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LEAVE NO ONE BEHIND

How connected safety technology
streamlines evacuation management

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INTRODUCTION

Evacuation management is a necessary element of safety planning for oil and gas operations. It is critical to be prepared to quickly and safely evacuate personnel in the event of an emergency, as every second counts when lives are on the line.

Evacuation drills and preparation exercises can be disruptive and time-consuming. However, the overhead costs and lost productivity expended in preparation for emergency scenarios have become accepted as unavoidable costs of doing business. That's because until now, there hasn't been an efficient way to manage and improve evacuation drills while still adequately preparing team members for real emergencies.

For example, traditional methods of handling evacuation management depend heavily on manual check-ins at muster points, with team leaders conducting manual headcounts. It's an extremely time-consuming process that can be prone to error. Team leaders are still often left poorly-prepared to locate and rescue workers that don't arrive at the muster point as expected, leading to a waste of valuable time and expenses on unnecessary searches. In addition, without detailed data about the effectiveness of the drill, it is difficult for management to measure and improve on their emergency preparedness over time–beyond tracking the most basic metrics like total time to complete a drill.

This is where the digital worksite and connected safety solutions can make a world of difference, making it possible to save time during evacuation drills, measure and improve emergency preparedness, reduce unnecessary efforts and expenditures, and ensure efficient and timely emergency responses that leave no one behind in the event of an actual emergency.

WHAT IS THE DIGITAL WORKSITE AND CONNECTED SAFETY?

A digital worksite leverages data from connected Internet of Things (IoT) devices throughout the worksite to derive insights and optimize critical processes across oil and gas operations–including evacuation management. These insights make it possible to make smart decisions based on near real-time information to improve both safety and efficiency.

For evacuation management, a digital worksite solution leverages personal gas monitoring devices, like Blackline's G7c, that refinery workers are already wearing to protect them from hazardous gases. These GPS-enabled connected safety devices, coupled with online monitoring software, make it possible to visualize each individual's location throughout an evacuation, helping to accelerate response times and streamline the process of accounting for the wellbeing of each person.

Read on for a closer look at how connected safety solutions work to optimize both evacuation drills and emergency response.

STREAMLINE EVACUATION MANAGEMENT PREPARATION (DRILLS)

COMMON **CHALLENGES** FOR EVACUATION MANAGEMENT PREPARATION

LOST PRODUCTIVITY, INCREASED COST

Typically, manual head counts once workers get to a muster point can take 45-60 minutes to ensure each person's safety. These drills can be costly in terms of both man hours and lost productivity. Quantified further, an hour-long drill involving 200 workers–multiplied by an average overhead cost of $50 per hour–adds up to $20,000 per drill.
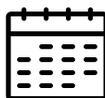
400 WORKERS ✕ **$50** ✕ **4/YR** ═ **$80,000 LOSS**

This cost does not even include productivity losses from the time needed to get back on tool or the additional lost time from higher cost contractors that may be onsite. At an average of four drills a year and multiplied across worksites, the expense adds up quickly, and in this scenario, would cost an additional $80,000 per year per facility.

TIME CONSUMING PHYSICAL CHECKS

There are several factors that contribute to the length of time it takes to fully complete an evacuation drill. For one, direct notifications are typically conducted by radio only, and check-ins are completed by swipe card–both of which inherently introduce latency to the process. Furthermore, once team members reach the muster points, team leaders must conduct manual headcounts to make sure each person is accounted for. If someone is missing, they must try to locate the person while also monitoring to see if the individual eventually arrives at the designated checkpoint in order to successfully complete the drill. Most connected safety offerings require major infrastructure installations such as establishing and maintaining mesh networks. Conducting manual firmware updates can also be time consuming.

THE CONNECTED SAFETY **SOLUTION**

FASTER DRILLS

A connected safety solution gives team leaders visibility into the entire drill through a network of connected devices associated with each crew member. With these personal monitoring devices, emergency notifications can be targeted by individual, by team, or sent to the full site, providing the ability to precisely direct workers to specific muster points (e.g. MUSTER B UNSAFE - GOTO BACKUP). Teams can also deploy a beacon at each muster point, so the device pings the beacon and confirms the location as soon as the worker arrives. No manual headcount required. If a person is missing, their precise location is tracked, reducing the need for unnecessary searches. Simply check the area map in our online portal, Blackline Live, to gain full visibility of the individual's near real-time location.

INSIGHTS TO OPTIMIZE

Not only does connected safety increase the efficiency of drills as they are happening, but the technology also provides valuable insights to improve future emergency preparedness. For example, team leaders can track and visualize how long it takes each person to get to a muster point and conduct post-drill evaluations to find time and efficiency saving opportunities. Furthermore, the analysis of the data from the connected safety devices makes it possible to discover roadblocks that occurred during a drill - so that corrective action can be taken before a real evacuation occurs.

And devices like G7 portable gas detectors and area monitors quickly connect to either cellular or satellite networks as soon as they are turned on without any additional infrastructure. Once connected, the firmware for each device is automatically updated – no manual docking required.

ENABLE AN EFFECTIVE EMERGENCY RESPONSE

COMMON **CHALLENGES** FOR EMERGENCY RESPONSE TEAMS

LOCATING MISSING WORKERS

In a real emergency scenario, traditional evacuation management methods often fall short of what is needed to ensure no one is left behind. For example, in an emergency, the 45-60 minutes evacuation time typically required during a drill could mean that at-risk or harmed workers won't be identified until it's too late. Without visibility into where workers are, high levels of concern can quickly result when people are unaccounted for at the muster point.

Meanwhile, existing methods to try to locate workers are extremely limited. For example, RFID cards are often used to try to find missing workers that don't arrive at the muster point. However, RFID cards only show the last point used, and the more time that has lapsed since last use, the wider the search area becomes.

Furthermore, a worker may have used RFID to gain access, but that information alone gives very little indication of where they are right now. For example, are they still on site, or did they leave for lunch? This uncertainty can lead to long down times and extensive resources spent trying to confirm the safety of individuals that are not counted–and who may or may not even be on site. This can add up to hundreds of thousands of dollars in search and rescue efforts that could be avoided if a person's location could be more precisely identified in the moment.

LACK OF INSIGHT INTO SITUATION CREATES DANGER

Traditionally, if someone doesn't make it to a muster point and their location isn't known, search parties must be deployed to try and find and rescue the worker, putting additional people at risk. Furthermore, while conducting a rescue, the first responders don't know the situation: Did the worker fall? Were they exposed to high levels of toxic gas? If so, what gas and at what concentration? The responders are entering the situation blind, not knowing if they need to use SCBA or not–or whether it's better for emergency services to respond for a health event.

THE CONNECTED SAFETY **SOLUTION**

ULTIMATE VISIBILITY

Connected safety devices provide full visibility into the incident, as well as a more precise way to identify and locate anyone who hasn't successfully evacuated so appropriate measures can be taken to ensure their safety. For example, personal gas monitoring devices with cellular connectivity make it possible to contact workers directly via two-way text messaging or push-to-talk functionality to check on their wellbeing, even if they are in a location prone to two-way radio issues.

Furthermore, if someone doesn't evacuate, it is possible to see their gas readings, fall detection or no motion status to have full situational awareness and optimize the emergency response. Unlike RFID swipes, GPS location tracking enables emergency response teams to identify exactly where a missing person is located at that exact moment, saving time and lives with a faster response– without the need of exposing response teams to additional danger. In addition, teams can use Blackline's Safety Operations Center (SOC) to monitor everyone's safety remotely, so the boots on the ground can focus on getting to safety or responding to the situation.

Combining personal gas detection with connected area monitors, such as the G7 EXO, gives additional insight into the safety of the facility, both on a day-to-day basis as well as during an evacuation. For example, in an evacuation after workers have left the hazardous area and made it safely to their designated muster points, real-time gas readings can still be possible thanks to area monitors deployed strategically around a worksite The readings from these area monitors allow safety personnel to retain visibility of the situation even when there is no worker present in an affected area and stream up-to-date data to Blackline Live to inform stakeholders as to whether the danger has subsided or if additional measures need to be taken. They can also act as the first source of alarm on the presence of a gas hazard before a worker enters an at-risk area in the first place.

ENHANCED PROTECTION

Putting it all together, full visibility into the safety of an oil and gas facility is enhanced when digital and supported by these three key elements:

Connected area monitors and personal gas detectors to track worker safety and collect real-time data

Online software and reporting to view and analyze that data

24/7 safety monitoring personnel to respond should an evacuation, rescue or emergency response be needed

Together, they create a full safety ecosystem to enable more efficient and safer drills and evacuations.

CONCLUSION

Traditional evacuation management methods lack the precise, real-time visibility required to ensure workers make it to a muster point safely–or to find and rescue missing persons if they don't.

A digital worksite and connected safety technology streamlines evacuations and enables emergency responses that leave no one behind.

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Contact us today to speak with a consultant about connected safety solutions for evacuation management.

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