



Emergency Response Planning for LNG Facilities:
Aligning FERC Requirements with ICS and NIMS

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Executive Summary

Emergency response planning for Liquefied Natural Gas (LNG) facilities extends beyond fulfilling a regulatory requirement. During a loss-of-containment event, operators, first responders, and outside agencies must quickly understand who is in command, what hazards exist, what resources are needed, and how decisions will be communicated. Due to the potential hazards at LNG facilities, the Federal Energy Regulatory Commission (FERC) requires operators to develop an Emergency Response Plan (ERP) using practices from National Fire Protection Association (NFPA) standards. Incident Command Structure (ICS) and National Incident Management System (NIMS) provide a framework for many elements of ERPs including command structure, communication, training, and resource management, which support effective response and coordination between responding agencies.

Why Emergency Response Planning Matters for LNG Facilities

During a significant LNG incident, the first minutes of a response can involve operators shutting down and isolating equipment, firefighters assessing vapor cloud accumulation and fires, medical services preparing for injuries, and hazardous material teams investigating toxic releases. Without a shared incident command structure, emergency procedures can be difficult to execute rapidly across all the resources involved.

LNG facilities range from small-scale storage systems for data centers and bunkering to peak-shaving facilities and large-scale import and export facilities. While each facility may have unique hazards and risk profiles, all must plan for emergencies, particularly events involving loss of containment of flammable fluids, which can cause serious injury to personnel and damage to surrounding property or infrastructure.

Emergency response planning is critical to ensuring operators are ready to respond in a safe and effective manner during an emergency. ERPs contain plans and procedures to categorize emergencies, identify who responds, how they should respond, what additional resources or communications may be needed from external sources, and more. Because LNG incidents can require rapid coordination between state, local, and federal agencies, ERPs must serve as a practical guide for coordinated action.



FERC Requirements for Emergency Response Planning

FERC has jurisdiction over all export/import and interstate LNG facilities. LNG facilities under FERC jurisdiction must submit an application and be issued an Order by FERC prior to construction and are subject to inspections to ensure they remain compliance with FERC requirements.

Upon approval of an LNG facility application, FERC issues a condition in the authorization order requiring the facility to develop an ERP consistent with several NFPA standards that consider potential accidental and intentional events at the facility. Some of the requirements for ERPs include pre-incident plans, communication plans, training plans, evacuation plans, command structure, and response mobilization.

While FERC and applicable NFPA standards identify the required contents of an ERP, they do not ensure that response roles, communications, and resources will function effectively during an incident. ICS and NIMS help bridge that gap by providing a recognized framework for emergency coordination.

ICS and NIMS as Emergency Management Frameworks

The ICS is a standard framework used to coordinate emergency response to incidents. It utilizes a modular, scalable structure with common terminology applicable for incidents of all types and sizes, from a small facility incident to a large multi-agency disaster. Under the ICS system, an Incident Commander (IC) oversees an incident, supported by additional staff under a prescribed but flexible chain of command. ICS is an effective incident management system thanks to its scalability, clarity, and interoperability.

NIMS is a broader national framework which covers command structure (including ICS), resource management, and communications. NIMS is managed by the Federal Emergency Management Agency (FEMA) and enables effective coordination between governmental, private, and non-governmental organizations during emergency response.

For LNG facilities, these frameworks are particularly useful because emergency response often requires coordination between facilities, local fire departments, emergency medical services, law enforcement, regulators, and mutual aid partners.

The Intersection of FERC Requirements and ICS/NIMS

Many of the required elements of an ERP can be met through adopting principles found in the ICS/NIMS frameworks. A summary of ERP elements, corresponding ICS/NIMS principles, and the impact of adopting those principles is summarized in the chart below.

ERP Element	ICS/NIMS Principle	Practical Impact
Command Structure	ICS chain of command / Unified Command	Establishes clear authority and reporting lines during an emergency
Communication	NIMS interoperability	Reduces confusion by using shared terminology
Training	ICS exercises	Builds familiarity with roles, procedures, and cross-agency coordination before an incident occurs
Resource Management	NIMS standardized resource typing	Ensures requested resources match the capability needed for an incident

Incorporating an ICS structure as the command structure during incidents gives facilities a clear, scalable structure to deal with incidents. It also allows for the easy implementation of a Unified Command (UC) structure for larger incidents, in which multiple agency delegates share command with a common goal.

Interoperability is valuable in emergency response planning because operators and external responders may approach an incident from different perspectives. While operators may focus on shutdown and isolation, firefighters may focus on life safety and fire control. Utilizing standardized language helps align priorities and improves common understanding during response.

Training sections of ERPs should include exercises (tabletop or full-scale) which prepare operators and local responding agencies to manage an incident under the ICS structure.

NIMS has prescribed standardized typing for resources ensuring that, when called upon, the staff knows what capabilities are coming. For example, medical response is typed based on the capabilities of response and staff in a particular unit. This allows the agency requesting the resource to be sure that what is needed can be supplied.

Implementing ICS/NIMS Frameworks at an LNG Facility

An ERP that implements ICS/NIMS should define how command is established, how cross-agency coordination will take place, how resources will be requested and from whom, and how training will be conducted.

Developing ICS-Compatible ERP

When developing an ERP, operators should ask the following:

- Who assumes command during the first few minutes of an incident?
- When does the facility need to transfer to a unified command structure?
- How and when are outside agencies contacted?



- Where are required resources available?
- What emergency response teams should be created?

Coordinating with external responders

Coordination with external responders is critical during ERP development. For large incidents, it is likely that external response (such as from a nearby fire department or hospital) would be necessary. In this case, it is important that the responding agencies have access to and training for the procedures required for emergencies at the facility.

Training and exercises

Training and exercises should be detailed in ERPs and should include coordination with external agencies. Tabletop drills and plant walkdowns should be described in the procedures and performed regularly to maintain operator and external agency familiarity with procedures.

Conclusion

For LNG facilities, emergency response must not only be compliant with regulations but also be usable during incidents. By aligning ERP content with NIMS and ICS frameworks, operators can create plans that have clear command responsibilities, support cross-agency communications, improve coordination with first responders, and strengthen resource management. In this way, ICS and NIMS help transform the ERP from a required document into a practical emergency management tool.

How BLUE Supports LNG Emergency Response Planning

BLUE supports LNG operators by translating regulatory ERP requirements into response plans that can be executed by operators and responders. This includes developing and reviewing plans, aligning with the ICS/NIMS principles, and supporting pre-incident planning.

About BLUE Engineering and Consulting

BLUE is an engineering and consulting firm that provides services to the LNG industry and beyond. BLUE provides engineering design, regulatory/permitting support, hazard modeling, risk assessments, process safety, ERPs, and other associated services for projects across the US.

About the Authors

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