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Fire Protection Impairment Guide

Fire detection and suppression systems are essential when it comes to safeguarding business operations. There are scenarios when these systems are taken out of service, either intentionally or inadvertently. When this occurs, these systems are no longer providing protection and are deemed to be *impaired*. If fires occur when these systems are impaired, the results can be catastrophic, including loss of life, property, and extended business interruption.

To reap the benefits of fire detection and suppression systems, it is critical that comprehensive protocols are in place to manage fire protection impairments until the systems are completely restored to normal operation. The purpose of this guide is to detail impairment types, affected fire protection systems, the protocols that should be followed to manage impairments until systems are fully restored, and the tag-based permitting process for fire protection impairments.

Impairment Types

Impairments can come in three forms, including:

Preplanned impairment

A preplanned impairment is one in which a fire detection/suppression system is taken out of service for work that is planned in advance. This is common during repairs or modifications to existing fire detection or suppression systems.

In this scenario, the impairment can be systematically evaluated with an intention to minimize the duration of the impairment and implement the necessary fire prevention strategies.

Emergency impairment

An emergency impairment is one in which a fire detection/suppression system is no longer in service due to an unplanned event; common examples of this include loss of water supply, physical damage, freezing conditions, and equipment malfunctions within the systems themselves.

In this scenario, immediate action is often required and, as such, there is little time to implement the necessary fire prevention strategies.

Hidden impairment

A hidden impairment is one which a fire detection/suppression system is no longer in service unbeknownst to facility personnel. Hidden impairments are often the result of an unauthorized shutdown of the systems or failing to restore systems once repairs and/or modifications are completed.

In a worst-case scenario, these impairments may go undetected until a fire takes place, and the systems fail to operate.

Affected Fire Protection Systems

Fire protection systems and components affected by impairments include, but are not limited to, the following:

Water supplies

Water supply tanks and reservoirs
Underground water main and valves
Hydrants
Fire pumps

Special suppression systems

Carbon dioxide systems
Dry chemical systems
Wet chemical system
Clean agent systems

Water-based fire protection systems

Automatic sprinkler systems
Foam-water sprinkler systems
Water mist systems
Standpipe and hose systems

Detection and alarm systems

Annunciator panels
Smoke and heat detectors
Sprinkler system water-flow alarms
Fire pump flow alarms

Fire Protection Impairment Policy

Managing fire protection impairments begins with the creation and implementation of a formal fire protection impairment policy. An effective fire protection equipment impairment policy should include the following elements, at minimum:

1. Definition of what constitutes an impairment to a fire protection system.
2. A list of fire protection systems within the facility that may be subjected to impairments.
3. Assignment of an impairment coordinator, including a description of their responsibilities during an impairment.
4. Protocols that must be followed before, during, and after an impairment to a fire protection system, including the mandatory utilization of a tag-based permitting system (see next page).
5. Training requirements for employees and contractors on the fire protection equipment impairment policy.

Fire Protection Impairment Protocols

		Preplanned impairment	Emergency impairment	Hidden impairment
Before work	Manage the emergency, summoning resources to prevent any further damage.	N/A	●	N/A
	Immediately assess the condition of the impaired system and extent of the impairment.	N/A	●	●
	Discontinue any hazardous processes that could initiate or contribute to the spread of a fire.	●	●	●
	Remove all potential ignition sources (e.g., hot work) from the area.	●	●	●
	Ensure additional means of manual fire protection (e.g., fire extinguishers, water hoses, etc.) are provided in the area.	●	●	●
	Remove combustible materials from the area or provide them with appropriate protection (e.g., fire blankets, etc.).	●	●	●
	Assign continuous fire watch in the area, along with the necessary means of alerting authorities about a fire.	●	●	●
	Action taken to limit the scope of the impairment by limiting the impairment to the smallest area possible (rather than the entire facility).	●	●	●
	Action taken to expedite continuous work involved by verifying all available resources (i.e., workforce, materials, equipment, etc.) are provided in the area.	●	●	●
	Notify relevant parties of the impairment, including (but not limited to) management, occupants, fire department, insurance company, and alarm monitoring company.	●	●	●
	Issue **Fire Protection Impairment Permit**, obtaining necessary sign-off by impairment coordinator for work to begin.	●	●	●
	Post an “Out of Service” tag at the point of impairment flagging the impaired system, highlighting that the area is at higher risk of large fire loss during this time.	●	●	●
During work	Ensure that any hazardous processes that could initiate or contribute to the spread of a fire remain ceased.	●	●	●
	Ensure that any potential ignition sources remain removed from the area.	●	●	●
	Ensure combustible materials remain removed from the area or are provided with appropriate protection.	●	●	●
	Ensure continuous fire watch remains in place.	●	●	●
	Prioritize the work involved, avoiding breaks and interruptions, if possible.	●	●	●
After work	Confirm completion of work.	●	●	●
	Test system to verify that is has returned to full operational status.	●	●	●
	Notify relevant parties that the system has returned to full operational status.	●	●	●
	Close out the **Fire Protection Impairment Permit**, obtaining necessary sign-off by impairment coordinator that work has been completed and the system is operational.	●	●	●
	File the completed fire protection impairment permit in an electronic database for future reference.	●	●	●
	Remove “Out of Service” tag from point of impairment.	●	●	●
	Investigate the cause of the impairment and actions necessary to prevent similar incidents in the future.	N/A	●	●

● Protocol is mandatory

● Protocol is mandatory in situations where the system is already impaired (e.g., from power failure, loss of water supply, etc.)

The Permitting Process

A Fire Protection Impairment Permit should be utilized for any fire protection impairment, regardless of the reason or duration, and retained on file for auditing purposes. The following steps outline how to complete a Fire Protection Impairment Permit.

Step 1: The person responsible for conducting work associated with an impairment to the fire protection system should complete the first four parts of Section A – *Impairment Assessment*, including:

- A.1. – *Impairment Details*
- A.2. – *Work Details*
- A.3. – *Precautions Checklist*
- A.4. – *Impairment Notifications*

Step 2: The impairment coordinator should review the previous sections for completeness and ensure that all precautions have been implemented, as indicated.

Step 3: The impairment coordinator should then complete section A.5. - *Sign-off by Impairment Coordinator,* thus authorizing the work to begin.

Step 4: A copy of the permit, along with an accompanying "Out of Service" tag should then be affixed at the point of impairment (i.e., on the equipment) and an additional copy of the Permit saved in an electronic database so that the remaining sections can be completed at the appropriate time.

Step 5: Following completion of the work, sections B.1. - *Restoration Checklist* and B.2. - *Restoration Timing* should be completed, either by the impairment coordinator or the individual/contractor performing the work.

Step 6: The impairment coordinator should review sections B.1 and B.2 for completeness, ensuring that the necessary actions have been taken and the system has been restored to full functionality.

Step 7: The impairment coordinator should then complete section B.3 - *Sign-off by Impairment Coordinator*, thus closing off the permit.

Step 8: A copy of the completed Permit should then be retained in an electronic database for future reference.

Why is a Fire Protection Impairment Permit required?

Utilizing a tag-based Fire Protection Impairment Permit facilitates a consistent approach in managing impairments to fire protection systems, ensuring that:

- Necessary precautions are taken.
- Individuals and their respective actions are documented.
- Impaired systems are restored back to full functionality.
- Permanent records of work planned, undertaken, and completed are generated for future reference.

A copy of Echelon Insurance's Fire Protection Impairment Permit and Tag can be found here, or on our website.

References

NFPA 25 – Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems

Fire Protection Handbook – Section 16.11 | Care and Maintenance of Water-Based Fire Extinguishing Systems

FM Data Sheet 10-7 – Fire Protection Impairment Management

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