



Discussion of NRC Environmental Qualification Inspections

Initial Comments of the
NUCLEAR UTILITY GROUP ON EQUIPMENT
QUALIFICATION

NRC Public Meeting – May 31, 2018

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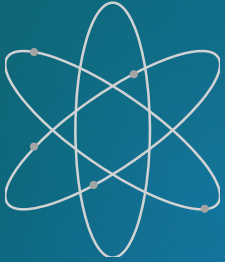
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Introductions

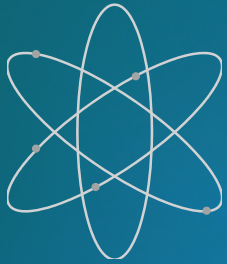
- Nuclear Utility Group on Equipment Qualification
 - Established 1981
 - Members include over 90 of the operating plants in the United States

- Representatives
 - Bill Horin, Counsel to NUGEQ
 - Ron Wise, Technical Consultant to NUGEQ
 - Chris Abernathy, Duke Energy, NUGEQ Member
 - Vince Bacanskas, Entergy, NUGEQ Member
 - Jim Polickoski, TVA, NUGEQ Member
 - Larry Parker, STARS, NUGEQ Members



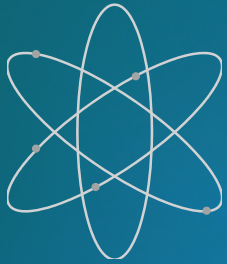
Overview

- Current Inspection Process
- Licensing Process and Structure
- Specific Technical Topics Raised in Q and A
 - Regulatory Standards
 - Application of IEEE Standards, 323-1974 and Other Standards
 - Commercial Grade Dedication/Qualification
 - Arrhenius Application
 - Validation of Vendor Input



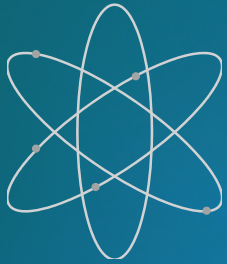
Current Inspection Process

- Inspection Process
 - Important component of assuring EQ programs are aligned for the future
 - Many key elements of inspections for that purpose have been examined
 - Some questions related to original licensing bases have also been raised
 - ✦ It is those questions on which the Staff's draft question and answers are focused
- Discussion, Interaction with the NRC
 - Appreciate opportunity to discuss topics
 - Staff obviously has put in a great deal of work on Q&A
 - The resolution/discussion/burden related to addressing some topics has been significant at some plants



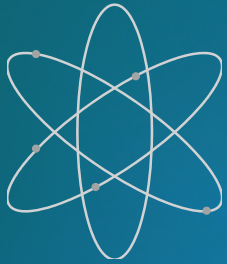
Current Inspection Process

- Purpose
 - Today:
 - ✦ Acknowledge valuable work already done in preparing the responses
 - ✦ Identify several key licensing and technical concerns regarding the draft answers
 - Following today:
 - ✦ Additional discussions
 - ✦ Written responses and suggestions regarding clarification
 - Goal is to move the inspection process forward with an understanding of the questions, to resolve issues at individual plants, reduce the burden on licensees dealing with such issues



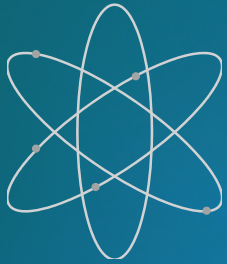
Licensing Process and Structure

- Petition for Emergency and Remedial Action, CLI 80-21, 11 NRC 707 (1980)
 - Directed rulemaking on EQ (p. 712)
 - Noted numerous fundamental points related to providing reasonable assurance of the protection of the public health and safety (pp. 711-12)
 - ✦ Existing standards were to be applied
 - ✦ Licensees should continue to assure conformance with those standards
 - ✦ Provide for upgrades to the final rule standards as equipment is replaced, absent sound reasons to the contrary



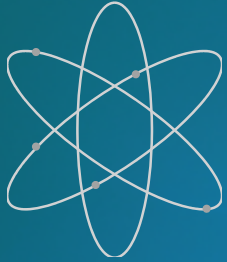
Licensing Process and Structure

- Process of providing assurance of conformance with DOR and 0588, included:
 - Review of licensee responses to Commission Orders and expectations set forth in NRC issuances, including IE Bulletin 79-01B
 - Subsequent Franklin and INEL review of appropriate licensing criteria, established technical bases (including test reports), establishment of checklists for comprehensive site reviews
 - Franklin extensive reviews of individual plant conformance to those standards and criteria



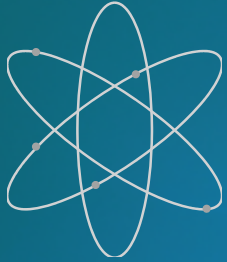
Licensing Process and Procedure

- Franklin issuance of **TERs** for 71 plants (500+ pages) addressing adequacy of EQ for existing equipment
- INEL focus on later plants
- NRC review of Franklin reviews, issuing plant-specific **SERs**.
 - Staff approved/found acceptable licensees' programs/processes for qualification as EQ programs were being developed.
 - Staff approved the "bases" for the Franklin reviews as well.
 - Staff identified actions to be taken by licensees, including replacement, of equipment found to be unqualified, and indicated that such qualification deficiencies would be reviewed upon completion.



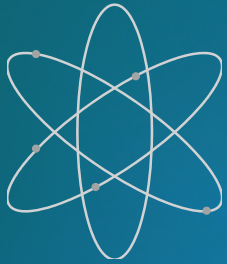
Licensing Process and Procedure

- Culmination in NRC Technical Evaluation Report Implementation Guidance, dated April 22, 1983
- Findings in these contexts serve as initial EQ licensing bases for each plant so reviewed. They are NRC approved findings, as well as NRC approved bases of those findings.
- Subsequent NRC Inspections/Enforcement
 - Two phases
 - Additional findings and enforcement, some significant fines



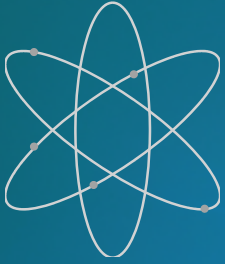
Licensing Process and Procedure

- Later Generic, Plant-Specific EQ Reviews
 - EQ Task Action Plan
 - License Renewal Reviews
- Q and A Do Not Acknowledge Extensive EQ Licensing History
 - Mischaracterize licensing bases (not limited to UFSAR)
 - Cites Initial SER From Early in Overall Process



Regulatory Standards

- Three “Safety Standards”
 - Each provide reasonable assurance of Protecting Public Health & Safety and compliance with GDC-4 requirements
 - ▲ CLI-80-21 (DOR and NUREG-0588)
 - ▲ EQ Final Rule (10 CFR 50.49)
 - Examples of mixing standards
 - ▲ Limiting Applications
 - ▲ Incorrect or new interpretations
 - Improper elevation of Comments / Q&A to regulation status



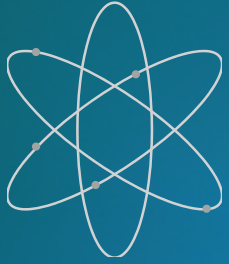
Regulatory Standards

- Examples:

- Q6

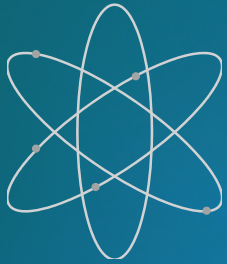
- Response is specific to aging as specified in 50.49 (e)(5), which differs from NUREG-0588
 - Application of NUREG-0588 Cat 2 to DOR equipment applies when the DOR Guidelines don't provide sufficient detail, but 0588 Category 2 does
 - Use of term "sufficient" to backfit Cat 2 to Cat 1 aging to DOR equipment
 - Discussion on GL 82-09 changes wording in Generic Letter from "an acceptable method" to "the acceptable method"

- Q8 Use of NUREG-0588 Comments as requirements



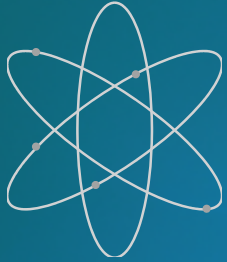
Application of IEEE Standards, 323-1974, and other Standards

- NONE of EQ qualification standards are Incorporated by Reference (Thus, no effect as regulation)
- IEEE 323-1974 referenced in Reg. Guide 1.89
 - Applicability depending on licensing basis
- Additional IEEE standards listed in Question 8
 - Not endorsed / referenced in rule, guidance, or Reg. Guide 1.89
 - IEEE 323-1974 (IEEE 101-1972 is reference limited in that “may be used as a basis”)
 - Not nuclear standards



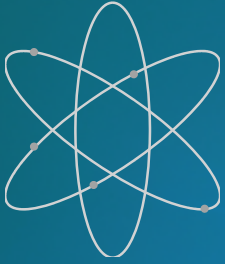
Commercial Grade Dedication (CGD)

- For EQ application, CGD can be utilized for the following circumstances:
 - a) “Like for like” equipment component replacements within an EQ application
 - b) Non “like for like” changes
- **Question #2 mixes both aspects of the above:**
 - a) justification of equipment component replacement by material analysis with CGD as per RG 1.164 with no impacts/changes to qualification
 - b) additional bases/design change process would be needed for either attribute changes of the same material (e.g., Ea) or use of a different material as per RG 1.89



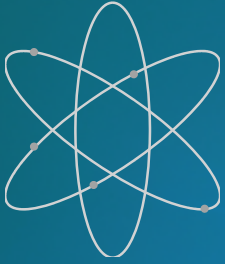
Commercial Grade Dedication

- View as attempt to change CGD implementation as per RG 1.164
 - will have significant industry impacts
 - concern that the staff is creating an additional or parallel CGD requirement or standard unique for EQ
- Question #2 uses numerous undefined terms that are orthogonal to standards (e.g., “quality databases”)



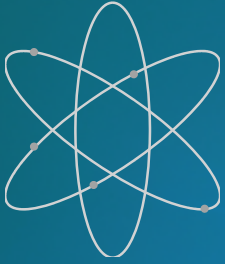
Arrhenius Application

- Additional Models
 - EPRI NP-1558
 - NUREG-0588
- NRC TER Guidance –
 - EPRI NP-1558
 - ✦ States multiple models are available
 - ✦ Referenced in guidance document



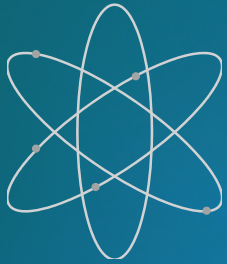
Arrhenius Application

- Question 8
 - Quotes from TER reference document (Section 3.4.6)
 - Not exclusive “aging models”
 - Introductory and concluding statements to section not quoted
 - Section 3.4.6.1 Thermal Stress provides more direct details
- Altogether, Q2, Q4 & Q8 create more questions than answers provided



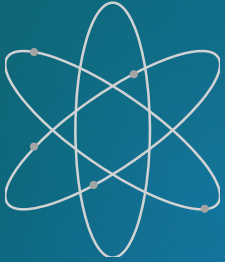
Validation of Vendor Input

- EQ is no different than other quality vendor processes
- EQ, in fact, is more specific in that the rule recognizes “auditable”
 - 50.49(j)
 - Statements of Consideration (SOC), other references, indicate all materials not expected to be on site
- Licensee expectations regarding confirmation of vendor data/analyses is no different than in other Appendix B contexts



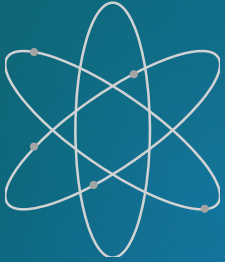
Validation of Vendor Input

- Inspections (FAQ 2, 4) pursue confirmation beyond expectations in other contexts
 - Only issues are depth of reverification of data, analyses, methodologies, etc.
- EQ Test Conditions/Analysis vs. Vendor maintenance interval recommendations



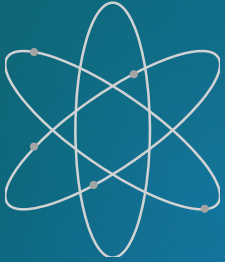
Conclusions

- Questions and Answers are incomplete in recognition of overall licensing bases, including key elements approved by the NRC in the overall EQ generic licensing context
 - Generic findings accepted by the NRC
 - Plant-specific acceptances based on the generic findings
- Interpretations in Questions and Answers are focused on positions argued to be premised on requirements, when in most instances only guidance or useful references are involved



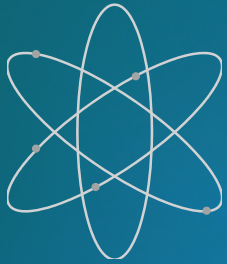
Conclusions

- Positions can be confusing in that they mix guidance and requirements, often using guidance as if requirements – difficult to discern exactly what is the alleged Performance Deficiency and/or its basis
- Positions in many instances reflect different interpretations or positions or asserted requirements, which constitute either generic or plant-specific backfits



Conclusions

- Want to support timely resolution of these questions and others presented in inspections
 - Burden on licensees in attempting to resolve issues given the above considerations
 - Will provide written responses in the near term
 - Open to further discussions with the NRC



QUESTIONS