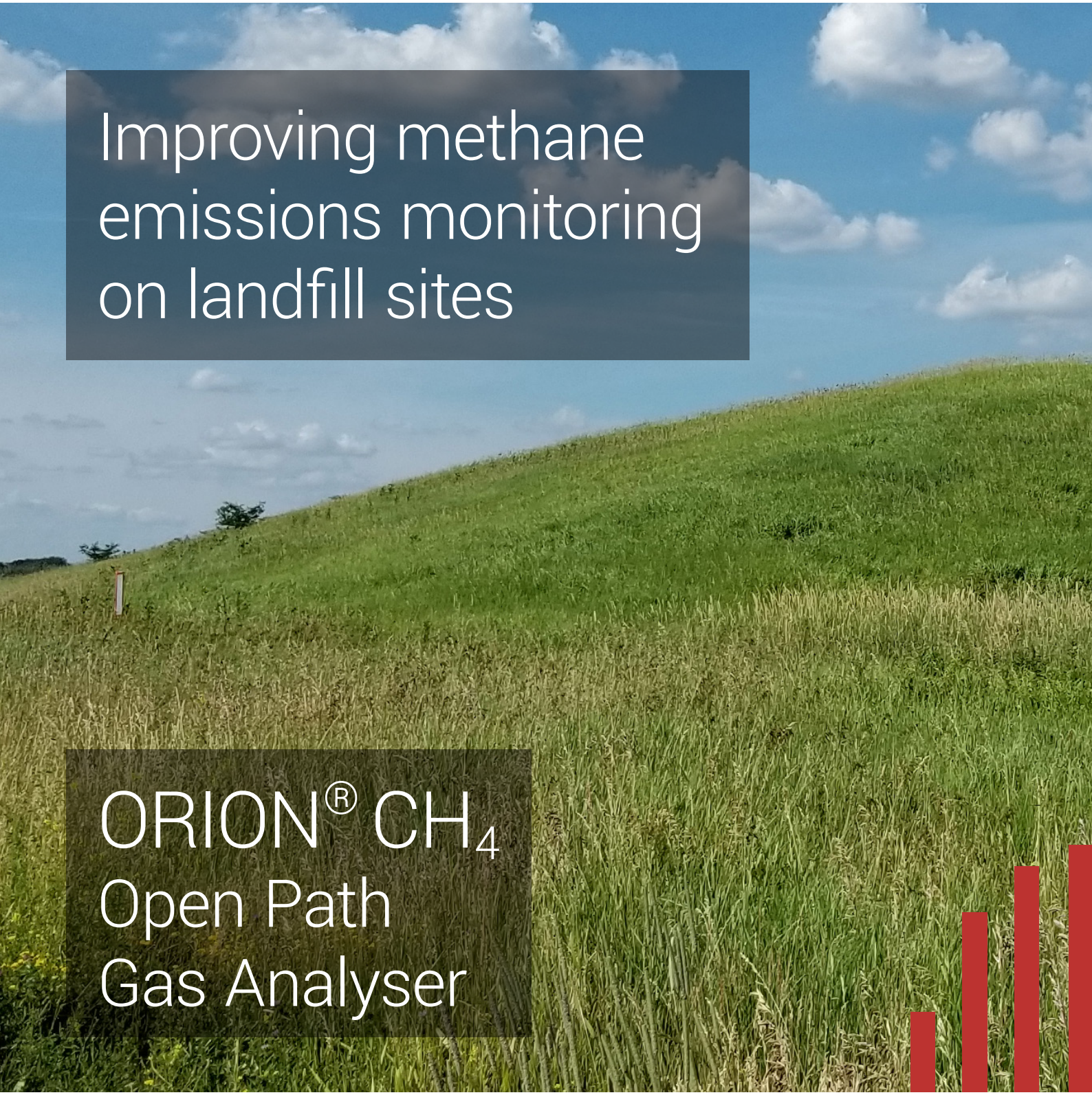
MIRICO
Transformational Gas Measurement



Improving methane emissions monitoring on landfill sites

ORION® CH_4 Open Path Gas Analyser

Application note for landfill site operators

Why MIRICO

At MIRICO, we have put together a world-class team of scientists who are focused on delivering the most reliable monitoring technology for gas emissions across multiple industries. In doing so, the impact of emissions can be reduced through monitoring and evaluation, whether you are seeking net zero targets or looking for optimal operational effectiveness.

Introducing the unique Laser Dispersion Spectroscopy (LDS)

At the heart of all MIRICO products is a revolutionary new technology - Laser Dispersion Spectroscopy (LDS) developed by the dedicated scientists at MIRICO.

The technology provides real-time monitoring of emissions, operating specifically in the mid infra-red spectral region and enables the collection and interpretation of emissions data in almost all weather conditions.

From this data you are able to gain insights based on accurate continuous reporting, even in fog, rain, snow and particulate affected environments.

This new level of intelligence enables landfill sites to optimise operational performance, monitor compliance with environmental permits and provide information to regulators.

What sets MIRICO's LDS system apart?

The patented LDS technology delivers large scale monitoring using a bespoke set up of a strategically positioned ORION® and corresponding retroreflectors. With its sweeping laser, which can scan through 360°, the full multi beam analysis provides real-time data on gas emissions in almost all weather conditions - which is key to the delivery of reliable information.

Advantages of Laser Dispersion Spectroscopy

- High resolution covering a wide dynamic range
- Uniquely works in almost all weather conditions, so no data gaps
- Continuous monitoring to maximise returns and future-proof compliance

Advantages of ORION® range

- Dedicated gas sensitivity providing real-time data
- Easily installed with fully configurable set-up and autonomous operation
- Easy remote monitoring and management

MID
INFRA
RED
INSTRUMENTATION
COMPANY

Improved insight from continuous monitoring

Case Study: Monitoring methane emissions from a landfill site

MIRICO measured methane concentrations from a capped landfill site fitted with biomethane collection equipment. The continuous monitoring took place over a period of 10 days to enhance the understanding of its emissions.

The ORION® was mounted on one of the highest points on the site with a 360° retroreflector beam array shown below in Figure 1. The data collected was used to calculate a total emissions rate across the site.

Figure 1: ORION® and retroreflector layout at a landfill site

Key outputs:

- Real time monitoring of emissions showed significant variation in emissions spatially and over time. A background emission rate of circa 2.4 ppm was measured
- Total site emissions were estimated to be in the range of 990,000 to 1,320,000 m^3/yr, which is consistent with previous studies (Defra Project WR1920)
- Methane measurements were collected continuously during the campaign despite high winds and heavy rain

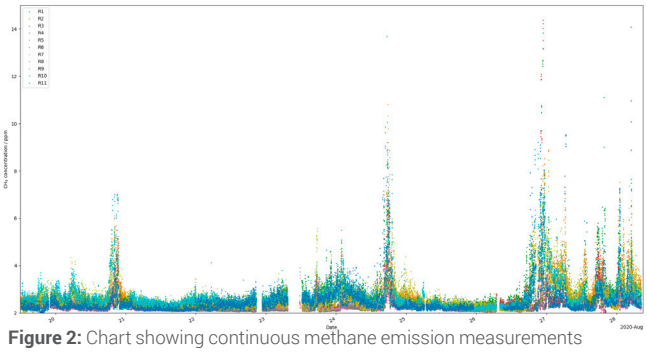


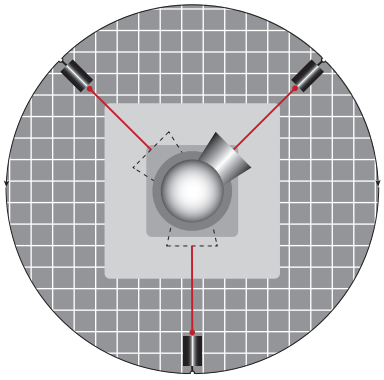
Figure 2: Chart showing continuous methane emission measurements

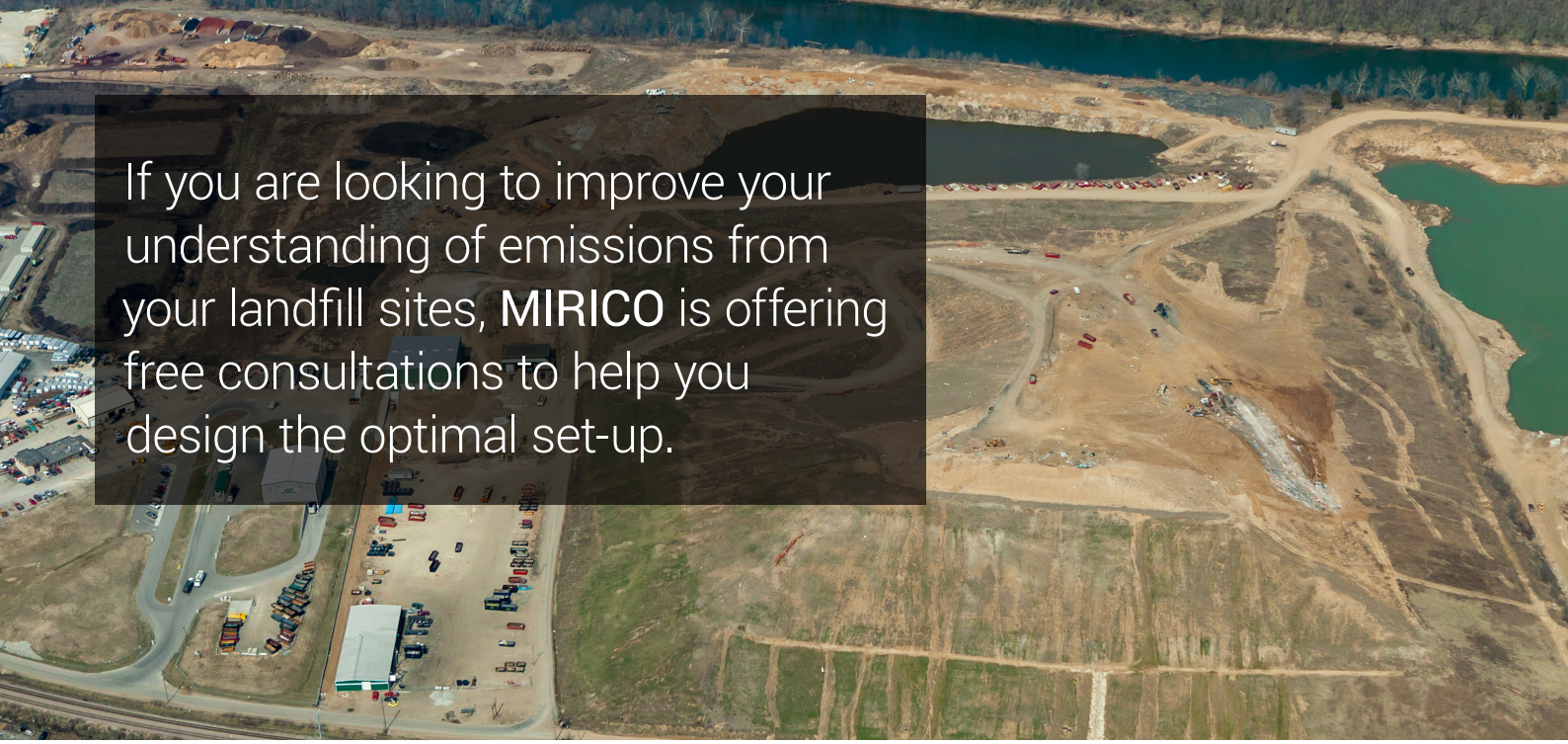
Flexible scanning configurations available up to 360° for different applications

By working with MIRICO's experts you can design the optimal solution for your particular needs from boundary to full site monitoring.

Solutions available for:

- Agricultural waste processing
- Food waste processing
- Waste water treatment plants
- Anaerobic digestors





If you are looking to improve your understanding of emissions from your landfill sites, **MIRICO** is offering free consultations to help you design the optimal set-up.

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Contact Us

Call +44 (0)1235 612 400 or book a session with one of our specialists at www.mirico.com

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