



united engineers & constructors inc.
30 South 17th Street
Post Office Box 8223
Philadelphia, Pa. 19101

August 17, 1982

Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Sir:

Subject: 10CFR21 Report of a Potential Defect Related to Carolina
Power and Light Company - Brunswick Station - Units 1 and 2

This confirms a telephone report of a potential 10CFR21 reported to the NRC at 11:01 a.m. on August 14, 1982. This report describes a condition found during analysis performed on a Main Steam and Attached Safety Relief Valve Discharge lines to incorporate transient loads developed from the Mark I Torus program. A review of the analysis input data indicated that a discrepancy existed in the orientation of a number of pipe support (snubbers) details and their representation in the analysis of record. This discrepancy resulted in pipe stress and support loads which did not jeopardize the structural adequacy of the piping system but exceeded the allowable limits.

Applicable details as required by 10CFR21, paragraph 21.21(b) (3) are contained in the attached report. This condition has been reported to Carolina Power and Light Company.

Very truly yours,

G. E. Sarsten
Vice President - Power

Attachment

copy: Regional Director
USNRC - Region 1

Regional Director
USNRC - Region 2

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NAME AND ADDRESS OF THE INDIVIDUAL OR INDIVIDUALS INFORMING THE COMMISSION

G. E. Sarsten, Vice President - Power
United Engineers & Constructors Inc.
30 South 17th Street
Philadelphia, Pa. 19101

IDENTIFICATION OF THE FACILITY, THE ACTIVITY, OR THE BASIC COMPONENT SUPPLIED FOR SUCH FACILITY OR SUCH ACTIVITY WITHIN THE UNITED STATES WHICH FAILS TO COMPLY OR CONTAINS A DEFECT

Brunswick Steam Electric Plant Units 1 and 2 of Carolina Power and Light Company

Stress in the Safety Relief Valve Discharge Line No. 124 and loads for the attached snubbers at data point Nos. 1073, 1037 and 1057. Pipe stress and snubber loads exceed the allowable limits although within structural integrity limits.

IDENTIFICATION OF THE FIRM CONSTRUCTING THE FACILITY OR SUPPLYING THE BASIC COMPONENT WHICH FAILS TO COMPLY OR CONTAINS A DEFECT

United Engineers & Constructors Inc., architect engineer

NATURE OF THE DEFECT OR FAILURE TO COMPLY AND THE SAFETY HAZARD WHICH IS CREATED OR COULD BE CREATED BY SUCH DEFECT OR FAILURE TO COMPLY

The orientation of a number of snubbers for the above mentioned main steam and attached safety relief valve discharge lines were found to deviate from the orientation considered for the pipe stress analysis. This deviation results in increased support loads and pipe stress when the proper orientation was accounted for in the pipe analysis. The corrected support loads and pipe stress level exceeded those permitted by the associated allowable limits; however, this condition was analyzed to not affect the structural integrity of the piping system.

THE DATE ON WHICH THE INFORMATION OF SUCH DEFECT OR FAILURE TO COMPLY WAS OBTAINED

August 12, 1982

IN THE CASE OF A BASIC COMPONENT WHICH CONTAINS A DEFECT OR FAILS TO COMPLY, THE NUMBER AND LOCATION OF ALL SUCH COMPONENTS IN USE AT, SUPPLIED FOR, OR BEING SUPPLIED FOR ONE OR MORE FACILITIES OR ACTIVITIES SUBJECT TO THE REGULATION IN THIS PART

This defect applies to only the Brunswick Steam Electric Plant Units 1 and 2.

THE CORRECTIVE ACTION WHICH HAS BEEN, IS BEING, OR WILL BE TAKEN:
THE NAME OF THE INDIVIDUAL OR ORGANIZATION RESPONSIBLE FOR THE ACTION: AND
THE LENGTH OF TIME THAT HAS BEEN OR WILL BE TAKEN TO COMPLETE THE ACTION

Corrective Actions

1. Have assured that the line and the snubbers subject of the reported deficiency were within limits which assure structural integrity.
2. Have evaluated the extent of the snubber misorientation conditions and identified the additional systems which may have the potential to be affected by similar problems.
3. Have performed a preliminary evaluation of the additional systems identified in (2) above and estimated that if deficient conditions will be identified, they will be within structural integrity limits.
4. Will reanalyze the systems identified in (2) above and evaluate the adequacy of the piping and associated support designs.
5. Will develop the appropriate support modifications if required.

Further details on the corrective actions taken to date are contained in Enclosure 1.

Name of the Organization Responsible for Corrective Action

Power Division of the United Engineers & Constructors Inc.

Length of Time that Will Be Taken To Complete the Action

By October 15, 1982

ANY ADVICE RELATED TO THE DEFECT OR FAILURE TO COMPLY ABOUT THE FACILITY, ACTIVITY, OR BASIC COMPONENT THAT HAS BEEN, IS BEING, OR WILL BE GIVEN TO PURCHASERS OR LICENSEES

Carolina Power and Light Company was advised by UE&C on August 13, 1982.

10CFR21 Report of a Potential Defect Related to Snubber Misorientations
in the Brunswick Station Units 1 and 2 - Carolina Power and Light Company

Corrective Actions Taken To Date

- a) The system affected by the subject deficiency has been reanalyzed with the corrected snubber orientations. The analysis of the Safety/Relief Valve Discharge (SRV) Sheet 124 included the attached SRV Sheet 126, the Main Steam (MS) Sheet 14 and the High Pressure Core Injection (HPIC) Line. The results indicated that the maximum stress level and loads in some snubbers (at data point Nos. 1073, 1037 and 1057) in the SRV Sheet 124 exceeded the allowable limits but were within levels which assure the system's structural integrity. The other attached lines were all within the allowable stress limits.
- b) An evaluation to determine the extent of the snubber misorientation was performed.
 - o In the drywell, 16 additional sheets (representing worst and random conditions) were selected. Including the systems identified in (a) above, these systems contained 190 snubbers (approximately 70% of the snubbers in the drywell). Of these 190 snubbers, 29 snubbers were found with orientations exceeding the allowed tolerance and improperly represented in the piping analysis. Of these 29 snubbers, 8 have already been addressed in the reanalysis of the 3 sheets noted in a) above and the RHR Sheet 25 (see d below). Of the remaining 21 only 2 snubbers had misorientations of the magnitude which caused the deficiency described in (a) above. (The sheets containing these snubbers are MS Sheets 15B and 15C.)
 - o In the reactor building, 9 sheets have been reviewed. These sheets included 150 snubbers (approximately 40% of the snubbers outside the drywell). Of these snubbers only 5 snubbers were found with minor misorientations.
- c) An evaluation of the effect due to the finding in (b) above has been performed and it has been determined that the following additional sheets have the potential for being affected by the snubber misorientations and will be reanalyzed. These sheets are:
 - Main Steam (MS) Sheet 14A (and attached Safety/Relief Valve Discharge (SRV) Sheets 119 and 127).
 - Main Steam (MS) Sheet 15B (and attached Safety/Relief Valve Discharge (SRV) Sheets 121, 122, 125 and 237).
 - Main Steam (MS) Sheet 15C (and attached Safety/Relief Valve Discharge (SRV) Sheets 120, 123 and 187).
 - Feedwater (FW) Sheets 16 and 160.

The above sheets account for the remaining 21 snubbers which were found to have angular deviations.

- d) It is evaluated that the reanalysis that will be performed on the above 14 sheets plus that already performed on the 4 sheets previously noted will adequately address the generic aspects of the reported deficiency. The following factors were considered to arrive at this conclusion.
- The severe case of misorientation which resulted in the subject reported deficiency was caused by Snubber 1073 in the SRV Sheet 124. That case appears to be an error. No similar cases were found in the other 10 SRV sheets which include 81 snubbers.
 - The other cases with sizable misorientation were detected in lines routed horizontally and parallel to the drywell wall, therefore, with long radius of curvature (such as portions of MS and FW sheets). In these cases, apparently some problem was encountered in reconciling transverse and parallel (to pipe) snubber installations with the N-S, E-W coordinate system used in the analysis.
 - Only a few cases with minor misorientations were found in systems inside the drywell which do not have the layout condition mentioned above (RHR Sheet 25, SLC Sheet 36, SRV Sheets 119, 120, 121, 122, 123, 125, 126, 127, 237 and 187). The same applied to the sheets reviewed outside containment (Sheets 37, 63, 4, 10, 18, 23, 38, 62 and 82). RHR Sheet 25 was selected for reanalysis as a typical line with minor deviations on the basis that none of the lines reviewed from outside the containment had greater snubber angular deviations. This reanalysis did not result in any conditions exceeding allowable limits. Therefore no further reanalysis will be performed on the lines outside the containment.
- e) A preliminary evaluation of the systems identified in (c and d above) has been conducted including a preliminary reanalysis of Sheets 15B and 15C which contained the larger snubber misorientations. Based on the results of these analyses and on knowledge of existing design margin and conservatisms inherent in the present analyses, it has been estimated that no conditions exceeding structural integrity limits will be found.