

WORKPLACE

Material Handling & Safety

INSIDE YOU WILL READ ABOUT:

- › Basic gas detector maintenance
- › Common misunderstandings in gas detection
- › Tips for effective area monitoring
- › The value of real-time data
- › Enabling teams to make safer decisions
- › Preparing for the future of gas detection

Using Gas Detection to Protect What Matters Most

eBOOK

SPONSORED BY

**INDUSTRIAL
SCIENTIFIC**

Contents

- 3** Bump Testing Gas Detectors Should be Second Nature
- 6** Four Misunderstandings About Gas Detection That Could Cost You
- 8** Top 9 Features to Look for in an Area Monitoring Solution
- 12** What's the Radius of my Area Monitor?
- 14** Going Digital to Boost Safety and Efficiency
- 17** The Ins and Outs of Real-Time Area Monitoring
- 19** Renting a Connected Safety Solution: A Simple Way to Offer Top-Notch Protection
- 22** How Your Team Can Make Smarter, Faster, Safer Decisions
- 24** Case Study: Lone Worker Solutions & Safety Controls
- 26** Are You Prepared for "What's Next"?

Bump Testing Gas Detectors Should be Second Nature

BY BRYAN SZCZUR



You wouldn't drive a vehicle without putting on your seat belt. You wouldn't ride a bike without putting on a helmet. You don't go to bed at night without locking your doors. Everyday practices like these create good habits that make our lives easier and safer. When it comes to gas detection, safe and simple practices like these are no different. Gas detectors that are used every day require the same type of attention. You may not think much about putting on a seat belt in a vehicle,

but it sure does help when you need it. You may also not think much about bump testing a gas detector, but it sure does help to know that your gas detector works when you need it most.

What is a bump test?

Bump testing is the only way to ensure proper sensor and alarm functionality. A bump test is the process of briefly exposing sensors in a gas detector to an expected concentration

of gas that is greater than the alarm set points. The purpose of the bump test is to check for sensor and alarm functionality. However, it does not check for accuracy. It is important to note that accuracy is ensured through calibration, which is a completely different process than bump testing.

Bump testing a gas detector is like using a flashlight. What's the first thing everyone does when they pick up a flashlight? They try turning it on to see if it works! If the flashlight does not turn on, you know that you either need a new bulb, a new battery, or a new flashlight, because the one you have cannot help you. Gas detectors are no different. The first thing you should do before using your gas detector is to make sure it works. Without a bump test, how do you know that the gas detector will alert you to dangerous gases? Applying gas to the sensors in a detector is just like checking to see if your flashlight works. If the bump test fails, you know that troubleshooting or further maintenance is required.

Why is bump testing important?

Gas detectors are made to survive harsh environments. They're dropped, exposed to extreme temperatures, humidity, moisture, dust, mud, and sludge. Any of these can reduce a gas detector's performance. Sensors can become dislodged if a monitor is dropped. Filters can become clogged from moisture or dust. Enough mud or sludge can completely block a sensor from seeing gas. Because of these factors, manufacturers recommend bump testing gas detectors before

Applying gas to the sensors in a detector is just like checking to see if your flashlight works. If the bump test fails, you know that troubleshooting or further maintenance is required.

each day's use. You may not realize it, but all of these factors can impact a gas detector's performance.

How does bump testing work?

For toxic and combustible sensors, the typical output in clean air is zero, whether reading in parts per million (PPM), percent of lower explosive limit (LEL), or percent by volume. One main exception to this is an oxygen sensor, which should read around 20.9% volume in ambient air when functioning. So bump testing a standard four-gas instrument will drive the gas readings up on your toxic and combustible sensors, while driving the reading for the oxygen sensor down.

The problem is that toxic and combustible sensors will generally read zero in an ambient environment whether they are functioning or not. Therefore, the only way to know if

they will respond to gas is by — you guessed it — exposing them to gas.

How can I bump test my instrument?

Because of the broad range of gas detector applications, manufacturers have come up with many different ways to perform bump tests. The easiest and usually most efficient way to bump test is by using docking stations, which are often connected to web-based gas detection management software. Through this software, users can schedule bump tests to occur every day. If a failure occurs, the software can notify the user or safety manager of the failure, so they know that further action is needed. Docking stations draw gas through a connected cylinder, and then apply that gas to the detector that is docked. The stations are designed to resemble a manual bump test.

Manual bump tests are performed simply by using a gas bottle, a regulator, tubing, a calibration cup (if using a diffusion instrument), and a gas detector. Users can put the instrument into bump test mode, then apply the gas. The gas detector will either cycle through each individual sensor or do them all at once, depending on instrument settings. After the test is complete, the instrument will display results, showing whether it was a passed or failed test. Alternatively, users can perform a manual bump test simply by applying gas to the instrument while it is on its main gas reading screen. If each sensor shows readings in response to the gas and the detector goes into alarm, then that instrument is good to go.

What are the challenges of bump testing?

The need for bump testing can create some challenges. The number of instruments a company has, the applications, and the locations of equipment can all come into play. For this reason, gas cylinders come in a variety of sizes. Users may need larger cylinders to connect to docking stations that are used every day. Users may also need smaller, more portable cylinders to bump test instruments when workers are on the go. Luckily for users, there is a wide array of cylinders available to fit the right application. Cylinders come in all shapes and sizes and come in specific gas blends available for all types of sensors.

Another challenge of bump testing is the training aspect. It is often difficult for safety managers to find time to train users, and workers often do not have time to train one another. Luckily, gas detection companies offer a wide array of training resources. Trainers can travel to customer locations for on-site training for a hands-on approach. Alternatively, gas detection companies post videos, informational articles, and many other resources to meet user needs.

The bottom line.

The bottom line is that bump testing saves lives. Users should never risk using a gas detector without checking to make sure it works. With the right training, bump testing a gas detector can become as routine as putting on a seat belt when you get in your car. It's just as important, so why not start now? ■

Four Misunderstandings About Gas Detection That Could Cost You

BY KYLE KRUEGER

Every person who depends on a gas monitor deserves to have reliable equipment. But beyond that, everyone also needs a quality gas detection education. To understand and react appropriately to gas readings, users need to know the basics of how gas detectors work. Unfortunately, many people who wear monitors on a regular basis lack this baseline gas detection knowledge.

Today, millions of gas sensor readings will be taken. Many of those will lead to important safety or operational decisions. If those are being taken with poorly maintained instruments or by users who have misunderstandings about gas detection, what will be the result?

Below are four common misunderstandings about gas detection that, if not set straight, could lead to serious consequences:

- **“OL” or “OR”:** These do not mean “OK.” These are indications that the sensor has “pegged out” or reached its over limit (OL) or over range (OR). If a user is seeing this reading from a diffusion gas detector, then they are



Take the time to educate users about gas detector functionality before a misunderstanding leads to irreversible damage.

currently exposed to that hazard. This is because with diffusion gas detectors (but not pumped models), you must be in the hazard to detect its presence. Furthermore, if this “over” reading is from an LEL sensor, that doesn’t mean that the explosive environment is too rich to burn. Quite the contrary, that “over” reading means you are in an environment that could lead to an explosion.

- **The “2 X 2” rule:** Take your time. When using an Industrial Scientific gas detector with tubing, users must abide by the “2 X 2” rule. The rule calls for two minutes of sampling time PLUS two seconds for every one foot of tubing attached to the monitor. If you are sampling with 20 feet of tubing, you need to take 2 minutes and 40 seconds for every four feet of space you’re measuring. The sampling time is dictated by the amount of tubing attached, while the number of samples is dictated by the size of the space.
- **Bump testing:** You can’t avoid it. Despite what you may hear in sales pitches, all gas detector manufacturers in-

clude in their manuals something like “bump test prior to each day’s use.” Bump tests check sensor and alarm functionality and are the only way to ensure your monitor is working properly. Without daily bump testing, your monitor could fail to alert you to gas hazards.

- **Calibration:** The key to accuracy: If a gas detector is not regularly calibrated, readings will gradually decline over time. Therefore, manufacturers recommend calibrating monthly. One common argument against the need for routine calibration is using a bump test to validate sensor performance. A bump test is designed to ensure an instrument will detect the presence of a gas, not to validate the accuracy of the measurement. Calibration is not a particularly challenging or time-consuming process, so commit to just a few minutes each month in exchange for the peace of mind of knowing that your gas detector is working properly.

Take the time to educate users about gas detector functionality before a misunderstanding leads to irreversible damage.

Industrial Scientific is committed to educating users on how to operate and understand gas detection equipment to enhance their culture of safety. With a variety of training options, including online videos, instructor-led webinars, and in-person Gas Detection Made Easy classes, our courses are designed to meet any training need. ■

Learn more about [training courses](#) from Industrial Scientific.

Top 9 Features to Look for in an Area Monitoring Solution

BY INDUSTRIAL SCIENTIFIC

Gas hazards can turn deadly in a matter of minutes or even seconds. That's why safety professionals everywhere spend countless hours evaluating solutions to keep their environments — and more importantly, people — protected from gas exposures. Whether you're in the market for a new area monitoring solution, or you're simply curious about the latest gas detection technology, you can learn how area monitors are improving the jobs of safety professionals. Many portable area monitors offer similar functions, but there are key features to consider when it comes to the visibility, reliability, and usability in the field.



The Must-Have Features

1. **High Visibility:** A large display, loud audible alarms, and bright colored strobes all ensure workers know when the monitor is alarming and why. Gas detection equipment is meant to save people. The area monitor should be visible to anyone potentially being exposed to life-threatening hazards.
2. **Long-life Battery:** Depending on the type of project and the expected project length, battery life can make a significant difference. The longer the battery life of the area monitor the less often you need to perform maintenance. In some cases, an area monitor can last seven days or more, which could mean continuous uptime during a short turnaround project. Longer run time also cuts costs by reducing the need to purchase replacement batteries. In some cases, there may even be external power supplies available that allow the area monitor to run indefinitely.
3. **Wireless Peer Network:** A peer-to-peer network enhances worker safety by easily sharing alarms and gas readings between monitors. When two or more area monitors are in a shared group, they communicate their alarms and gas readings between each other. This allows in-field personnel to learn of and respond to hazardous gas conditions that are detected by any instrument within a group. The peer-to-peer network should not require a central controller, network configuration, or additional infrastructure to work.

When two or more area monitors are in a shared group, they communicate their alarms and gas readings between each other.

4. **Smart Sensor Technology:** Gas detection equipment is only as good as the sensors detecting the gases. A range of sensor types and redundant sensor technology are must-have features in any good area monitor.

Redundant sensors determine the concentration of the target gas in the atmosphere and reduce the risk of instrument failure. Two sensors of the same type in one gas detector give the most accurate gas reading. Each sensor operates independently of its redundant sensor, so the monitor will operate with a single sensor if one of its paired sensors fails.

Sensor placement is also a key consideration. If the sensors are going to be used in an area that is prone to dirt and dust, protecting sensors is critical. For this reason, some area monitors are designed so that the sensors stay clear of dirt, dust, debris, and liquid.

5. **Rugged Exterior:** When deciding on an area monitoring solution, it's important to determine where the area

With cloud connectivity, safety managers can receive instant notification of alarms or events, even from remote locations. Real-time monitoring can help prevent incidents or expedite response in an emergency.

monitor will be used. At a minimum, an area monitor should work in all weather conditions and in harsh environments.

6. **Easy Set Up:** Area monitors are flexible, low-maintenance instruments that should be able to go anywhere for temporary or long-term projects. That's why it's important for the area monitoring solution to be easy to set up. Simply powering on the instruments to get started without additional infrastructure leads to time savings and less hassle.
7. **Connectivity:** An area monitor that connects to cloud software and sends real-time readings and alerts to safety personnel is crucial for responding to incidents

as they occur. With cloud connectivity, safety managers can receive instant notification of alarms or events, even from remote locations. Real-time monitoring can help prevent incidents or expedite response in an emergency.

8. **Communicate to Personal Gas Monitors:** The ability of an area monitor to “talk” to a personal gas monitor has many advantages. One application that benefits from these advantages is confined space entry. A person inside the confined space wearing a personal gas monitor can share readings and alarms with an area monitor outside the space while the hole watch is observing. If an incident were to occur, the hole watch can respond immediately and with the proper information thanks to the shared readings on the area monitor.
9. **Alarm Action Messages:** Alarm action messages simplify the user response by providing clear instruction when a unit goes into alarm. Examples of alarm-action messages include EVACUATE or VENTILATE. With this feature, workers can know how to respond to different alarms or events.

Deciding on an area monitoring solution for your operation is a big decision. It's important to know what features to look for and how those features compare. ■

Learn more about how Industrial Scientific's [Radius BZ1 Area Monitor](#) can work for your application.

SEE IT HEAR IT TRUST IT

Gas hazards can't hide when you've got the Radius® BZ1 Area Monitor on site. Alarms that sound at 108dB, bold LED lights, and **alarm action messages** like "EVACUATE" cut through even the busiest work areas. With **local and remote monitoring** options, everyone from teams working nearby to safety managers off site will know there's a hazard and how to respond.

See and hear the Radius BZ1 difference at www.indsci.com/radius

**INDUSTRIAL
SCIENTIFIC**



What's the Radius of my Area Monitor?

BY KYLE KRUEGER



Over the past two years, demand for area monitors has increased. Now more than ever, companies can place durable, easy-to-use sensing devices with advanced technology throughout their facilities at a lower price point. This is giving companies better awareness of their environments, while also helping them drive safety improvements. Accordingly, a common and very good question seems to be popping up: what's the radius of my area monitor? How much area can these sensors cover? Will the area monitor cover 10 feet? 100 feet? 1,000 feet? My entire job site?

To answer this question, we need to first understand how

sensors work. Then, we need to consider the characteristics of your application.

Sensing Basics

The only way that a sensor can detect gas is if that gas passes directly over the sensor. This applies to both personal monitors and area monitors because they use the same sensor technology. Many people believe that because the area monitor is bigger than the personal monitor, then it must provide more coverage. This is false. Unlike fixed gas detection points, area monitors can be used in far more dynamic environments, so

static assumptions on airflow and gas source don't apply.

What if the instrument has a pump? A common misconception is that placing a pump on a monitor will greatly increase the monitor's overall coverage. Even though pumps sound powerful, they aren't so mighty. Pumps draw 500 cc/minute on average. A good way to think of this is to take a breath, then exhale. The pump brings in that volume of air over several minutes. With that low volume, the pump itself isn't strong enough to pull in and sample significantly more air than a diffusion-style monitor in an open area.

However, pumps do allow you to remotely sample an area through tubing. For example, a pumped monitor allows you to place tubing in a confined space to remotely sample the air inside while the monitor and operator remain outside. But again, this only samples the air where tubing is placed – not the whole space.

Application-specific Questions

Unlike fixed-point gas detection systems, area monitors are commonly moved to different locations or are used in emergency response situations. Accordingly, each time you deploy an area monitor, you need to consider a few key factors:

1. **Source identity and placement location:** Different gases can have different atmospheric characteristics that you need to consider. For example, some gases are lighter than air while others are heavier. Because of this, it's crucial that you place an area monitor at the correct distance and height for the gas that needs to be mea-

sured. Additionally, if you are using LEL or PID sensors (which are not gas-specific) in your area monitors, you will need to know the source gas and factor its characteristics into the monitor's reading.

2. **Wind direction:** Environmental factors like wind direction are very important for monitor placement – and they're always changing. Just because you have an area monitor placed correctly one day, does not mean it will be in the correct place the next day. A common solution is placing area monitors in multiple locations, so you still have adequate coverage when environmental conditions change.
3. **Notification:** When placing your area monitors, think about the situation in which a gas alarm occurs. How will this system relay critical alarm information to the appropriate personnel? Can devices be networked together? Advances in technology now allow area monitors to connect to one another and to personal gas monitors, as well as prompt real-time alerts via text message and e-mail.

Before you deploy an area monitoring solution, conduct a site survey to assess these factors. If you still have questions about how to place your area monitors to properly detect gas hazards, we can help you determine the right solution. When implemented correctly, these solutions can dramatically improve site awareness, driving better safety and operational decisions. ■

Going Digital to Boost Safety and Efficiency

BY INDUSTRIAL SCIENTIFIC



It's hard to imagine that in 2019 there would be any organization that doesn't use some type of digital technology. Digital is the norm for most of us, and ongoing new developments are the expectation. Keeping up with the "new" can be an investment, but usually the conveniences of the modern world entice us to make the switch to the latest efficiency-enhancing device or software.

Digitizing businesses has many proven benefits. "The visibility and clarity delivered by digital technologies and advanced analytics can give executives unprecedented, granular views into operations, increase agility, and support better

strategic decision making." [i] Research conducted by McKinsey & Company also indicates that the effective use of digital technologies in the oil and gas sector could reduce capital expenditures and cut operating costs.

Digital Technology and Your Safety Program

We've all read and heard about industrial safety programs and their increasingly strict regulations, and with good reason. Regardless of technology, a company's most valuable assets are still its employees, and for those who work in potentially dangerous environments, new gadgets infused with techno-

logical advances are simplifying and improving safety. Gas detection equipment providers are adapting digital technology and wireless communication as a standard. The benefits of going digital and automating maintenance, data collection and reporting, and shipping processes parallels the benefits of company process advanced analytics. Add the ability to view time-sensitive information from literally anywhere and the advantages are hard to pass up.

Yet in many cases, for decision makers, the switch is not simply prompted and based upon an “aha” moment. For IT departments there can be the added burden of setting up new systems, learning and training others on new programs, maintaining additional software and hardware, and in some cases, hesitation in relinquishing critical information to the cloud.

Justification for Going Digital and Wireless

With the right gas-detector/software solution combination, safety managers have the ability to view and manage every aspect of their gas detection program, with two goals in mind: employee safety and compliance. Software solutions can include [gas detection management](#), [live monitoring](#), and an [automated equipment exchange service](#). The complete picture includes portable and area gas monitors that seamlessly connect through built-in wireless technology, creating a safety network that allows nearby workers to quickly react in the presence of a gas hazard. This gas detector network in turn communicates back to a monitored dashboard on a PC or mobile devices in real time. Information sent over the net-

With the right gas-detector/software solution combination, safety managers have the ability to view and manage every aspect of their gas detection program, with two goals in mind: employee safety and compliance.

work includes alarm events and data that allow for immediate emergency reaction and the automated creation of required industry reports at any time. Safety managers have the ability to see who, what, when, and where, literally from anywhere. Automated maintenance reminders prompt users to simply plug instruments into a docking station that in turn performs programmed bump tests and calibrations.

So what are the bottom line benefits? Let's talk return on investment, since ROI tends to be the standard justification for most organizations to make a technological upgrade. Tangible ROI, the traditional calculation of dollars spent vs. dollars received in return, varies depending on how comprehensive the safety solution is.

A few hours of proper training will pave the way for a headache-free, hands-off gas detection safety program. When internal IT projects are in competition with each other, one that supports an organization in preserving life may be a good contender for the top of the priority list.

In general, the automation of instrument maintenance can save up to as many as 250 man hours annually; automated reporting vs. writing reports manually can save up to as many as 500 man hours; and the real-time flow of detailed information saves invaluable man hours related to guess work. A recent case of automated calibration gas delivery, where the software program monitors the level of gas available and prompts shipment without any need to fill out individual order forms or invoices, saved the customer \$2,000 a month—a \$24,000 savings annually!

Intangible ROI comprises benefits that may or may not directly translate back to dollars and cents calculations. An intangible return on investment that may carry a monetary valuation is the assurance that operations are in compliance—when they're not, they can quickly turn into a monetary loss measured in fines and possibly costly shutdowns. The most significant intangible return on investment is the elevated level of safety of every employee who is willing to make sure that operations are running smoothly and fix whatever is broken, even if it means being exposed to dangerous conditions. Immediately knowing the person, location, condition, and type of exposure and being able to properly react faster than ever before is a return on investment calculated only by the value of human life.

From an IT perspective, an integrated software solution like Industrial Scientific's iNet® that provides every benefit listed above, the transition process is fairly painless. iNet is not an "IT project." iNet is a hosted platform that does not require installation or additional software, and provides the highest level of cloud security. A few hours of proper training will pave the way for a headache-free, hands-off gas detection safety program. When internal IT projects are in competition with each other, one that supports an organization in preserving life may be a good contender for the top of the priority list.

[i] <https://www.mckinsey.com/industries/oil-and-gas/our-insights/the-next-frontier-for-digital-technologies-in-oil-and-gas>

The Ins and Outs of Real-Time Area Monitoring

BY INDUSTRIAL SCIENTIFIC

Area monitors are typically set up to create a buffer between workers and potential gas hazards, or as a perimeter around an area where work is being performed that could cause unsafe conditions. Real-time area monitoring requires instrument data to be continuously collected, processed, and delivered. This uninterrupted flow of information ensures access to real-time data from a PC or mobile device any time and anywhere.

In gas detection, the most important reason for real-time area monitoring is the ability to act in emergency situations. Real-time data collection and processing provide instant notifications or email alerts when an area monitor senses combustible gas in an area, for example. In addition, real-time area monitoring provides information for up-to-date reports that can be presented any time they are needed, boosting safety compliance.

When to Use Area Monitoring

Area monitors are commonly used for worker safety during plant shutdowns as part of maintenance programs and other temporary detection zones where fixed gas detection is not in place. They can be used for confined space applications, as



well as perimeter or fence line monitoring and can be moved easily as your needs and work conditions change. In many scenarios, they are used in addition to personal gas monitors.

Setting up a Live Area Monitoring Solution

Imagine a unit of an industrial plant with a known low-level

gas leak that cannot be fixed until the next plant shutdown. Area monitors can be strategically placed to section off the area from work zones. Continuous monitoring and immediate notification allow safety personnel to react appropriately in case of a gas-related emergency.

Manufacturers give recommendations for the proper distance between monitors to create a connected and effective safety barrier. These distances vary depending on the environment, as well as the maximum distance of communication between monitors. In addition, when placing the monitors, you must consider the following:

- The gases likely to be detected
- The behavior of these gases compared to natural air, given the conditions indoors or outdoors
- Where the workers are
- Where the hazards are likely to be
- What the prevailing winds are or what the airflow is like

Monitoring Hazards from a Distance

The ability to monitor hazardous areas from any location or connected device in real time is invaluable. Pipelines, fence lines, and chemical spills are great examples of ideal situations for real-time area monitoring. Knowing what's happening at any given moment not only increases reaction times, but also helps responders know what they are facing before heading into harm's way.

Using a cloud-based monitoring platform connected to wireless area monitors is the easiest way to view real-time area monitor readings. Cloud software is available on any device,

anywhere, at any time, providing instant access to live data.

With live monitoring software, users can:

- View area monitoring status summaries
- View a live-monitoring map
- Receive detailed, subscription-based alerts (via text or e-mail)

Real-time area monitoring allows for a more holistic view of environmental conditions with advanced warnings and the ability to react quickly. In addition, the constant availability of data provides staff and employers with a deeper insight into potential hazards – empowering management to make decisions that will improve job safety.

Industrial Scientific's Real-Time Area Monitoring

Industrial Scientific's [Radius® BZ1 Area Monitors](#) communicate with the RGX Gateway, an intrinsically safe transfer point of real-time information. Data is transferred from the instruments via the RGX to iNet® Now live monitoring software using a cellular, wi-fi or Ethernet connection. iNet Now provides real-time text and email alerts for gas hazards, panic, and man-down situations on a PC or mobile device, allowing safety personnel to see and respond to incidents as they happen. The entire wireless solution can be set up in minutes without the need for additional infrastructure or IT support.

To learn more about real-time area monitoring and to request a demonstration, visit www.indsci.com/real-time.



RENTING A CONNECTED SAFETY SOLUTION: **A Simple Way to Offer Top-Notch Protection**

BY INDUSTRIAL SCIENTIFIC

With shutdowns and turnarounds right around the corner, it's a good time to think about the gas detection equipment you need for a successful project, how that equipment can protect workers, and how it will ease project pain points. Because shutdowns and turnarounds usually last a few weeks or months, [renting equipment](#) is often the most economical choice.

Projects like turnarounds, outages, or shutdowns usually require more workers on site who use gas detection to avoid atmospheric hazards like oxygen deficiency and combustible or toxic gases. And most companies don't have enough gas detectors on-hand to handle this influx. Since these projects are typically short-term, renting gas detection equipment is a simple and cost-effective option.

It's a great first step to make sure every worker is protected with the correct gas detector – one that has been maintained, monitors the gases they could be exposed to, and they know how to operate. That's the baseline expectation for renting gas detection instruments.

But you can (and should) take safety past the baseline, even when renting. The best way is through connected safety solutions. These solutions go beyond basic gas detection, using sensors and devices to monitor people and worksites in real time. Industrial Scientific's connected solution uses live and historical data from gas detectors to increase worker safety, improve productivity, and drive operational improvements.

Connected safety solutions available for rent are ideal for monitoring mobile workers, remotely monitoring an area in real time, connecting teams – especially those working in confined spaces, and of course during shutdowns and turn-arounds when there are more people on site to keep track of.

Keep Setup Simple

Some connected safety solutions on the market require extensive IT involvement during setup, which defeats the purpose of a quick solution to enhance safety. Look for a connected safety rental option that's easy to set up and can connect to your existing infrastructure. Equipment that can connect using multiple platforms will make it easier to integrate into your existing network and can also provide a “fail safe” alternative in case one of the platforms loses signal.

As for support, renting connected technical equipment re-

Equipment that can connect using multiple platforms will make it easier to integrate into your existing network and can also provide a “fail safe” alternative in case one of the platforms loses signal.

quires a high level of product knowledge. Rental suppliers need a strong background in gas detection to supply you with the best gas detector for the job. Before you rent, find out if the rental supplier has the technical knowledge needed to support you.

Beyond that, ask your rental supplier if they can ship personal gas detectors and area monitors that are pre-connected to each other, reducing your setup time.

The bottom line is that by renting a connected safety solution, you can reap the benefits of a robust, connected gas detection program and give workers the protection they deserve for any project.

For more information, call Rental Sales Manager Jason Wright at (412) 490-1912.

RELY ON INSIGHTS NOT JUST INSTINCTS

When it comes to worker **safety and productivity**, you need to see the whole picture. With live monitoring as part of your connected site solution, you can **mitigate risk in real time** by knowing where your people and assets are deployed, who is working in dangerous conditions, and what gases could threaten nearby communities.



**INDUSTRIAL
SCIENTIFIC**

Check out the future of connectivity at
www.indsci.com/connected-safety

How Your Team Can Make Smarter, Faster, Safer Decisions

BY JACKIE CAPPUCCI

If you've ever checked a weather or traffic report before leaving your house, then you know that real-time information about what's happening around you can help you make smarter decisions. If icy roads cause a five-car pileup on the highway, you know you'll need to watch for ice and maybe find a new route. You use the information you learned to adjust your plan so you can safely make it to your destination.

Team-based safety applies this same concept to job sites.

When alarm conditions are automatically shared, the entire team can make safer, faster, more informed decisions. Instead of guessing what to do when a monitor goes into alarm, peers get the information they need to act fast. Whether a gas hazard, man-down, or panic situation causes an instrument to alarm, all peers in the connected group will instantly know who is in danger and why. This leads to better safety outcomes for individual workers, the team, and the organization.

For example, if workers all carry a [Ventis®Pro5](#) personal gas monitor with [LENS®Wireless](#), the team will be notified any time a peer's instrument goes into alarm. If a man-down alarm is triggered, the rest of the team will know if they can safely approach the worker in need. But if an alarm is triggered by a high concen-

tration of toxic gas, then the team will know they need to take additional precautions first.

For Safety's Sake

It can sometimes feel like technology constantly pushes us toward more connectivity—even when we might not need or want it. This is different. We don't need to control every light in our homes from a cell phone, but we do need to enable workers to make decisions that will get them home safe to their families every single night.

The National Institute for Occupational Safety and Health (NIOSH) reports that more than 60% of confined space deaths are would-be rescuers who die trying to save a team member because the person inside can't communicate about the dangers within. Connecting gas detection devices through a team-based safety approach will enable workers to make life-saving decisions for themselves and others.

Connectivity already brings better, faster information to almost all other aspects of our lives. Now it's time we use connectivity for the most important task of all: protecting our workers. ■

Learn more about working smarter and safer with [LENS Wireless](#).

The best teams
COMMUNICATE... so do the best
GAS DETECTORS

With the **Ventis® Pro5** from Industrial Scientific, Mike's teammates will know he's entered a high H₂S environment, so they can **respond faster** with more information—when every second counts.

See the Ventis Pro5 in action at
www.indsci.com/team-safety



**INDUSTRIAL
SCIENTIFIC**

Lone Worker Solutions & Safety Controls

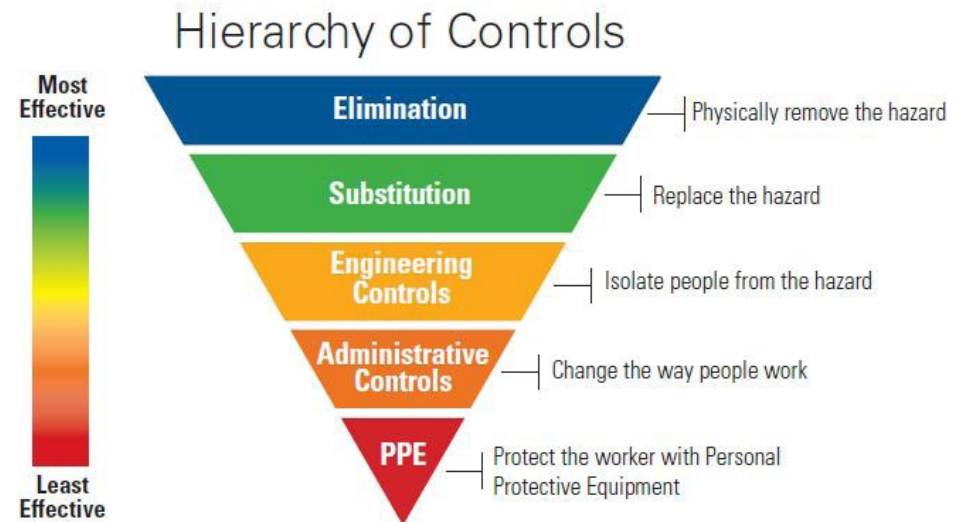
BY INDUSTRIAL SCIENTIFIC

A large oil and gas producer was in the market to outfit lone workers with new safety equipment at one of its operations in the western United States. Lone worker solutions have come a long way in taking full advantage of current technology. While lone worker solutions are important, they only make up a small portion of the PPE (personal protective equipment) market.

Challenge

The challenge was to determine the best lone worker solutions for the oil and gas producer. As companies work hard to improve safety programs and more solutions enter the market, it is critically important to determine which lone worker solutions meet the needs and goals of each organization.

For an overview of safety solutions, consider OSHA's Hierarchy of Controls. The Hierarchy of Controls is intended to help supervisors keep their workers safe by using the most effective controls (elimination of hazards) first, and less effective controls (PPE) only as a backup, or when other controls are not an option.



Source: NIOSH

The nature of the oil and gas industry dictates that PPE, listed at the bottom of the Hierarchy of Controls, is a must to keep workers safe and potentially save lives. So what is the most cost effective solution that provides the highest level of safety for oil and gas workers, including lone workers?

When an alert is activated, the safety manager immediately receives a text and/or email notification letting him know about the hazardous condition and allowing him to view a map. Armed with information about the hazard and location, he can better inform first responders.

Solution

Already familiar with Industrial Scientific's gas monitors and iNet® Exchange gas detection as a service, this oil and gas company took a closer look at its overall safety program. Personal gas detectors can also be lone worker monitors and can be part of a solution that takes safety to the next level in the hierarchy. Industrial Scientific's Ventis® Pro5 Multi-Gas Monitors provide gas detection, lone worker monitoring, and the necessary data to change the way people work. Using iNet® Now, the level of safety in the hierarchy can be elevated to Administrative Controls.

iNet Now is Industrial Scientific's live monitoring software that identifies where workers and their instruments are located and whether they have encountered hazardous gas, pressed the panic button, or activated man-down alerts. When an alert is activated, the safety manager immediately receives a text and/or email notification letting him know about the hazardous condition and allowing him to view a map. Armed with information about the hazard and location, he can better inform first responders. Using LENS® Wireless adds another layer of safety for groups of workers. The monitors can communicate with each other and provide peer-to-peer readings while sending alerts to other workers and supervisors. Through real-time safety observations, supervisors can work to fix non-compliance issues and ultimately change the way their people work.

Results

Outdated and failing gas detection equipment has been replaced with Industrial Scientific Ventis Pro gas detectors that provide the latest in gas monitoring technology. With LENS Wireless and live monitoring capability, the instruments communicate readings to one another and report real-time data to iNet Now. This oil and gas producer's workers, both on-site and in lone worker environments, are now fully protected. Industrial Scientific's solution covers the need for personal protection equipment and administrative controls across the entire operation. ■

Are You Prepared for “What’s Next”?

BY KYLE KRUEGER



To borrow a phrase from The Wizard of Oz, we in the safety industry are “not in Kansas anymore.” Those old familiar spreadsheets, processes, and equipment that got us to where we are today aren’t going to get us where we’re going. We’re stepping into the Land of Oz where big data, IoT, and connected safety form the yellow brick road we’ll follow.

As someone who has grown up in the safety industry, it is exciting to see these changes, and frankly, about darn time. But are we as an industry ready for what’s next?

In general, I think our hearts are in the right place: we want to invest in technology with the hope that the return on investment (ROI) will be safer, more productive workplaces.

So what’s the catch?

The heart of the matter is that as an industry, we haven’t typically valued data. It isn’t instinctual yet. To be candid, technology hasn’t earned our trust in the way our human relationships

have. Additionally, many still conflate more data with more risk and therefore shy away from innovations that bring more data.

It’s OK if we need to take a minute to collect our breath. There’s a lot of data out there to sift through, but we don’t need to be intimidated by it.

Here are four things we can all do to prepare ourselves for what’s next.

Start with one or two goals.

Regardless of the size of an investment, we need to focus on slow and steady improvements. Before we can turn your office into a virtual command center with more dashboards than an airliner, we need to teach you the basics of flying. Nothing is worse than take off followed by an epic crash landing. To avoid the crash, gather a tight scope and set measurable goals. For some organizations, this might be as simple as, “I want to make sure that every gas detector is calibrated this month” or

“I want to make sure monitors aren’t being turned off while in alarm.” Start with one or two goals and expand once you start meeting them. Look into high-impact investments that can get you to 80% of the way. It’s quite possible that basic connected packages will get the job done.

Be mindful of materialism.

It looks so smooth! Did you see that glowing dot on the map? As a fan of design, I really admire great user interfaces and features. When used correctly, they enhance the experience and foster more engagement.

But there is a tendency within all of us to get too caught up in the material aspect, only to have the fundamental intention go to waste. I have interacted with too many clients who are excited about data, yet don’t log in for over a year or use the reports. Let’s face it: we all have that thing we excitedly bought that now lays around collecting dust.

This year, many of us will invest in our first connected safety devices. It will mark a turning point in the safety industry. Accordingly, we have an obligation to our companies, users, and the concept of connected safety to demonstrate the highest ROI possible. Please buy the shiny objects. Just make sure to use them.

Invest in skills.

This wave of connectivity, data, and ROI will push organizations toward demanding more efficiency from employees. Aspects of our jobs could be automated, or eventually disap-

pear. This means we need to understand what the data shows us and then fully leverage it so we don’t become obsolete.

Understanding how to use the data to make more informed decisions will be the challenge ahead.

Many safety groups now have grass roots movements for collective skill development. Let’s be proactive about adapting so we’re not left behind.

Clear eyes, full hearts, can’t lose.

Aligning technology capabilities with your organization’s safety goals and philosophies is vital. Deep down, figure out why you want this awareness and what you are going to do with it. Without a doubt, this won’t be a completely smooth ride. Equipment (specifically gas detectors) will still break and people will drag their feet against change. If people will be monitored and tracked, we owe them a solid explanation of why. We’ll need a strong commitment from all stakeholders, especially the people wearing the devices, to successfully implement a “connected” program.

Our yellow brick road is made of data and dashboards from connected safety devices. It will also have its fair share of beasts along the way. “Safety Oz” can be a shining capital city where death in the workplace is a thing of the past. But to get there, we need heart, courage, and brains. HSE managers, grab your little dog, here we go! ■

Learn more about [connected safety solutions](#) from Industrial Scientific.