



Interfaces of Regulatory Inspection Programmes with Licensing Activities for Research Reactors

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Introduction

- This presentation will focus on the interface of the two main functions of the United States Nuclear Regulatory Commission (NRC) for research reactors
 - Licensing
 - Inspection
- Licensing and inspection are complementary
- Licensing and inspection can inform each other to continually improve safety

NRC Organization

- **Research and Test Reactors Licensing Branch**
 - Conducts licensing and technical reviews to support initial licensing, re-licensing, power increases, amendments [technical specification (operational limits and conditions) changes], fuel conversions, and environmental aspects of these reviews
- **Research and Test Reactors Oversight Branch**
 - Conducts routine inspections, safeguards program inspections, and reactive inspections

Staff Responsibilities

- Inspector (NRC Oversight Branch)
 - Verify licensee is performing actions consistent with the license
- Project Manager (NRC Licensing Branch)
 - Review and approve changes to the operating license, including the technical specifications
- Licensee (non-NRC personnel)
 - May make facility or operational changes without prior approval within regulatory framework

Licensing

- How does the applicant or licensee *plan* to meet the regulatory requirements?
 - Nuclear safety
 - Radiological safety
 - Environmental impact
 - Emergency plan
 - Security plan
 - Personnel training and qualification plan
 - Financial qualifications
- Licensing happens infrequently

Licensing Statement

- The Commission has concluded that:
 - there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner
 - activities will be conducted in compliance with the Commission's regulations
 - activities will not be inimical to the common defense and security

Operating License

- Places restrictions on facility operations to ensure the limitations of safety analysis that have been reviewed and approved are not exceeded

Oversight

- Is the licensee *following* the plan, and does the plan *work in practice*?
 - Nuclear safety
 - Radiological safety
 - Environmental impact
 - Emergency plan
 - Security plan
 - Personnel training and qualification plan
- Oversight happens frequently

Duties of Inspector

- Know which inspection procedures are required in advance of the inspection
- Conduct performance based inspections versus a paperwork review
- Be prepared to explain the regulatory requirements to personnel without prior experience with a formal system of regulations

Project Manager

- More attention is focused on reviewing licensing aspects as they relate to regulations
- Looks at licensee ability to maintain the facility with an emphasis on management of modifications and the potential impact to safety

Interface

- Inspector
 - Is the licensee following the rules established in the licensing documents?
- Project Manager (PM)
 - Are the rules and procedures in place for the licensee consistent with the applicable regulations and do they ensure safety?

Actions Prior to Inspection

- PM reviews annual reports and licensing requests for the facility
- Inspector reviews modules scheduled and any additional concerns
- PM and Inspector discuss any areas of the facility that would require additional attention

Inspection Procedures

- The inspection procedure is designed to confirm that the licensee's programs and actions are consistent with the regulatory requirements and the licensing basis for the facility, such as:
 - Code of Federal Regulations
 - Operating License and technical specifications
 - Orders
 - Confirmatory Action Letters
 - Safety analysis report
 - Licensee commitments in security plan, emergency plan, and personnel training and requalification plan

Working Together

- Licensing staff and inspectors discuss inspections before and after the inspection
 - Licensing staff can point inspectors to potential problem areas
 - Inspectors can inform licensing decisions through inspection reports
 - Re-licensing (renewal or reissued depending on the age of the facility), also considered to be periodic safety review
 - NRC orders to modify, suspend, or revoke a license

Working Together

- Licensing staff and inspectors discuss licensing actions before and after issuance
 - Licensing staff can ask inspectors to look at areas of the facility or documents that are part of a licensing action
 - Licensing staff can consult with inspectors about licensee performance
 - Inspectors verify that the licensee implements the new license requirements
 - License requirements must be clear and enforceable

Working Together

- Inspectors and licensing staff hold an annual meeting to discuss the performance of all of the licensees
- Special inspection teams include both licensing staff and inspectors
- Communication between inspectors and licensing staff results in increased safety

Working Together

- Detailed Example
 - Relicensing review performs evaluation of facility modifications
 - Changes can be performed at the facility without prior NRC approval provided specific criteria are met
 - Licensee said that they had reviewed the criteria and met them
 - The decision was reviewed and accepted by the licensee safety committee
 - Facility inspector asked basic questions about the modification and reviewed paperwork

Working Together

- Detailed Example Continued
 - Relicensing PM needed to verify safety impact of the modification to the protection system and asked for detailed circuit analysis
 - Relicensing PM identified a single point vulnerability in the design change
 - Licensing staff met with inspection staff and determined the facility is operating in an unanalyzed condition

Working Together

- Detailed Example Continued
 - Phone call with licensee including regulator oversight and licensing branches to discuss details of concern
 - Licensee realized the error in the design and agreed to cease operations until the single-point vulnerability was addressed

Working Together

- Other examples of safety benefits
 - Digital reactor console changes
 - Cracked confinement walls
 - Relocation of radioactive material handling areas
 - Personnel requalification plan requirements
 - Groundwater intrusion around the reactor pool liner
 - Radiation area access control equipment

Discussion

- What additional benefits are gained by working collaboratively with licensing and inspection?
- What other areas can be reviewed?
- What is the relationship to Safety Culture?