

# CLEVELAND DIVISION OF FIRE GENERAL ORDER

**CATEGORY:** Emergency Field Operations #1 - Draft

**DATE:** August 20, 2014

**SUBJECT:** Dynamic Risk Assessment

## **Purpose:**

Many times individuals have referred to emergency scenes as controlled chaos. Standard Operating Procedures are written and issued to bring a sense of order to this chaos. Yet with issued SOP's, rank structures to establish responsibilities, personal protective equipment and training the United States loses an average of one hundred fire fighters every year. Many of these fatalities occur on the fireground and the rate of fatalities from traumatic injuries has nearly doubled in the past thirty years.

Many fire fighter fatality investigations, by the National Institute of Occupational Safety and Health, cite the failure of a continuous risk assessment or a failure to perform a risk versus reward process for the fatalities. It is incumbent upon us as professionals to establish a decision making process we can follow to ensure we are performing a continuous assessment of the risks our members are encountering during any emergency incident or training exercise.

Members of the Cleveland Division of Fire shall utilize a continuous risk assessment and decision making process during every emergency incident and training exercise. Members are encouraged to utilize the process outlined within this General Order to ensure we are operating as safe as possible.

## **Procedures:**

Each fire fighter and officer has responsibilities on an emergency scene and through every day activities. One common responsibility is to perform our duties as safely as possible. The following process shall be utilized on every emergency scene and training exercise to ensure the safest possible work environment:

## **Dynamic Risk Assessment:**

The continuous assessment of risk during emergency response activities and training, taking into account changing environments and circumstances, whereby personnel can rapidly and effectively identify hazards, assess risks and decide on appropriate actions or control measures.

## Responsibilities:

- **Chief Fire Officer:**
  - Responsible for ensuring that appropriate resources are allocated to personnel regarding management of operational risks.
- **Incident Commander:**
  - Responsible for the determination of the overall strategy and response to an incident.
- **Safety Officer:**
  - Responsible for monitoring emergency scene safety and conditions.
- **Officers and Fire Fighters:**
  - Have a professional responsibility and duty to fulfill their duties to their Department, their colleagues and their communities. All officers and fire fighters must utilize DRA's in the course of their operations.

## Terminology:

- **Hazard:**
  - A situation that has the potential to cause injury, disease or damage.
    - Biological Hazards (Viruses, Bacteria)
    - Chemical Hazards (Liquids, Gases, Fumes, Dust)
    - Ergonomic Hazards (Manual Handling, Equipment Design, Lighting, Ladder Conditions/Operations)
    - Physical Hazards (Fire, Noise, Electricity, Smoke)
    - Environmental Hazards (Snow, Ice, Severe Heat/Cold, High Winds)
- **Hazard Identification:**
  - The recognition or detection of hazards that can potentially cause harm to people, equipment, buildings or the environment
- **Hierarchy of Control:**
  - The hierarchy provides a method and sequence for defining the most effective and appropriate control for risks.
- **Risk:**
  - A measure of likelihood that the harm from a particular hazard will occur taking into account the possible severity of the harm.
- **Risk Assessment:**
  - Determining the likelihood and consequence of the hazard being realized using the Dynamic Risk Assessment Matrix.

## Hierarchy of Control:

Each of the controls must be considered when mitigating an incident. The options descend from the most effective to the least effective in controlling hazards.

- **Elimination:**
  - Extinguish the fire, Stop a Hazardous Materials leak through offensive actions.
- **Substitution:**
  - Modify Standard Operating Procedures, Replace aged or broken equipment.
- **Engineering:**
  - Use of mechanical exhaust, Seatbelts, New designs
- **Administrative Controls:**
  - Scope of Authority, Placing people into appropriate roles and responsibilities.
- **Personal Protective Equipment:**
  - Use of proper protective gear for the task (e.g Haz Mat suits Levels A or B), Wearing full protective equipment with hoods.

## **Dynamic Risk Assessment Process**

The Dynamic Risk Assessment (DRA) Process is not a new concept to the fire service. What it actually accomplishes is to memorialize many various teachings into an established decision making process that is applicable to incidents with elevated levels of risk.

The level of risk is determined by considering the consequence of something occurring and then considering the likelihood of it happening. The DRA process involves using the following steps as a guide to the identification, assessment and control of risks.

### **I. Step One: Evaluate the Situation, Tasks and Persons at Risk:**

- a. What information is available – Call received, pre-plans, prior inspections or fire fighter familiarity with the area or structure.
- b. What tasks must be carried out – Suppression, Search & Rescue, Ventilation, Extrication, etc
- c. What hazards are there in carrying out the tasks in this situation – Structural stability, Volume of flame, Hazardous Materials, etc.
- d. What is the Level of Risk – Low, Medium, High
- e. What resources do you have available – Full Box Alarm, partial response, Trained to the appropriate level e.g. Tech Rescue response

### **II. Step Two: Select Tactics:**

- a. Consider the possible tactics and select the most appropriate for the situation
- b. The starting point for consideration must be procedures that have been established in pre-planning and training
- c. Ensure personnel are competent to carry out the assigned tasks

### **III. Step 3: Assess the Chosen Tactics:**

- a. Assess the chosen tactics immediately and continue to assess progress
- b. The acceptable level of risk will depend on a range of factors including but not limited to:
  - i. Information on if there are savable lives at risk
  - ii. Potential risk to fire fighters
  - iii. Real value of the asset involved – Historic or Vacant Building
  - iv. Likely cost of the incident or potential escalation
- c. Are the Risks Proportional to the Benefits?
  - i. If **YES** proceed with the tasks after ensuring:
    1. Goals, both individual and team are understood
    2. Responsibilities have been clearly allocated
    3. Safety measures and procedures are understood
    4. Risks are continuously monitored
  - ii. If **NO**
    1. Continue with the DRA process

### **IV. Step Four: Introduce Additional Controls:**

- a. Consider the following:
  - i. Eliminate or minimize remaining/additional hazards as reasonably practicable using the Hierarchy of Control – Using alternative methods to start reducing the incident.
  - ii. Can safer equipment or tools be used to further minimize risk – Technical Rescue
  - iii. Can additional specialist resources be used – Hazardous Materials
  - iv. Can additional PPE be used
  - v. Consult with Sector or Safety Officers or specialists personnel – Don't have to go it alone.

### **V. Step 5: Re-Assess Tactics and Additional Control Measures:**

- a. Is the incident continuing to escalate?
- b. If any risks remain, does the Benefit outweigh the possible Consequences?
  - i. If **YES** proceed
  - ii. If **NO** – Find alternatives

### **Dynamic Risk Assessment Matrix's**

The following charts are supplied as a reference to the decision making process. They are to be used together to determine the Level of Risk and potential actions.

**I. Identify the Consequence of the Hazard:**

Consequence	Definition
Catastrophic	Death Multiple/Excessive Injuries Severe loss of operational capability
Major	Loss of consciousness Injuries requiring time off work Loss of significant equipment – lost time
Moderate	Injuries requiring First Aid and medical follow-up Repair to equipment required – may result in time lost
Insignificant	Minor injuries requiring on-scene First Aid Minor equipment loss/damage – no time lost

**II. Determine the Likelihood of Occurrence:**

Likelihood	Definition
Certain	It will definitely happen
Very Likely	Will probably happen
Unlikely	Could happen
Rare	Could happen only in exceptional circumstances

**III. Determine the Level of Risk**

Likelihood	Consequence	Consequence	Consequence	Consequence
	Catastrophic	Major	Moderate	Insignificant
Certain	Extreme	Extreme	High	Medium
Very Likely	Extreme	High	High	Medium
Unlikely	High	High	Medium	Low
Rare	High	Medium	Medium	Low

**IV. Level of Risk Key**

Risk Rating	Actions Required
Extreme	Do not proceed/alternative tactics required
High	Close supervision/back-up required
Medium	Normal procedures should suffice
Low	Monitor for escalation

## **Risk Versus Gain – Tolerable Risk**

- NFPA 1500: The tolerable level of risk is directly related to the potential to save lives or property:
  - We **Will Not** risk our lives at all for a building or lives that are already lost;
  - We will risk our lives a little, in a **Calculated Manner**, to save Savable property;
  - We will risk our lives a lot, in a **Calculated Manner**, to save Savable lives.
- When there is no ability to save lives or property there is no justification to expose fire fighters to any avoidable risk
  - Defensive fire suppression or low risk operations are the appropriate strategies to employ

## **Post Incident Debriefings**

No Emergency Incident Response is flawless, some operate more smoothly than others but each is an opportunity to learn and improve the skills of crew members. The best opportunity to reflect on responses, decisions and actions is while the incident is still fresh in mind.

Post Incident Debriefings can be formal, especially in the case of a catastrophic event such as a fire fighter fatality or multiple civilian fatalities. These incidents may require a formal debriefing for legal or psychological reasons. For the majority of our responses an Informal Debriefing session at the firehouse will be sufficient.

### **An Informal Debriefing should:**

- Be informal in nature;
- Encourage members to speak freely and openly;
- Be respectfully handled in regards to viewpoints;
- Address positives and negatives of the response.

It is only through honest and open review that we continue to grow our skills in emergency responses.

### **Summary:**

We cannot remove all of the risks associated with fire fighting or other various emergency responses where our members operate. By using an established Continuous Risk Assessment and Decision Making process we can reduce the risks associated with these responses and continue to work toward the goal of Everyone Goes Home.

By Order Of,  
Patrick J. Kelly, Chief

## **Appendix A**

### **National Institute of Occupational Safety and Health Reports**

In this appendix I was going to summarize in a paragraph or two the incidents listed below and how each report came back with a recommendation of the Incident Commander using a Risk vs Benefit or a risk vs reward, or Continuous Size-up as a contributing factor. I was also going to put an electronic link at the end of the summary to that specific NIOSH report if the member wanted to go read since our orders are posted electronically.

- Buffalo, NY
- New Jersey
- Texas
- North Carolina
- Ohio

See Appendix B:

## **Appendix B:**

### **Operational Risk Management**

The Fire Station is considered our Staging Area while the emergency scene is our Work Environment or Area of Operations. In order to improve that work environment fire fighters and management must work together to create a safer work environment.

There are two components of Operational Risk Management:

- Dynamic Risk Assessment – Covered above
- Safe Person Approach

#### **Safe Person Approach**

There are two elements to the Safe Person Approach

- The Responsibility the Organization has to its personnel;
- The Responsibility that Each Individual has to their jurisdiction, themselves and those around them

#### **Fire Department Responsibilities:**

- Selection of personnel – Right person for the right job;
- Provide information of risk – Legislation, Code enforcement, Safety alerts;
- Provide proper Personal Protective Equipment – Meeting industry standards;
- Provide proper equipment – Appliances, SCBA's, Apparatus
- Provide safe procedures and work requirements – Up to date Standard Operating Procedures, General Orders, Station areas
- Effective instruction and supervision – Proper introductory training applicable to working conditions. Properly trained Officer Corp
- Continuous and effective training – Multiple contacts with training staff for applicable drills and educational classes.
- Performance measurements – Incident reviews and statistical collection and reporting, debriefings, employee evaluations.

## **Personal Responsibilities:**

- **Each individual must accept responsibility for his or her own safety!**  
Every person needs to ensure they are:
  - Capable of performing the tasks assigned
  - An effective member of the team
  - Self-disciplined to work within accepted guidelines – During emergency operations and daily responsibilities
  - Adaptable to changing circumstances
  - Vigilant for his or her own safety, vigilant for the safety of the colleagues and others
  - Able to recognize and express his or her limitations