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 RECIPIENT AFFILIATION: Region 1, Philadelphia, Office of the Director

DOCKET #
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SUBJECT: Final deficiency rept, originally reported on 800520, re improper use of stress isometric drawings for installation, identification & insp of pipe supports. Caused by lack of design output info. Bechtel will issue monthly updates.

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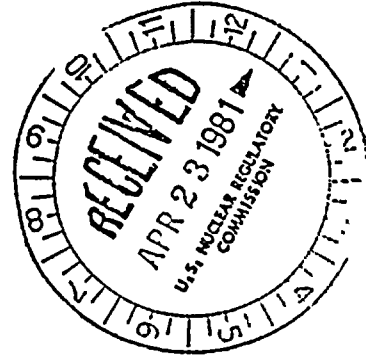
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NORMAN W. CURTIS
Vice President-Engineering & Construction-Nuclear
770-5381

April 21, 1981

Mr. Boyce H. Grier
Director, Region I
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406



SUSQUEHANNA STEAM ELECTRIC STATION
FINAL REPORT OF A DEFICIENCY RELATING
TO USE OF STRESS ISOMETRICS TO LOCATE
PIPE SUPPORTS
ER's 100450/100508 FILES 840-4/900-10
PLA-711

Reference: PLA-486 (5/20/80)

Dear Mr. Grier:

This letter serves to provide the Commission with a final report of a deficiency relating to the use of uncontrolled stress isometric sketches to locate pipe supports. This deficiency was originally reported in PLA-486 and the information contained herein is submitted as a final report pursuant to the provisions of 10 CFR 50.55(e).

The attachment to this letter contains a description of the problem, its cause, safety implications, and the corrective action taken and planned to preclude recurrence.

We trust the Commission will find the information forwarded by this letter to be satisfactory.

Very truly yours,

Handwritten signature of Norman W. Curtis in cursive.

N. W. Curtis
Vice President-Engineering & Construction-Nuclear

WHG/RAS:sab

Attachment

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Mr. Boyce H. Grier

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April 21, 1981

cc: Mr. Victor Stello (15)
Director-Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. G. McDonald, Director (1)
Office of Management Information & Program Control
U. S. Nuclear Regulatory Commission
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Mr. Gary Rhoads
U. S. Nuclear Regulatory Commission
P.O. Box 52
Shickshinny, PA 18655

1. Introduction

This deficiency relates to the improper use of stress isometric drawings for the identification, installation and inspection of pipe supports required within a pipe support system.

2. Description of Problem and Safety Implications

Stress isometrics are defined as internal Bechtel Engineering design coordination documents used to define pipe stresses under various loading conditions and to provide load definition for the performance of pipe support design. This pipe support design activity results in pipe support detail drawings which when "Approved for Construction," are issued to Bechtel Construction for pipe support fabrication, installation and inspection. A pipe support detail drawing provides the required information to locate, fabricate and install a unique pipe support. Stress isometrics are not "Approved for Construction" nor are they intended for use in fabrication, installation or inspection of pipe supports.

The deficiency was the improper use of pipe stress isometric drawings by Bechtel Field Engineering in the absence of suitable design information issued for construction to identify - to Bechtel Quality Control - those pipe hangers required to support a given piping system.

As described above, the stress isometric drawings present conceptual design information in terms of support systems for piping and therefore should not be taken as representative of the support system as designed and issued for construction at any given time in the pipe system installation and inspection process.

It was determined that the use of stress isometrics to accomplish Quality Control inspections for piping systems was a direct consequence of Engineering's failure to issue design configuration information sufficient to facilitate the identification of pipe supports required in a given system. This could have adversely affected the quality of installed safety related systems.

3. Cause of Deficiency

The improper use of stress isometrics was caused by a lack of sufficient design output information issued to the field forces to accomplish identification of the intended pipe hanger systems' configurations. Because of the difficulty encountered in identifying and assembling all the various design documents required to completely define the required pipe hanger configuration, field forces elected to use the stress isometrics. Stress isometrics had been transmitted to the jobsite by Bechtel Project Engineering for Field Engineering "information only".

4. Corrective Actions

To facilitate the process for field determination of required pipe system support configurations, Bechtel Project Engineering has issued, and has committed to provide monthly updates of, indices showing the pipe support design drawings and their current revisions issued in support of any given piping system. With this new design configuration information, the field forces will be able to readily assemble the individual pipe support fabrication and installation drawings for a given piping system. The stress isometrics will be used only for engineering information as intended.

5. Conclusion

The corrective actions, as described above, have satisfactorily corrected the cause of the deficiency and will preclude its recurrence.

In addition, the turnover process requires verification that Bechtel QC has completed an inspection of each hanger on the piping system being turned over. Hangers installed for which QC inspection is not complete or has not been initiated will be identified as exceptions in the turnover package. Existing procedures are in place to control the completion of turnover exception items. This process will provide assurance that all installed, safety-related pipe hangers are inspected using the current Bechtel Project Engineering pipe support system indices.

The current "as built" piping system program requires Bechtel Engineering review and approval of "as-built" piping system and pipe support drawings prepared and submitted by Field Engineering. This program will identify any deficiencies that may exist and corrective action will be taken through Bechtel Engineering revisions to the appropriate design drawings. We expect any necessary corrections resulting from "as-built" reviews will be complete prior to fuel load.

The "as-built" program will result in finalized stress isometrics representative of the physical piping systems as installed and will provide a final Bechtel Engineering review and analysis to verify that piping systems, as installed, are in compliance with design criteria.



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