

Washington Public Power Supply System

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March 16, 1983
G01-83-0099

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Nuclear Regulatory Commission
Region V
1450 Maria Lane, Suite 120
Walnut Creek, California 94596

Attention: D. M. Sternberg, Chief
Reactor Projects Branch No. 1

Subject: NUCLEAR PROJECT NO. 1/4
REPORTABLE CONDITION
LUMPED MASS PIPE STRESS ANALYSIS LOADS

Reference: A) G01-82-0064, Supply System to NRC, same subject,
dated March 5, 1982
B) G01-82-0568, Supply System to NRC, same subject,
dated September 20, 1982

In Reference A, the Supply System informed your office of a potentially reportable deficiency under 10CFR50.55(e) and Reference B was an interim report on the subject condition.

Attachment A to this letter contains an updated description of the deficiency and the actions being taken by the Project to verify the safety significance of the deficiency.

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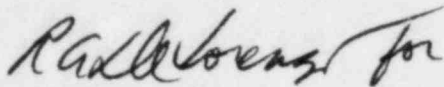
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Based on the current WNP-1 slowdown, it is still not possible to provide a final completion date for the analysis verification. The analysis verification is not scheduled for completion until after construction restart. As a result, the Supply System will provide the next interim report when the analysis verification is completed or not later than construction restart.

If you have any questions or desire further information, please advise.



R. W. Root
Program Director

RWR:LCO:caa

Attachment

cc: JP Laspa, Bechtel (861)
V. Mani, UE&C (897)
V. Stello, Director of Inspection, NRC
A. Toth, NRC (917Q)
FDCC (899)
ORM (847)

ATTACHMENT A

WNP-1/4

DOCKET NOS. 50-460 AND 50-513

REPORTABLE CONDITION 10CFR50.55(e)

LUMPED MASS LOADING ON PIPING SYSTEM ANALYSIS

BACKGROUND

During a peer review conducted at the UE&C home office by the Supply System relative to the design of piping systems, it was determined that not all piping analyses had been performed in accordance with approved UE&C procedures. In particular, it was determined that the use of lumped mass loads was not, in all cases, applied in accordance with the applicable procedure. In one case, a lumped mass load was not applied at a change of direction in accordance with the applicable procedure which resulted in the ASME Code allowables being exceeded.

DESCRIPTION OF THE DEFICIENCY

The currently approved UE&C procedure for performing pipe stress analysis requires that between every two (2) supports and at a change of direction a lumped mass load is to be applied. Contrary to the procedure requirement, not all pipe stress analyses were performed in this manner. UE&C Engineering has stated that for the case between two supports, the deviations were conscious decisions made by the Engineer, however, no record of the assumption or the rationale to support the decision has been documented. The calculations in question had been checked and signed off by an independent second party. Under the current checking system, there is no specific requirement for the checker to verify the details of the dynamic modeling of the lumped mass loads. Verification of the model by the checker would have indicated whether or not lumped mass loads were accurately applied to the system.

SAFETY IMPLICATIONS

The selected pipe stress analyses originally examined by the Supply System during the peer review and identified as not being consistent with the procedure have been reanalyzed by UE&C Engineering to include the lumped mass criteria. It was confirmed that these as-designed systems were adequate, without any modification. However, the reanalysis did confirm that piping stresses and support loads did increase in some of the reanalyzed systems thus causing a degree of uncertainty as to whether design allowable limits will be maintained in all cases. Stress margins exist for piping and pipe support designs. The potential increases in piping stresses and pipe support loads were not expected to impact design adequacy. However, as noted above, the case involving failure to place a lumped mass load at a change of direction, did result in piping stresses that exceeded the ASME Code allowables at one node. This case may be isolated, but a random sample investigation cannot conclusively eliminate the potential for an isolated case; therefore, corrective actions will be taken as described below.

CORRECTIVE ACTION

The Supply System has identified the aforementioned discrepant conditions on Quality Finding Report (QFR) 99-1257 which was issued to UE&C on February 25, 1982. The recommended corrective action documented in the QFR assigned UE&C the task of reviewing all piping system analyses to identify which piping systems deviate from the criteria for assignment of lumped masses. Where discrepancies are noted, a reanalysis will be performed unless the mass changes are considered to be trivial. Resolution of trivial mass changes may be by parametric studies if design margins are demonstrated to be adequate. Further, the details of any parametric studies used as justification for reported analysis results must be made available to the Supply System for evaluation.

The QFR also addresses the procedural inadequacy of the current "checking" program and requires upgrading of the procedure and further training of personnel to attain compliance with ANSI N45.2.11.

STATUS

UE&C submitted their analysis procedure to the Supply System for review and has agreed to revise their procedure to incorporate the Supply System's comments. The revised procedure will be resubmitted for Supply System concurrence. Following resubmittal and concurrence, the Supply System will close the QFR.

Each piping system analysis package will then be updated to current procedural standards. If any loads are found which exceed the ASME Code allowables, the NRC will be notified.