



Waste Treatment Plant Project

Equipment Qualification

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URS



Basis and Definition of Equipment Qualification

- Definition of EQ
 - Validation, by test or analysis, of the Safety equipment to provide its safety function as and when required –
 - When it is new
 - When it has aged

- Equipment Environmental Qualification - EEQ
 - Temperatures, radiation, spray hazards, flooding, etc.

- Equipment Seismic Qualification - ESQ
 - Earthquakes, wind loading, snow loading, etc.

- Implementing Standards
 - IEEE 323-1983 and IEEE 344-87 – WTP tailored version



Equipment Qualification (EQ)

- Scope of EQ
 - LBL ~2500 items
 - HLW ~4000 items
 - PTF ~8000 items

- Equipment Qualification Package
 - Generated by WTP to document the qualification details

- Equipment Qualification Database
 - Tracks the qualification of all Safety equipment



Who Conducts EQ?

- Supplier Qualification
 - Testing and/or analysis
 - Evaluation of prior test or experience data

- 3rd Party Qualification
 - Testing and/or analysis utilizing specialist company

- Project Qualification
 - Analysis
 - Evaluation of prior test or experience data



Equipment Qualification at WTP

- Safety Classifications
 - Safety Class (SC) – Safety of the Public
 - Safety Significant (SS) – Safety of the Co-Located Worker and the Facility Worker
 - Classification has no effect on EEQ requirements
 - ESQ requirements for SC are different from those for SS

- Mechanical Equipment Qualification
 - Environmental Qualification for mechanical equipment is required at WTP
 - Many commercial nuclear facilities do not perform environmental qualification for mechanical equipment



Equipment Qualification at WTP

- Active vs. Passive Mechanical Equipment
 - Active safety function vs. passive
 - Less stringent requirements for passive mechanical
 - Correspondingly reduced documentation requirements
 - No distinction between active and passive for electrical

- Harsh vs. Mild
 - Harsh environmental and mild environmental are defined differently than for commercial nuclear



Equipment Qualification at WTP

- Aging
 - Aging is required even in mild environment – if materials are age sensitive

- Seismic Qualification
 - Includes Natural Phenomena Hazards (wind-loads, wind missiles, ash-fall load, snow load)

- EQ Certificate of Conformance (CoC)
 - EQ CoC is a unique document
 - The form and content of the EQ CoC is in the EEQ specifications
 - The EQ CoC is to be submitted as part of the EQ Report



WTP EQ Documents

- Input Documents
 - EEQ & ESQ Specifications
 - Equipment Qualification Datasheet
 - Provides Safety Function
 - Provides EEQ and ESQ Parameters

- Output Documents
 - EQ Plan
 - EQ Report



Facilitating EQ Document Submittal Reviews

■ Goals

- Improving the technical adequacy of submittals
- Reducing submittal turn around time
- Reducing the number of comments
- Reducing the number of re-submittals

■ Foundation

- Read WTP EQ Specifications and Datasheets (EQD) in detail
- Understand that WTP EQ has many unique aspects
- If unfamiliar with EQ – consider using EQ services providers



Facilitating EQ Document Submittal Reviews

- **Submit documents under the proper document category of the G-321-E form**

7.0

Seismic Qualification Documents

8.0

Analysis, Calculations, and Design Reports

35.0

Environmental Qualification



Facilitating EQ Document Submittal Reviews

- Thoroughly review all EQ documents prior to submitting to WTP
 - Editorial and technical mistakes





Facilitating EQ Document Submittal Reviews

- Share the lessons learned within your organization
 - We welcome suggestions on how WTP can help





Facilitating EQ Document Submittal Reviews

- Communicate
 - Ask questions if unsure...





QUESTIONS?

Email or Text

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