



**TRAINING ON INSERVICE TESTING
OF NUCLEAR POWER PLANT
SYSTEMS AND COMPONENTS**

INSTRUCTOR:

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**A PROFESSIONAL DEVELOPMENT PROGRAM
PRESENTED BY:**

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Background

This IST training course is to provide an introduction to the requirements of the U. S. Nuclear Regulatory Commission, ASME Section XI, and ASME Operations and Maintenance (O&M) Standards for the inservice testing of nuclear power plant systems and components. Specific emphasis will be placed on the ASME Code boundary classification process, Owner's responsibilities, test and examination plans, and detailed requirements for inservice testing of pumps and valves. Several examples will be used to illustrate the correct application of the technical requirements.

Objectives

- Introduce students to regulatory, ASME Section XI, and ASME O&M requirements for the inservice testing of nuclear plant systems and components.
- Provide detailed guidance for the classification of components for testing.
- Define General Test Requirements and detailed requirements for pumps and valves.
- Provide practical examples of Classification Bases, IST Bases, and Test Programs.
- Discuss problems and questions from attendees and provide recommended resolutions and good practices.

IST Training Outline

- Purpose of Inservice Testing
- U. S. Nuclear Regulatory Commission Requirements
- ASME Code Classification System for Components
- ASME Operations & Maintenance Standards and Guides
- General Test Requirements/Changes
 - OM Code 2004 Edition, Subsection ISTA
- Pump Testing Requirements/Changes
 - OM Code 2004 Edition, Subsection ISTB
- Valve Testing Requirements/Changes
 - OM Code 2004 Edition, Subsections ISTC and Appendix 1
- Additional Test Alternatives
 - OM Code 2004 Edition, Appendix II—Condition Monitoring Check Valves
 - OM Code Code Cases
 - OMN-1-- MOVs
 - OMN-3—RI-IST
 - OMN-8—Control Valves
- Regulatory/Industry Topics Include:
 - 10CFR50.55a Requirements
 - USNRC Generic Letter 91-18
 - Proposed Amendments to 10CFR50.55a
 - Examples of Classification Bases
 - Regulatory Guide 1.26
 - NUREG-0800, Section 3.3.2
 - RSB 5-1
 - Examples of IST Bases
 - NUREG-1482, Revision 1
 - USNRC Generic Letter 89-04
 - USNRC Information Notices
- Classroom Discussion

TRAINING ON INSERVICE TESTING OF NUCLEAR POWER PLANT SYSTEMS AND COMPONENTS

Instructor

R. C. Lippy

Mr. Lippy has more than 32 years of professional experience in nuclear power plant operation, maintenance, inspection, and testing including experience in ASME Codes and Standards, regulatory requirements, and licensing and design basis activities. Related career highlights include:

- Inservice Inspection (ISI) pressure testing.
- Appendix J Integrated Leak Rate (ILRT) and Local Leak Rate Testing (LLRT).
- Inservice Test (IST) Coordinator.
- Level III Startup and System Test Engineer.
- Senior Reactor Operator (USN).
- Engineering Watch Supervisor (USN).
- Member of the ASME Operations and Maintenance (O&M) Committee on General Requirements (ISTA).
- Member of the ASME Operations and Maintenance (O&M) Committee on Valve Testing Requirements (ISTC)
- Member of the ASME Operations and Maintenance (O&M) Sub-Committee on Pumps and Valves
- Member of the ASME OM Standards Main Committee

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NOTICE

The instructor for this training is a recognized expert in their field and has extensive experience in the subject matter. However, the views expressed by the instructor do not necessarily represent the views of the American Society of Mechanical Engineers or the U. S. Nuclear Regulatory Commission. Attendance at this training session should not be construed to provide preferential treatment or advantage for the attendees or their organizations in any matter involving the ASME Boiler and Pressure Vessel Code Committee, the Operations and Maintenance Standards Committee, or the U. S. Nuclear Regulatory Commission.

These notes are intended for use as educational material and are not intended to replace the applicable edition and addenda of the ASME Boiler and Pressure Vessel Code or the OM Code or, regulations set forth by the U. S. Nuclear Regulatory Commission. All requests for interpretation or other inquiries relative to the ASME Boiler and Pressure Vessel Code or, the OM Code, should be addressed to the Secretary, Boiler and Pressure Vessel Committee, American Society of Mechanical Engineers, United Engineering Center, Three Park Avenue, New York, NY 10016. Comments and questions related to the USNRC rulemaking may be addressed to Mr. Wallace E. Norris, U. S. Nuclear Regulatory Commission, Mail Stop 07D4, Washington, DC 20555, Telephone: (301) 415-3266, E-mail: wen@nrc.gov.

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TABLE OF CONTENTS & Course Reference Materials



TABLE OF CONTENTS – Page 1

SECTION	PAGE
1.0 INTRODUCTION AND BACKGROUND	
Objectives	1
Introduction	2
Background	3
2.0 UNITED STATES REGULATORY REQUIREMENTS	
United States Federal Regulations	1
Technical Specifications	3
Noncompliance Issues	5
Future Changes to the Regulations	7
3.0 ASME CODE CLASSIFICATIONS FOR COMPONENTS	
Introduction	1
Classification Documents	4
The Section XI Boundary Classification Process	6
Classification Notes	6
Application of ASME Classifications	7
4.0 THE ASME OM COMMITTEE	
The American Society of Mechanical Engineers (ASME)	1
The Committee on Operation and Maintenance (OM) of Nuclear Power Plants	1
OM Committee Structure	2
Committee Meetings	4
Development of the OM Code, Standards and Guides	5
The OM Standards and Guides	7
The OM Code	8
Inquiries	9
5.0 GENERAL TEST REQUIREMENTS	
Introduction	1
Subsection ISTA	1
Scope	1
Jurisdiction	1
Components Subject to Testing and Examination	2
Classifications	2
Owner's Responsibilities	2
Accessibility	3
Duties of the Inspector	3



TABLE OF CONTENTS – Page 2

SECTION	PAGE
Qualification of Authorized Inspection Agencies, Inspectors, and Supervisors	4
Access of the Inspector	4
Application of Code Edition and Addenda	4
Test and Examination Plans	5
Inservice Test Intervals	6
Application of Code Cases	6
Records	7
Records Retention	7
6.0 PUMP TESTING REQUIREMENTS	
Introduction	1
Section XI, Subsection IWP	5
Scope	5
Exclusions	7
Owner's Responsibility	7
Inservice Testing	8
Reference Values	10
Establishing New or Additional Reference Values	14
Instrumentation Requirements	15
Data Measurement Requirements	17
Bypass Test Loops	17
Time Allowed for Analysis of Tests	19
Corrective Action Requirements	19
Records of Inservice Tests - Summary Listing	20
Pump Records	20
Inservice Test Plans	20
Record of Tests	20
Record of Corrective Action	21
OM Part 6 & OM-Code- Subsection ISTB 2004 Edition	
Scope	22
Exemptions	22
Definitions	23
Owner's Responsibility	24
Preservice Testing	24
Comprehensive Pump Tests	25
Corrective Action	28
OM-6 Quarterly Tests and ISTB Group A Pump Tests	28
ISTB Group B Pump Tests	28



TABLE OF CONTENTS – Page 3

SECTION	PAGE
Reference Values	29
Pumps in Systems Out of Service	31
Instrumentation Requirements	31
Data Measurement Requirements	32
Inservice Test Plans	33
Pump Records	33
Record of Tests	34
Record of Corrective Action	34
7.0 VALVE TESTING REQUIREMENTS	
Introduction	1
Section XI, Subsection IWV	1
Scope	1
Exemptions	2
Definitions	2
Categories of Valves	3
Owner's Responsibility	3
Preservice Testing	4
Valve Replacement, Repair and Maintenance	4
Valves in Systems Out of Service	4
Valve Position Verification	5
Exercising Tests for Category A and B Valves	5
Power-Operated Valve Stroke Time Testing	7
Fail-Safe Testing	8
Seat Leakage Rate Tests for Category A Valves	9
Category C Check Valve Exercise Tests	11
Category C Relief Valve Tests	13
Category D Explosively Actuated Valve Tests	14
Category D Rupture Disk Tests	14
Valve Records	14
OM Part 10 & OM-Code-, Subsection ISTC 2004 Edition	
Scope	15
Definitions	15
Owner's Responsibility	16
Preservice Testing	16
Reference Values	16
Requirements for Inservice Tests	17
Exercising Tests for Category A and B Valves	17
Power-Operated Valve Stroke Time Testing	19



TABLE OF CONTENTS – Page 4

SECTION	PAGE
Seat Leakage Rate Tests for Category A Valves	20
Category C Check Valve Exercise Tests	21
Category D Explosively Actuated Valve Tests	23
Valve Records	23
Test Plans	24
Record of Tests	24
Record of Corrective Action	25
Appendix I	25
Scope	25
Limitations	26
Owner's Responsibility	26
Definitions	27
Test Instruments	28
Testing Before Initial Installation	28
Testing Before Initial Electric Power Generation	29
Periodic Testing	29
Disposition After Testing or Maintenance	31
Set-Pressure Testing	32
Requirements for Testing Additional Valves	33
Seat Tightness Testing	34
Records	34
APPENDIX A: 10CFR50.55a Requirements	
APPENDIX B: Generic Letter 91-18	
APPENDIX C: Examples of IST Bases	
APPENDIX D: Regulatory Guide 1.26	
APPENDIX E: NUREG-0800, Section 3.2.2	
APPENDIX F: Regulatory Guide 1.147	
APPENDIX G: Regulatory Guide 1.192	
APPENDIX H: Regulatory Guide 1.193	
APPENDIX I: RSB 5-1	
APPENDIX J: TNC Surveillance Competency - IST	
APPENDIX K: NUREG-1482,, Revision 1	
APPENDIX L: Generic Letter 89-04	
APPENDIX M: ASME OM Code Comparisons	



TABLE OF CONTENTS – Page 5

APPENDIX N:	NRC Information Notices/Regulatory Information Summaries
	IN-97-16 – Preconditioning
	IN-97-90 – Non-Conservative Acceptance Criteria in IST Pump Tests
	IN-2001-06 - Centrifugal charging pump thrust bearing damage not detected due to inadequate assessment of oil analysis results and election of pump surveillance points
	IN-2001-014 - Problems with incorrectly installed swing-check valves
	IN-2003-01 - Failure of a boiling water reactor Target rock main steam safety/relief valve
	IN-2003-017 - Reduced service life of automatic switch company (ASCO) solenoid valves with Buna-a material
	2004-RIS-012 - Clarification on use of later editions and addenda to the ASME OM Code and Section XI
APPENDIX O:	USNRC Workshop Summary - 1997
APPENDIX P:	Examples of ASME/OM Code Inquiries
APPENDIX Q:	NRC Regulatory Guide 1.174
APPENDIX R:	NRC Regulatory Guide 1.175



INSERVICE TESTING TRAINING COURSE SYLLABUS

Format / Course Outline

- IST Historical Perspective
- Federal Law
- ASME Codes
 - Section XI
- O&M Codes
 - ISTA – General Requirements
 - ISTB (Part 6) – Pumps
 - ISTC (Part 10) -- Valves
 - ISTD (Part 4) – Snubbers/Supports
 - Appendix I (Part 1)—Relief/Safety Valves
- Inservice Testing Overview
- Program Description (Scope & Purpose)
 - IST Implementation – Pumps
 - IST Implementation - Valves
 - Instrumentation Requirements
 - Regulatory Allowances
 - Error Reduction techniques
- IST Program Plan
 - Philosophy/Narrative
 - Valve / Pump Test Matrices
 - Relief Requests
 - Cold Shutdown / Refueling Outage Justifications
- IST Basis Document
- Post Maintenance / Modification Testing Requirements
- Implementation / Regulation of IST
- IST and Plant Technical Specifications



- NRC Guidance
 - GL's 89-04,90-06, 91-18
 - NUREG 1482
 - Information Notices IN 90-1-56, 97-16, 97-90
 - USNRC Inspection Procedure 73756
- Examples of recent Industry violations
- IST Interface with other Plant Programs
 - MOV / AOV / SOV
 - ISI, Repair/Replacement
 - Appendix J
 - IWE/IWL
- Future IST Perspective
 - Performance Based Testing
 - Check Valves (ISTC Appendix II)
 - AOVs (ISTC Appendix III)
 - MOVs (ISTC Appendix IV)
 - Code Changes
 - General Requirements (ISTA)
 - Pumps (ISTB)
 - Valves (ISTC)
 - Safety and Relief Valves (Appendix I)