

SETPOINT METHODOLOGY

Computer Based Training Module Available on NANTeL



ABSTRACT

This CBT is a self-paced, detailed, comprehensive, nuclear industry generic overview of Setpoint Methodology. It includes terminology and objectives of design and licensing basis for engineering evaluations and responses to industry and regulatory guidance. It discusses key industry and regulatory documents, margin fundamentals, unique design features and uncertainty establishing setpoints.



INTENDED AUDIENCE

1. Experienced nuclear plant I&C engineers who are developing expertise in Setpoint Methodology
2. Site engineering Managers or Supervisors



DURATION

- 1.5 hours
- An additional 8-12 hours for reading materials provided within the CBT

TERMINAL LEARNING OBJECTIVES

1. State the importance of setpoint control in the plant safety analysis as part of the design basis.
2. Define the important terms from ISA S67.04 Part 1 1994.
3. Describe the laws that apply to a nuclear setpoint control program from 10 CFR 50 and associated documents.
4. Recognize the guidance Regulatory Guide 1.105, Revision 0, 1 and 2 and 3.
5. Describe the current regulatory position with respect to NRC Regulatory Guide 1.105 Rev 3 and associated NRC documents.
6. Address the future regulatory path being taken.
7. Describe the setpoint calculation process as addressed in ISA S67.04 Part I and Part II.
8. Define terms related to safety calculations.
9. Contrast the circumstances for applying instrument uncertainty terms under normal, seismic and accident conditions.
10. Identify the requirements on uncertainty terms in order to combine them using root sum square (RSS) following the ISA S67.04 methodology.
11. Describe the graded approach to setpoints.
12. Describe the requirements to extend the Technical Specification surveillance intervals following the ISA S67.04 Part I and II methodology.
13. Describe the role of setpoints in Technical Specifications and the evolutions in regulatory guidance related to setpoints as addressed in NRC Standard Technical Specifications and associated documents.
14. Describe how the regulatory process has been implemented in inspections of setpoint control programs over the past and present.
15. Describe how the major elements of the 10 CFR 50.59 reviews apply to the performance of a new or revised setpoint calculation.

KEY INDUSTRY DOCUMENTS

1. ANSI/ISA-67.01-2006 Setpoints for Nuclear Safety-Related Instrumentation
2. ANSI/ISA-S67.04-Part 1-1994 Setpoints for Nuclear Safety-Related Instrumentation
3. ASME OM Code-2004 Code for Operation and Maintenance of Nuclear Power Plants
4. US NRC Branch Technical Position 7-12 Guidance On Establishing And Maintaining Instrument Setpoints Review Responsibilities
5. EPRI Guidelines for Instrument Calibration Extension/Reduction Rev 2
6. INPO EPG-01 2005 Setpoint Control
7. ISA RP-67.04.02-2000 Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation
8. ISA TR 67.04.08-1996 Setpoints for Sequenced Actions
9. ISA TR 67.04.09-2005 Graded Approaches to Setpoint Determination
10. NUREG-1475 Rev 1 Applying Statistics
11. NUREG-1431 Vol 1 Rev 4 Standard Tech Specs Westinghouse Plants Revision 4.0 Volume 1, Specifications
12. NUREG-1431 Vol 2 Rev 4 Standard Tech Specs Westinghouse Plants Revision 4.0 Volume 2 BASES
13. Reg. Guide 1.105 Rev 1 1976 Instrument Setpoints
14. NUREG-1482 Rev 2 Guidelines for Inservice Testing at Nuclear Power Plants
15. Reg. Guide 1.105 Rev 2 1986 Instrument Setpoints for Safety Related Systems
16. US NRC Branch Technical Position 7-12 Rev 5 Guidance On Establishing And Maintaining Instrument Setpoints Review Responsibilities
17. Tech Spec Task Force-493, Rev. 4 Clarify Application of Setpoint Methodology for LSSS Functions
18. Reg. Guide 1.105 Rev 3 1999 Setpoints For Safety-Related Instrumentation
19. NRC Bulletin 79-21 Temperature Effects on Level Measurements
20. NRC Inspection Procedure 93807 Systems Based Instrumentation And Control Inspection
21. NRC RIS 2006-17 NRC Staff Position On The Requirements Of 10 CFR 50.36, "Technical Specifications," Regarding Limiting Safety System Settings During Periodic Testing And Calibration Of Instrument Channels