## Valentine, Velvet, EMNRD

**From:** Davidson, Florene, EMNRD
**Sent:** Friday, January 8, 2021 3:05 PM
**To:** Valentine, Velvet, EMNRD
**Subject:** FW: Honeywell submittal for Proposed Rules to Regulate the Venting and Flaring of Natural Gas at Oil and Gas Production and Gathering Facilities
**Attachments:** Honeywell Comments on Proposed Rules to Regulate the Venting and Flaring of Natural Gas.pdf; 25425 Gas Rebellion Gas Cloud Imaging Bro Rev2 ltr.pdf

Case 21528

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**From:** Khananisho, Romina <romina.khananisho@honeywell.com>
**Sent:** Friday, January 8, 2021 2:52 PM
**To:** Davidson, Florene, EMNRD <florene.davidson@state.nm.us>
**Cc:** Cameron, Matt <Matthew.Cameron@Honeywell.com>
**Subject:** [EXT] Honeywell submittal for Proposed Rules to Regulate the Venting and Flaring of Natural Gas at Oil and Gas Production and Gathering Facilities

Good afternoon,

Attached you will find Honeywell's comments submittal on New Mexico's proposed rule as well as a brochure on our technology. Please feel free to contact me with any questions.

Thank you,

**D. Romina Khananisho**
Vice President
Global Government Relations | Corporate
Mobile: 202-802-7332

Honeywell

**Robert Kester, PhD**
**President & General Manager**

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**January 8, 2020**

**Submitted Via Email**

Oil Conservation Commission
Attn: OCC Clerk, Florene Davidson
2nd Floor, Wendell Chino Building
1220 South St. Francis Drive
Santa Fe, New Mexico, 87505

**RE: Honeywell Comments on Proposed Rules to Regulate the Venting and Flaring of Natural Gas from Oil and Natural Gas Production and Gathering Facilities**

Dear Ms. Davidson:

Honeywell International Inc. ("Honeywell") submits these comments on the Proposed Rules to Regulate the Venting and Flaring of Natural Gas from Oil and Natural Gas Production and Gathering Facilities ("Proposed Rules").[1]

Honeywell is a premier manufacturer of gas leak detection systems, including gas cloud imaging systems, which detect and measure the volume and concentration of methane leaks at oil and gas wells and in production and storage processes. Thus, we believe that Honeywell is uniquely positioned to provide the Oil Conservation Commission (the "Commission") with its perspective on the use of advanced leak and repair monitoring ("ALARM") technology to address upstream and midstream oil and natural gas operations.

As Governor Lujan Grisham identified in her Executive Order on Addressing Climate Change and Energy Waste Prevention, methane is a potent greenhouse gas and the emission, venting, and flaring of natural gas is an inefficient use of domestic energy resources. *See* Executive Order 2019-003 (Jan. 29, 2019). The Proposed Rules provide a framework for achieving the Governor's goals through (i) the establishment of targets to reduce natural gas waste, (ii) the development of natural gas management plans by producers, and (iii) the encouragement of advanced technology. Honeywell supports the overall goals of the Proposed Rules, but believes that the effectiveness of the ALARM program could be enhanced through relatively minor adjustments to improve the clarity of the Proposed Rules and to increase

[1] NMAC §§19.15.27 and 19.25.28.

incentives for the use of ALARM systems. These adjustments, along with proposed regulatory amendments, are contained in our detailed comments below.

## 1. Next-Generation Gas Cloud Imaging Technology is an Effective Tool for Detecting Natural Gas and Crude Oil Leaks.

Honeywell manufactures and distributes next-generation gas cloud imaging technology as part of its Honeywell Rebellion GCI portfolio, which can be deployed at oil and gas wells and production equipment, petrochemical facilities, and certain electric power industry facilities. Honeywell Rebellion GCI improves on earlier generations of imaging technology through the use of proprietary hyperspectral imaging and machine learning analytics which can identify the source of gas leaks and measure the volume and concentration of leaks on a continuous, 24/7 basis.

GCI systems have a number of benefits relative to older gas imaging technologies. Whereas earlier modes of action for GCI systems require the use of handheld cameras by human operators, the Honeywell Rebellion GCI can be deployed using fixed sites without active operators, providing for continuous, cost-effective monitoring while limiting the risk of human error. The continuous nature of the Honeywell Rebellion GCI deployment can identify leaks that would otherwise go undetected for extended periods of time (*e.g.*, until they were detected by periodic monitoring) and notify operators remotely as soon as a leak occurs, helping the user to act quickly and support shorter durations for gas leaks. We estimate that GCI systems have the potential to reduce fugitive emissions by 30-45 times relative to handheld optical gas imaging.

Honeywell's Rebellion GCI has additional benefits, including continuous use in all weather conditions, flexible design options allowing for use at larger sites or congested locations, the ability to immediately quantify gas leaks, and real-time alerts of leak location, size and wind drift supporting fast and effective response efforts. By providing an all-in-one platform, the Honeywell Rebellion GCI system is a cost-conscious option, avoiding the need for deploying multiple point-sensors and minimizing costs related to methane waste. In addition to methane monitoring, the Honeywell Rebellion GCI system can monitor for 50+ other gas types that may be present within a natural gas stream, such as ethane, propane, butane and pentanes.

## 2. The Proposed Rules Should be Revised to Provide Greater Clarity Regarding the Approval of ALARM Technology and Associated Credits.

The Proposed Rules require operators to certify compliance with statewide natural gas capture requirements for vented and flared natural gas.[2] Operators must capture an increasing amount of vented and flared natural gas each year (from 2022 to 2026) and capture at least 98% of the natural gas they produce by December 31, 2026. The Proposed Rules, however, allow for the generation of credits that can be used for compliance calculations if operators discover a leak

[2] *See* Proposed Rules, New Mexico Administrative Code ("NMAC") §§ 19.15.27, 19.15.28. All regulatory citations in these comments reference OCD Exhibit 2B (Part 27 – 12/30/2020 – CLEAN FORMAT) and OCD Exhibit 3B (part 27 – 12/30/2020 – CLEAN FORMAT). These exhibits were obtained through the OCD website at: https://ocdimage.emnrd.state.nm.us/imaging/CaseFileView.aspx?CaseNo=21528, last accessed 1/6/2020.

or release of natural gas using approved ALARM technologies, isolate the leak or release within 48 hours of discovery and repair the leak or release within 15 days.[3]

The Proposed Rules define "ALARM" to mean "advanced leak and repair monitoring technology for detecting natural gas leaks or releases that is not required by applicable state or federal law, rule, or regulation and which the division has approved as eligible to earn a credit against the reported volume of lost natural gas pursuant to Paragraph (4) of Subsection B of 19.15.27.9 [Paragraph (3) of Subsection B of 19.15.28.10 NMAC]."[4] But the ALARM definition provides no additional clarity regarding what type of technology meets this definition. Rather, the Proposed Rules require operators to receive approval from the Oil and Conservation Division ("Division") for an ALARM technology at the time an operator files an application for a credit.[5]

This case-by-case approval process could create substantial uncertainty for operators and gas detection leak technology manufacturers as to which ALARM systems the Division will approve for use and the time at which the Division will act to approve such technology. This uncertainty could inhibit both the use of existing ALARM systems and the development and adoption of new gas leak detection technologies. Honeywell believes this outcome can be avoided by: (a) further defining ALARM to include specific technologies while allowing for the approval of new technologies, and (b) allowing operators to rely on pre-approved systems when applying for credits against lost natural gas volumes.

**a. The Commission Should Eliminate Uncertainty by Identifying with Greater Clarity the Technologies that are Likely to be Approved As "ALARM".**

The technical documents provided in support of the Proposed Rules acknowledge that "leak detection technology is evolving rapidly." *See* Methane Advisory Panel, Leak Detection and Repair Topic Report at 51 (Fall 2019), *available at* Related Technical Information, OCD_Proposed_Waste_Rule_Technical_Information.pdf (state.nm.us). While this continuing development of technology is beneficial, the Proposed Rules provide no meaningful criteria for, or examples of, the technological attributes leak detection technology should possess so as to be approved for use by the Division.

To address this issue, the Commission should include a non-exhaustive list of the types of technology that are approved for use. The Commission should also identify technological attributes that the Division will consider in deciding whether a given technology is likely to be approved for use, such as the ability to identify and quantify hydrocarbons such as methane in real-time video. By making the list of existing qualified ALARM technologies non-exhaustive, this approach maintains the flexibility inherent in the Proposed Rules, while also providing operators and manufacturers with additional certainty as to whether a given technology is

[3] *See* Proposed Rules, §§19.15.27.9(A)(4)(6), 19.15.28.10(B)(3),(5).
[4] Proposed Rules, §§19.15.27.7, 19.15.28.7
[5] Proposed Rules, §§19.15.27.9(B)(5), 19.15.28.10(B)(4).

approved or likely to be approved for use. Honeywell has provided proposed regulatory text below.

**b. The Commission Should Permit Operators and Manufacturers to Seek Pre-Approval of ALARM Technologies and Require the Division to Make a List of Such Approved-ALARM Technologies Publicly Available.**

The Proposed Rules also create unnecessary uncertainty by requiring operators to seek approval to use leak detection technology while at the same time seeking a credit for discovering lost natural gas using the ALARM technology. The Commission should revise the Proposed Rules to provide operators and manufacturers with the ability to seek approval for the use of a given technology *in advance* of an application for credits. Otherwise, the regulations create an inherent bias for operators to only use technologies which have already been approved for use by the Division in order to avoid the risk of having their application for credits denied.

Furthermore, the Commission should require the Division to make a list of approved technologies publicly available, so that operators can easily identify which technologies have already been approved for use and the Division is not required to repeatedly approve the use of the same technology by different operators. While we recognize that this may place an additional, up-front burden on the Division, we believe the benefits of having an established list will outweigh the time and effort that the Division will otherwise have to invest in repeatedly reviewing and approving the same technologies in different applications.

**c. Proposed Regulatory Text.**

In light of the foregoing recommendations, Honeywell proposes the Commission adopt the following definition of "ALARM", with proposed revisions in *italics*:

Amend §§19.15.27.7A, 19.15.28.7A as follows:

> "ALARM" means advanced leak and repair monitoring technology for detecting natural gas or releases that is not required by applicable state or federal law, rule, or regulation and which the division has approved as eligible to earn a credit against the reported volume of lost natural gas [pursuant to subsections identified in Part 27 and Part 28]. *ALARM technology includes, but is not limited to, gas cloud imaging systems capable of identifying and quantifying hydrocarbons, including methane, in real-time video. The Commission has approved the following systems for use: _____*."

In addition, the Commission should provide for an explicit process by which either operators or manufacturers may apply for and obtain approval of Alarm technologies.

Amend 19.15.27.9, 19.15.28.10 at the end by including the following new paragraph:

> *"( ) An operator or another entity may obtain advance approval of an ALARM technology from the division prior to submitting an application in accordance with this Part. The operator or another entity shall supply such information as the*

*division may reasonably require concerning the main components of a technology and its ability to discover, isolate and report leaks of natural gas. The division may approve such technology for use with respect to statewide natural gas capture requirements pursuant to sections 19.15.27.9 and 19.15.28.10, and inspection standards for new and existing gathering pipelines pursuant to section 19.15.28.8, and shall maintain a publicly accessible list of approved technologies.*"

**3. The Commission Should Provide Additional Incentivizes for the Deployment of Continuous Monitoring Technologies.**

Continuous monitoring technologies reduce methane waste relative to the use of older technologies such as hand-held cameras. According to the Methane Advisory Panel, "[e]merging technologies and inspection methods, such as mobile mounted IR cameras and lasers, and continuous stationary monitors, have the potential to significantly cut down on inspection time while also increasing the speed at which leaks are detected." *See* Methane Advisory Panel, Leak Detection and Repair Topic Report at 51 (Fall 2019), *available at* Related Technical Information, OCD_Proposed_Waste_Rule_Technical_Information.pdf (state.nm.us). The scientific consensus is likewise that the "heterogeneous, unpredictable, and ever-shifting nature of equipment leaks . . . strongly point toward the need for frequent, if not continuous, inspections to identify and repair leaking components and equipment." *Id.* at 37.

Despite acknowledging these realities in the technical documents supporting the Proposed Rules, the Commission's proposal does not create an incentive for the adoption of continuous monitoring technologies. Under the Proposed Rules the Division may approve a credit that an operator can apply against its volume of lost natural gas equal to: (a) forty percent of the volume of natural gas discovered and isolated within 48 hours of discovery and timely repair; and (b) an additional credit of twenty percent if the operator uses an ALARM technology at least once per calendar quarter. *See* §§19.15.27.9(B)(6); 19.15.28.10(B)(5). At most, then, the Proposed Rules encourage quarterly inspection of oil and gas wells and production equipment using ALARM technology, but include no material incentive for continuous monitoring despite the scientific consensus that such monitoring is beneficial.

Therefore, Honeywell proposes the following revisions, identified in *italics*, to the Proposed Rules, which would align regulatory language with the Commission's objective of reducing methane emissions as much as feasibly possible:

Amend §§19.15.27.9(B)(6) and 19.15.28.10(B)(5) as follows:

"For each leak or release reported by an operator that meets the requirements of Paragraphs (3) and (4) of Subsection B of 29.15.28.10 NMAC, the division, in its sole discretion, may approve a credit that the operator can apply against its reported volume of lost natural gas as follows: (a) a credit of forty percent of the volume of natural gas discovered and isolated within 48 hours of discovery and timely repaired; *and either* (b) an additional credit of *ten* ~~twenty~~ percent if the operator used ALARM technology no less than once per calendar quarter as a routine and on-going aspect of its waste-reduction practices*; or (c) an additional credit of twenty percent if the operator used continuous monitoring ALARM technology as a routine and on-going aspect of its waste reduction practices*."

## 4. Conclusion.

Honeywell appreciates the Commission's work identifying strategies to reduce methane emissions and waste in New Mexico. Honeywell makes the recommendations herein to provide greater clarity to both the operators of natural gas production systems who will be most directly affected by the Proposed Rules, and the manufacturers of leak detection technologies who provide technologies that support efficient and safe production. We believe, based on our prior assessments of continuous monitoring systems, that increasing incentives for the deployment of advanced ALARM systems will yield real and measurable benefits in the reduction of statewide methane emissions. Honeywell is committed to working with the Commission in a constructive way to further the goals of Executive Order 2019-003 and is available at your convenience to discuss the issues raises in these comments.

Thank you,

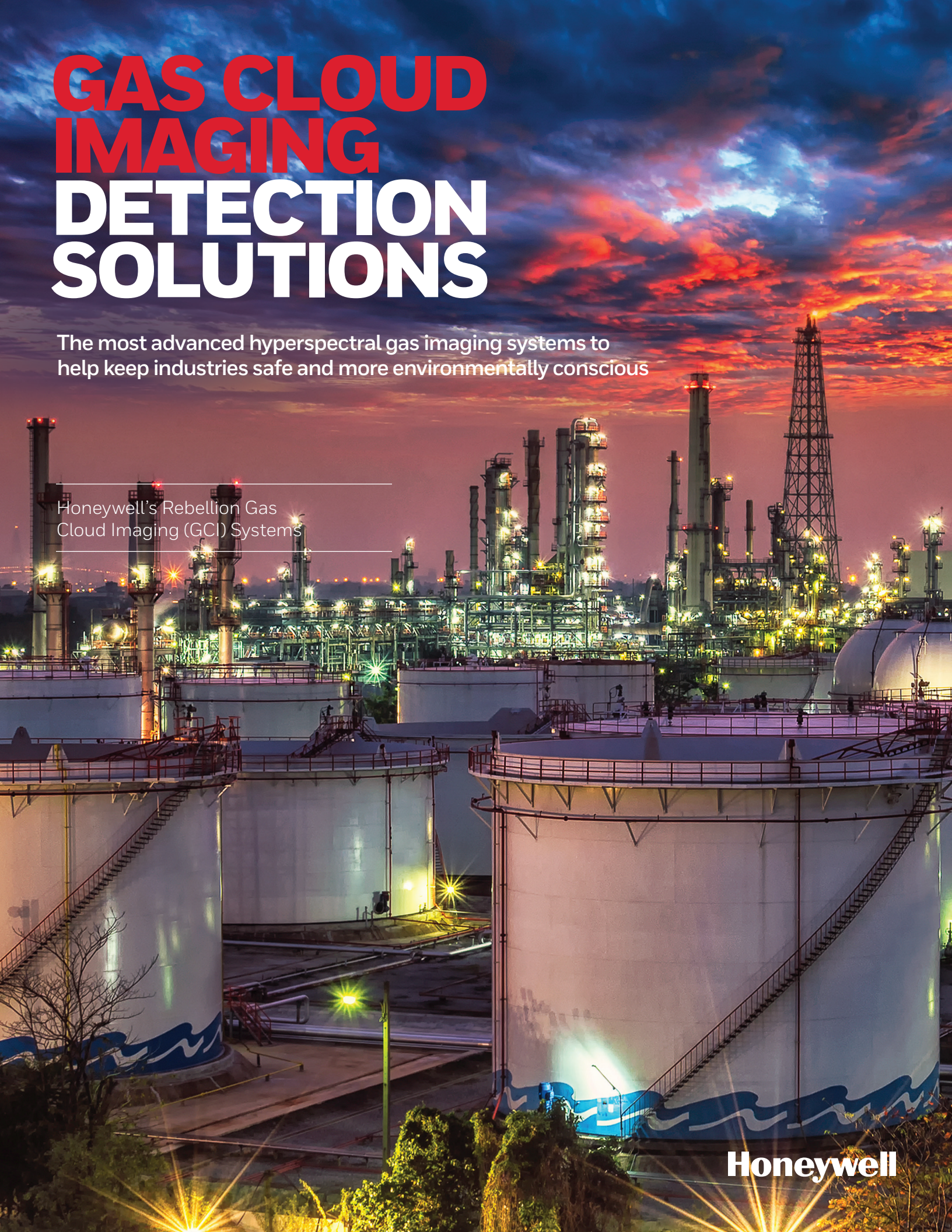
DocuSigned by:
Robert Kester
EF45A74EF1C9424...

Robert Kester
President & General Manager
Honeywell Rebellion

# GAS CLOUD IMAGING DETECTION SOLUTIONS

**The most advanced hyperspectral gas imaging systems to help keep industries safe and more environmentally conscious**

Honeywell's Rebellion Gas Cloud Imaging (GCI) Systems



Honeywell

# GAS CLOUD IMAGING DETECTION SOLUTIONS FOR THE OIL AND GAS, PETROCHEMICAL AND POWER INDUSTRIES

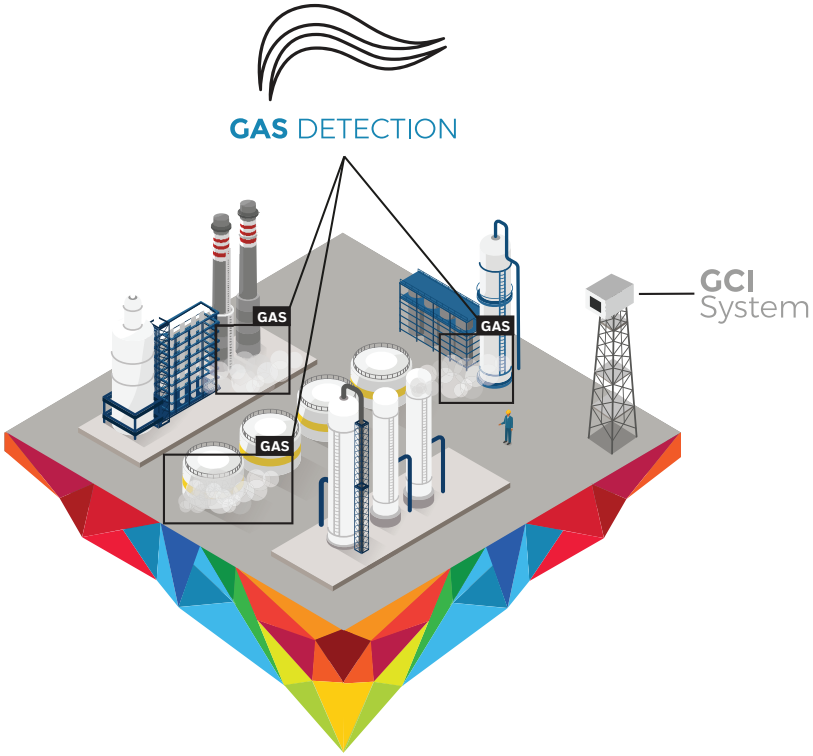
When a gas leak occurs, you need to act immediately for the safety of personnel, the site and the environment. Our hyperspectral gas imaging systems provide your personnel with reliable, intelligent information about the gas leak, including the type, size and direction of the plume, so that they can react accordingly.

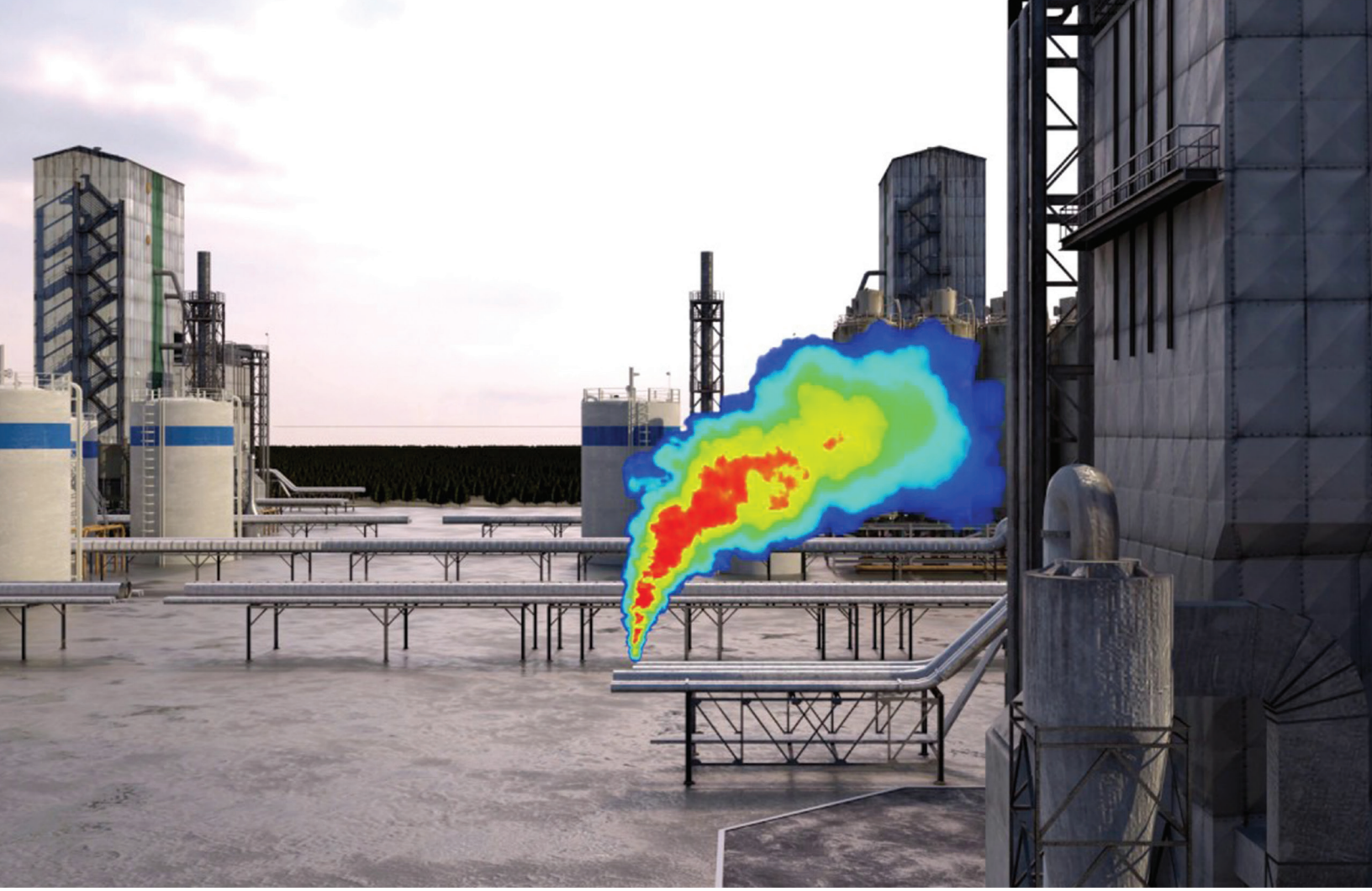
## CHOOSE HONEYWELL GAS CLOUD IMAGING (CGI) DETECTION FOR A CUTTING-EDGE, ROBUST SOLUTION IN THE HARSHEST ENVIRONMENTS

Honeywell brings a decade of experience in the most advanced hyperspectral gas imaging systems for the oil and gas, petrochemical and power industries. We provide intelligent, automated visual monitoring solutions that make industries safer and more environmentally conscious. Our rapid visual verification of gas leaks, as well as the size and direction of the plume, provides the support you need for environmental due diligence. Honeywell is dedicated to helping you protect people, equipment and the environment through gas cloud imaging detection.

## HONEYWELL REBELLION GAS CLOUD IMAGING TECHNOLOGY

Honeywell delivers the future now. As a global leader in the Industrial Internet of Things (IIoT), we provide gas leak solutions to our customers globally with our technical innovation. Our Gas Cloud Imaging system uses proprietary hyperspectral imaging technology coupled with machine learning analytics to pinpoint the gas leak source and measure the volume and concentration of a leak. GCI is the industry's next generation for leak detection and monitoring.





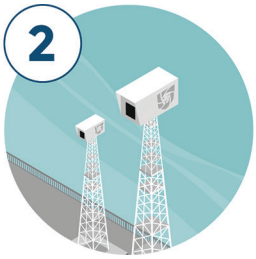
## HOW IT WORKS

Each gas has a unique emission/absorption signature in its fingerprint region, which makes it possible to differentiate gases. The system's powerful spectral imaging engine, with a patented sensor design, analyzes hyperspectral data from every pixel of the image at a rate of 60 times per second to identify more than 50 gases. The camera captures the gas leak in the form of a visual cloud, which is captured on video. It also depicts the size of the gas cloud and the direction that the plume is moving.

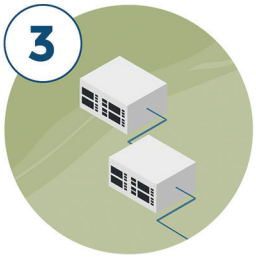
As soon as a camera captures a gas leak, the alarm management system goes off, alerting you via email.

An operator can then take targeted first responder actions using the data from the system, providing an effective response to the event. Alarm and video events are recorded and stored for later access, analysis and reporting, and alarm levels can be adjusted for your particular site needs.

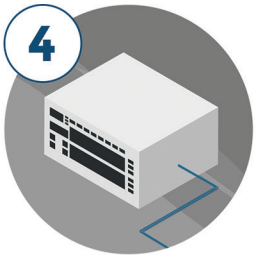

**EVENT**
A gas leak occurs at a facility.



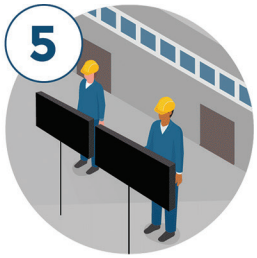

**GCI CAMERA**
GCI cameras sense the leak.




**ANALYZERS**
The Analyzer processes the data in real-time to identify, quantify and track the gas plume.




**DVR**
The DVR records the gas leak videos and sends the live results to oeprators.




**MONITORING**
Operators can now "see" the gas leak and respond to it.

# HONEYWELL REBELLION GAS CLOUD IMAGING SOLUTIONS

Honeywell Rebellion Gas Imaging Systems feature unique gas cloud imaging through hardware monitoring devices, software and analytics. Our complete solutions include installation, set-up and technical support services .

### Hardware Monitoring Devices

GCI cameras use a proprietary hyperspectral imaging technology to capture both visible spectrum and infrared video to monitor, quantify and display over 50 types of gases as a leak occurs. With a pan, tilt and zoom (PTZ) feature, cameras cover a large, pre-programmed area and quickly move to any area of interest. Cameras are typically 100 times more accurate than traditional hardware, so additional gas detection equipment is not needed. These self-calibrating cameras operate 24/7 in all weather conditions.

### Analytics

Combining the latest advancements in data science, optical physics and artificial intelligence, our real-time monitoring analytics are the most advanced and deliver smarter, faster and more accurate information. Customers use our analytics to make decisions about their site. Analytics can be customized to meet our customers' unique needs and situations. Our analytics improve over time as they learn and gather more data, leading to better performance of the detection algorithms.

### Software

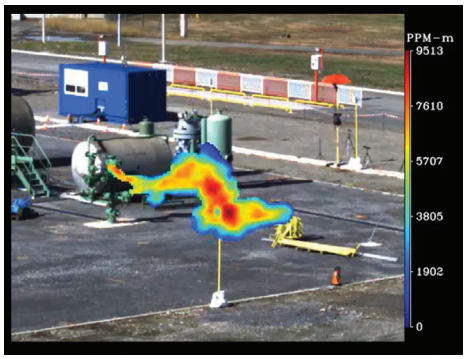
Honeywell Rebellion's propriety AI-driven software platform, Spectra, manages the analytics through its own user interface and displays real-time video footage. A dedicated server has an extraordinary storage capacity and processing power. The software is capable of managing up to 4 TB of data daily from multiple GCI cameras.

Operators can oversee camera feeds and adjust camera movement as needed through a DCS. Operators don't need to monitor the cameras continuously as alert levels are built into the software.

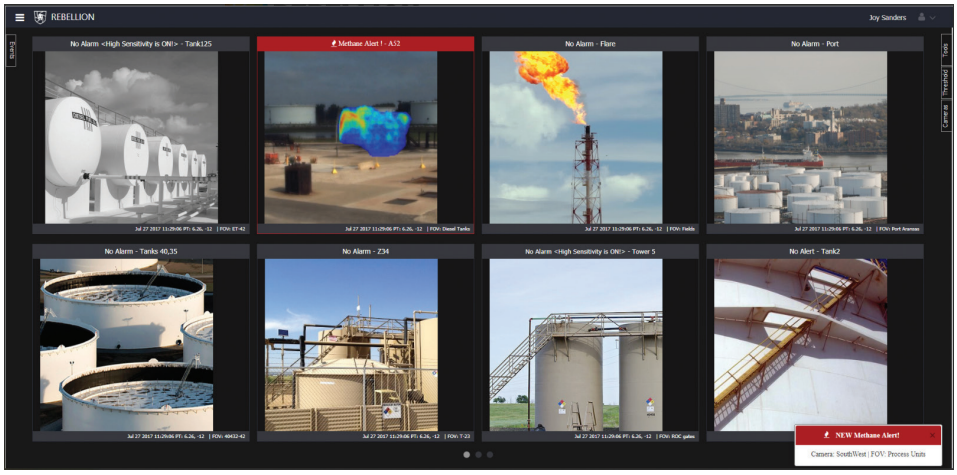
### Installation, Set-Up and Technical Support Services

As part of a complete offering, we provide an installation, commissioning and training package. Once the installation is complete, you will be provided with a fully functioning and accurately configured system on a dedicated server along with a full training package. Technical support is available after the installation is complete. The system will be maintained at peak uptime and performance with an annual maintenance service pack.

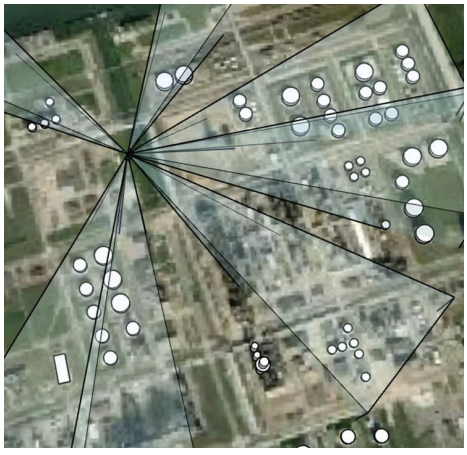
*Hardware monitoring devices installed.*

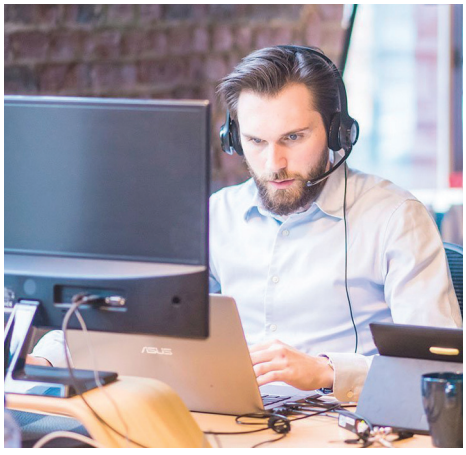



*Advanced real-time visual monitoring analytics.*




*Edge computing with extraordinary storage capacity and processing power.*





*We work with you from initial planning to installation and set-up, and we provide ongoing support.*

# BENEFITS

The Honeywell Rebellion portfolio is a platform of intelligent, automated visual monitoring solutions that make industries safer and more environmentally conscious.

## SAFER

Our systems provide a timely and clear visual indication of previously invisible gas clouds, thereby detecting and verifying safety instrumented systems. Honeywell Rebellion platforms instantly provide the type of gas leak, the location and the size, which enables you to respond rapidly and with an effective, targeted plan. With an early intervention, you can prevent further risks from escalating. Our systems are safer because of:

- Monitoring real-time 24/7
- Detecting leaks indoors and outdoors
- Identifying the leak source
- Issuing gas leak alerts
- Preventing accidents

## ENVIRONMENTALLY CONCIOUS

We're helping make sites more environmentally sound because with our 24/7 plant coverage, you can respond to a leak as soon as it occurs, which reduces harmful emissions. You can enable a more coordinated approach to achieving net zero greenhouse gas emissions. Our systems help the environment by:

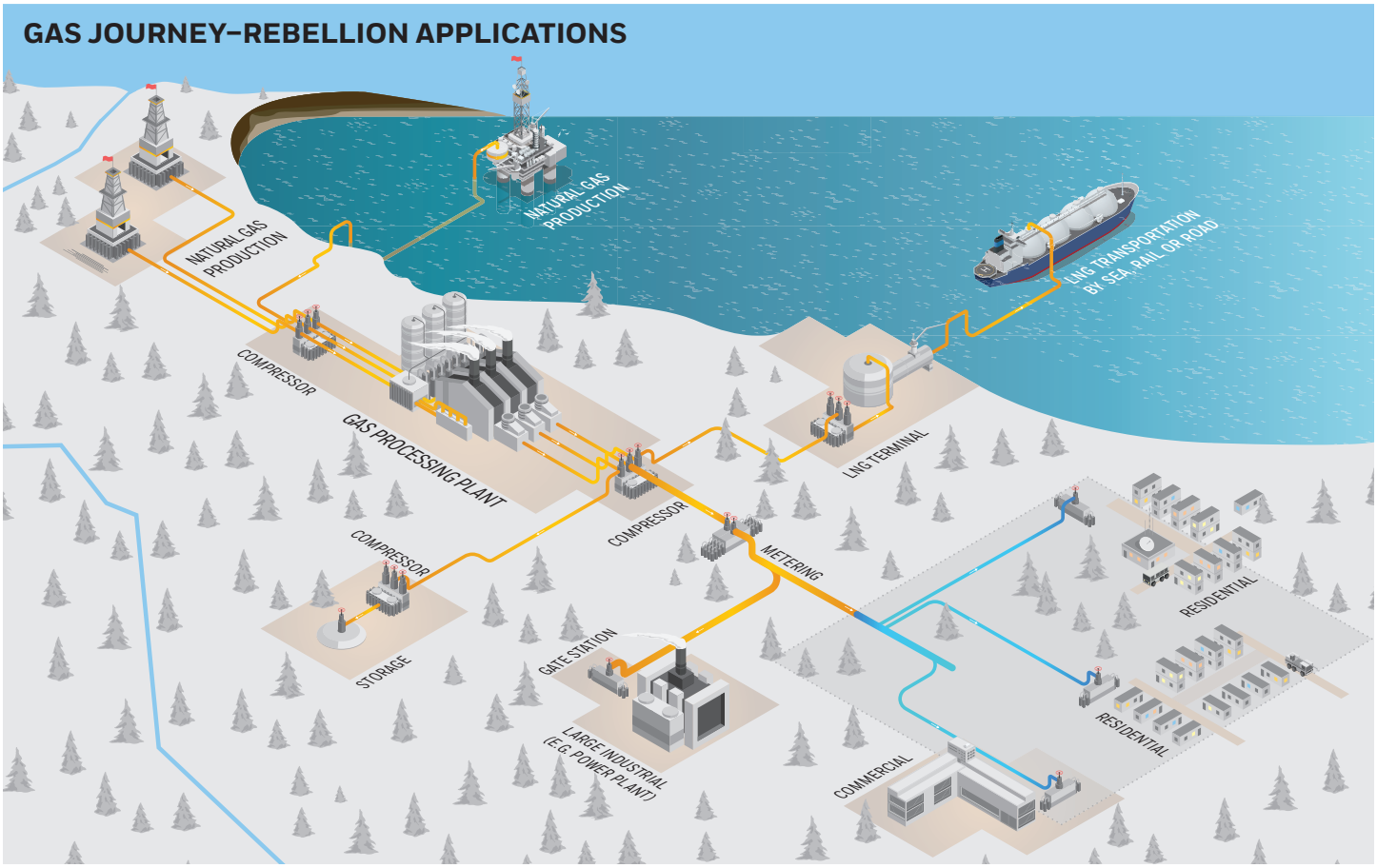
- Reducing methane intensity
- Capturing real-time emission data visualization
- Providing a total emission profile and evaluation (Coming in 2021)
- Monitoring cost-effective emissions
- Measuring quantifiable emissions

## PROFITABLE

Businesses are always facing the challenge of being more efficient and profitable. We're making businesses more profitable by:

- Reducing the cost of unplanned safety and emissions intervention
- More effectively targeting the response to gas leak events
- Reducing the cost of carbon credits and potential fines
- Making the site safer, thereby reducing fiscal risks
- Enabling increased sale of the retained product
- Eliminating the need for additional gas detection equipment
- Reducing downtime with preventive maintenance

# GAS CLOUD IMAGING SYSTEMS:
# INDUSTRIES AND APPLICATIONS




**The Honeywell Rebellion portfolio of Gas Cloud Imaging systems addresses a wide range of safety and emissions applications:**

- Oil and Gas Upstream (offshore and onshore)
  - — Exploration
  - — Production
  - — Processing
- Oil and Gas Downstream
  - — Transmission
  - — Storage
  - — Distribution
- Heavy industrials such as chemical and power plants

## APPLICATIONS INCLUDE:

- Exploration platforms and FPSOs
- Gas processing plants
- Gas transmission and distribution compressors and metering skids
- Tank farms
- Pipelines
- Refineries
- LNG / LPG transportation
- LNG / LPG loading / unloading
- Chemical plants
- Power plants

# GAS CLOUD IMAGING CAMERAS

## HONEYWELL REBELLION GAS CLOUD IMAGING CAMERA

The Honeywell GCI is a unique hyper-spectral unit that comes in two versions:

- The standard GCI LR (Long Range) is designed to cover large sites and extended areas. It has a long range of 1,700 m (5,557 ft) and a field of view of 5° x 5°.
- The standard GCI WR (Wide Range) is designed for closer, broader self-contained areas. It has a wide range of 660 m (2,165 ft) and a field of view of 22.6° x 22.6°.

Both models employ snapshot hyper-spectral imaging for real-time detection of gas leaks in less than a second, as well as identifying the type of gas and quantifying it. The cameras provide the gas concentration and leak location, and real-time alerts create actionable alarms and display live videos of the leak while simultaneously issuing notifications to personnel via email or text.

A pan, tilt and zoom (PTZ) capability provides controlled coverage and response across the site area. Cameras can be sequentially moved in a pre-programmed, repeating cycle or an operator can move the camera to specific positions. GCI cameras are designed to be installed at elevated positions in a non-hazardous area with an unimpeded view over the covered area.

A DCS monitor displays fully automatic alarms with a clear live visual display . The camera connects to a DCS via Modbus TCP/IP. A server stores up to 5 million detection events with custom auto-erase settings.

The cameras can detect a wide range of gases, including methane and typical flammable hydrocarbons as well as other potentially dangerous flammable and toxic gases.

*Honeywell Rebellion Standard GCI Camera.*

### PRODUCT SPECIFICATIONS

| HEADER | HEADER |
|---|---|
| **Detection Approach** | Snapshot Hyperspectral Infrared Imaging |
| **Detection Time** | < 1 second |
| **Field of View** | ***Long Range:*** 5.0° x 5.0°<br>***Wide Field:*** 22.6° x 22.6° |
| **Position Control** | Pan +/-180° (360° full rotation), Tilt ±45° |
| **Detection Range** | ***Long Range:*** up to 1,700 m (5,577 ft)<br>***Wide Field:*** up to 660 m (2,165 ft) |
| **Alert/Alarm** | Fully automatic alarm with live visual display, audible alert, email and/or text message |
| **False Alarm Rate** | ≤ 1% |
| **DCS Integration** | Modbus TCP/IP |
| **Video Output** | 200 x 200 pixels (IR) / 600 x 600 pixels (Visible) at 15 Hz |
| **Weather Conditions** | Validated for all weather and light conditions |
| **Temperature Range** | -40°C to 55°C (-40°F to 131°F) |
| **Electrical Requirements** | ***Camera:*** 24 VDC, 10 A (peak), 5 A (continuous)<br>***Pan/Tilt:*** 48 VDC, 12 A (peak), 6.4 A (continuous)<br>***Analyzer:*** 24 VDC or 120/240 VAC (< 600 W) |
| **Network Connections** | 1 Serial RS-422 + 1 CAT 6 - Pan/Tilt<br>3 Multi-mode Fibers, LC Connectors - Camera |
| **Running Time** | Continuous (24/7, 365 days) |
| **Self Calibration** | Every 7 and 22 minutes |
| **Maintenance** | No regular maintenance (except exterior cleaning) |
| **Analyzer** | Custom Dell Poweredge R630 |
| **Analytics** | Up to 7 simultaneously |
| **DVR (Video Storage)** | Custom Dell Poweredge R540. Stores up to 5 million detection events with custom auto-erase settings. |

See the **online datasheet** for full technical and operational details.

# GAS CLOUD IMAGING CAMERAS

## MINI GAS CLOUD IMAGING CAMERA

The Honeywell Rebellion Mini GCI is designed for congested areas and smaller sites. With a small format and useful 100 m (328 ft) coverage range, the Honeywell Rebellion Mini GCI provides cost-effective gas cloud identification and measurement over smaller, specific areas such as metering skids or discharge and loading bays.

*Honeywell Rebellion Mini GCI Camera.*

### PRODUCT SPECIFICATIONS

| HEADER | HEADER |
|---|---|
| **Detection Approach** | Snapshot Hyperspectral Infrared Imaging |
| **Detection Time** | < 1 second |
| **Field of View** | 42.0° x 42.0° |
| **Position Control** | Pan +/-180° (360° full rotation), Tilt ±45° |
| **Detection Range** | Up to 100 m (328 ft) |
| **Alert/Alarm** | Fully automatic alarm with live visual display, audible alert, email and/or text message |
| **False Alarm Rate** | ≤ 1% |
| **DCS Integration** | Modbus TCP/IP |
| **Video Output** | 160 x 160 pixels (IR) / 640 x 640 pixels (Visible) at 15 Hz |
| **Weather Conditions** | Validated for all weather and light conditions |
| **Temperature Range** | -40°C to 55°C (-40°F to 131°F) |
| **Electrical Requirements** | ***Camera:*** 24 VDC, 17 W<br>***Pan/Tilt:*** 24 VDC, (Configuration dependent)<br>***Mini-GCI Analyzer:*** 24 VDC or 120/240 VAC (120 W) |
| **Network Connections** | 1 Serial RS-422 + 1 CAT 6 - Pan/Tilt<br>2 CAT 6 Ethernet Connection - Camera |
| **Running Time** | Continuous (24/7, 365 days) |
| **Self Calibration** | Every 7 and 22 minutes |
| **Maintenance** | No regular maintenance (except exterior cleaning) |
| **Analyzer** | Custom Nuvo N5006E |
| **Analytics** | Up to 3 simultaneously; max 7 with enhanced analyzer |
| **DVR (Video Storage)** | Custom Dell Poweredge R540. Stores up to 5 million detection events with custom auto-erase settings. |

See the **online datasheet** for full technical and operational details.


**For more information**
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THE FUTURE IS WHAT WE MAKE IT

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