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Critical Alarm Management

Alert, Acknowledge, Act

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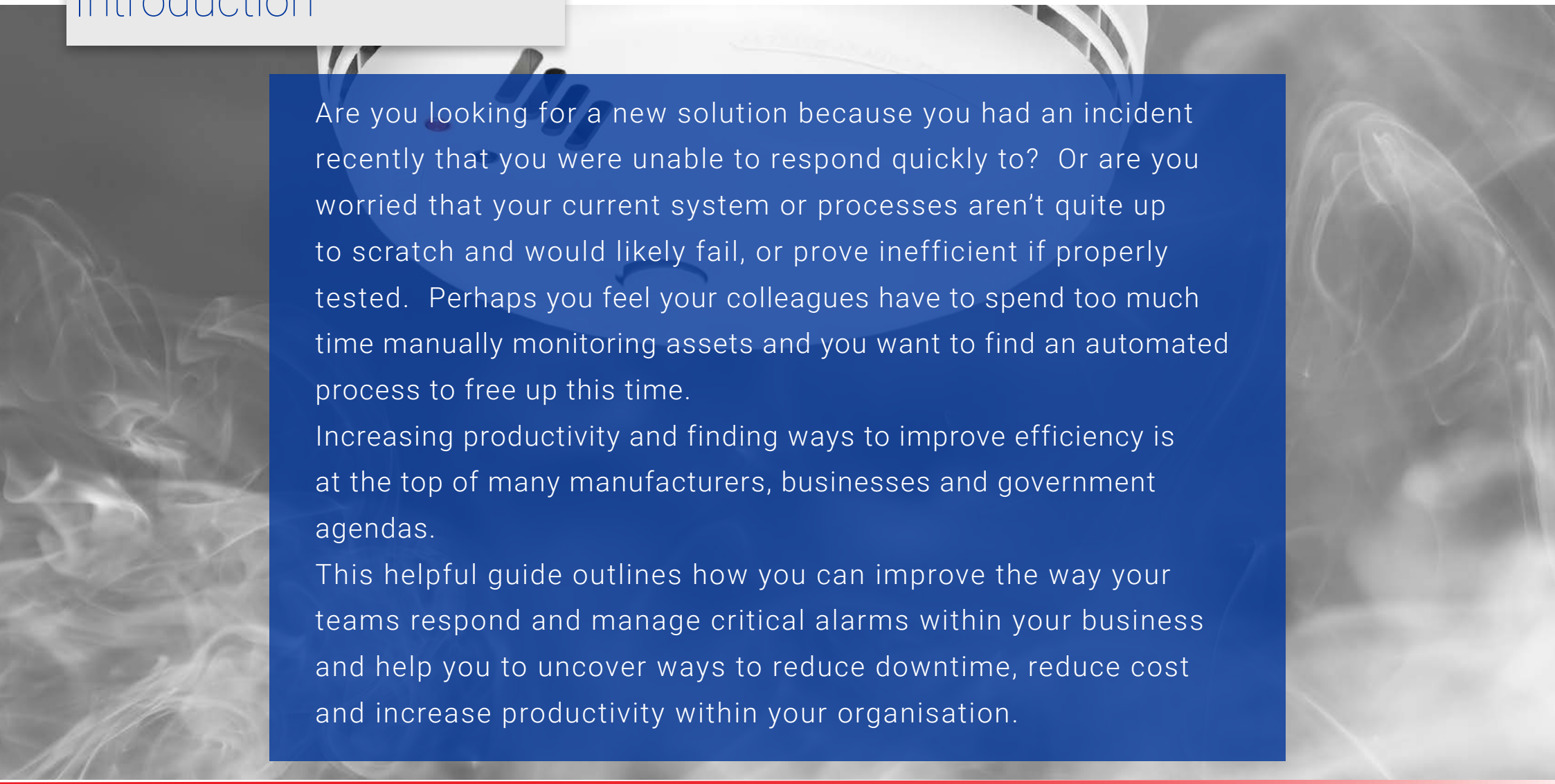
Introduction



Are you looking for a new solution because you had an incident recently that you were unable to respond quickly to? Or are you worried that your current system or processes aren't quite up to scratch and would likely fail, or prove inefficient if properly tested. Perhaps you feel your colleagues have to spend too much time manually monitoring assets and you want to find an automated process to free up this time.

Increasing productivity and finding ways to improve efficiency is at the top of many manufacturers, businesses and government agendas.

This helpful guide outlines how you can improve the way your teams respond and manage critical alarms within your business and help you to uncover ways to reduce downtime, reduce cost and increase productivity within your organisation.

Why is Critical Alarm Management Necessary?

When an emergency takes place within your business every second counts. Any delays in either identifying the issue or mobilising your response team can make a huge difference – a few seconds can be the difference between managing the incident or not, a simple matter of life or death.

Critical alarm management helps you to implement robust and reliable automated procedures, so when a critical incident occurs, you're in a much better position to deal with it and can help you:

- Improve safety and ensure your lone workers receive the support they need in the most efficient way when they have an accident or incident leaving them in need or urgent medical attention when working alone.

- Comply with current legislation and meet your legal obligation to protect staff working alone. If there is an incident and your business is investigated by the HSE you are less likely to incur fines if you can demonstrate an effective lone worker alarm process.

Why is Critical Alarm Management Necessary

- Improve Productivity - tasks that are normally assigned to two people, for lone worker reasons, can be given to one person. That way some tasks can be completed with half the resource.

- Take Control – rather than your workforce manually monitoring all your assets individually (e.g. machines, lone workers, fire systems) across different areas and locations, all this information is fed through one solution. This way you only have one window to monitor, which will alert the team when there is an incident that needs attention, giving you far more control over your assets and saving time across your workforce

- Reduce Cost – when a critical part within the production process fails, production can significantly slow or some cases stop. This not only increases costs but can also have a knock-on effect as customer orders aren't fulfilled, customers are let down, contractual obligations aren't met, with potential fines imposed or subsequent orders lost.

- Improve speed of response – in an emergency speed of response is critical and every second counts. The moment the event occurs teams need to be alerted to get the incident under control quickly. Delays in either, identifying the issue or notifying the response team, can massively affect the outcome.

- Improve speed of resolution – by removing unnecessary hops within the alarm process helps to reduce bottlenecks and delays. Alarms can still be distributed through a central control room, but automatically forwarded to a response team to manage.

What is a Critical Alarm?

A critical alarm is an event or emergency that must be dealt with quickly and effectively. Not doing so could have serious ramifications, leading to additional, unnecessary costs, hefty fines or in some cases further harm to the person involved. Below we outline some examples of critical alarms

Ovens / Pumps / Machine failures / Fridges – these assets within a production process can influence output significantly should they fail. An oven going above or below a certain temperature within a food and drink plant could ruin all the contents within the oven. Similarly, freezers in hospitals contain samples that would cost hundreds of thousands to replace, if the freezer fails and the contents are spoilt. Therefore, reacting to a failure and dealing with it in a short window of time is critical to avoid huge costs.

False Fire Alarms – As well as real fire alarms, false alarms are critical too. In hotels, production plants, large offices etc, false fire alarms are a costly inconvenience and unnecessary burden on the fire service and often chargeable. For example, a hotel wouldn't want to evacuate their guests at 3am in the morning or a manufacturing company wouldn't want to stop production whilst their employees are forced to leave the premises, only to realise it was a false alarm triggered by a faulty smoke detector. To reduce the impact of false alarms, modern fire systems will alarm on the fire panel when a smoke or heat detector is triggered. This normally provides approximately 5 minutes to investigate and cancel the alarm if it's false. The challenge that many organisations have is noticing the alarm on the fire panel and then alerting the internal fire team to investigate within the designated time.

What is a Critical Alarm?

Industrial Effluent Treatment Plant – in some cases when the effluent system fails, the production line must stop to clear the backed-up waste. In other cases, an effluent system failure can lead to pollution as harmful waste overflows and runs into a river or sewage system.

Lone Workers – staff that need help quickly if attacked, have a limb trapped in a machine or need urgent medical attention through sudden illness. When such events occur to those working alone, getting the help needed can be challenging.

Intruders - getting schools into lockdown as early as possible is important when an intruder enters the school grounds. However, it is not always easy to establish an intruder from a parent, contractor or guest visiting the school until their intentions are made more obvious.

Why is an Automated Response Process Necessary

An automated response process helps to manage the event from the moment an issue arises to the point it is dealt with and closed. Many businesses fail to deal with critical alarms because they either fail to identify the issue immediately and/or fail to alert the response team with enough time to remedy the situation.

An effective response process ensures that teams, responsible for managing the event, are alerted the moment the emergency is triggered.

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Alarm Management Process

Over the years we have observed how many organisations manage their critical alarms with varying levels of effect. In this section we highlight the different methods deployed and where time is lost in managing critical alarms.

Human Observation and Response

In this approach machines and lone workers aren't monitored. Alarms are only raised when a member of the team realises there is a problem. The issue here is that a machine could be faulty for a significant amount of time before the operator realises and reports the issue. Similarly, a lone worker could be left on site overnight before a colleague realises that they haven't turned up the next morning and raises the alarm. By the time staff react the damage may already be done.

Traffic Light Signals Machine Failure

A light on a panel by the machine signals that there is an issue. The alarm is raised when the operator or another team member wanders past and sees the light and reports the issue. The issue here is that it could be sometime before someone passes the machine and sees the light. Secondly, there is no oversight that the issue has been reported – so people may assume it has been reported and don't act, or it is reported repeatedly – which isn't ideal for a busy engineering team or control room.

Machines Alarms in Control Room

In this example, machines are monitored, and all faults are presented as an alarm to an operator on a screen in a control room. To fix the fault the operator either attends to the issue themselves or reports the incident to colleagues to manage. Both situations have their challenges however.

Firstly, once the operator leaves the control room and their screen they are then blind to further alarms. If whilst attending a minor issue within the plant, a critical alarm occurs they would only see it and be able to react once they return to the control room. At this point it could be too late.

Secondly, in industries where hundreds of minor alarms are presented daily it can be challenging for an operator, who is managing a high volume of alerts already, to notice a critical alarm. By the time they do and then go through the long handed dialling approach of calling each member of the response team – too much time has elapsed.

Critical Alarm Technology

Critical Alarm Management Technology automates all the steps within the process to ensure that each emergency is managed quickly and effectively.

By monitoring equipment and distributing alerts directly to teams that need to know the moment there is an issue, can speed up response times by alerting the correct teams directly. Therefore, if there is an issue with a machine the team responsible for maintaining or fixing it would be alerted immediately.

This automated process negates the need for staff to notice that a machine has failed and go through the process of contacting the relevant maintenance / engineering department. Critical alarms presented in a control room would automatically alert the respective teams that are responsible for dealing with the alarm and fixing the issue. Therefore, the operator that also fixes issues out on the plant would be alerted to any critical alarm directly on their mobile device.

And similarly, operators that deal with hundreds of alarms per day, would see that the critical alert has been picked up and ‘managed’ by a member of the response team and can continue dealing with less urgent alarms with the knowledge that the most critical alert has already been picked up and managed by a member of the response team.

How are Alarms Managed

Response teams are alerted to the event on a PC and mobile device, which could be a smart-phone, radio, IP or DECT phone.

Your response team receive an alarm message. The message contains important information including details of the issue and where the incident is taking place.

As the alarm is presented to a number of people at the same time (who are not necessarily near each other) one member must accept the alarm to take on the responsibility to manage and deal with it accordingly. This automatically updates the rest of the response group. Alarms that aren't responded to within a pre-determined time-frame are escalated.

Once a member of the team has accepted the alarm, further information can be automatically sent to help resolve the incident quickly. This could be a specific step by step guide outlining clear instructions on what to do. This not only ensures a consistent, fast and proven resolution process, but also enables tasks to be distributed to a larger response team with a lower range of skills, which keeps the highly skilled personnel available to assist or deal with cases where their skill is needed.

Once the incident is under control, the alarm is closed, which again automatically updates the response team.

The knowledge about how to resolve critical issues can be improved all the time as response teams update ongoing alarms to improve the overall understanding and enables to fine tune resolution processes to improve efficiency.

All events are logged and timestamped, providing an audit trail of information showing when incidents were triggered, who were alerted, who acknowledged and who closed each alarm. This is not only valuable information in the event an emergency is investigated but also for continual improvement purposes. By reviewing how previous events are managed it is possible to assess where possible improvements can be made.

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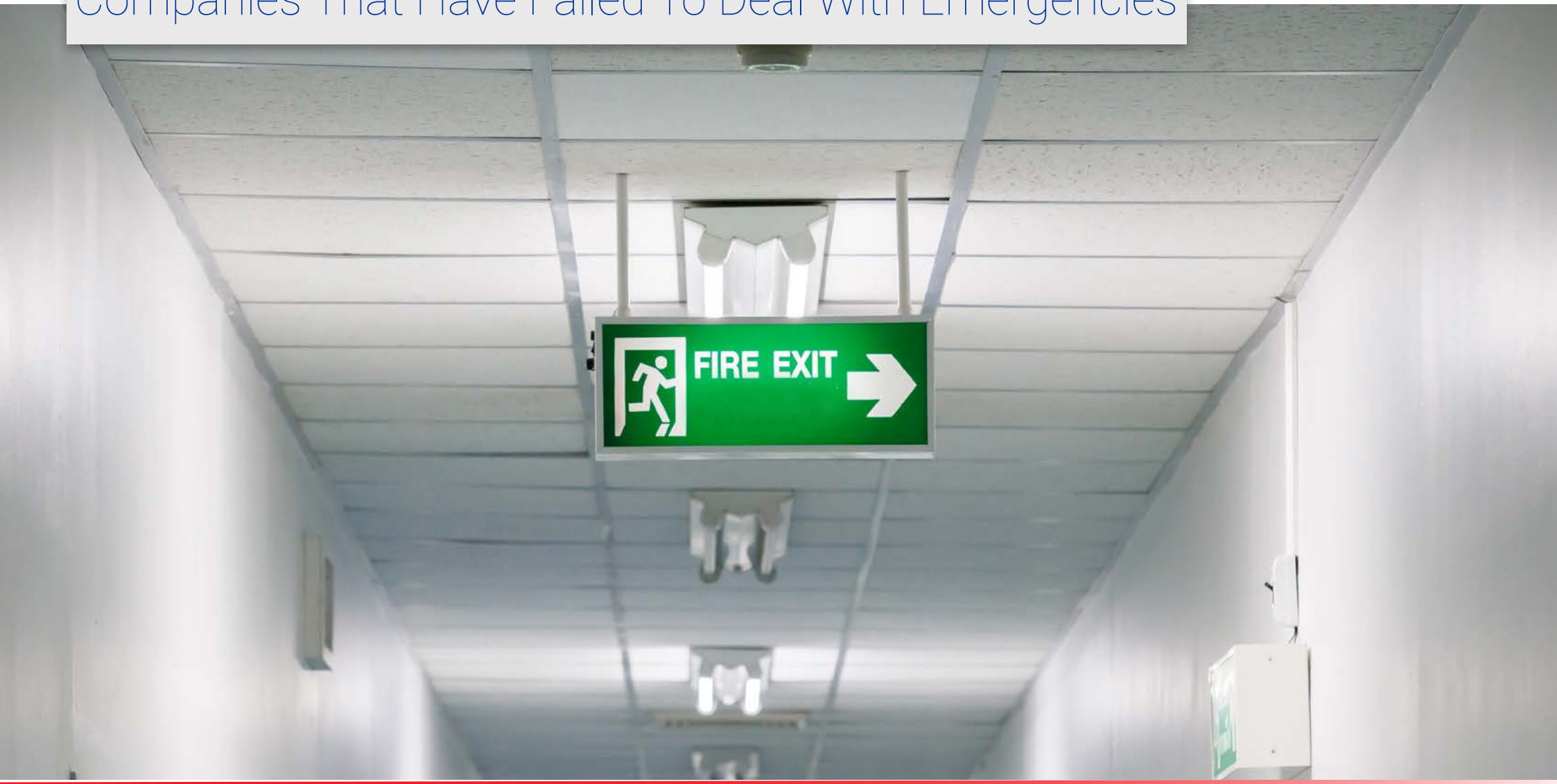
Companies That Have Failed To Deal With Emergencies



South West Water Fined £1.8 million and costs of £41,000 for failing to protect a worker from drowning at it's waste water treatment works.

A man carrying out routine maintenance tasks slipped and fell into an infiltration tank and had no way of escaping. Though a lone worker alarm was presented in the company's control room, it took over 2 ½ hours for someone to respond and find him at which point it was too late.

Thames Water fined £20million for a series of significant pollution incidents on the River Thames

TWUL's repeated illegal discharges of sewage into the River Thames, and its tributaries, resulted in major environmental damage including visible sewage along 14 kilometres of the river, and the death of birds, fish and invertebrates.

Investigations carried out by Environment Agency officers revealed a catalogue of failures by TWUL management. This involved repeated discharges of untreated or poorly treated raw sewage into rivers, disregarding risks identified by their own staff and failing to react adequately to thousands of high priority alarms used to alert them to the serious problems.

Tesco Stores Ltd fined £8million in fines and costs for a pollution incident

About 23,500 litres of unleaded petrol leaked from a tank at a Tesco filling station over a 29 hour period. Around 7,000 litres were later recovered at the site and the remainder escaped into the sewer system and watercourse.

The odours from the petrol affected residents up to 1km away causing people to seek medical attention with headaches and sickness. The odours remained in the homes for a number of days.

Some of the petrol also entered Langwood Brook and the River Irwell causing a significant environmental impact killing fish and other aquatic life.

Tesco's failure to address a known issue with part of the fuel delivery system and an inadequate alarm system and was compounded by poor emergency procedures.

Firth Rixson Metals Limited fined for £80,000 for polluting a watercourse in Glossop.

Over 600 litres of a solution of hydrochloric acid, caustic soda and water polluted nearby Shelf Brook. This had a significant impact to the brook, resulting in 199 dead brown trout within a 500 metre stretch, with invertebrates also affected over two kilometres. The fins and eyes of the fish were noted to have a burnt appearance.

The investigation identified a valve had been left open. This allowed water into the scrubber unit and the automatic dosing equipment had continued to add caustic soda. Staff failed to respond properly to alarms and a pump, which should have returned the solution, failed to activate.

This resulted in a highly alkaline solution overflowing from the containment bund, which entered the nearby drain to the brook.

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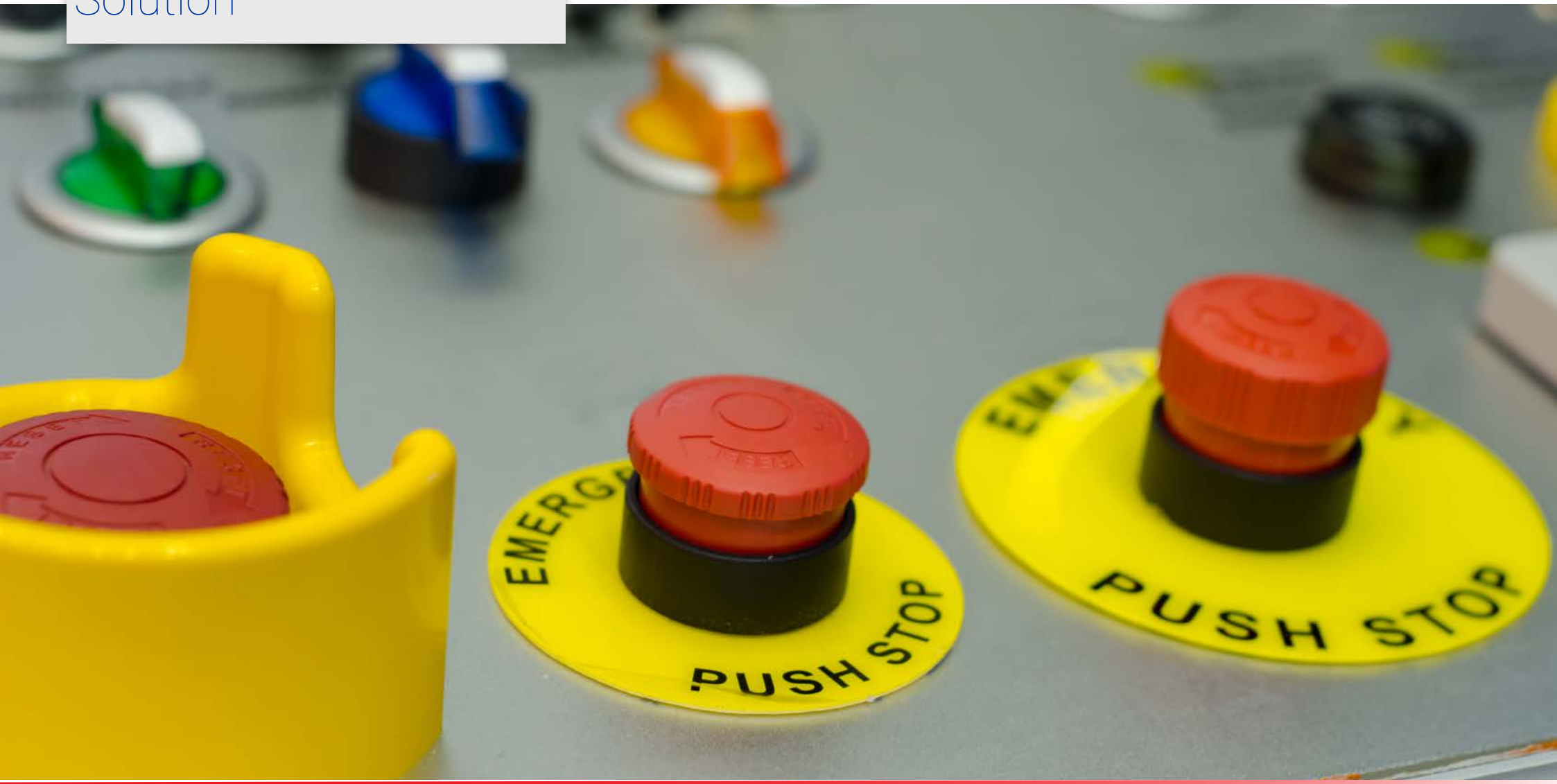
Solution



In all of these scenarios a better automated response process would have enabled the response team to manage the alert and deal with the issue before they escalated.

This would have included:

- Implement a better response process whereby the alarm is presented in the control room as well as to a local response group directly on their mobile devices. When one member accepts the alarm the rest of the group is updated.
- If the response team do not accept the alarm within a pre-determine time frame e.g. 3 minutes, the alarm is escalated. This would ensure each event is investigated quickly.
- Provide a lone worker device with 2-way voice, that would have allowed the lone worker to trigger an alarm from within the tank and enabled him to convey the seriousness of the incident to his response team.
- Test the solution regularly to ensure teams react within seconds not hours and that support arrives at the scene of the incident in a timely manner. Measure how teams perform by reviewing the audit logs generated by the Critical Alarm System in place.
- Improve the team's overall efficiency by automatically forwarding documents (step by step guides) that will help to resolve and manage incidents quickly.

About ANT Telecom

ANT Telecom is an automated communications specialist, that helps companies better protect their employees and business with the latest telecommunication equipment available on the market. This includes connectivity services as well as critical alarm management applications and a range of end user devices.

Our services also include; solution design and demonstrations, implementation, account management and ongoing maintenance and support.

Are you ready to invest in Critical Alarm Management technology? Contact us today to discuss your requirements to discover how this technology can help your business.

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Request a Free Consultation

Do you have the **right system** in place to protect your **employees & business?**

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