection (SI) (intermediate head) [EIIS system: BQ], and residual heat removal (RHR) (low head) [EIIS system: BP]. Each subsystem consists of two redundant, 100% capacity trains. Both trains (for each of the four subsystems) are required to be operable in MODES 1, 2, and 3 (except that the accumulator safety injection subsystem is only required when Reactor Coolant System (RCS) [EIIS system: AB] pressure is greater than 1000 psig).

The ECCS flow paths are designed such that water from the SI accumulators [EIIS system: BQ, component: ACC] and Refueling Water Storage Tank (RWST) [EIIS system: CB, component: TK] can be injected into the RCS following a loss of coolant accident (LOCA), a rod cluster control assembly ejection accident, a steam or feedwater system break, or a steam generator tube rupture, thus providing emergency core cooling and emergency boration for shutdown capability. The major components of each subsystem are the SI accumulators, centrifugal charging pumps (for the high-head ECCS function) [EIIS system: BQ, component: P], the SI pumps (for the intermediate-head ECCS function) [EIIS system: BQ, component: P], the RHR pumps (for the low-head ECCS function) [EIIS system: BP, component: P], and heat exchangers [EIIS system: BP, component: HX]. Each of the four subsystems consists of two 100% capacity trains that are interconnected and redundant such that either train is capable of supplying 100% of the flow required to mitigate the accident consequences. This interconnecting and redundant subsystem design provides the operators with the ability to utilize components from opposite trains to achieve the required 100% flow to the core.

Technical Specification (TS) 3.5.1 specifies ECCS accumulator requirements for MODES 1, 2, and 3 with RCS pressure > 1000 psig; TS 3.5.2 specifies ECCS requirements for MODES 1, 2, and 3; TS 3.5.3 specifies ECCS requirements for MODE 4. TS Surveillance Requirement (SR) 3.5.2.3 requires verification that ECCS piping is full of water at a frequency of 31 days.

2. INITIAL PLANT CONDITIONS:

This LER addresses a failure to satisfy SR 3.5.2.3 due to a failure to complete the required verification on a section of RHR heat exchanger 'B' discharge line to RCS cold legs 3 and 4 accumulator injection discharge header upstream of the 'B' RHR accumulator injection supply isolation valve, EJHV8809B, [EIIS system: BP, component: ISV]. This was discovered while the plant was in MODE 1 at 100% power.

No structures, systems, or components were inoperable at the start of the event which contributed to the event.

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3. EVENT DESCRIPTION:

On April 15, 2010, during the performance of an inspection following the guidance of Nuclear Regulatory Commission (NRC) Inspection Manual Temporary Instruction (TI) 2515/177-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems (NRC Generic Letter 2008-01)," the NRC Resident Inspectors identified a location near EJHV8809B where the ECCS surveillance procedure does not direct venting or the performance of ultrasonic testing (UT) to verify there is no accumulated gas. This resulted in the failure to verify the ECCS piping upstream of EJHV8809B was full of water every 31 days as required by TS SR 3.5.2.3.

In January 2008, the NRC issued Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," which requested information from licensees regarding how they protect certain safety systems from the accumulation of air, nitrogen, or other gases that could cause the systems to become inoperable. The GL requested licensees to evaluate their emergency core cooling, decay heat removal (RHR), and containment spray (CS) [EIIS system: BE] systems in order to determine how their licensing basis, design, testing, and corrective actions 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.

GL 2008-01 requested that within nine months, licensees submit a response to the requests in the GL. Callaway submitted a nine-month response to the NRC, followed by a final response to GL 2008-01 within 90 days of the completion of Refuel (RF) 16 in order to complete all required walkdowns and evaluations. Based on the evaluations and inspections performed, AmerenUE concluded that the ECCS, RHR, and CS systems are capable of performing their specified safety functions and the systems are in compliance with their licensing basis with respect to the concerns outlined in GL 2008-01.

During the first quarter of 2010, the NRC issued TI 2515/177-01 which provides background information and guidance for inspectors to verify that the licensee's onsite documentation, system hardware, and actions are consistent with the information provided in the licensee's response to GL 2008-01.

During the last week of March 2010, the NRC Resident Inspectors at Callaway requested that the systems engineering group provide information needed to begin the TI 2515/177-01 inspection. During the subsequent review process, on 04/15/2010, the inspectors identified a location in the 'B' RHR train piping upstream of the 'B' RHR accumulator injection supply isolation valve, EJHV8809B, that could be considered a possible high point and where there was no vent valve installed. A review of the corresponding 'A' train identified that at the same location on piping associated with the 'A' RHR train the original plant design had vent valves installed (EJV0053/EJV0026 [EIIS system: BP, component: VTV]). These vent valves were also included in surveillance procedure OSP-SA-00003, "ECCS Flow Path Verification and Venting," which is utilized for performing the 31-day surveillance required per TS SR 3.5.2.3 for verifying that ECCS piping is full of water.

From review of Callaway's GL 2008-01 response, it was identified in the response that there was no vent valve installed on the particular 'B' train location, as it was concluded that the line segment where EJHV8809B is located is not a system high point. A recommendation was made by the system engineer, at that time, to install a vent valve at the location (a local high point) as it would provide a means to vent off potential gas coming out of solution due to back leakage from the SI accumulator check valves [EIIS system: BQ, component: V]. Job 08009444 was written for installing this vent valve. It was originally scheduled for RF 17, but was then moved to RF 18 since it was considered only to be an enhancement.

Notwithstanding the position and approach taken for the potential vent location as described above, it was determined that the absence of a vent valve near EJHV8809B and lack of monitoring required by the procedure resulted in an incomplete performance of the surveillance required by TS SR 3.5.2.3 for the multiple times this surveillance was performed subsequent to the Callaway response to GL 2008-01. This condition therefore constituted a condition prohibited by the Technical Specifications. (Note that TS SR 3.0.3 was neither able to be applied nor met, because a risk evaluation was not performed within 24 hours of event discovery. Callaway began RF 17 on April 17, 2010 before the Job written (on 4/16/2010) to perform UT could be planned and worked, and as a result, the requirements of TS SR 3.0.3 for a missed surveillance were not followed. Further, no surveillance was performed on the subject piping prior to placing the 'B' RHR loop in operation for shutdown cooling on 4/17/2010 and initiating flow through the subject piping.)

4. ASSESSMENT OF SAFETY CONSEQUENCES:

The RHR heat exchanger 'B' discharge line to RCS cold legs 3 and 4 accumulator injection discharge header upstream of the 'B' RHR accumulator injection supply isolation valve was most recently confirmed to have been dynamically filled and vented as the result of performing the RHR Pump 'B' Comprehensive (i.e., full flow) Test during RF 16 on 10/17/2008. Dynamic venting is confirmed by a recorded flow rate of 3700 gpm in a 14" (max) line resulting in a minimum Froude number of 1.47. (Lines smaller than 14" with a 3700 gpm flow rate will have an even larger Froude number.) Per WCAP-16631, Vol. 1, Rev. 0, Section 9.1, if the Froude number (based on fluid velocity and internal diameter) is greater than 1, all voids will be positively swept from a pipe line.

The ECCS pumps are normally in a standby, non-operating mode and as such, the flow path piping has the potential to develop voids and/or pockets of accumulated gases resulting from any or all of the following transport mechanisms: (1) dissolved gases coming out of solution in gas-saturated fluid due to pressure and/or temperature changes (e.g., hydrogen from the Volume Control Tank (VCT) [EIIS system: CB, component: TK] and/or RCS or nitrogen from the SI accumulators), (2) gases injected directly into the piping such as hydrogen from the VCT or nitrogen from the SI accumulators, or (3) incomplete filling and venting after maintenance (thereby leaving air pockets in the piping). Successful completion of TS SR 3.5.2.3 via surveillance procedure OSP-SA-00003 ensures that the piping from the ECCS pumps to the RCS is maintained full of water. Venting the RHR and SI pump casings and accessible ECCS

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discharge piping high point vents ensures that the system will perform properly and inject its full capacity into the RCS upon demand. Maintaining the ECCS full of water prevents water hammer in pump discharge piping, gas ingestion into pump suctions which could result in catastrophic failure, or pumping non-condensable gases (e.g., air, nitrogen, or hydrogen) into the reactor vessel following an SI signal or during shutdown cooling. The 31-day surveillance frequency is based on consideration of the gradual nature of gas accumulation in the ECCS piping.

The area of concern is located in the RHR heat exchanger 'B' discharge piping just upstream of EJHV8809B. This area is a local high point in an accessible location within the Auxiliary Building and should have been included in the monthly surveillance. Even though there is not a vent on the RHR heat exchanger 'B' discharge line, there is a vent at a similar location on the RHR heat exchanger 'A' discharge line (vent EJV0196 [EIIS system: BP, component: VTV]). Site calculation R-4152-00-1, Rev. 0, "Max Vent Volumes for Points Vented in Procedure OSP-SA-00003," calculated the maximum allowable void volumes that may be allowed from the locations vented or monitored by the monthly surveillance procedure (OSP-SA-00003) which included the 'A' train vent, EJV0196. This location on the RHR heat exchanger 'A' discharge line is a similar distance from the RCS as is the affected location on the RHR heat exchanger 'B' discharge line. The maximum allowed void in 'A' train would be similar to the maximum allowed void in the affected 'B' train location. Thus, a vent valve should have been installed on the affected 'B' train location (local high point). As noted previously, a recommendation was made by the system engineer, at that time of Callaway's GL 2008-01 response, to install a vent valve at the 'B' train location, but this was considered to be an enhancement.

The above noted site calculation, R-4152-00-1, Rev. 0, only allows a 1.41 cu. ft void (if measured by UT inside the pipe) or 3.25 cu. ft if vented at Standard Temperature and Pressure (STP). The piping volume from EJHV8809B to the RCS cold leg 3/4 accumulator injection discharge header connections is in excess of 30 cu. ft and since it connects to the outlets of SI accumulators 'C' and 'D' it is susceptible to nitrogen intrusion due to potential back leakage of nitrogen-saturated (accumulator) water across check valves EP8818C and D [EIIS system: BQ, component: V]. The SI accumulators are maintained at 600 to 650 psig by nitrogen pressure applied directly to the water volume. Thus, the water in the accumulator itself and the associated discharge header will become nitrogen saturated.

The common accumulator injection discharge header is continuously pressurized to SI accumulator pressure. Back leakage across check valves EP8818C and EP8818D would allow the nitrogen-saturated accumulator water into the RHR heat exchanger 'B' discharge header which normally sees pressure from the RWST of 25 to 30 psig at this location. Nitrogen would come out of solution in the lower pressure RHR System and cause voids to develop in the piping. Since this location was not monitored during the monthly surveillance, voids in excess of the maximum allowed could collect and, if transported during a safety injection, could cause a pressure surge in excess of the 600 psig design pressure rating of the RHR System resulting in potential piping damage (since only pipe elbows and hangers would be affected by a void in this location) of the RHR heat exchanger 'B' accumulator injection header with potential loss of

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system function and inventory.

Realistically, however, the potential for large void development from the transportation of nitrogen-saturated accumulator water into the noted RHR location is low. The noted check valves are leak tested and have a good performance history. Furthermore, in 2005 these swing check valves were replaced with another style of swing check valve that demonstrates better sealing against back leakage.

There is reasonable assurance that the RHR heat exchanger 'B' discharge line would not have experienced gas accumulation to the extent that the 'B' RHR subsystem would have been incapable of performing its safety function. That is, the 'B' RHR subsystem was capable of providing required RHR flow to the RCS, if required during Cycle 17 for the following reasons:

1. The RHR heat exchanger 'B' discharge line from EJHV8809B was confirmed filled after RF 16 by the performance of the RHR Pump 'B' Comprehensive (Full Flow) Test.

2. The RHR heat exchanger 'B' discharge line from EJHV8809B to the RCS was not drained for maintenance at any time during Cycle 17, thus preventing any air intrusion that could be introduced by such an activity.

3. The RHR pumps to RCS cold leg check valves (EP8818A/B/C/D), which prevent SI accumulator water from entering the RHR line, are leak tested every refueling outage. Tests performed during RF 16 (Job 07506182, 11/5/08) and during RF 17 (Job 08512593, 5/22/10) were both completed satisfactorily, with a combined leakage (all four check valves) of less than 0.1 gpm for both tests. In 2005, Callaway replaced the original Westinghouse swing check valves (vertical seat) with Flowserve swing check valves (with a sloped seat) for better sealing against back leakage.

4. The eDNA (Plant Computer System) graphs for SI accumulator pressure and level for Cycle 17 do not exhibit any abnormal decreases in either level or pressure for SI accumulators 'C' and 'D' (which are connected to the RHR heat exchanger 'B' discharge line) and thus do not reveal any evidence that SI accumulator 'C' and/or 'D' water was leaking into the RHR heat exchanger 'B' discharge line. SI accumulator level and pressure are verified every 12 hrs per TS SRs 3.5.1.2 and 3.5.1.3. Control Room instrument range for SI accumulator level, 0% - 100%, is only 120"-135" on the actual accumulator and indicates 7 gal/% which is relatively sensitive to level changes. In addition, each accumulator is provided with 2 channels of level instrumentation for reliability.

5. RCS Operational Leakage Testing performed every 72 hrs per TS SR 3.4.13.1 (OSP-BB-00009) during Cycle 17 has not revealed any evidence that RCS inventory was leaking into the RHR heat exchanger 'B' discharge line.

In summary, because there is reasonable assurance that the RHR heat exchanger 'B' discharge line did not experience significant gas accumulation to the extent that the 'B' RHR subsystem

would have been incapable of performing its safety function, the system remained operable during Cycle 17 and there are no safety implications for this event.

5. REPORTING REQUIREMENTS:

Because both TS SR 3.5.2.3 and TS SR 3.0.3 were not met, this LER is submitted pursuant to the requirements of 10CFR50.73(a)(2)(i)(B) as a condition prohibited by the Technical Specifications. Identification of a location near EJHV8809B where the ECCS surveillance procedure does not direct venting or performance of UT to verify there is no accumulated gas resulted in a failure to verify the ECCS piping upstream of EJHV8809B was full of water every 31 days as required by TS SR 3.5.2.3. However, there is no evidence that the 'B' RHR subsystem was adversely affected to the extent that it could not perform its intended safety function. The 'A' RHR subsystem was not affected at all by the subject condition. The condition did not therefore constitute a condition that could have prevented fulfillment of a safety function, and therefore the condition is not reportable per 10CFR50.73(a)(2)(v).

6. CAUSE OF THE EVENT:

An evaluation has determined that there were two causes of this event. The first cause is that the original design of the 'B' RHR train piping upstream of the 'B' RHR accumulator injection supply isolation valve, EJHV8809B, (a local high point) did not include a vent valve. The second cause is that performance monitoring via Callaway's ECCS surveillance procedure, OSP-SA-00003, does not direct venting or the performance of UT to verify there is no accumulated gas in the subject section of piping.

Callaway did identify the absence of a vent valve at this location; however, during that time it was considered only as an enhancement because the location was a local high point not a system high point. There are other sections of the pipe which are higher than the line upstream of EJHV8809B but which are inside the containment (EJ-24-BCB-10" and EJ-026-BCB-6"). Callaway surveillance procedure OSP-SA-00003 does not include UT/venting of pipes inside containment commensurate with industry guidance generally considering containment as an inaccessible area, i.e., accessible high point vents are those that can be reached without hazard or high radiation dose to personnel.

Since OSP-SA-00003 does not include pipes inside containment, the location upstream of EJHV8809B was an appropriate location (i.e., a localized high point outside of containment) to UT or vent in order to verify there was no accumulated gas in the line. Callaway should have been proactive in installing vents or performing UT on this section of 'B' RHR train piping rather than identifying it as an enhancement.

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7. CORRECTIVE ACTIONS:

Corrective actions taken as a result of this condition include installation of vent valve EJV0214 [EIIS system: BP, component: VTV] upstream of EJHV8809B and installation of vent valve EJV0213 [EIIS system: BP, component: VTV] (and a clamp to prevent a previous high vibration issue) on line EJ-026-BCB-6".

Corrective actions intended to reduce the probability of similar events occurring in the future include revisions to Operations procedures. Surveillance procedure, OSP-SA-00003, will be revised to add (a) new vent valve, EJV0214, and its acceptance criteria (venting time) to MODE 1-4 surveillances, (b) requirements for additional UT if the monitoring locations given in OSP-SA-00003 identify any void (even below the acceptance criteria), and (c) that additional UT/venting will also be warranted when there is an abnormal decrease in SI accumulator level/pressure, failure of RCS leak rate test surveillance, etc. Operations procedure, ODP-ZZ-00310, "WPA and CAUTION Tagging," will be revised to require performance of UT on the localized high spots identified on a system when restoring the system after partial draining.

8. PREVIOUS SIMILAR EVENTS:

Licensee Event Report (LER) 2008-002-00 and supplemental LER 2008-002-01 were submitted by Callaway to report a void found in line EM-023-HCB between RHR pump 'A' and the SI pumps. That event and other previous events addressed in plant corrective action documents in the 2003 to 2005 timeframe were related to inadequate fill and vent instructions. The corrective action to prevent recurrence was to add fill and vent requirements to the appropriate ECCS normal system operating procedures as well as to develop preventative maintenance actions.

In response to GL 2008-01, Callaway identified and quantified various locations where gas voiding may occur in various plant piping systems. As a result of this work, Significance level 3 corrective action document, CAR 200803462, identified some gas voiding in the suction of the 'A' Containment Spray piping between the between the sump isolation valve and the downstream check valve. Per ultrasonic data, it was identified that this approximately 4 ft length of pipe was 50% full. Ultrasonic data on the 'B' train showed the same piping location on that train to be water solid. This issue was due to a design deficiency which did not provide a proper method to perform a complete fill and vent of the approximately 4 ft section of pipe in both Containment Spray trains. The corrective action was to install an isolable by-pass line around the check valves in each train to allow the proper filling of the pipe section between the sump isolation valve and the downstream check valve in each train.