Equipment Qualification (EQ) Services

*ESTABLISH ACTUAL PLANT NORMAL SERVICE CONDITIONS

Using around the clock monitoring instrumentation, we can establish actual normal service plant conditions (temperature, radiation, etc.,). Actual plant conditions may be less than calculated design conditions offering improvement with the environmental conditions.

*ESTABLISH REPRESENTATIVE TEMPERATURE PROFILES

If upper boundary maximum temperature conditions within a given room are the basis for your equipment environmental qualification, having representative time dependent temperature profiles could remove these conservatisms and margins. We can provide these time dependent temperature profiles using appropriate calculations and/or software tools.

*FAILURE MODES and EFFECT ANALYSIS (FMEA)

For given pieces of safety related equipment, we can evaluate the overall effect on plant safety by evaluating the potential equipment failure modes during the various stages of plant operation. If, for example, the selected piece of equipment does not impact the safe shutdown of the plant, potentially the piece of equipment can perform its safety function even though it may not be qualified for the environmental conditions.

*INDUSTRY EXPERIENCE DATA MINING

Up-to-date Industry experience and databases are available to assess instrument qualification profiles.

*VENDOR TEST REPORTS DATA MINING

A complete review of vendor qualification reports can provide additional margin. In addition, if you have acquired a new revision of a particular piece of equipment, it may be possible that new qualification data may expand upon the qualified criteria.

*EQUIPMENT QUALIFICATION TESTING

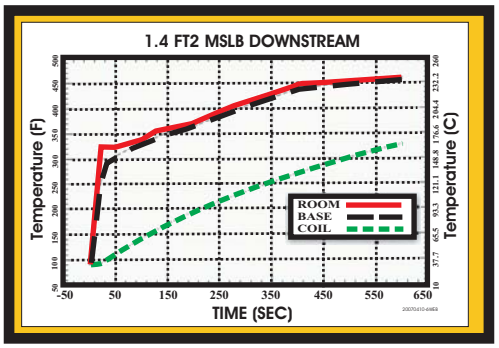
We can quickly perform qualification tests to represent normal service or accident conditions.

*LOCATION SPECIFIC EVALUATIONS

Rather than using a conservative broad zone to categorize the conditions a piece of equipment will be exposed to, we can determine location specific conditions. This includes the ability to perform thermal lag or radiation shielding calculations to properly account for equipment location.

*EVALUATION OF FAILURE CRITERIA

We can perform an evaluation to determine the specific types of accident conditions at which the specified piece of equipment will need to respond to. For instance, if a piece of equipment is required to operate following a HELB, but not a LOCA. The conditions corresponding to the HELB will be used to evaluate the corresponding environmental conditions, rather than using the "worst" case conditions.



This figure demonstrates results for a case analyzed for a PWR client. The "ROOM" is the room value; "BASE" represents the temperature of the interface of the insulating washer and the base of the coil and "COIL" is the temperature approximately 5 mm away from this interface.

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