AN ANALYSIS OF FEEDING SYSTEM OF SUGAR PLANT

SUBJECT TO COVERAGE FACTOR

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ABSTRACT

Feeding system is an important unit in sugar manufacturing plants. It comprises with the help of six components, namely unloader, cane carrier, crushing unit, bagasse carrier unit, boiler and turbine. All these components are connected in series configuration and some components also have internal redundancy such as unloader is composed in 1-out-of-2: G and turbine 1-out-of-2: G with one standby structures. All these components generally show constant behaviour during repair and failure. So, here all failure and repair rates are considered as exponentially distributed. To fulfill the main objective of the present study, a mathematical model is developed for feeding system and C-K differential equations have been developed for fuzzy availability and profit analysis. In case of imperfect fault detection concept of coverage factor is also used. Numerical results also obtained for a particular case to highlight the importance of the study. This study will be helpful for system designers and management to enhance the productivity.

KEYWORDS: Feeding System, Imperfect Coverage, Fuzzy Availability & Runge-Kutta Method

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