U.S. Environmental Protection Agency
Natural Gas STAR Program

IQR for STAR

Presented by
Brian E. Boyer
COMM Engineering
brian@commengineering.com
IQR is a systematic approach for implementing a program to:

- **Identify Emission Sources**
- **Quantify Emission Sources**
- **Reduce Emissions**
Identify

★ People to obtain buy-in for implementation (management, operations, engineering)
★ Identify facilities to target
★ Identify emission sources and processes to target
Identify People

★ Determine key people needed to make project successful

★ Determine strategy for obtaining buy-in:
  - Recognition - awards, competition, cost reduction
  - Certainty - economic payout, sustainable development, environmental benefit
  - Variety of ways to get a reduction
  - Connection to a team achieving a goal - T-Shirts, caps
  - Contribution to the greater good
Identify Facilities

★ Identify and rank facilities based on throughputs of crude oil/condensate and natural gas
★ Rank facilities - highest to lowest production
★ Target largest throughputs
★ Consider who you are dealing with - adjust strategy to the individual and/or group
Identify Emission Sources

- Identify emission sources to target - review STAR BMPs in the online Lessons Learned, PROs and Case Studies
- Target low hanging fruit and sources that meet
Quantify Emissions

- Estimate methane vented from each targeted sources using available methods
- Rank sources highest to lowest potential for methane emissions
Estimation Methods

- Direct measurement - flowrate, gas analysis
- American Petroleum Institute - E&P TANK, AMINECalc, Fugitive Emissions
- GTI GRI-GLYCalc
- STAR Program online documents
- Manufacturer’s data
Top 5 PROs for the Production sector

★ Vapor recovery units - tanks, flash gas
★ Plunger lifts
★ Flares - tanks, flash gas
★ Electric pumps
★ Instrument air systems
Gulf of Mexico - Production Opportunities

- Vapor recovery units and flare - tanks, flash gas
- Glycol dehydration units - TEG circ rate, flash tanks, still column vent controls
- Instrument air systems for pneumatics
- Facility depressurizing
- Compressor seals
Top 5 PROs for the Transmission and Distribution sectors

★ Use fixed/portable compressors for pipeline pumpdown
★ Replace wet gas seals with dry seals
★ Install vapor/fuel recovery systems
★ Use composite wrap for pipeline repair
★ Redesign blowdown/alter ESD practices
Top 5 PROs for the Gathering and Processing sector

- Eliminate unnecessary equipment
- Re-route glycol skimmer gas
- Vapor recovery units
- Modify shutdown logic of compressors
- Replace gas pumps with electric pumps
Reduce Emissions

- Implement strategy for each facility and/or emission source type
- Document reductions
- Quarterly review and adjust implementation strategy. Be flexible.
- Report emission reduction activities online on an annual or more frequent basis
Contact Natural Gas STAR staff

★ Roger Fernandez, Program Manager
  EPA
  (202) 343-9386
  fernandez.roger@epa.gov

★ Kevin Tingley, Program Manager
  EPA
  (202) 343-9086
  tingley.kevin@epa.gov

All technical documents, on-line tools and other resources are available on the Natural Gas STAR Program Web site: www.epa.gov/gasstar