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Docket Numbers 50-508 and 50-509

January 7, 1982
G03-82-08

U. S. Nuclear Regulatory Commission, Region V
Office of Inspection and Enforcement
1450 Maria Lane, Suite 260
Walnut Creek, California 94596-5368

Attention: Mr. B. H. Faulkenberry
Chief, Reactor Construction Projects Branch

Subject: PROJECT NOS. 3 AND 5
DOCKET NUMBERS 50-508 AND 50-509
FINAL REPORT OF POTENTIAL 10CFR50.55(e)
UNDERSIZED RAB COLUMN (CAN 5036)

In accordance with the provisions of 10CFR50.55(e), Region V was notified on August 7, 1981 that a potential deficiency associated with an undersized structural steel column was found.

Attached is a Supply System approved final report that provides a description of the deficiency, an analysis of the safety implications and corrective actions taken. Based on this evaluation, it is considered that the subject condition would not adversely affect the safe operations of the plant and, therefore, is not reportable in accordance with 10CFR50.55(e).

Should you have any questions or desire further information, please contact me directly.

R. S. Leddick/1000
Program Director, WNP-3/5

DRC/tt

Attachment

cc: J. Adams - NESCO-WO/A
D. Smithpeter - BPA-WO/A
Ebasco - New York-WO/A
WNP-3/5 Files - Richland-WO/A

FOR SIGNATURE OF: RS LEDDICK
AUTHOR: DR COODY:tt
SECTION:

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

WPPSS NUCLEAR PROJECTS NO. 3 & 5

ENGINEERING FINAL REPORT

Undersize RAB Column
(MK-B32A)

December 15, 1981

10 CFR 50.55e - D/N #036

PREPARED BY

Glen Ellis 12/15/81

Glen Ellis

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ABSTRACT

This report addresses the finding of one (1) undersized structural steel column installed in the WNP-3 Reactor Auxiliary Building. The installed column was found to be a W14 x 233 instead of a W14 x 257 as required by the design drawing.

The column has been strengthened by welding a one (1) inch thick plate to the column web.

A field verification check of forty-five erected columns and twenty-thre erected beams was performed and no additional undersize members were discovered.

The vendor, Isaacson Steel performed an investigation and reports that this occurance is an isolated case. In addition, Isaccson has revised their receiving inspection procedure to require dimensional checking of material on receipt from their suppliers.

It is considered that this nonconforming condition does not constitute a "significant deviation" as defined by 10 CFR 50.55e.

DESCRIPTION OF THE DEFICIENCY AND ITEMS OF CONCERN

During the course of erecting building steel in the Reactor Auxiliary Building, the erection contractor, Morrison-Knudsen, Inc., (M-K) found a dimensional discrepancy in Column Mark No. B-32A. The fabricator of this column is Isaacson Steel Company of Seattle, Washington. This column section is located at column lines P-4Z and extends from El 391.50 to El 419.00.

The Ebasco design drawing requires a W14 x 257 section at this location. The Isaacson Steel documentation indicates that a W14 x 257 section was supplied.

On July 29, 1981, M-K initiated an NCR stating that the column dimensions were not in conformance with "American Institute of Steel Construction" (AISC) milling tolerances. Subsequent investigation determined that this member was in fact a W14 x 233 and not a W14 x 257.

Since the problem was not a violation of the AISC milling tolerances, a second NCR was initiated by EBASCO on August 7, 1981 to correctly identify the nonconforming condition.

The items of concern were as follows:

1. Since the cross sectional area, and section modulus of the W14 x 233 are approximately 10% less than the corresponding properties of a W14 x 257, it was necessary to evaluate the installed column's ability to withstand the design loads.

2. Since the depth of the W14 x 233 is 3/8 inch less than the depth of a W14 x 257, it was necessary to re-detail the column splice connection at El 419.00.

3. Since Isaacson Steel supplies a large amount of structural steel to the project, it was essential to determine whether the problem was generic or an isolated case.

ANALYSIS OF THE SAFETY IMPLICATIONS

To determine if this deficiency is "significant" as defined by 10 CFR 50.55 (e), an evaluation was performed to determine if the W14 x 233 would be overstressed at the maximum design loads. Ebasco calculations show a design load of 991 kips and an unsupported length of 27.5 ft. According to the AISC "Manual of Steel Construction" the maximum allowable load for a W14 x 233 with an unsupported length of 28 feet is 1037 kips. Even if the undersize column had not been detected the condition would not have adversely affected the safety of operations of the plant at any time throughout the expected lifetime of the plant. Therefore, the deviation is not "significant".

CORRECTIVE ACTIONS TAKEN

1. Ebasco Engineering has determined that the column should be strengthened with a plate 1"x8"x21'-4 fillet welded to the west side of the column web to be consistent with the original design approach. This repair work has been completed by M-K.

2. Ebasco Engineering has determined that the splice connection at El 419.00 should be revised by adding a shim plate 1/4"x8"x12" on the outside of both column flanges. This repair work has been completed by M-K.

3. Ebasco Construction conducted a field verification check on forty-five erected columns and twenty-three erected beams supplied by Isaacson Steel. No additional members were determined to be undersize. Two columns (Marks F-43A and B-27B) were determined to have flanges which exceed the AISC tolerance for squareness. These two columns have been addressed on a redisposition of Ebasco's NCR.

4. Isaacson Steel conducted a review and investigation of their in-house material control procedures. Results were reported to Ebasco in a letter that indicated that the section was rolled by Bethlehem Steel as a W14 x 233 but was inadvertently identified on the documentation as a W14 x 257. Isaacson Steel purchased the member from Bethlehem and did not detect that it was in fact a W14 x 233. Isaacson states "This was a unique problem and due to its one-of-a-kind nature, no further problems are foreseen".

   To prevent recurrence, Isaacson Steel revised their "Receiving Inspection Procedure". The procedure now states "A dimensional check of the cross section shall be performed on at least one of each size of wide flange beam received. The dimensions must be within allowable AISC dimensional tolerances". This procedure change will reduce the possibility that an undersize member will inadvertently be provided by Isaacson Steel.