عنوان مقاله:

A Methodology for Screening Pipe Break Hazard Analysis- Case Study on IR-360 NPP

محل انتشار:

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خلاصه مقاله:

To fulfill the requirements of General Design Criteria 2 and 4 of 10 CFR Part 50 [2], the functional capability of safe shutdown in nuclear power plant (NPPs) shall be examined against dynamic effects of pipe breaks; i.e. pipe whip, jet impingement, sub-compartment pressurization and hydraulic system internal loads.The list of identified break point candidates usually includes unwieldy number of cases to be analyzed for dynamic effects. In order to overcome this issue, a screening methodology is proposed in this article, to eliminate unnecessary candidates.Qualitative screening criteria are introduced in a top-down screening flowchart and discussed. Thereafter, it is applied on the identified break locations for a piping system, before conducting time-consuming and complicated complementary analyses.Screening significantly decreased the number of massive supplementary analysis required to study the dynamic effects of piping system rupture. In addition, since screening criteria are applied based on the 3D model of IR-360 NPP, It also conduces to revealing the most critical points of the piping system, the geometrical position of challenged safety SSCs around, and the those effects of breaks , which are probable to damage SSCs.The screening methodology for dynamic effects is conducted for the identified break points inside steam generator subcompartment .in the reactor building. Dominant scenario for subcompartment pressurization will be defined through screening

کلمات کلیدی:

Pipe Break, Hazard Analysis, Screening Criteria, Dynamic Effects, IR-360 NPP