



ENTERGY

Entergy Operations, Inc.

P.O. Box 756

Port Gibson, MS 39150

Tel 601 437 2800

C. R. Hutchinson

Vice President

Operations

Grand Gulf Nuclear Station

August 15, 1995

U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

Attention: Document Control Desk

SUBJECT: Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
License No. NPF-29
High Pressure Core Spray Injection Due to Invalid Low Water Level Signal
LER 95-009-00

GNRO-95/00098

Gentlemen:

Attached is Licensee Event Report (LER) 95-009 which is a final report.

Yours truly,

CRH/MLJ
attachment

cc: Mr. J. E. Tedrow (w/a)
Mr. H. W. Keiser (w/a)
Mr. R. B. McGehee (w/a)
Mr. N. S. Reynolds (w/a)

Mr. Stewart D. Ebner (w/a)
Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
101 Marietta St., N.W., Suite 2900
Atlanta, Georgia 30323

Mr. Paul W. O'Connor
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Stop 13H3
Washington, D.C. 20555

210076
9508210161 950815
PDR ADJCK 05000416
S PDR

JE221

| | | | | | | | | | | | |
|--|--------|-----------|------------------------------------|--|-----------------|---|--------|---------------------------|-------------------------------|----------------------|---|
| NRC FORM 366 (5-92) | | | U.S. NUCLEAR REGULATORY COMMISSION | | | APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95 | | | | | |
| LICENSEE EVENT REPORT (LER) | | | | | | ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503 | | | | | |
| FACILITY NAME (1) Grand Gulf Nuclear Station, Unit 1 | | | | | | DOCKET NUMBER (2) 05000-416 | | PAGE (3) 1 of 3 | | | |
| TITLE (4) High Pressure Core Spray Injection Due to Invalid Low Water Level Signal | | | | | | | | | | | |
| EVENT DATE (5) | | | LER NUMBER (6) | | | REPORT DATE (7) | | | OTHER FACILITIES INVOLVED (8) | | |
| MONTH | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | MONTH | DAY | YEAR | FACILITY NAME | DOCKET NUMBER | |
| 07 | 17 | 95 | 95 | 009 | 00 | 08 | 15 | 95 | N/A | 05000 | |
| | | | | | | | | | FACILITY NAME | DOCKET NUMBER | |
| | | | | | | | | | N/A | 05000 | |
| OPERATING MODE (9) | | 2 | | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more (11)) | | | | | | | |
| | | | | 20.402(b) | | 20.405(c) | | X | | 50.73(a)(2)(iv) | 73.71(b) |
| POWER LEVEL (10) | | 4 | | 20.405(a)(1)(i) | | 50.36(c)(1) | | | | 50.73(a)(2)(v) | 73.71(c) |
| | | | | 20.405(a)(1)(ii) | | 50.36(c)(2) | | | | 50.73(a)(2)(vii) | X OTHER |
| | | | | 20.405(a)(1)(iii) | | 50.73(a)(2)(i) | | | | 50.73(a)(2)(viii)(A) | (Specify in abstract below and in text, NRC Form 366A) SPECIAL REPORT TRM 7.7.2.1 |
| | | | | 20.405(a)(1)(iv) | | 50.73(a)(2)(ii) | | | | 50.73(a)(2)(viii)(B) | |
| | | | | 20.405(a)(1)(v) | | 50.73(a)(2)(iii) | | | | 50.73(a)(2)(x) | |
| LICENSEE CONTACT FOR THIS LER (12) | | | | | | | | | | | |
| NAME Milton Jones / Technical Specialist | | | | | | TELEPHONE NUMBER (Include Area Code) (601)437-6198 | | | | | |
| COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13) | | | | | | | | | | | |
| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPRDS | | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPRDS | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| SUPPLEMENTAL REPORT EXPECTED (14) | | | | | | EXPECTED | | MONTH | DAY | YEAR | |
| YES (If yes, complete EXPECTED SUBMISSION DATE) | | X | | NO | | SUBMISSION DATE (15) | | | | | |
| ABSTRACT (Limit to 1400 spaces, i. e., approximately 15 single-spaced typewritten lines) (16) | | | | | | | | | | | |
| <p>On July 17, 1995 at 1014 hours, during plant startup, an actuation of the High Pressure Core Spray system occurred. Investigation revealed that the HPCS initiation was the result of spurious low water level signals from the C and G channels of HPCS RPV level instrumentation. It is believed that the event was caused by the bumping of the variable leg for the associated transmitters in the drywell.</p> <p>Operators immediately confirmed adequate core cooling and tripped the HPCS pump. The duration of the injection was approximately 10 seconds. Because of the timely response of plant operators, no significant reactor water level transient occurred. The HPCS system was restored to standby.</p> <p>Corrective action will include an analysis to determine whether to modify these transmitters to make them less susceptible to this type of spurious initiators.</p> <p>This event resulted in an automatic Emergency Core Cooling System (ECCS) discharge into the Reactor Coolant System. The ECCS injection is reportable in accordance with the Special Reporting requirements of the GGNS Technical Requirements Manual. The HPCS actuation and injection did not degrade the capability of any system to perform its intended safety function. The health and safety of the public were not compromised as a result of this event.</p> | | | | | | | | | | | |

| | | | | |
|--|------------------------------------|---|-------------------|----------------|
| NRC FORM 366A (5-92) | U.S. NUCLEAR REGULATORY COMMISSION | APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95 | | |
| LICENSEE EVENT REPORT (LER) TEXT CONTINUATION | | ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503 | | |
| | | FACILITY NAME (1) | DOCKET NUMBER (2) | LER NUMBER (5) |
| Grand Gulf Nuclear Station, Unit 1 | | 05000-416 | 95-009-00 | 2 OF 3 |

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

A. Reportable Occurrence

An actuation and injection of the High Pressure Core Spray system [BG] (HPCS) occurred on July 17, 1995 during plant startup. This actuation is reportable pursuant to 10 CFR 50.73(a)(2)(iv). This submittal also serves as a special report which is being submitted in accordance with GGNS Technical Requirements Manual section 7.7.2.1.

B. Initial Conditions

The plant was in Operational Condition 2 at approximately 4 percent power with reactor pressure at approximately 950 psig and reactor coolant temperature at 535 degrees F.

C. Description of Occurrence

On July 17, 1995 at 1014 hours, an automatic HPCS actuation occurred. The HPCS pump injected for approximately 10 seconds at an approximate flow rate of 4,300 gpm.

Operators immediately confirmed adequate core cooling and tripped the HPCS pump. The duration of the injection was approximately 10 seconds. Because of the timely response of plant operators, no significant reactor water level transient occurred. The HPCS system was restored to standby.

Investigation revealed that the HPCS initiation was the result of spurious low water level signals from the C and G channels of HPCS RPV level instrumentation. HPCS level instrumentation channels C and G receive their signals from transmitters 1B21N073C and 1B21N073G, respectively, both of which are located in panel 1H22P005.

D. Apparent Cause

A root cause investigation has been initiated for this event. At the time of the spurious signals, the response of another transmitter, 1B21N081C, was recorded on GETARS. The only factor common and unique to transmitters 1B21N073C and G and 1B21N081C is the "C" Wide Range Variable Leg sensing line. Therefore, it was concluded that the nature of the spurious event sensed by transmitters 1B21N081C, 1B21N073C, and 1B21N073G was a mechanical or hydraulic pulse or impact on the wide range variable leg such as would be caused by bumping the wide range variable leg.

Engineers evaluated the event with respect to the response or lack of response of other transmitters at the time of the event. No half scram or other channel trip occurred at the same time as the HPCS initiation. This evaluation ruled out reference leg events.

The effect of keying a radio in the vicinity was also reviewed. GGNS has had a previous spurious HPCS injection due to keying of a portable radio in the area of transmitters 1B21N073C and 1B21N073G. During investigation of a previous HPCS initiation, the response of 1B21N073C and G to keying a radio was recorded. By comparing this response to the shape of the signal on 1B21N081C, it was concluded that this event was not consistent with keying a radio.

Some work in progress in the drywell at the time was in the general vicinity of the "C" wide range variable leg. Although it could not be confirmed that the variable leg was bumped, evaluation of the instrument data identifies this as the most likely cause of this event.

| | | | |
|---|------------------------------------|--|---------------------------------------|
| NRC FORM 366A (5-92) | U.S. NUCLEAR REGULATORY COMMISSION | APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95 | |
| <p align="center">LICENSEE EVENT REPORT (LER) TEXT CONTINUATION</p> | | <p>ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503</p> | |
| | | FACILITY NAME (1) Grand Gulf Nuclear Station, Unit 1 | DOCKET NUMBER (2) 05000-416 |

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

E. Corrective Actions

Immediate Corrective Actions:

- * Operators took immediate action to confirm adequate core cooling, tripped the HPCS pump, and restored the HPCS system to standby.

Long Term Corrective Actions:

- * The transmitters involved in this event will be evaluated for a modification to provide damping to make them less susceptible to spurious initiators of short duration.
- * A description of this event and its most likely cause will be sent for input to the Grand Gulf required reading process.

F. Safety Assessment

This event did not impair the ability of any system to perform its intended safety function. Because of the short duration of the HPCS injection, the reactor pressure vessel level transient resulting from the injection was not significant. Water level remained in the normal band. The health and safety of the general public were not compromised as a result of this event.

G. Additional Information

HPCS injected at a flow rate of approximately 4300 gpm. The temperature of the injection source water was approximately 90 degrees F. The vessel was at 950 psig at the time of the injection. This is the thirteenth (#13) cycle of the HPCS system experienced at GGNS at power. The current value of the nozzle usage factor is still within 0.70. Report of the ECCS injection is being submitted as part of this Licensee Event Report in accordance with the Special Reporting requirements of GGNS Technical Requirements Manual section 7.7.2.1.

Energy Industry Identification System (EIIIS) codes are identified in the text within brackets [].

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