

# CATEGORY 1

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SUBJECT: Revised response to 980327 ltr re violations noted in insp  
 rept 50-400/98-01. Corrective actions: inking problem w/chart  
 recorder LR-477 was recognized & corrected on 971130.

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MAY 29 1998

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United States Nuclear Regulatory Commission  
ATTENTION: Document Control Desk  
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SHEARON HARRIS NUCLEAR POWER PLANT  
DOCKET NO. 50-400/LICENSE NO. NPF-63  
REVISED REPLY TO A NOTICE OF VIOLATION  
(NRC INSPECTION REPORT NO. 50-400/98-01)

Dear Sir or Madam:

On April 24, 1998, Carolina Power & Light Company (CP&L) responded to the Notice of Violation enclosed in NRC Inspection Report 50-400/98-01 dated March 27, 1998, for the Harris Nuclear Plant (HNP). Specifically, Violation A, Example 1 concerned the failure to assure that the steam generator wide range level chart recorder, LR-477, was marking properly and timing correctly as required by plant procedures. In your letter dated May 12, 1998, acknowledging receipt of CP&L's response, it was stated that our response did not address several factors. The NRC's comments are restated below along with CP&L's reply to each:

NRC comment:

- "Your response did not address why previous corrective action had not corrected this problem. We informed you in the transmittal letter for the report that this was a licensee-identified violation which was being cited because corrective action for a previous violation should have prevented it."

CP&L's reply:

In Inspection Report 50-400/97-09, the NRC cited HNP for an August 17, 1997 failure to assure that Component Cooling Water pressure was properly marking on chart recorders as required. In response to this violation, HNP proposed the following corrective actions:

- 1) On August 17, 1997, the specific inking problem was corrected and the chart was restarted.
- 2) The two operators involved in the inappropriate act were counseled.
- 3) The Operations Manager presented the incident during Licensed Operator Requalification (LOR) training completed on October 2, 1997. The Operations Manager reinforced the expectation that recorders are a source of diverse, redundant indications of important plant information.
- 4) A night order was issued on October 16, 1997 to specify the expectations for review of important plant parameters during Shift Turnover.

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- 5) Operations would conduct a self-assessment by December 1, 1997 to ensure that chart recorders are being checked at least once per shift as required by plant procedures.
- 6) Data would be taken by December 1, 1997 during the upcoming LOR training cycle to verify that the reinforced expectation of reviewing recorders during shift turnover has been effective.

In Inspection Report 50-400/98-01, the NRC cited HNP for a failure to assure that the steam generator wide range level chart recorder was marking properly and timing correctly from November 29, 1997 until December 6, 1997 and that over two shift turnovers and one complete shift on November 30, 1997, the steam generator wide range level green pen was not marking the chart. Although the corrective actions discussed above for the August 17, 1997 event were considered to be appropriate and comprehensive, they did not prevent recurrence of the failure to assure proper chart recorder operations. This failure occurred because Operations management failed to effectively communicate management expectations related to proper chart recorder operations. Therefore, a contributing cause to the violation described in NRC Inspection Report 50-400/98-01 was ineffective corrective action taken in response to the violation cited in NRC Inspection Report 50-400/97-09. As previously stated in the April 24, 1998 HNP response to Inspection Report 50-400/98-01, Operations management expectations related to proper chart recorder operations have been reemphasized in the 1998 LOR Session 2 completed on April 14, 1998. As also indicated, a method of assessing the effectiveness of training given to operators regarding chart recorders will be developed and an assessment to verify the effectiveness of corrective actions will be completed by June 30, 1998. To this end, Operations off-shift management has been conducting periodic assessments of Control Room chart recorder use by the shift operators since April 27, 1998. Observations have been documented 2 to 3 times per week and have included verification of chart operation, verification of proper chart marking by the operators, random review of past 24 hours of chart performance, and verification of proper timing. These assessments have noted that shift operators have identified inking system failures in a timely manner, generally within 1 hour, and have taken appropriate corrective actions. For example, one inking system failure occurred just before shift turnover and was correctly identified during the shift turnover process. There have been no timing errors. In addition, to ensure that the proper sensitivity and overall awareness is maintained in the Main Control Room, Operations management will walkdown the Main Control Board and back panels with the Reactor Operator once per shift. This walkdown will ensure that the Control Room personnel understand the reason for lighted annunciators, equipment under caution tags, disabled or inoperable equipment, proper chart recorder operation, and updated information on status boards. These walkdowns will begin on June 2, 1998. Both these walkdowns and the periodic assessments discussed above will continue until the corrective actions are determined to be effective. These committed actions have not yet been completed.

NRC comment:

- "Your response did not address the results achieved from the corrective actions implemented. Our inspectors indicate that your root cause investigation for the recurrence of a chart recorder timing problem on March 4, 1998 identified as a contributing cause that the corrective actions identified in your response for this example were not timely."



CP&L's reply:

On March 4, 1998, an additional incident occurred when the Day Shift Balance of Plant (BOP) Operator changed out the paper for chart recorder TR-410 at 2:15 p.m. When the chart paper was installed, which is stamped with the time every 2 hours indicating AM or PM, the timing was set at 2:15 a.m. instead of 2:15 p.m. This timing error was not recognized during the next shift turnover review nor by the Night Shift BOP Operator when performing the OMM-016 required chart reviews. The error was recognized on March 5, 1998, by the Day Shift Unit SCO during shift turnover review. In this instance, the operators properly implemented management expectations regarding reviewing diverse, redundant indications and ensured that the chart recorders were properly inking. However, the operators did not verify that the timing marks on the chart paper were correctly aligned. The cause for this new failure was the operators involved in this incident had not yet received the Real Time Training which was identified in our response to Inspection Report 50-400/98-01, dated April 24, 1998, as a corrective step taken. Therefore, a contributing cause to this additional incident is that the Real Time Training was not provided to operators in as expedient time as necessary to preclude this error from recurring.

The method of communication will be simplified within the Operations Unit to ensure prompt notification and sharing of information with the Operations Unit personnel. This will allow lessons learned to be applied throughout the Operations organization in a manner that will support reducing repetitive error occurrences. This action will be implemented by July 31, 1998.

As a result of the request for this additional information, CP&L is providing the attached revised reply to Violation A, Example 1. CP&L considers the corrective steps taken and planned in response to this matter to be sufficient to preclude recurrence.

Questions regarding this matter may be referred to Mr. J. H. Eads at (919) 362-2646.

Sincerely,



MGW

Attachment

c: Mr. J. B. Brady (NRC Senior Resident Inspector, HNP)  
Mr. S. C. Flanders (NRR Project Manager, HNP)  
Mr. L. A. Reyes (NRC Regional Administrator, Region II)

**REVISED REPLY TO NOTICE OF VIOLATION  
NRC INSPECTION REPORT NO. 50-400/98-01**

**Reported Violation A:**

Technical Specification 6.8.1.a. requires written procedures to be established, implemented, and maintained covering activities recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Regulatory Guide 1.33, Item 1.h references procedures for log-keeping and item 9 references procedures for performing maintenance.

1. OMM-016, Operator Logs, Revision 14, Paragraph 5.1. 2. b, Operations Shift Records requires, in part, to check each operating recorder chart at least once per shift to ensure pens are marking properly and timing correctly. Mark each chart with the time the check is performed and initial.

Contrary to the above, from November 29, 1997, until December 6, 1997, the licensee failed to assure that the steam generator wide range level chart recorder, LR-477, was marking properly and timing correctly in that the chart was 12 hours off from true time. In addition, over two shift turnovers and one complete shift on November 30, 1997, the steam generator "B" wide range level green pen was not marking the chart recorder properly.

2. ADM-NGGC-0104, Work Management Process, Revision 3, Paragraph 9.8.7.9.d requires, in part, that the work instructions field shall contain a level of detail appropriate to the complexity of the task to be accomplished.

Contrary to the above, on February 24, 1998, the licensee failed to provide adequate work instructions for rod control system troubleshooting and repair in that the instructions failed to require that the rod control system counters be checked to ensure that they were properly aligned with actual rod position after it was determined that a multiplexer relay had failed. This resulted in the two control bank "D" groups of control rods being positioned out of sequence causing the two groups to be greater than one step apart.

This is a Severity Level IV violation (Supplement I).

**Denial or Admission of Violation:**

The violation is admitted.

**Reason for the Violation:**

**Example 1**

The failure to identify that chart recorder LR-477 was not marking or timing properly was due to inattention to detail by the involved operators performing the OMM-016 reviews.

A similar violation was cited in NRC Inspection Report 50-400/97-09, dated October 9, 1997 which stated "... on August 17, 1997, the licensee failed to assure, over two shift turnovers and one complete shift, that the component cooling water pressure (red pen) was properly marking the chart recorder as required." The corrective steps taken in response to the violation, as described in CP&L's reply dated November 5, 1997, included reinforcement of management's expectation regarding the operator's responsibilities to ensure that recorders are functioning properly and the importance of the recorders as a source of diverse, redundant indication of important plant

information. However, Operations management failed to effectively communicate these expectations. Therefore, a contributing cause to the violation described above was ineffective corrective action taken in response to the violation cited in NRC Inspection Report 50-400/97-09.

On March 4, 1998, an additional incident occurred when the Day Shift Balance of Plant (BOP) Operator changed out the paper for chart recorder TR-410 at 2:15 p.m. When the chart paper was installed, which is stamped with the time every 2 hours indicating AM or PM, the timing was set at 2:15 a.m. instead of 2:15 p.m. This timing error was not recognized during the next shift turnover review nor by the Night Shift BOP Operator when performing the OMM-016 required chart reviews. The error was recognized on March 5, 1998, by the Day Shift Unit SCO during shift turnover review. The operators involved in this incident had not received the Real Time Training discussed below as a corrective step taken. Therefore, a contributing cause to this additional incident is that the Real Time Training described below was not provided to operators in as expedient time as necessary to preclude this error from recurring.

#### Example 2

The initial troubleshooting team formed to assist in resolving the problem failed to recognize the impact the failed multiplexer relay had on the integrated rod control system. The team focused on evaluating the potential for tripping the plant due to the work to be performed in the power cabinet and did not give consideration to the state of the P/A converter, the bank overlap counter and the rod groups at the time of (and after) the relay failure. As a result, the instructions provided to recover from the failed relay were not adequate.

#### Corrective Steps Taken and Results Achieved:

##### Example 1

The inking problem with chart recorder LR-477 was recognized and corrected on November 30, 1997. The timing problem was corrected on December 6, 1997 when the chart paper was removed for review and replaced.

A Real Time Training package has been provided to operators stressing the requirements for monitoring and annotating the chart recorders. The training also included discussion of past performance problems, proper completion of the task, the option of replacing wet ink pens with felt tip pens (ESR 97-00055), and future plans for replacement of recorders (ESR 97-00056). This training was completed on March 30, 1998. However, this training was not provided in as expedient time as necessary to preclude the March 4, 1998 error from occurring as described above.

Operations Management has reviewed this and other chart recorder errors with the operators during the 1998 LOR Session 2. The expectation to check once a shift for proper inking and timing, including proper AM and PM designations, have been emphasized. This action was completed on April 14, 1998.

##### Example 2

Following discovery that the rod groups in control bank "D" stepped in the wrong sequence, additional operations personnel were added to the troubleshooting team. The team identified the cause of the sequencing problem and provided instructions to recover. The recovery instructions were successfully carried out and the matter was corrected.



Corrective Steps That Will Be Taken to Avoid Further Violations:

## Example 1

A method of assessing the effectiveness of the training given to operators regarding chart recorders will be developed and an assessment to verify the effectiveness of corrective actions will be completed by June 30, 1998. To this end, Operations off-shift management has been conducting periodic assessments of Control Room chart recorder use by the shift operators since April 27, 1998. Observations have been documented 2 to 3 times per week and have included verification of chart operation, verification of proper chart marking by the operators, random review of past 24 hours of chart performance, and verification of proper timing. These assessments have noted that shift operators have identified inking system failures in a timely manner, generally within 1 hour, and have taken appropriate corrective actions. For example, one inking system failure occurred just before shift turnover and was correctly identified during the shift turnover process. There have been no timing errors. In addition, to ensure that the proper sensitivity and overall awareness is maintained in the Main Control Room, Operations management will walkdown the Main Control Board and back panels with the Reactor Operator once per shift. This walkdown will ensure that the Control Room personnel understand the reason for lighted annunciators, equipment under caution tags, disabled or inoperable equipment, proper chart recorder operation, and updated information on status boards. These walkdowns will begin on June 2, 1998. Both these walkdowns and the periodic assessments discussed above will continue until the corrective actions are determined to be effective.

The method of communication will be simplified within the Operations Unit to ensure prompt notification and sharing of information with the Operations Unit personnel. This will allow lessons learned to be applied throughout the Operations organization in a manner that will support reducing repetitive error occurrences. This action will be implemented by July 31, 1998.

## Example 2

Procedure MMM-027, Troubleshooting Guide has been revised to provide guidance on when a formal troubleshooting team is needed, who should be on the team, who the lead is, how STAR (Stop, Thick, Act, and Review) is used in troubleshooting, and to add prompts to trigger the team to consider the impact the problem and corrective actions have on plant operations. The MMM-027 revision will be implemented by May 1, 1998, following completion of training for Engineering and Maintenance supervisors.

Training on the MMM-027 revision will be provided to the Superintendents - Shift Operations (S-SOs) by May 20, 1998.

Training on the MMM-027 revision will be provided to remaining Engineering personnel as appropriate by July 16, 1998.

Date When Full Compliance Was Achieved:

## Example 1.

The inking problem with chart recorder LR-477 was recognized and corrected on November 30, 1997. The timing problem was corrected on December 6, 1997 when the chart paper was removed for review and replaced.



**Example 2**

Adequate instructions were provided to recover from the sequencing problem and the recovery instructions were successfully carried out and the matter was corrected on February 24, 1998.

