Emergency Diesel Generator Reliability Study

1. EMERGENCY DIESEL GENERATOR SYSTEM FAULT TREE

Emergency Diesel Generator (EDG) component unreliability was calculated using a simple PRA model (fault tree). Basic event failure probabilities based on operational data were used to quantify the model.

The unreliabilities of the EDG train were estimated using the simple fault tree model depicted in Figure 1. The unreliability is estimated on a per EDG train or per safety-related bus basis. The train estimate is based on failure data consistent with the EDG train boundary definition defined in the EDG System Description. The estimates of EDG train unreliability do not represent failure probability of complete loss of emergency ac power at the plant, but of an individual train. Because these calculations are for a single train, the contributions from CCFs are included in the appropriate failure mode.
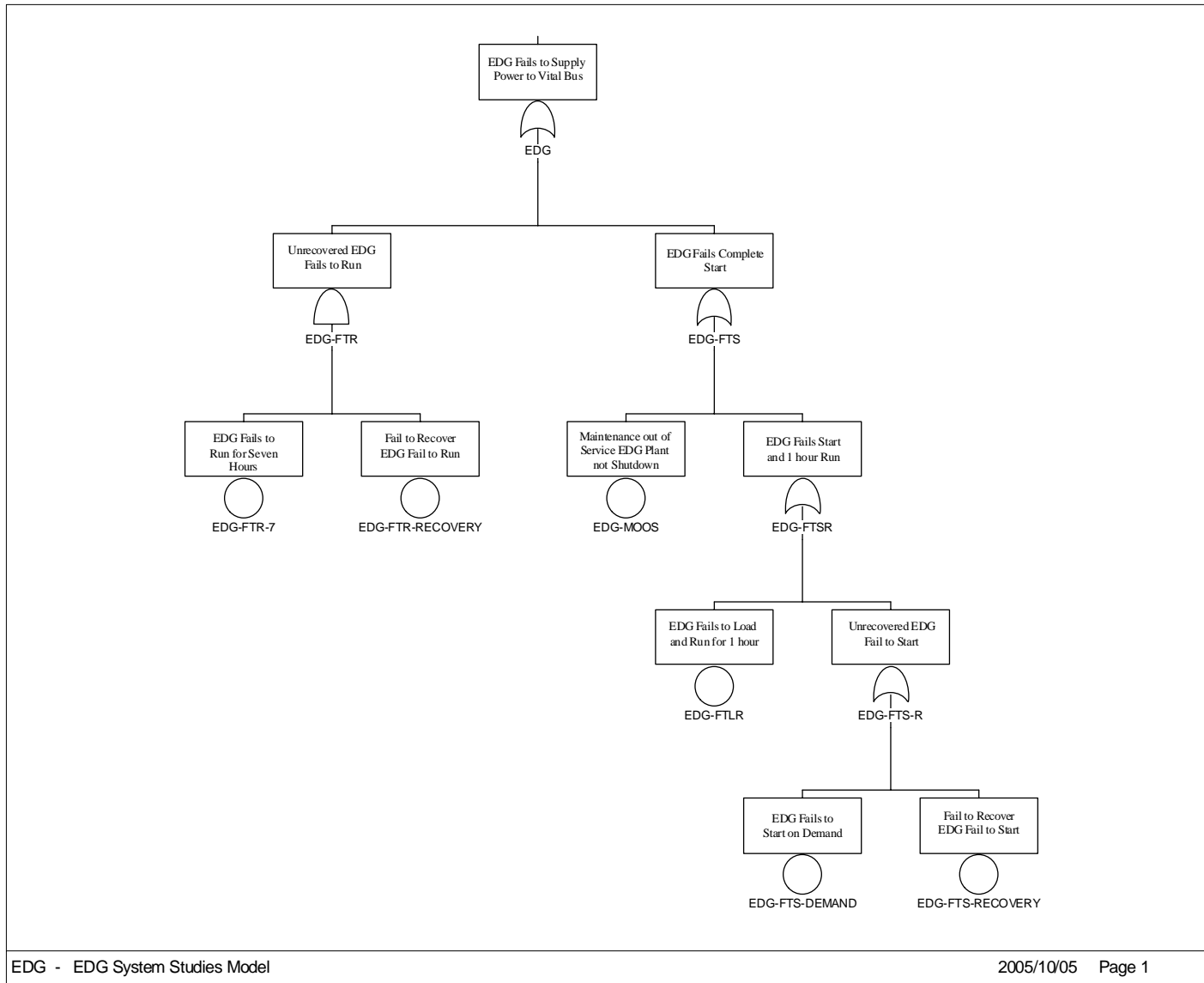
Figure 1. EDG train unreliability model with recovery actions.