

LNG Hazard Analysis Consulting

GexCon has many years of experience performing hazard analyses for Liquefied Natural Gas (LNG) facilities, in the United States and overseas. Our expertise includes consequence modeling for LNG vapor cloud dispersion, thermal radiation and vapor cloud explosion scenarios. Our computational fluid dynamics (CFD) package FLACS is an advanced tool capable of simulating LNG spills on water or land, into sumps and trenches, as well as pressurized, flashing jet releases. FLACS provides a computational environment where the evolution of the LNG source term (LNG pool or flashing jet) and of the resulting vapor cloud can be tracked simultaneously and where the effect of terrain and obstructions is incorporated, for a realistic simulation of the entire accident scenario.

LNG Pool Source Term

- 2D shallow-water model accounts for sump and trough geometry
- Source term coupled directly with vapor dispersion model

LNG Vapor Cloud Dispersion

- Only CFD model validated against the entire MEP database
- Efficient simulation of complex geometries (terrain, tanks, barriers)

High-Pressure LNG Releases

- Vapor cloud dispersion from flashing jets in complex geometries
- Realistic simulation of multidirectional sources (e.g. flange leaks)

Vapor Cloud Explosions

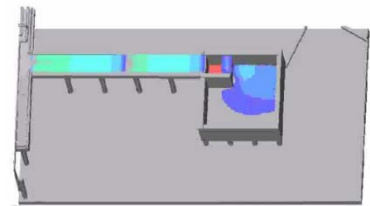
- FLACS is the #1 VCE modeling software in the world
- VCE analysis for hydrocarbon mixtures (E/P mix, other NGL mixtures)
- Overpressure analysis for LNG clouds in highly congested areas

Environmental Impact Studies

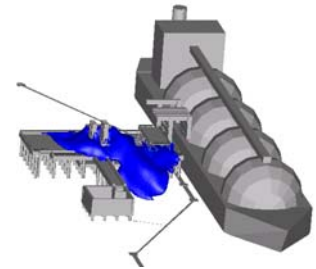
- Ambient Air Vaporizer-induced fog dispersion modeling
- Pollutant dispersion modeling

LNG Pool Fires

- Solid flame-based thermal radiation calculations



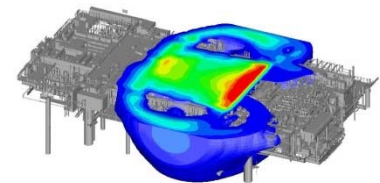
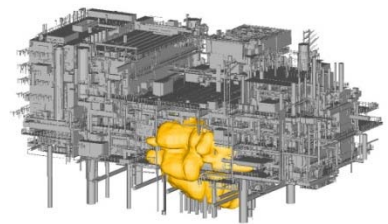
LNG pool spreading



LNG Vapor Cloud Dispersion



High-Pressure Releases



Vapor Cloud Explosions

Filippo Gavelli, Ph.D., CFEI (301) 915-9925 (office) fgavelli@gexcon.com
Head of Dispersion Consulting (301) 335-8885 (cell) LNG Consulting

GexCon US - <http://www.GexConUS.com>

7735 Old Georgetown Rd., Suite 1010 - Bethesda, MD 20814, USA

 **FLACS**

is a leading CFD software
for consequence modeling
developed by GexCon