

UCID- 19718

TECHNICAL EVALUATION REPORT ON THE
PROPOSED TECHNICAL SPECIFICATION CHANGES FOR
THE INSERVICE SURVEILLANCE OF SAFETY-RELATED
HYDRAULIC AND MECHANICAL SNUBBERS AT THE
MILLSTONE NUCLEAR POWER STATION, UNIT 2

(Docket No. 50-336)

James C. Selan

August 18, 1983



This is an informal report intended primarily for internal or limited external distribution. The opinions and conclusions stated are those of the author and may or may not be those of the Laboratory.

This work was supported by the United States Nuclear Regulatory Commission under a Memorandum of Understanding with the United States Department of Energy.

NRC FIN No. A-0250

8408200173 840802
PDR ADOCK 05000336
P PDR

ABSTRACT

This report documents the technical evaluation of the proposed Technical Specification changes to Limiting Conditions for Operation, Surveillance Requirements and Bases for safety-related hydraulic and mechanical snubbers at the Millstone Nuclear Power Station, Unit 2. The evaluation is to determine whether the proposed Technical Specifications are in conformance with the model Standard Technical Specification set forth by the NRC. A check list, Appendix A of this report, compares the licensee's submittal with the NRC requirements and includes 'Proposed Resolution' of the 'Deviations'. The licensee's proposed Technical Specification changes, when modified to complete each Appendix A 'Proposed Resolution' in a manner acceptable to the NRC staff, will either provide conformance to the Standard Technical Specifications and recently approved TS for Near Term Operating Licensees or will provide justification for the deviations.

FOREWORD

This report is supplied as part of the Selected Operating Reactor Issues Program II being conducted for the U. S. Nuclear Regulatory Commission, through the Office of Nuclear Reactor Regulation, Division of Licensing, for NRC Region I, by Lawrence Livermore National Laboratory.

The U. S. Nuclear Regulatory Commission funded the work under the authorization entitled "Selected Operating Reactor Issues Program II," B&R 20 19 10 11 1, FIN No. A-0250.

TABLE OF CONTENTS

	<u>Page</u>
1. INTRODUCTION	1
2. REVIEW BASIS CRITERIA	2
3. EVALUATION	2
4. CONCLUSION	3
REFERENCES	4
APPENDIX A	5

TECHNICAL EVALUATION REPORT ON THE PROPOSED TECHNICAL
SPECIFICATION CHANGES FOR THE INSERVICE SURVEILLANCE OF
SAFETY-RELATED HYDRAULIC AND MECHANICAL SNUBBERS AT THE
MILLSTONE NUCLEAR POWER STATION, UNIT 2

(Docket No. 50-336)

James C. Selan

Lawrence Livermore National Laboratory, Nevada

1. INTRODUCTION

The operability of snubbers is required to provide assurance that the structural integrity of the reactor coolant system and all other safety-related systems is maintained during and following a seismic or other event initiating dynamic loads. The operability is verified by an inservice inspection and testing program specified in the plant's Technical Specifications (TS). Recent operating experience has indicated the need for changes, clarifications, and improvements in the inservice surveillance requirements for hydraulic snubbers and to include similar requirements for mechanical snubbers.

By letter dated November 20, 1980 [Ref. 1], the NRC requested that all power reactor licensees (except SEP licensees) incorporate the revised model NRC Standard Technical Specifications (STS) into the plant specific TS for hydraulic and mechanical snubbers. A similar request was sent to the SEP licensees in a letter dated March 23, 1981 [Ref. 1].

The NRC model STS requires that a visual inspection frequency be based upon maintaining a constant level of snubber protection to the safety-related systems. Additionally, in order to provide assurance that the hydraulic and mechanical snubbers function reliably, a representative sample of the plant's installed snubbers will be functionally tested at least once per 18 months during plant shutdowns. The required sampling provides a confidence level of 95% that 90% of the plant specific snubbers will be operable within acceptable limits.

By a letter dated July 15, 1981 [Ref. 2], Northeast Nuclear Energy Company (NNECO), the licensee, submitted proposed TS changes to incorporate an inservice inspection and testing program for the safety-related hydraulic and mechanical snubbers at the Millstone Nuclear Power Station, Unit 2. These proposed changes to the TS Limiting Conditions for Operation (LCO), Surveillance Requirements, and Bases were discussed during an NRC/licensee meeting on June 23, 1983 [Ref. 3].

The purpose of this report is to evaluate the proposed TS changes with respect to the review basis criteria to determine that they meet the NRC requirements.

2. REVIEW BASIS CRITERIA

The review criteria that were applied in determining the acceptability of the inservice surveillance requirements for the operability of the safety-related snubbers are contained in the following:

- (1) Generic letter from D. G. Eisenhut to all Power Reactor Licensees (except SEP licensees) dated November 20, 1980, with enclosed Standard Technical Specifications (STS) Snubber Surveillance Requirements. (Criteria also applicable to SEP Licensees based on March 23, 1981 NRC letter.) [Ref. 1].
- (2) Technical Specifications and Bases for Snubbers as incorporated in the McGuire Units 1 and 2 and Byron Unit 1 plant Technical Specifications: TS 3/4.7.8 [Ref. 4].
- (3) NRC memorandum, L. Engle (Lead PM) to G. C. Lainas, AD/OR, DL, "General Guidance (Region I thru V) for MPA Items B-17 and B-22, Hydraulic and Mechanical Snubbers, Respectively, for Technical Specification Surveillance Requirements," dated March 2, 1983 [Ref. 5].

3. EVALUATION

The NRC generic letter [Ref. 1] STS enclosure stated the requirements that were to be incorporated in the plant's TS. The STS was reviewed and a check list of STS requirements was developed and is presented in Appendix A.

Appendix A was used as a check list for the data comparison of the licensee's proposed TS to the NRC model STS. The check list describes the requirements with a 'YES' or 'NO' column that is marked to indicate conformance or nonconformance. When a 'NO' is marked, the 'Deviation and Resolution,' or 'Proposed Resolution' is described. A 'Resolution' requires no further licensee action and provides the explanation. A 'Proposed Resolution' requires further licensee action and describes the action needed to resolve the deviation. Also found in the check list are 'Remarks' which are used for additional clarification. These items were discussed during the NRC/licensee meeting [Ref. 3].

During the meeting, the NRC staff representative explained how the licensee could either provide conformance to the STS by revising the proposed TS or provide an acceptable justification for the deviation. During the discussion there were instances where the licensee's representatives agreed to revise the proposed TS changes, or desired to review the TS to see how conformance could be obtained, or desired not to modify the TS. In all cases the 'Proposed Resolution' contains the NRC described dual option to modify the TS to be

consistent with the STS or to provide justification for the deviation even if not explicitly stated. Also, in each of these cases a 'Proposed Resolution' is identified, and a written resubmittal is required from the licensee.

Completion of each 'Proposed Resolution', in a manner acceptable to the NRC staff, will either bring the plant's TS for snubbers into conformance with the STS and recently approved TS for Near Term Operating Licensees (NTOLs) or will provide justification for the deviations. The proposed LCOs will then contain the correct identification of snubbers required to be operable, applicable modes of operability, and action with one or more snubbers inoperable. The proposed Surveillance Requirements will then contain an augmented inservice inspection program which includes scheduled visual inspections and functional testing of a representative sample.

4. CONCLUSION

Based on the information submitted by NNECO for the Millstone Nuclear Power Station, Unit 2, it is concluded that the proposed TS for snubbers, when modified to complete each Appendix A 'Proposed Resolution' in a manner acceptable to the NRC staff, will either provide conformance to the STS and recently approved TS for NTOLs or will provide justification for the deviations.

REFERENCES

1. NRC ltr. (D. G. Eisenhut) to all power reactor licensees (except SEP licensees), dated November 20, 1980 and NRC letter (D. G. Eisenhut) to all SEP licensees, dated March 23, 1981.
2. NNECO ltr. (W. G. Counsil) to the NRC (R. A. Clark), dated July 15, 1981.
3. Meeting of June 23, 1983; P. Quirlan, S. Stadnick, M. Cass, and C. Gladding of NNECO, H. Gregg and D. Haverkamp of NRC Region I, and J. Selan and R. White of LLNL.
4. Technical Specifications and bases for snubbers as incorporated in the McGuire Units 1 and 2 and Byron Unit 1 plant Technical Specifications (3/4.7.8).
5. NRC memorandum, Leon B. Engle to Gus C. Lainas, dated March 2, 1983.

APPENDIX A

SNUBBER SURVEILLANCE
MILLSTONE, UNIT 2

Data Comparison of Licensee Proposed TS Versus NRC Model STS

REFERENCE:

- (1) NNECO ltr. (W. G. Council) to the NRC (R. A. Clark), dated July 15, 1981.
- (2) Meeting of June 23, 1983; P. Quinlan, S. Stadnick, M. Cass, and C. Gladding of NNECO, H. Gregg and D. Haverkamp of NRC Region I, and J. Selan and R. White of LLNL.

	YES	NO
I. LCOs		
A. All snubbers listed required to be operable	<u>X</u>	<u> </u>
B. Mechanical/hydraulic types designated in separate tables	<u>X</u>	<u> </u>
C. Modes of applicability include modes 1-4 (and modes 5, cold shutdown and 6, refueling)	<u>X (See Remarks</u>	<u> </u>
<u>Remarks:</u> The licensee's proposed method of identifying modes of applicability (in the snubber tables) meet the STS requirement.		
D. Inoperable snubbers replaced or operability restored within 72 hours <u>and</u>	<u>X (See Remarks</u>	<u> </u>
<u>Remarks</u> The licensee's proposed method of presenting action statements (in the snubber tables) meets the STS requirement.		
E. Engineering evaluation on the supported components within 72 hours <u>or</u>	<u> </u>	<u>X</u>
<u>Deviation:</u> The licensee's proposed TS 3.7.8.1 Action Statements (as shown in Tables 3.7-1a and 3.7-1b) do not conform to the STS action requirements.		
<u>Proposed Resolution:</u> Revise the proposed TS to be consistent with the STS or provide justification for the deviation.		

	YES	NO
F. Follow appropriate action statements for the supported system	<u> X </u>	<u> </u>
G. Snubbers may be added to the table without prior license amendment request etc. (as in STS table footnotes)	<u> </u>	<u> X </u>
<u>Deviation:</u> The licensee's proposed TS table footnote includes the option to delete snubbers.		
<u>Proposed Resolution:</u> Change the TS wording to include wording similar to recently approved TS for NTOLs (e.g. McGuire and Byron) and provide appropriate justification.		
H. Modifications to the table in high radiation zone column can be made without prior license amendment request etc. (as in STS table footnotes)	<u> </u>	<u> X </u>
<u>Deviation:</u> The licensee's proposed wording is not consistent with STS wording.		
<u>Proposed Resolution:</u> Change the TS wording to the STS wording for modification of the high radiation zone column in the tables [Ref. 2].		
 I. SURVEILLANCE REQUIREMENTS		
A. Each snubber demonstrated operable by an augmented inservice inspection program <u>and</u>	<u> X </u>	<u> </u>
B. The requirements of Specification 4.0.5 or equivalent are referenced	<u> X </u>	<u> </u>
C. Visual Inspection		
1. First inspection interval defined (not applicable for reactors in operation > 2 yrs)	<u> </u>	<u> N/A </u>
2. Second interval defined (12 months + 25%) if less than two found inoperable in first interval (not applicable for reactors in operation > 2 yrs)	<u> </u>	<u> N/A </u>
3. Subsequent inspection intervals defined	<u> X </u>	<u> </u>
4. Inspection intervals not lengthened more than one step at a time.	<u> X </u>	<u> </u>
5. Snubbers categorized into accessible/inaccessible groups and inspected independently	<u> X </u>	<u> </u>

D. Visual inspection acceptance criteria

- | | | | |
|----|---|----------------|----------------|
| 1. | No visible indication of damage/impaired operability | _____ | _____ <u>X</u> |
| | <u>Deviation:</u> The licensee's proposed TS 4.7.8.1.b is not per the STS. | | |
| | <u>Proposed Resolution:</u> Use wording similar to the STS or provide justification for the deviation [Ref. 2]. | | |
| 2. | Attachments secure | _____ | _____ <u>X</u> |
| | <u>Deviation:</u> Same as II.D.1 above | | |
| | <u>Proposed Resolution:</u> Same as II.D.1 above | | |
| 3. | Manual inducement for freedom of movement | _____ | _____ <u>X</u> |
| | <u>Deviation:</u> The licensee's proposed TS 4.7.8.1.b does not include provisions per the STS for manually checking freedom of movement. | | |
| | <u>Proposed Resolution:</u> Incorporate wording similar to recently approved TS on NTOLs (e.g. McGuire and Byron) [Ref. 2]. | | |
| 4. | Inoperable snubber determined operable, provided | | |
| a. | Cause of rejection is established & remedied for that snubber and others generically susceptible, and | _____ | _____ <u>X</u> |
| | <u>Deviation:</u> Same as II.D.1 above | | |
| | <u>Proposed Resolution:</u> Same as II.D.1 above. | | |
| b. | Functionally tested in as found condition and determined operable | _____ | _____ <u>X</u> |
| | <u>Deviation:</u> Same as II.D.1 above | | |
| | <u>Proposed Resolution:</u> Same as II.D.1 above | | |
| 5. | Open fluid ports cause for inoperability | _____ | _____ <u>X</u> |
| | <u>Deviation:</u> The licensee's proposed TS 4.7.8.1.b does not include the STS provision for declaring snubbers inoperable as a result of uncovered fluid ports. | | |
| | <u>Proposed Resolution:</u> Include wording similar to recently approved TS on NTOLs (e.g. McGuire and Byron) [Ref. 2]. | | |
| 6. | Common fluid reservoirs addressed for inoperability (not applicable if common reservoir not used) | _____ <u>X</u> | _____ |

E. Functional Tests

- | | YES | NO |
|---|---------------|---------------|
| 1. Once per 18 months during plant shutdown | <u>X</u> | <u> </u> |
| 2. 10% of each type tested in place or in a bench test | <u>X</u> | <u> </u> |
| 3. 10% additional of that type for each snubber failing test | <u>X</u> | <u> </u> |
| 4. 25% of sample selected from the 3 defined areas | <u> </u> | <u>X</u> |
| <u>Deviation:</u> The licensee's proposed TS 4.7.8.1.c does not include the STS provision for the sample to include 25% from the three specific areas. | | |
| <u>Resolution:</u> The licensee's position as stated in Ref. 1 is consistent with the intent of recently approved TS for NTOLs (e.g. McGuire and Byron) [Ref. 2]. | | |
| 5. Snubbers identified as "especially difficult to remove" or in "high radiation zones during shutdown" and included in test samples | <u> </u> | <u>X</u> |
| <u>Deviation:</u> The licensee's proposed TS 4.7.8.1.c does not include snubbers in these areas in the test sample. | | |
| <u>Proposed Resolution:</u> Change the wording to "include" these snubbers in the test sample [Ref. 2]. | | |
| 6. Footnote statement regarding permanent or other exemptions may be granted, etc. included | <u> </u> | <u>X</u> |
| <u>Deviation:</u> The licensee's proposed TS 4.7.8.1.c exemption wording is not consistent with the STS | | |
| <u>Proposed Resolution:</u> Delete the exemption wording in TS 4.7.8.1.c. | | |
| 7. Retesting of previous failed snubbers and replacements | <u> </u> | <u>X</u> |
| <u>Deviation:</u> The licensee's proposed TS 4.7.8.1.c does not include the STS provisions for retesting previously failed snubbers and installed spares. | | |
| <u>Resolution:</u> The wording in the TS meets the intent of the STS and is consistent with recently approved TS on NTOLs (e.g. McGuire and Byron) [Ref. 2]. | | |
| 8. Testing of all snubbers where any one failed and was determined generic | <u>X</u> | <u> </u> |
| 9. Inoperable snubbers require Engineering evaluation performed on supported components | <u>X</u> | <u> </u> |

F. Hydraulic snubbers functional test acceptance criteria

1. Activation (restraining action) is achieved within specifications of velocity and acceleration in both compression/tension

X _____

2. Snubber bleed rate within specified range

X _____

3. Snubbers required to not displace are verified

_____ N/A
(See Remarks)

Remarks: Licensee's representatives stated this type of snubber is not used [Refs. 1 and 2].

G. Mechanical snubbers functional test acceptance criteria

1. Force for free movement is < specified max drag force. Drag force has not increased >50%

_____ X

Deviation: The licensee's proposed TS 4.7.8.1.e does not include the STS test acceptance criteria.

Proposed Resolution: Request an interim exemption and provide additional clarification as to the date for implementing test procedures, procurement of test equipment, etc. Also include the STS requirements or those in recently approved TS for NTOLS when equipment and procedures are available [Ref. 2].

2. Activation (restraining action) is achieved within specifications of velocity and acceleration in both compression/tension

_____ X

Deviation: Same as II.G.1 above

Proposed Resolution: Same as II.G.1 above

3. Snubber release rate within specified range

_____ X

Deviation: Same as II.G.1 above

Proposed Resolution: Same as II.G.1 above

4. Snubber required to not displace are verified

_____ X

Deviation: Same as II.G.1 above

Proposed Resolution: Same as II.G.1 above

H. Snubber service life monitoring

1. Records of service life maintained

_____ X

Deviation: The licensee's proposed TS 4.7.8.1.c does not include the STS service life monitoring program.

Proposed Resolution: Incorporate wording similar to recently approved TS for NTOLs (e.g. McGuire and Byron) for monitoring snubber seal life [Ref. 2].

II. BASES

- A. Adequate explanation in bases

_____ X

Deviation: The licensee's proposed TS 3.4.7.8 Bases are not consistent with the STS Bases.

Proposed Resolution: Revise the Bases to be consistent with the proposed LCO and surveillance requirement changes [Ref. 2].

DISCLAIMER

This document was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

Technical Information Department - Lawrence Livermore Laboratory
University of California - Livermore, California 94550

