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INTERIM REPORT

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UCID-

TECHNICAL EVALUATION REPORT ON THE PROPOSED TECHNICAL SPECIFICATION CHANGES FOR THE INSERVICE SURVEILLANCE OF SAFETY-RELATED HYDRAULIC AND MECHANICAL SNUBBERS AT THE PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3

(Docket Nos. 50-277, 50-278)

James C. Selan

August 18, 1983

Lawrence Livermore Laboratory

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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 Peach Bottom Atomic Power Station, Units 2 and 3. 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 Specification 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.

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TABLE OF CONTENTS

TECHNICAL EVALUATION REPORT ON THE PROPOSED TECHNICAL SPECIFICATION CHANGES FOR THE INSERVICE SURVEILLANCE OF SAFETY-RELATED HYDRAULIC AND MECHANICAL SNUBBERS AT THE PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3

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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 letters dated March 24, 1981 [Ref. 2], August 6, 1981 [Ref. 3], and December 13, 1982 [Ref. 4], Philadelphia Electric Company (PECO), the licensee, submitted proposed TS changes to incorporate an inservice inspection and testing program for the safety-related hydraulic and mechanical snubbers at the Peach Bottom Atomic Power Station, Units 2 and 3. These proposed changes to the TS Limiting Conditions for Operation (LCO), Surveillance Requirements, and Bases were discussed during an NRC/licensee meeting on June 21, 1983 [Ref. 5].

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 acceptabliity 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. 6].

(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 Mechancial Snubbers, Respectively, for Technical Specification Surveillance Requirements," dated March 2, 1983 [Ref. 7].

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. 5].

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 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 PECO for the Peach Bottom Atomic Power Station, Units 2 and 3, 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 or will provide justification for the deviations.

REFERENCES

1. NRC letter (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. PECO ltr. (E. J. Bradley) to the NRC (H. R. Denton), dated March 24, 1981.

3. PECO ltr. (E. J. Bradley) to the NRC (H. R. Denton), dated August 6, 1981.

4. PECO ltr. (E. J. Bradley) to the NRC (H. R. Denton), dated December 13, 1982.

5. Meeting of June 21, 1983; W. Birely, W. Alden, and J. Nagle of PECO, H. Gregg and D. Haverkamp of NRC Region I, and J. Selan and R. White of LLNL.

6. 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).

7. NRC memorandum, Leon B. Engle to Gus C. Lainas, dated March 2, 1983.

APPENDIX A

SNUBBER SURVEILLANCE
PEACH BOTTOM, UNITS 2 AND 3

Data Comparison of Licensee Proposed TS Versus NRC Model STS

REFERENCES:

(1) PECO ltr. (E. J. Bradley) to the NRC (H. R. Denton), dated March 24, 1981.

(2) PECO ltr. (E. J. Bradley) to the NRC (H. R. Denton), dated August 6, 1981.

(3) PECO ltr. (E. J. Bradley) to the NRC (H. R. Denton), dated December 13, 1982.

(4) Meeting of June 21, 1983; W. Birely, W. Alden, and J. Nagle of PECO, 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	X	
B.	Mechanical/hydraulic types designated in separate tables		X

Deviation: The licensee's proposed TS Table 3.11.D.1 identifies both hydraulic and mechanical snubbers in a common table with an H or M designation.

Resolution: This meets the STS intent for identifying snubber types [Ref. 4].

C.	Modes of applicability include modes 1-4 (and modes 5, cold shutdown and 6, refueling)		X

Deviation: The licensee's proposed TS 3.11.D.1 does not include the cold shutdown and refueling modes of applicability per the STS.

Proposed Resolution: Change the TS to include the STS modes of applicability and delete TS 3.11.D.3 [Ref. 4].

D.	Inoperable snubbers replaced or operability restored within 72 hours and		X

Deviation: The licensee's proposed TS 3.11.D.2 for LCO action requirements were not stated per the STS.

Proposed Resolution: Change the TS to conform with the STS action requirements while maintaining the word structure consistent with the plant's existing TS word structure [Ref. 4].

	YES	NO
E. Engineering evaluation on the supported components within 72 hours <u>or</u>	____	X
<u>Deviation</u>: Same as I.D above		
<u>Proposed Resolution</u>: Same as I.D above		
F. Follow appropriate action statements for the supported system	____	X
<u>Deviation</u>: Same as I.D above		
<u>Proposed Resolution</u>: Same as I.D above		
G. Snubbers may be added to the table without prior license amendment request etc. (as in STS table footnotes)	X	____
H. Modifications to the table in high radiation zone column can be made without prior license amendment request etc. (as in STS table footnotes)	____	X
<u>Deviation</u>: The licensee's proposed TS do not include the STS provision for modifying the table for snubbers listed in "High Radiation Zones During Shutdown."		
<u>Resolution</u>: The licensee does not specifically list snubbers in "High Radiation Zones During Shutdown," therefore this provision is not needed (see also II.E.5) [Ref. 4].		

II. SURVEILLANCE REQUIREMENTS

A. Each snubber demonstrated operable by an augmented inservice inspection program <u>and</u>	____	X
<u>Deviation</u>: The licensee's proposed TS 4.11.D does not include the general STS statement for an augmented inservice inspection program.		
<u>Proposed Resolution</u>: Include the appropriate STS statement and reference existing inservice surveillance requirement TS 4.6.G.		
B. The requirements of Specification 4.0.5 or equivalent are referenced	____	X
<u>Deviation</u>: Same as II.A above		
<u>Proposed Resolution</u>: Same as II.A above		

	YES	NO
C. Visual Inspection		
1. First inspection interval defined (not applicable for reactors in operation > 2 yrs)	____ N/A	____
2. Second interval defined (12 months ± 25%) if less than two found inoperable in first interval (not applicable for reactors in operation > 2 yrs)	____ N/A	____
3. Subsequent inspection intervals defined	____	X
Deviation: The licensee's proposed TS 4.11.D.1 does not contain the STS statement "provisions of Specification 4.0.2 are not applicable" with respect to the inspection interval schedule.		
Proposed Resolution: Provide an equivalent statement which references TS 1.0 DEFINITIONS [Ref. 4].		
4. Inspection intervals not lengthened more than one step at a time	X	____
5. Snubbers categorized into accessible/inaccessible groups and inspected independently	X	____
D. Visual inspection acceptance criteria		
1. No visible indication of damage/impaired operability	X	____
2. Attachments secure	X	____
3. Manual inducement for freedom of movement	X	____
4. Inoperable snubber determined operable, provided		
a. Cause of rejection is established & remedied for that snubber and others generically susceptible, and	X	____
b. Functionally tested in as found condition and determined operable	X	____
5. Open fluid ports cause for inoperability	X	____
6. Common fluid reservoirs addressed for inoperability (not applicable if common reservoir not used)	____ N/A	____

	YES	NO
E. Functional Tests		
1. Once per 18 months during plant shutdown		X
Deviation: The licensee's proposed TS 4.11.D.4.a states "once each refueling cycle". Also, TS 4.11.D.4.a proposes an interim delay in mechanical snubber testing.		
Proposed Resolution: Change the surveillance frequency to "once each operating cycle during shutdown" which meets the STS requirement. Also, revise the time extension and provide an appropriate basis for the deferral of the mechanical snubber tests [Ref. 4].		
2. 10% of each type tested in place or in a bench test		X
Deviation: The licensee's proposed TS 4.11.D.4.e exempts testing of snubbers of > 50,000 lb. capacity.		
Proposed Resolution: Delete TS 4.11.D.4.e [Ref. 4].		
3. 10% additional of that type for each snubber failing test	X	
4. 25% of sample selected from the 3 defined areas	X	
5. Snubbers identified as "especially difficult to remove" or in "high radiation zones during shutdown" and included in test samples	X (See Remarks)	
Remarks: Snubbers are not specifically designated "yes" or "no" in the high radiation zone column of the table, but TS 4.11.D.4.d states that snubbers in both high radiation zone and difficult to remove shall be included in the test sample [Ref. 4].		
6. Footnote statement regarding permanent or other exemptions . . . . may be granted, etc. included		X
Deviation: The licensee's proposed TS does not include the STS footnote statement addressing exemptions.		
Resolution: TS 4.11.D.4.d does include provisions for addressing snubber exemptions, therefore, the footnote statement is not required [Ref. 4].		
7. Retesting of previous failed snubbers and replacements	X	
8. Testing of all snubbers where any one failed and was determined generic	X	

	YES	NO
9. Inoperable snubbers require Engineering evaluation performed on supported components	X	
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	X	
G. Mechanical snubbers functional test acceptance criteria		
1. Force for free movement is < specified max drag force. Drag force has not increased >50%	X	
2. Activation (restraining action) is achieved within specifications of velocity and acceleration in both compression/tension	X	
3. Snubber release rate within specified range	X	
4. Snubbers required to not displace are verified	X	
H. Snubber service life monitoring		
1. Records of service life maintained		X

Deviation: The licensee's proposed TS do not include a service life monitoring program.

Proposed Resolution: Include a service life monitoring program consistent with the STS requirements [Ref. 4].

III. BASES

A. Adequate explanation in Bases		X

Deviation: The licensee's proposed TS 3.11.D 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. 4].