

FIRE EMERGENCY PREPAREDNESS AND RESPONSE

A LECTURE PRESENTED

AT

AMERICAN SOCIETY OF SAFETY PROFESSIONALS (ASSP)

BY

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FIRE KILLS BUT YOU CAN PREVENT IT

INTRODUCTION

Fire remains one of the best friends of man in all aspect of life but also the worst enemy where it gets out of control because it will lead to loss of lives, destruction of properties, financial loss, driving of companies and firms out of business and eventually render workers jobless.

An emergency/disaster is a situation that poses an immediate risk to health, life, property, or environment. Most emergencies require urgent intervention to prevent a worsening of the situation, although in some situations, mitigation may not be possible and agencies may only be able to offer palliative care for the aftermath.

Fire emergency means an emergency response involving fire protection or prevention, rescue, emergency medical, or hazardous material response services.

Fire emergency/disaster also means a fire or the potential for a fire that in the opinion of the Fire Chief or Incident Commander (IC) may escalate beyond the ability of the local fire service resources to safely control and thereby endangering lives, property, buildings or the environment.

Most residential fires occur between 8.pm and 8.am while deaths from residential fires occur in greater number between midnight and 4.am, when most people are asleep.

In the event of fire, the man on the spot is far more useful than the fire brigade (fire service) who may be several miles away.



IS FIRE A MAN MADE OR NATURAL DISASTER?

- Fires may be natural or man-made, depending on what originally caused the disaster.
- Of all the natural disasters, fire is the only one that is both beneficial to man and his environment as well as destructive and deadly.
- Lightning may cause a natural fire, but leaked gas or faulty mechanical equipment is considered a man-made cause.
- The explosion blew manholes into the air and ignited funnels of fire, which set homes on fire.

THE FRAMEWORK

In the framework of response and recovery, there is a large difference between the terms emergency and disaster.

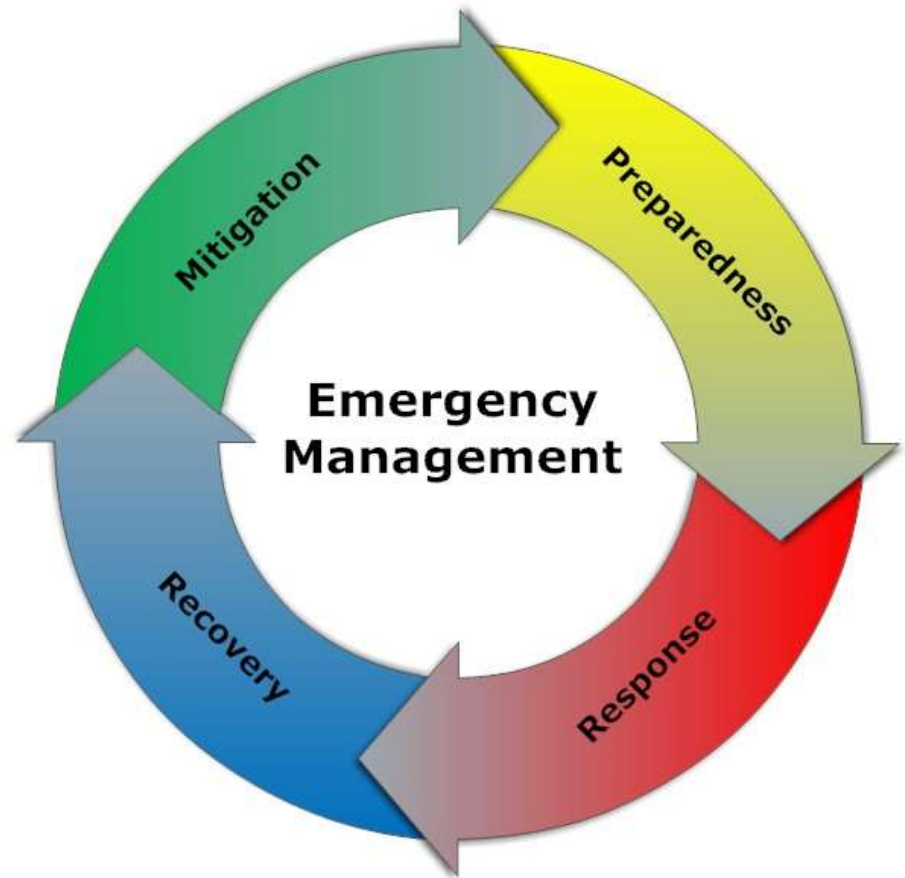
- An emergency is an event that can be responded to using the resources available at hand, implying that there is no need to request external assistance.
- A disaster, on the other hand, is characterized by impacts that overwhelm the capacities of local responders and place demands on resources which are not available locally.
- Hence, an event is declared as a “disaster” when there is a need for external assistance to cope with its impacts.
- A national government declares a state of disaster or national calamity as a way to request international humanitarian assistance and the support of the international community to cope with the impacts of the disaster.



EMERGENCY MANAGEMENT

Emergency management is the organization and management of the resources and responsibilities for dealing with all humanitarian aspects of emergencies (preparedness, response, mitigation, and recovery). The aim is to reduce the harmful effects of all hazards, including disasters.

The World Health Organization defines an emergency as the state in which normal procedures are interrupted, and immediate measures (management) need to be taken to prevent it from becoming a disaster, which is even harder to recover from.



EMERGENCY MANAGEMENT

Four Phases of Emergency Management

The four phases of Emergency Management make up a continuous cycle of planning and action undertaken by the Department of Emergency Management.

• Mitigation

Mitigation is the most cost-efficient method for reducing the impact of hazards. A precursor activity to mitigation is the identification of risks. Physical risk assessment refers to the process of identifying and evaluating hazards.

• Preparedness

Preparedness is a continuous cycle of planning, organizing, training, equipping, exercising, evaluation, and improvement activities that allows firms to ensure effective coordination and the enhancement of capabilities to prevent, protect against, respond to, recover from, and mitigate against disaster events that have been identified within the Hazard Vulnerability Analysis (HVA).

In the preparedness phase, the Emergency Management Department develops plans of action to manage and counter risks and takes action to build the necessary capabilities needed to implement such plans.

• Response

The Response phase includes the mobilization of the identified emergency staff, including first responders, to an internal or external event which could have an impact on patient care operations or the campus.

Response to an internal or external incident is directed through the Incident Command System (ICS). Response plans remain flexible in nature due to the varying members of staff available at any given time.

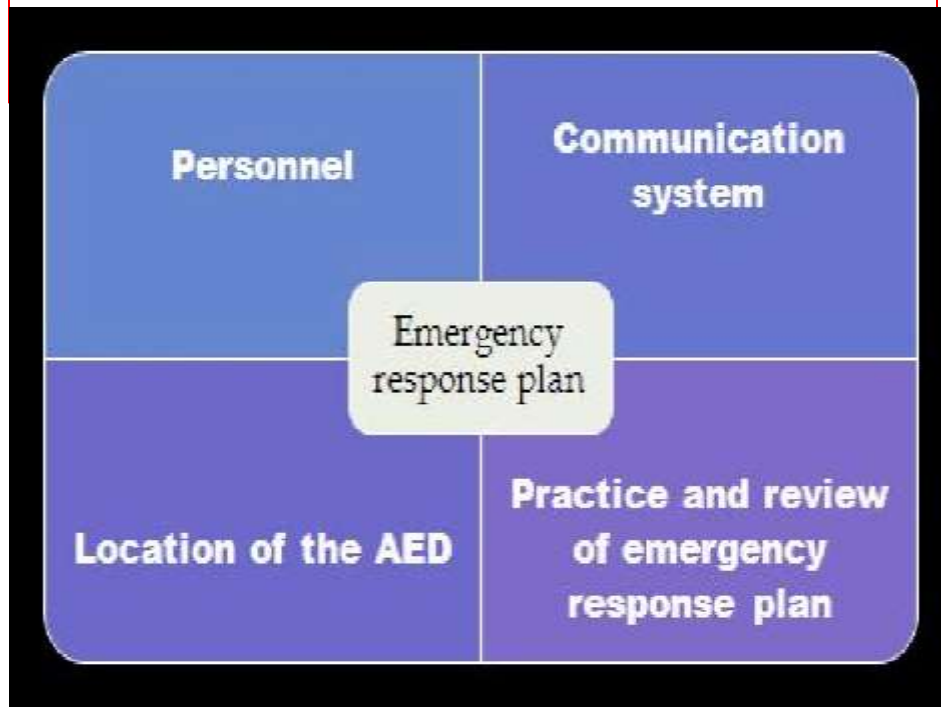
• Recovery

The aim of the Recovery phase is to restore the affected area to its previous state. It differs from the Response phase in its focus: recovery efforts are concerned with issues and decisions that must be made after immediate needs are addressed.

Recovery efforts are primarily concerned with actions that involve rebuilding destroyed property, re-employment, the repair of other essential infrastructure, as well as the re-opening of essential services in the hospital. The Incident Command System team is responsible for the implementation of the Recovery phase.

EMERGENCY RESPONSE PLAN

An emergency response plan is designed to help companies address various emergency situations that could occur within their organization. The best plans include who to contact, how to act in an emergency, how to mitigate risk and what resources to use to minimize loss.



- Emergency response plans deal with protecting people first, property second.
- Emergency responses should attempt to contain, control, or end the emergency. This includes evacuating buildings, fighting fires, turning off utilities, and other response activities.
- ERTs should have the skills required to address the specific needs of your company's operations.
- Training for ERT members may include firefighting, CPR, first aid, hazardous material containment, and other skills appropriate to the location and nature of your business.
- Emergency response checklists help keep people calm and focused on next steps. Develop emergency response checklists in conjunction with expertise from your ERT and local civil emergency responders (fire, police, hazmat, bomb squad, etc.).

TYPES OF EMERGENCIES

The following is a list of some emergencies, which may be covered as events warrant:

- **Fire**

- Chemical spills
- Dam failure
- Droughts
- Earthquake
- Floods
- Hurricanes
- Pandemics
- Terrorist attacks
- Thunder storms
- Tornadoes
- Blizzards

SPEED OF FIRE/FIRE SPREAD



10 seconds



1 minute



2 minutes



3 minutes

FIRE EMERGENCY PROCEDURES

In case of fire

- Close the door as you leave the room
- Pull the nearest fire alarm (located at any exit)
- Evacuate the building. DO NOT use elevators. Proceed to an assembly area across the street and away from the building.
- Report the fire.

When you hear fire alarm

- Evacuate the building via nearest exit and DO NOT use elevators
- Proceed to an assembly area across the street and away from the building
- Keep access ways and roadways clear
- Await instructions from emergency personnel
- When the 'All Clear' signal is given, re-enter the building through the main entrance

EFFECTS OF FIRE ON HUMAN BEINGS



EFFECTS OF FIRE ON ASSETS AND PROPERTIES



TIPS TO AGAINST FIRE EMERGENCY

1. Have a Fire Prevention Plan (FPP):

The importance of having a fire prevention plan cannot be over-emphasized. Also known as FPP, a fire prevention plan will help to curb fire hazards when they occur.

FPP should cover areas such as maintaining a list of all potential fire hazards, procedures related to waste materials that are flammable and combustible, procedures for maintenance, and tracking employee responsibilities for maintenance and addressing hazards.

2. Pay attention to fire-sensitive areas:

Some areas on the jobsite need special attention to prevent possible explosion. Safeguard liquid storage areas such as storage sites for bulk fuel, natural gas etc. by installing foam fire suppression systems.



TIPS TO AGAINST FIRE EMERGENCY

3. Train Employees About Fire Safety:

When it comes to ensuring fire safety, employee education is very key. Ensure employees are trained before they ever set foot on an oilfield, because wrong handling of equipment by workers can lead to fire outbreaks. In the same vein, employees should be trained on what to do when an explosion occurs.



4. Reduce Risks Posed by Motors and Vehicles:

Oil and gas workers make use of equipment and engines to aid their work. These engines experience friction which makes them susceptible to fire outbreak. Measures should be taken to maintain the tools and equipment to reduce friction. Serious checks should also be made to petroleum tankers.



TIPS TO AGAINST FIRE EMERGENCY

5. Use Gas Detection Equipment:

What causes explosion sometimes could be tiny gases and vapor that might be hard to see. It is important to monitor these tiny particles to prevent possible hazards. It is therefore necessary to make use of gas detection equipment that will make them visible, in order to manage them well. Gas detectors can be used to detect combustible, flammable toxic gases, and oxygen depletion.



6. Organize annual fire drills:

It is very important to carry out annual fire drills with employees to keep them in the know of what to do and where to go when a fire incident occurs. This is necessary because it helps the employees to know what to do in a case of a fire incident.



TIPS TO AGAINST FIRE EMERGENCY

7. Install fire detection systems:

It is very imperative to install fire detection systems in the organization. A fire detection system is an alarm system that receives data on, assesses and then responds to events reported by various fire detectors.



8. Monitor Flammable Liquids:

A flammable liquid is a combustible liquid that can easily catch fire. However, it is not the liquid itself that burns, but the vapor cloud above the liquid burns if the vapor's concentration in air is between the lower flammable limit and upper flammable limit. You should ensure your operation's resource liquids and waste liquids are well managed, to avoid fire incidence.



TIPS TO AGAINST FIRE EMERGENCY

9. Create fire escape routes or fire exit:

It is also key to create fire escape routes within the organization. These fire escape routes must be safe and have clear signs that would be understood by the employees. The fire escape routes must also be planned in accordance with the local fire authority to ensure proper effectiveness.



10. Appoint a fire warden(s):

A fire warden is a designated person within an organization who is allocated responsibilities to help support the ongoing management of fire safety, by contributing to the safety of people in the event of a fire evacuation. Your workplace should have one or more people in charge of creating and maintaining fire safety procedures.



FIRE EMERGENCY ACTION PLAN (FEAP)

What is Fire Emergency Action Plan?

Fire Emergency Action Plan (FEAP) is a written procedure detailing the appropriate response to various types of fire emergencies. FEAP is an essential component of an organization's safety procedures. Creating FEAP and training employees on how to follow it can greatly reduce employee injuries, property damage, and can ensure the safety of visitors in the event of an emergency.

Emergency Action Plan



The elements of the plan should include, but are not limited to:

- Evacuation procedures and workplace emergency escape route assignments
- Procedures to be followed by employees who remain to run critical plant operations before they evacuate
- Procedures to account for all employees after an emergency evacuation has been completed
- Rescue and medical duties
- Means of reporting fires and other workplace emergencies
- Names or job titles of persons who can be contacted for further information or explanation of duties under the plan

FIRE EMERGENCY ACTION PLAN (FEAP)

During a fire evacuation the main objective is to get *out* of the building as quickly as possible, while during a tornado the goal is to get everyone *inside* the building.

Sometimes it will be even more complicated, like during an active shooter emergency, where hiding within the building may be the best option for some and evacuating may be the best option for others.

To develop FEAP, an employer should start from workplace evaluation.



FIRE EMERGENCY ACTION PLAN (FEAP)

Typically, most of the occupational emergency management can be divided into:

1. Worksite evaluation: Is about identifying the source and location of the potential hazards such as falling, noise, cold, heat, hypoxia, infectious materials, and toxic chemicals that each of the workers may encounter during emergency situations.

2. Exposure monitoring:
After identifying the source and location of the hazard(s), it is essential to monitor how employees may be exposed to these dangers. Employers should conduct task-specific exposure monitoring.

3. Hazard control:
Employers can conduct hazard control by:

- Elimination or substitution: Eliminating the hazard from the workplace.
- Engineering controls
- Work practice or administrative controls: Change the how the task was performed to reduce the probability of exposure.
- Personal protective equipment

4. Training:

Employers should train their employees annually before an emergency action plan is implemented to inform employees of their responsibilities and/or plan of action during emergency situations.

The training program should address the following information:

- Workers' roles and responsibilities.
- Potential hazards and hazard-preventing actions.
- Notification alarm system, and communications process.
- Communication means between family members in an emergency.
- First aid kits.
- Emergency response procedures.
- Evacuation procedures.
- A list of emergency equipment including its location and function.
- Emergency shutdown procedures.

PORTABLE FIRE EXTINGUISHERS

This is otherwise known as **first aid fire appliance or firefighting equipment**.

It is used to fight fire when it is still at its earliest stage.

On the other hand be used to delay the growth and spread of sizeable fire until an adequate fire fighting media is available.

TYPES OF FIRE EXTINGUISHER

1. Water gas extinguisher
2. Carbondioxide (CO₂) extinguisher
3. Dry chemical Powder extinguisher
4. Foam extinguisherETC



PRACTICAL USE OF A FIRE EXTINGUISHER

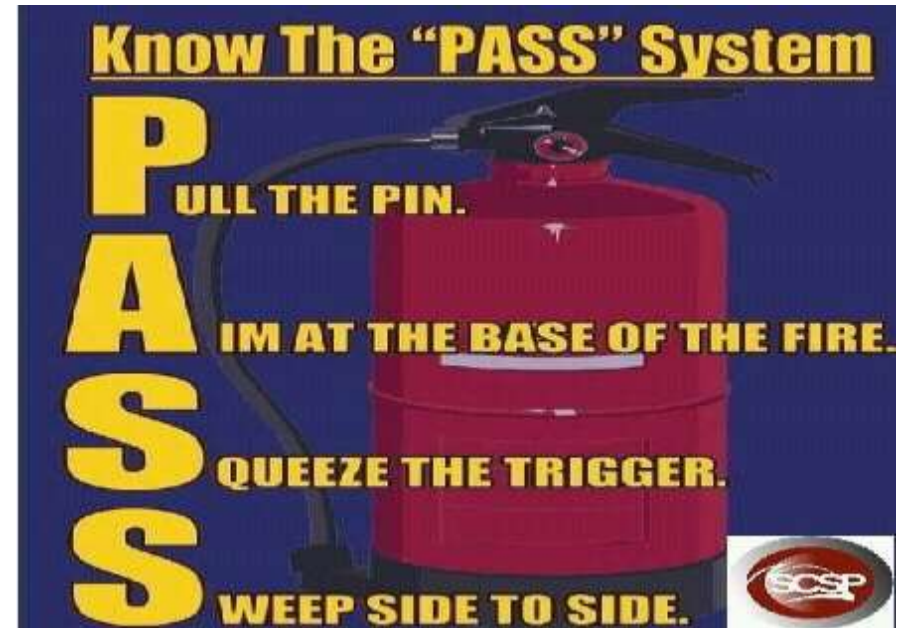
❖ These are simple steps one can remember when using a portable fire extinguisher. One has to **START** by standing around 3 metres back from the fire. The following acronym "**PASS (PULL, AIM, SQUEEZE, AND SWEEP)**" is used to teach the correct usage when operating it during a fire.

P - Pull the pin. The pin is there as a safeguard and locks the handle. Pulling it out enables it for use.

A - Aim low. The hose or nozzle should be pointed at the base of the fire to best put it out.

S - Squeeze the lever above the handle. This will shoot the extinguishing substance from the hose or nozzle. Keep in mind that most small extinguishers will run out of their extinguishing agent in 10 to 25 seconds.

S - Sweep from side to side. As you move slowly toward the fire, keep the hose or nozzle aimed at the base of the fire. If the flames appear to be out, release the handle and watch closely.



WHAT TO DO IN CASE OF ANY FIRE OUTBREAK

1. Raise an alarm for people around to know you are in problem.
2. Call the fire service station nearest to you on phone. Early contact with fire service through any means either by telephone or by running call will help to minimize lost of lives and properties by fire.
3. Evacuate the building since life has no duplicate.
4. Shut doors and only open the doors you need to on your way out. Before you open doors, check them with the back of your hand. If it's warm, don't open it - fire is on the other side.
5. Use your escape route or exit.
6. Crawl on the floor if there's smoke. The air is cleaner near the floor, so if there's smoke put your nose as low as possible. Remember, smoke is poisonous and can kill.
7. Give necessary information to the fire service, on their arrival and after firefighting or other emergence operations when requested of you, possibly about the fire and the building.
8. Firefighting and other emergency services are without charges, so feel free to contact the Fire Service office in good time.
9. Do not be a hero by singularly attacking a fire without attracting attention of others because the small fire you noticed may graduate into a big fire in no time.
10. Don't go back in for anything. If there's someone still inside, wait for the fire service to arrive. You can tell them about the person and they will be able to find them quicker than you. If you go back inside the building, it will slow down the firefighters' efforts to rescue anyone else missing - and also puts your life in great danger.
11. Wait near the building. Find somewhere safe or the **muster point** to wait.
12. Useful application of (SDR); **STOP, DROP, and ROLL** techniques in case of fire burning on ones clothing.



STOP!

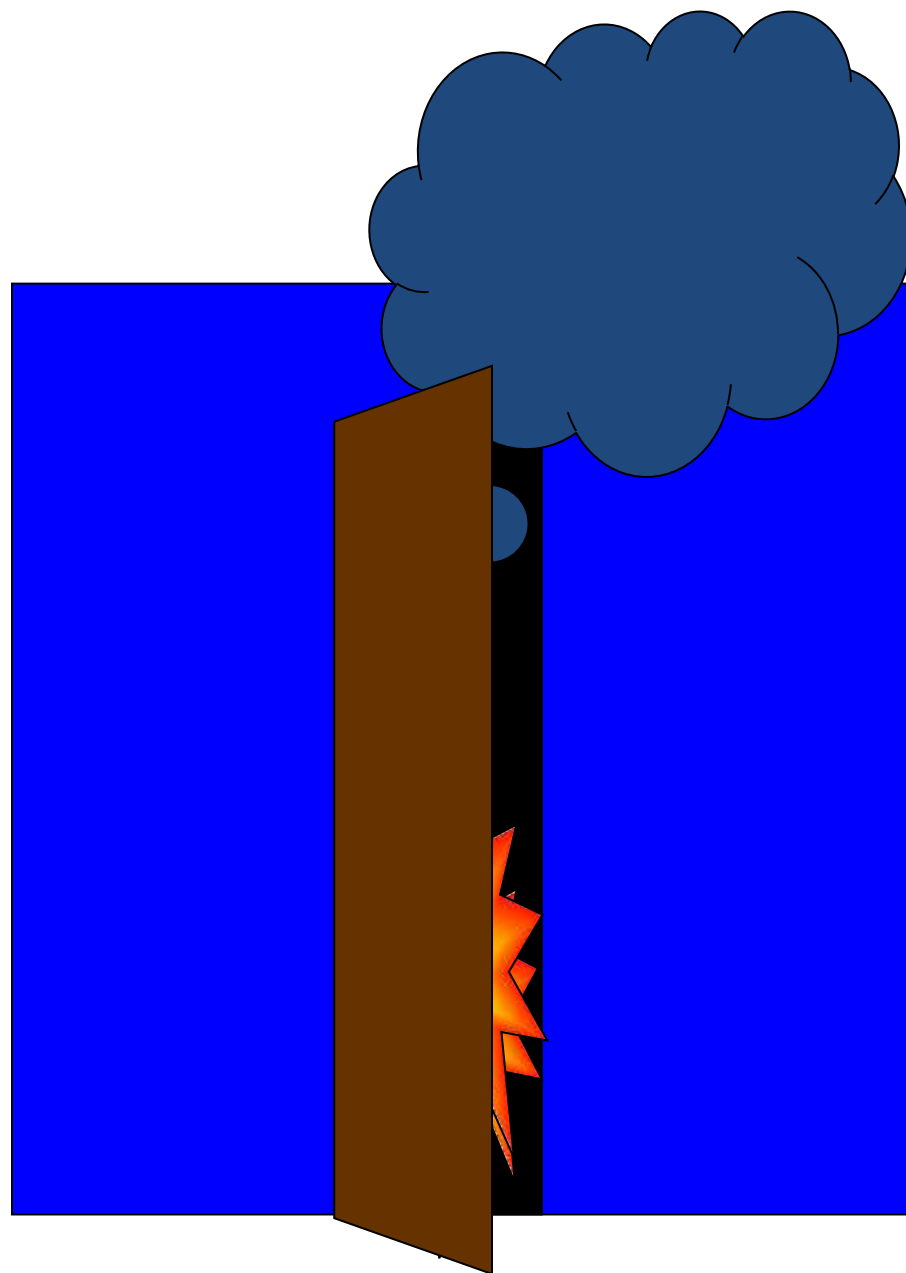


DROP!

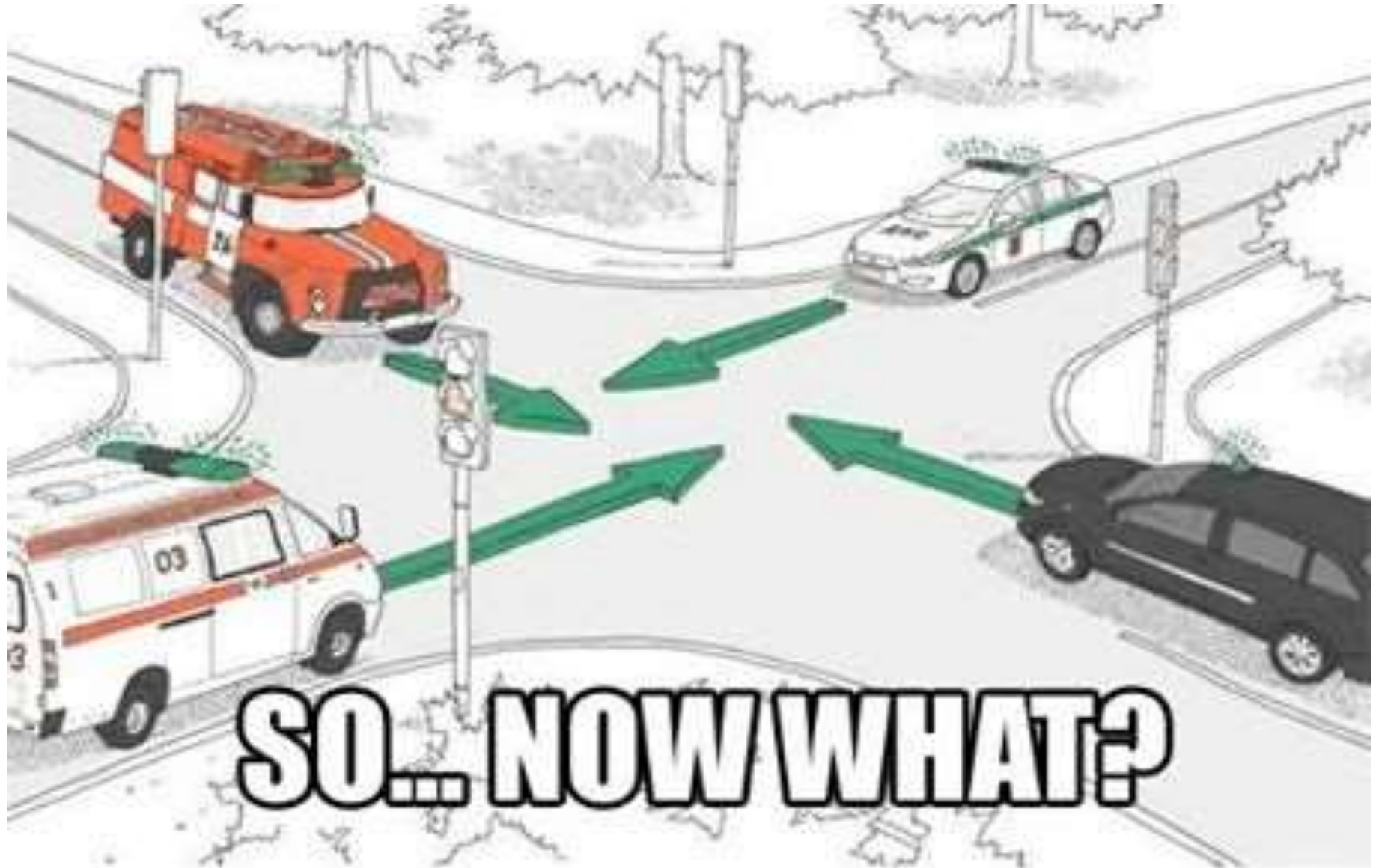


ROLL!

**Crawl Low
Under Smoke**



FIRE SERVICE /THE PUBLIC/RIGHT OF WAY/RESPONSE TIME



CONCLUSION

Fire hazards are no other thing but the destruction done by fire to both lives and properties. Emergency management remains the best option to avoid the risk of losing our lives and properties. It is in this act of fire prevention/management that everybody should be concerned with. It is better to prevent fire than allowing fire start so that the men of fire service or people around will start fighting fire.

**FIRE KILLS BUT YOU CAN
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Thank you for audience.

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