

Burimnat Prathumwan 2014: Prediction of LPG Leakage, Fire and Explosion from Accidents on Expressway around the Higher Education Institutions in Bangkok. Master of Engineering (Safety Engineering), Major Field: Safety Engineering, Faculty of Engineering. Thesis Advisor: Associate Professor Kiatkrai Ayuwat, M.Eng. 100 pages.

This study is aimed to study the impact from the case of leakage, dispersion, fire and explosion of LPG on the expressway near Higher Education Institutions within the Bangkok area using ALOHA program as assessment tool together with Google earth and Google map.

Simulation study defined the situation of truck carrying 17,800 liters of LPG running on the expressway of the 3 routes in Bangkok area which includes the Chalem Mahanakorn Expressway, Si Rat Expressway and Chalong Rat Expressway impacts on 74 Higher Education Institutions within Bangkok area were evaluated.

The results indicated that getting the thermal radiation from a BLEVE explosion had the most impact, affected the distance of 541 meters, following by the leakage which caused flammable area of the vapor cloud, affected the distance of 512 meters. Eleven Higher Education Institutions were affected by both cases. The following cases were the effect of leakage that caused toxic area of the vapor cloud with the distance of 329 meters, the effect of overpressure from the explosion of vapor cloud which affected 258 meters, and thermal radiation from Jet fire which affected 55 meters. Numbers of Higher Education Institutions affected were 7, 5, and 1, respectively.

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Thesis Advisor's signature