# CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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FACIL:50-400 Shearon Harris Nuclear Power Plant, Unit 1, Carolina 05000400
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VERRILLI,M. Carolina Power & Light Co.
DONAHUE,J.W. Carolina Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 96-020-00:on 960906,inadvertent RWST boron dilution event occurred.Caused by personnel error.Appropriate operating procedure will be revised.W/961007 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 4
TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:Application for permit renewal filed. 05000400

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CATEGORY 1 DOCUMENT

CP&L

**Carolina Power & Light Company**
Harris Nuclear Plant
PO Box 165
New Hill NC 27562

OCT 7 1996

U.S. Nuclear Regulatory Commission
ATTN: NRC Document Control Desk
Washington, DC 20555

Serial: HNP-96-171
10CFR50.73

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1
DOCKET NO. 50-400
LICENSE NO. NPF-63
LICENSEE EVENT REPORT 96-020-00

Sir or Madam:

In accordance with Title 10 to the Code of Federal Regulations, the enclosed Licensee Event Report is submitted. This report describes an inadvertent boron dilution in the Refueling Water Storage Tank.

Sincerely,

J. W. Donahue
Director of Site Operations
Harris Plant

MV

Enclosure

c: Mr. J. B. Brady (HNP Senior NRC Resident)
Mr. S. D. Ebneter (NRC Regional Administrator, Region II)
Mr. N. B. Le (NRC - NRR Project Manager)



160019

IE22

NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), 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.

# LICENSEE EVENT REPORT (LER)

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

| FACILITY NAME (1) | DOCKET NUMBER (2) | PAGE (3) |
|---|---|---|
| Harris Nuclear Plant Unit-1 | 50-400 | 1 OF 3 |

TITLE (4)

Inadvertent RWST boron dilution event caused by personnel error.

| 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 |
| | | | | | | | | | | 05000 |
| 9 | 6 | 96 | 96 | -- 020 -- | 0 | 10 | 7 | 96 | FACILITY NAME | DOCKET NUMBER |
| | | | | | | | | | | 05000 |

| OPERATING MODE (9) | 3 |
|---|---|
| POWER LEVEL (10) | 0% |

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

| | | | | | |
|---|---|---|---|---|---|
| | 20.2201(b) | | 20.2203(a)(2)(v) | X | 50.73(a)(2)(i) | | 50.73(a)(2)(viii) |
| | 20.2203(a)(1) | | 20.2203(a)(3)(i) | | 50.73(a)(2)(ii) | | 50.73(a)(2)(x) |
| | 20.2203(a)(2)(i) | | 20.2203(a)(3)(ii) | | 50.73(a)(2)(iii) | | 73.71 |
| | 20.2203(a)(2)(ii) | | 20.2203(a)(4) | | 50.73(a)(2)(iv) | | OTHER |
| | 20.2203(a)(2)(iii) | | 50.36(c)(1) | | 50.73(a)(2)(v) | | Specify in Abstract below or in NRC Form 366A |
| | 20.2203(a)(2)(iv) | | 50.36(c)(2) | | 50.73(a)(2)(vii) | | |

LICENSEE CONTACT FOR THIS LER (12)

| NAME | TELEPHONE NUMBER (Include Area Code) |
|---|---|
| Michael Verrilli Sr. Analyst - Licensing | (919) 362-2303 |

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 SUBMISSION DATE (15) | MONTH | DAY | YEAR |
|---|---|---|---|---|---|---|
| X | YES (If yes, complete EXPECTED SUBMISSION DATE). | NO | | 11 | 30 | 96 |


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

On September 6, 1996, with the plant shutdown in mode 3 (Hot Standby), at approximately 1920 hours a licensed reactor operator filling the position of an auxiliary operator inadvertently commenced filling the Refueling Water Storage Tank (RWST) with demineralized water. His intent was to fill the Condensate Storage Tank (CST). Initial RWST level was approximately 95% and the inadvertent fill process increased level to greater than 100% and diluted the boron concentration to below the 2400 ppm Technical Specification limit. A RWST high level alarm was observed but not fully investigated. During the time period that the inadvertent RWST fill was in progress, the Boric Acid Tank (BAT) was recirculating for boric acid batching and was not available as a boron injection flow path. With RWST boron concentration below Technical Specification limits and the BAT unavailable, no boron injection flow paths were available, which violated Technical Specification 3.1.2.2. and required entry into Technical Specification 3.0.3. At 0151 hours on September 7, 1996, the BAT was returned to service and declared operable, which allowed Technical Specification 3.0.3 to be exited.

The cause of this event was personnel error on the part of the operator that inadvertently opened the RWST fill valve instead of the CST fill valve. The control room operators involved also contributed by not providing adequate direction to the auxiliary operator and did not properly respond to the RWST high level alarm.

Immediate corrective actions were to restore the BAT boron injection flow path and commence recovering RWST boron concentration. Additional actions included counseling the involved operators and providing a briefing on the event to other operations personnel. The RWST fill valve was locked closed and the appropriate operating procedure will be revised to reflect the "locked-closed" designation. A case study on this event will also be provided for Operations personnel.

| FACILITY NAME (1) | DOCKET | LER NUMBER (6) | | | PAGE (3) |
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| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | |
| Shearon Harris Nuclear Plant - Unit #1 | 50-400 | 96 | -- 020 -- | 00 | 2 OF 3 |

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

## EVENT DESCRIPTION:

On September 6, 1996, the plant was shutdown in mode 3 (Hot Standby) with primary plant temperature and pressure being controlled by the Steam Generator Power Operated Relief Valves. While in this mode, the Auxiliary Feedwater System is used to feed the Steam Generators, which requires periodic refilling of its water source, the Condensate Storage Tank (CST). At approximately 1920 hours a licensed reactor operator filling an auxiliary operator position inadvertently commenced filling the Refueling Water Storage Tank (RWST) with demineralized water instead of filling the CST. Initial RWST level was approximately 95% prior to the inadvertent fill process. The control room staff did observe a high RWST level alarm (98%) at approximately 2345 hours, but made an incorrect assumption that the level increase was due to a change in temperature. They did agree to continue to observe RWST level, but no further investigation into the alarm was performed. While taking reactor operator logs approximately 45 minutes later, RWST level was observed to be at 100%. At this time the control room staff investigated the condition and discovered that 1DW-5 had been inadvertently opened instead of the CST fill valve. At 0042 hours, 1DW-5 was shut by the operator.

During the RWST level increase boron concentration decreased from 2476 ppm to approximately 2351 ppm (by calculation), which is below the 2400 ppm Technical Specification limit. While the inadvertent RWST fill was in progress, the Boric Acid Tank (BAT) was recirculating for boric acid batching and was not available as a boron injection flow path. With RWST boron concentration below Technical Specification limits and the BAT unavailable, no boron injection flow paths were available, which violated Technical Specification 3.1.2.2. and required entry into Technical Specification 3.0.3. At 0151 hours on September 7, 1996, the BAT was returned to service and declared operable, which allowed Technical Specification 3.0.3 to be exited. After increasing the boron concentration back to above 2400 ppm, the RWST was declared operable at 1422 hours on September 7, 1996.

## CAUSE:

The cause of this event was personnel error on the part of the operator that inadvertently opened the RWST fill valve (1DW-5) instead of the CST fill valve. Self checking techniques were not adequately applied and the error was not cognitive. The main control room operators involved in the event also failed to implement good working practices by not providing adequate direction to the auxiliary operator for filling the CST and did not properly respond to the RWST high level alarm. They were involved in testing to restore the Normal Service Water System (reference LER 96-018) and did not apply adequate attention to the alarm. A possible contributing factor to these human performance errors was fatigue. Hurricane Fran had passed over the Harris Plant area early that morning causing home and personal property damage, which prevented the involved shift personnel from resting as usual before coming to work on the evening shift of September 6, 1996.

## SAFETY SIGNIFICANCE:

The safety consequences related to this event are still under investigation and will be provided in a supplement to this LER.

## PREVIOUS SIMILAR EVENTS:

There have been no previous Technical Specification 3.0.3 entries due to inadvertently diluting the RWST to a boron concentration below Technical Specification limits.

| FACILITY NAME (1) | DOCKET | LER NUMBER (6) | | | PAGE (3) |
|---|---|---|---|---|---|
| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | |
| Shearon Harris Nuclear Plant - Unit #1 | 50-400 | 96 | -- 020 | -- 00 | 3 OF 3 |

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

## CORRECTIVE ACTIONS COMPLETED:

1. The operator that inadvertently opened the RWST fill valve instead of the CST valve was counseled and provided a briefing on the event to other operations personnel. This was completed on September 10, 1996.

2. The main control room operators involved in not providing adequate direction to the auxiliary operator and not properly responding to the RWST high level alarm were counseled. This was completed on September 6, 1996.

## CORRECTIVE ACTIONS PLANNED:

1. The appropriate operating procedure will be revised to reflect the "locked-closed" designation for RWST fill valve 1DW-5. This will be completed by November 15, 1996.

2. This event will be provided to Operations personnel as a case study to review the inappropriate actions taken by the control room staff. The issue of fatigue will also be included in this presentation and will emphasize the importance of recognizing the effects of fatigue and informing supervision prior to allowing fatigue to affect work performance. This will be completed by January 15, 1997.