

FROM

PENNSYLVANIA POWER & LIGHT COMPANY

TO

IE (THORNBURG)

CLASSIF

U

POST OFFICE

REG. NO

DESCRIPTION: (Must Be Unclassified)

50-387-388 SUSQUEHANNA STEAM ELECTRIC STATION, INTERIM REPORT OF REPORTABLE DEFICIENCY BOX COLUMN SUPPORTS.

ENCLOSURES.

COPIES FOR PDR LOCAL PDR, NSIC, AND DTIE SENT TO REGIONAL COORDINATOR FOR DISTRIBUTION.

REMARKS

COPY SENT TO REGION I
COPY SENT TO R. A. HARTFIELD

DATE OF DOCUMENT

7/25/75

DATE RECEIVED

7/28/75

NO

50597

LTR.

MEMO.

REPORT

OTHER

X

ORIG.

CC.

OTHER:

X

ACTION NECESSARY

CONCURRENCE

DATE ANSWERED

NO ACTION NECESSARY

COMMENT

BY:

FILE CODE:

REFERRED TO

DATE

RECEIVED BY

DATE

DREHER

FAD 8/1/75

Please distribute

FAD

Sent 8/1/75

July 25, 1975

Mr. J. P. O'Reilly
Director - Region I
U.S. Nuclear Regulatory Commission
931 Park Avenue
King of Prussia, Pennsylvania 19406

SUSQUEHANNA STEAM ELECTRIC STATION
INTERIM REPORT OF REPORTABLE DEFICIENCY
BOX COLUMN SUPPORTS
DOCKET NOS.: 50-387 and 50-388
LICENSE NOS.: CPPR-101 and CPPR-102
ERs 100450/100508 FILE 840-4
PLA-74

Dear Mr. O'Reilly:

This relates to an "unusual occurrence" which was reported to the assigned Regulatory Inspector, Mr. J. Mattia, in the course of his unannounced inspection visit of May 19-23, 1975 (Reference: IE:I Reports No. 387/75-06 and 388/75-05). The inspector was informed that linear indications had been discovered during a visual inspection of the weld joints of two box column support bases. It was also stated that the significance of these indications was being evaluated to determine their reportability under the provisions described in Title 10, Code of Federal Regulations, Part 50, Section 50.55(e).

This evaluation has been completed by PP&L and its Contractor (Bechtel) and it has been concluded that the structural components, which have been established as being defective, represent a deficiency in construction (fabrication) which will require extensive repair or redesign and replacement; and which, were the deficiencies to have remained uncorrected, could have an adverse effect on the structure in the performance of its intended safety function (Ref. 50.55, (e), (iii)).

PP&L expects to submit a definitive report of the deficiency and safety implications and the elected course of corrective action within the 30-day period prescribed by the referenced regulation. Should it, at any time, be discovered that this schedule cannot be met, you will be promptly informed.

910
4

Mr. J. P. O'Reilly

PLA-74

Page 2

The following is an account of relevant details which led to the discovery of the deficiency, the investigations pursued and the data which has been established to date:

1. In the course of conducting random, impromptu monitoring of installed structures of SSES Unit 1, PP&L, Nuclear Quality Assurance noted, visually, the appearance of welds on four (4) box column bases and questioned their compliance with AWS D1.1. PP&L Deficiency Report No. 0022 was issued to document the condition.
2. Subsequently, closer scrutiny revealed the existence of a visible discontinuity at the toe of a full penetration weld joining a stiffener member to the vertical box section of Box Column Support S-27.5. The condition was noted and identified on Bechtel NCR 376 as being suspect and requiring further examination by nondestructive examination (NDE). Since ultrasonics had been required in the purchase documents, this technique was required to be employed again.
3. Further, this discovery instigated additional visual examinations of the remaining seven (7) similar items. The additional visual examinations revealed a similar suspect condition on support Q-36. NCR 377 documented the condition. Further examinations were pursued utilizing ultrasonics.
4. The investigation of the referenced supports was performed by Bechtel's NDE subcontractor. Ultrasonics revealed that, for support S-27.5, a defect was present and varied in depth from surface to 1-3/8" depth and was approximately 37" long. For support Q-36, the defect depth varied from surface to 1-1/4" depth and was approximately 27" long.
5. Based on these preliminary results, the steel fabricator, Bethlehem Steel Company, Pottstown Plant, was notified and enlisted to perform UT reexamination of all eight (8) of the Box Column Supports which had been installed in their respective locations for Units 1 and 2. The supplier's reexamination produced evidence of one additional defect in the vicinity of the toe of the weld joining a stiffener to the box section of support Q-22. For support Q-22, the defect varied in depth from 1/2" to 1-3/4" by 37" long and terminated behind the weld into the base material of the box section. NCR 401 was issued to document the condition.



Mr. J. P. O'Reilly
PLA-74
Page 3

6. During UT examination of the eight (8) supports, it was determined that additional indications (interpreted subsequently as lamellar tearing) existed in the base material in the vertical plate members of box sections in four (4) locations. NCR 402 was issued to document the existence of the indications found on Box Column Supports Q-22, Q-36, S-30.5 and S-36.
7. Bechtel has investigated the design bases and through its investigation concludes that the columns, even with the identified deficiencies, would have sustained the loads for which they were originally designed. However, on the basis of conservatism and the lack of absolute assurance that the defects would not propagate further, we have decided to replace the column bases.

Regarding the nature of the defects, lamellar tearing which is suspected, is a phenomenon which has received attention in the industry fairly recently and therefore, several aspects of this phenomenon are not yet fully defined and understood. Evaluation by metallurgists from Bechtel's MF&QCS Department and from Bethlehem Steel Corporation indicate that most probably the lamellar tears will not propagate any further since the stress (probably due to weld shrinkage) is relieved due to lamellar tearing and since, during the service condition, a direct tensile load will not be applied to the affected area. However, it is not possible to provide an absolute assurance that the lamellar tears will not propagate at all during the life of the plant. Under the circumstances, we have to conclude that if the deficiency had remained uncorrected, and if it is assumed that the lamellar tearing would have propagated extensively, then this deficiency may adversely affect the structural integrity of the plant. Therefore, we have considered this deficiency to be "reportable" in accordance with paragraph (e) of 10 CFR 50.55.

Since discovery of the reported deficiencies, all items have been properly identified and tagged to preclude continuation of any work which would have made the supports inaccessible for further examination.

Discussions are underway between PP&L and Bechtel to disposition the Nonconformance Reports referenced. These dispositions will provide the basis for corrective action and will be indicated in the formal report to the Commission in satisfaction of the stipulated requirements of Part 50.55(e).



Mr. J. P. O'Reilly
PLA-74
Page 4

Because of the indeterminate nature of the lamellar tearing phenomenon and the inherent risks in attempting repairs, we expect to replace all 8 column support bases with 8 new supports even though the NDE inspection has established that 3 of the 8 original supports had no discernable defects.

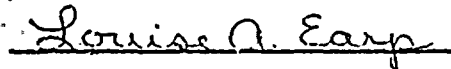
We trust this information adequately addresses the interim reporting requirements of 10 CFR 50.55(e) and await your acknowledgement or advice of additional requirements.

Very truly yours,



N. W. Curtis
Vice President - Engineering and Construction

Sworn to and subscribed before me this 25th of July, 1975.



Notary Public

My commission expires:

July 17, 1978

ARS:b

cc: Mr. Donald F. Knuth
Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555