

Capabilities

FRA staff has extensive capabilities in fire protection and risk analysis of LNG facilities including:

- ✦ Hazard Exclusion Zone Analysis
- ✦ FLACS and Phast Vapor Dispersion & Explosion Modeling
- ✦ Thermal Radiation Modeling
- ✦ Site Selection Analysis
- ✦ Conceptual Design through Commissioning
- ✦ FERC/PHMSA Resource Report Preparation
- ✦ Regulatory Support
 - ✦ 49 CFR PART 193
 - ✦ NFPA 59A
 - ✦ FERC - 33 CFR PART 127
 - ✦ DOT - EN 1473
- ✦ Passive Fire Protection Analysis
- ✦ Building Ventilation Analysis
- ✦ Flammable and Toxic Vapor Dispersion Analysis
- ✦ Hazard Identification, Risk Reduction, and Mitigation
- ✦ HAZID/HAZOP and LOPA
- ✦ Ignition Hazard Analysis
- ✦ Emergency Response Manual Development



FIRE & RISK ALLIANCE

About Us

Fire & Risk Alliance is a leader in fire and risk engineering. Our staff is composed of highly trained and educated engineers and scientists that focus on developing optimized solutions for our clients throughout the world. Our hands on practical experience, active engagement in the industry, and our applied research ensure that we provide state of the art solutions to our clients.

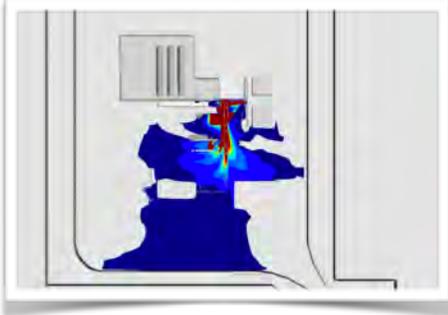


Hazard Exclusion Zone Analysis

49 CFR Part 193 as well as NFPA 59A establish exclusion zones for thermal radiation, LNG vapor cloud extent, as well as toxic and flammable vapor cloud extents. The evaluation of these parameters play a key role in the preliminary siting analysis, containment and trenching plans, final facility layout, extent of passive fire protection, and vapor and thermal exposure mitigation strategy.

Initial screening analysis is typically performed using the Phast tool which meets the requirements of 49 CFR 193. This screening evaluates the unmitigated and unobstructed dispersion distances for liquid and jetting/flashing LNG releases. BLEVE and blast analysis can also be performed.

Modeling is performed using the LNGFire3 tool to determine thermal radiation exclusion zones.



Project Experience

- Exclusion Zone, 59A, and PFP Analysis & Design, LNG Import Export Terminal, VA
- Exclusion Zone, 59A, and Fire Protection Design, Micro LNG Facility, Jamaica
- Exclusion Zone, 59A, and Fire Protection Design, Micro LNG Facility, SC
- Exclusion Zone, 59A, and Fire Protection Design, LNG Liquefaction Facility, RI
- Exclusion Zone, 59A, and Fire Protection Design, Micro LNG Facility, FL
- Exclusion Zone, 59A, and Fire Protection Design, Micro LNG Facility, Puerto Rico
- PFP and Fire Protection Design, LNG Liquefaction Facility, LA

Contact

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Fire Protection and NFPA 59A Compliance Analysis

Identification of site hazards and fire protection concerns is the first step in analyzing the impact of new equipment and processes to an existing facility or analyzing the configuration of a new facility. We integrate traditional prescriptive fire protection design approaches and analysis with performance-based design options to ensure that state and federal requirements are met and that hazards are reduced to acceptable levels.

FRA provides innovative, practical and cost effective solutions for fire protection design including detailed shop drawings and hydraulic analysis, to fire and gas detection systems.. With FRA's background in applied research and development, FRA staff is able to present cutting edge fire protection equipment to clients to mitigate unique fire hazards or to provide alternative solutions that may present cost savings.

Flammable & Toxic Dispersion and Blast Modeling

The release of toxic or flammable substances can pose significant hazards in many industrial and offshore facilities. Evaluating the consequences and risks of accidental releases is an essential component in any risk assessment and is often required by code. FRA has extensive capabilities in the use of models like FLACS and Phast to assess the consequences of toxic and flammable releases.

These tools are used to identify explosion hazards, develop credible and worst-case scenarios, and evaluate the probability and consequences of accidental explosions. We use the modeling results to recommend prevention, mitigation, and protective measures to reduce the risk to personnel and assets. FRA has all the tools to meet NFPA, FERC, PHMSA, DOT, and other standards.

