U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Inservice Testing Operational Program Review

Thomas G. Scarbrough
Division of Engineering
NRC Office of New Reactors

EPR Design Center Working Group

Public Meeting

January 16, 2009

10 CFR Part 52

- Design Certification
  - 10 CFR 52.47(a)(9) requires DC applications to evaluate design against NRC Standard Review Plan (SRP) in effect 6 months before docket date
  - 10 CFR 52.47(a)(22) requires DC applications to address operating experience

- COL application
  - 10 CFR 52.79(a)(11) requires COL applicant to provide description of programs and their implementation necessary to ensure that systems and components meet ASME BPV Code and OM Code per 10 CFR 50.55a
  - 10 CFR 52.79(a)(37) requires COL applications to include information necessary to demonstrate how operating experience has been incorporated into plant design
  - 10 CFR 50.55a(f)(4)(i) requires initial IST program to meet ASME Code incorporated in 10 CFR 50.55a 12 months before fuel loading

Operational Programs

- Design Certification (DC) application may provide general information to allow flexibility by COL applicant in developing plant-specific operational programs
- NRC review of Inservice Testing (IST) and Motor-Operated Valve (MOV) testing programs described in DC application focuses on design aspects and accessibility for performance of IST activities
- COL application needs to support NRC decision that operational programs will provide reasonable assurance of safe plant operation

Examples of Operational Programs

- Inservice Testing
- MOV Testing
- Equipment Qualification
- Preservice Testing
- Containment Leakage Rate Testing

SECY-05-0197

- COL applicants should fully describe operational programs to avoid need for Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)
- Program is clearly and sufficiently described in terms of scope and level of detail to allow reasonable assurance finding of acceptability
- Program should be described at functional level and increasing level of detail where implementation choices could materially and negatively affect program effectiveness and acceptability
- 10 CFR Part 52 Background includes this information

Regulatory Guide 1.206

- RG 1.206 provides guidance for COL applications
- Paragraph C.III.3.9.6 addresses COL applications referencing standard design for functional design, qualification, and IST programs for pumps, valves, and dynamic restraints
- NRC staff using RG 1.206 to help streamline review process for COL applications

SRP Section 3.9.6
Functional Design, Qualification, and Inservice Testing of Pumps, Valves, and Dynamic Restraints

- Areas of Review:
  - Functional Design and Qualification of Pumps, Valves, and Dynamic Restraints
  - IST for Pumps, Valves, and Dynamic Restraints
  - Relief Requests and Alternatives to ASME OM Code
  - ITAAC
  - COL Action Items and Certification Requirements and Restrictions
  - Operational Program Description and Implementation
- Incorporates lessons learned from operating experience into acceptance criteria for staff review of DC and COL applications

Specific Review Issues

- Functional design and qualification of pumps, valves, and dynamic restraints consistent with NRC regulations, industry standards, and lessons learned (e.g., ASME Standard QME-1-2007 in Reg. Guide 1.100)
- Inservice testing of pumps, valves, and dynamic restraints consistent with NRC regulations, ASME Code, and lessons learned (e.g., Generic Letters 89-10 and 96-05, and Regulatory Issue Summary 2000-03)
- Environmental qualification of mechanical equipment consistent with NRC regulations and electrical equipment qualification (e.g., IEEE standards and QME-1-2007)
- These issues need close coordination between DC and COL applicants.

Summary

- NRC review of Design Certification application focuses on design aspects and accessibility for IST activities.
- NRC review of operational programs in COL application evaluates whether programs are "fully described" using applicable SRP sections.
- NRC staff will review generic program information in Design Certification application where included to assist COL applicants.