



# Methane emissions quantification technologies - reconciliation and validation

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BART WAUTERICKX

CEO THE SNIFFERS

# Environmental & Integrity Service Provider



Emission Management  
Pipeline Integrity



35 Countries  
Worldwide experience



9.000  
Executed Projects



Innovative Technologies,  
Equipment and Applications



Reliability  
ISO 9001- 14001 // ISO 17025 Lab  
612-TEST Belac 389-TEST Israc



## Realizing your Environmental, and Sustainability Ambition Safe, Compliant, and Efficient Pipeline Operations

Level 1	<b>Venture / Asset Reporting</b> <ul style="list-style-type: none"> <li>Single, consolidated emission factors</li> <li>Only applicable where company has limited information sharing</li> </ul>
Level 2	<b>Emission Category</b> <ul style="list-style-type: none"> <li>Report emissions based on methane emissions categories</li> <li>Estimates based on emission factors</li> </ul>
Level 3	<b>Emission Source Level</b> <ul style="list-style-type: none"> <li>Emissions allocated to individual source types</li> <li>Estimates based on generic emission factors</li> </ul>
Level 4	<b>Emission Source Level</b> <ul style="list-style-type: none"> <li>Emissions allocated to individual source types</li> <li>Estimates based on specific EFs and direct measurements</li> </ul>
Level 5	<b>Site Level</b> <ul style="list-style-type: none"> <li>Emissions allocated to individual source types</li> <li>Reporting based on site-level measurements to reconcile source and site level emissions estimates</li> </ul>

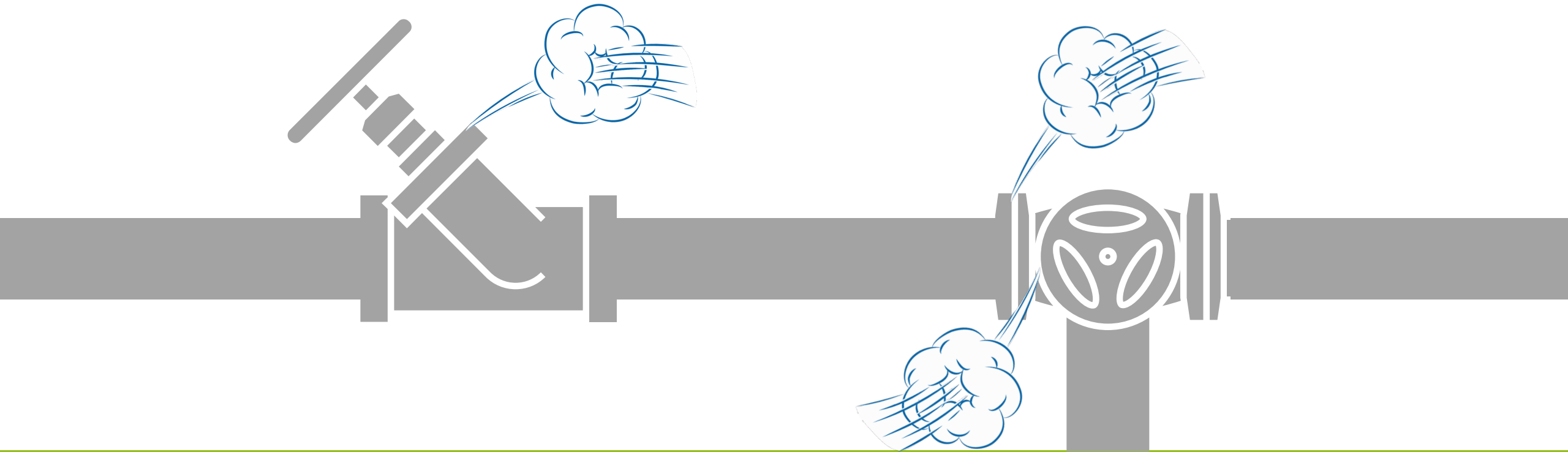


Saudi Aramco - Fadhilli Gas Plant



# Reporting against OGMP2.0

Fugitive Emissions are  
unintended emissions  
to the atmosphere



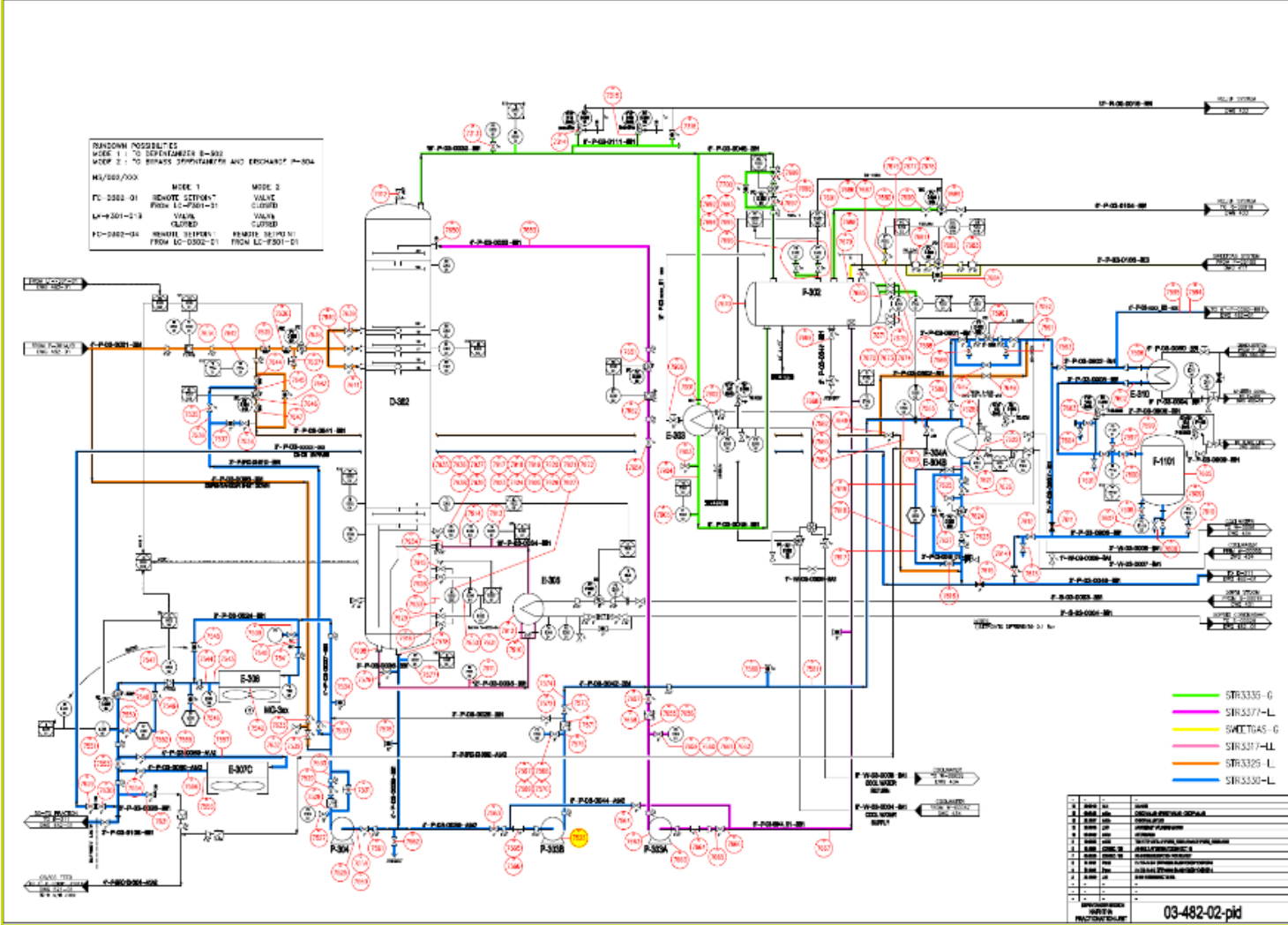
## Unintended or Fugitive Emissions



For every Component

- Unique ID
- Unit, section, process unit and location
- P&ID
- Stream Composition – PFD
- In-scope /out scope
- Response Factors

- Unique ID
- Unit, section, process unit and location
- P&ID
- Stream Composition – PFD
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- Response Factors



# Applied  
Techniques

A



B



C



D



QOGI

HFS - Bagging

FID - PID - Sniffing

OGI - Optical Gas Imaging

Accuracy  
Quality

- ❑ Combination of measuring techniques with calculation protocols
- ❑ Increase of accuracy of total emission figure
- ❑ Increase of effectiveness of the LDAR campaign or emission reduction
- ❑ Scenario A not feasible to detect 500PPM leaks



# Fugitive Emissions - LDAR

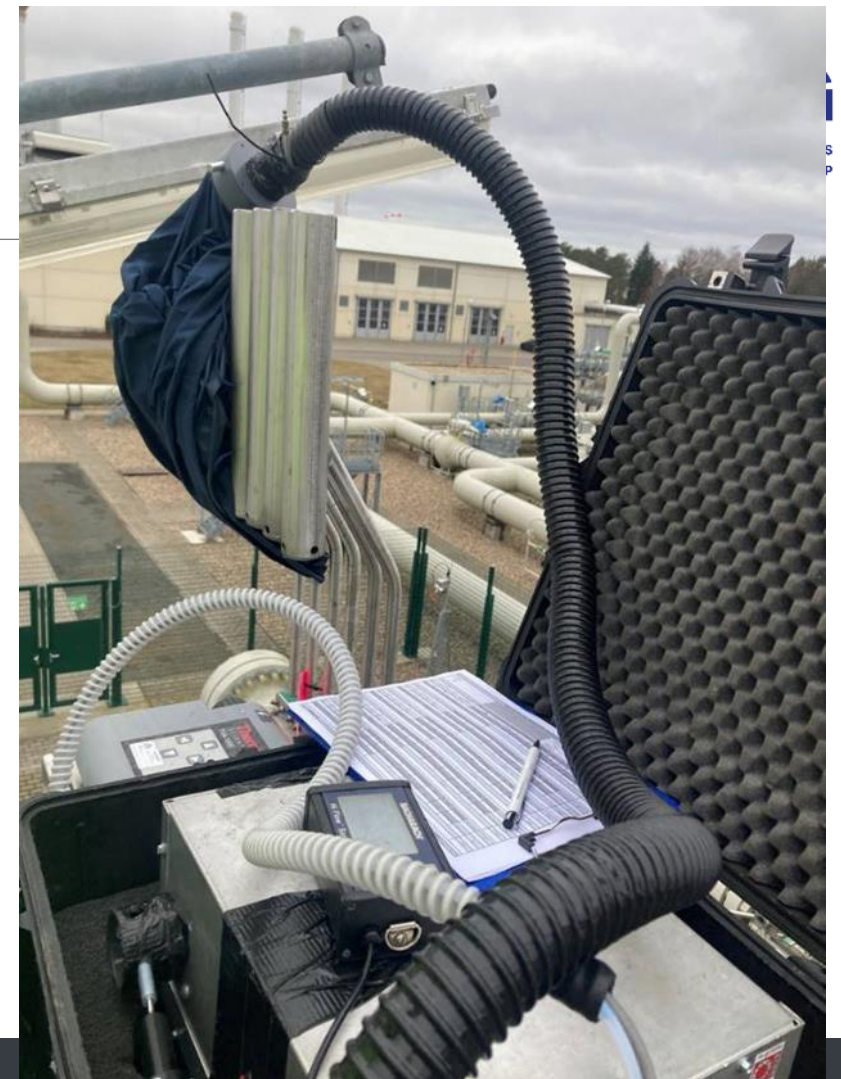




Venting emissions

# Emission Quantification of Valves & Regulator with Bagging





# Venting emissions Emission Quantification of Vents with Bagging





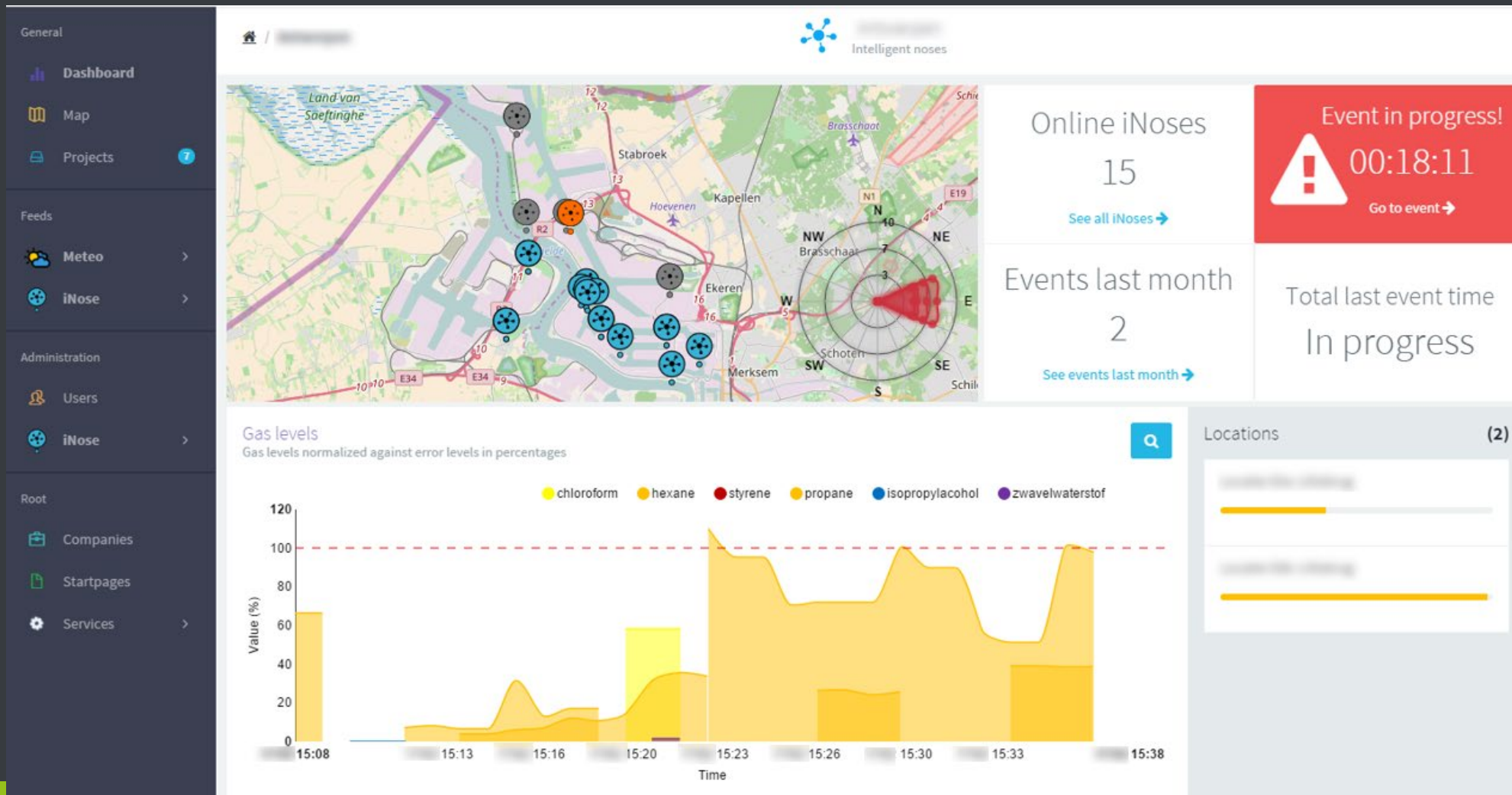


Site-level measurements

Remote Sensing Networks - Reverse Dispersion Modeling

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# Remote Sensing: Cloud UI – Event dashboard

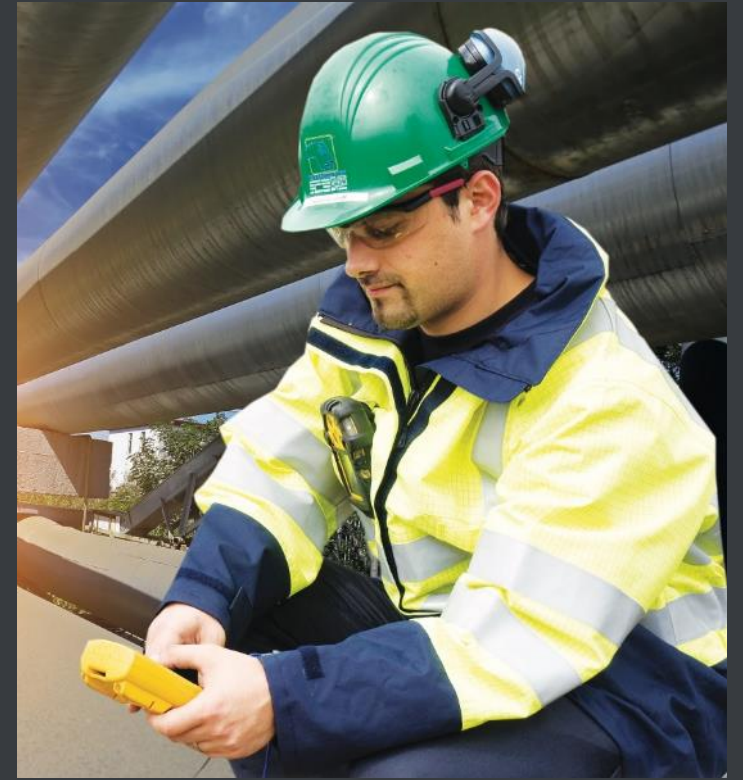


Picture – SeakOps



## Site-level measurements UAV drone surveys





Bart Wauterickx  
CEO



+32 14 31 88 88



The Sniffers  
Poeierstraat 14  
2490 Balen, Belgium



Contact@The-Sniffers.com



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**GERG**

THE EUROPEAN GAS  
RESEARCH GROUP

