Pipeline and Hazardous Materials Safety Administration (PHMSA)

Office of Hazardous Materials Safety (OHMS)

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PHMSA/OHMS: LNG Overview & Path Forward

OHMS Authority over LNG Transportation

- OHMS regulates transportation of LNG **IN COMMERCE**
- OHMS does not regulate stationary storage of LNG, or its use as fuel onboard trucks, ships, buses, trains, or heavy equipment.

Current OHMS Regulations

- §172.101 Hazardous Materials Table: Methane, refrigerated liquid, UN1972, is classified for transportation as a Flammable Gas, Class 2.1
- Special Provisions in §172.102:
  - *T75* - §178.277- portable tank requirements
  - *TP5* – specifies fill rate and outage for portable tanks

Current OHMS Regulations

- Packaging (HMT column 8):
  - No exceptions
  - No Non-bulk packaging
  - Bulk Packaging: §173.318 “Cryogenic Liquids in Cargo Tanks”

Current OHMS Regulations

- Transportation by Vessel
  - Stowage “D,” Above Deck on a cargo vessel, or a passenger-carrying vessel, with a restriction on the number of passengers, depending on vessel length. Stowage must be clear of living quarters.

Current OHMS Regulations

- Rail Transportation of LNG
  - No rail tank car authorized at this time
  - Portable tanks and Cargo tank are authorized on a rail car, but only with approval from Federal Railroad Administration (FRA)

LNG by Rail

§174.63 specifies requirements for rail carriers to transport portable tanks of hazardous material in Container-on-flatcar (COFC) and Trailer-on-flatcar (TOFC) service

LNG by Highway

- Moved in trucks with double walled, vacuum insulated tanks and trailers.
- Approximately 28,000 cargo tanks/trucks operated by carriers that haul LNG.

LNG by Highway

- In the last 15 years:
  - 10 highway incidents involving LNG reported to PHMSA
  - 6 were highway crashes
  - 3 listed no quantity released
  - none resulted in a fire or explosion

OHMS R&D Work Stream

- Collaboration with FRA and PHP on complementary LNG R&D
- Safety assessment on the future transport of bulk quantities.
- Literature search on fire/impact testing on the cargo tanks and portable containers authorized for the transport of LNG.

OHMS R&D Work Stream

- Test methods for evaluating steel containers used to transport energy products
- In collaboration with FRA, research, identify and establish a baseline bulk tank car and locomotive tender design standard for LNG

OHMS R&D Work Stream

- PHMSA through VOLPE
  - Small scale LNG impacts
  - Basic crash modeling
- PHMSA coordination with FRA for safety assessment of LNG transportation -- Modeling tank car collision and large scale fire tests of ISO containers

OHMS R&D Path Forward

- Continued coordination with and support of FRA's LNG effort (including FRA's BAA)
- Collaboration with Program Development division to monitor commodity flow
- OHMS R&D issue of BAA this summer which will incorporate LNG safety

Thank you!

- For more information, please visit us at http://phmsa.dot.gov/hazmat/engineering-research/research-and-development

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