



Seismic Walkdown

Seismic qualification of an existing facility involves a large amount of systems components and equipment and often is neither practical nor necessary to assess the absolute seismic capability of every plant component. Seismic walkdown and evaluation based on experience data will provide a cost-effective resolution to a variety of issues relating to seismic qualification and seismic margin assessment, particularly for an existing facility.

What is Seismic Walkdown?

As part of seismic engineering, qualification can be achieved by comparison with seismic experience data and the walkdown is a procedure to carry out plant inspection for seismic qualification of SSCs. Following from the Fukushima nuclear plant failure in 2011 there has been a greater focus on ensuring the safety of plants under the strains of seismic activity. A walkdown is often a cost-effective solution for a post seismic event safety assessment.

For seismic margin assessment, it is used as a screening process to reduce the number of SSCs (seismic source characterisations) that will require further seismic substantiation/qualification. The review team should consist of suitably qualified and an experienced seismic engineers, system engineers and a plant engineer.

This procedure also includes the review of the existing design and seismic qualification information, comparison with seismic experience data (generate test data, seismic fragility data and GIP (generic implementation procedure)) to prepare walkdown plans, carrying out the inspections and reporting the findings.

EASL's Seismic Walkdown Services

EASL are able to conduct seismic plant walkdown which will screen out most plant items based on seismic experience data following the IAEA guidelines and define a smaller list of systems, components and equipment for further seismic qualification by either analysis or testing. Our seismic walkdown capability is complimented by our extensive expertise in seismic analysis and seismic assessment.

A seismic walkdown on an existing facility usually consists of the following activities:

- Review available documentation to check whether the components are represented in the earthquake experience database, hence to define a walkdown strategy
- Anchorage and spatial interaction are usually evaluated separately
- Limit the walkdown to a plant item list prepared in advance by system engineers to be part of the primary and alternate success paths which are selected to be reviewed
- Walkdown will be performed by two easl experienced seismic capability engineers. This should be supported by systems engineers and plant personnel of the facility, as appropriate.
- Examine structures, large vertical tanks in general and main heat transport systems, although they should be evaluated by analysis (and verified by tests where appropriate)
- Small bore pipes and low energy piping systems may be adequately evaluated using walkdown procedures
- Plant seismic walkdown for distribution systems may be "line specific" for piping/tubing systems or "area specific" for cable tray/conduit and heating, HVAC duct evaluations
- The walkdowns may be organised in two stages: a) a preliminary screening walkdown and b) a detailed screening walkdown

A walkdown of a plant is a key tool to identify the spatial interactions. Working with clients to develop and define a clear strategy, EASL take a solution-focussed approach, taking from real world conditions to produce pragmatic and clear results.



With over 250 man years' experience assessing, analysing and inspecting structures, systems and components, EASL's has a wealth of knowledge to provide a cost-effective and trustworthy seismic walkdown to our clients. With expertise in seismic engineering including design, assessment and analysis as well, we can deliver a wide range of complimentary services.

To find out about all of our Seismic Services and our previous work, please take a look below at our related services and case studies. If you'd like to discuss your specific seismic needs, get in touch on enquiries@easl-stress.co.uk.

Related Services

- Hanger Surveys
- Inspection and Outage support
- Seismic Assessment