

Are Japanese and IAEA (safety and location) standards different, if so why?

No, the new Japanese (NRA) standards for NPP site evaluation contain some requirements that are very oversimplified and 'black and white'. For example, they specify that there should not be an active fault beneath any critical components of a NPP, with a definition of 'active' being that there has been displacement in the last 120,000 years. You could interpret this as: last movement at 110,000 years, close the plant down; at 140,000 years, do nothing. The arbitrary definition of 'activity' is not helpful. NRA do not consider a broad probabilistic evaluation of seismicity and fault displacements that would look at all structures, assess how and when they might have been or become active and then evaluate the impacts in an integrated ground motion/displacement/fragility analysis. IAEA says this latter approach is best when there is any doubt about faulty activity. In Safety Guide SSG-9 on re-evaluation of existing facilities where there is uncertainty about fault capability, they say:

“However, it may be the case that information comes to light that requires a new assessment of fault displacement potential to be made. In such circumstances, efforts should first be made to acquire further data relating to the fault of concern. It may be that, by using the definition and the deterministic methodology described in paras 8.3–8.7, no sufficient basis is provided to decide conclusively that the fault is not capable. In this case, with the totality of the available data, probabilistic methods analogous to and consistent with those used for the ground motion hazard assessment should be used to obtain an estimate of the annual frequency of exceedance of various amounts of displacement at or near the surface”.

The difference is emphasised by the fact that IAEA considers 'capable' faults, rather than 'active' faults.

Do you think Japanese and-or IAEA standards are now adequate?

I think the latest Japanese regulations with respect to re-evaluation of existing nuclear facilities are poorly thought out, structured and phrased and do not promote the application of good science in a framework of best international practice. This does NOT mean that they are unsafe, but they do not provide a sensible approach to making important and far-reaching decisions about critical national energy supply infrastructure.