INDIANA & MICHIGAN ELECTRIC COMPANY

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October 29, 1982
AEP:NRC:0691A

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
IE INSPECTION REPORTS NO. 50-315/82-07 AND NO. 50-316/82-07

Mr. James G. Keppler, Regional Administrator
U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Reference: Letter No. AEP:NRC:0691 Dated June 7, 1982

Dear Mr. Keppler:

This letter and its Attachment are the interim report on the verification program being performed in response to Item 1.C of the subject Inspection Report. The final report will be submitted by January 31, 1983 as noted in the above reference.

This document has been prepared following Corporate Procedures which incorporate a reasonable set of controls to insure its accuracy and completeness prior to signature by the undersigned.

Very truly yours,

R. F. Hering
Vice President

/os
cc: John E. Dolan - Columbus
R. S. Hunter
M. P. Alexich
R. W. Jurgensen
W. G. Smith, Jr. - Bridgman
R. C. Callen
G. Charnoff
Joe Williams, Jr.
NRC Resident Inspector at Cook Plant - Bridgman

Heat Removal - Pump Disharge System in the Auxiliary Building), was affected. Correction of the code error resulted in higher loads on two supports. These higher loads are within the allowable limits of the hanger. No changes to the hangers are required and the affected drawings have been updated to show the revised loading.

References: (1) Letter No. AEP:NRC:0691 Dated June 7, 1982
(2) Letter No. AEP:NRC:0691A Dated October 29, 1982

Attachment to
AEP:NRC:0691A

1.0 Introduction

The following actions have been taken in order to ensure that all outside vendors who performed calculations for AEPSC as part of the IEB 79-14 effort, did so under a QA program comparable to that existing in AEPSC for the same purpose:

a) AEPSC has re-reviewed the consultant's procedures for analysis which were in effect at the time the work was in progress.

b) The qualifications of personnel who performed the work have been reviewed.

c) An audit was conducted to verify that calculational procedures were followed and that problem inputs and outputs are correct.

The above three actions have been carried out for the four outside consultants discussed in IE Reports No. 50-315/82-07 and No. 50-316/82-07, i.e. ATI, EDS, Harstead and Teledyne.

The following list of problems were randomly selected and audited as per (c) above to verify that they were performed in an acceptable manner.

Problem No.	System Identification	Firm Performing The Analysis
1-030	Containment Spray	EDS
1-111	Essential Service Water	EDS
2-146	Essential Service Water	EDS
2-154/154X	Reactor Letdown & Charging	EDS
1-055	Component Cooling Water	ATI
1-207	Chemical & Volume Control	ATI
2-274	Reactor Coolant Temp. Instrumentation	ATI
2-1013	Hydrogen Skimmer	ATI
1-136	Auxiliary Feedwater	Teledyne
1-133	Auxiliary Feedwater	Harstead

The number of problems audited for each consultant is consistent with Mr. I. Yin's recommendation.

2.0 Verification Program Discussion and Results

As explained in Section 1.0, the purpose of this program was to ensure that our consultants had performed their calculations following acceptable QA procedures and to verify the results in a selected sample.

a) During the original IEB 79-14 re-evaluation program, EDS coordinated their work with AEPSC in accordance with approved instructions. EDS performed the computer re-analysis of those problems evaluated by their team, following instructions entitled "D. C. Cook Plant NRC. Bulletin 79-14 Reanalysis". EDS evaluated pipe supports following instructions entitled "Criteria and Procedure for Evaluation of Supports and Restraints for Donald C. Cook Nuclear Plant." These instructions are in our files, have now been re-reviewed and found to be acceptable in accordance with AEPSC criteria. The final reports of the other three consultants contained specifications that were applied during their analysis work and which are consistent with the AEPSC requirements for such work. During the period when the work was being performed, we held meetings, provided verbal instructions and discussed the problems and progress via frequent telephone conversations with these consultants. AEPSC design specifications, original stress summary and load summary sheets were provided to these consultants at the start of their evaluation program. This documentation provided our consultants with the design requirements.

We are now in the process of securing written statements from the above consultants stating that they did follow our criteria for re-analysis when performing the original IEB 79-14 analyses. These written statements will be documented as part of the I.E. Bulletin 79-14 program in Procedure No. 79-14-5A, "Procedure and Specifications for Consultants for Piping System Selected for Computer Re-analysis".

b) Personnel qualifications were found to be adequate for all consultants.

c) The ten problems noted in Section 1.0 were each verified in accordance with AEPSC Procedure No. 79-14-10 and found to have incorporated proper calculational procedures. Input and output were found to be acceptable. Details of each verification are documented with the exception of supervisory approvals which are in progress. Small variations were found in the analyses and are noted below:

1) In most cases design temperature was used in the thermal analysis instead of the system operating temperature. Use of these values produced conservative results.

2) In one case a deviation of 23% in the pipe unit weight input was found. This isolated case was due to the weight of the insulation which was based on the design temperature (650°F) instead of the operating temperature (130°F). Input of this larger mass value gave conservative results.

3) Small root valves for vents and drains were omitted from the analyses by ATI, based on the typical industry

practice for systems built to ANSI B31.1 1967 code. Discussions with ATI disclosed that engineering judgement was used to evaluate the impact of these appendages in each particular case, and that omitting them does not have any significant effect on the main system. AEP's verification concurs with this engineering judgement.

4) For dead-weight analyses, EDS did not include horizontal restraints. This followed the practice established for the original analyses, which was based on the industry-wide approach of installing piping by "hanging" on vertical supports and then adding the horizontal restraints afterwards. While this is not typical of current practice, the effect on the analytical results is insignificant.

5) In problem No. 1-030, EDS inputted an existent "gap" at a "rigid" support to reduce thermal restraint effects in one location. This gave lower thermal stresses at that location than a conventional input, which assumes full rigidity at all "rigid" supports. EDS considers that this will not adversely affect the pipe stress analysis.

We consider all these variations to have no effect on earlier results and, therefore, consider at this point that the consultants' work was performed in an acceptable way. A final report will be transmitted to you by January 31, 1983.