

TVA EMPLOYEE CONCERNS
SPECIAL PROGRAM

REPORT NUMBER: 221.10(B)

REPORT TYPE: SEQUOYAH ELEMENT

REVISION NUMBER: 1

TITLE: PIPE SUPPORT DESIGN

Use of Snubber

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REASON FOR REVISION:

1. To include TVA's corrective action plan information (see Section 10) and comply with current format.

PREPARATION

PREPARED BY:

Jonohentz

SIGNATURE

Whit

12/11/86
DATE

REVIEWS

REVIEW COMMITTEE

Whit
SIGNATURE

12/11/86
DATE

TAS

12/30/86

Randal R. Gibbs
for D.W. Stewart

SIGNATURE

12/30/86
DATE

CONCURRENCES

8701120023 870102
PDR ADDCK 05000327
PDR

CEG-H:

George R. McNally 12-1-86

SRP:

James W. Gyle
SIGNATURE

12-30-86
DATE

SIGNATURE

DATE

*SRP Secretary's signature denotes SRP concurrences are in files.

APPROVED BY:

M. S. M. M. M.
ECSP MANAGER

12/31/86
DATE

N/A

MANAGER OF NUCLEAR POWER
CONCURRENCE (FINAL REPORT ONLY)

DATE

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1. CHARACTERIZATION OF ISSUE(S):

Concern:

Issue:

SQN-86-001-02

"During the exit interview, the CI stated that the Upper Head Injection System vertical riser just outside reactor vessel (Units 1 and 2) require a rigid support, but instead a snubber was used."

Upper head injection system vertical riser has a snubber type support instead of a rigid type support as required.

2. HAVE ISSUES BEEN IDENTIFIED IN ANOTHER SYSTEMATIC ANALYSIS? YES X NO

Identified by Tennessee Valley Authority (TVA)

Date 03/06/86

Documentation Identifiers:

Significant Condition Report #SCR SQN CEB 8615

3. DOCUMENT NOS., TAG NOS., LOCATIONS OR OTHER SPECIFIC DESCRIPTIVE IDENTIFICATIONS STATED IN ELEMENT:

Restraint on the vertical riser just outside reactor vessel (Units 1 and 2) of Upper Head Injection system.

4. INTERVIEW FILES REVIEWED:

Review of interview files for concern # SQN-86-001-02 shows the following information:

- o NSRS ECP Review Sheet
- o Form A, ECTG M.1, Attachment F, Page 2 of 2
- o Attachment B2, Standard Practice, Page 9
- o Attachment B3, Standard Practice, Page 10 and 11

5. DOCUMENTS REVIEWED RELATED TO THE ELEMENT:

See Appendix A.

6. WHAT REGULATIONS, LICENSING COMMITMENTS, DESIGN REQUIREMENTS OR OTHER APPLY OR CONTROL IN THIS AREA?

See Appendix A.

7. LIST REQUESTS FOR INFORMATION, MEETINGS, TELEPHONE CALLS, AND OTHER DISCUSSIONS RELATED TO ELEMENT.

See Appendix A.

8. EVALUATION PROCESS:

- a. Reviewed design calculations to identify the types of supports on the vertical risers of the Upper Head Injection System.
- b. Reviewed as-constructed and/or as-designed pipe support detail drawings to confirm the support types.

9. DISCUSSION, FINDINGS, AND CONCLUSIONS:

Chronology:

03/86: TVA identifies the discrepancy and reports the finding in the significant condition report
06/06/86: TVA receives the employee concern
08/86: TVA performs study calculation and demonstrates no failure of the system

Discussion:

At the Sequoyah nuclear plant, the upper head injection piping system extending from the containment penetration to the reactor vessel head consists of two similar loops per unit. Each loop contains four vertical risers in the vicinity of the reactor vessel. A total of 13 rigid and snubber type supports are located on these four risers. The evaluation team examined the supports on the vertical riser portion of the loop for both units (units #1 and #2).

The review was performed as follows:

- a. A list of rigid and snubber type supports located on the vertical risers was prepared based on the design isometric drawings. This list contained a total of 52 supports (13 for each set of four risers on each of the two loops of each unit).
- b. The input data of the piping analysis problems were reviewed to verify the types of supports specified in the calculations. This required review of four piping analyses.
- c. The load summary tables of the pipe supports were examined to confirm the support types used in the calculations.
- d. As-constructed and/or as-designed pipe support detail drawings were reviewed to verify agreement between them and as-analyzed support types.

The results of the review show that a rigid type support at node point #44A is specified in the piping analysis problem #15-01 (Units #1 and #2), while as-constructed support detail drawings (1-H45-9, Rev. 2 and 2-H45-9, Rev. 2) identify a snubber type support at this location. In March 1986, this discrepancy was identified by TVA in a significant condition report SCR SQN CEB 8615 (Section 2.0). On August 24, 1986, TVA performed a study calculation for the analysis problem #15-01 specifying a snubber type support at node point #44A to reflect the as-constructed condition. The results of the TVA analysis demonstrate that no failure of the Upper Head Injection System will result from this deficiency (App. A, 7.h). The evaluation team agrees with TVA's conclusion since the change from a rigid type support to a snubber type support will have no impact on the seismic stress levels, and the thermal stress levels will be generally lower due to the added flexibility of the system.

Irrespective of the study calculation results, TVA is discussing replacement of the installed snubber type support with the rigid type support before the restart of SQN Unit #2 (App. A, 7.h and 7.i).

Findings:

A snubber type support instead of the rigid type support shown on the drawing exists on the vertical riser of the Upper Head Injection System on both units. This has also been identified in TVA's report SCR SQN CEB 8615.

Conclusion:

The concern, that a snubber type support has been used on one riser per unit where a rigid type support is specified in the analysis, is valid. TVA has options of formally finalizing calculations to substantiate snubber installation or of replacing the snubber with a rigid support.

10. CORRECTIVE ACTION:

In its corrective action plan (CAP) (App. A, 5.s), TVA commits to remove the snubber and install a rigid type support at this location before the restart of the plant. The evaluation team concurs with this CAP.

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APPENDIX A

5. DOCUMENTS REVIEWED RELATED TO THE ELEMENT:

- a. TVA, Sequoyah Nuclear Plant design isometric drawing 47K435-72, R0 of Problem 0600104-15-01, Unit #1
- b. TVA, Sequoyah Nuclear Plant design isometric drawing 47K435-73, R0 of Problem 0600104-15-02, Unit #1
- c. TVA, Sequoyah Nuclear Plant snubber design loads drawing 47B435-207, R1 of Problem 0600104-15-01, Unit #1
- d. TVA, Sequoyah Nuclear Plant snubber design loads drawing 47B435-208, R1 of Problem 0600104-15-02, Unit #1
- e. TVA, Sequoyah Nuclear Plant, EDS design isometric drawing 0600152-15-01, Rev. 908 of Unit #2 (01/30/76)
- f. TVA, Sequoyah Nuclear Plant, EDS design isometric drawing 0600152-15-02, Rev. 909 of Unit #2 (01/30/76)
- g. TVA, Sequoyah Nuclear Plant snubber design loads drawing 47B435-202, R1 of Problem 0600154-15-01, Unit #2
- h. TVA, Sequoyah Nuclear Plant snubber design loads drawing 47B435-203, R1 of Problem 0600154-15-02, Unit #2
- i. Pipe support detail drawings of the Problem 0600104-15-01, Unit #1:

<u>Dwg. #</u>	<u>Rev.</u>	<u>Dwg. #</u>	<u>Rev.</u>	<u>Dwg. #</u>	<u>Rev.</u>
1-H45-18	906	1-H45-41	908	1-H45-32	902
1-H45-19	909	1-H45-42	908	1-H45-33	902
1-H45-22	907	1-H45-45	908	1-H45-9	2
1-H45-23	907	1-H45-46	906	1-H45-10	902
				1-H45-11	902

- j. Pipe support detail drawings of the problem 0600104-15-02, Unit #1:

<u>Dwg. #</u>	<u>Rev.</u>	<u>Dwg. #</u>	<u>Rev.</u>	<u>Dwg. #</u>	<u>Rev.</u>
1-H45-76	908	1-H45-149	908	1-H45-140	1
1-H45-77	906	1-H45-152	907	1-H45-67	902
1-H45-80	906	1-H45-153	907	1-H45-68	902
1-H45-148	906	1-H45-139	901	1-H45-69	903

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APPENDIX A (cont'd)

- k. Pipe support detail drawings of the problem 0600154-15-01, Unit #2:

<u>Dwg. #</u>	<u>Rev.</u>	<u>Dwg. #</u>	<u>Rev.</u>	<u>Dwg. #</u>	<u>Rev.</u>
2-H45-18	3	2-H45-41	908	2-H45-9	2
2-H45-19	904	2-H45-42	908	2-H45-10	2
2-H45-22	905	2-H45-45	907	2-H45-11	1
2-H45-23	3	2-H45-46	910	2-H45-32	1
				2-H45-33	1

- l. Pipe support detail drawings of the problem 0600154-15-02, Unit #2:

<u>Dwg. #</u>	<u>Rev.</u>	<u>Dwg. #</u>	<u>Rev.</u>	<u>Dwg. #</u>	<u>Rev.</u>
2-H45-76	908	2-H45-148	908	2-H45-67	1
2-H45-77	906	2-H45-149	909	2-H45-68	3
2-H45-80	908	2-H45-152	908	2-H45-69	906
2-H45-130	906	2-H45-153	908	2-H45-139	901
				2-H45-140	902

- m. EDS piping analysis calculation 0600104-15-01, R6, Unit #1
- n. EDS piping analysis calculation 0600104-15-02, R5, Unit #1
- o. EDS piping analysis calculation 0600154-15-01, R5, Unit #2
- p. EDS piping analysis calculation 0600154-15-02, R5, Unit #2
- q. TVA, Summary of Analysis of Problem 0600104-15-01, Rev. 7, Unit #1, RIMS access number B25-860716803
- r. Sequoyah Nuclear Performance Plan, Volume II, R1, (07/14/86)
- s. TCAB 009, Corrective Action Plan (CAP) for the Element 221.10(B), (11/24/86)

6. WHAT REGULATIONS, LICENSING COMMITMENTS, DESIGN REQUIREMENTS OR OTHER APPLY OR CONTROL IN THIS AREA?

- a. Sequoyah Nuclear Plant rigorous analysis handbook
- b. TVA, Sequoyah Nuclear Plant pipe support design manual (PSDM), Volume III

APPENDIX A (cont'd)

7. LIST REQUESTS FOR INFORMATION, MEETINGS, TELEPHONE CALLS, AND OTHER DISCUSSIONS RELATED TO ELEMENT:

- a. RFI #SQN - 510, (08/27/86)
- b. RFI #SQN - 511, (08/27/86)
- c. RFI #SQN - 618, (10/04/86)
- d. RFI #SQN - 625, (10/08/86)
- e. Telephone call from S. Chitnis, Bechtel, to G. McNutt, TVA, (08/26/86)
- f. RFI #SQN-640, (10/16/86)
- g. RFI #SQN-642, (10/16/86)
- h. Telephone call from D. Mohanty of Bechtel to R. Anderson/M. Ali of TVA, (10/20/86)
- i. RFI #SQN-647, (10/21/86)

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CATD LIST

The following CATD identifies and provides corrective action for the findings included in this report:

22110 SQN 01 (11/20/86)

REFERENCE - ECPS120J-ECPS121C
FREQUENCY - REQUEST
ONP - ISSS - RWM

TENNESSEE VALLEY AUTHORITY
OFFICE OF NUCLEAR POWER
EMPLOYEE CONCERN PROGRAM /STEM (ECPS)
LIST OF EMPLOYEE CONCERN INFORMATION

PAGE - 98
RUN TIME - 12:57:19
RUN DATE - 12/02/86

CATEGORY: EN DES PROCESS & OUTPUT

SUBCATEGORY: 22110 USE OF SNUBBER

CONCERN NUMBER	CAT	SUB CAT	S H R PLT D LOC	GENERIC APPL B B S W F L Q B	QTC/NSRS INVESTIGATION REPORT	P S R	CONCERN DESCRIPTION
SQN-86-001-002	EN	22110	N SQN	N N N Y K-FORM		SS	DURING THE EXIT INTERVIEW, THE CI ST ATED THAT THE UPPER HEAD INJECTION S YSTEM VERTICAL RISER JUST OUTSIDE RE ACTOR VESSEL (UNITS 1 AND 2) REQUIRE A RIGID SUPPORT, BUT INSTEAD A SNUB BER WAS USED.

KEYWORD A
KEYWORD B
KEYWORD C
KEYWORD D

1 CONCERNS FOR CATEGORY EN SUBCATEGORY 22110