

Fuzzy Approach for Fault Tree Analysis of Water Tube Boiler

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Abstract : This paper presents a probabilistic analysis of the safety of water tube boilers using fault tree analysis (FTA). A fault tree has been constructed by considering all possible areas where a malfunction could lead to a boiler accident. Boiler accidents are relatively rare, causing a scarcity of data. The fuzzy approach is employed to perform a quantitative analysis, wherein theories of fuzzy logic are employed in conjunction with expert elicitation to calculate failure probabilities. The Fuzzy Fault Tree Analysis (FFTA) provides a scientific and contingent method to forecast and prevent accidents.

Keywords : fault tree analysis water tube boiler, fuzzy probability score, failure probability

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