

**– FIGHT OR FLIGHT: –**  
**– A COMPARISON OF EMERGENCY ACTION AND RESPONSE PLANS–**

*Presented at RETA 2018 Conference  
November 6 – November 9 – Dallas, Texas*

Ryan Bray  
Risk Management Professionals  
2 Venture, Suite 500,  
Irvine, California 92618  
(949) 282-0123  
Ryan.Bray@RMPCorp.com

**Keywords:** Emergency Planning, Response, Incident Command System

### **Abstract**

Planning for an emergency at a refrigeration facility can be a daunting matter; particularly when wavering between preparing an Emergency Action Plan (EAP) or an Emergency Repose Plan (ERP). Careful planning has the ability to encourage a sense of calm during an incident, to reduce potential injuries, and to promote reduced recovery time allowing normal business operations to resume more quickly. Choosing the best option depends on several factors including the placement of responsibility for response, the facility's desire to maintain trained responders onsite, the financial burden for training, and whether the local fire authority can provide timely incident response. In truth, the arguments for each plan are as varied as refrigeration facilities themselves. The decision to select an EAP versus an ERP depends on a combination of facility characteristics, company resources, and the capabilities of local first responders.

While, at first, ERPs and EAPs may appear very similar, the technical approaches to each are incredibly different, as well as the resulting legal ramifications. Furthermore, pursuant to Homeland Security Directive 5, a firm understanding of the Incident Command System (ICS) is essential in coordination with local authorities. Assimilating the seemingly immeasurable amount of information available to assist emergency planners can be discouraging.

This paper will clearly outline essential differences and regulatory requirements for each plan type, briefly summarize the ICS emergency management structure, its imperative use during emergency response, and present convincing arguments for implementation of both planning options. Through embettered understanding, this paper seeks to equip emergency planners with the necessary tools to determine which plan best suits the needs of the individual facility.



## Introduction

More than 100 years ago, physiologist Walter Bradford Cannon first described the physiological reaction demonstrated by animals in response to the threat of attack known as the Fight-or-Flight Response. Whether acting out in aggression against a predator or choosing to retreat to safety, Cannon observed how the balance of power and physical ability influenced how animals responded to hazardous situations. Within the Ammonia Refrigeration Industry, the United States Environmental Protection Agency (EPA) and Occupational Safety & Health Administration (OSHA) has placed the local facility in a similar situation. Available resources, skilled personnel, and the ready availability of local authorities play a vital role in the determination whether to “fight” the impacts of a hazardous material release with an Emergency Response Plan (ERP) or choose “flight” with an Emergency Action Plan (EAP) outlining procedures for an organized evacuation.



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Just as an animal might size up its opponent, local facilities need to consider what resources are at its disposal before determining what type of emergency plan will provide the best protection for its personnel, the community, and encourage economic resiliency. This paper will attempt to outline essential differences and regulatory requirements for both EAPs and ERPs, briefly summarize the Incident Command System (ICS) emergency management structure, its imperative use during emergency response, and present arguments for implementation of both planning options. Through embettered understanding, this paper seeks to equip emergency planners with the necessary tools to determine which plan best suits the needs of the individual facility.

## **Regulatory Requirements**

For this paper, it is important to establish the context for the discussion. Many standards exist for emergency planning. This fact is not surprising since proper emergency planning has been shown to minimize injury, improve emergency communications, allow emergency strategies to be implemented more effectively, and improve the likelihood of the availability of proper equipment and current contact information during an emergency situation. For example, the National Fire Protection Association (NFPA) published NFPA 1600 and 1620 to guide private industry in the development of safety programs and emergency preparedness training, regardless of the presence of hazard materials at the facility. This paper focuses on the guidance provided by the EPA and OSHA for hazardous material facilities focusing on those items which directly impact the Ammonia Refrigeration Industry.

A summary of the requirements for emergency planning as described in the Code of Federal Regulations Title 40, Chapter 1, Part 68, Section 68.95; “Chemical Accident Prevention Provisions” [40 CFR §68.95] as well as the Code of Federal Regulations, title 29, Subtitle B, Chapter XVII, Part 1910 [29 CFR §1910] is included below. In addition, an argument is provided for the use of the ICS which is described in the Department of Homeland Security’s Nation Incident Management System (NIMS). These requirements represent the standards enforced by EPA and OSHA and serve as the baseline for emergency planning requirements for the Ammonia Refrigeration Industry.

### **“Flight”**

As described in the Code of Federal Regulations, Title 29, Subtitle B, Chapter XVII, Part 1910, Section 1910.38(a) [29 CFR §1910.38(a)], the EAP focuses on the immediate actions to be taken directly following a hazardous event. The term “action” in this instance infers that no “response activities” will be undertaken by facility personnel. For the purpose of this paper, “response” refers to any intentional action taken to reduce or eliminate the threat of a hazard which might require personnel to enter a hazardous environment. In the case of the EAP, this type of activity is never authorized. Rather, onsite personnel may be

assigned to take any of the following actions while allowing local authorities to take management of the emergency and any response tactics.

- Calm and orderly facility evacuation
- Notifications of local authorities
- Gathering of critical information to provide local authorities upon arrival
- If en route to the exit, the system may be powered down to prevent situation escalation

In order to accomplish these four objectives, a plan must be developed that includes written procedures. These procedures shall include, but not be limited to, facility evacuation, emergency reporting guidance, employee accountability, responsibility assignments, and a protocol or system for employee emergency notification. This plan must include an outline for training requirements for each position and maintenance cycles to ensure the plan is continually evaluated.

In addition to good planning, the EAP must be coordinated with local authorities to ensure first responders are aware of the chemicals at the facility, there is an established onsite contact, and drills are conducted with local responder representatives present.

Utilizing this plan type, the facility acknowledges that no personnel will take aggressive action against a hazard event. With a focus on encouraging life safety, facility personnel will be instructed to evacuate to a safe staging area. The EAP embodies the “flight” aspect of Cannons observation. Just as an animal might realize it does not have the skill or brute strength to overcome a threat, the local facility accepts that its personnel have not been provided the training, tools, and/or



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resources to effectively subdue a significant hazardous event. There are arguable benefits and setbacks to this kind of emergency plan. An argument for the selection of an EAP is included later in this article.

### **“Fight”**

The ERP, as described in the Code of Federal Regulations, Title 29, Subtitle B, Chapter XVII, Part 1910, Section 1910.120(q) [29 CFR §1910.120(q)], requires more intense planning and training efforts but will allow personnel to respond to hazardous situations upon discovery. Under the ERP, trained onsite personnel will follow pre-established emergency operations guidelines to protect life safety and stabilize the hazardous situation.

In order to accomplish successful response, the ERP should include the following;

- Pre-emergency planning and coordination with outside parties including, but not limited to, fire, police, and remediation and clean-up service providers as applicable
- Pre-assigned personnel roles with documented responsibilities, lines of authority and communication with training opportunities for each identified role
- Guidelines for recognizing an emergency that will require facility-wide emergency organization or even outside aid and prevention considerations
- At least two established staging (evacuation) areas to be used depending on the wind direction and other weather conditions as necessary
- Documented site security and control protocols to ensure members of the public and media cannot enter hazardous areas
- Evacuation routes and standard evacuation procedures



- Easily accessible decontamination equipment
- Emergency medical treatment and first aid
- Emergency employee alerting system
- After-incident critique of response protocol and follow-up procedures
- Procedures to keep personal protective equipment (PPE) and emergency equipment in working condition

### **Essential ICS**

The Incident Command System (ICS) is a standardized emergency management organization structure that is used by all levels of government, special districts, and some private companies for emergency operations. The structure is based on five pillars which encompass the critical elements in emergency management; incident command, operations, planning/intelligence, logistics, and finance/administration. ERPs developed for facilities that fall under OSHA's Hazardous Waste Operations and Emergency Response (HAZWOPER) are required to use ICS for emergency management according to 29 CFR 1910.120(q) unless the ERP adheres to Section 303 of the Superfund Amendments and Reauthorization Act of 1986 (Emergency Planning and Community Right-to-Know Act (EPCRA), 42 U.S.C. 11003). While EPCRA does not require the use of ICS, best practice would incorporate the most conservative interpretation of a regulation as what is required of the local facility. In this instance, the HAZWOPER regulation is more extensive and was developed more recently. It can be assumed that the use of the ICS structure will likely be required for ERPs where the facility requires personnel to be HAZWOPER trained.



For many emergency planners, the implementation of ICS may seem intimidating and difficult to implement. However, the benefits of utilizing this tried-and-true organization are copious and include the following.

- A common terminology and consistent organizational structure used by local authorities and all levels of government. Using the same vocabulary and operational system permits better coordination with local authorities, minimizing confusion and ultimately giving onsite personnel and property the best chance of avoiding further injury or damage.
- An integrated communications system which directs the flow of information from ground-level responders up through management and disseminates incident command directives to all appropriate personnel through established communication channels.
- A scalable organization which can be adapted for small events requiring only a few responders and then expanded for larger events requiring the coordination of multiple agencies whether public or private.
- Manageable span of control restricting how many individuals can be under the direction of a single person. This improves personnel accountability and minimizes the potential for those in command of others to become overwhelmed.
- Pre-established roles allowing personnel to mobilize quickly and begin response efforts without initial instruction. Many government entities refer to the first hour after an incident occurs as the “golden hour” in which the ultimate direction of that incident can be influenced. When personnel can respond quickly, it may be possible to minimize the impact of an incident long-term.
- A modular organization promotes easy adaptability for the individual facility that might require special responsibilities be assigned that are not outlined in basic ICS.



However, based on the type of activity, a facility can include special assignments into the ICS structure while maintaining the integrity of the system.

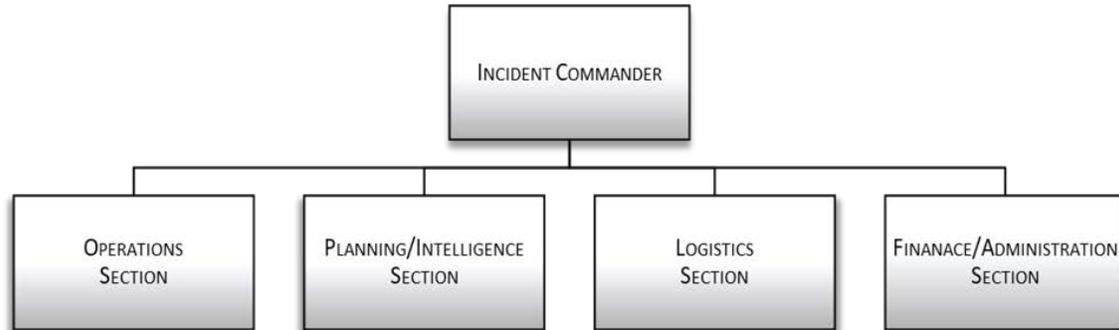
Essentially, the ICS system breaks down emergency operation, as stated before, into five basic branches. Within those branches, all aspects of emergency management are captured.

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|-------------------------------|---|
| <b>Command</b>                | The Incident Commander is the individual who is ultimately responsible for the entire emergency operation and coordination with joint efforts whether government or other private organizations.  |
| <b>Operations</b>             | The Operations Section Chief oversees and directs all emergency operations activities whether that includes incident stabilization, evacuation, fire suppression, etc.  |
| <b>Planning/Intelligence</b>  | The Planning/Intelligence Section Chief is responsible for the collection, evaluation, and dissemination of information and ultimately monitors how the incident is progressing. This position works with the Incident Commander and the rest of the emergency response team to identify priorities and tactics for effective emergency response. |
| <b>Logistics</b>              | The Logistics Section Chief is responsible for management of all emergency response materials, and equipment. This section works to provide the Operations Section with the resources needed for response.  |
| <b>Finance/Administration</b> | The Finance/Administration Section Chief is responsible for tracking and documentation any financial or administrative aspects of an emergency.   |

Below is a visual outline of the ICS organization. As mentioned above, this outline can be expanded to create different positions under the existing structure to carry out specific



responsibilities as needed. For larger facilities, this could include dozens of individuals. Conversely, small facilities could combine positions and only utilize a few people.



This paper has provided only the briefest summary of the ICS structure. More information about utilizing the ICS structure for emergency management can be found on the Federal Emergency Management Agency website at <https://www.fema.gov/incident-command-system-resources>.

### **Arguments for EAP, ERP, and ICS**

As stated previously, there are as many arguments for the use of EAPs vs ERPs as there are refrigeration facilities. However, the following section outlines some of the most common themes which have directed facilities to choose the best plan for their location.

#### EAP

The EAP is undoubtedly the most common choice in my experience. Particularly in urban areas, local authorities can often respond to an emergency within the first 5 minutes of notification. Onsite personnel would be hard-pressed to accomplish any sort of response action in that amount of time. So many feel the efforts and costs associated with response planning simply do not make economic sense. The EAP requires no specialized training or equipment since onsite personnel are not authorized to perform response activities, so the economic benefits stack up quickly.



The EAP, however, does have certain drawbacks. For instance, local authorities have been trained, and rightly so, to consider public safety and incident stabilization first. Property protection, while included as part of emergency training, is not necessarily a top priority. Fire department personnel may take actions to protect the community or neighboring facilities at the expense of the facility. This makes sense from a community perspective which is what local authorities are trained to protect. However, this leaves the local facility with no voice when it comes to the protection of the facility or process equipment. Whether or not onsite personnel *could* provide the information to stabilize a release without damaging facility property, local authorities may not provide the opportunity for input leaving the facility with considerable potential damage and an inability to return to normal operations.

The local facility must consider both the costs and the benefits of the EAP. Described above is the worst-case scenario where business owners are powerless to save a facility in emergency response, but it is not necessarily the case. If local authorities can respond quickly, they may be able to take control of the emergency before considerable damage is done. If the potential for major damage is minimal, it may make sense to rely on fire personnel for emergency operations and develop an EAP for the facility.

### ERP

The ERP is harder to promote than the EAP. As mentioned above, the costs of plan development, maintenance, and training generally do not make the ERP an appealing option for many companies in terms of resources. However, if a facility is in a rural area where first responders cannot travel in a timely manner, the facility may need to prepare to manage emergency operations internally. In contrast to the EAP, the ERP allows the local facility to act, to a degree, independently of local authorities to restore operations utilizing personnel that are intimately familiar with the system. This knowledge and familiarity could potentially minimize the impact of an emergency on personnel and property.



The cost associated with emergency planning is often a deterrent for choosing this option. However, the cost of an accident at a refrigeration facility can run into the millions. Even if a small facility was to sustain \$2,000,000 in damages following an incident, while the annual cost of maintaining response capabilities totaled \$100,000 (an arguably exorbitant amount for small to moderately-sized facilities) it would take 20 years before the costs of maintaining response capabilities equalized with the cost of the incident. While this scenario is hypothetical, it is a valid argument for local facilities to seriously consider the costs involved in preparing for emergency response. The upfront costs and efforts may actually prevent injury and economic loss in the future. There is an old adage that says, “one dollar spent in prevention is worth six in recovery.” It is with that mindset that



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emergency planners should be encouraged to consider the possibility of utilizing the option for emergency response.

### ICS

As stated above, ICS will likely be required for those developing ERPs who also fall under OSHA’s HAZWOPER regulation. However, there is some grey area and much of the decision may fall back on the preference of the individual facility and the regulator. Certainly, those who develop EAPs are outside the regulation and have the choice as to how they organize their emergency operations. Nevertheless, all emergency planners are encouraged to take advantage of ICS. The system is established, is utilized by all levels of government including any local responders, and encourages good cooperation between first responders and the facility. The last of which is essential for any emergency operation. Building on that relationship with local authorities, both police and fire departments across the nation are required to utilize ICS. If an emergency planner is struggling with the



implementation of ICS, local resources are readily available. In some cases, local fire or police may even be willing to provide training and exercise support at minimal or no cost.

## **Conclusion**

The threat of a hazardous material release is the perceived danger and, as an emergency planner, a decision must be made whether to “fight” or “fly”. Driven by available resources, local emergency operations support, and personnel, emergency planners can decide whether the costs of training staff and acquiring the necessary equipment to respond to a potential emergency outweighs the benefits of standing back and allowing local authorities to take charge of emergency management. Would a facility be empowered by the ability to respond or is the responsibility of emergency management a burden better left to the local Fire Department? The information above should provide a reliable path forward for the local facility to make the best decision to protect life and property.

## **Resources**

- 1) U.S. EPA, Code of Federal Regulations Title 40, Chapter 1, Part 68, “Chemical Accident Prevention Provisions” [40 CFR §68.95]
- 2) OSHA, Code of Federal Regulations, Title 29, Subtitle B, Chapter XVII, Part 1910 “Occupational Safety and Health Standards” [29 CFR §1910]
- 3) U.S. EPA. Superfund Amendments and Reauthorization Act of 1986 (Emergency Planning and Community Right-to-Know Act (EPCRA), Title 42 United States Code, Chapter 116 (2011 Edition).
- 4) FEMA, National Incident Management System, October 2017

