

Management of Fitness-For-Duty for Human Error Prevention in Nuclear Power Plants

Authors : Hyeon-Kyo Lim, Tong-Il Jang, Yong-Hee Lee

Abstract : For the past several decades, not a few researchers have warned that even a trivial human error may result in unexpected accidents, especially in Nuclear Power Plants. To prevent accidents in Nuclear Power Plants, it is quite indispensable to make any factors under the effective control that may raise the possibility of human errors for accident prevention. This study aimed to develop a risk management program, especially in the sense that guaranteeing Fitness-for-Duty (FFD) of human beings working in Nuclear Power Plants. Throughout a literal survey, it was found that work stress and fatigue are major psychophysical factors requiring sophisticated management. A set of major management factors related to work stress and fatigue was through repetitive literal surveys and classified into several categories. To maintain the fitness of human workers, a 4-level - individual worker, team, staff within plants, and external professional - approach was adopted for FFD management program. Moreover, the program was arranged to envelop the whole employment cycle from selection and screening of workers, job allocation, and job rotation. Also, a managerial care program was introduced for employee assistance based on the concept of Employee Assistance Program (EAP). The developed program was reviewed with repetition by ex-operators in nuclear power plants, and assessed in the affirmative. As a whole, responses implied additional treatment to guarantee high performance of human workers not only in normal operations but also in emergency situations. Consequently, the program is under administrative modification for practical application.

Keywords : fitness-for-duty (FFD), human error, work stress, fatigue, Employee-Assistance-Program (EAP)

Conference Title : ICIEAOR 2017 : International Conference on Industrial Engineering and Applied Operations Research

Conference Location : Zurich, Switzerland

Conference Dates : July 27-28, 2017