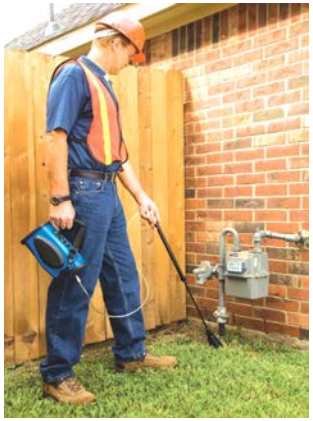
SENATE BILL 1371
R. 15-01-008 WORKSHOP

April 6, 2015

By Deanna Haines
Director Gas Engineering

Technologies to Find Leaks

- Gas is Odorized for detection by Public
  - Helps Minimize Duration of Large Leaks



- Ground-based
  - Detecto-Pak Infrared (DP-IR)
    - DP-IR is an Infrared Optical-based methane detection instrument used for walking surveys. Sample is drawn in and measures methane concentration in PPM.

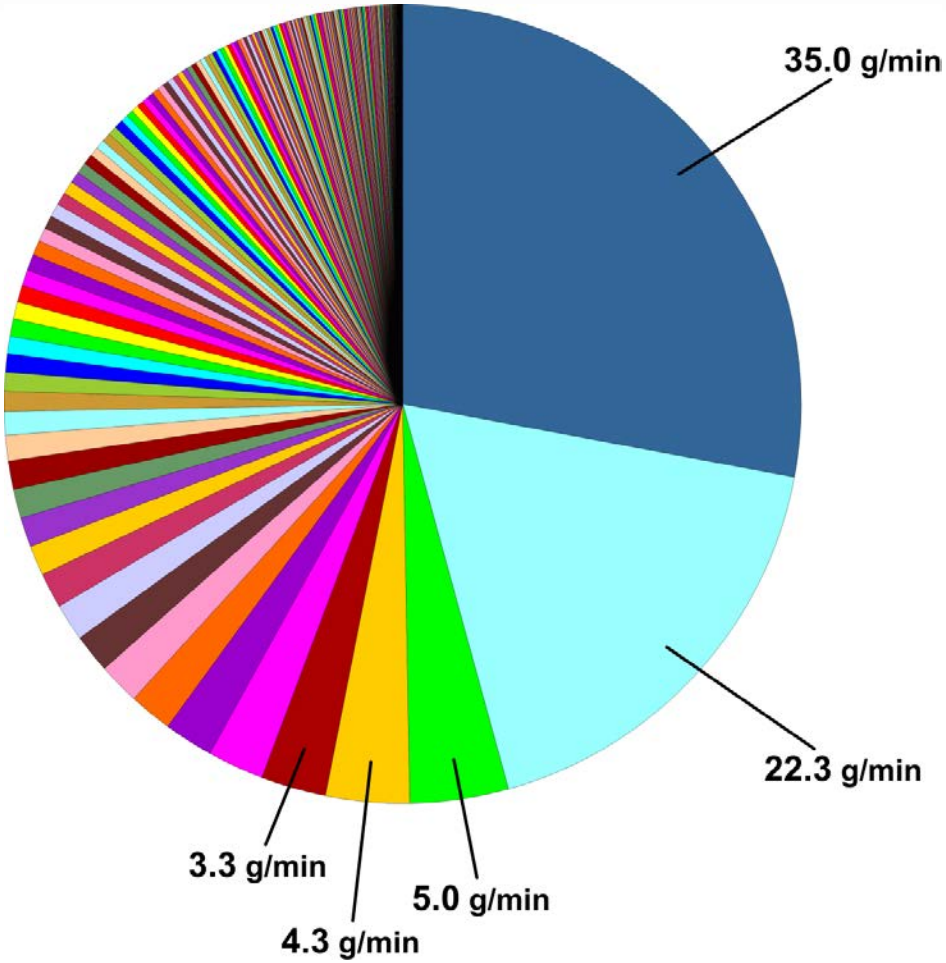
Technologies to Find Leaks

- Remote Methane Leak Detector (RMLD)
  - RMLD is an Infrared Laser-based “line-of-sight” methane detection instrument used to survey inaccessible locations

- Mobile-based
  - Optical Methane Detector (OMD)
    - OMD mounted in front of vehicle that travels over the gas main. IR beam transmitted across to a receiver and measures methane gas crossing the beam in measured in PPM.

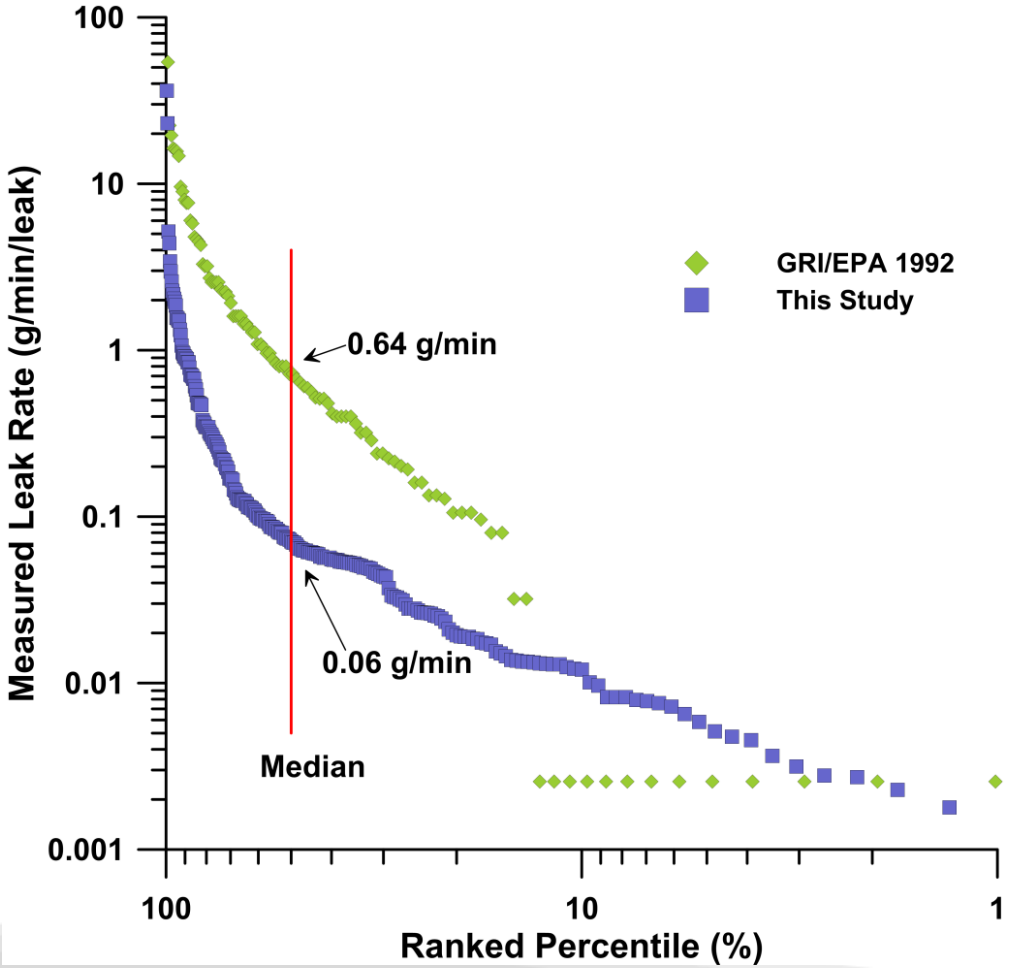
Technologies to Quantify the Amount of Methane from Individual Leaks

Quantification from Leaks Can be Derived for Total Population Based on Sampling Studies



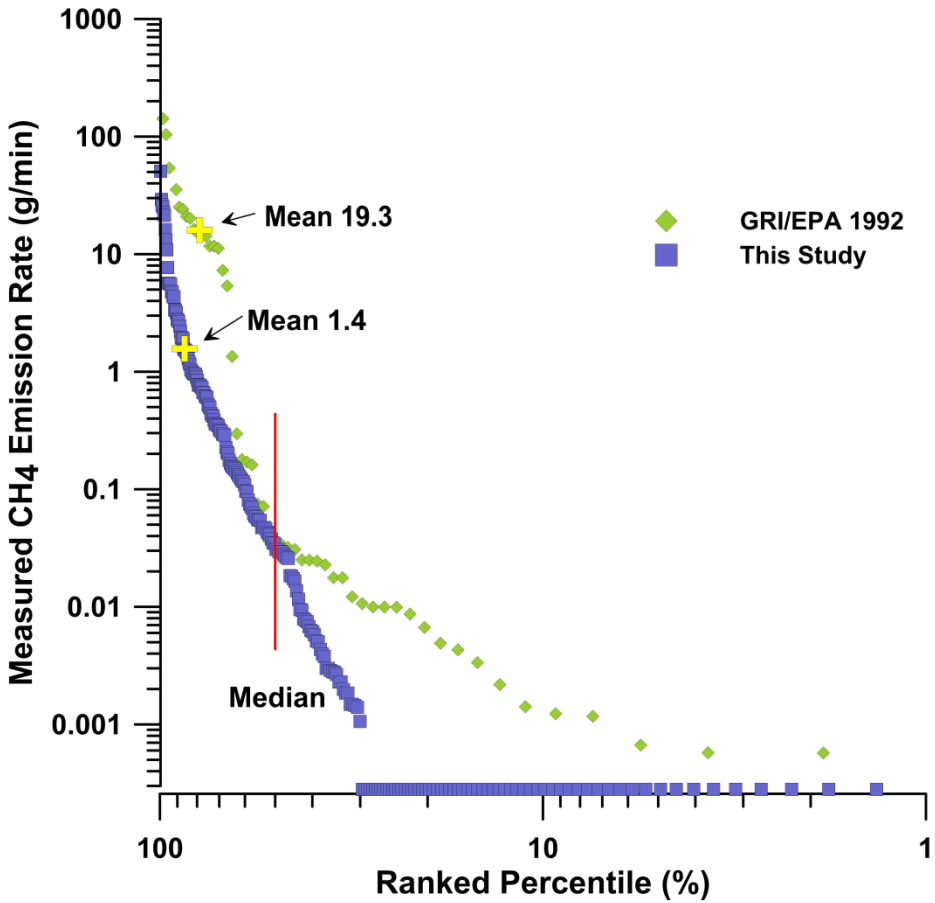
- Largest three leaks account for 50% of total emissions from measured leaks
- Median is much less than the mean
- Calculated emission factors (EF) and 95% upper confidence limits were based on statistical treatment of skewed distributions

Studies Demonstrate Reduction in Pipeline Leak Rates Over Time



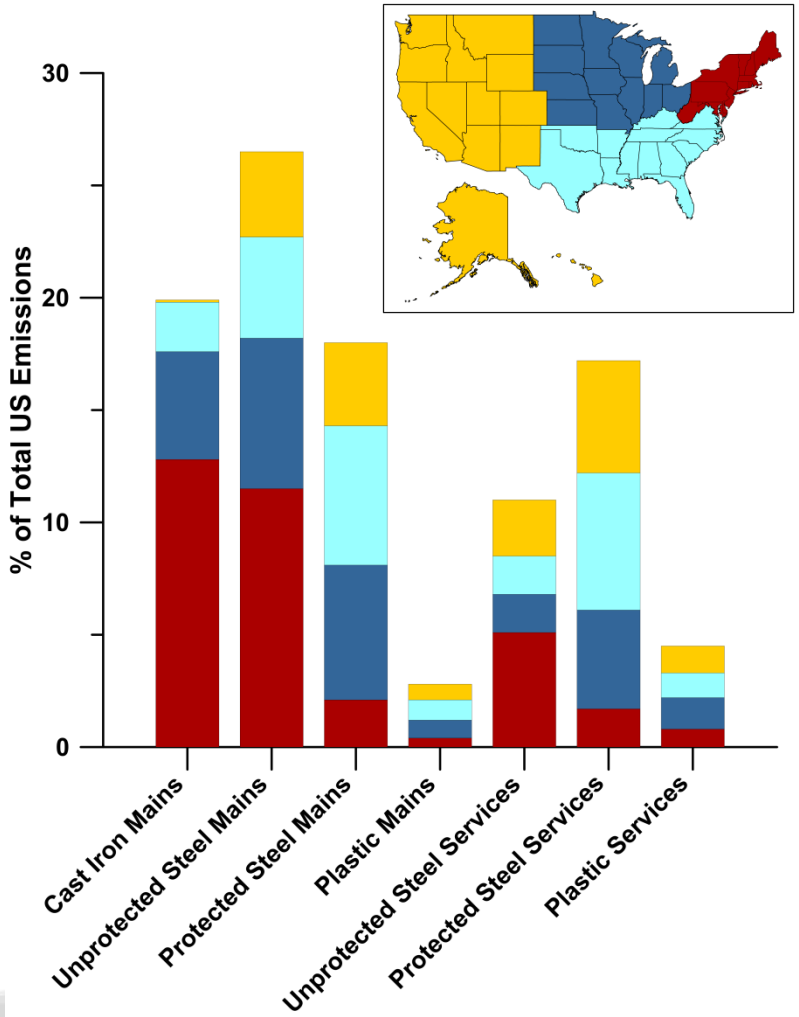
- Twice as many leaks measured
- Similar maximum leak rates > 32 g/min
- Factor of 10 less for the median leak rate
- Completely different methods compared to the 1992 study
- GRI/EPA used pipe isolation/pressurization method
- GRI/EPA sampled pipelines scheduled for replacement
- GRI/EPA used empirical estimates of soil oxidation

Studies Demonstrate Reduction in Pipeline Leak Rates Over Time from M&R Facilities



- Emissions at higher emission sites were much higher from the 1992 GRI/EPA study compared to our study
- Median values are quite similar in both studies
- Overall new emission factors are 4 to 13 times smaller than from the 1992 GRI/EPA study

Emissions Derivation Can be Adjusted for Regional Variation



- The eastern region accounts for 35% of the total U.S. methane from pipeline leaks
- The western region contributes 17% of the total US emissions.
- Leaks from cast iron and unprotected steel pipeline mains account for 70% of the eastern emissions and almost half of total U.S. emissions.
- Plastic and protected steel account for 92% of US pipeline mains by mileage, but leaks from these pipelines contribute approximately 20% of total US emissions
- Services account for 33% of US emissions

Technology to Quantify the System Leak Rates

1. Report Due May 15, 2015
2. Summary of Data for Intentional Releases and Unintentional Leaks
3. Prevention is Key
   - Replace Pipes with a Greater Likelihood of Leakage
   - Design Systems for Reduced Emissions
   - Damage Prevention
4. Future Workshops for Metrics
5. Avoid Duplication of Existing Environmental Reporting
6. Vet Technologies and BMPs- One Size Does not Fit All Operators