Sittichai Riyapan 2014: Analysis of Plant Layout and Spacing for Major Unit in Aromatics Plant for Fire Prevention and Fatal Accidents. Master of Engineering (Safety Engineering), Major Field: Safety Engineering, Faculty of Engineering. Thesis Advisor: Associate Professor Surachai Radakarn, Ph.D. 107 pages.

This research is the study of the analysis of plant layout and spacing for major unit in aromatics plant for fire prevention and fatal accidents which fire case in petrochemical plant can cause the fatal accident. The purpose of research is conducted by reviewing the analysis of plant layout and spacing for major unit comparing to Center for Chemical Process Safety of the American Institute of Chemical Engineering (CCPS) standard for support and promote the safety activity in production unit. The result of the study are used to analyze the fire safety and fatal accident and provided the recommendations for improvement.

The aromatics plant has 13 chemical substances of material and chemical products are selected, the NFPA30 is used to classify the safe storage and location of mentioned chemical substances in Class IA, Class IB, Class IC and Class II. The plant layout is separated into 3 sections i.e. process, storage tanks and building area

The study showed that there are non-conformity from CCPS as follows; tank to tank spacing is less than guildline table C text references 5.9 for 5 findings, spacing of major unit is less than guildline table E Multi-unit blowdown drums for 2 findings and table E Grade level flares for 5 findings, spacing of process unit to building area is less than guildline table D text references 5.6.3 for 1 findings. The result of the study can conclude the recommendation of prevention and improvement from CCPS, is required to provide process safety management, review fire equipment which are substandard point, review heat radius at grade level of flare, provide the emergency exercise in case of chemical leakage at the area of non-compliance as recommended.

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