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Omaha, NE 68102-2247

LIC-11-0038
May 23, 2011

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

Reference: Docket No. 50-285

Subject: Licensee Event Report 2011-006, Revision 0, for the Fort Calhoun Station

Please find attached Licensee Event Report 2011-006, Revision 0, dated May 23, 2011. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(v)(D). If you should have any questions, please contact me.

Sincerely,

Jeffrey Reinhart
Site Vice President

JAR/epm

Attachment

c: E. E. Collins, Jr., NRC Regional Administrator, Region IV
L. E. Wilkins, NRC Project Manager
J. C. Kirkland, NRC Senior Resident Inspector
INPO Records Center

NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2013

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@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

Inoperability of Both Trains of Containment Coolers Due to a Mispositioned Valve

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
										05000
3	22	2011	2011	- 006 -	0	5	23	2011	FACILITY NAME	DOCKET NUMBER 05000

9. OPERATING 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)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☐ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☐ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☒ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER *(Include Area Code)*
Erick Matzke	402-533-6855

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

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

On March 22, 2011, during the performance of a test on containment cooler valves, a technician discovered that NG-HCV-400A-A3, “CCW Inlet Valve HCV-400A Nitrogen Supply Isolation Valve,” was in the closed position. This is not the correct position. He informed the control room of the condition. At the time of discovery, containment cooler VA-3B was inoperable to support the performance of a surveillance test. Operations declared VA-3A inoperable as the backup nitrogen supply to HCV-400A for containment cooler VA-3A cooling coil was unavailable. Operations entered Technical Specification (TS) 2.0.1 (similar to Standard TS 3.0.3) since both VA-3A and VA-3B were simultaneously inoperable. An equipment operator was dispatched to open NG-HCV-400A-A3. After NG-HCV-400A-A3 was opened, VA-3A was declared operable. TS 2.0.1 was then exited.

The root cause analysis determined the cause of this event was the station’s leadership oversight effort has not been effective in the areas of use of the station’s Corrective Action Program, human performance tools and safe work practices in reducing the potential for mispositioning events.

The immediate corrective action of opening the affected valve restored VA-3A to an operable condition. Additional corrective actions to address the root and generic implications of this event will be addressed by the station’s corrective action process.

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NARRATIVE

BACKGROUND

The Fort Calhoun Station (FCS) containment air cooling and filtering system operates to maintain the internal pressure in the containment structure below 60 pounds per square inch gauge (psig) after a loss-of-coolant accident (LOCA). During abnormal, normal, and emergency operations, the system provides cooling in the containment and the charcoal filters reduce radiation levels. The containment air cooling and filtering system consists of two types of units; two cooling units (nonsafety related) and two cooling and filtering units (VA-3A and VA-3B)(safety related). Both the safety related and nonsafety related units are cooled by the safety related component cooling water (CCW) system. The "400 series" valves control flow of CCW to the containment coolers. FCS uses a nonsafety related instrument air system during normal operation to operate the "400 series" valves. The safety related air system to operate the valves uses nitrogen accumulators.

FCS Technical Specification (TS) 2.4 Containment Cooling, states, in part:

(1) Minimum Requirements

a. The reactor shall not be made critical, except for low-temperature physics tests, unless all the following are met:
   i. The following equipment normally associated with diesel-generator DG-1 (4.16-kV bus 1A3 and associated non-automatically transferring 480-Volt bus sections) is operable, except as noted:

Raw water pump	AC-10A
Raw water pump	AC-10C
Component cooling water pump	AC-3A
Component cooling water pump	AC-3C
Containment spray pump	SI-3A
Containment air cooling and filtering unit	VA-3A
Containment air cooling unit	VA-7C

   ii. The following equipment normally associated with diesel-generator DG-2 (4.16-kV 1A4 and associated non-automatically transferable 480 Volt bus sections) is operable, except as noted:

Raw water pump	AC-10B
Raw water pump	AC-10D
Component cooling water pump	AC-3B
Containment spray pump	SI-3B
Containment air cooling and filtering unit	VA-3B
Containment air cooling unit	VA-7D

   iii. Four component cooling heat exchangers shall be operable.

   iv. All valves, piping and interlocks associated with the above components and required to function during accident conditions are operable.

b. During power operation one of the components listed in (1)a.i. or ii. may be inoperable. If the inoperable component is not restored to operability within seven days, the reactor shall be placed in hot shutdown condition within 12 hours. If the inoperable component is not restored to operability within an additional 48 hours, the reactor shall be placed in a cold shutdown condition within 24 hours.

(2) Modification of Minimum Requirements

a. During power operation, the minimum requirements may be modified to allow a total of two of the components listed in (1)a.i. and ii. to be inoperable at any one time. (This does not include: 1) One Raw Water pump which may be inoperable as described above if the river water temperature is below 60 degrees Fahrenheit or, 2) SI-3A and SI-3B being simultaneously inoperable; or 3) VA-3A and VA-3B, or VA-7C and VA-7D, being simultaneously inoperable. Only two raw water pumps may be out of service during power operations. Either containment spray pump, SI-3A or SI-3B, must be operable during power operations. One train of the containment air cooling and filtering systems (VA-3A and VA-7C), or (VA-3B and VA-7D), must be operable during power operations). If the operability of one of the two components is not restored within 24 hours, the reactor shall be placed in a hot shutdown condition within 12 hours. LCO 2.4(1)b. shall be applied if one of the inoperable components is restored within 24 hours. If the operability of both components is not restored within an additional 48 hours, the reactor shall be placed in a cold shutdown condition within 24 hours.

c. Any valves, interlocks and piping directly associated with one of the above components and required to function during accident conditions shall be deemed to be part of that component and shall meet the same requirements as for that component.

FCS TS 2.0.1 is similar to Standard TS 3.0.3.

EVENT DESCRIPTION

On March 22, 2011, during the performance of IC-ST-IA-3010B, “Accumulator Check Valve, and Trip Valve Testing for Train B "400 Series" Containment Cooler Inlet and Outlet Valves,” a technician was getting ready to move over CCW piping to get to the work site as directed by the procedure. As the technician was getting ready to take a step, he looked down and noted that NG-HCV-400A-A3, “CCW Inlet Valve HCV-400A Nitrogen Supply Isolation Valve,” was in the closed position. Having performed this task in the past he recognized that the valve was not in the correct position. He immediately informed the control room of the condition. At the time of discovery, VA-3B was inoperable to support the performance of IC-ST-IA-3010B. Operations declared VA-3A inoperable as the backup nitrogen supply to HCV-400A for VA-3A cooling coil was unavailable. Operations entered TS 2.0.1 with both VA-3A and VA-3B simultaneously inoperable. An equipment operator was dispatched to open NG-HCV-400A-A3. After NG-HCV-400A-A3 was opened, VA-3A was declared operable. TS 2.0.1 was then exited. An eight-hour notification to the NRC Headquarters Operations Office (HOO) was made at 1422 Central Daylight Time on March 22, 2011, per 10 CFR 50.72(b)(3)(v)(D).

This report is being submitted per 10 CFR 50.73(a)(2(v)(D).

NARRATIVE

CONCLUSION

The station's efforts to improve the use of the Corrective Action Program (CAP) have not produced the desired results in reducing valve mispositioning events. The station's level of performance related to the use of the CAP has been inconsistent. The root cause analysis (RCA) determined the cause of this event was the station's leadership oversight effort has not been effective in the areas of use of CAP, human performance tools and safe work practices in reducing the potential for mispositioning events.

CORRECTIVE ACTIONS

Immediate corrective actions included:

An equipment operator was dispatched to the location of the valve and the valve was opened restoring VA-3A to an operable state. TS 2.0.1 was exited.

As corrective action to prevent recurrence and address the generic implication of this issue, FCS will be conducting an evaluation of the CAP using Institute of Nuclear Power Operations (INPO) and NRC guidance documents to identify performance gaps and other improvements. The CAP will be revised to include the results of the above evaluation. Completion of the actions involved will be tracked by the station's corrective action program.

SAFETY SIGNIFICANCE

NG-HCV-400A-A3 is the backup nitrogen valve for HCV-400A, which supplies CCW for VA-3A. For the limiting LOCA scenario, one of the two containment air cooling trains, which are comprised of one containment air cooling and filtering unit and one containment air cooling unit, limit containment pressure to below the design value without taking credit for the cooling capacity of the containment spray system. For the limiting Main Steam Line Break (MSLB) scenario, a heat removal contribution is credited from the air coolers and the containment spray system in the mitigation of containment peak pressure. Analyses show that after a high heat load accident such as a large break LOCA or a MSLB inside containment, three in-service CCW heat exchangers will maintain CCW return temperature in an analyzed range. This assumes that the containment air cooling units are operating which would create the maximum heat load on the CCW system. If instrument air is unavailable, HCV-400A would normally auto-open on a containment isolation actuation signal (CIAS) using backup nitrogen. This will occur within minutes after the start of a design basis accident (DBA). After that, the additional reserve provided by the backup nitrogen accumulator provides the operators with the flexibility of isolating CCW to any containment air cooler at their discretion. A backup nitrogen accumulator is qualified for a 24-hour hold time. The valve actuator is not of the spring-return type, so pneumatic pressure on the actuator may be required to hold it in a given position. System operation is not normally required to initiate operation of engineered safeguards equipment as all air operated valves required to control the accident were designed to assume the accident controlling position on loss of instrument air pressure or are provided with safety grade passive accumulators or nitrogen backup system. With NG-HCV-400A-A3 closed no backup to the instrument air system exists to ensure HCV-400A opens. Although the instrument air system is not a safety related system it is likely that during an accident instrument air will be available to operate the valve. Therefore, this event had little effect on the health and safety of the public.

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NARRATIVE

SAFETY SYSTEM FUNCTIONAL FAILURE

This event does result in a safety system functional failure in accordance with NEI-99-02.

PREVIOUS EVENTS

LER 2006-003 documents a loss of both trains of containment cooling.