



The Remote Methane Leak Detector (RMLD)

It's usage in the aftermath of
Hurricane Katrina



Claude Glen Trahan

Compliance Supervisor

ATMOS Energy

Louisiana Division



RMLD

Remote Methane Leak Detector

Project Team & Funding

- Heath Consultants Physical Sciences Inc. (Developer)
- Inc. (Manufacturer)
- EPA
- NYSEARCH

RMLD Functionality

- ◆ Remotely detects methane up to 100' away
- ◆ Portable, lightweight and rugged
- ◆ As effective as existing leak survey instruments & methods
- ◆ Specific to detect methane gas only
- ◆ Maximum Sensitivity of 5 ppm-m
- ◆ Not intended to be a leak pinpointing or measurement tool (CGI)

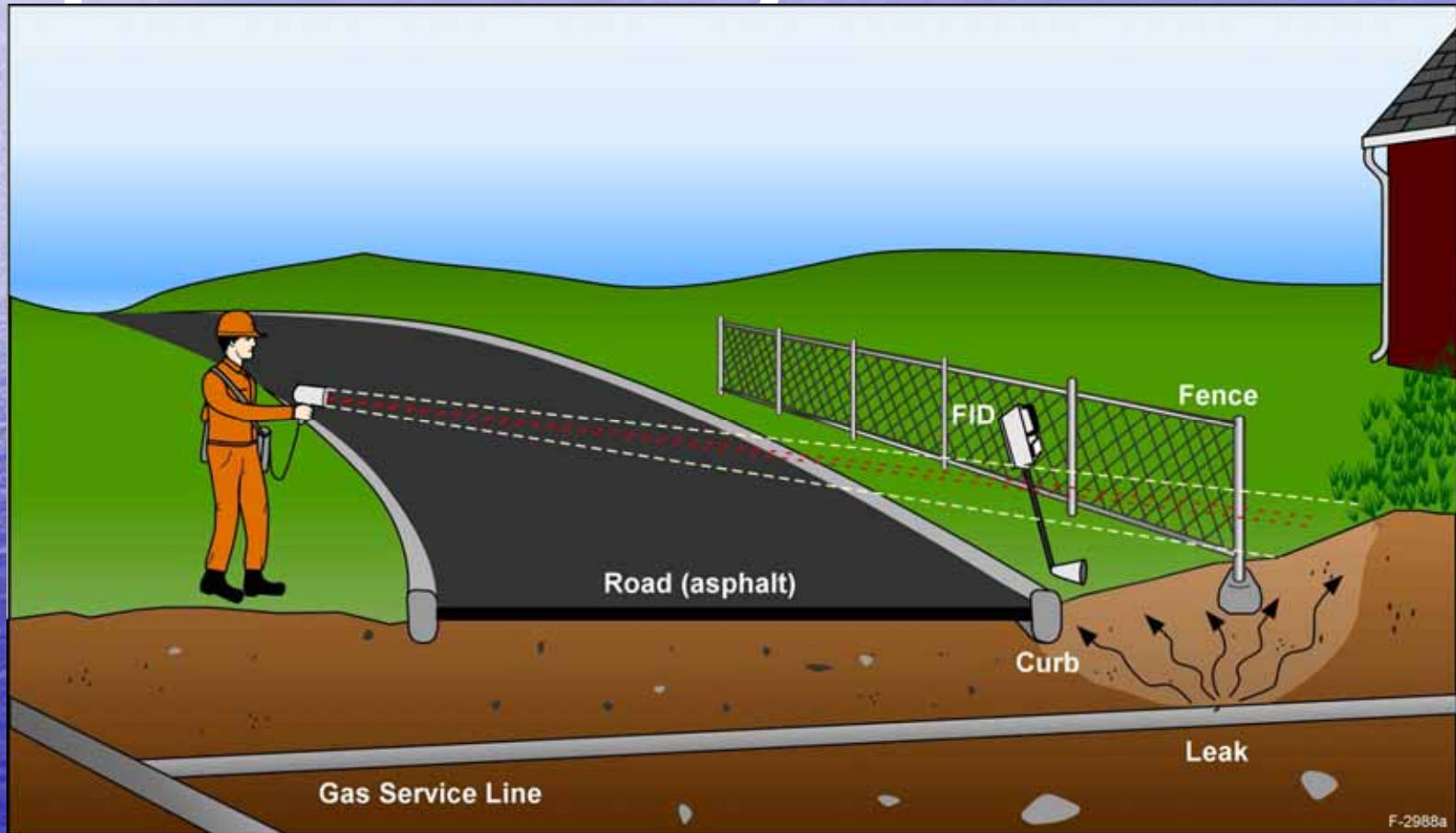
RMLD Benefits

- Perform most surveys without physically walking service lines
- Survey hard to reach areas
 - Backyard mains
 - Over or through fences
 - Pipelines in bridges/overpasses
- Wider area of search due to sweeping of the beam
- Productivity savings 20% to 40% for most utilities
- Able to remotely check inside buildings or confined spaces for presence of methane
- Rapid warm-up
- Built in self test and calibration

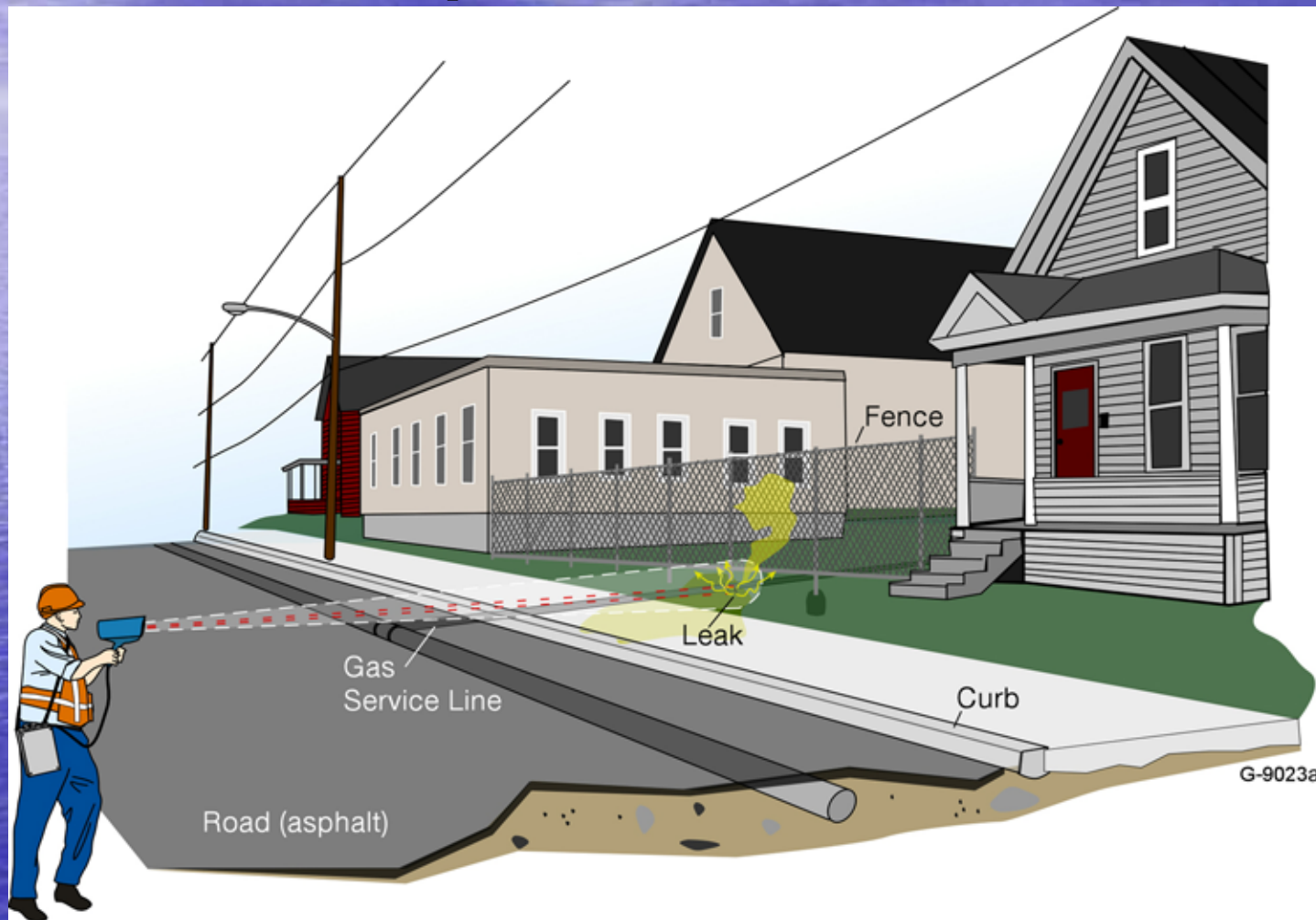
Laser Safety

- Infra-red Detector Laser
 - Class I
 - Always on when instrument is on. This laser is invisible.
- Green Spotter Laser
 - Class IIIa
 - Under the control of the operator
 - Same rating as pointer lasers commonly sold in stores and used for business presentations
 - Safe when handled properly

RMLD Range: Can detect gas up to 100" away.

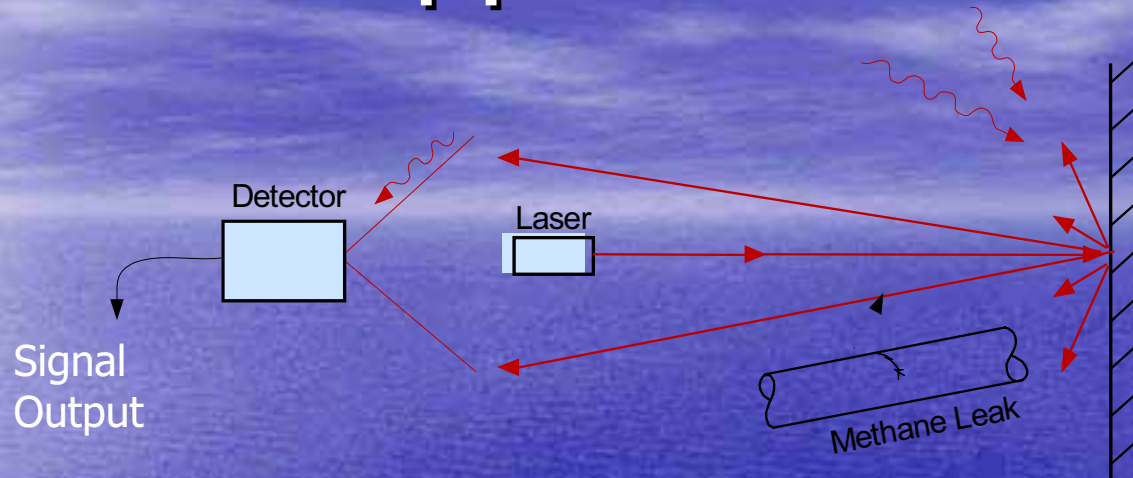


RMLD Safety



Technician does not need to be in the gas plume!

Technical Approach



- Laser light beam is projected on to a surface
- A fraction of the beam is reflected and returned to the transceiver
- Methane in the laser path creates a distinct signal in the returned light
- Returned light is collected and focused onto a detector and converted to an electronic signal
- Methane readings are displayed in ppm-m

RMLD Transceiver & Controller



Transceiver



Control Unit and Harness

Remote survey when access is restricted by fences, dogs or Debris!



August 29, 2005 Hurricane Katrina



Atmos employees accessing damaged areas and facilities.



Typical seen in the effected areas! The amount of debris made it very difficult to survey for leaks using conventional Leakage Detection instruments such as our Flameionization and mobile units.



This is what the area looked like after the streets were cleared for emergency crews. Large piles of debris covered our gas facilities which run parallel to the street.



Slidell, LA – Tidal surge & wind damage.



Slidell, LA



Slidell, LA



Slidell, LA



Metairie, LA - Wind and Flooding from Rainfall.



Metairie, LA



Kenner, LA



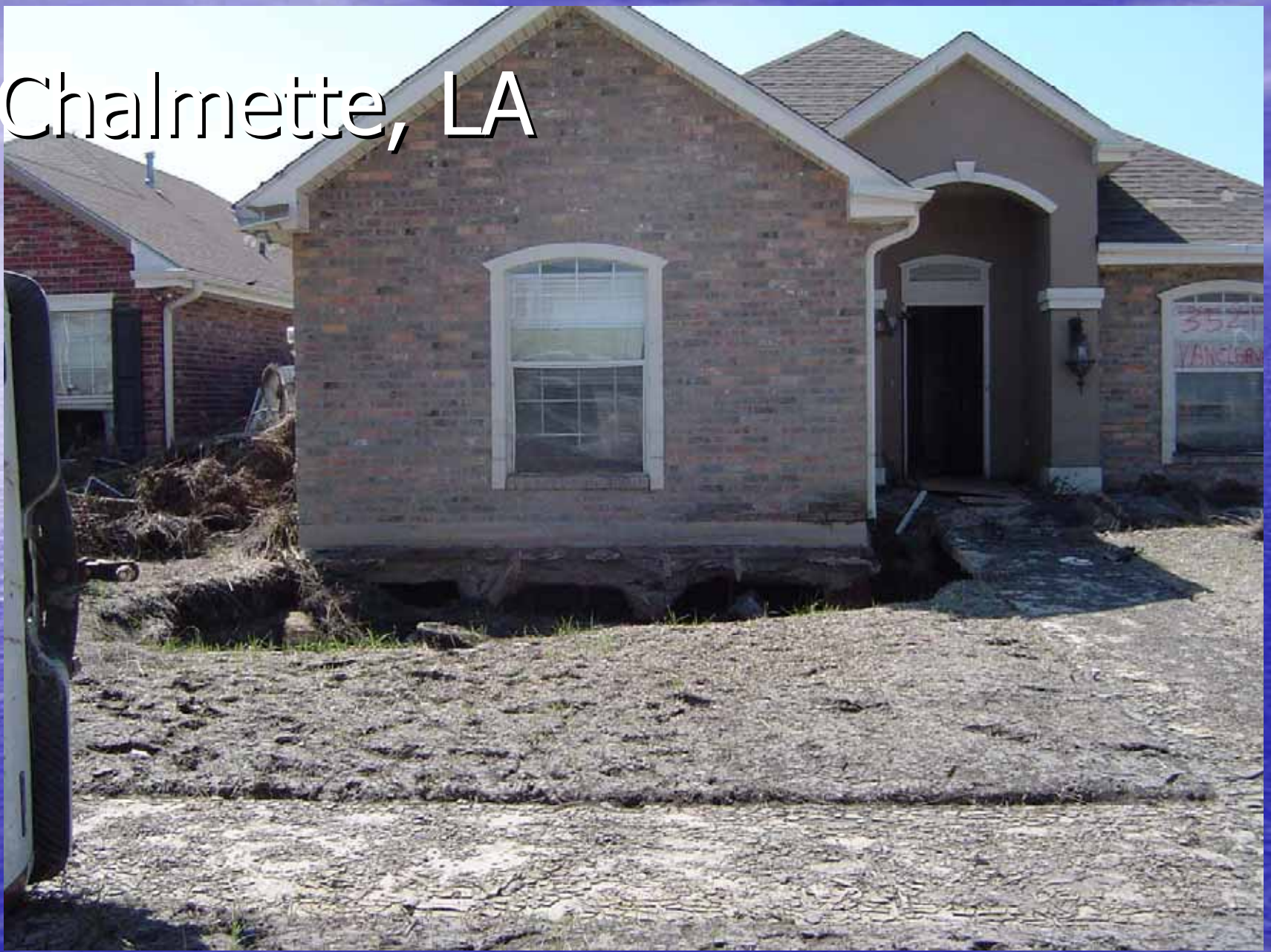
ATMOS Energy Metairie Office



Chalmette, LA – Major Flooding from Levee Topping & Breaches



Chalmette, LA



Chalmette, LA



Chalmette, LA



Port Sulphur, LA – Wind & Flooding measured at 24'



Port Sulphur, LA



Port Sulphur, LA



Port Sulphur, LA



Port Sulphur, LA



New Orleans at 17th Street Canal – Flooding from Levee Breach.



The challenges were many.

- Accounting for all employees.
- Assessing damage to the system.
- Determining what to shut off & what to leave on, (loss of 28,000+ Customers)
- Restoration of damaged areas.
- Manpower & Equipment
- Aiding our neighbors in New Orleans.

How the RMLD made a difference.

- Weeks following Hurricane Katrina & Rita, an ATMOS Leakage technician worked closely with the ENTERGY Gas Division crews checking gas lines ahead of the electric crews to ensure the safe restoration of power in the City of New Orleans.

RMLD as used in New Orleans

- A Senior ATMOS Leakage Technician using the RMLD & a 4 wheel ATV equipped with a mobile FI unit was able to survey effectively at a rate of 2 to1 over the other crew of three technicians, one technician driving a conventional FI mobile unit and 2 additional Technicians walking service lines using handheld FI Units.



RMLD as used in New Orleans

- The areas surveyed were comparable as they were usually neighboring streets of the same age, construction and number of service lines.
- The results of the two survey teams were generally the same as both units turned in on average the same number of leaks per foot of pipe.
- The major difference between the two groups was the total footage Surveyed in the same time frame and manpower required.



The role of the RMLD in the Slidell, LA Restoration.

- During the restoration of Slidell the RMLD was used to detect gas in large debris fields which were inaccessible by conventional FI units.

RMLD in Slidell

- Broken fuel lines and meter installations were detected under debris in areas where landmarks were all but destroyed.
- Gas was detected leaking from an attic vent in a house where a meter was not readily found as it was buried under storm debris.

St. Bernard Restoration

- The gas to all of our St. Bernard and lower Plaquemines areas were turned off due to the large extent of damage. Approximately 28,000 customers in all.

Role of the RMLD in St. Bernard

- As sections of the St. Bernard system were restored problem areas were surveyed to ensure the systems stability.
- The RMLD was used as it could survey a wider path in less time than conventional FI units.
- Debris was again a large problem in these areas.

After the Storm.

- Since Katrina we have received request from other ATMOS Divisions for survey help using the RMLD. Twice we were put on standby to respond after devastating Tornados touched down in Missouri and Kansas but were not needed as they had the systems secured.

Today and in the near future.

- We presently have two RMLD Units in service in Southern Louisiana. We plan to add approximately 4 more units in Louisiana this year.
- To date we are realizing a conservative 20% increase in productivity with the RMLD over conventional FI units..



Questions & Answers