Emissions Measurement and Mitigation

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UH Energy Symposium
Mitigating Natural Gas Flaring

gti®

TOP WORK PLACES 2020
Chicago Tribune

FOR A BETTER ECONOMY AND A BETTER ENVIRONMENT

SUPPLY ▶ CONVERSION ▶ DELIVERY ▶ UTILIZATION

75-year History of Turning Raw Technology into Practical Energy Solutions

RESEARCH & DEVELOPMENT

PROGRAM MANAGEMENT

TECHNICAL/ ANALYTICAL

CONSULTING

TRAINING

COMMERCIALIZATION

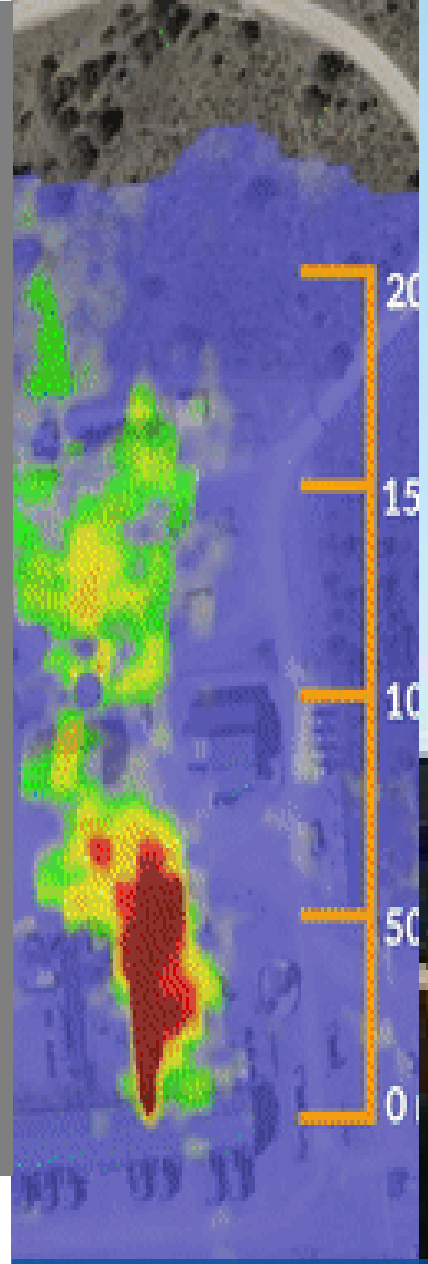
400+ EMPLOYEES

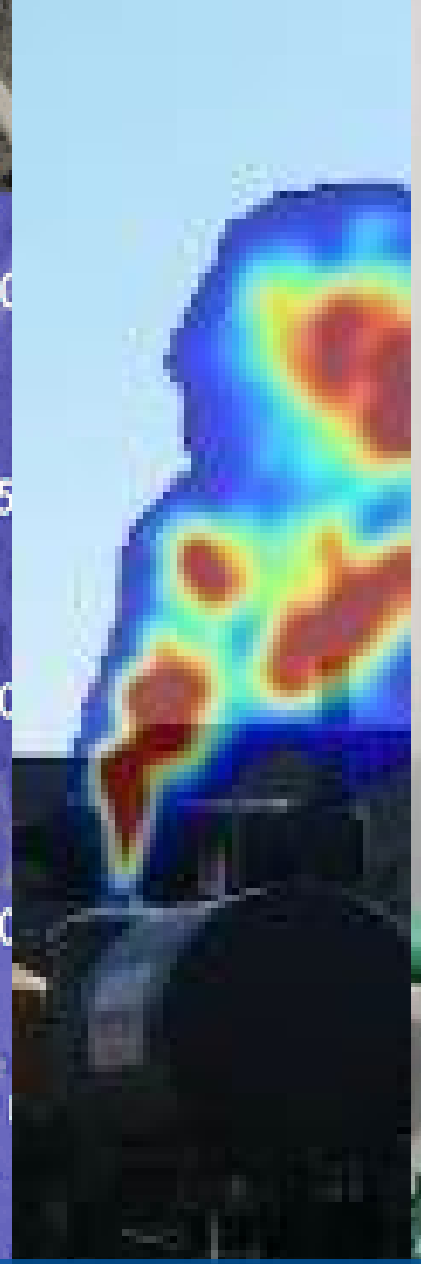
World-class piloting facilities headquartered in Chicago area

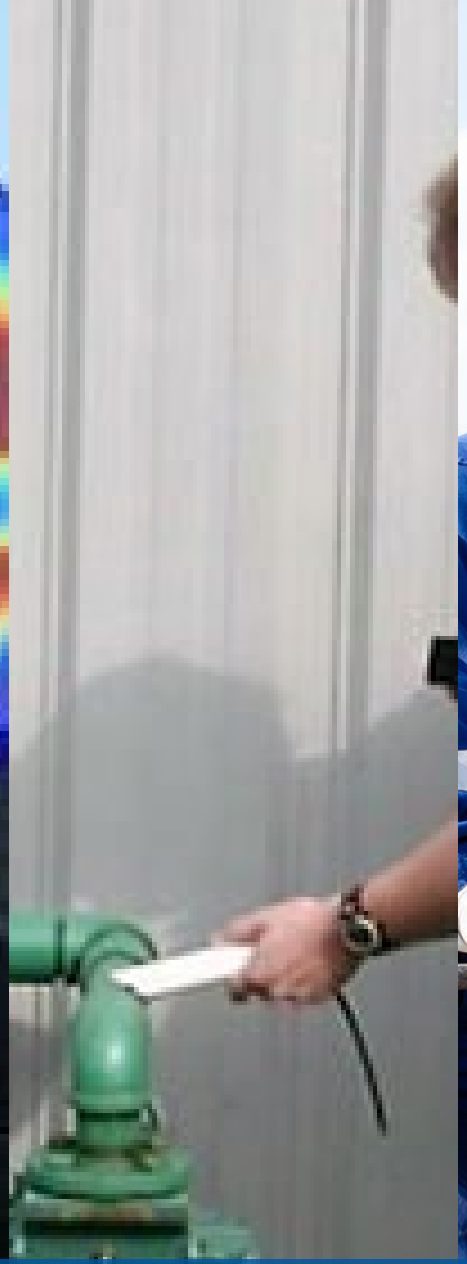
Emissions Landscape – Production
In addition to Flares:

- Tanks
  - Some designed to vent or breathe – but breathe more than supposed to
  - Unsealed hatches or malfunctioning vapor recovery units
- Pneumatic devices
  - Designed to vent (open and close) but get stuck open or
  - Vent more due to overload of liquids in separators
- Wells
  - During liquids unloading and other maintenance activities
- Compressors
  - Leak around seals, some designed to vent
- Other Fugitive emissions
  - Yard piping and components

5 ways to get at Emissions







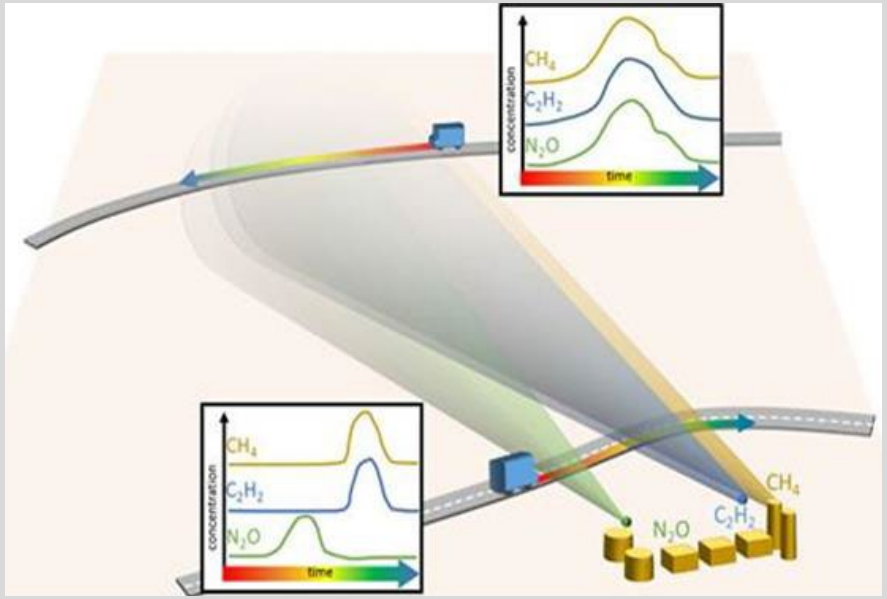
Detection | Localization | Quantification | Mitigation | Abatement

Detection and Localization

Types of Sampling Dependent on Goals

- If goal is to determine emissions at specific sites, then sample for long periods of time

- If goal is to determine average emissions from many sites, then sample large number of sites for short periods of time



Mitigation vs. Abatement - Flares

Mitigation – Fix so flares work

- Lighting when Needed
- Combustion Efficiency – should be 98%

Abatement – Retrofit to capture gas

- Infrastructure to Move Gas
- Gas to Power

Thank you!!

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