

Denton
1. Copy to Supervisor
2. Decker

May 20, 1982

50-373
~~50-374~~

Mr. L.O. DelGeorge:

Subject: Teledyne Open Item and Error Deviation
Reports for the LaSalle Independent
Design Review

Enclosed are copies of the response to the remaining items
transmitted to us by Teledyne.

Of the 51 items identified by Teledyne, we believe that only
five items are in the error/deviation category. The five items are OI-6,
E/D-8, E/D-9, E/D-11, and E/D-12. Furthermore, these five items are
relatively minor in nature, of limited scope, and therefore do not
constitute a concern with respect to the health and safety of the
public. Corrective action, and corrective action to prevent recurrence,
has been taken on these five items. None of the corrective action
required any field changes.

The 51 items also contain what appears to be seven duplicates.
They are OI-14, OI-15, OI-27, E/D-13, E/D-14, E/D-15, and E/D-18. We
believe we have provided sufficient information that effectively resolves
and dispositions the remaining 39 items.

You should transmit this information to Mr. Denton and
Mr. Keppeler.

B.R. Shelton 5/20

B.R. Shelton

BRS/bmb/1526L
cc: J. Flaherty (Teledyne)
R.H. Holyoak
T.E. Watts
C. Reed
J.J. Maley
B.B. Stephenson

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5/11*

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SARGENT & LUNDY
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TELEPHONE 312-269-2000

May 19, 1982
Project No. 4266-24

Commonwealth Edison Company
LaSalle County Station - Unit 1

Third Party Independent Review

Mr. B. R. Shelton
Project Engineering Manager
Commonwealth Edison Company
P. O. Box 767
Chicago, Illinois 60690

Dear Mr. Shelton:

Enclosed are 12 copies of Sargent & Lundy's responses to Teledyne's Open Item Reports 11, 23, 24, 25, 26, 27, 29 and 31, Error/Deviation Reports 11, 16 and 20 and a supplemental response to Open Item Report 9. This completes our initial response to Teledyne's letters of May 5, 11 and 12, 1982.

It is our understanding that Commonwealth Edison Company will distribute these simultaneously to Teledyne, the NRC and internally.

Yours very truly,

~~R. H. POLLOCK~~

R. H. Pollock
Mechanical Project Engineer

RHP:chm
In duplicate
Enclosures
Copies:
W. A. Chittenden (1/1)
E. V. Abraham (1/1)
G. C. Kuhlman (1/1)
R. J. Mazza (1/1)
E. B. Branch (1/1)
D. C. Haan (1/1)
W. G. Schwartz (1/0)
E. R. Weaver (1/0)
S. D. Killian (1/1)
File 85

COPY

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 4, 1982

Open-Item Report No.: 9

Reference: Subsystem RH-06, S&L Stress Report 4266-10, Revision 4

Statement: Reference pages 48 and 49 of S&L Stress Report, Revision 3: Three thermal expansion cases are listed on page 48 applicable to the fatigue analysis. Page 49 lists a thermal mode calling for the entire line (RH-06) to be at 550°F. How is this possible? Also, if entire line is 550°F, why are there zero thermal displacements given for Node 100? All these thermal flexibility cases were run on PIPSYS program; however, only the three correct cases, as listed on page 48, were applied to the Class 1 fatigue analysis.

Request: S&L should explain the note contained on page 49, and the questions contained above.

Supplemental Response

The note on the analytical drawing mode sheet for a transient analysis due to the valve opening was added by the system engineer to request the system analyst to evaluate this system for a hydraulic transient. The valve opening time of 20 seconds was of such a long duration that the system analyst did not need to analyze for it.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 4, 1982

Open-Item Report No.: 11

Reference: Subsystem RH-06, S&L Stress Report 4266-10, Revision 4

Statement: Pipe material for Line 1RH53B12 is specified as SA-106-GR. B. Spool piece drawing on page 35.17 of Revision 4 to Stress Reports calls for pipe material to be SA-333, GR.6. The Class 1 allowable values are identical for the two materials.

Request: S&L should define which material call-out is correct. The choice of material does not affect the analysis or evaluation but could affect fabrication and material requirements.

Response

The call-out on the spool piece drawing is the correct one, since the spool piece drawing reflects the installed condition. Therefore, there is no impact on material or fabrication requirements.

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Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 12, 1982

Open-Item Report No.: 23

Reference: TES Field Audit of LaSalle County Nuclear Power Plant, Unit 1

Statement: Supports RH-58-1005S and RH-B9-1002S were indicated as snubbers on the support drawings. The snubbers were removed in early February.

ECN No. M-659-LS supplied by S&L states that the snubbers are to be removed.

The ECN reason for this is "the snubber thermal displacement is less than 1/16" and is not required.

The "As-Built" configuration does agree with the latest ECR. However, TES requests analytical justification for the removal of these snubbers.

Request: Has S&L remodeled the piping system or reviewed the analysis to determine if the system is still acceptable for the seismic loads imposed? S&L is requested to supply analytical justification for the removal of these restraints.

Response

Sargent & Lundy performed calculations redistributing loads from the deleted restraints to adjacent restraints and equipment. Piping stresses were also recalculated. Restraint drawings were then revised and equipment requalified for the new loads. These calculations will be filed in revised stress reports.

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Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 12, 1982

Open-Item Report No.: 24

Reference: TES Field Audit of LaSalle County Nuclear Power Plant, Unit 1

Statement: At elevation 761', the RHR pipe is touching the floor penetration sleeve. The analysis assumed that there was clearance. The support close to the sleeve shows thermal movements which could not be accommodated.

S&L had noted this problem in the field and a Hanger Problem sheet was generated. This condition was resolved in the field using analysis which stated that the increase in thermal stress would be insignificant.

TES feels that this condition should be considered in the analysis and final stress reports. There is now a nonlinear spring at the floor sleeve which was not accounted for in the original analysis. The thermal and seismic analysis results will be affected.

Request: S&L is requested to supply analytical justification for not including this condition in the stress analysis report.

Response

The condition described was considered and documented by the calculations referred to in TES Open Item Report 24. As far as the impact on dynamic analysis is concerned, this condition would have negligible effect on the overall system response. Because these Class II calculations are on file, it was not considered necessary to include them in the Class I stress report.

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Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 12, 1982

Open-Item Report No.: 25

References: 1) FSAR

2) SRV/LOCA Hydrodynamic Loads Revised Design Basis Summary Report - Report SL-3876 Dated October 1, 1981

Statement: A comparison between the FSAR, Table 3.9-25, and Reference 2, Tables 2.7-1 and 2.7-2, shows that the ordering of the load cases between these two documents is not consistent. Load cases 3 and 4 have been reversed. Also, load case 5 is different when comparing the two documents.

Since the load combinations are bounded, there should not be an error in the analysis.

The Design Basis Summary Report lists two condensation oscillation load cases, LEVY-1 and LEVY-2. The FSAR does not.

Request: S&L will be requested to supply information showing that the FSAR is being revised editorially. Will this table be revised?

Will the FSAR be revised to be consistent with the Design Basis Document?

Response

The difference in the order of the load cases between FSAR Table 3.9-25 and Design Basis Summary Report Table 2.7-1 is not relevant to any regulatory or technical requirements. All load cases found in Table 3.9-25 are also found in Table 2.7-1.

The fifth bounded load case in FSAR Table 3.9-25 is different from the corresponding load case in Table 2.7-2 because it was

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not revised when NUREG-0484 permitted the SRSS method for the condensation oscillation loads.

The distinction between the two types of condensation oscillation loads can be found in Article 3.3.1.5.1 of the Design Assessment Report.

We will update the FSAR to incorporate this minor correction in a revision. This will be well within the time required by 10CFR50.71(e).

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Date: May 12, 1982

Open-Item Report No.: 26

Reference: RHR System, Subsystem RH-23, Quadrex Piping Stress Report
QUAD-1-80-163, Revision No. 03

Statement: Form SA-24.B, Sheet 4 of 12, "Comparison of 'As-Design' Header
placements with 'For Record' Analysis", requires three sig-
natures. All signatures are missing which indicates that this
comparison may not have been performed.

Request: S&L is requested to supply documentation why the signatures are
missing or why the comparison was not done.

Response

Revision 1 to the stress report, dated 02-19-82 contains form
SA-24B showing the required comparison (report pages 92 to 100)
and is signed with the required three signatures on page 100.
We believe the revision designated in your reference to be in
error.

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Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 12, 1982

Open-Item Report No.: 27

Reference: RHR System, Subsystem RH-23, Quadrex Piping Stress Report
QUAD-1-80-163, Revision No. 03

Statement: There are flanges within this subsystem, such as at node 126.
There are no calculations in the report for them.

Request: S&L is requested to supply the calculations and justification
for the flanges not appearing in the report.

Response

The response to this item is identical to that of Open Item
Report No. 1.

O/I 27-1

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Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 12, 1982

Open-Item Report No.: 29

Reference: RHR System, Subsystem RH-23, Quadrex Piping Stress Report
QUAD-1-80-163, Revision No. 03

Statement: In the recalculation of the stress intensification factor for the half-coupling branch connections, it was not shown that the requirements of Figure NC-3673.2(b)-1 and, specifically, Note 6 of the figure were met.

Request: S&L is requested to supply documentation that shows that the above figure was met in the recalculation.

Response

Both the LaSalle County piping fabrication specification (J-2961) and the installation specification (J-2530) require that all pipe fittings be fabricated and installed in accordance with the requirements of Section III.

In particular, the only detail required by footnote #6 of NC-3673.2 (b)-1 which is not visible or easily discernible is the inside radius r_1 . In particular, for small diameter taps, this radius has no significance, and will not affect the stress analysis results. This has been recognized by the Code and in the Summer 1980 Edition of Section III, this requirement has been deleted. The footnote 6-(d) of Figure NC-3673.2 (b)-2 now notes that the "radius r_1 is not required for nominal branch pipe sizes smaller than 4-inches."

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Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 12, 1982

Open-Item Report No : 31

Reference: FSAR for LaSalle County Unit 1

Statement: The SAGS, LUG, and NOHEAT, etc., computer codes are used in the design and analysis of components and their supports. These computer codes are not listed in Appendix F of the FSAR as acceptable computer programs.

Request: S&L is requested to supply justification why the above computer codes are not listed in the FSAR as acceptable computer programs.

Response

These programs were not used until well after the FSAR was completed and submitted, and were never subsequently added to the list of Appendix F. However, these programs are referenced in the stress reports, are all validated programs, and the validations are on file at Sargent & Lundy. This minor correction will be included in a revision to the FSAR. This will be well within the time required by 10CFR50.71(e).

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 4, 1982

Error/Deviation Report No.: 11

Classification of Finding: Error

Reference: S&L Stress Report, Subsystem RH-06, Revision 4

Statement: Reference 302.11 of S&L Design Specification DS-RH-01-LS, Rev. 3, states:

"Class 1 piping, 2" nominal pipe size and under, will not be examined per the rules of Section III of the Code, Subarticle NB-2500. As such, the optional reduction in design stress intensity permitted by Paragraph NB-3673.1 is mandatory."

The requirements of NB-3673.1 for the reduction of design stress intensity (S_m) values, and allowed fatigue cycles (N), have not been carried out for Class 1 analysis points 110, 120 and 130. Point 110 is modeled as a 3/4" straight pipe component with 3/4" half-coupling geometric properties. This point can be excluded from Class 1 evaluation per Footnote 10 of Table 3.2-1 of LaSalle FSAR. Point 120 is modeled as a 1 1/2" socket-weld with 1 1/2" half-coupling geometric properties and point 130 is modeled as a 1 1/2" straight pipe component with 1 1/2" thick fitting geometric properties.

Conclusions: The requirements of NB-3673.1 have not been carried out.

Response

It is Sargent & Lundy's practice to model valves as thick, stiff sections of pipe. The modeling of points 120 and 130 represents the double block valve 1E12-F378C and 1E12-F377C that is shown on the analytical drawing M-1041-6, sheets 1 and 2, and does not represent actual piping applicable to NB-3673.1.

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However, a review of certification records for Class 1 two-inch and under piping revealed a limited potential problem in that some pipe and fittings did not have the usual NDE performed as permitted by the exemption found in NB-2500. The applicable stress analyses were then reviewed. It was determined that the requirements of NB-3673.1 were met in all cases where NDE was not performed.

The EMD Lesson Plan will be revised to specify the special requirements for piping exempted from NDE requirements.

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Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Error/Deviation Report No.: 16

Classification of Finding: Error

Reference: RHR Subsystem 1RH-64, QUAD Report 1-80-171, Revision 0, and Addendum A to Revision 0

Statement: Thermal mode 2 defines the entire subsystem at 170°F. This corresponds to the main line (RH-07) mode where the temperature of the line is defined as 212°F.

Conclusion: The temperatures used for analyzing and evaluating the branch and main lines should be consistent or justification should be given that the choice of temperatures is conservative.

Response

The LPCI system was analyzed at 212°F to bound any thermal transients that may occur in the suppression pool after a LOCA. The fill line, RH-64, is required to only operate prior to a LOCA in order to ensure that the LPCI line is full. The 212°F pool temperature occurs after a LOCA when the fill system is no longer needed. Therefore, we do not believe this to be an error.

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Date: May 12, 1982

Error/Deviation Report No.: 20

Classification of Finding: Deviation

Reference: S&L Piping Subsystem RH-42 Stress Report, Revision 00, Dated November 11, 1981

Statement: The above-referenced report does not contain any reference to the Design Specification.

Conclusion: The Design Specification is the primary design document and should be referenced in the stress report.

Response

The 1974 Code Sections NC and NA do not require stress reports, but only that design calculations be on file. These calculations contain all the documents and references needed to correctly analyze the subsystem, and therefore, it is not necessary to reference the design specification. Therefore, we do not believe this to be a deviation.