ANTICIPATED TRANSIENTS WITHOUT SCRAM

Computer Based Training Module

ABSTRACT

This CBT is a detailed, comprehensive, nuclear industry generic overview of the Anticipated Transients Without Scram (ATWS) Rule. The primary learning objective of this CBT is to know about the background of the ATWS Rule, key aspects of the Transient and PRA Analysis in relation to both Pressurized Water Reactors (PWR) and Boiling Water Reactors (BWR) designs.

INTENDED AUDIENCE

1. Experienced nuclear plant engineers who are developing expertise in Anticipated Transients Without Scram
2. Site engineering Managers or Supervisors

DURATION

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

TERMINAL LEARNING OBJECTIVES

1. Describe the background of the events that resulted in the Anticipated transients without scram (ATWS) Rule.
2. Explain the implementation of the ATWS Rule for PWRs and BWRs.
3. Explain the key aspects of Transients Analysis for both PWRs and BWRs, including safety margins and defense-in-depth to the ATWS safety criteria.
4. Describe the key aspects of the ATWS Probabilistic Risk Assessment (PRA) analysis for Core Damage Frequency (CDF), Large Early Release Frequency (LERF), and Loss of Offsite Power for both PWRs and BWRs.
5. Explain the design and procedural details of PWR and BWR implementation.

KEY INDUSTRY DOCUMENTS

1. WASH-1270
2. NUREG-0460, Volume 1
3. NUREG-0371
4. NUREG-0460, Volume 3
5. NUREG-0510
6. IEB 80-17
7. NUREG-0933
8. IEB 83-01
9. NUREG-1000
10. GL 83-28
11. 49 FR 26036
12. 10 CFR 50.62
13. WCAP-10858P-A, Revision 1
14. NUREG-0737
15. NUREG-0800, Rev 1
16. NEDE-31096-P-A
17. SECY-83-293