Emissions Measurement and Mitigation

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UH Energy Symposium
Mitigating Natural Gas Flaring
75-year History of Turning Raw Technology into Practical Energy Solutions

FOR A BETTER ECONOMY AND A BETTER ENVIRONMENT

SUPPLY  CONVERSION  DELIVERY  UTILIZATION

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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