

# Egg Harbor Fire Department and First Responders Standard Operating Guidelines

**SUBJECT: STRUCTURE FIRES**

**SOG 815**

**PURPOSE:** The purpose of this procedure is to establish guidelines for the response of Egg Harbor Fire Department personnel and equipment to structure fires.

**SCOPE:** This policy shall apply to all members of the Egg Harbor Fire Department.

## **PROCEDURE:**

### **Upon Arrival**

First arriving unit on scene of all incidents shall give an initial size-up report. **See SOG 1003.**

### **Tactical Objectives**

The tactical objectives in fighting a structure fire should be in order of priority as follows:

#### **1. LIFE SAFETY**

Human life is the most important consideration at a fire or other emergency. Rescue of occupants and firefighter safety have primary consideration. A primary and secondary search shall be conducted at all structure fires.

### **Size-up**

While size up is the responsibility of the first arriving officer, all firefighters should look at the entire building and its surroundings as they approach. Careful observation will give them some indication as to the fire, whether or not the building is likely to be occupied, the probable structural integrity of the building, and some idea of the amount of the time it will take to effectively search the structure.

1. Rescue crews should identify escape routes, such as windows, doors, fire escapes, balconies, etc.
2. If possible, obtain information about those who still might be inside and where they might be found, as well as to obtain information about the location of the fire.
3. Firefighters should not assume that all occupants are out until the building has been searched.
4. Information on the number and location of victims should be relayed to the Incident Commander (IC) and all incoming units.

### **Primary Search**

It is standard procedure to extend a primary search in all involved and exposed areas which can be accessed. The Incident Commander should structure initial operations around the completion of the primary search. A primary search should be done quickly but thoroughly through all affected areas. Verification of the removal and/or safety of all occupants and possible location of fire should be transmitted to the IC. Follow **EHFD SOG 804**.

### **Victim Removal**

A conscious or semi-conscious victim may only require help to walk to safety. However, most victims will not be capable of self-preservation. When removing victims, normal means of egress (stairs, halls, public access areas, etc.) should be utilized to remove victims whenever possible. Secondary means of rescue (ladders, fire escapes, etc.) must be utilized in their order of effectiveness.

### **Secondary Search**

Secondary search means that teams thoroughly search the interior of the fire area after initial fire control and ventilation have been completed. Different teams than those involved in the primary search should complete a secondary search. Thoroughness, rather than speed, is the critical factor in secondary search. Follow **EHFD SOG 804**.

### **RIT Procedures**

As soon as possible, IC shall establish a RIT at all working structure fires or any other incident where the IC feels there is a need for RIT. If manpower isn't sufficient to do so, the IC should request a mutual aid qualified RIT through Mutual Aid. Follow **EHFD SOG 208**.

## **2. EXPOSUER PROTECTION**

Exposure protection is the strategy of preventing a fire from spreading to the uninvolved building(s) or uninvolved parts of the fire building.

## **3. CONFINMENT**

The strategy of confinement means preventing the fire from extending to uninvolved sections of the building. Whenever possible, the most effective method of confining fire spread is a direct attack on the fire. The Incident Commander shall decide whether to make an offensive approach, aggressive interior attack, or a defensive approach, attacking the fire from the outside. There may be situations when both approaches could be used. All avenues of fire spread must be considered (Examples: shafts, openings, utility raceways, ducts, type of construction, etc.).

#### 4. EXTINGUISHMENT

In most fire situations a quick and aggressive attack on the seat of the fire will aid in rescue operations, exposures protection and confinement of the fire all at the same time. The size-up will provide information as to techniques, equipment and manpower needs to overcome the fire.

##### **Fire Stream Management**

Adequate water supply during fire attack operations has a critical impact on fire control outcomes. GPM flow can provide for a lower fire loss with a quick extinguishment. Inadequate GPM flow, leaking couplings or nozzles can lead to an increased risk to firefighters, victims, and greater fire loss.

##### **Fire Stream Choices**

**Attack Hose Line:** The objective of the attack hose line choice is to provide enough GPM flow to overcome the volume of fire being produced, or adequate flow to effectively cool and protect exposures.

The 1 ¾” attack lines will normally be the primary attack lines used for most fires (i.e., one or two rooms in a residential fire). The 1 ¾” line is fast, mobile, and is the first line off the engine at all structure fires. The IC however should order a 2 ½” attack line for a larger volume of fire. The 2 ½” will provide greater volume but is slow and difficult to move without sufficient manpower.

When operating in offensive attack mode, attack hose lines should be advanced inside the fire building in order to put water on the fire and to control access to halls, stairways, or other vertical and horizontal channels through which people and fire may travel.

1. The first stream should be placed between the fire and any endangered life.
2. When no life is endangered, the first stream should be placed between the fire and the most severe exposure or unburned areas.
3. A second hose line should protect a secondary means of egress (ALWAYS KEEP IN MIND THE PRESENCE OF FIREFIGHTERS OPERATING IN OPPOSING POSITIONS).
4. Whenever possible, crews should position hose lines in a manner and direction that supports rescue activities, begins confinement, protects exposures, and controls loss.

**Engine Mounted Master Streams:** Engine Mounted Master Streams offer very large GPM flows (500 to 1,000 GPM), quick operation, reach and penetration. A solid bore tip offers greater reach, penetration, with a more intact stream than a fog nozzle that is set on straight stream.

Engine Mounted Master Streams should be considered for structures that are well involved, beyond rapid reach of attack lines, for exposure protection, and situations that pose an unusual safety risk to firefighters.

1. Master streams are most often used in defensive operations.
2. When a change from offensive to a defensive operation occurs, crews should pull hand lines out of the fire building only if safe to do so. **DO NOT DELAY** exit from a building for the sake of salvaging a few feet of hose and a nozzle if conditions are deteriorating rapidly, unless the hand line is needed for crew protection during exit operations.

### **Fire Stream Characteristics**

Fire control forces should consider the characteristics of fire streams and choose the most effective nozzle and stream for the task:

**Solid Stream:** Greater penetration, reach and striking power and less steam conversion.

**Fog Stream:** Increased heat absorption/expansion. Shorter reach. Most effective in confined spaces and protecting exposures.

### **Fire Stream Considerations**

1. An offensive attack mode should achieve an effect on the fire quickly. If you apply water in an offensive attack mode and the fire does not go out – React! Back it up or Re-deploy. Think ahead! Predict where the fire is going to go and crews should be placed in positions ahead of the fire.
2. Do not operate fire streams down ventilation holes during offensive operations. This reduces the effect of ventilation and may seriously endanger interior attack crews.

### **Water Supply Operations**

The availability and management of an adequate water supply is of the utmost importance when arriving on the scene of a fire. While a good water supply and adequate GPM flow can provide for a lower fire loss with a quick extinguishment, a delayed or limited water supply and inadequate GPM flow can lead to an increased risk to firefighters and victims, and greater fire loss. In general, the following procedures shall be addressed:

- 1. Set up movement of water via water shuttle, hose lay, or apparatus relay.**

Remember the apparatus with the greatest pumping capacity should be at the water source. Follow **EHFD SOG 600s Water Supply Procedure**

## **2. Traffic Control**

Help to maintain a fast and efficient fill and dump time.

As soon as possible, Incident Command should assign an individual to Water Supply Officer (WSO) to handle the logistics and operation of the water supply.

### **Water Supply Officer Responsibilities**

1. Fill site will be decided by the IC or by the known preplan.
2. Ensure that the entire water supply system is in place and assumes responsibility of providing an adequate flow of water to the scene.
3. Request a separate radio frequency to handle water supply operations.
4. If a water shuttle relay will be necessary, ensure that there are a sufficient number of tankers to support an adequate flow to the scene. If additional equipment is necessary, the WSO will notify the Incident Commander of needs.
5. Ensure the dumpsite location is accessible for tankers to maneuver in and out.
6. Lays out route of travel for tankers to follow.
7. If manpower is available, assigns a Fill Site Officer
8. Will keep constant communication with the Incident Commander to ensure an adequate supply of water is being maintained for the situation.

### **Fill Site Officer Responsibilities**

1. Oversee all aspects of the fill site portion of the tanker shuttle.
2. Make sure that fill site is set up and operating properly.
  - i. Ensure dry hydrants are flushed prior to priming engine pump.
3. Keep the WSO informed of the status of the fill site and also advise the WSO if additional fill sites may be necessary.
4. Mark fill area so tanker drivers know where to stop.
5. Ensure only one tanker is filled at a time.
6. Ensure that tankers are filled with nothing less than 2 1/2" diameter hose.
7. Ensure a manifold is installed to facilitate additional lines for faster fill times.
  - i. While only one tanker should be filled at a time, an incoming tanker can be hooked into the manifold.
  - ii. Upon the first tanker reaching tank capacity, the line to the second tanker may be opened to facilitate the changeover to the second tanker.

### **Ensuring Adequate Water Supply**

It is the Incident Commander's responsibility to notify the Water Supply Officer the amount of water flow necessary at the incident scene. The WSO will be responsible for ensuring the flow is available. For tanker shuttles, the WSO will ensure that there are an adequate number of tankers in the shuttle to maintain the required flow and that the fill station is capable of maintaining the flow.

**Tanker Shuttles** – Using some simple formulas, the WSO should be able to calculate an approximate number of tankers required to maintain the required flow of water to the incident. The WSO should also decide whether additional fill sites should be added to the supply line.

**Application Rate:** Gallons per Minute (GPM) calculation:

(Length x Width) divided by 3

Multiply by % of involvement

An 80 x 60 structure, 50% involved would require 800 gpm.

**Tanker Shuttle GPM:** Based on travel, fill, and dump times, the WSO can calculate the capable gpm of a tanker shuttle. When selecting a fill site, care should be given in reviewing distance between fill and dump sites, weather conditions, and road conditions:

Tanker Capacity divided by:

(Travel Time Total + Fill Time + Dump Time)

A 2,000 gallon tanker traveling a total of 10 minutes (5 to / 5 from fill site) and taking 5 minutes to fill and 5 minutes to dump can produce 100 gpm.

## Ventilation

The type of ventilation needed will be determined once the fire department arrives on the scene and an initial size up has been completed. Ventilation and fire control operations must be closely coordinated for maximum efficiency and safety. Depending upon the situation, Positive Pressure Ventilation using electric or gasoline powered fans, Vertical Ventilation utilizing roof openings, or Horizontal Ventilation utilizing window and door openings may be used. Proper ventilation facilitates fire control operations by increasing visibility, reducing excessive heat and limiting fire spread.

Early ventilation of a building is important to the success of fire control operations and the safety of firefighters and victims. Upon size-up, Command should determine which type of ventilation is appropriate and establish ventilation teams.

## Types of Ventilation

1. Positive Pressure Ventilation **EHFD SOG 812**
2. Vertical / Horizontal Ventilation **EHFD SOG 810**

## Positive Pressure

Positive pressure ventilation (PPV) has many benefits to fire operations. They include:

1. PPV rapidly removes heat and smoke from the building, thereby reducing the fires ability to spread and advance throughout the structure.
2. PPV causes an improving atmosphere inside the structure.

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3. Rapid removal of smoke improves fire fighters ability to conduct search and rescue operations as well as their ability to conduct attack and extinguishment operations more effectively.
4. The improved atmosphere inside the structure greatly reduces fire fighter heat stress.
5. PPV reduces loss caused by smoke and fire damage to the structure and building contents.
6. PPV can reduce the need and risk of roof ventilation at many fires.

All offensive fire operations qualify for early application of PPV. Command should order PPV where appropriate and early in the operation. PPV should only be implemented when attack teams are in place with charged hand lines and request its use.

### **Vertical / Horizontal Ventilation**

This type of ventilation is intended to allow the fire and its gases to escape harmlessly into the atmosphere, especially in potential back draft situations. In performing ventilation, firefighters should seek to give the smoke and fire gases the most direct path out of the structure that is as safe possible, without spreading the fire or interfering with occupants exiting the building. Ideally, the ventilation exit opening should be made directly over the seat of the fire. This area is the preferred location, but only if it is judged to be a safe one.

### **Staging and Accountability**

EHFD SOG 201 Accountability System guidelines must be followed.

### **Utility Control**

Utilities should be shut down and brought under control to insure that they will not contribute to the fire's spread, overall damage or create any type of safety hazard. At structure fires where electrical involvement or damage has occurred, request the response of the electric company. If necessary, shut down gas lines at the meter and have the gas department notified. Also if necessary, shut down water supplies to the structure.

## **5. Overhaul and Salvage**

Virtually every fire, small or large, produces a need for some form of salvage operation. Salvage is the act of saving or rescuing property in danger. Salvage includes activities required to stop direct and indirect fire damage in addition to those required to minimize the effects of firefighting operations. This includes losses from water, smoke and firefighting efforts. From a public relations point of view besides putting the fire out, salvage is one of the most important functions we can do on the fire ground. Salvage operations are often grouped with overhaul operations; this creates a misconception that the two operations are one in the same, not true. The main objective of salvage is to protect building and contents; the main objective of overhaul is to make sure the fire is completely out. Salvage operations must be aimed at aggressively controlling loss by the

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most expedient means. Salvage objectives are to stop or reduce the source of damage and to protect or remove the contents.

Unsafe conditions should be identified early in the overhaul process and definite efforts made to avoid the possible problems associated with the same.

Personnel should not remove their breathing apparatus until the area is completely cleared of toxic gases.

When available, fresh crews should perform overhaul.

Particular attention should be give to hidden areas during overhaul. During overhaul, care should be given to protect personnel from exposure to carbon monoxide and other by products of combustion. The CO detector should be used to monitor the CO levels until they drop below 35ppm to allow firefighters to remove their SCBA's.

Salvage operations most often involve early smoke removal and covering building contents with salvage covers or plastic. In some cases, the contents of threatened areas, where appropriate, can be removed to a safe location. When removal is not practical, contents should be grouped in the center of rooms, raised off the floor and covered to provide maximum practical protection.

Salvage shall include:

1. The use of salvage covers.
2. Removing water from the structure.
3. Removing furniture and personal belongings to a safe location.
4. Debris removal.
5. Removal of valuables from debris.
6. Covering openings to keep weather out and to secure the building.

The following items should be considered when addressing salvage.

1. Type, value and location of contents
2. The extent and location of the fire
3. Recognition of existing and potential damage sources
4. Estimate of required resources

Salvage efforts should begin in areas most severely threatened by damage. In most cases, that will be areas directly adjacent to or below the fire area. Additional salvage activities should expand outward until all areas of potential loss are secured.

All firefighting activities have the potential to damage property and contents. The key to successful salvage is to distinguish between excessive damage, and damage that is required to reduce potential fire damage.

An aggressive loss control activity reduces the damage incurred during firefighting operations.

Replacement price and value should be primary considerations when performing salvage operations. It is often difficult to separate value from price, however, salvage crews should weigh the worth (value) of items in addition to their dollar cost. Business records, for example, have extremely high value to business owners while their actual price is only the cost of the paper they are printed on. Pictures, family mementos, etc., may have a very personal value to the property owner.

Command should make an early decision on the need for manpower to be assigned to salvage operations. Mutual aid should be called as needed.

Command should meet with the property owner or responsible party to determine or identify the salvage priorities. The earlier this can be done, the greater the opportunity to identify high value or priority items or areas. In some cases, when safe to do so, allowing the property owner or occupant to be escorted through the building, by fire department personnel can be of great assistance to the salvage operation.

Salvage equipment - Tools that should be used during salvage operations:

1. Salvage covers – used to protect contents, redirect or block the flow of water.
2. Smoke ejectors – used to remove smoke.
3. Plastic sheeting – used to protect interiors.

## **Safety**

Safety is an important aspect of all fire ground operations. Accomplishing fire ground objectives in a safe manner helps reduce fire fighter injuries and deaths. An Incident Safety Officer must be assigned in the event that neither of the District Safety Officers are on the scene. Additional ISO's may be needed to assist the ISO depending on the complexity of the incident. Members involved at structure fires shall wear appropriate protective clothing and self-contained breathing apparatus. **EHFD SOG 213**

Fire officers must constantly be aware of both fire and structural conditions which may deteriorate at some point, which may place fire fighters in jeopardy. Indications of the possibility of structural collapse and/or other life threatening occurrences shall be communicated to all personnel within the incidents perimeter. Accountability should take place to ensure everyone is accounted for.