



NRC-145  
Serial LAP-83-535

Carolina Power & Light Company

P. O. Box 101, New Hill, N. C. 27562  
November 18, 1983

Mr. James P. O'Reilly, Regional Administrator  
United States Nuclear Regulatory Commission  
Region II  
101 Marietta Street, Northwest (Suite 2900)  
Atlanta, Georgia 30303

SHEARON HARRIS NUCLEAR POWER PLANT  
UNIT NOS. 1 AND 2  
DOCKET NOS. 50-400 AND 50-401  
IE INSPECTION REPORT NOS. 50-400/83-25 AND 50-401/83-25

Dear Mr. O'Reilly:

Carolina Power & Light Company (CP&L) has received Mr. R. C. Lewis' letter dated October 19, 1983 which documents the results of the special Regional Construction Assessment Team inspection conducted by Mr. P. R. Bemis on August 15-26, 1983.

We consider this inspection to be one of the most thorough reviews conducted of our Harris Project Activities, and appreciated the professionalism and high degree of expertise with which it was conducted. The findings and observations noted in the above report, and discussed at the exit critique, are being given management attention as we continue our internal evaluations of program improvements. In addition to the items covered in your letter, we would like to take notice of a number of strengths found by your assessment team and discussed at the critique:

1. Project management meetings, such as the project review meeting, are oriented towards the resolution of problems. The meetings focus on the identification of the problems and the agreement of how to attack and resolve the problems. The responsibility to handle the tasks is clearly defined when problems emerge.
2. The warehouse storage program is well developed, and the use of operations personnel to insure that operations equipment has adequate preventive maintenance while in storage is a very positive aspect.
3. There is an on-site engineering group - Harris Plant Engineering Section - which provides design self-sufficiency.
4. There is a mechanism to incorporate industry experience feedback into the nuclear power plant design.
5. The technical audits conducted by CP&L of the Architect Engineer (Ebasco) are of substance and are over and above the required programmatic audits.

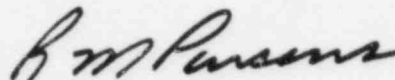
6. The electrical construction inspectors are considered to be very knowledgeable and conscientious in their work areas.
7. Management is actively involved in getting problems associated with concrete placement addressed and corrected.
8. Engineers are extremely responsive in addressing concerns raised by the NRC.

In addition to the strengths noted above, we acknowledge the seven violations that were identified. We herewith submit (Attachment) our responses to violations in accordance with the provisions of 10 CFR 2.201.

We consider that the corrective actions taken are satisfactory for the resolution of the items.

Thank you for the consideration in this matter.

Yours very truly,



R. M. Parsons  
Project General Manager  
Shearon Harris Nuclear Power Plant

RMP/sh

Attachment

cc: Messrs. G. Maxwell/R. Prevatte (NRC-SHNPP)  
Mr. B. C. Buckley (NRC)

ATTACHMENT

Responses to Violation Identified During  
the Inspection Conducted on August 15-26, 1983  
(IE Inspection Report Nos. 50/400/401/83-25)

Carolina Power & Light Company  
Shearon Harris Nuclear Power Plant  
IE Inspection Report 50-400/401/83-25  
Violation A

Reported Violation:

10 CFR 50, Appendix B, Criterion X, as implemented by the Carolina Power & Light PSAK Section 1.8.5.10, requires that inspection of activities affecting quality shall be executed to verify conformance with the documented instructions. Construction procedures TP-28 and WP-105 are the Harris site instructions that are used in the installation inspection of safety-related equipment.

Contrary to the above instructions, the installation inspection, which was performed for Motor Control Centers (MCCs) 1A35-SA and 1B35-SB was inadequate in its execution in that inspection failed to identify the following:

1. The MCC hold-down fasteners were not tightened.
2. The MCC elevation checks were not adequately performed.
3. The welding of the MCC mounting sill to embedded plates differed from the requirements on the vendor plan which was referenced on the welding instruction.

This is a Severity Level IV Violation (Supplement II), and is applicable to Unit 1 only.

Denial or Admission and Reason for the Violation:

The violation is correct as stated.

1. The fasteners were loose because either they were not checked closely enough or they were loosened by others who may have performed work on the MCCs after the inspection by CI.
2. Elevations were checked indirectly by CI inspector by verifying previous sign off of pad elevation by Civil CI when pad/embeds were installed.
3. The QC Structural Welding inspector inspected the weldments in question as per the vendor drawings minimum weld size 1/4" x 1/4" x 3". Using the 1A4 welding process and a 1/8" E-7018 electrode, an acceptable 1/4" fillet weld was not attained. Therefore, to reach the required weld size, multiple passes were performed. The QC Inspector should have requested clarification before performing the final inspection.

Corrective Steps Taken and Results Achieved:

1. All fasteners in MCCs under the scope of Regulatory Guide 1.29 have been reinspected under TP-28. Discrepancies were noted and are being resolved.

2. Procedural steps under WP-105 and TP-28 have been initiated to recheck the elevation of all MCCs under the scope of Regulatory Guide 1.29 against vendor, Ebasco, or CP&L approved design documents. This recheck is expected to be complete by December 1, 1983.
3. Moto. Control Center mounting sill weldments were evaluated by Harris Plant Engineering Section and were found to be structurally sound. FCR-AS-3914 (approved October 27, 1983) was issued to allow for multiple weld passes to attain the required weld size.

Corrective Steps Taken to Avoid Further Noncompliance:

1. (a) Additional training of inspection personnel involved in inspection of MCCs was conducted by the lead inspector on October 28, 1983 emphasizing closer inspection of MCC fasteners for correct tightness under TP-28.  
  
(b) Exhibit 12, WP-105, is now being used to have CI check the results of work performed on equipment that has been disassembled. Exhibit 12, WP-105, is used for special assembly of equipment. This exhibit will be required to be initiated if equipment has to be disassembled to facilitate installation and has to be reassembled after installation.
2. Inspection personnel involved with inspection of MCCs received training by the lead inspector on October 28, 1983 on the requirements for elevation checks against vendor, Ebasco, or CP&L approved design documents.
3. QC structural welding inspection personnel have been instructed to follow applicable inspection criteria (i.e., FCR's, DCN's, PW's, Vendor and Engineering related drawings). If conflicts arise, inspectors will request clarification of information prior to performing inspection.

Date When Full Compliance Will Be Achieved:

1. & 2. Full compliance will be achieved on December 1, 1983.
3. Full compliance was achieved on October 28, 1983.

Carolina Power & Light Company  
Shearon Harris Nuclear Power Plant  
IE Inspection Report 50-400/401/83-25  
Violation B

Reported Violation:

10 CFR 50, Appendix B, Criterion V, as implemented by Carolina Power & Light Company PSAR, Section 1.8.5.5, requires that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings and shall be accomplished in accordance with these instructions, procedures, and drawings.

1. Pipe support drawing SW-H-456, Revision 4/D, required two piece 1's, 4 x 4 tubing, to be welded to a steel tube of support SW-H-366 with a 1/4" fillet welded all around both piece 1's.
2. Pipe support drawing SW-H-456, Revision 4/D, required a 1/16" clearance between the support and the top and both sides of its pipe.
3. WP-110, Revision 8, paragraph 3.4, requires documentation of pipe support stock substitutions. The strut for support SW-H-946 was required to be welded to support SW-H-944.
4. Procedure MP-05, Revision 18, paragraph 4.6, required welders to identify their work at the time of fit-ups or before fit-up begins.

Contrary to the above,

1. One of the support SW-H-456 piece 1's was not welded on one of its four sides.
2. There was less than 1/32" clearance between support SW-H-456 and the top of the pipe it supported.
3. The strut for support SW-H-943 was used in support SW-H-946 and welded to support SW-H-944. The strut for support SW-H-942 was used in support SW-H-943. The strut for support SW-H-946 was used in support SW-H-942. The licensee was unable to provide documentation authorizing the above noted material substitutions.
4. There was no discernible evidence that the welder(s) had stamped their stencils on field welds CI-255-M-22-FW3, CI-236-1-SI-244-FW-601, and FW-597-598, 599, 600 (tack welds on code plate of SI penetration).

This is a Severity Level V Violation (Supplement II), and is applicable to Unit 1 only.

Denial or Admission and Reason for the Violation:

The violation is correct as stated, with the following clarifications:

1. Pipe hanger SW-H-456 is a box frame hanger attached to a large existing Service Water pipe hanger. It was to have all around 1/4" fillet welds connecting two items #1 (4 x 4 tube steel) to an existing 6 x 6 tube steel member of SW-H-366. The welds were only performed on three sides leaving off the inside welds.

It appears the inspector accepted the joint knowing the welds were deleted, per FCR-H-564. The FCR allows the deletion of the inside window welds for box frame hangers on 12" and smaller pipe when the members require all around fillet welds. Due to the configuration of this hanger, the inspector thought that the FCR was applicable. In the case of the reported joints, the FCR is not applicable.

2. Hanger SW-H-456, Rev. 4/D, was inspected to Phase II by the C.I. Inspector (Hanger Q.C. Inspector). It appears that during this inspector's review, he inadvertently failed to detect the specified design clearance requirement violation. It appears that an error occurred in reading or recording the dimension. Therefore, the reason for the violation is considered to be a physical inspection error.

3. For hangers SW-H-942, 943 & 946, although a material substitution violation is acknowledged, the violation, as stated, is misleading. The violation stated that "the strut" was substituted in each case without the proper documentation when, in fact, it was not the strut but rather the pipe clamp which was substituted.

WP-110, Rev. 8, paragraph 3.4, requires documentation of pipe support stock substitutions. Apparently, due to the fact that all three (3) hangers (SW-H-942, 943, and 946) require the same type and size pipe clamp, the inspector failed to realize a violation of site procedure had been made. The records suggest that the inspector made a document review error as opposed to a physical inspection error.

4. In reference to the NRC reported violation that on weld joints C1-255-M-22-FW3; C1-236-1-SI-244 FW 601; and the tack welds on the code plate of containment penetration #M-22 reported as FW597, 598, 599, 600, the welder(s) had not stamped their welds; a further investigation into the details has been performed by Welding Engineering.

ISI-244 FW 597, 598, 599, 600, which are socket welds identified on isometric ISI244, were not welded at the time of the NRC audit and were mistakenly identified by the NRC report as the four (4) tack welds attaching a Code data plate to the containment penetration #M-22. This Code data plate was moved to a new location on the penetration in 1981 for which a WDR was generated which is presently in the Q.A. Records Vault.

On August 26, 1983, Welding Engineering was notified of the NRC Inspector's reported violations on containment penetration weld joint #C1-255-M-22-FW3, 3" diameter pipe weld joint #C1-236-1-SI-244-FW601, and the four (4) tack welds connecting the Code data plate to the containment

penetration #M-22. The Senior Engineer, Metallurgy/Welding, immediately requested a CP&L Q. C. Lead Technician and a Welding Engineering Supervisor to accompany him and assist in investigating the details. Upon arrival at the weld joints, the Welding Engineering Supervisor and the Q.C. Technician located the stencils which had been stamped at the penetration weld joint #C1-255-M-22 FW3 (stencils #B-79, #C-79) and the stencil which had been stamped at the penetration code plate tack welds (stencils #F-16). It was, however, verified that welder #C-79 had forgotten to stamp pipe weld joint #C1-236-1-SI-244-FW601; as required by site procedure MP-05. It should be noted, however, that it is not a Code violation.

Corrective Steps Taken and Results Achieved:

1. After the violation was discovered, the hanger was placed on DDR #1919, Deficiency Report. It was then evaluated by Harris Plant Engineering and the joint was found to be acceptable "as is". The hanger design drawing was revised to reflect the as-built condition.

2. The condition was identified and reported for hanger SW-H-456, Rev. 4/D, and documented on DR No. H-273.

Hanger SW-H-456, Rev. 4/D, will be reworked to correct the improper pipe to support member clearance.

3. Due to the fact that all three (3) hangers involved (SW-H-942, 943, and 946) required by design the identical type and size clamps and the clamps are all standard catalogue parts, the interchange is acceptable "as is".
4. DDR 1933 was generated on August 26, 1983 to document the failure of C-79 to stencil pipe weld joint #1SI244 FW601. Working to the Corrective Action Report of the DDR, the pipe weld joint was stamped as required by MP-05.

Corrective Steps Taken to Avoid Further Noncompliance:

1. WP-110 shall be revised to discourage the use of generic FCR's (i.e., FCR-H-564) by the craft or the inspector for installation and inspection.
2. For hanger SW-H-456, Rev. 4/D, the C.I. Inspector ceased employment in the Pipe Hanger C.I. Unit (unrelated to this incident) and transferred to a different C.I. discipline. Due to the relatively short time frame from the issuance of the noncompliance report to the inspector's transfer, only a verbal reemphasis of procedures was performed. If the inspector had remained in the group, he would have undergone a documented and formal retraining relative to the noncompliance. Site policy has been reemphasized to all Pipe Hanger C.I. Inspectors to assure that they understand Phase II Inspection procedures and criteria.
3. The use of catalog parts shall be in accordance with design. This shall be verified at the point of installation. WP-110 and TP-34 shall be revised to clearly state these requirements.

4. Welder C-79 was issued a written reprimand and reoriented to MP-05 by his supervisor.

Date When Full Compliance Will Be Achieved:

- 1 - 3. Full compliance will be achieved on December 15, 1983.
4. Full compliance was achieved on September 2, 1983.

Carolina Power & Light Company  
Shearon Harris Nuclear Power Plant  
IE Inspection Report 50-400/401/83-25  
Violation C

Reported Violation

10 CFR 50, Appendix B, Criterion V, requires that procedures written for activities affecting quality be followed, FSAR, Section 1.8, commits to Regulatory Guide 1.28 which endorses ANSI Standard N45.2. Section VI of the standard defines the same requirements as Criterion V. Quality procedures AP-XIII-05, Appendix A, requires that the Senior Lead Engineer will, for each shipment, check for storage requirements from the vendor.

Contrary to the above, as of August 24, 1983, quality procedures were not followed in that the Senior Lead Engineer had not checked the vendor storage requirements for HEPA filters designated for use in safety-related HVAC filtration units. These filters were not stored in accordance with vendor instructions.

This is a Severity Level V Violation (Supplement II).

Denial or Admission and Reason for the Violation:

The violation is correct as stated. The vendor storage requirements were not on site.

Corrective Steps Taken and Results Achieved:

The HEPA filters have been inspected to insure that no damage occurred because of the previous improper storage. None was found. The filters were restacked to comply with the requirements of ANSI N509-1976. The vendor requirements for storage are not on site, but at the time of the discovery of the violation, the NRC Inspector called the vendor. The vendor said his storage requirements were the same as ANSI N509-1976.

Corrective Steps Taken to Avoid Further Noncompliance:

The material storage procedure AP-XII-05 was revised to include the specific storage requirements for HEPA filters as described in ANSI N509-1976.

Date When Full Compliance Will Be Achieved:

Full compliance was achieved on November 10, 1983.

Carolina Power & Light Company  
Shearon Harris Nuclear Power Plant  
IE Inspection Report 50-400/401/83-25  
Violation D

Reported Violation:

10 CFR 50, Appendix B, Criterion V, requires activities affecting quality shall be accomplished in accordance with procedures, drawings, etc. Carolina Power & Light Company procedure CQA-4, Revision 5, QA Records, Attachment 1, identifies radiographs as QA records. Paragraph 7.7.2 requires special process records such as radiographs and microfilms to be packaged and stored to prevent damage due to temperature, humidity, light, etc.

Contrary to the above, radiographic film had been stored in the Superintendent's QA office, outside the vault, for approximately two weeks.

This is a Severity Level V Violation (Supplement II).

Denial or Admission and Reason for the Violation:

The violation is correct as stated. The volume of radiographs received on site in a limited period of time exceeded available storage in the QA Records Vault. Timely rearrangement of vault storage was not taken.

Corrective Steps Taken and Results Achieved:

Radiographs were transferred to the vault on October 14, 1983. (The vault rearrangement was completed the same day.) The radiographs were removed from the sealed packing crates and placed in the radiograph storage cabinets the next two days and are now stored according to requirements.

Corrective Steps Taken to Avoid Further Noncompliance:

Any future receipts of radiographs which exceed QA Records' storage capacity will be stored in the Harris Plant Document Control vault which is the permanent QA Records' storage facility for the plant.

Date When Full Compliance Will Be Achieved:

Full compliance was achieved on October 14, 1983.

Carolina Power & Light Company  
Shearon Harris Nuclear Power Plant  
IE Inspection Report 50-400/401/83-25  
Violation E

Reported Violation:

10 CFR 50, Appendix B, Criterion XVI, requires that measures be established to assure that conditions adverse to quality, such as deficiencies, deviations, and nonconformances are promptly identified and corrected.

Contrary to the above, the Shearon Harris Plant Engineering Organization did not have a procedure for identifying and correcting deficiencies, deviations, and nonconformances. In addition, during re-performance of calculations for pipe support CH-H-1030, the designer noted a violation of AISC requirements in the original calculations. The support was redesigned but the violation was not identified to the original designer (A/E-contractor), nor evaluated for potential generic significance.

This is a Severity Level V Violation (Supplement II).

Denial or Admission and Reason for the Violation:

The violation is correct as stated. The Harris Plant Engineering Sections uses departmental and Corporate procedures for identifying and correcting deficiencies, deviations, and nonconformances. NPED procedures, and the procedures applicable to specific design efforts such as on-site hanger design, incorporate the design control requirements of ANSI N45.2-11. NPED procedures for evaluating nonconformances under 10 CFR 50.55(e) and 10 CFR 21 are part of the mandatory training for all design personnel. Criterion XVI, 10 CFR 50, Appendix B, requires that significant conditions adverse to quality be documented and reported, and the NPED procedures reflect this requirement. Also, please note that the specific design question concerning a pipe support, which was identified during this audit, was neither "significant" nor "adverse to quality". If the design had not been revised, the support would have performed the design function.

Corrective Steps Taken and Results Achieved:

Each applicable HPES employee has been reminded of our procedural commitments (NPED 3.9); however, due to the nature of the specifically identified concern (e.g., not significant), no further specific action for the particular item is deemed appropriate.

Corrective Steps Taken to Avoid Further Noncompliance:

A Section Instruction is scheduled for issuance by November 30, 1983. The purpose of this Instruction is to more clearly define specific actions to be taken by HPES personnel when nonconformances are identified.

Date When Full Compliance Will Be Achieved:

Full compliance will be achieved on November 30, 1983.

Reported Violation:

10 CFR 50, Appendix B, Criterion V, requires that activities affecting quality be prescribed by and performed in accordance with instructions, procedures, or drawings.

1. FSAR, Section 1.8, page 50, commits to compliance with NRC Regulatory Guide 1.38 and ANSI N45.2.2-1972. AP-XIII-05, Revision 12, requires the reactor internals to be stored in accordance with the manufacturer's instructions. The NSSS Component Receiving and Storage Criteria, dated March 1976, states that storage criteria was in accordance with ANSI N45.2.2-1972. During inspection of the storage condition for the upper reactor internals stored in the reactor vessel and an inspection of storage areas in the auxiliary building, the following items were noted:

- a. ANSI N45.2.2-1982, paragraph 6.2.1, required access control to storage areas.
- b. ANSI N45.2.2-1972, paragraph 6.2.2, required storage areas to be cleaned to avoid accumulation of trash, discarded packaging materials, and other detrimental soil.
- c. ANSI N45.2.2-1972, paragraph 6.3.3, prohibits the storage of hazardous chemicals in close proximity to important nuclear items.

Contrary to the above:

- a. (1) On July 23, 1983, and twice on July 25, 1983, the materials storage area in the auxiliary building was found unlocked and without an attendant.  
(2) The storage area for the reactor internals was not posted as a controlled area and unrestricted access to the storage area was observed.
  - b. Underneath the reactor upper internals cover and on the upper internals, over six wads of used tape, two rolls of tape, and cleaning cloth were observed. In addition, the RV flange was not protected and numerous cigarette butts were observed on the RV flange grooves.
  - c. A can of cutting fluid was observed to be stored on top of the upper reactor internals and underneath its canvas protective cover.
2. On August 25, 1983, a craftsman working on the upper internals lifting rig informed the inspector that he had taped over the spray nozzle holes of the upper internals because he was concerned about dropping something into the holes while working above them. He further stated that he determined how deep the holes were by dropping a nut tied to a string into the holes.

Contrary to the above, the craftsman did not have a procedure for determining the depth of the holes and for taping the holes.

This is a Severity Level V Violation (Supplement II), and is applicable to Unit 1 only.

Denial or Admission and Reason for the Violation:

The violation is correct as stated with the following exception:

The lower internals cannot be interpreted as being in a stored area with respect to access control. Permanent plant locations are considered storage locations by site policy with the exception of access control. Access control for materials and equipment in its permanent plant location is controlled by procedure on a case-by-case basis. The violation occurred because of failure to implement the policy and the inflexibility of the procedure.

Corrective Steps Taken and Results Achieved:

Valve storage areas and the reactor vessel internals storage area are being locked during non-working hours and during times when access to the areas is not required.

Valve storage areas have signs posted at the entrance allowing authorized personnel only to enter the area as well as forbidding the use of tobacco, food or beverages.

The reactor vessel internals have been cleaned of subject debris, and stored in the reactor vessel which is in a relatively isolated area. Polyethylene has been used to seal the internals inside the vessel and a barricade was installed with a lockable door to restrict access. A sign was placed at the entrance designating the area as Zone 4.

The work being done on the vessel internals by the craftsman without a procedure will be eliminated by the new access control for the area. Also, management has reemphasized placing covers over accesses to equipment, piping systems, etc. where the entrance of foreign objects could cause potential problems.

Corrective Steps Taken to Avoid Further Noncompliance:

Procedure AP-X-02 has been reviewed and found to be compatible with ANSI standards governing housekeeping requirements. Management has emphasized the importance of compliance with this procedure to all personnel.

Date When Full Compliance Will Be Achieved:

Full compliance was achieved on November 10, 1983.

Carolina Power & Light Company  
Shearon Harris Nuclear Power Plant  
IE Inspection Report 50-400/401/83-25  
Violation G

Reported Violation:

10 CFR 50, Appendix B, Criterion V, as implemented by Carolina Power & Light Company, PSAR, Section 1.8.5.5, requires in part that activities affecting quality shall be prescribed by documented instructions and procedures of a type appropriate to the circumstances. Contrary to this requirement, the following civil procedure instructions were not appropriate for the circumstances as described below:

1. Procedure TP-32, Structural Steel Inspection, requires that extra flat washers be used on oversize holes, but does not provide for instructions or documentation for inspectors to inspect and document oversize holes.
2. Procedure WP-28 does not adequately prescribe instructions for the hand methods being used to mix grout in that it does not stress the importance of blending cement and sand before adding water and it prescribes that grout be mixed in a truck or paddle mixer.

This is a Severity Level V Violation (Supplement II).

Denial or Admission and Reason for the Violation:

The violation is correct as stated.

1. The requirement to inspect for oversize holes was inadvertently omitted from the procedure (TP-32).
2. The paragraph of WP-29 which is in question, 3.10.2, concerns dry rack grout, and states grout will be mixed by mixer or by hand. For actual mixing instructions, it references paragraph 3.12.2 which covers controlled shrinkage grout. Paragraph 3.12.2, however, states mixing shall be by paddle mixer or by truck, which contradicts paragraph 3.10.2.

Detailed instructions for hand mixing were not included in 3.10.2 except to require thorough mixing of the ingredients - cement, sand, and water.

Corrective Steps Taken and Results Achieved:

1. Deviation Notice No. 2 was written to TP-32, Rev. 5, establishing procedural requirements for inspection and documentation of bolt holes sizes on August 26, 1983 and is now being used by field inspection personnel. DR-AS-300 was written on September 1, 1983 addressing the possibility that high strength bolts may have been installed in oversized holes without the required hardened washers over the holes. PW-AS-3624 was approved on September 1, 1983 resolving this discrepancy.

2. Procedure WP-29 was revised by Procedure Deviation Notice No. 6 on August 23, 1983 to delete requirement for mixing dry pack grout with a paddle mixer. Deviation Notice No. 7 was approved on August 25, 1983 adding the requirement for thoroughly blending the sand and cement before water is added.

Corrective Steps Taken to Avoid Further Noncompliance:

1. TP-32, Rev. 6, approved on November 4, 1983, includes inspection for oversized holes in the erection phase and a check during the bolting phase for oversized holes which may result from reaming and drilling.
2. Work Procedure revisions. (See Corrective Steps Taken and Results Achieved.)

Date When Full Compliance Will Be Achieved:

Full Compliance was achieved on November 4, 1983.

(8515PSA cfr)