Leak Detection Methods, Technologies, and Gaps

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AGA
American Gas Association

Heath
Your Safety Our Commitment

The American Gas Association, founded in 1918, represents more than 200 local energy companies that deliver clean natural gas to 180 million Americans throughout the United States.

Nearly 187 million Americans and 5.8 million businesses use natural gas because it is **affordable, reliable, safe and essential** to improving our environment.

www.aga.org

About Heath

- Formed in 1933 – 90 years in business
- Natural gas leak detection technologies manufacturer/distributor and field service provider
- More than 1,800 employees across the United States
- Global presence through distributor network
- Certified Women's Business Enterprise
- Paul Wehnert – 43 years in the natural gas industry

Heath
Your Safety Our Commitment

certified WBENC WOMEN'S BUSINESS ENTERPRISE

Today We Will Cover

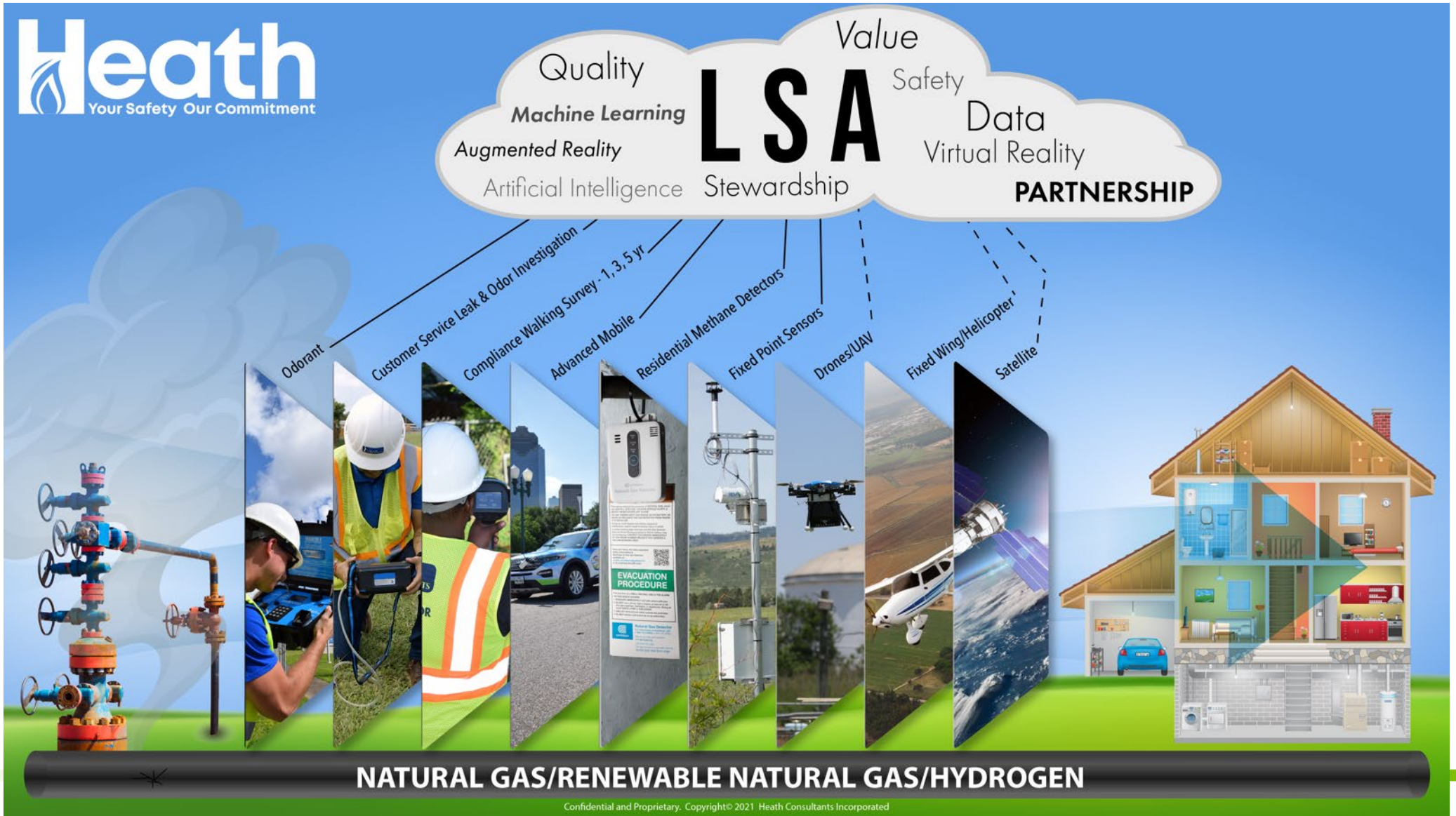
Leak Survey Methods

Emissions Detection Technologies

Current Gaps R&D Can Close

Leak Survey Methods and Emission Detection Technologies

Layered Approach to Leak Survey



Compliance of Heath Products to PHMSA - NPRM

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Your Safety Our Commitment
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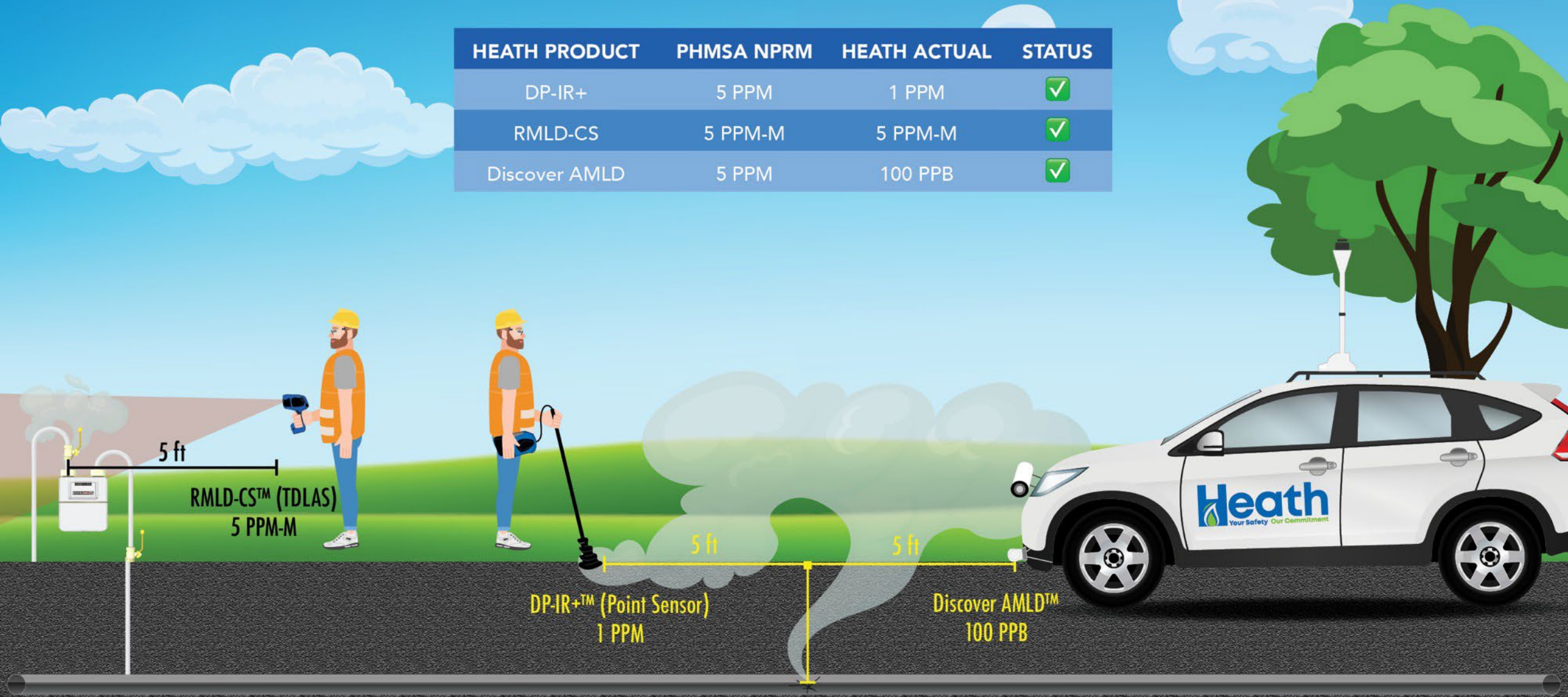
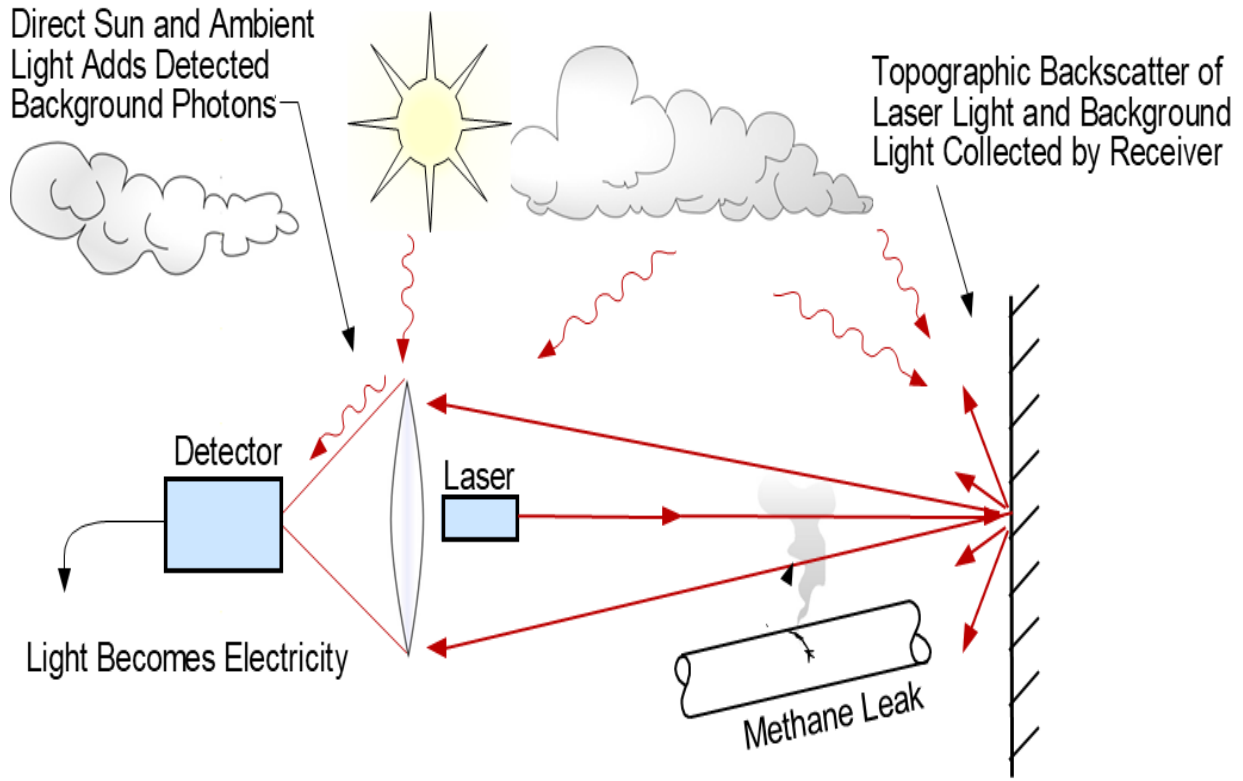
HEATH PRODUCT	PHMSA NPRM	HEATH ACTUAL	STATUS
DP-IR+	5 PPM	1 PPM	✅
RMLD-CS	5 PPM-M	5 PPM-M	✅
Discover AMLD	5 PPM	100 PPB	✅

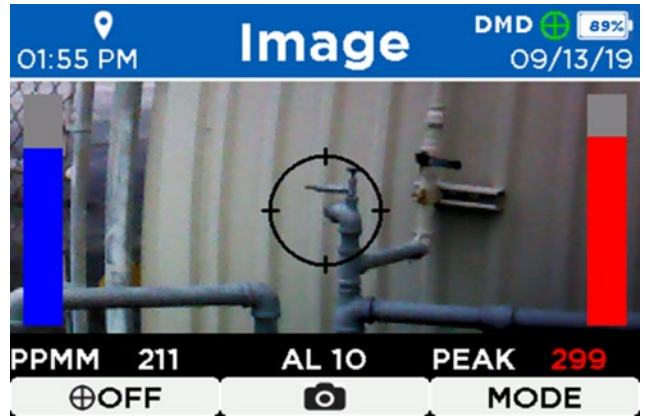


TDLAS – Open Path Technology

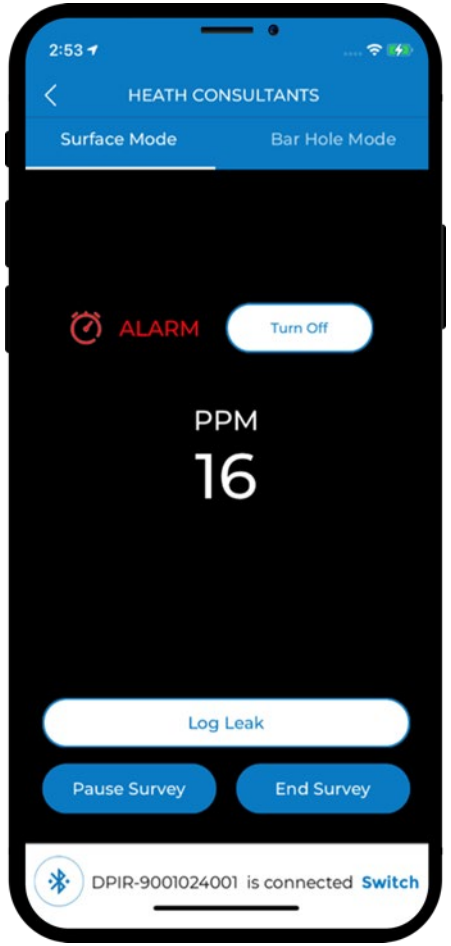
- Technology: (TDLAS) Tunable Diode Laser Absorption Spectroscopy
- As laser passes through the gas plume , the methane absorbs a portion of the light, which the instruments detects.
- In an open path system, a light wave is projected from the transceiver through the open air over a known distance and returned to the transceiver for analysis.
- The results will indicate a total mass of the molecules being monitored – digital reading.

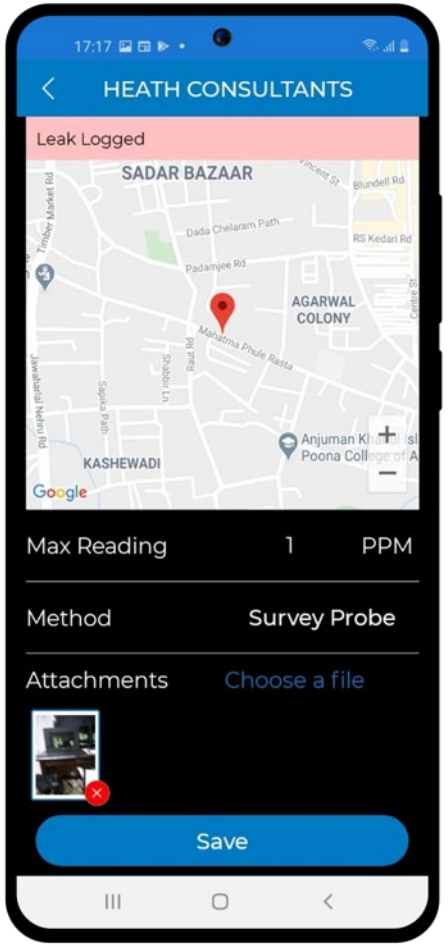


TDLAS – Hydrogen (Ammonia), CO2, CH4



Closed Path Pump Drawn (DP-IR+™)

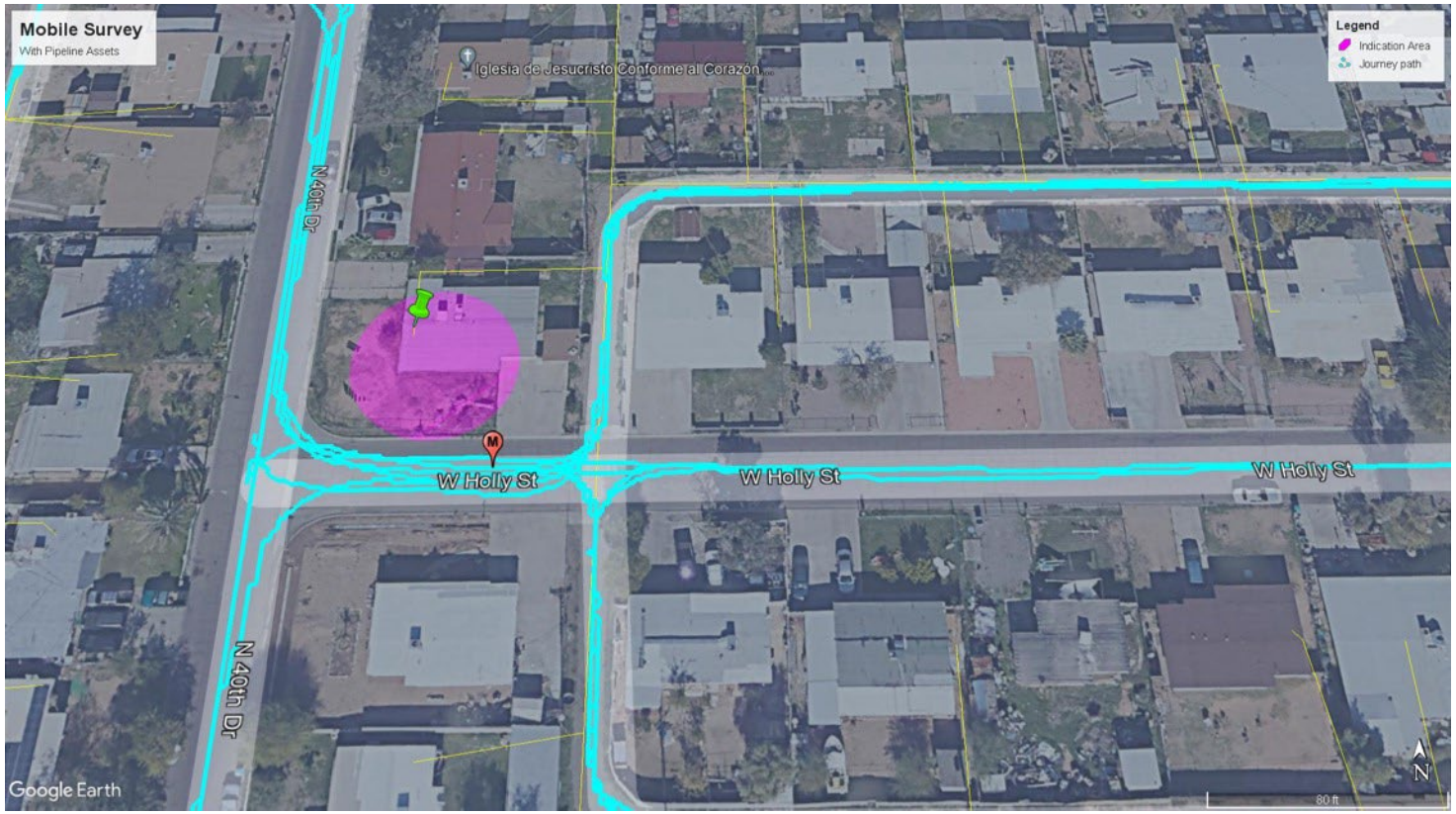





GPS
Anemometer
Detection Unit
DISCOVER
Advanced Mobile Leak Detection
Computer/ Tablet with
Proprietary Software

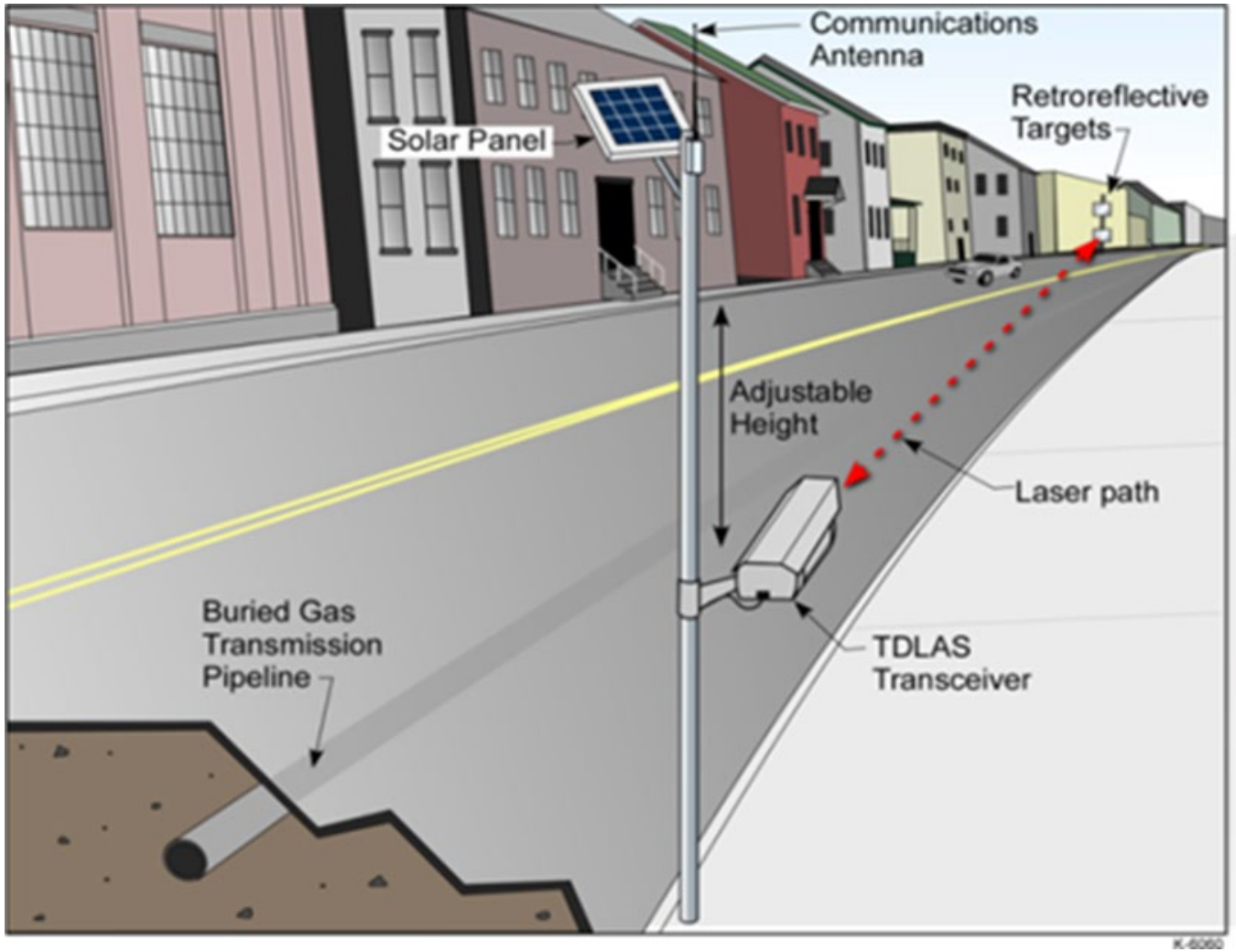
Advanced Mobile Leak Detection

Pipeline Assets

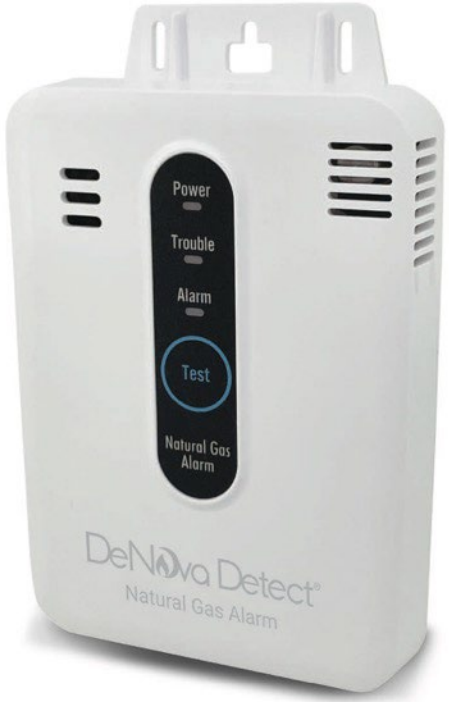


Survey Coverage Area

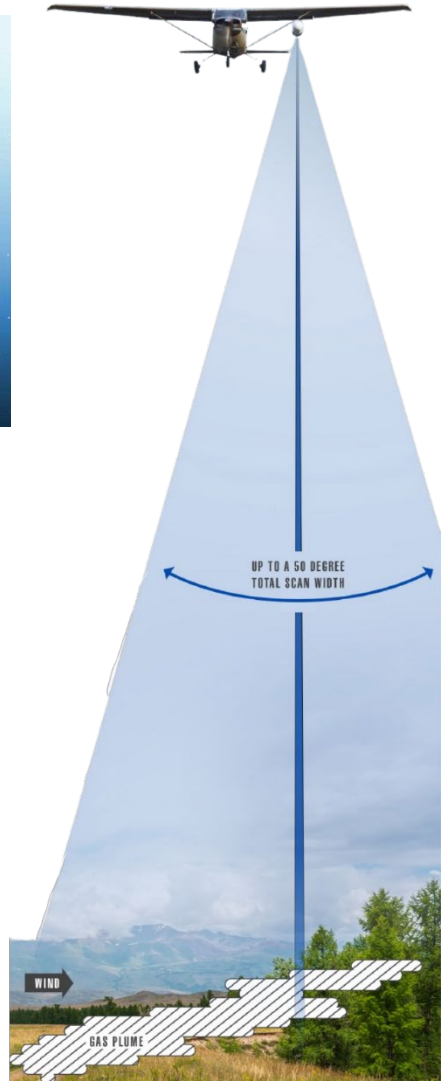
Fixed Path Leak Sensor Technologies



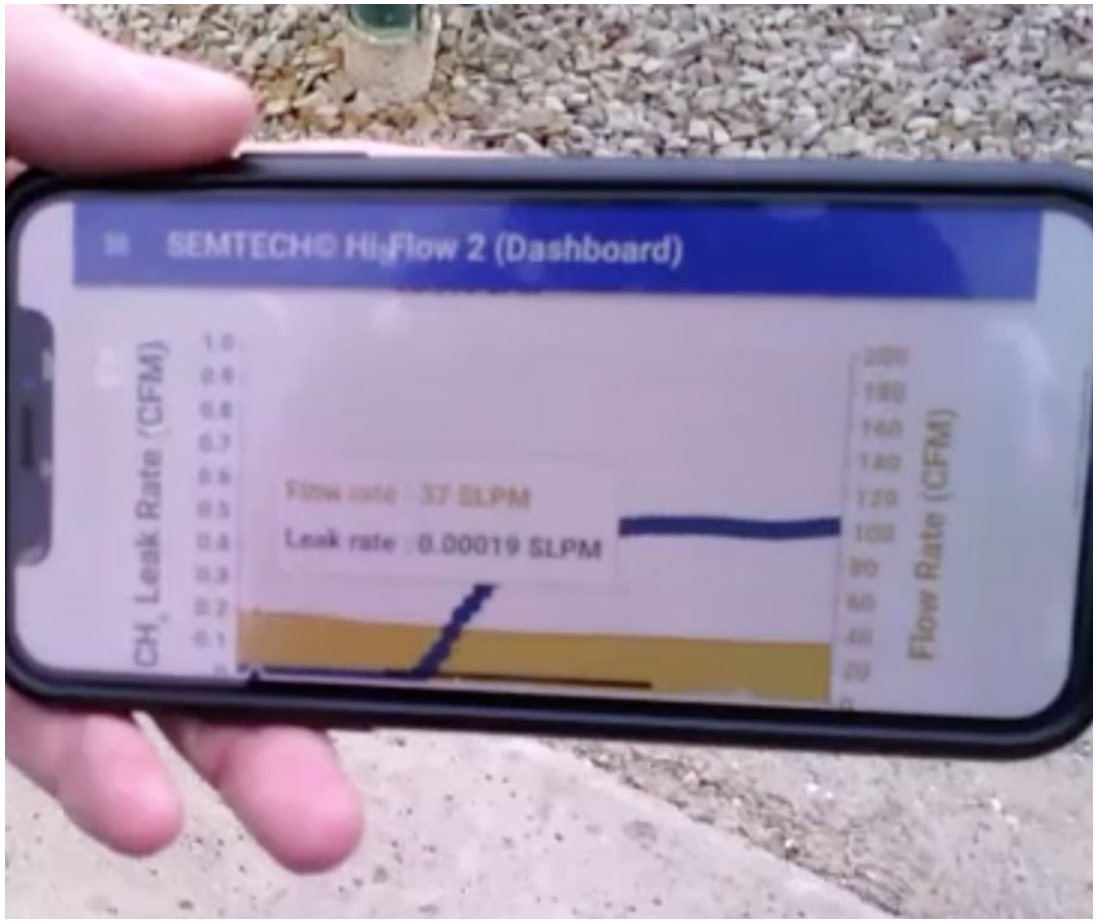
Battery Powered Natural Gas Alarm



Aerial Technologies Top-Down



Leak Quantification Devices



Current Gaps R&D Can Close

R&D Gaps: Leak Survey & Emission Detection Technologies

Technologies to –

- Detect methane concentrations in structures through glass
- Detect a leak in a building, or migrating into a building, that does not rely on AMI (Advanced Metering Infrastructure) to alert the operator of the potential leak
- Pin point a leak after an indication is detected at the surface and prior to excavation (tools and processes that are more accurate and reduce excavation dry holes, time, money and restoration)

R&D Gaps: Leak Survey & Emission Detection Technologies

Technologies to –

- Locate non-metallic assets that do not have tracer wire/tracer wire has been damaged
- Measure the rate of a leak
- Integrated satellite technology that provides leak detection with other needs (ground movement, soil, encroachment, flooding)