

444 South 16th Street Mall
Omaha NE 68102-2247

February 13, 2003
LIC-03-0004

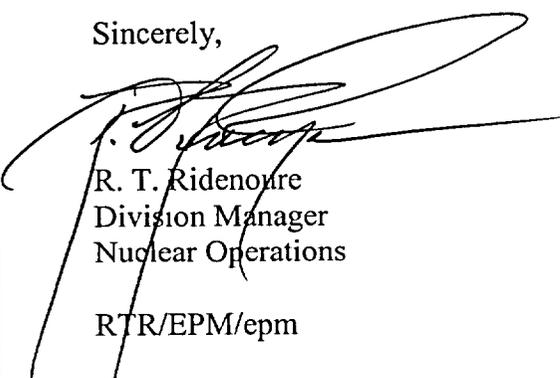
U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Reference: Docket No. 50-285

Subject: Licensee Event Report 2002-04 Revision 0 for the Fort Calhoun Station

Please find attached Licensee Event Report 2002-004, Revision 0, dated February 13, 2003. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(ii)(B).

Sincerely,



R. T. Ridenoure
Division Manager
Nuclear Operations

RTR/EPM/epm

Attachment

c: E. W. Merschoff, NRC Regional Administrator, Region IV
Alan Wang, NRC Project Manager
J. G. Kramer, NRC Senior Resident Inspector
INPO Records Center
Winston and Strawn

| | | |
|---|---|---|
| NRC FORM 366 (7-2001) | U.S. NUCLEAR REGULATORY COMMISSION | APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004 Estimated burden per response to comply with this mandatory information 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 Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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) | | |

| | | |
|---|-------------------------------------|--------------------------|
| 1. FACILITY NAME Fort Calhoun Nuclear Station Unit Number 1 | 2. DOCKET NUMBER 05000285 | 3. PAGE 1 OF 4 |
|---|-------------------------------------|--------------------------|

4. TITLE
 Inadequate Procedural Guidance Resulting in Noncompliance With 10 CFR 50 Appendix R

| 5. EVENT DATE | | | 6. LER NUMBER | | | 7. REPORT DATE | | | 8. OTHER FACILITIES INVOLVED | |
|---------------|-----|------|---------------|-------------------|--------|----------------|-----|------|------------------------------|---------------|
| MO | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REV NO | MO | DAY | YEAR | FACILITY NAME | DOCKET NUMBER |
| 12 | 19 | 2002 | 2002 | 004 | 0 | 02 | 13 | 2003 | FACILITY NAME | DOCKET NUMBER |
| | | | | | | | | | | 05000 |
| | | | | | | | | | | 05000 |

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|--------------------------|-----|---|---|--|---|--|--|--|--|--|
| 9. OPERATING MODE | 1 | 11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check all that apply) | | | | | | | | |
| | | <input type="checkbox"/> 20.2201(b) | <input type="checkbox"/> 20.2203(a)(3)(ii) | <input checked="" type="checkbox"/> 50.73(a)(2)(ii)(B) | <input type="checkbox"/> 50.73(a)(2)(ix)(A) | | | | | |
| 10. POWER LEVEL | 100 | <input type="checkbox"/> 20.2201(d) | <input type="checkbox"/> 20.2203(a)(4) | <input type="checkbox"/> 50.73(a)(2)(iii) | <input type="checkbox"/> 50.73(a)(2)(x) | | | | | |
| | | <input type="checkbox"/> 20.2203(a)(1) | <input type="checkbox"/> 50.36(c)(1)(i)(A) | <input type="checkbox"/> 50.73(a)(2)(iv)(A) | <input type="checkbox"/> 73.71(a)(4) | | | | | |
| | | <input type="checkbox"/> 20.2203(a)(2)(i) | <input type="checkbox"/> 50.36(c)(1)(ii)(A) | <input type="checkbox"/> 50.73(a)(2)(v)(A) | <input type="checkbox"/> 73.71(a)(5) | | | | | |
| | | <input type="checkbox"/> 20.2203(a)(2)(ii) | <input type="checkbox"/> 50.36(c)(2) | <input type="checkbox"/> 50.73(a)(2)(v)(B) | <input type="checkbox"/> OTHER | | | | | |
| | | <input type="checkbox"/> 20.2203(a)(2)(iii) | <input type="checkbox"/> 50.46(a)(3)(ii) | <input type="checkbox"/> 50.73(a)(2)(v)(C) | Specify in Abstract below or in NRC Form 366A | | | | | |
| | | <input type="checkbox"/> 20.2203(a)(2)(iv) | <input type="checkbox"/> 50.73(a)(2)(i)(A) | <input type="checkbox"/> 50.73(a)(2)(v)(D) | | | | | | |
| | | <input type="checkbox"/> 20.2203(a)(2)(v) | <input type="checkbox"/> 50.73(a)(2)(i)(B) | <input type="checkbox"/> 50.73(a)(2)(vii) | | | | | | |
| | | <input type="checkbox"/> 20.2203(a)(2)(vi) | <input type="checkbox"/> 50.73(a)(2)(i)(C) | <input type="checkbox"/> 50.73(a)(2)(viii)(A) | | | | | | |
| | | <input type="checkbox"/> 20.2203(a)(3)(i) | <input type="checkbox"/> 50.73(a)(2)(ii)(A) | <input type="checkbox"/> 50.73(a)(2)(viii)(B) | | | | | | |

12. LICENSEE CONTACT FOR THIS LER

| | |
|--|---|
| NAME David J. Buell, Fire Protection Design Engineer | TELEPHONE NUMBER (Include Area Code) 402-533-7316 |
|--|---|

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

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO EPIX | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO EPIX |
|-------|--------|-----------|--------------|--------------------|-------|--------|-----------|--------------|--------------------|
| | | | | | | | | | |

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|--|-------------------------------------|--------------------------|----|-------------------------------------|--|--|
| 14. SUPPLEMENTAL REPORT EXPECTED | | | | 15. EXPECTED SUBMISSION DATE | | |
| YES (If yes, complete EXPECTED SUBMISSION DATE). | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NO | | | |

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

During a review of the Fort Calhoun Station (FCS) Appendix R "Safe Shutdown Analysis" and "Functional Requirements and Component Selection Calculation," it was determined that a fire in either Corridor 4 (Fire Area 6) or the East Switchgear Room (Fire Area 36A) could affect the operation of the charging pump credited by these analyses. In either of these fire scenarios, the two remaining charging pumps are considered lost to the fire event since power supplies or power cables for these pumps are located in the respective fire areas.

The root cause of this condition is that plant procedures did not adequately document a manual operator action credited in response to a fire as documented in the "Safe Shutdown Analysis." FCS had previously identified this concern generically, and had placed it in the stations corrective action system.

A fire watch was stationed in the affected areas when the problem was determined to exist on December 19, 2002. The appropriate fire protection analyses and procedures will be corrected in accordance with the station's corrective action program.

LICENSEE EVENT REPORT (LER)

| 1 FACILITY NAME | 2 DOCKET | 6 LER NUMBER | | | 3 PAGE | |
|--|----------|--------------|-------------------|-----------------|--------|------|
| Fort Calhoun Nuclear Station Unit Number 1 | 05000285 | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | 2 | OF 4 |
| | | 2002 | - 004 | - 0 | | |

17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

BACKGROUND

The Fort Calhoun Station (FCS) Chemical and Volume Control System (CVCS) serves three major purposes, though it is used to accomplish many more functions. The primary purposes served by the system are:

- Control of the Reactor Coolant System (RCS) volume/inventory.
- Control of RCS chemistry to minimize corrosion and remove both fission and corrosion products.
- Control of reactivity during operation and refueling.

CVCS includes three positive displacement (charging) pumps which provide the motive force for injecting borated and demineralized water into the RCS and for returning purified reactor coolant to the RCS. The three charging pumps are designated as CH-1A, CH-1B and CH-1C. The emergency power supply for charging pump CH-1A is Diesel Generator One (DG-1). The emergency power supply for charging pumps CH-1B and CH-1C is Diesel Generator Two (DG-2).

FCS was constructed prior to the issuance of 10 CFR 50 Appendix R. FCS made appropriate modifications to plant equipment and instituted administrative controls where needed to come into compliance with 10 CFR 50 Appendix R. The station has a fire protection program to maintain compliance with 10 CFR 50 Appendix R and Appendix A to Branch Technical Position (BTP) 9.5-1.

The charging pumps and the CVCS system are credited in the "Safe Shutdown Analysis" as the primary means of reactor coolant system inventory control following a fire event and reactor trip to hot shutdown conditions. The FCS Appendix R "Safe Shutdown Analysis" and "Functional Requirements And Component Selection Calculation" credits the following charging pump for a fire in the respective areas:

| Fire Area & Room | Charging Pump Credited | Charging Pumps Lost to Fire |
|--------------------------------------|------------------------|-----------------------------|
| Fire Area 6, Corridor 4 | CH-1C | CH-1A and CH-1B |
| Fire Area 36A, East Switch Gear Room | CH-1B | CH-1A and CH-1C |

EVENT DESCRIPTION

During a review of the FCS Appendix R "Safe Shutdown Analysis" and "Functional Requirements and Component Selection Calculation," it was determined that a fire in either Corridor 4 (Fire Area 6) or the East Switchgear Room (Fire Area 36A) could affect the operation of the charging pump credited by these analyses. In either of these fire scenarios, the two remaining charging pumps are considered lost to the fire event since power supplies or power cables for these pumps are located in the respective fire areas.

LICENSEE EVENT REPORT (LER)

| 1. FACILITY NAME (1) | 2. DOCKET | 6. LER NUMBER | | | 3. PAGE | |
|--|-----------|---------------|-------------------|-----------------|---------|------|
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| | | 2002 | - 004 | - 0 | | |

17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

Volume Control Tank (VCT) outlet valve, LCV-218-2, and the Safety Injection Refueling Water Tank (SIRWT) outlet to charging pump suction valve, LCV-218-3, are also lost to a fire in either of these fire areas. The VCT level instrumentation is designed to automatically close LCV-218-2 and open LCV-218-3 in response to a low-low level in the VCT. Therefore, the fire scenario is such that the automatic repositioning of these valves in response to a low VCT level cannot be relied upon and manual action would be required to establish a source of inventory for the credited charging pump. If the credited charging pump was allowed to continue to operate with no manual operator action following a fire and a reactor trip, the pump could eventually drain inventory in the VCT and could potentially become gas-bound, requiring additional manual operator action to regain an available charging pump.

Procedural guidance for operations personnel to identify these conditions during a fire and to take appropriate manual actions was determined to be inadequate. The potential for this condition has been generically identified previously by the station's fire protection staff, and it has been placed in the station's corrective action system for evaluation and corrective actions as appropriate. The Station Fire Plan, SO-G-28, Attachment 14 does provide some guidance to operations personnel, however, it is general in nature and does not provide the appropriate level of diagnostic information and procedural direction.

At about 2030 Central Standard Time (CST) on December 19, 2002, it was determined that this condition represented a technical noncompliance with 10 CFR 50 Appendix R, Section III.G.2 that does not affect current plant operation and that the condition was reportable. An eight (8) hour non-emergency report was made to the NRC Operations Center at 2109 CST on December 19, 2002, pursuant to 10 CFR 50.72(b)(3)(ii)(B). This report is being made pursuant to 10 CFR 50.73(a)(2)(ii)(B).

SAFETY SIGNIFICANCE

While the charging system is the plant system credited in the fire protection analysis for controlling reactor coolant system inventory, there are manual actions using other plant systems available for the plant operators to control reactor coolant system inventory. In the event of a fire, the credited charging pump does not immediately become unavailable. The charging pump would only become unavailable after pumping the entire contents of the VCT to the RCS. The VCT is a 2865 gallon tank. During normal operation, the tank is not allowed to go below about 52%. The capacity of a charging pump is 40 gpm. It would take about 37 minutes to empty the tank. There are no challenges to RCS inventory during either of these fire scenarios. RCS inventory makeup is only required to account for RCS shrinkage from full power to a hot shutdown condition. The VCT is sized to account for this change in inventory. In addition the high pressure safety injection (HPSI) system could be made available as an alternate source of makeup water for inventory control if necessary. Therefore this event has an insignificant impact on the health and safety of the public.

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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

CONCLUSION

The root cause of this condition is that plant procedures did not adequately document a manual operator action credited in response to a fire as documented in the "Safe Shutdown Analysis." FCS had previously identified this concern generically, and had placed it in the stations corrective action system. The corrective action system will ensure that both the specific and generic concerns are appropriately assessed, consistent with the resolution of ongoing discussions between the industry and the NRC relative to the acceptability and documentation of manual operator actions.

CORRECTIVE ACTIONS

A fire watch was stationed in the affected areas when the problem was determined to exist on December 19, 2002. The appropriate fire protection analyses and procedures will be corrected in accordance with the station's corrective action program.

SAFETY SYSTEM FUNCTIONAL FAILURE

This event did not result in a safety system functional failure in accordance with NEI 99-02.

PREVIOUS SIMILAR EVENTS

A similar problem with the station complying with Appendix R was reported in LER 2002-003.