

# Impairments to Fire Systems



**TOKIOMARINE**  
**KILN**

## How does this affect your company?

An impairment is a partial or complete isolation of any type of fire protection or detection system which is installed within your premises. It can also be applicable for security systems.

The essence of this process is to ensure that the impairments are only carried out if absolutely necessary,

and are monitored to ensure that the system is reactivated at the earliest opportunity. It is essential that all impairments of critical fire systems are kept to the absolute minimum in terms of scope and duration.

The Tokio Marine Kiln Impairment System covers all the key elements to consider in order to carry out an

impairment safely and quickly. It is strongly recommended that you contact Tokio Marine Kiln if you have any questions about an impairment that you need to implement. Our risk engineers will be able to provide further advice and guidance based on their experience to help limit the duration and scope of an impairment.

## Why does this affect your company?

While planned impairments may be necessary during day to day maintenance and projects, it must be understood that if part or all of the fire protection system is impaired then the facility is at risk. The fire protection systems are there because occupancy or process hazards have been identified and the fire risks associated with these need to be minimised. When an impairment occurs, whether it be accidental or planned, it is necessary to minimise the risks. These may include arranging temporary protection, reducing the hazards and managing the impairment to ensure that the impairment is restored in the shortest possible time.

There are three types of impairments that occur:

- the first being a 'planned impairment';
- the second being an 'emergency impairment';
- and the third and most dangerous is the 'hidden impairment'.

Obviously, it is preferable to have a planned impairment with time to prepare. However, when unforeseen circumstances occur it is essential that when a system is isolated due to a problem or fault, that it is not left and forgotten about.

### Planned impairments

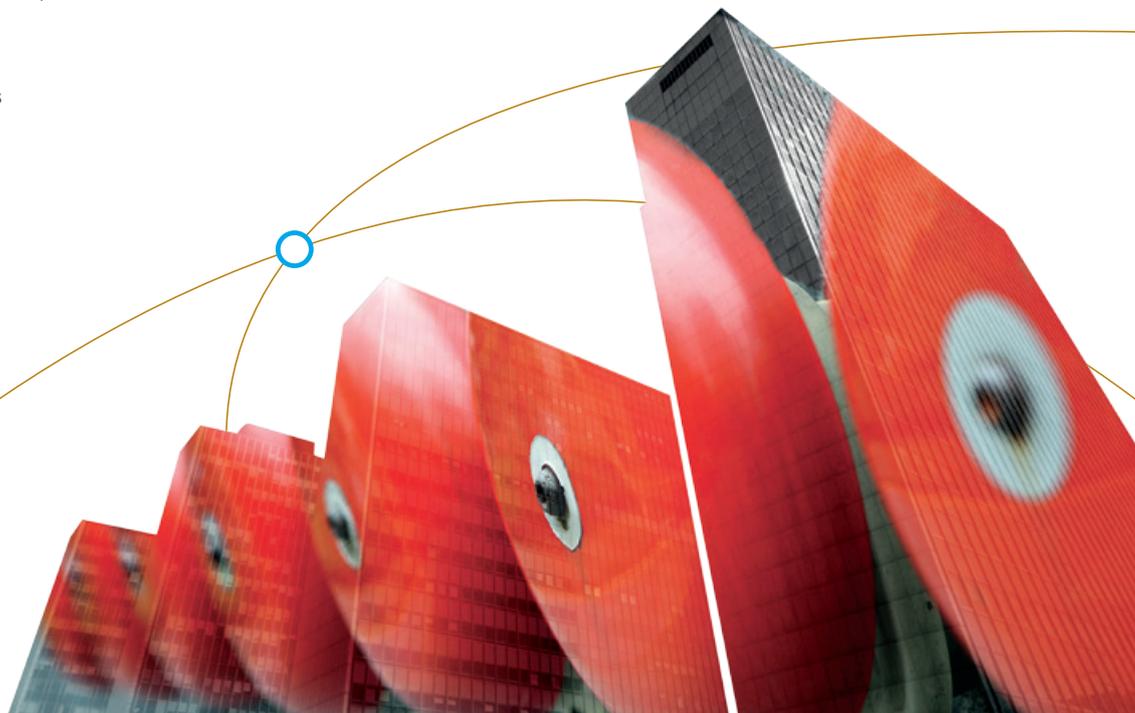
Planned impairments are implemented during maintenance or projects, or if a fire system needs to be extended/isolated. Whatever the reason for the impairment, good planning means that the risks can be minimised. In order to minimise the duration of planned impairments all required materials and parts should be on site before isolating the system.

### Emergency impairments

Emergency impairments tend to be at a time of routine testing where an impairment has been discovered, or a fire system needs to be shut down in an emergency.

### Hidden impairments

Hidden impairments are ones that no one is aware of or that have been forgotten. Correct application of the Tokio Marine Kiln Impairment System could help reduce the risk of hidden impairments. Such hidden impairments do occur, and if a system is isolated it will not extinguish a fire or raise the alarm.



## What could happen to your company if you don't take these steps?

There have been many high profile incidents where fire protection systems had been isolated and the building or facilities were lost. In 1988 the Piper Alfa oil and gas platform in the North Sea had a gas explosion on a compressor and the fire spread quickly. The platform was fully protected with a deluge system, but the fire pumps had been impaired while some divers had been carrying out maintenance earlier in the day. Two engineers lost their lives trying to reach the sprinkler pump control panel to turn them back on. In the end, over 160 people lost their lives in this one incident.

To obtain copies of the Tokio Marine Kiln Fire Safety Inspections Checklist please contact your local Tokio Marine Kiln office or contact:

Risk Engineering Administrator  
Tokio Marine Kiln  
20 Fenchurch Street  
London, EC3M 3BY  
resources@tokiomarinekiln.com

[www.tokiomarinekiln.com](http://www.tokiomarinekiln.com)



## What should your company do/have?

### Safer alternative

Consider whether the fire system needs to be shut down to complete the job or could another method be implemented to ensure that the systems remain operational.

### Tokio Marine Kiln impairment system

Apply the Tokio Marine Kiln impairment system or an equivalent system and limit the permit validity to one shift only. This should apply to employees as well as contractors, and should form part of the risk assessment undertaken for the impairment. Hot work, smoking and hazardous operations should not be permitted in the affected area during the impairment.

### Notification

Inform department heads, alarm monitoring company, emergency response team members, fire brigade, employees and insurance companies of the impairment. Inform members of the team of any changing situation where the impairment time needs to be extended and when the system has been restored.

### Training

All people involved with impairment activities should be fully trained and educated on implementing impairment handling procedures, together with the possible hazards associated with them.

### Manual fire fighting equipment

Fire hoses should be laid out and connected, (if not impaired), and/or additional fire extinguishers should be positioned in the area of the impairment. The person undertaking the impairment should be trained in the use of this equipment.

### One impairment

As many fire protection/detection systems as possible should remain operational during the period of the impairment. Ensure that the work on the impaired system is expedited and provides a continuous fire watch in the affected area.

### Responsible person

There should be dedicated site employees with the authority and knowledge to issue an impairment system. Contractors should not be allowed to issue any impairment system, and they should be fully supervised on site. Where possible plans should be developed to allow rapid reinstatement of the fire system in the event of an incident.

### References

- Tokio Marine Kiln Impairment System – available in English, French, German and Spanish
- NFPA25 – Inspection and Testing of Water Based Protection Systems