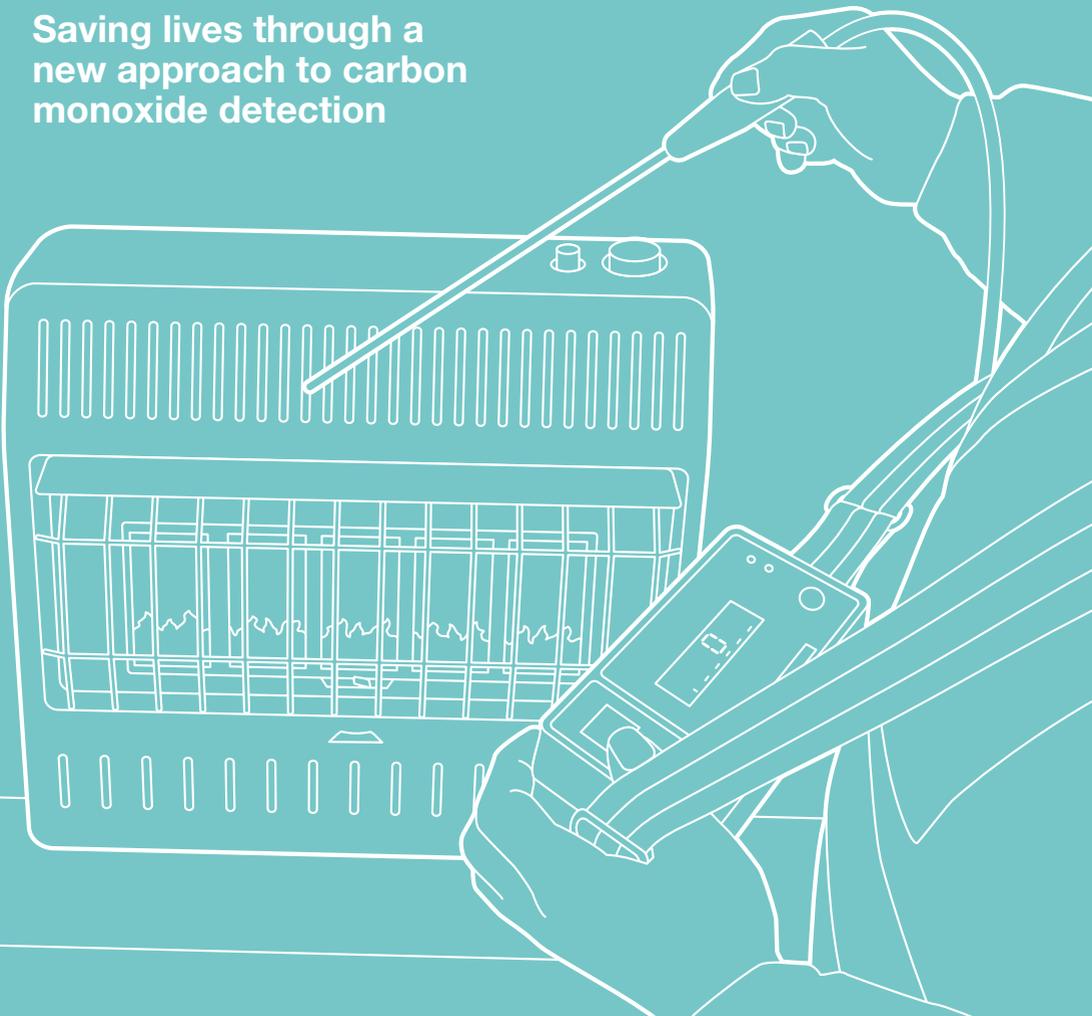


Giving carbon monoxide nowhere to hide

Saving lives through a
new approach to carbon
monoxide detection



The silent killer

It claims around fifty lives each year and can cause serious neurological damage, respiratory problems and even depression, but it can't be seen, smelled or tasted.

Carbon monoxide (CO) is well described as the 'silent killer.' This poisonous gas is caused when fuels such as gas, oil, coal and wood do not burn properly.

Evidence shows that in the home the most common causes are faulty heating systems, gas fires and other appliances such as wall heaters and generators, with the dangers exacerbated by poor room ventilation.

Indications are that fatalities have been on a gradual decline since 1995, but over 4,000 people are still diagnosed with CO poisoning by A&E departments each year – and the actual number affected is believed to be much higher.

As the North of England's gas distributor, with 2.6 million customers across Yorkshire, the North East and northern Cumbria, we wanted to do more to protect the region from the dangers of CO.

Our solution was to place groundbreaking new technology into the hands of our engineers, giving CO nowhere to hide.

4,000

Over 4,000 people are still diagnosed with CO poisoning each year

Trialling a new approach to CO detection

Northern Gas Networks (NGN) has around 200 First Call Operatives (FCO), who are first on the scene when a member of the public reports a smell of gas through the 0800 111 999 National Gas Emergency Service telephone number.

These highly experienced engineers are equipped with handheld devices to detect concentrations of gas (methane) in the air.

These industry standard units, largely unchanged since the 1980s, are not designed to detect CO, however. Instead, engineers look for visual clues in a property, such as discolouration to the flame, or soot around an appliance.

We wanted to go further in our fight against CO, by trialling brand new technology capable of measuring CO levels in the atmosphere, as well as methane levels.

The new gas detection equipment was trialled by more than 40 colleagues over a 12 month period.

The new units enable engineers to look for CO every time they are called to a property, even if a customer has not reported a suspicion of CO being present or a CO alarm has not been triggered.

We focused the trial on the Bradford and Pennine areas, which encompass over 450,000 customers as historically this area has had a higher than average number of CO reports within the NGN network.

450,000+

Customers in the Bradford and Pennine areas

Results: a life saving solution

The results demonstrate the life-saving benefits of this important new technology.

We detected more than 62 instances of CO in properties during the trial – every one of which had the potential to cause illness or even death. Significantly, 22 of those customers had no idea that they were being exposed to CO.

During the trial period over 3% of Public Reported Escapes (PRE's) were suspected cases of CO. 11% of suspected CO reports resulted in confirmed instances of CO.

By providing instant, accurate readings, the new gas detection units allowed engineers to identify the presence of CO, its level of concentration and take swift and appropriate action to protect the customer.

The number of Public Reported Escapes (PRE's)*

16,216

The number of properties we were called to on suspicion of CO being present*

546

The number of additional properties checked for CO*

445

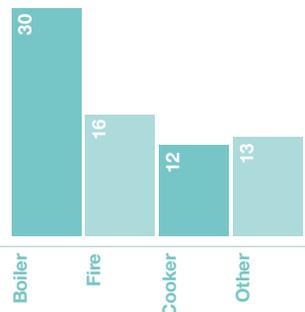
The number of properties where CO was detected*
(This figure includes the number of households who did not realise they were being exposed to CO)

62

The number of households who didn't realise they were being exposed to CO*

22

Appliance types which were at fault when CO was present (multiple appliances may have been at fault)*



* all figures quoted were during the trial period of the new gas detection equipment 18 November 2011 – 22 November 2012

What our engineers said

Our engineers welcomed the new technology, with not a single negative comment over 16,000 jobs.

The new gas detection units were judged intuitive to use, and had the advantage of a rechargeable battery – a more reliable, economical and environmentally sound alternative to the previous disposable batteries.

The total time spent on each job rose by around 5-7 minutes, but engineers judged this to be time very well spent – given what was at stake.

“It’s reassuring to know the machine is constantly carrying out background checks to keep me and my customers safe.”

“I don’t have to worry about battery life. I know it won’t run out on me.”

“It’s a far better machine than the previous model.”

The technology in action

The new gas detection units proved their life saving potential on many occasions during the trial. For example:

- A CO alarm was sounding in a block of flats in Bradford. Using the new gas detection units, our engineer traced the source to a petrol generator, being used by workmen next door to power their tools. The generator was producing high levels of CO – threatening the lives of everyone in the block. Our engineer made the situation safe.
- An engineer was called to a smell of gas at a home in Halifax. Using the new gas detection unit, the engineer traced the source to a neighbouring property's faulty gas fire. CO was being given off and passing through the chimney breast to other parts of the property. The home was made safe.
- A customer reported that their CO alarm was sounding intermittently. Our engineer was unable to detect any CO in the property using the new gas detection unit and concluded that the CO alarm's battery had failed. As a precaution, the engineer issued a 'concern for safety' notice, instructing the customer not to use their appliances until they had been inspected by a 'Gas Safe' engineer.



An added benefit of the new gas detection unit is that they monitor not only for CO but also Oxygen as well as Methane (natural gas). This is beneficial for engineering teams who work in areas of deep excavations and in confined areas.

What next?

The trial has been so successful that we have committed to making the new gas detection equipment standard issue for all our engineers. The roll out will take place over the next two years, and will require a £2 million investment.

Martin Alderson, Northern Gas Networks' Asset Risk Management and Safety Director said: "The technology has well and truly proven its worth, allowing us to go even further to protect the safety of our customers and our own engineers. We look forward to sharing our findings with other gas distribution networks."

Making the CO message heard

Our engineers can't be in customers' homes all the time, which is why we are committed to a CO awareness campaign and have incorporated CO into our education programme. This means we are increasing CO knowledge amongst people of all ages within our network.

Through our education programme, 2021, pupils in Key Stage 3 (11–14 year olds) are inspired to think about sustainability and safety in today's world and how simple steps and knowledge can impact our personal safety and the environment. Understanding the dangers of CO is a key element of the programme. Pupils learn how to prevent and identify the signs of CO poisoning and what to do if they suspect CO poisoning.

iCOP: the app that can save lives

iCOP is a free mobile phone game app to help highlight the risks of CO poisoning among the region's student population.

Students living in rented accommodation are one of the groups most at risk of CO poisoning.

The app, called iCOP, puts players in the role of a cop trying to solve the case of a dead body found in a student flat. By following the clues, players discover that the death was caused by a faulty gas fire.

On completion of the game, players can store the national gas emergency number in their phones, and apply for a free CO alarm. The app is proving a big success, with a number of the region's colleges and universities supporting the approach.

Go online and download the **FREE** app.

App Store: <https://itunes.apple.com/gb/app/icop-ngn-games/id545992231?ls=1&mt=8>

Android Link: <https://play.google.com/store/apps/details?id=uk.co.plump.android>

A chat about safety

NGN's CO awareness programme is currently in operation in Leeds. Our First Call Operatives have been trained to deliver short CO awareness briefings to customers in their homes, after they have been called out to a property and made it safe.

These informal (yet structured) chats are designed to give the customer essential safety advice, and to find out current levels of CO awareness in our region.

Following each briefing, the customer is offered a free CO alarm, if they don't already have one.

This approach, will help customers stay safe, as they will have an increased awareness about the dangers of CO, providing a valuable insight into customer behaviour to help shape our future CO awareness strategy.

About us

Northern Gas Networks looks after the north of England's gas network. We transport gas safely and securely to 2.7 million properties in Yorkshire, northern Cumbria and the North East, through a vast underground pipe network.

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