Commonwealth Edison
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Chicago, Illinois 60690

1. Cy to Eisenhut
2. Docket

May 20, 1982

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: LaSalle County Station Units 1 and 2
Teledyne Open Item and Error/Deviation Reports for the LaSalle Independent Design Review, Responses to Remaining Items
NRC Docket Nos. 50-373 and 50-374

Reference (a): C. W. Schroeder letter to H. R. Denton dated March 16, 1982, "Independent Design Review Initial Status Report for the Period of February 11 through March 12, 1982."

(b): C. W. Schroeder letter to H. R. Denton dated May 7, 1982, "Teledyne Open Item and Error/Deviation Reports for the LaSalle Independent Design Review."

(c): C. W. Schroeder letter to H. R. Denton dated May 13, 1982, "Teledyne Open Item and Error/Deviation Report for the LaSalle Independent Design Review - Second Transmittal."

(d): C. W. Schroeder letter to H. R. Denton dated May 14, 1982, "Teledyne Open Item and Error/Deviation Reports for the LaSalle Independent Design Review - Final Transmittal; and 1st Transmittal of Responses."

Dear Mr. Denton:

Reference (a) provided you with an initial status report of the Independent Design Review being conducted at LaSalle County Station. References (b), (c), and (d) provided you with three sets of Teledyne Open Item and Error/Deviation Reports. Reference (d) also transmitted our first partial response to the Open Item and Error/Deviation Reports. The purpose of this letter is to transmit to you our second and third partial responses. The three partial responses address all Open Item and Error/Deviation Reports that Teledyne has transmitted to us.

Boal 5/1

Under separate cover, this material is being provided to Mr. James G. Keppler.

If there are any questions regarding this matter, please contact this office.

Very truly yours,

CW Schroeder 5/20/82

C. W. Schroeder
Nuclear Licensing Administrator

lm

Attachment

cc: NRC Resident Inspector - LSCS - 1/O

4165N

Denton

May 19, 1982

Mr. L.O. DelGeorge:

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

Enclosed are copies of the second partial response to the items transmitted to us by Teledyne. You should transmit this information to Mr. Denton and Mr. Keppler.

B.R. Shelton 5/19

B.R. Shelton

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

SARGENT & LUNDY
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May 18, 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 6, 12-22, 28, 30 and Error/Deviation Reports 8, 9, 12-15, 17-19. The remaining Open Item and Error/Deviation Reports will be responded to as we complete our review of them.

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

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 4, 1982

Open-Item Report No.: 6

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

Statement: The PIPSYS computer input with calculated stress indices, for Node 35B, branch connection, shows zero moment values for both run and branch components for all loading cases. However, computer inputs for the individual components give moment values.

Request: S&L should define which computer input is correct and why the difference.

Response

The initial computer run for RH-06 correctly applied elbow indices (node type 9) at Node 35B which was an elbow. Because of this, the moments at this node were saved by PIPSYS as an elbow. The later computer run was a special evaluation made to determine the stresses at the elbow location to account for the vent line coming off of that location. Since the tee connection did not exist in the initial evaluation, the program found zero moments stored at the tee connection.

The stresses and usage factors have been recalculated and found to be acceptable. An addenda to the stress report will be issued to include these revised calculations.

A review of all remaining safety related stress analyses identified one other case with this situation. This stress analysis was redone and found to be acceptable.

To assure that this situation will not recur, the EMD Technical Lesson Plan, EMD-TP1 and the PIPSYS User's Manual will be revised to prohibit addition of tee/branch connections to analysis with existing analysis data files.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Open-Item Report No.: 12

Reference: S&L Report No. EMD-4266-1 PC0012, Revision 1, Penetration Stress Analysis Report, RHRS/LPCI Line

Statement: The Design Specification for the penetration assembly (DS-PA-01-LS) is incomplete. Piping loads on the penetration assembly are not included in Appendix A of the specification.

The piping stress analysis for the piping subsystem RH-11 shows maximum shear loads and torsional moments at anchor M-12 in excess of those applied in the penetration stress analyses.

Request: S&L is requested to supply information justifying choice of moments and forces used in the analysis. S&L should also define when Appendix A of the Design Specification will be updated.

Response

The piping loads used in the penetration stress report for the RHR/LPCI system, Revision 1, were obtained from the piping stress report dated January 8, 1982. The certified penetration report, Revision 3, used the piping loads from the certified piping stress report dated September 1, 1981.

The date of Revision 0 of the Design Specification preceeds the date of issue of the certified piping stress reports. Presently, the certified piping stress reports are available and Appendix A of the design specification is being replaced by a reference to these reports.

SARGENT & LUNDY
ENGINEERS
CHICAGO

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Open-Item Report No.: 13

Reference: S&L Report No. EMD-4266-1 PC0012, Revision 1, Penetration Stress Analysis Report, RHRS/LPCI Line

Statement: The above-referenced stress report is for a Class 1 component. The Stress Report has not been certified by the Owner that a review has been conducted in accordance with NA-3260 of the ASME Code, Section III.

Request: Commonwealth Edison is requested to supply certification if it exists or justification why it does not exist at this time.

Response

Revision 1 of Sargent & Lundy Report Number EMD-4266-1PC0012 is not a certified stress report. Revision 3 of the report is the certified stress report which has been certified by a professional engineer and reviewed by the owner.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Open-Item Report No.: 14

Reference: S&L, RHR, Loop C Subsystem RH-06, Revisions 3 and 5

Statement: There is no discontinuity temperature difference ($T_\ell - T_w$) value input for lugs at support RH-53-100C. This point is modeled as node 25 in the comparable PIPSYS computer run and shows a $T_A - T_B$, discontinuity value (from AXTRAN computer run) input.

Request: S&L is requested to supply the AXTRAN computer program user manual and computer runs which will explain the above condition.

Response

This question is identical to the one contained in Open Items Report No. 5. Furthermore, the reference to support RH53-1006 in that open item is incorrect. The restraint at Node Point 25 is RH53-1001C.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Open-Item Report No.: 15

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

Statement: There is an orifice flange at node 206 of the piping model and flanged connections for valves. Calculations are not contained in the above-referenced report for flanges in general.

Requestion: S&L is requested to submit data substantiating that the flanges were analyzed, evaluated and meet the requirements of NC-3647.

Response

The item is identical to Open Item Report No. 1.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Open-Item Report No.: 16

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

Statement: Sheet 12 of 20 of the referenced report, "General Notes" indicates that valve loads and accelerations are within code allowables.

There is no evidence of how these were checked, such as Quadrex Form SA-7A, "Acceleration of Inline Components".

Request: Was the above-stated form transmitted to S&L? How was it determined that loads and accelerations are within code allowables?

Response

Revision 1 of Quadrex Report 1-80-171 contains the completed forms SA-7A on pages 41-50. These were originally forwarded to Sargent & Lundy on December 22, 1980 and approved by Sargent & Lundy on December 29, 1980.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Open-Item Report No.: 17

Reference: S&L Piping Subsystem Stress Report RH-11

Statement: The above-referenced stress report is for a Class 1 component. The stress report has not been certified by the Owner that a review has been conducted in accordance with NA-3260 of the ASME code, Section III.

Request: Commonwealth Edison is requested to supply certification if it exists or justification why it does not exist at this time.

Response

The Owner's Review was performed on March 13, 1982 and is found in Revision 5, page 2 of the stress report.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Open-Item Report No.: 18

Reference: S&L Piping Subsystem Stress Report RH-11

Statement: Table 2.1 of the above-referenced report specifies an allowable stress intensity value, S_m = 17,700 psi for the Design Bases Conditions listed for the Class 1 line 1RH53B-12. Summary Table 4.1 of the same report lists S_m = 18,110 psi for the Emergency and Faulted conditions.

Request: S&L is requested to explain the difference in the value of S_m chosen. Is it due to temperature difference between conditions?

Response

Table 2.1 of the report contains input information for the NB-3640 pressure design evaluation of the piping products on RH-11. NB-3640 requires S_m to be evaluated at the design temperature of the piping.

Table 4.1 contains S_m values for NB-3650, which are based on the maximum operating temperature of the piping.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Open-Item Report No.: 19

Reference: S&L Piping Subsystem Stress Report RH-11

Statement: In the piping subsystem RH-06 report, Table 2.4 presents the Functional Capability Criteria for the Class 1 portion of this subsystem.

There is no equivalent table in the RH-11 report for the Class 1 portion of the subsystem.

Request: S&L is requested to explain why Functional Capability Criteria is not given in Report RH-11.

Response

Table 2.4 is contained in RH-11, Revision 03 of the stress report on page 21 of 84. The table defines loads for piping outside of containment.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Open-Item Report No.: 20

Reference: Multiload Pipe Clamp Calculations for Subsystems RH-06 and RH-11, Calculations EMD-031579 and CQD-001853

Statement: Teledyne Engineering Services has reviewed the special clamp designs as referenced above. Based on this review several questions were raised and additional data is required.

Request: S&L is requested to supply the MLC user manual. What does the MLC program calculate? Does it evaluate primary stresses in the clamp and bolt?

How does the program account for the angle γ in the analysis and evaluation?

Response

The MLC Program User's Manual has been forwarded to TES. The program computes the worst possible stresses at different locations of the stiffening ring using limit analysis approach. The program evaluates the primary stresses in the clamp and bolt.

The angle γ is accounted for in the analysis by the F_y component of the load F_i (See Figure 1 on page 2 of User's Manual). This load causes an out-of-plane bending of the ribs.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Open-Item Report No.: 21

Reference: Multiload Pipe Clamp Calculations for Subsystems RH-06 and RH-11, Calculations EMD-031579 and CQD-001853

Statement: When using the patch plate design sheets, the applied snubber or strut load can be ±. How is this accounted for in the design sheets? Can the stress from the moment term M_y' or M_y'' be plus or minus depending on which patch plate is being evaluated?

Request: S&L is requested to answer the above questions. In addition, does procedure EMD-007975 describe the use of the patch plate design? The reference for allowable stress given on pages 10, 16, 28, 38 and 48 is not given. Please supply. Also, is the allowable stress 21,000 psi or 32,000 psi?

Response

Only tensil (+)strut or snubber or load is critical for the design of clamp and patch plate. The reason is that the compressive (-) strut or snubber load will be absorbed in the pipe due to wrap-around effect of the clamp on the pipe.

The stress resulting from M_y' or M_y'' cannot change sign since only one patch plate in the worst location is evaluated.

The design of patch plate is described and documented in procedure EMD-030370.

AISC Code is the reference for allowable stress (i.e., $0.9\sigma_{yield} = 32{,}000$).

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Open-Item Report No.: 22

Reference: Multiload Pipe Clamp Calculations for Subsystems RH-06 and RH-11, Calculations EMD-031579 and CQD-001853

Statement: For support RH53-1550S, the original load as given on the drawing was input to the MLC computer code. This value is 46518 pounds as shown on page 29. However, a subsequent run used a reduced load of 43628 pounds on sheet 39.

Request: S&L is requested to supply justification for this change. In addition, why was the original load used for the patch plate design?

Response

The MLC program conservatively takes the load as acting along the axial direction, parallel to the pipe axis. To simulate the actual load direction (γ=37.2°) in order to remove this conservatism in the analysis, an equivalent load was recalculated accounting for the actual load direction. This load was found to be 43628 lbs.

For the patch plate design the original load was used because in the patch plate analysis, credit is taken for the γ angle.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 12, 1982

Open-Item Report No.: 28

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

Statement: The "General Notes" section of the report indicates that valve loads and accelerations are within allowables, but there is no evidence of how these were checked, such as Quadrex Form SA-7A, "Acceleration of In-Line Components".

Request: S&L is requested to supply form SA-7A or justification why the form was not transmitted to S&L by Quadrex.

Response

Revision 1 of Quadrex Report 1-80-163 contains the completed forms SA-7A. These were originally forwarded to Sargent & Lundy on December 22, 1980 and approved by Sargent & Lundy on December 29, 1980.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 12, 1982

Open-Item Report No.: 30

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

Statement: In the evaluation of expansion anchor bolts, an exponent equal to (5/3) is used in the interaction equations. This exponent is suggested for use in a paper on embedments (i.e., Nelson-headed studs). Linear interaction is conservative and more generally used; nonlinear interaction should only be used when actual test data (shear-tension interaction) is available.

There is no evidence in the report that expansion anchor-bolt loads are amplified to account for prying action.

Request: S&L is requested to supply justification for the use of the (5/3) exponent in the interaction equation. S&L is also requested to define how prying is accounted for in the analysis of concrete expansion anchor bolts.

Reponse: Commonwealth Edison Company (CECo) has previously responded to Bulletin 79-02 by making a presentation to NRC in Bethesda, Maryland on December 13, 1979 wherein the use of (5/3) exponent in the shear - tension interaction equation was presented. CECo has subsequently submitted to NRC"Final Report on Pipe Support Base Plate Designs Using Concrete Expansion Bolts" in response to NRC IE Bulletin 79-02, Rev.2 on March 15, 1982, summarizing the design approach for expansion anchor assemblies.

The effect of plate flexibility and prying action in the design of expansion anchors has been accounted for as follows:

1. Standard expansion anchor base plate charts have been generated by using finite element analysis by suitably modeling the stiffness of expansion anchors(load versus displacement behavior).

2. Where expansion anchor base plates are designed manually by rigid plate analysis,suitable amplification factors to account for plate flexibility, have been used.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 4, 1982

Error/Deviation Report No.: 8

Classification of Finding: Error

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

Statement: Node 358 is a 1 1/2" 6000 lb half-coupling on 12" schedule 100 long radius elbow. The half-coupling is located 5 7/8" from the end of the elbow. The orientation of fitting on the elbow is vertically up (off curved portion)., Stress index values for a branch connection are used in the Class 1 analysis. These values are for a branch fitting in straight pipe, and do not consider any possible additional intensification effects from the elbow.

Conclusion: Therefore, the stresses computed are unconservative.

Response

Stress index values for taps on curved pipe are calculated using the E. C. Rodabaugh paper of December 21, 1972, "Stress Indices for Small Taps in Curved Pipe and for Sweepolets on Curved Pipe with Bend Radius of Five Times the Pipe Diameter." For the case identified by Teledyne, this calculation was not performed. A recalculation was performed and code acceptability of the tap or elbow was not affected. A review performed on all other cases of tap lines on elbows has revealed two additional cases where the calculation was not done. Recalculations were performed for these cases and they were found to be acceptable. This was a limited error by a single individual and he will be reinstructed in this area.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 4, 1982

Error/Deviation Report No.: 9

Classification of Finding: Error

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

Statement: Elbows 30 and 35 are welded together (per field inspection), and stress indices for elbow should be multiplied by those for a girth butt weld, per Footnote 11 of Table NB-3683.2-1 of Code. The following indices were input for each elbow; they represent a branch connection (gamma plug) in straight pipe (1980 Code).

$B_1 = 0.5$;	$C_1 = 1.5$;	$K_1 = 2.2$
$B_2 = 1.13$;	$C_2 = 1.5$'	$K_2 = 2.0$
$C_3 = 1.0$	$C_3 = 1.8$;	$K_3 = 1.7$

The following indices should have been input (1974 or 1980 Codes):

$B_1 = 1.0$;	$C_1 = 1.25$;	$K_1 = 1.2$
$B_2 = 2.58$;	$C_2 = 4.8$;	$K_2 = 2.5$
$C_3 = 0.5$;	$C_3 = 1.0$;	$K_3 = 1.7$

Conclusion: The above comparison shows that the moment indices used are unconservative.

Response

The stress indices dictated by Footnote 11 using the 1977 Code with addenda through 1979 are as follows:

$B_1 = 1.0$	$C_1 = 1.25$	$K_1 = 1.2$
$B_2 = 2.58$	$C_2 = 3.43$	$K_2 = 1.8$
$C_3 = 1.0$	$C_3 = 0.5$	$K_3 = 1.7$

These were calculated using as welded butt welds with $t > 3/16"$ and $\delta/t < 0.1$.

Because the pressure range dominates the fatigue analysis for this subsystem, the indices used in the analysis are conservative for fatigue analysis. The eq. 9 stresses were also recalculated and code acceptability was not affected. A review was performed on all other cases applicable to Footnote 11 and all cases meet its requirements.

These limited cases occurred because sufficient direction was not given in the PIPSYS manual or in the EMD TP-1 Lesson Plan. These manuals will be modified to address this area.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Error/Deviation Report No.: 12

Classification of Finding: Error

Reference: S&L Seismic Qualification of Residual Heat Removal Pump/Motor - Calculation No. CQD-000264

Statement: The FSAR Table 3.9-23 specifies E12-C002 RHR pump as ASME Code Class 2. The limits specified in the FSAR, paragraph 3.9.3.2.1.1, are based on Class 2 allowables.

The above-referenced calculations use Class 1 allowables and stress limits.

Nowhere in the design process or design documentation is the use of Class 1 allowables or stress limits acceptable for the evaluation of a Class 2 component.

Section III of the ASME Code allows the Owner to upgrade a component to a higher Code classification (i.e., from Class 2 to Class 1) if all requirements of the higher classification are met. Basically, this would require upgrading Material, Fabrication, Examination and Testing as well as Design. The Design Report supplied by the manufacturer is for a Class 2 pump (Section VIII, Division 1).

Conclusion: The use of Class 1 allowables and stress limits for the evaluation of a Class 2 component does not meet the requirements of the ASME Code and the FSAR.

Response

The ECCS Pumps (RHR, LPCS and HPCS) are part of the NSSS package and were purchased early in the project to ASME Section VIII requirements. These pumps meet the Section VIII allowables. The manufacturer qualified the pumps for the original specification loads and requirements and GE reviewed these qualifications.

When Sargent & Lundy took over the requalification assignment to meet the seismic and new loading combinations (SQRT) which include the pool dynamic loads, GE classified the pumps to be Class 1 and the analysis was performed on that basis. The classification was corrected to Class 2 and supplemental work was in progress to compare the calculated stresses using certified piping reactions to Class 2 allowables. It was found (see the attached tables) that all calculated stresses met Class 2 allowables with one exception. This was one single location in the RHR pump "B" at the discharge nozzle adjacent to the stuffing box where Class 1 allowables were met but not Class 2. Estimated upper bound nozzle loads were used in these calculations and a conservative approach using Bizlaard's equations was employed. Therefore, it was decided to wait until the final certified piping loads were available to recalculate more realistic stresses at this specific location.

When the piping loads became available for RHR, LPCS, and HPCS a reassessment was completed. The final stresses are in compliance with Class 2 allowables.

*See attachment

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Error/Deviation Report No.: 13

Classification of Finding: Error

Reference: S&L Seismic Qualification of Residual Heat Removal Pump/Motor - Calculation No. CQD-000264

Statement: The calculated local membrane stress, σ_L, in the discharge nozzle adjacent to the stuffing box exceeds the code allowable stress as follows:

σ_L	Limit	Service Level
43,600 psi	1.65 S = 28.900 psi	B
43,600 psi	1.8 S = 31,500 psi	C

In the referenced stress report, S&L used Class 1 code allowble stress values. Per the FSAR, the RHR pump is a Class 2 component.

Conclusion: The use of Class 1 allowable stress values is unconservative. In addition, the Level C allowable stress is multiplied by a higher ratio for Class 1 versus Class 2. For Class 1, the user can use the higher of 1.8 S_m or 1.5 S_y. The Class 2 allowables only allow the use of 1.8.

Response

This is essentially a duplicate to Error/Deviation Report 12 and is responded to there.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Error/Deviation Report No.: 14

Classification of Finding: Deviation

Reference: S&L Report No. EMD-4266-1PC0012, Revision 1, Penetration Stress Analysis Report, RHRS/LPCI Line.

Statement: The referenced stress report is for a Class 1 component. The report contains a design certification statement but does not have a professional engineer's signature.

Conclusion: A professional engineer's signature is required per Section III of the ASME Code.

Response

This item essentially duplicates Open-Item Report 13; therefore, we do not believe this to be a deviation.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Error/Deviation Report No.: 15

Classification of Finding: Error

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

Statement: The above-referenced system is a branch line attached to RH-07. In the analysis only displacements were considered. Rotations from RH-07 were not used in the analysis of RH-64.

Conclusion: Rotations could have an effect on the loads and stresses in the branch line. Justification was not given for ignoring them.

Response

The response to this item is identical to the response to Error/Deviation Report No. 6 and is in that case we do not believe this to be an error.

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Error/Deviation Report No.: 17

Classification of Finding: Deviation

References: 1) G.E. System Design Specification for the Residual Heat Removal System, Document No. 22A2817, Revision 3

2) S&L Piping Design Specification for LaSalle County Station, Unit 1, Revision 3

Statement: In reviewing the above-referenced documents and their references, it is very difficult to ascertain what Service Level (or Operating Condition) is assigned to specific thermal conditions for a system.

The only reference to the operating condition category is to Plant Operating Conditions.

Conclusion: There is no documentation which defines the Service Levels for the RHR system in the LPCI mode. S&L and/or G.E. should have defined this in the design documentation. Justification should have been given for the choice of Service Level chosen and how functional capability was met.

RESPONSE

The service levels for the RHR subsystem are given in the SRV/LOCA hydrodynamic loads revised Design Basis Summary Report, SL-3876, Table 2.7-1. It is also given in the FSAR Table 3.9-25. Please see Note 2A of the FSAR for description of how functional capability is demonstrated. This description in the FSAR has been accepted by the NRC and therefore, we do not believe this to be a deviation

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 11, 1982

Error/Deviation Report No.: 18

Classification of Finding: Deviation

Reference: S&L Piping Subsystem Stress Report RH-11

Statement: The majority of the piping of subsystem RH-11 is specified as Class 2. However, there are no Class 2 (NC-3600 of Code) stress evaluations presented in the report.

Conclusion: Report RH-11 should state that those portions of the subsystem not Class A (or 1) meet the requirements of the applicable subsections (i.e., NC-3600) of Section III.

Response

The response to this item is the same as Error/Deviation Report No. 2 and as in that case we do not believe this to be a deviation. The Class 2 combined stresses are found in microfiche Run ID E2425S (for Revision 3) and sheet 16 of Run ID E9225S (Revision 4).

Project 5539 - LaSalle Independent Design Review - RHR System

Date: May 12, 1982

Error/Deviation Report No.: 19

Classification of Finding: Error

Reference: S&L Piping Stress Report RHR System, Subsystem RH-11, Revisions 3, 4 and 5

Statement: Revision 3 of the referenced report (page 48 of 84) specifies that the only thermal expansion case analyzed was the entire pipe line, RH-11, at 70°F, yet page 49 of 84 specifies that for the LPCI injection the entire line is at 212°F and in the standby mode 550°F to the isolation valve and 120°F beyond.

Conclusion: The choice of transients used is inconsistent with the main piping run RH-06 which connects to this subsystem. The only thermal case analyzed does not cover all thermal modes.

Response

The purpose of Table 5.6 on page 48 is to itemize thermal expansion loading cases that are used for the fatigue analysis. Table 5.6 is referenced by Article 5.1.3.

The 70°F thermal expansion mode was the only thermal expansion loading required by the fatigue design basis (PTTH). Therefore, it is the only thermal expansion mode to be included in the fatigue analysis. The 212°F and 550°F thermal modes were only included in the structural analysis because they are emergency conditions. Therefore we believe this item is not an error.