

Fire Protection Impairment Program and Sample

A fire protection impairment is any condition that affects the ability of fixed fire protection equipment to detect, control, or suppress a fire in the way it was designed or intended. If fires occur when these detection or suppression systems are impaired, the results can be catastrophic. The destruction may cause loss of life, property, and the ability to serve customers. Even if you are fully insured, some loss costs may not be recoverable. Any fire protection impairment should be immediately corrected.

Protection systems that may be affected by impairments include:

Fire Protection Water Supplies

- Underground pipes
- Fire pumps
- Valves
- Tanks used as sprinkler or
- Hydrant water sources

Automatic Sprinkler Systems

- Wet pipe
- Dry pipe
- Deluge
- Pre-action

Automatic Special Fire Systems

- Carbon dioxide
- Halon
- Halon-substitute gaseous agent
- Foam
- Dry or wet chemical
- Extinguishing agent

Detection and Alarm Systems

- Smoke and heat detection
- Sprinkler system water flow alarms
- Fire pump running conditions

Common Causes of Impairments

Fire protection impairments can be planned due to building renovations or scheduled inspection and maintenance of fire protection installations. Impairments can also be unplanned due to mechanical damage, freezing, equipment malfunction, or improperly closed valves.

Mechanical Damage—This can include a sprinkler line broken by a lift truck or a yard hydrant struck by a vehicle.

Freezing—Conditions causing impairments include building heat failure or sprinkler piping in inadequately heated spaces.

Equipment Malfunctions—These may be electrical, mechanical, or a combination of both. An example is a diesel-driven fire pump which fails to start during the weekly test.

Improperly Closed Sprinkler Valves—These can occur when employees close the wrong valve, or when they fail to restore a valve once repairs are completed.

7 Steps to Follow in the Event of a Planned or Unplanned Impairment

1. Minimize Hazards

Materials, processes, employee activities and maintenance operations may be hazardous, yet adequately controlled by special protective equipment. When this protective equipment is out of service, hazards should be minimized by reducing or completely stopping operations. Some examples include:

- Discontinue use and transfer of flammable liquids in buildings if the sprinkler system is out of service.
- Postpone scheduled maintenance involving cutting, welding, grinding, or similar hot work if protection in the work area is out of service.
- Control smoking when fire protection is out of service.
- Schedule planned impairments during off hours or weekends when production hazards are reduced.

Note: Some fire prevention authorities and codes may require building evacuation when automatic fire protection is impaired.

2. Provide Temporary Protection

- Numerous temporary safeguards are available when protection is impaired.
- Notify the plant brigade.
- Bring extra portable fire extinguishers to the area.
- Use a fire hose that is pre-connected to hydrants and stretched into affected areas.

Use tie-ins through cross-connections from an in-service sprinkler system to an impaired system.

3. Expedite Repairs

- Use the maximum amount of effort and the minimum amount of time to restore fire protection.
- For planned impairments, have all replacement parts on hand before the system is shut down.
- Schedule work to occur continuously once the job is started.

4. Notify the Public Fire Department

Seek assistance from local fire authorities when impairments occur. Depending on the severity, the fire department may assign personnel and equipment to the site until the impairment is resolved and protection is restored. Or an officer may personally evaluate the problem and alert the other fire companies of the impairment at your facility.

5. Intensify Watchman Service, Employee Patrols or Fire Watches

In many cases, the impairment will eliminate automatic fire detection capability. Therefore, it is necessary to provide substitute methods for prompt detection of a fire or a dangerous condition. One substitute is to have capable, competent personnel conduct scheduled tours of the affected areas. If standard watchman service is provided, conduct tours throughout the affected area at more frequent intervals. Clearly explain the procedures for summoning fire department aid.

6. Provide Notification and Use a Tag System

The impairment notification and valve closed tag system was developed to:

- Make employees, fire brigade and fire department personnel aware of the shut valve by using prominent shut valve tagging. (Contact us at riskcontrol@tribalfirst.com for fire impairment tags)
- Help ensure that protection is restored following maintenance and repairs

7. Manage the Impairment – Provide Responsibility and Authority

A competent individual should be selected to manage and properly control the entire impairment. This individual should have authority over all activities involved in controlling the increased exposure to loss created by the impairment. These activities include minimizing hazards, providing temporary protection, expediting repairs, providing notification and tagging, conducting surveillance, and confirming restoration.

Sample Sprinkler Impairment Program:

Overview

The probability of a fire or explosion causing major damage is increased whenever a fire protection system is impaired. The longer the fire protection system is impaired, the greater the probability becomes. Therefore, it is necessary to minimize the duration and scope of any impairment or provide for an alternate protection system.

- A Fire Protection Impairment Program is an effective management program used to:
- Supervise the safe shutdown of fire protection systems
- Control potential fire hazards during the impairments
- Restore the fire protection system to service as soon as possible.

Scope

This policy applies to all *** employees, outside contractors and their representatives, or any company representative hired by **** to provide services or any outside trade workers who will be working on **** property.

Definitions

- **Fire Protection Systems**—Sprinkler systems, standpipe systems, fire hose systems, underground fire service mains, fire pumps, water storage tanks, water spray fixed systems, foam-water systems, special extinguishing systems, fire service control valves, fire alarms systems, and emergency lights.
- **Firewatch**—A person or persons designated to physically patrol the area where the fire protection system is impaired.
- **Impairment**—A shutdown, in whole or part, of a fire protection system.
- **Emergency Impairment**—When a fire protection system is out of service due to an unexpected occurrence, such as a ruptured pipe or an unexpected power outage.
- **Planned Impairment**—When a fire protection system is out of service due to work that has been planned in advance, such as revisions to the water supply or sprinkler piping system.
- **Level 1 Impairment**—When a limited number of components of a fire protection system are found defective or removed from service. A Level 1 impairment represents a minimal impact to the overall life safety of building occupants.
- **Level 2 Impairment**—A shutdown of an entire fire protection system, or major portion, significantly affecting occupant life safety.
- **Impairment Coordinator (IC)**—The person who manages the impairment while system work is being performed and has overall responsibility for proper implementation of the Fire Protection Impairment Program. The Director of Environmental Health and Safety, the Fire Protection Manager or a member of the Department of Environmental Health and Safety will be designated as the Impairment Coordinator.

Responsibilities

Employees

Any employee who impairs a fire protection system, in whole or part, must first notify the Impairment

Coordinator at the Department of Environmental Health and Safety. If an impairment permit is required, the employee will attach the Fire & Life Safety System Permit/Impairment Tag to the fire department connection for sprinkler system impairments or to the fire alarm annunciator/control panel for fire alarm systems.

Contractors, Outside Workers, Outside Company Representatives

Any contractor/contractor's representative or outside worker who impairs a fire protection system, in whole or part, must first notify the Impairment Coordinator at the Department of Environmental Health and Safety. If an impairment permit is required, the contractor, contractor's representative, or outside worker will attach the Fire & Life Safety System Permit/Impairment Tag to the fire department connection for sprinkler system impairments or to the fire alarm annunciator/control panel for fire alarm systems.

Impairment Coordinator (IC)

- The IC will determine the level of impairment due to a shutdown, in whole or part, of a fire protection system.
- The IC will be responsible for completion of the Impairment Worksheet when authorizing Level 2 impairments.
- The IC will be responsible for issuing and verifying removal of fire & Life Safety System Permit/Impairment Tags when authorizing Level 2 impairments.
- The IC will be responsible for coordination of the firewatch, if it has been determined that a firewatch is necessary. The IC will document firewatch activities on the Firewatch Log Sheet.
- The IC will be responsible for providing training to **** employees who will be utilized as firewatch personnel.

Impairment Coordination Procedures – Level 1

- All Level 1 impairments, both preplanned and emergency, must be reported to the Impairment Coordinator.
- The **** Dept. of Public Safety will be notified of a preplanned impairment of a fire alarm system.
- The fire alarm monitoring company, if utilized to monitor that fire alarm system, will be notified of a preplanned impairment of a fire alarm system.
- The Impairment Coordinator will ensure that Level 1 impairments are satisfactorily remediated.

Impairment Coordination Procedures – Level 2

Preplanned Impairments

- The **** Dept. of Public Safety will be notified of a preplanned impairment of a fire alarm system.
- The fire alarm monitoring company, if utilized to monitor that particular fire alarm system, will be notified of a preplanned impairment of a fire alarm system.
- The maintenance supervisor for the affected building will be notified of the preplanned impairment.
- The IC will complete the Impairment Worksheet
- The IC will complete the Fire & Life Safety System Permit/Impairment Tag
- The IC will authorize the preplanned impairment and verify that the following procedures have been implemented.

1. The extent and expected duration of the impairment have been determined.
2. The areas or buildings involved have been considered and the increased risks determined.
3. When a required automatic sprinkler system is out of service for an extended duration, the Impairment Coordinator will arrange for one of the following:

- Evacuation of the building or portion of the building affected by the system out of service, or
 - A fire watch for all portions of the building left unprotected by the shutdown until the fire alarm or sprinkler system has been returned to service.
 - A fire watch utilized for a fire alarm or automatic sprinkler system shutdown will be composed of individuals beyond normal staffing, assigned to walk the areas affected.
 - The number of fire watch personnel utilized will be determined by the impairment coordinator.
 - Firewatch personnel used for fire alarm shutdowns must be specially trained in fire prevention and in occupant and fire department notification techniques.
 - Fire watch personnel used for automatic sprinkler system shutdowns must be specially trained in fire prevention and in the use of fire extinguishers, and in occupant and fire department notification techniques.
4. When a required fire alarm system is out of service for an extended duration, the Impairment Coordinator will arrange for one of the following:
- Evacuation of the building or portion of the building affected by the system out of service, or
 - Implementation of mitigating measures for the period that the system is impaired. This considers the building occupancy type, nature, and duration of impairment, building occupancy level during the impairment period, active work being conducted on the fire alarm system during the impairment, condition of other fire protection systems and features, and hazards and assets at risk. Appropriate mitigating measures range from simple occupant notification to full-time fire watch.
5. Sprinkler systems: the IC will complete or authorize a Fire & Life Safety System Permit/Impairment Tag, making sure it is located at the fire department connection, indicating which system, or part thereof, has been removed from service.
6. Fire alarm systems: IC will complete or authorize a Fire & Life Safety System Permit/Impairment Tag, making sure it is located at the fire alarm annunciator or fire alarm control panel.

Emergency Impairment Procedures

When an emergency impairment occurs, emergency action will be taken to minimize potential injury and damage.

The impairment coordinator will implement items 1 through 6 of section *Preplanned Impairments* with the following exceptions:

- Any damage to fire protection systems caused by the contractor will be repaired by a licensed fire protection company at the contractor's expense.
- Any required firewatch activities due to damage of the fire protection equipment will be supplied by the contractor.
- Contractor must supply their own firewatch activities to ensure compliance with this policy and other **** policies, i.e., Hot Work Permit Policy.

Restoring Systems to Service

When all impaired equipment is restored to normal working order, the Impairment Coordinator will verify that the following procedures have been implemented:

- Any necessary inspections and tests have been conducted to verify that affected systems are operational.
- Maintenance supervisors for the affected buildings have been advised that protection is restored.
- If a fire alarm system is involved, the **** Department of Public Safety and monitoring company (if any) have been advised that protection is restored.
- The Fire & Life Safety System Permit/Impairment Tag has been removed.

References

NFPA 101 – 9.6.1.7 & 9.7.6 (2003 ed.), Life Safety Code
International Fire Code, 2003 ed.
NFPA 1 – 13.3.4 (2003 ed.), Uniform Fire Code
NFPA 25 – 14 (2003 ed.), Maintenance of Water Based
Fire Protection Systems
NFPA 72 – 4.6 & 10.2.1.2, National Fire Alarm Code

**For Additional Assistance in Customizing your Fire Protection Impairment Program,
contact:**

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