

# Annual Report 2015



## Gathering and Processing Sector

### Company Information

Company Name: \_\_\_\_\_

Contact: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip Code: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

### Annual Report Summary

- BMP 1: Convert gas pneumatics to instrument air systems
- BMP 2: Install flash tank separators on glycol dehydrators
- BMP 3: Directed inspection and maintenance at gas plants and booster stations
- Partner Reported Opportunities (*please specify*):

\_\_\_\_\_  
\_\_\_\_\_

Period covered by report: From: \_\_\_\_\_ To: \_\_\_\_\_

**Partner Signature Required:**

*I hereby certify the accuracy of the data contained in this report.* \_\_\_\_\_

*Date*

■ Because the implementation of some technologies reduces emissions for multiple years, Natural Gas STAR allows certain activities to count towards a company's emission reductions beyond the initial year of implementation. Natural Gas STAR designates the maximum length of time that these reductions may accrue as "sunset dates." The Appendix lists these sunset dates. Companies can report the corresponding methane emission reductions each year up to the allowable sunset date. Or, companies may wish to report reductions only once for the implementation year, and have EPA automatically apply the sunset date and count those emissions for the allowable number of years.

■ In addition to reporting methane emissions reductions, you are welcome to include other information about your company's participation in Natural Gas STAR in the "Additional Program Accomplishments" section of this form. The Natural Gas STAR Program will use any information entered in this section to recognize the efforts and accomplishments of outstanding partners.



## BMP 1: Convert Gas Pneumatics to Instrument Air Systems

### Summary of Emission Reduction Activities

*Please include aggregate information in this section for all locations. If multiple facilities/locations are represented, additional detail by specific facility/location can be provided in the table below.*

**A. Facility/location identifier information:**

*(If only one location note here, otherwise use table below.)* \_\_\_\_\_

**B. Project summary:**

Number of instrument air systems installed: \_\_\_\_\_ systems

Total number of high-bleed devices in systems converted to instrument air, if known: \_\_\_\_\_ devices

Total number of low-bleed devices in systems converted to instrument air, if known: \_\_\_\_\_ devices

Percentage of facilities using instrument air: \_\_\_\_\_ %

**C. Cost summary:**

Estimated cost of converting to instrument air (including equipment and labor): \$ \_\_\_\_\_ /replacement

**D. Methane emissions reduction:** \_\_\_\_\_ Mcf

**E. Are these emissions reductions a one-year reduction or a multi-year reduction?**  One-year  Multi-year

**If Multi-year:**

Partner will report this activity once and let EPA automatically calculate future emission reductions based on sunset date duration (BMP 1 has a sunset period of 10 years).

Partner will report this activity annually up to allowed sunset date.

**Please identify the basis for the emissions reduction estimate, using the space provided to show any calculations**

Direct measurement  
*Total volume of gas used per year prior to converting to instrument air: \_\_\_\_\_*

Other (please specify): \_\_\_\_\_

Standard calculation  
*Methane emissions reduction = [Average high-bleed device annual emissions (Mcf/yr)\* x Number of high-bleed devices converted to instrument air] + [Average low-bleed device annual emissions (Mcf/yr)\* x Number of low-bleed devices converted to instrument air]*

*\*If annual emissions are not known, use default values of 138 Mcf/yr for high-bleed device emissions and 14 Mcf/yr for low-bleed device emissions*

*Please specify your data source:*

- Field measurement
- Manufacturer specifications

**F. Total value of gas saved:** \$ \_\_\_\_\_

*Total value of gas saved = Methane emissions reduction (in Mcf) x Gas value (in \$/Mcf) [If not known, use default of \$3.50/Mcf]*

**G. How many instrument air replacements are planned for next year?** \_\_\_\_\_ installations



**Optional: Additional details by location**

Facility/Location identifier Information	# Instrument Air Systems Installed	Total Cost of Installation (incl. equipment and labor) (\$)	Estimated Reductions (Mcf/yr)	Value of Gas Saved (\$)

**BMP 1 Comments:** *Please use the back of the page for additional space if needed.*



## BMP 2: Install Flash Tank Separators on Glycol Dehydrators

### Summary of Emission Reduction Activities

*Please include aggregate information in this section for all locations. If multiple facilities/locations are represented, additional detail by specific facility/location can be provided in the table below.*

**A. Facility/location identifier information:**

*(If only one location note here, otherwise use table below.)* \_\_\_\_\_

**B. Project summary:**

Number of flash tank separators installed: \_\_\_\_\_ separators

Percent of dehydrators in system equipped with flash tank separators: \_\_\_\_\_ %

**C. Cost summary:**

Estimated cost per flash tank separator installation (including equipment and labor): \$ \_\_\_\_\_ /installation

**D. Methane emissions reduction:** \_\_\_\_\_ Mcf

**E. Are these emissions reductions a one-year reduction or a multi-year reduction?**  One-year  Multi-year

**If Multi-year:**

Partner will report this activity once and let EPA automatically calculate future emission reductions based on sunset date duration (BMP 2 has a sunset period of 10 years).

Partner will report this activity annually up to allowed sunset date.

**Please identify the basis for the emissions reduction estimate, using the space provided to show any calculations**

Standard calculation

*Methane emissions reduction per flash tank installation = [TEG circulation rate (in gal/hr) x Methane entrainment rate (in scf/gal)\* x hours of operation (in hrs/yr) x 0.90] / 1,000*

*\*If methane entrainment rate is not known, use a default value of 3 scf/gal for energy exchange pumps or 1 scf/gal for electric pumps*

*Please specify your data source:*

- Field measurement
- Manufacturer specifications

Calculation using default

*Methane emissions reduction = [Average gas throughput (in MMcf/yr) x 170 scf/MMcf x 0.90] / 1,000*

Other (please specify):

**F. Total value of gas saved:** \$ \_\_\_\_\_

*Total value of gas saved = Methane emissions reduction (in Mcf) x Gas value (in \$/Mcf) [If not known, use default of \$3.50/Mcf]*

**G. How many flash tank separators do you plan to install next year?** \_\_\_\_\_ flash tank separators

**Optional: Additional details by location**

Facility/Location identifier Information	# Flash Tank Separators Installed	Total Cost of Installation (incl. equipment and labor) (\$)	Estimated Reductions (Mcf/yr)	Value of Gas Saved (\$)

**BMP 2 Comments:** *Please use the back of the page for additional space if needed.*



## BMP 3: Directed Inspection and Maintenance at Gas Plants and Booster Stations

### Summary of Emission Reduction Activities

*Please include aggregate information in this section for all locations. If multiple facilities/locations are represented, additional detail by specific facility/location can be provided in the table below.*

**A. Facility/location identifier information:**

*(If only one location note here, otherwise use table below.)* \_\_\_\_\_

**B. Project summary:**

Number of surveys conducted at this facility for reporting period \_\_\_\_\_ surveys      Total number of leaks repaired: \_\_\_\_\_ leaks repaired

Total number of leaks found: \_\_\_\_\_ leaks found

**C. Cost summary:**

Total cost of surveys conducted: \$ \_\_\_\_\_      Total cost of leak repairs: \$ \_\_\_\_\_

**D. Methane emissions reduction:** \_\_\_\_\_ Mcf

*\*BMP 3 must be reported on an annual basis according to actual survey activity.*

***Please identify the basis for the emissions reduction estimate, using the space provided to show any calculations***

Actual field measurement

Other *(please specify):*

**E. Total value of gas saved:** \$ \_\_\_\_\_

*Total value of gas saved = Methane emissions reduction (in Mcf) x Gas value (in \$/Mcf) [If not known, use default of \$3.50/Mcf]*

**F. Do you plan to survey this facility/location next year?** \_\_\_\_\_ (Yes/No)

**Optional: Additional details by location**

Facility/Location identifier Information	Total Cost of Surveys (\$)	Total Cost of Repairs (\$)	Estimated Reductions (Mcf/yr)	Value of Gas Saved (\$)

**BMP 3 Comments:** *Please use the back of the page for additional space if needed.*



## Partner Reported Opportunities (PROs)

*For more details on PROs, visit [epa.gov/gasstar/tools/recommended.html](http://epa.gov/gasstar/tools/recommended.html)*

### Summary of Emission Reduction Activities

*Please include aggregate information in this section for all locations. If multiple facilities/locations are represented, additional detail by specific facility/location can be provided in the table below.*

**A. Facility/location identifier information:**

*(If only one location note here, otherwise use table below.)* \_\_\_\_\_

**B. Project description: Please provide a separate PRO reporting form for each activity reported. If reporting a DI&M activity, please use a separate page for each location/facility surveyed.**

Please specify the technology or practice that was implemented (choose from the list in the appendix or describe your own):

Please describe how your company implemented this activity:

**C. Level of implementation** *(check one):*

- Number of units installed: \_\_\_\_\_ units  
 Frequency of practice: \_\_\_\_\_ times/year

**D. Are emissions reductions a one-year reduction or a multi-year reduction?**  One-year  Multi-year

**If Multi-year:**

- Partner will report this activity once and let EPA automatically calculate future emission reductions based on sunset date duration\*.  
 Partner will report this activity annually up to allowed sunset date.

**E. Methane emissions reduction:** \_\_\_\_\_ Mcf

**F. Cost summary:** Estimated cost of implementing this practice/activity (including equipment and labor): \$ \_\_\_\_\_

**Please identify the basis for the emissions reduction estimate, using the space provided to show any calculations**

- Actual field measurement  Other *(please specify):*  
 Calculation using manufacturer specifications/other source

**G. Total value of gas saved:** \$ \_\_\_\_\_

*Total value of gas saved = Methane emissions reduction (in Mcf) x Gas value (in \$/Mcf) [If not known, use default of \$3.50/Mcf]*

**H. To what extent do you expect to implement this practice next year?**

**Optional: Additional details by location**

Facility/Location identifier Information	Frequency of Practice/Activity/# of Installations	Total Cost of Practice/Activity (incl. equipment and labor) (\$)	Estimated Reductions (Mcf/yr)	Value of Gas Saved (\$)

**PRO Comments:** *Please use the back of the page for additional space if needed.*

\*Because the implementation of some technologies reduces emissions for multiple years, Natural Gas STAR allows certain activities to count towards a company's emission reductions beyond the initial year of implementation. Natural Gas STAR designates the maximum length of time that these reductions may accrue as "sunset dates." The Appendix lists these sunset dates. Companies can report the corresponding methane emission reductions each year up to the allowable sunset date. Or, companies may wish to report reductions only once for the implementation year, and have EPA automatically apply the sunset date and count those emissions for the allowable number of years.



## Additional Program Accomplishments

The Natural Gas STAR Program will use any information entered here to recognize the efforts and achievements of outstanding partners.

Please include any additional information you would like to share about your company's participation in Natural Gas STAR. Examples may include:

- Activities to strengthen your program (e.g., training/education, innovative technologies or activities, pilot projects, employee incentive programs).
- Efforts to communicate your participation and successes (e.g., internal newsletters, press releases, company website).
- Participation in Natural Gas STAR program activities (e.g., contributions to case studies, presentation at annual workshop).

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**Additional Accomplishments:**

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**Additional Accomplishments Comments:** *Please use the back of the page for additional space if needed.*





## Appendix

### Methane Emission Reduction Technologies & Practices— Gathering and Processing Sector

The list below describes a variety of methane emission reduction technologies that Natural Gas STAR partners in the gathering and processing sector have implemented and reported to Natural Gas STAR. You may use this list as a guide when completing your annual report. **Sunset dates (i.e., the length of time a technology or practice can continue to accrue emission reductions after implemented) are one year in duration unless otherwise noted in parentheses.** An asterisk (\*) indicates that a technical document related to the technology or practice is available online at [epa.gov/gasstar/tools/recommended.html](http://epa.gov/gasstar/tools/recommended.html).

#### Compressors/Engines

- Eliminate unnecessary equipment and/or systems\*
- Install automated air/fuel ratio controls (10 years)\*
- Install electric compressors (10 years)\*
- Install electric motor starters (10 years)\*
- Redesign blowdown/alter ESD practices\*
- Reduce emissions when taking compressors offline\*
- Replace compressor rod packing systems\*
- Replace gas starters with air or nitrogen (10 years)\*

#### Dehydrators

- Convert pneumatics to mechanical controls (10 years)\*
- Install condensers on glycol dehydrators (10 years)
- Install flash tank separators on glycol dehydrators (10 years)\*
- Reduce glycol circulation rates in dehydrators\*
- Replace glycol dehydration units with methanol injection (10 years)\*
- Reroute dehydrator/tank vents to flare or station suction (10 years)\*
- Reroute glycol skimmer gas\*

#### Directed Inspection and Maintenance

- DI&M: aerial leak detection using laser and/or infrared technology\*
- DI&M at compressor stations\*
- DI&M at gas plants and booster stations\*
- DI&M: inspect/repair compressor station blowdown valves\*
- DI&M: leak detection using IR camera/optical imaging\*
- DI&M: leak detection using ultrasound\*
- Improve measurement systems to track gas loss

#### Pipelines

- Pipeline replacement and repair
- Recover gas from pipeline pigging operations\*
- Revise pigging schedule to reduce methane emissions
- Use composite wrap repair\*
- Use hot taps for in-service pipeline connections\*

- Use inert gases and pigs to perform pipeline purges\*
- Use of improved protective coating at pipeline canal crossings (10 years)
- Use pipeline pump-down techniques to lower gas line pressure before maintenance\*

#### Pneumatics/Controls

- Capture and use waste heat to reduce gas usage and emissions
- Convert gas pneumatic controls to instrument air systems (10 years)\*
- Install back-up power at booster sites to prevent venting (10 years)
- Install no bleed controllers (10 years)
- Use add-on controls to reduce emissions from pneumatics (10 years)

#### Tanks

- Direct liquids at compressor suction to pipeline (10 years)
- Install hydrocarbon liquid stabilizer (10 years)
- Install pressurized storage of condensate (10 years)\*
- Install vapor recovery units (VRUs) on storage tanks (10 years)\*
- Install VRUs on pipeline liquid/condensate tanks (10 years)
- Reduce excess blanket gas blow-by to the atmosphere
- Reduce vapors vented out of drip tanks
- Route inlet flash vapors to station suction (10 years)

#### Valves

- Convert gas operated valves to hydraulic operation (10 years)
- Heat tracing to prevent control valves from freezing open
- Rupture pin shutoff device to reduce venting (10 years)
- Test and repair pressure safety valves\*
- Test gate station pressure relief valves with nitrogen



## Appendix (Continued)

### Other

- Convert natural gas-fired generator to solar power (10 years)
- Nitrogen rejection unit optimization\*
- Process/re-route acid gas to reduce venting
- Install flares (10 years)\*

### ***Mailing Information:***

#### Standard Mail:

*The Natural Gas STAR Program  
U.S. EPA (6207J)  
1200 Pennsylvania Ave, NW  
Washington, DC 20460  
U.S.A.*

#### Express/Overnight Mail:

*The Natural Gas STAR Program  
U.S. EPA (6207J)  
1310 L Street, NW  
Washington, DC 20005  
U.S.A.*

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