

## Keeping track of fire risk

Northern Ireland Railways puts safety first, while protecting valuable trackside equipment

### Setting a new benchmark in fire safety within the UK rail industry.

In common with most rail networks, Northern Ireland Railways has relay rooms along its tracks that house all the electronics and electrical equipment needed to ensure correct network operation: power, signalling, communications, telemetry and CCTV systems.

Fortunately, fire in these locations has never been an issue, but the rail company places an extremely high emphasis on health and safety, so it decided to look at how it could further improve its existing fire risk management and by doing so, set a new benchmark in fire safety within the UK rail industry. It has selected an approach which considers the environmental impact too.

A couple of years ago, the company decided to investigate fire suppression systems that are able to provide high protection and rapid fire management, automatically in local and remote locations. Chris Dunlop, senior signalling project engineer for Translink, was given the responsibility of managing the project, from specification through to installation. Following a thorough procurement process, the decision was made to select the recommendation of contractor G4S Fire & Security Systems (UK) to install SAPPHIRE fire suppression systems from Tyco, which use Novec Fire Protection Fluid by 3M, the diversified technology company. The SAPPHIRE System is fast and ideal for space-constrained environments containing critical assets; does not present a danger to people and has a strong environmental profile.

Chris Dunlop reports that the selected system is a good fit for the company's rigorous risk and safety management strategy:

- Space conscious design – the small size of the SAPPHIRE systems is ideal for the relay rooms, where space is often limited
- Speed of suppression – the system is designed to control and extinguish the fire in its incipient stage.
- Personal safety - Novec 1230 Fire Protection Fluids substantial safety margin for personnel (it is extremely difficult to 'over-gas' the system: the tolerance between the minimum concentration and the upper safe limit is around 85 per cent).
- Asset protection - minimal, if any, collateral damage to sensitive electronics or critical assets if a fire were to occur (the fluid is electrically non-conductive and does not leave a residue upon evaporation).
- Ability to remain operational and avoid disruption – no need to 'power down' equipment when the SAPPHIRE fire suppression system is activated
- Environmental sustainability - Novec 1230 Fire Protection Fluid by 3M is a perfluoroketone with zero ozone depletion and a global warming potential of one. It is not an HFC and therefore is not targeted for phase down or regulatory restriction anywhere in the world, including the F-gas Regulation (EU) No 517/2014.
- Very good support from the contractor - G4S Fire & Security Systems (UK), which ensured that the installation process took place efficiently and ahead of schedule.

Northern Ireland Railways (part of the Translink group) has further enhanced its excellent fire safety profile, by installing fire suppression systems in 47 trackside signalling and communications rooms. Benefits include: prevention of damage to sensitive equipment and automatic extinguishment of fire outbreaks in just seconds, making these systems ideal for remote, often unmanned locations.

## Installation ahead of schedule

Top priority was given to relay rooms near stations and level crossings, because they house the most crucial signalling equipment. To minimise disruption, the team focused on one relay room installation at a time, each taking approximately three days to complete.

Translink and G4S Fire & Security Systems (UK) worked closely together, with a small but highly skilled team. Gary Graham, Installations Manager for G4S Fire & Safety Security Systems commented, "The intention was to avoid flooding the network with too many people. With one small team on the whole project, we could ensure consistency and experience."

Despite such a small team, the project was ahead of schedule by around two weeks, meaning that other tasks could be brought forward. The bulk of the installation work was completed several days before Christmas 2013 with the final stages, such as replacing alarm sounders with strobes to minimise noise in residential areas, airtight sealing and installing smoke-dampers – taking place in early 2014.

## Conclusions

Thorough training of the staff has been carried out, as Chris Dunlop explained, "It's important that staff know how to react to a fire, whilst also considering their personal safety and, once the fire has been dealt with, how to re-set the system. We've been very pleased with how committed staff have been to understanding these processes, which we hope we never have to put into practice. However, the installation of these fire suppression systems means we now have even further reassurance that we have an excellent fire safety strategy in place, one that supports human welfare, protects the network, ensures rapid action and respects the environment too."

3M™ Novec™ 1230 Fire Protection Fluid is an advanced clean agent fire suppression material, based on a proprietary chemistry from 3M. It was designed to address industry needs for clean agent fire protection that is safe and effective, while offering a sustainable environmental profile that no other halocarbon agent can match. This includes: Zero ozone depletion potential; a 5-day atmospheric lifetime, and; a Global Warming Potential of 1. Because of these properties, Novec 1230 fluid is not targeted for phase-down or regulatory restrictions anywhere in the world. It is approved for use in total flooding fire suppression systems by the U.S. EPA and most major regulatory bodies. All of this makes Novec 1230 fluid today's sustainable choice for clean agent fire protection.

### The 3M™ Novec™ Brand Family

The Novec brand is the hallmark for a variety of proprietary 3M products. Although each has its own unique formula and performance properties, all Novec products are designed in common to address the need for safe, effective, sustainable solutions in industry-specific applications. These include precision and electronics cleaning, heat transfer, fire protection, protective coatings, immersion cooling, advanced insulation media replacement solutions and several specialty chemical applications.

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