

Issariya Jhadtong 2008: Risk Assessment of Compressed Natural Gas Truck.
Master of Engineering (Safety Engineering), Major Field: Safety Engineering,
Interdisciplinary Graduate Program. Thesis Advisor: Assistant Professor
Pipon Boonjanta, Ph.D. 236 pages.

The research is to identify and assess the risk of the truck modified to use 100% Compressed Natural Gas. The objective is to specify the risk occurring in 6 processes , the adaptation of engine, the selection and installation of standardized equipments, the gas filling, the inspection of the truck condition, and the driving and repairing truck. These processes are separated into 24 activities. The risk results are then used to specify the safety operation practice.

The risk assessment methodology according to the law of Ministry of Industry on the strategy of Factory's Safety,B.E.2542 and the regulations of Department of Industrial Works on hazard identification, risk assessment and risk management, B.E.2543, were used. Three methods of hazard identification, Check List, What If Analysis and Fault Tree Analysis were used. The data were collected from 3 Ready mixed concrete CNG truck types ISUZU(CXZ), NISSAN(CWM 430) and NISSAN(CW41), total of 163 trucks.

The result of risk assessment indicated that two activities are unacceptable, ie : 1. gas filling from CNG cylinder pack into the on-board storage tanks after their installations using nozzles that do not comply with ANSI/NGV1 or ISO 7241 standard. This could that do lead gas leaking during the filling process. 2. the automatic valve does not close when engine stops , which does not comply with ISO 15500 standard. The risk management plan was drafted compris of the risk reducing plan and the risk control plan in order to reduce the risk to acceptable level.

Student's signature

Thesis Advisor's signature

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