TRAINING ON INSERVICE TESTING OF NUCLEAR POWER PLANT SYSTEMS AND COMPONENTS

INSTRUCTOR:

R. C. LIPPY

A PROFESSIONAL DEVELOPMENT PROGRAM
PRESENTED BY:

True North Consulting, LLC
101 N. Uncompahgre #5
Montrose, Colorado 81401

PHONE: 970-252-1832
FAX: 970-252-1837

"COMPREHENSIVE TRAINING SERVICES FROM INDUSTRY EXPERTS"

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

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

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.

DISCLAIMER

This notebook was prepared by True North Consulting, LLC. Neither True North Consulting or the instructor: (a) makes any warranty or representation whatsoever, expressed or implied, (1) with respect to the use of any information, apparatus, method, process, or similar item disclosed in this notebook, including merchantability and fitness for a particular purpose, or (2) that such use does not infringe on or interfere with privately owned rights, including any party's intellectual property, or (3) that this notebook is suitable to any particular user's circumstance, or (b) assumes any responsibility for any damages or other liability whatsoever (including any consequential damages, even if True North Consulting or the instructor has been advised of the possibility of such damages) resulting from selection or use of this notebook or any information, apparatus, method, process or similar item disclosed in this notebook.

COPYRIGHT

True North Consulting, LLC
101 N. Uncompahgre #5
Montrose, Colorado 81401

Phone: 970-252-1832
Fax: 970-252-1837

TABLE OF CONTENTS
&
Course Reference Materials

TABLE OF CONTENTS – Page 1

TABLE OF CONTENTS – Page 2

TABLE OF CONTENTS – Page 3

TABLE OF CONTENTS – Page 4

TABLE OF CONTENTS – Page 5

TRUE NORTH
CONSULTING, LLC

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)