

OCT 7 1983

MEMORANDUM FOR: James M. Taylor, Director, Division of Quality Assurance, Safeguards and Inspection Programs, IE

FROM: C. E. Norelius, Director, Division of Project and Resident Programs, Region III

SUBJECT: CALLAWAY INTEGRATED DESIGN INSPECTION

Your memorandum dated August 23, 1983, transmitted the Integrated Design Inspection (IDI) team's comments on the licensee's response to the IDI review at Callaway. Based on telephone discussions among Jim Konklin of this office, Dennis Allison of IE, Gordon Edison of NRR and Cliff Hale of Region IV, the following agreement: have been reached with regard to the review and close out of the various IDI team findings and unresolved items.

1. The IDI team findings and unresolved items which are not listed in Enclosure 1 to your memorandum do not require any follow up or review and are considered to be closed. In addition, it was agreed during the above telephone discussions that items F 3-3, F 4-7, F 2-6, and UI 3-2 of Enclosure 1 to your letter require no further review and are considered to be closed.
2. Region III will place all of the IDI team's findings and unresolved items not discussed in Paragraph 1 above into the Region III open item tracking system.
3. A meeting will be held with the licensee in approximately one month, with IE, NRR and Region III representatives present (and Region IV, if appropriate), to discuss all of the open findings and unresolved items.
4. Prior to the meeting with the licensee, team members (John Fair, Dennis Allison and Iqbal Ahmed) will review additional information which is available at Bechtel's Gaithersburg office regarding items F 5-1, F 5-3, UI 3-3, and UI 3-4, of Enclosure 1 to your memorandum.

B406070135 B40424
 PDR FOIA
 GARDEB4-187 PDR

RIII	RIII	RIII
Konklin/r1	Knop	Norelius
10/6/83		

5. Further information is required from the licensee, prior to the meeting, regarding items F 3-8, F 6-2, F 6-3, F 6-4, UI 3-1, UI 3-5, and UI 3-6. Region III will request that information from the licensee, after receiving specific details from Dennis Allison regarding the information required.
6. Region IV will assume responsibility for the follow up and close out of item F 4-6, which is identified as UI 4-6 in Enclosure 1 to your memorandum. Region III will issue an AITS request for Region IV to do so.
7. Items F 2-1 and F 2-7, which are licensing issues, will be reviewed and closed out by NRR. Region III will issue an AITS request for NRR to do so.
8. Following the meeting with the licensee, Region III will report the meeting results in the Senior Resident Inspector's next routine inspection report. That report will close out any items which can be closed as a result of the meeting and the pre-meeting Gaithersburg reviews, and will also include any items of noncompliance which we determine to be appropriate.

If you have any questions regarding the above, please call.

C. E. Norelius, Director
Division of Project and
Resident Programs

cc: D. P. Allison, IE
C. J. Hale, RIV
J. H. Neisler, Callaway SRI
E. L. Jordan, IE
J. G. Partlow, IE
G. T. Ankrum, IE
U. Potapovs, RIV
G. E. Edison, NRR
R. L. Spessard, RIII
R. C. Knop, RIII
A. B. Davis, RIII

Unresolved Item 3-1

The response did not address the concern. The concern involved the vector decomposition of a single direction of the seismic building response. Based on the discussion in the ME 101 users manual for skewed supports the computer program multiplies the building displacement by the support cosine vector to determine the movement along the support direction for input to the static displacement analysis. This procedure disregards the component of the building displacement perpendicular to the support direction (it should be noted that since this is vector decomposition of a single component of the building displacement, these components are perfectly correlated). The specific concern involves the method of solution used by the computer program to determine forces and moments in the piping system. If the program resolves the imposed displacement along the support axis back into the global system using the cosine vectors, the imposed global displacement will be less than the original building displacement and a fictitious displacement will be added to the perpendicular global direction (this could occur if the original resolution of the displacement perpendicular to the support axis was lost as stated above). The resolution of the issue should address the method used by the computer to for the forces and moments and, if the method involves simplifying assumptions such as disregarding a displacement component, the conservatism or lack of conservatism in the approach. An acceptable approach to resolution of the concern would be run a couple of simplified test cases to demonstrate that displacement output at the support point in the global directions matches the building input motion at the support point.

Unresolved Item 3-5

The response does not resolve the item. Test data on components as cited in NUREG/CR-0737 have demonstrated that some components such as welding tees have moment capacities equal to or greater than the attached straight pipe. The reduction procedure in TB-011 is not conservative for all components based on actual test results. Based on the response that the procedure was only used at elbows for Callaway, the design of the anchors is probably adequate. However, the procedure should be modified to reflect the actual data on other components.

Unresolved Item 3-6

The response does not resolve the item. The specific question of the stiffness at the support change ZFC-1191-MH has not been addressed. The concern did not raise the question of the general stiffness of major structural elements such as concrete shear walls, but involved the specific concern of I-beam members loaded in torsion. The issue of loading structural I-beams in torsion with pipe supports has been demonstrated to be a problem at some facilities because the structural designers were not aware of support requirements. The stiffness requirements in Specification M-217 define an interface between the piping and support designers to assure the piping analysis assumptions are appropriate. The support stiffness calculation should consider all elements in the load path unless these elements have been shown to have negligible effect on the calculation.

Finding 3-8

The response does not resolve the item. An example was given in the finding where the snubber stiffness was less than the associated support structural members and was less than the specification requirement. The same discussion in UI 3-6 also applies; that is, the stiffness requirements in the specification define an interface between piping and support designers. The stiffness calculation should include all significant contributions from the support.

Finding 6-2

The response does not resolve the item. The error identified in logic diagram J02AL01 should have been detected and corrected by the review process prior to issuance of the drawing. The fact that it was detected and corrected during the review of a subsequent revision to the drawing (issued during the NRC inspection) does not attest to the effectiveness of the original design review. Accordingly, the response should include a review of other logic diagrams against the applicable schematics to determine whether or not a systematic problem is present.