

PROJECT
INSTRUCTION

Sargent & Lundy

INSTRUCTION PI-MP3-07
REV. 1

Client: Northeast Utilities

Station: Millstone Unit 3

Title: **REVIEW OF ACCIDENT MITIGATION SYSTEMS**

☒ **Safety-Related**

☐ **Non-Safety-Related**

Reviewed By:

Approved By:

System Lead	Programmatic Lead	O&M Lead	Accident Mitigation Lead	QA Engineer	Internal Review Committee Chairman	Verification Team Manager
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>

Date: 4-28-97

Description

Rev. 1

Revised PI to:

- Clarify Definition of Critical Characteristics
- Clarify Discipline Verifiers
- Clarify Use of Checklist for Identifying Critical Characteristics
- Submit Critical Characteristics to NRC for Approval
- Clarify Use of Checklists for Verification of Critical Characteristics & Processing DRs

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-07 REV. 1
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1.0 PURPOSE

This procedure establishes the requirements for the ICAVP Verification Team to identify and review the critical design characteristics for the accident mitigating systems to provide reasonable assurance that these system parameters meet their design and licensing requirements as discussed in References 2.1 and 2.2.

2.0 REFERENCE

- 2.1 NRC Confirmatory Order establishing Independent Corrective Action Verification Program - Millstone Power Station Units 1, 2 and 3.
- 2.2 Millstone Independent Corrective Action Verification Program - Oversight Inspection Plan dated 12/19/96.
- 2.3 S&L Project Instruction PI-MP3-01, ICAVP Communications Protocol
- 2.4 S&L Project Instruction PI-MP3-02, Review of System Design for Compliance with Design and Licensing Basis
- 2.5 S&L Project Instruction PI-MP3-03, Review of Plant Modifications Prepared After Receipt of Operating License for Technical Adequacy and for Configuration Control
- 2.6 S&L Project Instruction PI-MP3-06, Operations and Maintenance and Testing Procedures and Training Documentation Reviews
- 2.7 S&L Project Instruction PI-MP3-09, Preparation and Approval of Checklists
- 2.8 S&L Project Instruction PI-MP3-11, Discrepancy Report Submittal and Closure
- 2.9 S&L Project Instruction PI-MP3-12, Project File Index
- 2.10 CK-MP3-07 Series Checklists as follows:

CK-MP3-07-01 FSAR Ch 15 Accidents, Systems & Components (Not included in this PI)


PROJECT INSTRUCTION	 Sargent & Lundy	INSTRUCTION PI-MP3-07 REV. 1
------------------------	---	---------------------------------

3.0 DEFINITIONS

- 3.1 **Accident Mitigation Systems Review Group (ARG)** - The subgroup of the ICAVP Verification Team responsible for the identification and review of the critical design characteristics for the accident mitigating systems to ensure that they can perform their required safety functions.
- 3.2 **System Review Group (SRG)** - The subgroup of the ICAVP Verification Team responsible for performing an in-depth review of the design of the system in the scope of the ICAVP.
- 3.3 **Operations & Maintenance and Testing Review Group (ORG)** - The subgroup of the ICAVP Verification team responsible for the review of the operating, maintenance and testing procedures, and training manuals for the systems within the scope of the ICAVP.
- 3.4 **Independent Corrective Action Verification Program (ICAVP)** - The program required by NRC Confirmatory order, Reference 2.1 to verify the adequacy of the corrective actions taken by NU for their configuration management of design and licensing basis of the unit.
- 3.5 **Discrepancy Report (DR)** - The mechanism for documenting the discrepant conditions identified by the ICAVP and reporting an apparent error, inconsistency, or procedural violation with regard to licensing commitments, specifications, procedures, codes or regulations.
- 3.6 **Verifier** - The individual assigned to review engineering attributes within his area of responsibility.
- 3.7 **System Critical Characteristics** - The system design features and component performance parameters that must be met to perform the safety related function of accident mitigation.

4.0 RESPONSIBILITIES

- 4.1 The Verification Team Manager shall be responsible for providing overall guidance and management to the teams.
- 4.2 The ARG Lead shall be responsible for assigning the discipline verifiers for identifying the accident mitigating systems and a review of their critical design characteristics necessary to perform their safety function(s).
- 4.3 The Discipline Verifiers shall be responsible for identifying the critical system characteristics for the FSAR accidents and verifying that for the accident

PROJECT INSTRUCTION	 Sargent & Lundy	INSTRUCTION PI-MP3-07 REV. 1
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mitigating systems that the component parameters meet the plant current design basis in accordance with this instruction.

5.0 PROCEDURE

The process discussed below shall be used by the ARG to develop the system critical characteristics for the accident mitigating systems. Sections 5.1, 5.2 and 5.3 discussed below shall be the responsibility of the ARG for all the accident mitigation systems. ARG shall be responsible for the remainder of the Sections 5.4 through 5.7 for only those accident mitigation systems which are not included in the detailed Vertical Slice Review (VSR) which shall be done by ORG and SRG. These reviews are addressed in the Project Instructions References 2.4 through 2.6.

- 5.1 The ARG Lead and Discipline Verifiers shall review the accidents analyzed in the FSAR, for Millstone Unit 3 and identify the accident mitigating systems, components within the system and specific component parameters which are required to mitigate the event. As a result of this review the ARG Lead or his designee shall create a database consisting of the following items: a) Analyzed Accidents, b) Mitigating Systems, c) Components, d) Component Parameters and e) References to the accidents and associated documents. The component parameters shall be identified in Parts 1 & 2 of Checklist CK-MP3-07-01 (Ref 2-10). These component parameters are the inputs and or assumptions in the accident analysis.
- 5.2 The ARG Lead or his designee shall sort the database in Section 5.1 to facilitate the verification of the system critical characteristics in the following order: a) Mitigating Systems, b) Components, c) Component Parameters, d) References and e) Analyzed Accidents. The list of systems and associated critical characteristics shall be submitted to the NRC for approval.
- 5.3 The portion of the database consisting of the accident mitigation systems in the VSR shall be given to the ORG and SRG for their review of the Critical Characteristics.

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-07 REV. 1
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- 5.4 The ARG Verifiers shall verify the System Critical Characteristics listed in Section 5.2 using a documented System/Component test, and or Surveillance test from the Millstone Unit 3 Technical Specification or Post Maintenance Tests. The verification shall be documented on the ORG Checklist CK-MP3-06-15 from Reference 2.7 which shall be signed and dated. To facilitate this review, those component parameters which are identified for review using a test approach shall be listed on ORG Checklist CK-MP3-06-01 from Reference 2-7. The results of the verification and documents used shall be identified on the database contained in CK-MP3-07-01 (Reference 2-10).
- 5.5 In addition to the verification of the Critical Characteristics by test reviews discussed in Section 5.4, the design calculations, specifications, vendor documents and drawings shall be obtained and reviewed for conformance with the design requirements of the accident analysis. Request for documentation shall be processed in accordance with Reference 2.3.
- 5.6 Verification of the Critical Characteristics using design calculations, shall be documented on the SRG Checklist CK-MP3-02-03 (Ref. 2.4) which shall be signed and dated. For a Mechanical, I&C or Electrical Calculation, the section of this checklist covering each discipline shall be completed to verify the numerical accuracy, modeling accuracy, assumptions, engineering judgment, design inputs, methodology and results associated with each calculation. The results of the verification and documents used shall be identified on the database contained in CK-MP3-07-01 (Reference 2-10).
- 5.7 If the Critical Characteristics cannot be verified the review conclusions shall be documented on the appropriate Checklist(s) and a Discrepancy Report shall be processed in accordance with Reference 2.8. The ARG Lead or his designee shall verify that the checklists have been properly completed and indicate concurrence with his signature and date. He shall file the documents per Reference 2.9.
- 5.8 The ARG Lead shall draft a final report summarizing the results of the review. The report format shall be determined by the Verification Team Manager.

6.0 ATTACHMENTS

- 6.1 ICAVP Review of Critical Characteristics for Accident Mitigation Systems (1 page)

Figure 1

ICAVP Review of Critical Characteristics
for
Accident Mitigating Systems

