



Carolina Power & Light Company

Brunswick Nuclear Plant
P. O. Box 10429
Southport, N. C. 28461-0429

MAR 01 1993

SERIAL: BSEP-93-0018

United States Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 & 50-324/LICENSE NOS. DPR-71 & DPR-62
REPLY TO NOTICE OF VIOLATION (92-44-01)

Gentlemen:

On January 28, 1993, the Nuclear Regulatory Commission issued a Notice of Violation (92-44-01) for the Brunswick Steam Electric Plant, Units 1 and 2. Details of the underlying NRC inspections are provided in Inspection Report Nos. 50-325/92-44 and 50-324/92-44 dated January 28, 1993. Carolina Power & Light Company hereby responds to the Notice of Violation. The enclosure to this letter provides CP&L's reply to the Notice of Violation in accordance with the provisions of 10 CFR 2.201.

Please refer any questions regarding this submittal to Mr. R. C. Godley at (919) 457-2412.

Yours very truly,

J. M. Brown, Plant Manager - Unit 2

SFT/sft

Enclosure

cc: Mr. S. D. Ebnetter
Mr. P. D. Milano
BSEP NRC Resident Office

080035

9303090517 930301
PDR ADOCK 05000324
Q PDR

120/11

ENCLOSURE

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
NRC DOCKET NOS. 50-325 & 50-324
OPERATING LICENSE NOS. DPR-71 & DPR-62
REPLY TO NOTICE OF VIOLATION

VIOLATION:

During a Nuclear Regulatory Commission (NRC) inspection conducted on December 1-31, 1992, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C, the violation is listed below:

Technical Specification 6.8.1a requires that written procedures be established, implemented, and maintained covering the activities recommended in Appendix "A" of Regulatory Guide 1.33, November 1972, including procedures for performing maintenance, clearances, and logs.

- A. MMM-001, Maintenance: Conduct of Operations, Revision 18, requires that when a procedure cannot be performed as written, including unexpected results and unexpected equipment actions, the Mechanic/Technician shall stop work, place equipment in a safe condition, notify the Maintenance Supervisor, and follow administrative instructions for obtaining correct procedure instructions.

Contrary to the above, procedures were not properly established in that on December 2, 1992, Work Request/Job Orders 92-BGRE1 and 92-BGRF1 for Residual Heat Removal Valves, 1-E11-F006 B and D, respectively were prepared providing incorrect hand wheel torque values resulting in failure of the 1-E11-F006B valve actuator due to excessive torque on the handwheel. Procedures were not properly implemented in that on the same date, following failure of the 1-E11-F006B valve actuator, mechanics did not stop work, notify the Maintenance Supervisor, nor obtain correct procedure instructions prior to applying excessive handwheel torque to the 1-E11-F006D valve actuator resulting in potential damage to the valve and actuator.

- B. Operating Instructions, OI-01, Operating Principles and Philosophy, Revision 048, Section 3.2.4.3 requires that a detailed explanation be provided in the shift supervisor's log for major events such as major plant evolutions.

Contrary to the above, on December 14, 1992, the starting and stopping of DG No. 2 for the performance of the DG No. 2 Monthly

Load Test OPT 12.2B was not recorded in the shift supervisor's log, the only permanent plant record.

- C. Administrative Instruction AI-58, Equipment Clearance Procedure, Revision 39, Section 3.9.1 requires that the clearance center staff is responsible to develop clearances that will ensure safe operating conditions exist while equipment is being cleared, maintained, or returned to service.

Clearance 2-92-02902 was issued November 28, 1992, which placed the breaker for Recirculation System Valve 2-B32-F023B in the off/removed position.

Clearance 2-92-02887 was issued on November 24, 1992, which placed containment/atmospheric control system control circuit breakers 2-32AB-5 and 2-32AB-6 in the off position. This action was verified on November 25.

Contrary to the above, on December 22, 1992, control circuit breakers 2-32AB-5 and 2-32AB-6 were found to be in the on position and clearance 2-92-2887 had not been canceled. Additionally, on December 8, 199 , the breaker for Recirculation System Valve 2-B32-F023B was in the on position and clearance 2-92-02902 had not been canceled.

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

RESPONSE TO VIOLATION:

Admission or Denial of Violation:

Carolina Power & Light Company admits the violation.

Reason for the Violation:

Example A:

A review of the circumstances associated with the over-torquing of valve operators revealed the following inappropriate actions:

1. Incorrect torque specifications were provided in the valve repair instructions of the Work Request/Job Order.

2. The valves were torqued to excessive values in the closed direction.
3. The involved personnel did not stop the work process and obtain assistance when the first valve operator failed. Consequently, work on the second valve operator continued and resulted in excessive torquing of the second valve operator.

The following summarizes the results of a root cause analysis performed to identify the cause(s) of the above inappropriate actions:

1. Incorrect torque specifications were provided in the work instruction because of a misunderstanding on the proper use of the Equipment Database System (EDBS) 480 screen and poor communications between Maintenance and Technical Support personnel while determining the proper torque values.

The Equipment Database System (EDBS) 480 screen was used to determine the proper torque settings; however, the screen contains two torque values, one for the valve motor operator torque switch and the other for the valve handwheel/worm shaft. The use of the torque values provided in EDBS varies according to application. The EDBS 480 screen was not originally intended nor designed to support the determination of motor operated valve torque values. The limitations associated with using the EDBS 480 screen were not fully understood by the involved Maintenance planning personnel. Additionally, because the planner was uncertain as to the correct value of torque required to torque the valves closed as identified in EDBS, he contacted a valve component engineer who was off-site at that time for assistance. The communications between the planner and engineer were inadequate in that at no time did either individual specifically mention actual torque value numbers or the correct set of torque values to use. Additionally, because the engineer was off-site and unable to interface with the EDBS system, the information conveyed to the planner could not be validated. Consequently, the incorrect torque value was selected from the EDBS screen.

2. While applying the torque value specified in the work instruction, one of the involved mechanics voiced a concern to the lead mechanic regarding the unusually high torque value. The lead mechanic did not follow-up on the concern or apply adequate self-checking to ensure his actions were correct.
3. While assessing the failure of the first valve operator, the lead mechanic erroneously assumed that the valve operator was flawed prior to torquing and that the torquing of the valve handwheel caused an existing flaw to surface. The lead mechanic did not realize that the torquing in itself caused the failure of the valve operator and consequently, did not consider the problem significant enough to warrant stopping the work activity and notifying his supervisor in accordance with approved plant procedures. Failure to stop the work activity following the valve operator failure was based on erroneous interpretation of procedural requirements.

Example B:

On December 14, 1992, with the site emergency electrical 4160v distribution system inoperable due to diesel generator building structural issues and both Units 1 and 2 in cold shutdown, the Emergency Diesel Generator (EDG) No. 2 monthly load test procedure was performed. The test was being performed to satisfy routine surveillance testing requirements. During the test, in accordance with the requirements of OI-01, the Control Operator recorded the EDG No. 2 start and stop times in the Control Operator Log. Following review of the completed EDG No. 2 monthly load test procedure, the Shift Supervisor recorded an entry into the Shift Supervisor Log documenting his review of the procedure and the satisfactory completion of the test.

A detailed explanation of the diesel monthly load test was not recorded in the Shift Supervisor Log because the involved Shift Supervisor did not consider the test a major plant evolution. Furthermore, the Shift Supervisor recognized that the recording of other details of the test such as equipment start and stop times in the Control Operator Log is required by procedure and that the Control Operator Log is a permanent plant record.

Example C:

Clearance 2-92-02887

On December 22, 1992, circuit breakers #4 and #5 in the Unit 2 120v distribution panel 32AB were discovered in the "on" position while tagged under clearance in the "off" position. The breakers had been placed under clearance on November 24, 1992 in accordance with the approved clearance procedure and the accepted practice for tagging 120v circuit breakers. The tagging process for 120v breakers in effect at the time of the event involved placing red tape on the circuit breaker under clearance and storing the clearance tag in a plastic bag mounted inside the 120v distribution panel door. This practice allowed visual identification of breakers under clearance without obscuring the breaker. When multiple clearances were established on a single breaker, a single piece of tape remained on the breaker while additional clearance tags were placed in the plastic bag. On December 5, 1992, a second clearance was initiated and canceled on circuit breakers #4 and #5 in panel 32AB. During canceling of the second clearance, an adequate check for other clearances had not been established for circuit breakers #4 and #5 and consequently, the red tape was removed and the breakers were returned to the "on" position.

Clearance 2-92-02902

An investigation was performed to determine the root cause of the clearance

deficiency associated with circuit breaker 2-2XB-DK1. The investigation revealed that clearance 2-92-02902 had been established on November 28, 1992 to place the 2-2XB-DK1 breaker in the "off" position. While hanging this clearance, the involved operator noticed another clearance tag hanging on the 2-2XB-DK1 breaker compartment door. On December 8, 1992, during normal operator rounds, the 2-2XB-DK1 breaker was discovered in the "on" position with a clearance tag (2-92-02902) hanging on the breaker compartment door. The clearance tag indicated the breaker was supposed to be in the "off" position. The operator was not able to recall the clearance number indicated on the first clearance tag found hanging on the breaker compartment door while hanging clearance 2-92-02092. Efforts to identify the first clearance, including searches of the clearance computer database and clearance documentation, were unsuccessful. Although the exact cause of the mispositioning event could not be determined, the event is believed to have occurred because an individual removing the first clearance tag from the 2-2XB-DK1 breaker did not verify that no other active clearance existed which would prevent restoring the 2-2XB-DK1 circuit breaker to the "on" position.

Corrective Steps Which Have Been Taken and Results Achieved

Example A:

The affected valve operators have been inspected and repaired as necessary to restore them to an operable condition.

The lead mechanic has been counselled on basic conduct of maintenance work requirements, including the requirement to immediately stop work and notify supervision if any unexpected problems are encountered or work cannot be performed as written in approved documents. In addition, the lead mechanic has been counselled on the need to follow-up on worker concerns.

Example B:

A briefing with the Operations Shift Supervisors has been conducted to convey management expectations and performance standards for log-keeping.

Example C:

Existing electrical panel clearances were verified to be appropriately established including verification that clearance tags were hanging on the correct component.

Briefings were performed with site personnel on the importance of adherence to procedure and attention to detail while implementing the clearance process.

On January 6, 1993, existing clearance tags on 480v MCC and 250 VDC breakers were relocated from the compartment door to the locking latch to reinforce the self-checking process.

On February 19, 1993, the practice of hanging clearance tags on 480v MCC and 250 VDC breaker locking latches was further enhanced. Standard metal locking tabs have been inserted through the locking bar of the breaker operating handle and clearance tags attached to the locking tab.

An evaluation on the use of locking devices on 120v breakers or other alternate positive locking methods as opposed to the current practice of taping breakers and storing of tags in plastic bags has been performed. The results of this evaluation determined the use of 120v lock-out devices is appropriate. The lock-out devices have been procured for the majority of applications. An investigation is in progress to resolve the remaining applications. The lock-out devices have been authorized for use.

Equipment Clearance Procedure, AI-58, has been revised to require hanging clearance tags from locking latches on 480v MCC and 250VDC breakers and to positively lock the latches rather than taping clearance tags to compartment doors. This revision also provides instructions for the use of 120v breaker lock-out devices.

CP&L has identified an adverse trend involving mispositioned equipment at Brunswick. On January 5, 1993, a Site Incident Investigation Team (SIIT) convened to investigate the cause of the mispositioning events and identify corrective actions to prevent recurrence. Events occurring between September 15, 1992 and January 7, 1993 were reviewed, including those events cited as examples to the violation. Five categories of causal factors were identified. The most frequently recurring causal factors were inadequate self-checking and human factors. A comparison of the current events' causal factors with those causes for similar events which occurred between July of 1991 through May of 1992 indicates that the current mispositioning events are the result of new problems and not a general recurrence of previously experienced problems.

Corrective Actions Which Will be Taken to Avoid Future Violations

Example A:

The EDBS-related modules of the Maintenance Planners training course will be revised by June 30, 1993 to reflect the lessons learned from this event.

A review of the lessons learned from this event by supervision with appropriate Maintenance and Technical Support personnel will be performed by March 31, 1993.

Example B:

A revision to the log keeping procedure is in progress. This revision will provide enhanced guidance on industry standards and management expectations for operator log keeping. The procedure upgrade will be completed by March 31, 1993.

Date When Full Compliance Will be Achieved

Carolina Power & Light Company is in compliance.