

Optical Gas Imaging for Hazardous Locations Training Course

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Overview

Optical Gas Imaging for Hazardous Locations Training Course is a one-week advanced course for inspection, LDAR, environmental, maintenance, HSE, and supervisory functions who leave with an OGI Survey and Evidence File. Participants connect optical gas imaging surveys, hazardous-location camera checks, gas plume visualization, leak evidence capture, and LDAR repair confirmation using the FLIR GFx320 while respecting qualitative and quantitative limits. Agile Leaders Training Center presents optical gas imaging field practice.

Who Should Attend

- Inspection functions responsible for camera readiness, scanning technique, leak recognition, and field evidence
- LDAR functions responsible for survey plans, equipment coverage, tags, repair workflow, and confirmation
- Environmental functions responsible for fugitive-emissions monitoring, records, quality checks, and reporting
- Maintenance and reliability functions responsible for access, leak follow-up, corrective work, and equipment care
- HSE and supervisory functions responsible for hazardous-location authorization, field controls, and operator assurance

The course assumes participants already follow site work controls and inspect process equipment, and it leaves out generic thermography diagnosis, electrical hazardous-area design, and gas emergency response.

Departments and Industries

The course supports departments and industries that use OGI to find and document hydrocarbon and volatile organic compound leaks.

- Oil and gas production, processing, refining, storage, and terminals
- Petrochemical, chemical, biogas, and power-generation facilities
- Inspection, maintenance, reliability, and asset integrity
- Environmental monitoring, emissions management, and LDAR operations
- Occupational safety, field supervision, and contractor assurance

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Learning Objectives

By the end of this course, participants will be able to:

- Apply OGI physics and gas-response limits to survey decisions
- Use GFx320 controls, focus, sensitivity, and image modes
- Analyze wind, background, angle, distance, and interference
- Build repeatable scan paths and leak-evidence records
- Diagnose false indications, missed-leak risks, and camera faults
- Evaluate survey quality and LDAR repair confirmation

Course Agenda

Day 1: Establish OGI Detection Practice

- OGI Spectral Response and Gas-Visibility Model
- Concentration-Path, Temperature-Contrast, and Motion Assessment
- Qualitative Detection and QOGI Limitation Matrix
- Persistent Leak, Intermittent Release, and False-Indication Guide
- OGI Survey Objective and Evidence Standard

Day 2: Configure the Camera Safely

- FLIR GFx320 Pre-Use and Hazardous-Location Checklist
- Gas Detection Mode, Focus, Zoom, and Palette Control Map
- High Sensitivity Mode Application Decision
- Battery, Lens, Storage, Calibration, and Accessory Readiness Log
- Camera Care, Shutdown, Transport, and Fault-Triage Procedure

Day 3: Execute the Field Survey

- Equipment Inventory and Component Scan-Path Plan
- Wind, Plume Motion, and Survey-Pace Adjustment Method
- Background Contrast, Viewing Angle, and Distance Optimization
- Stability, Framing, Scene Interference, and Masking Control
- Leak Indication, Repositioning, and Confirmation Sequence

Day 4: Control Evidence and LDAR Workflow

- Video, Still Image, Voice Note, and Location Evidence Record
- Leak Tag, Equipment Identity, and Repair Handoff Register
- Post-Repair OGI Confirmation and Closure Method
- Comparative Survey, Video Review, and Missed-Leak Audit
- Survey Quality, Exception, and Supervisor Approval Report

Day 5: Practice OGI Survey Assurance

- Suggested Exercise: Optimize Focus, Contrast, Angle, and Sensitivity
- Suggested Exercise: Scan Process Components with a Repeatable Pattern
- Suggested Exercise: Separate Leak Plumes from False Indications
- Suggested Exercise: Review Evidence and Confirm Repair Closure
- Capstone Exercise: Complete the OGI Survey and Evidence File

Practical Exercises

The course uses suggested activities to connect camera setup, field conditions, survey discipline, evidence quality, and repair follow-up.

- Suggested activity: assess gas response, concentration-path effects, thermal contrast, wind, and likely visibility before scanning.
- Suggested activity: configure focus, gas-detection mode, sensitivity, framing, angle, distance, and background for a field scenario.
- Suggested activity: follow an equipment scan path, identify a plume, reposition for confirmation, and record video and still evidence.
- Suggested activity: perform comparative review, identify missed-leak risks, issue a repair handoff, and verify closure.

FAQs

Who suits optical gas imaging for hazardous locations training, and what does it assume?

Optical gas imaging for hazardous locations training suits inspection, LDAR, environmental, maintenance, HSE, and supervisory functions. It assumes participants already follow field work controls and can inspect process equipment safely.

How does optical gas imaging differ from infrared thermography condition monitoring?

Optical gas imaging visualizes selected gas plumes through spectral absorption and scene contrast, while condition-monitoring thermography evaluates surface-temperature patterns associated with equipment condition. The camera setup, interpretation logic, evidence, and survey objective are different.

What conditions affect optical gas imaging leak visibility?

Leak visibility depends on gas response, concentration-path, plume motion, temperature contrast with the background, wind, viewing angle, distance, focus, sensitivity mode, stability, and scene interference. Operators improve confidence by changing position and observing plume behavior.

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Can an optical gas imaging camera quantify every detected leak?

Optical gas imaging does not by itself provide a dependable quantity for every visible plume. Quantification requires suitable methods, inputs, equipment, environmental conditions, and quality controls, while turbulent flow and uncertain wind or geometry can limit the result.

How should optical gas imaging evidence support LDAR repair confirmation?

OGI evidence should connect equipment identity, location, leak indication, scan conditions, video or still records, tag, repair handoff, and post-repair confirmation. Comparative review and supervisor checks help identify missed components, weak evidence, and incomplete closure.

Conclusion

Participants take back an OGI Survey and Evidence File linking camera readiness, field conditions, scan paths, leak indications, records, repairs, and quality checks. The file changes isolated images into a traceable survey record. It supports repeatable inspections, evidence review, repair handoff, closure confirmation, and operator improvement.

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