

**PRE-INCIDENT PLANNING WITH THE PUBLIC FIRE SERVICE**

**Table of Contents**

	<b>Page</b>
<b>1.0 SCOPE</b> .....	2
1.1 Changes .....	2
<b>2.0 LOSS PREVENTION RECOMMENDATIONS</b> .....	2
2.1 Introduction .....	2
2.2 Human Factor .....	2
<b>3.0 SUPPORT FOR RECOMMENDATIONS</b> .....	4
3.1 Additional Information for Recommendations .....	4
3.1.1 Coordination with Public Fire Service .....	4
3.1.2 Incident Command System .....	4
3.2 Loss History .....	4
3.3 Illustrative Losses .....	4
3.3.1 Lack of Pre-Incident Planning at a Drilling Mud Manufacturing Plant .....	4
3.3.2 Loss at Facility Handling Hazardous Materials .....	5
<b>4.0 REFERENCES</b> .....	5
<b>APPENDIX A GLOSSARY OF TERMS</b> .....	5
<b>APPENDIX B DOCUMENT REVISION HISTORY</b> .....	5

# 10-1 Pre-Incident Planning With the Public Fire Service

## 1.0 SCOPE

This data sheet provides guidance for the development of a pre-incident plan with the public fire service. The development of such a plan can significantly improve the probability of a public fire service agency successfully handling a fire emergency. The appropriate action by the fire service can greatly reduce the size, magnitude and scope of the property damage loss, as well as improve the possibility that the affected facility will maintain a continuity of operation.

### 1.1 Changes

May 2003. Small revision to section titled "3.2 Loss History". Also, minor editorial changes were made for this revision.

## 2.0 LOSS PREVENTION RECOMMENDATIONS

### 2.1 Introduction

A pre-incident plan is a partnership between the public fire service and the management of a facility. The purpose of the pre-incident plan is two-fold:

- a) To combat site-specific fires and explosions at a facility.
- b) To coordinate fire protection equipment and personnel at the site with public fire service agencies in handling these incidents.

### 2.2 Human Factor

2.2.1 Specify the following in the pre-incident plan:

- a) The level of response by facility personnel that is anticipated.
- b) The level of response by the public fire service that is anticipated.
- c) The availability of site-specific fire protection and fire fighting equipment.
- d) Training of personnel.
- e) Periodic updates of the plan.
- f) Known significant deficiencies in fire protection.
- g) Safe emergency shutdown procedures for hazardous processes.
- h) Potential environmental issues.
- i) Provisions for implementation of the Incident Command System (ICS). (See Section 3.1.2).

2.2.2 Develop a pre-incident plan that will be well executed at the time of an incident by providing a guided tour for the public fire service. The site visit can incorporate the FM Global Insurance Plan, or other property plan, and include a footprint view of the entire property and specifically:

- a) Building locations, designations, and size (including height).
- b) Building construction features itemized:
  - i) Combustible or noncombustible wall construction.
  - ii) Interior finish materials.
  - iii) Location of firewalls and fire doors.
  - iv) Location of concealed spaces (above and below).
  - v) Location of confined spaces.
  - vi) Location of aged and lightweight construction features.
- c) Property lines and north point designation.
- d) Location and size of underground fire main.

- e) Identify the types of fire protection systems:
  - i) Sprinkler systems.
  - ii) Special protection systems: foam; CO<sub>2</sub>, dry chemical; water mist.
  - iii) Location of spare sprinkler heads for replacement after incidents.
  - iv) Identify presence of any pressure reducing valves/devices.
- f) Location of fire protection control valves and areas controlled by each.
- g) Location and type of fire alarm system annunciator panel.
- h) Location of both on-site and public water system hydrants (assure that on-site fire hydrants threads are compatible with the public fire service equipment).
- i) Location of fire service connections to the sprinkler system (assure compatibility of hose threads on this connection).
- j) Location of on-site fire pumps with information on type.
- k) Location of utility connections and their shut-offs: electrical; natural gas; on-site gas supplies such as propane; production gases, process piping.
- l) Location of special hazards and hazardous processes, including flammable/combustible liquids (specify location of *Material Safety Data Sheets*).
- m) Location of unusual or concentrated storage areas.
- n) Types of exposures surrounding the property.
- o) Access roads (primary and alternate) to the site and potential inaccessibility (e.g., railroad crossing, movable bridges, flooding, etc.).
- p) Location and information on the operation of fixed smoke and heat ventilation systems.
- q) Areas extremely sensitive to water and smoke damage.

### 2.2.3 Address personnel safety by including the following:

- a) Establish an accountability procedure for identifying the number of personnel on site and areas in which they work.
- b) Review presence of security personnel on operating and off-shifts and where they are located at such times.

### 2.2.4 Provide emergency response training as it is an essential part of emergency preparedness and pre-incident planning. The following should be done:

- a) Encourage training of the public fire service and the plant emergency response team (including any hazardous materials response team) together, in order to understand the inter-relationship of each group's actions.
- b) Consider using the FM Global *Fighting Fire in Sprinklered Buildings* training kit, free to the public fire service, as it is an important portion of the training. Though specifically designed for the public fire service, it is beneficial training for the plant Emergency Response Team.

### 2.2.5 Test the pre-incident plan on a scheduled basis (e.g., annually) to ensure it will work properly. Include the following:

- a) Credible scenarios for on-site incidents should be developed (e.g., flammable liquid fires, log yard fires, conveyor fires, exposure fires, fire protection impairments, etc.). Consider including such adverse factors such as a frozen pond intended for supplying fire department pumpers, limited access in sub-freezing weather, brush fire exposing multiple buildings, etc., if they are indeed credible.
- b) Joint drills are appropriate to assure that all aspects of the plan work effectively.
- c) Communication links between the plant, public fire service, and other related agencies should be tested to assure that they are effective.

2.2.6 Maintain the effectiveness of the pre-incident plan over time as follows:

- a) The plan should be reviewed jointly with the public fire service at least annually.
- b) The frequency of reviews may be increased if many changes are in progress at the facility.
- c) The reviews of the plan should consider items such as:
  - i) New construction.
  - ii) Remodeling and renovations.
  - iii) New processes.
  - iv) New materials and equipment that increase fire hazards.
  - v) Down-sizing or up-sizing of the plant staff or operations.
  - vi) Any changes that effect the Emergency Response Team.
  - vii) Addition or deletion of any fixed or portable fire protection equipment referenced in the plan.

## 3.0 SUPPORT FOR RECOMMENDATIONS

### 3.1 Additional Information for Recommendations

#### 3.1.1 Coordination with Public Fire Service

For pre-incident planning with the public fire service, provide sufficient information to the public fire service, including guided tours of your facility, to aid them in conducting prompt and efficient fire fighting operations. Meet with them for pre-incident planning. Include a site visit with site plan and checklist to show the property layout and any special hazards, etc., to them. Consider a joint drill with the fire service, simulating emergency conditions. Coordinate your Emergency Response Plan with the public fire service and other applicable emergency response organizations (e.g., HAZMAT). Provide the public fire service with sufficient information to aid them in conducting prompt and efficient fire fighting operations. In particular, this could include flammable liquid areas, especially any areas that might cause fire fighters to need special types of protective gear.

#### 3.1.2 Incident Command System

3.1.2.1 An Incident Command System (ICS) is a process by which the roles and responsibilities of both the public fire service and the emergency response team (ERT) are defined. Operating procedures are established and used in the management and direction of emergency incident. Typically, the chief officer-in-charge of the public fire service is the incident commander.

3.1.2.2 The ERT Leader is an integral part of the ICS structure. The ERT Leader establishes communication links with the public fire service and with the Incident Commander. He provides information on construction, occupancy, and protection features that are affected by the incident in progress. This action is part of the public-private partnership, and an important consideration when developing a pre-fire plan.

3.1.2.3 The ICS also provides a plan to coordinate with other outside agencies that may be required as a result of the incident.

### 3.2 Loss History

Though loss statistics regarding pre-incident planning have only been maintained since 1993, the trending of these statistics is significant. Thirty-four incidents were reported of which 29 were identified as unfavorable. Those identified as unfavorable contributed to gross losses of greater than US\$500 million.

### 3.3 Illustrative Losses

#### 3.3.1 Lack of Pre-Incident Planning at a Drilling Mud Manufacturing Plant

Shortly before dawn a passer-by observed a fire at a plant located outside of a small town and notified the fire department. The fire occurred in a 60 x 200 ft. steel-on-steel frame building that was used for raw material storage for the plant that manufactured specialty drilling mud for the oil drilling industry. Drilling mud is used to reduce friction in the drilling process and includes many different products varying from inert material (such

as lime and calcium chloride) to almond and walnut shells and lignite-based products. The plant operated one shift. The doors were locked and exterior lighting was on when the plant was closed. There was no sprinkler protection and no hydrants available.

Upon arrival, the fire chief refused to fight the fire, as he did not know the contents of the building. This set off a chain of activities beginning with the plant providing MSDS sheets. Successively a chemical industry information agency was contacted, the state department of environmental quality arrived, and construction was begun on a temporary curbing around the plant to contain firefighting water. The fire department still refused to attack the fire.

In the meantime, mutual aid fire departments arrived. After ten hours, the fire department began suppression activities. But by then all of the occupancy was burned or damaged and most of the building was severely damaged.

With a pre-incident plan, the fire department would have known what was in the building and firefighting could have been started nearly immediately upon arrival thus preventing as substantial a loss.

### 3.3.2 Loss at Facility Handling Hazardous Materials

A fire occurred at a facility that handles hazardous chemicals. These chemicals included corrosive and toxic materials. The fire occurred as a result of a defective heater and ignited nearby combustible materials. There were no automatic sprinklers in this area of the plant. A watchman spotted the fire and notified the public fire service, who responded promptly. The watchman advised the responding fire units that there were very toxic materials in the plant. Because the fire service lacked knowledge of the site, including where the chemicals were located, they did not attack the fire but merely protected the surrounding area with hose streams. After several hours they realized that, though contained, the fire continued to burn at a very slow rate. Finally, the public fire service determined it was safe to enter the building and did so. The fire was quickly extinguished.

Upon investigation it was found that the fire did not even involve the feared chemicals. There was no pre-incident plan.

## 4.0 REFERENCES

Support material on this topic can be found in:

- a) FM Global "A Pocket Guide for Prefire Planning" (P9809).
- b) FM Global "Understanding the Hazard — Lack of Prefire Planning" (P0033).
- c) FM Global "Fighting Fire In Sprinklered Buildings" (P9923CD).

**NOTE:** This program is currently only available to the public fire service, but can be obtained by an Insured for the public fire service and used as a shared training resource.

- d) "FM Global and the Fire Service: Partners in Fighting Fire" (P9402).
- e) NFPA 1620 *Recommended Practice for Pre-Incident Planning*.
- f) NFPA 1561 *Standard on Emergency Services Incident Management System*

## APPENDIX A GLOSSARY OF TERMS

*Industrial Fire Brigade:* this is a term used for a fully trained and fully equipped fire fighting team. It is developed by a facility, utilizing employees whose full-time job may or may not be as firefighters. The brigade typically does not respond to fire beyond the limits of their employer's property.

*Public fire service:* this is a global term that represents public firefighters in any area of the world. Some local terms that would substitute are such items as fire department, fire brigade, fire and emergency services, and fire/rescue.

## APPENDIX B DOCUMENT REVISION HISTORY

January 2002. Provisions for implementation of the Incident Command System (ICS) were added (section 3.1.2).

January 2001. First publication of this document.