

HOW TO QUALIFY YOUR SAFETY-CRITICAL NUCLEAR EQUIPMENT

What you need to know about Equipment Qualification (EQ)



Protection against release of radioactive materials



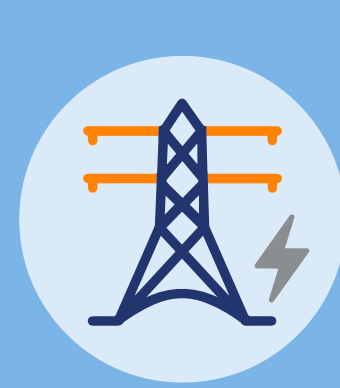
Increases plant safety



Proper function of safety-related equipment



Provides documented evidence



Enhances availability

How Equipment Qualification works

THE EQ PROCESS CONSISTS OF **THREE PHASES** :

FEEDBACK



DESIGN INPUTS

- Identify Postulated Initiating Events (PIEs)
- Specify service conditions
- Determine required safety functions
- Develop list of equipment, including functions and mission time



ESTABLISHING EQ

- Define EQ requirements and criteria
- Select qualification method
- Establish qualification
- Assess ageing effects
- Define installation and maintenance requirements
- Document qualification results



PRESERVING EQ

- Installation and maintenance control
- Replacement control
- Modification control
- Service condition monitoring
- Analysis of degradation and failures
- Analysis of experience feedback
- Personnel training
- Documentatation

5 steps to qualifying your nuclear equipment



STEP 1

Evaluate and assess plant systems, procedures and equipment

Determine:

- specific equipment that require qualification
- equipment performance to be verified
- service conditions under which equipment must perform



STEP 2

Produce an equipment specification

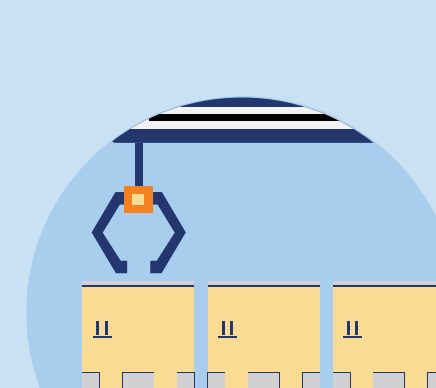
Derived from the underlying rules and regulations, as well as applicable design codes that describe the engineering solution, construction details, choice of material, building requirements, etc.



STEP 3

Find the right supplier for the equipment

Supplier is to produce pre-construction plans, which are to be inspected and assessed with respect to their conformity by an independent third party



STEP 4

Monitor manufacturing process

Manufacturing process has to be monitored by an inspection body



STEP 5

Test equipment before operation

Equipment should be tested within the framework of a factory acceptance test and during the commissioning tests

Access in-depth insights on equipment qualification for nuclear power plants



Download white paper



View webinar

Sources:

<http://www.westinghousenuclear.com/Portals/0/operating%20plant%20services/automation/services/NS-ES-0273%20Equipment%20Qualification.pdf>

<http://indico.ictp.it/event/a14286/session/22/contribution/110/material/slides/0.pdf>

http://www-ns.iaea.org/downloads/ni/training/specific_expert_knowledge/equipment%20qualification/EQ-Module2.pdf

<http://www-pub.iaea.org/books/IAEABooks/5136/Equipment-Qualification-in-Operational-Nuclear-Power-Plants-Upgrading-Preserving-and-Reviewing>



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