Aerial Lidar Methane Detection


NAVY
NK

ALPIS

Airborne Lidar Pipeline Inspection System

- Differential Absorption Laser
- 400 readings/sec, recalibrates 1 time per sec
- Operates in the Mid IR region *
- Flown at 300' AGL
- NO NEED to fly through the plume
- Detects small, medium, and large leaks (down to 5 PPM)
- Report provides GPS Coords, UHD imaging, Pipevision video of the route, OQ Report, Calibration Report
- STC for United States and Canada

Traditional Pipeline **Leak Detection Methods**

Highly subject to human error

Human Element = Detection is dependent upon the training, skill and thoroughness of the human for detection

The main advantage that flying has over the other methods is the ability to quickly inspect the system and identify the leaks, which allows operators to classify the leaks by priority so larger or area critical leaks can be addressed first.

While the cost increases with aerial inspections, the time saved and product retained narrows the cost gap significantly.

01

Walk It

Slowest Method – up to 5 miles per day, Accessibility Issues, Fatigue Issues, Safety Issues, human element in detection

02

Drive It

Up to 15 miles per day, Accessibility Issues, vehicle based technologies require the gas plume to enter the sensor, not practical for pipeline inspections

03

Fly It – Visual Only

Fastest Method – up to 400 miles per day, can only detect very large leaks that have visual indicators, very inaccurate, human element in detection

04

Fly It – With Sensor

Fastest Method – up to 400 miles per day, stand-off active detection, no human element, no accessibility issues, faster identification saving time and lost product

Other Airborne Technology

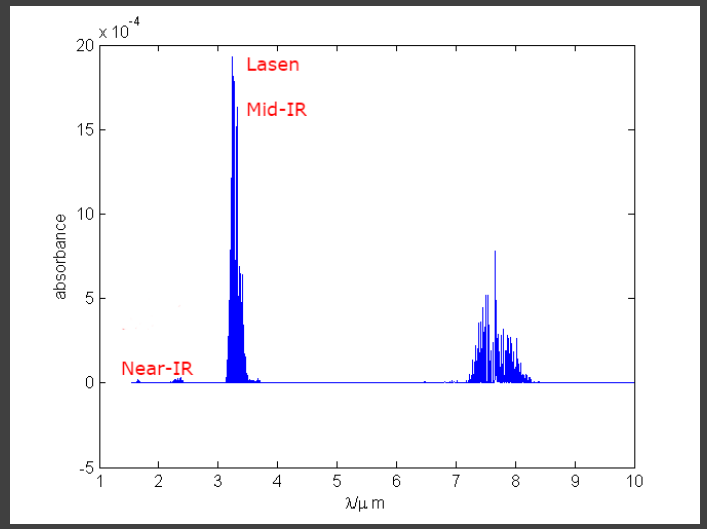
Must fly through the methane Plume

OR

Operate in the Near IR and can only detect large leaks

Near IR vs **Mid IR**

The major weakness of the NIR region is that the absorption bands occurring there are the overtones of the fundamental bands residing in the mid-IR region. As a result, they are relatively weak and not clearly delineated.



Methane Absorption Spectrum

LaSen ALPIS

ALPIS Technology sponsored by DOT and PHMSA

- Funded by DOT/PHMSA/USAFRL Contract, R&D 100 Award Winner (Oscars of R&D)

Multi-Service Provider

- Leak Detection, Visual Patrol, High-Def Video, Ortho-Mosaic Imagery, 3D/Lidar Mapping

Operates in the Mid IR

- 200X more sensitive than technology in the Near IR.
- Detection capability down to 5 ppm-m
- Large 1,600 sq ft laser footprint

Weather Independent

- Not affected by lack of sunlight or windy days

Experience

- In business since 1989. Over 400,000 miles inspected, pilots and techs are full-time employees, ZERO safety incidents

Coming Attractions for 2020

Newest version of ALPIS:

- **Upgraded UHD Imaging and Video**
- **3D/Lidar Mapping**
- **Quantification of Leaks Down to 10 SCFH**

AND……Top Gun 2 !

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