

Prapan Tapsong 2008: Risk Assessment of Traction Battery Charging System in a Warehouse. Master of Engineering (Safety Engineering), Major Field: Safety Engineering, Interdisciplinary Graduate Program. Thesis Advisor: Assistant Professor Nanthiya Hansupalak, Ph.D. 130 pages.

This study aimed to evaluate risk assessment of the traction battery charging system in a warehouse using two methods: "What If Analysis" and "Fault Tree Analysis". The risk assessment was conducted according to the law of the Ministry of Industry (2542) entitled of the Strategy of Factory's Safety and the Indicator of Dangerous and the Regulation of the Department of Industrial Work. Of 8 processes involving in the traction battery charging system, there was 1 process, battery charging, which resulted in the highest and the most unacceptable risk due to the hydrogen gas release. Assuming that ventilation in the working area was very poor, the accumulation of hydrogen would thus be greater than the minimal level (LEL 4%). Comparing with TNT explosion, at 1 meter distance from the source the peak overpressure was estimated to be 216 psig which could cause a death of exposures resulting from lung hemorrhage and eardrum ruptures. In addition, this pressure could destroy structure and building as well as building glass. Thus, the strategy of risk reduction was established to control and prevent the occurrence of an accident.

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