



Carolina Power & Light Company

Brunswick Nuclear Project  
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U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555

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


Gentlemen:

The Brunswick Steam Electric Plant (BSEP) has received NRC Inspection Report 50-325/92-21 and 50-324/92-21 and finds that it does not contain information of a proprietary nature. This report included a Notice Of Violation.

Enclosed is Carolina Power & Light Company's response to that Notice Of Violation.

As discussed in a September 21, 1992, telephone conversation between Mr. H. O. Christensen - Chief Project Section 1A, Reactor Projects Branch No. 1, Division of Reactor Projects, and Mr. S. D. Floyd - BSEP Manager Regulatory Compliance, the response to Violation A, example 2 will be supplemented by October 12, 1992.

Very truly yours,

  
J. W. Spencer, General Manager  
Brunswick Nuclear Project

TMJ/

Enclosure

cc: Mr. S. O. Ebner  
Mr. R. H. Lo  
BSEP NRC Resident Office

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TEO 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 A:

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

1. Maintenance Procedure, MP-12, General Cleanliness Procedure, Revision 13, Section 5.4.2.3 requires that openings in hardware and piping shall be capped, covered, or plugged when not in use.

Contrary to the above, MP-12 was not properly implemented in that on July 10, 1992 the 2C conventional service water pump discharge check valve (2-SW-V23) was used as a work surface with the valve internals exposed resulting in maintenance debris being introduced to the internals.

2. Maintenance Management Manual OMMM-004, Preventive Maintenance, Revision 5, Section 5.1.3.14 requires that any deviations from manufacturer's recommendation should be handled in accordance with ENP-20. Section 5.0 states that a Preventative Maintenance (PM) exception form should be submitted as soon as it is determined a PM will not be performed. Engineering Procedure, ENP-20, Engineering Work Request (EWR), Revision 14c, Section 10, states that if action not taken deviates from the vendor's recommendation, a deviation form should be attached to the EWR package. This package requires two levels of engineering supervisory approval, Nuclear Assessment Department (NAD) review and Plant General Manager approval.

Contrary to the above, as of July 31, 1992, the licensee failed to obtain the two level engineering supervisory approval, the NAD review and Plant General Manager approval for deferring the preventive maintenance since 1983 on two safety-related 4160 volt circuit breakers.

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

RESPONSE TO VIOLATION A:

RESPONSE TO VIOLATION A - EXAMPLE 1:

Carolina Power and Light (CP&L) admits that MP-12 was not properly implemented as evidenced by the stated example.

## RESPONSE TO VIOLATION A - EXAMPLE 1

### Reason for the Violation:

### Event Sequence

July 2, 1992. Maintenance personnel began corrective maintenance procedure CM-VCK506, Technocheck Check Valves, on service water pump "C" discharge check valve 2-SW-V23 in accordance with preventive maintenance, work request/job order (WR/JO) 92VEE182. The valve was removed and an "opening internal inspection" was performed in accordance with MP-12 step 5.5.3. Covers were placed on the system piping to prevent inadvertent inclusion of foreign material while the valve was removed. Pre-made aluminum plates were utilized to cover the valve whenever maintenance was not in progress.

July 6, 1992. Maintenance was completed on the valve and a Quality Control (QC) inspector performed the "closing internal inspection" in accordance with MP-12 step 5.5.3.1. The QC inspector checked "no unusual conditions noted" on the cleanliness data sheet. After re-installing the valve into the SW system, Maintenance personnel performed a resistance measurement check on installed dielectric insulators with unacceptable results. Note, the fit of dielectric insulators is critical, any exposed metal causes a low insulator resistance reading on all the bolts in the flange connection.

July 7, 1992. Maintenance personnel began investigating the low insulation resistance readings from bolt to flange.

July 10, 1992. The valve was removed and an "opening internal inspection" was performed in accordance with MP-12 step 5.5.3. 2-SW-V23 was lowered to the floor directly below discharge piping to allow access for "custom fitting" of dielectric insulators. The mylar sleeving material was measured through the pipe flange and beginning threads on the check valve to ensure correct insulator length. Each bolt's (i.e., 20 bolts) sleeving was then cut to final size using the check valve as a flat surface to ensure a straight cut. This activity was observed by an NRC resident inspector who noted that protection was not being provided to the valve internals, and the valve was being utilized as a cutting surface. The NRC inspector contacted maintenance supervision concerning the evolution. The Maintenance Supervisor investigated the concern, stopped work on the check valve, had the valve cleaned and cleanliness controls restored, and had the general area housekeeping restored.

July 11, 1992. Maintenance was completed on the valve and a QC inspector performed the "closing internal inspection" in accordance with MP-12 step 5.5.3.1. The QC inspector checked "no unusual conditions noted" on the cleanliness data sheet. The valve was re-installed and the resistance test was re-performed with satisfactory results.

### Discussion

The purpose of MP-12 is to "... provide a program for system cleanliness and housekeeping within the Maintenance Subunit. ... to assure the quality of the Brunswick Nuclear Project operation."

MP-12 establishes a "cleanliness classification" for nuclear power plant systems and subsystems. There are four cleanliness classifications, "A" through "D" with "A" being the highest level. The service water (SW) system has a "D" cleanliness classification. MP-12, revision 13, states:

CLASS D cleanliness is a nominal level, .... in applications .... where significant amounts of contamination are anticipated to be present in the process fluid itself.

The service water system suction is supplied from the brackish waters of the Cape Fear River. Large debris (i.e., logs, marsh grass, etc...) is prevented from clogging the SW pump suction by a diversion and traveling screens. Chlorine is utilized as a biocide agent. Some amount of contamination from debris which passes through the screens is anticipated.

Section 5.5 of MP-12, Postoperation:1 Repairs and Modifications, is applicable to the referenced maintenance performed on 2-SW-V23. Step 5.5.2.2 states that "Removed equipment, items, components which are to be reinstalled shall be verified/inspected to assure the item, equipment, or component is in a condition equal to or better than "as removed". Step 5.5.2.3 requires personnel to implement section 5.4, Maintenance of Installation Cleanliness, during repairs. As noted in the violation, step 5.4.2.3 states that "Openings in hardware and piping shall be capped, covered, or plugged when not in use."

During this evolution, the equipment was being utilized to "custom fit" the insulators. Previous attempts to cut the insulators remote from the valve had failed. The Technocheck valve plater were in the closed position, the sealing members were not affected during the cutting evolution, and the mylar sleeving "sawdust" was easily removed. Cleaning and QC inspection were performed prior to re-installation, satisfying MP-12 as stated in step 5.5.2.2 (see above paragraph). The lead mechanic directing the cutting/measuring of the insulators was familiar with the general cleanliness procedures and the criteria of "class D" cleanliness. Given the above, the quality of the valve and system was maintained; however, the work practices utilized did not meet the requirements of MP-12 and are not sanctioned by the management of the Brunswick Nuclear Project.

Corrective Steps Which Have Been Taken and Results Achieved:

The valve was cleaned and protective covers were installed. General housekeeping in the SW building was restored. The involved craftsmen were counseled in expected housekeeping and cleanliness standards.

Corrective Steps Which Will Be Taken to Avoid Further Violations:

The housekeeping and cleanliness standards will be reviewed with the Maintenance workforce to delineate and emphasize Management's expectations during maintenance quarterly training. The review will be complete April 3, 1993.

Date When Full Compliance Will Be Achieved:

CP&L is in compliance.

## RESPONSE TO VIOLATION A - EXAMPLE 2

### Admission or Denial of Violation:

CP&L admits that the Preventive Maintenance (PM) program is in need of improvements as indicated by the stated example.

### Reason for the Violation:

On August 13, 1992, due to various adverse condition reports (ACRs) initiated on the PM program, an overall root cause analysis (RCA) concerning the administration of the PM program was initiated by the Corrective Action Program (CAP). The RCA is expected to be complete by October 12, 1992, at which time the reason for this violation will be provided in a supplement to this response.

Preliminary analysis to date indicates that Maintenance Management Manual OMMM-004, Preventive Maintenance, revision 5, section 5.1.3.14 conflicts with Engineering Procedure, ENP-20, Engineering Work Request (EWR), revision 14c, section 10. It is our belief that ENP-20, revision 14c, section 10 was to be used only for new vehicle recommendations and not for routine PM exceptions which are addressed in section 5.9 of OMMM-004.

### Corrective Steps Which Have Been Taken and Results Achieved:

Several internal to CP&L have identified concerns with the PM Program and have initiated ACRs in accordance with the CAP.

As an interim measure, by management directive, PM exceptions are being reviewed by Technical Support personnel. When a concern exists with the exception an EWR is initiated in accordance with appropriate engineering procedures.

### Corrective Steps Which Will Be Taken to Avoid Further Violations:

Procedures are being revised and developed which will better define the administrative, technical and implementation requirements of the PM Program. This is expected to be in place by November 30, 1992, and will include a structure that incorporates both Technical Support and Maintenance functions.

The basis documentation of the approximately 20,000 PM tasks and 180 frequencies will be verified and reconstructed where missing. This information will be captured and maintained in a computer data base that will be used for evaluation of PM deferrals and program revisions.

### Date When Full Compliance Will Be Achieved:

CP&L will supplement this violation response by October 12, 1992 upon completion of the referenced RCA. The supplement will contain the reason for the violation, additional or revised corrective actions, if any, and the date when CP&L will be in full compliance.



VIOLATION B:

- B. Technical Specification 6.8.1.a requires that written procedures shall be established, implemented and maintained covering the activities recommended in Appendix "A" of Regulatory Guide 1.33, November 1972, including equipment control (e.g. locking and tagging), authorities and responsibilities for safe operation and shutdown, and shift and relief turnover.

Local Clearance 1-92-1469, Support to Main Steam Line Isolation Valve Testing, required that Main Steam Line Drain Isolation Valve 1-B21-F016 be open. Operating Instruction OI-3.4, Daily Check Sheets, Revision 39, requires a weekly tagout audit be conducted on Panel P601, Reactor Turbine Gauge Board primary systems. Operating Instruction OI-2, Shift Turnover Checklist, Revision 45, requires Control Operator and Senior Control Operator Control Board walkdowns in conjunction with shift turnovers.

Contrary to the above, these procedures were not adequately implemented in that on July 11, 1992, the clearance established on 1-B21-F016 for the valve to remain open did not prevent its automatic closure on July 16, 1992. A subsequent tagout audit on July 17, 1992, and multiple control board walkdowns during shift turnovers on July 16 to 20, 1992, did not identify the position of 1-B21-F016 as shut instead of open as required by the clearance.

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

RESPONSE TO VIOLATION B:

Admission or Denial of Violation:

CP&L admits the violation.

Reason for the Violation:

Chronology

- 07-11-92 Main steam line drain valve, 1-B21-F016, is placed under clearance in the "open" position.
- 07-16-92
- 0447 Power to the Reactor Protection System (RPS) bus "A" lost. Loss of RPS bus "A" caused 1 half SCRAM, a half isolation of primary containment isolation valve (PCIS) groups 1, 2, 3, 6, and 8, isolation of secondary containment, and an automatic initiation of the Standby Gas Treatment System.
  - 0458 Commenced restoration of the RPS System per OP-03.
  - 0538 Completed restoration of the RPS System and the Plant. NOTE: 1-B21-F016 was not returned to the position required by the clearance tag that had been placed on the valve's control switch.
- 07-17-92 Night shift (1900-0700) performed a clearance tag audit on the Unit 1 Control Room panel P601.
- 07-20-92
- 0700 1-B21-F016 found in the "closed" position by a NRC Resident Inspector with a required "open" position clearance tag.

Investigation of this event revealed the following:

1. 1-B21-F016 was tagged in the "open" position, with clearance tags placed only on the valve's handwheel and control switch. The valve was tagged open to allow installation of a pressure gauge for LLRT related activities. The LLRT procedure did not require that the automatic close function of the valve be disabled.
2. The clearance, #1-92-01469, was hung and accepted on 07-11-92. The ISI/LLRT group performed the associated valve testing and the clearance was left in place while valve refurbishment took place. The clearance tag on 1-B21-F016 could have been removed at this time. Clearance #1-92-01469 was cancelled on 07-28-92.
3. Between the time of the trip of the 'A' RPS MG set (0447/07-16-92) and the time that the Resident NRC Inspector discovered that valve 1-B21-F016 was not in its required position (0700/07-20-92) approximately 100 hours had elapsed. During this period four different operating crews had been involved with standing watch in the Unit 1 Control Room. During each 12-hour shift, the Reactor Operator is required to walk down the control panels hourly looking for discrepancies and developing trends. The Senior Reactor Operator is also required to walk down the control panels at least once per shift. Nine shift turnovers occurred during this period, and valve 1-B21-F016 was never identified as being out of its required position.

In addition, a weekly audit of the clearance tags hanging in the control room was performed by a licensed plant operator. The purpose of this audit is to verify that all tagged valves are in the position required by an associated red tag. This audit and visual verification of valve position versus tag position did not identify that valve 1-B21-F016 was not in its required position. The Control Operator who performed the audit could not explain why he did not detect the discrepancy.

4. The RPS System was restored to operation per OP-03. Step #24 of OP-03 allows for the 1-B21-F016 to be placed in the open position if desired. This step was "N/A'd" by the first Control Operator and the independent verifier. Clearances are provided to ensure safe operating conditions. Clearance tags denote equipment which cannot be manipulated; therefore, neither Operator considered performing the optional step of opening the valve.

The valve is normally closed and was cleared in the "open" position. Years of working with the clearance procedure has in-grained into plant operators, (licensed and non-licensed), that a clearance tag is almost exclusively associated with a closed valve. In this case the valve was not required to be open to ensure safe operating conditions but to support a LLRT. Automatic closure of the valve was of no safety significance to personnel or the public and the valve would have been more appropriately controlled in accordance with Administrative Instruction (AI) 58.2, Equipment Testing Procedure. However, at the time of this test, the LLRT procedure was written such that it required a clearance.

The fact that the clearance was left hanging during valve re-furbishing and the re-performance of the LLRT test also contributed to this out-of-position condition. When the initial LLRT testing had been concluded, the tag on the valve could have been removed, to return the plant to a more normal condition, and then re-hung when LLRT re-testing was to be resumed.

The LLRT test procedures contain a suggested isolation boundary for specific valve tests. When the LLRT group submits clearance requests, they rely on Operations personnel to add extra protection to the clearance. In this case, the clearance was prepared exactly as it was requested. It should be noted that the isolation boundary (i.e., the boundary to ensure safe operating conditions) was

adequate.

The following Root Causes have been identified:

Lack of attention to detail in watch standing practices in the Main Control Room.

The use of a clearance to administratively control the position of a valve for test purposes.

Corrective actions Taken To Date and Results Achieved:

To heighten the level of attention to detail, the opposite Unit's Reactor Operator is currently performing the weekly clearance audit of the control board.

A Management directive has been implemented requiring clearances to be hung on test boundary isolation valves only. Test tags will be utilized on non-boundary isolation valves. This will prevent a valve from being under clearance when in fact it is not required to ensure safe operating conditions for the work in progress.

The involved LLRT procedure test lineup was revised to include the 1-B21-F016 breaker to prevent automatic closure.

The involved LLRT procedure was revised to allow for the use of AI-58.2.

Corrective Actions That Will Be Taken To Avoid Further Violation:

The practice of using clearances to support LLRT work is currently being evaluated by the Site Assessment Team (SAT). The final implementation plan and schedule for clearance use on site will be completed by December 1, 1992.

This event will be reviewed with Operations shift personnel during quarterly training by April 3, 1993.

Date of Full Compliance:

CP&L is currently in full compliance.