

Impairments to Protective Systems

I. Introduction

A protection impairment occurs when fire or explosion protective systems, such as sprinklers, waterspray, carbon dioxide, other extinguishing gases, fire pumps, fire alarm, or supervisory equipment, are shut off or otherwise taken out of service completely or in part. When this happens, the dollars invested in these protective systems cannot provide the intended protection. While it is recognized that impairments are necessary during maintenance, renovation, new construction, or because of equipment failure, it must be understood that a facility is in jeopardy during an impairment.

Many large losses in protected properties might otherwise have been small had it not been for an impaired fire or explosion protective system. When an impairment is planned or occurs accidentally, precautions must be taken to provide temporary protection, reduce hazards, and ensure prompt restoration. When a system is impaired, and no precautions are taken or supervision provided to ensure restoration, a false sense of security will prevail.

Background

There are three types of impairments: Emergency, Planned, and Hidden.

An *Emergency Impairment* occurs when an unforeseen incident or accident partially or totally impairs the effectiveness of a protective system. A system shutdown to repair a sudden break in the piping is an example.

A *Planned Impairment* occurs when it is necessary to shut down a fire or explosion protective system for maintenance or modification. Shutting down a sprinkler system to add sprinklers is an example. While this may seem to be a straightforward operation, previous loss experience has shown that it is not so simple. **In fact, Planned Impairments that are improperly handled greatly increase the extent of loss that occurs while the system is impaired.**

A *Hidden Impairment* is one which is not known to exist and is, therefore, the most serious type. A system shut down and inadvertently left out of service upon completion of work, a system shut down without proper notification, and a system maliciously shut down are all examples. Proper impairment notification and handling procedures can reduce the chance of experiencing this type of impairment. A good inspection program can reveal the Hidden Impairment, thus allowing prompt restoration of vital protective equipment.

II. Impairment Program Implementation Guidelines

A. Assign Impairment Coordinator

To maintain the integrity of your fire protection systems, an impairment handling program should be implemented to control situations when the fire protection system must be shut down. A responsible person should be assigned to maintain the fire protection system in service at all times and handle the situation when the system must be shut down. If you are a tenant in a leased building, this program shall still be used.

The coordinator's responsibilities shall be:

- Complete the steps for handling an impairment (see Section C below).
- Inform supervisors that fire protection systems will be shut off. Areas affected by impairments should have a roving fire watch and any hazardous operations should be curtailed until protection is restored.
- Relocate combustible materials from impaired sprinkler area to an area protected with sprinklers, if possible.
- Enforce no smoking regulations throughout the affected area.
- Provide additional manual protection in impaired area with portable extinguishers and/or charged fire hose.
- Have everything ready before shutting off protection. Have necessary parts available before initiating repairs.
- Work continuously until repairs are completed and protection is restored.
- Physically check the valve after reopening.

B. Impairment Tag

The attached "Fire Protection System Impairment" hang tag shall be used to monitor all impairments.

C. Steps for Handling an Impairment

When the need arises and a fire protection system must be shut down, the following steps shall be followed:

1. Notify the alarm company.
2. Notify the public fire department or dispatch center, indicating where protection is impaired.
3. Attach the Fire Protection System Impairment tag to the shut sprinkler control valve or other impaired equipment.

FIRE PROTECTION SYSTEM IMPAIRMENT

THIS SYSTEM PROTECTS	
DATE SHUT	SHUT BY

For sprinkler systems, after valve is opened, make 2 inch drain test. Drop in pressure should be normal. If pressure drop is extreme and does not build up, the system is impaired and immediate investigation is necessary.

2 INCH DRAIN TEST RESULTS	
STATIC PRESSURE	FLOWNG PRESSURE
DRAIN TEST MADE BY (Signature)	DATE

Fire protection impairment has been restored and system is in service.

Signature
Date

IT IS ABSOLUTELY ESSENTIAL TO PROVIDE CLOSE SUPERVISION DURING SYSTEM IMPAIRMENTS

1. Notify public fire department of impairment.
2. Shut down hazardous operation until protection is restored.
3. Provide temporary protection. Move extra extinguishers to area involved.
4. Provide standby personnel with emergency instructions.
5. During impairment, buildings or areas involved should be constantly attended.
6. Upon completion of repairs or alterations, check to assure that all valves are open and all systems are operative. Advise alarm company to place alarms in service.