

Comparison of Quantitative Risk Assessment (QRA) on Various Type of Hydrogen Refueling Stations

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The demand of hydrogen refueling stations is increasing as hydrogen fuel cell vehicles are rapidly developed and widely used. The stations are being planned or built, especially in urban where high population density and heavy traffic are involved. Therefore, it is necessary to carry out risk assessment that would fully consider risks for various types of hydrogen refueling stations. The purpose of this study is to evaluate quantitative risk assessment (QRA) on gaseous hydrogen refueling station (GHRS) and liquefied hydrogen refueling station (LHRS). In addition, we consider both off-site station in which the hydrogen supply is transported from an external source whether by tube-trailer or truck and on-site station that produces their own hydrogen at station through reforming of liquified petroleum gas (LPG) or natural gas (NG). The comparison is performed to enhance decision making by engineers in setting goals, defining options, and defining the scope and complexity of an assessment.