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ANPP 31842-MPH/MAJ

REGION VICE

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U. S. Nuclear Regulatory Commission
Mr. D. F. Kirsch, Acting Director
Division of Reactor Safety and Projects
Region V
1450 Maria Lane, Suite 210
Walnut Creek, CA 94596-5368

Subject: Palo Verde Nuclear Generating Station
(PVNGS) Units 1, 2 and 3
Docket Nos. STN 50-528 (Lic. No. NPF-34)/529/530
ANPP Response to Design Review Questions
File: 85-056-026, D.4.33.2

Reference: Letter from E. E. Van Brunt, Jr. (ANPP) to
D. F. Kirsh (NRC), dated December 14, 1984
(ANPP-31473) ANPP Response to Design Review Questions

Dear Mr. Kirsch:

During the review of the pipe stress calculations for the Auxiliary Feedwater System; in conjunction with resolving some concerns of NRC Region V, it was discovered that in some cases the designer did not consider vertical uplift or did not document that vertical uplift was considered in the design. It appears that the root cause for this condition is an omission, i.e., the procedure did not require the evaluation of the vertical uplift in accordance with the project design criteria.

A review of 100 percent of the applicable Unit 1 safety-related supports has been conducted to ensure that there are no safety significant uplift forces which would require modification to the existing pipe supports. No cases were found where stresses in the pipes exceed allowable code values. Thus no safety significant condition exists and no field modifications to existing pipe supports are required for any of the units. The results of the analysis appear in Calculation 13-MC-ZZ-547.

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In the referenced letter, we stated that we had asked Bechtel to determine if errors similar to those found in the pipe stress calculations for vertical uplift could occur in any other project uplift calculations, and if the root cause was transportable to other design calculations.

To determine if the failure, to address vertical uplift forces was generic to other disciplines, those areas where the engineers perform a similar analysis as that done for supports for piping systems were identified. Our review shows that the only area where this occurs is in the Civil/Structural design of supports for HVAC Duct Systems, Electrical Raceway Systems, Instrumentation Systems, and Equipment Tie Down. Design calculations and drawings in these areas were reviewed and in all cases it was found that the supports and equipment are designed to withstand uplift forces.

The review of these items was conducted by engineers on the project who were not directly involved in the original design. A further check of this review was made by Bechtel Civil/Structural staff personnel who were not directly involved in the PVNGS design process.

Based on the detailed review discussed above, we believe that errors similar to the one discovered in the Plant Design discipline have not been repeated in the Civil/Structural calculations.

To determine if this root cause is transportable to other design calculations where the individual design may not have considered all project approved criteria; a review of sample calculations for each of the various disciplines was conducted. No errors or omissions in the application of project design criteria were discovered. The calculation reviews were, for the most part, conducted by Senior Bechtel, ANPP, or staff personnel.

SUMMARY

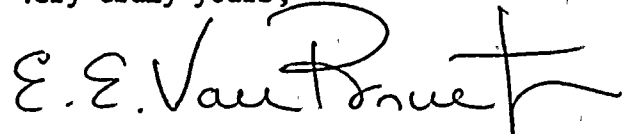
1. Based on the analysis contained in Calculation 13-MC-ZZ-547, the piping systems, as constructed, are safe and no field modifications to existing pipe supports are required for any of the units.
2. Other project calculations which consider vertical uplift in the design have been reviewed. Errors similar to those discovered in the Plant Design discipline pipe stress calculations have not occurred in the other project calculations. Preliminary review of other Bechtel nuclear projects indicates that this root cause is unique to Palo Verde. However, a Bechtel Problem Alert is being issued to other projects.

3. Project calculations were reviewed for transportability of the root cause to other design calculations. As a result of our review of all the disciplines on the project, we have concluded that the project approved criteria has been properly implemented. We believe that all the calculations are correct and in order.

We believe that this provides sufficient information to close out our action item in the referenced letter and subsequent discussions with the NRC on December 18, 1984, in which we committed to address Item 6 of the referenced letter by January 31, 1985.

Should you require any further information, please advise.

Very truly yours,



E. E. Van Brunt, Jr.
APS Vice President
Nuclear Production
ANPP Project Director

EEVBJr/MAR/dh

cc: E. A. Licitra
R. Zimmerman
J. Crews - NRC Region V
A. C. Gehr

1. The first part of the report is a general
description of the project and its objectives.
2. The second part is a detailed description of the
methodology used in the study.

3. The third part is a description of the results of the study.
4. The fourth part is a discussion of the results and their implications.
5. The fifth part is a conclusion and a list of references.

6. The sixth part is a list of references.
7. The seventh part is a list of references.

8. The eighth part is a list of references.
9. The ninth part is a list of references.

10. The tenth part is a list of references.
11. The eleventh part is a list of references.