

# Annual Report 2007



## Production Sector

### Company Information

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

Gas STAR Contact: \_\_\_\_\_

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

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

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

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

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

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

Business Units/  
Locations Reporting: \_\_\_\_\_

### Annual Report Summary

*Please mark the activities your company executed and submit a report page for each facility/location it was implemented*

- BMP 1: Identify and replace high-bleed pneumatic devices
- BMP 2: Install flash tank separators on glycol dehydrators
- Partner Reported Opportunities (*please specify*):

\_\_\_\_\_

\_\_\_\_\_

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

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

- Gas STAR allows certain technologies/practices to count towards a company's emission reductions beyond the year they were initially implemented. For example, a technology implemented in 2007 can accrue emission reductions in future years. Gas STAR designates the length of time that these reductions accrue as "sunset dates." The Appendix lists these sunset dates. Companies can choose to allow EPA to apply the sunset dates or choose to report each technology/practice on an annual basis (i.e. not using sunset dates).
- 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.



# Production Sector Annual Report

OMB Control No. 2060-0328  
Approval Expires 3/31/2008

## BMP 1: Identify and Replace High-Bleed Pneumatic Devices

### Current Year Activities

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

(Note: Each facility requires its own reporting form) \_\_\_\_\_

**B. Facility summary:**

Number of devices replaced: \_\_\_\_\_ devices

Percent of system now equipped with low/no-bleed units: \_\_\_\_\_ %

**C. Cost summary:**

Estimated cost per replacement (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 7 years).

Partner will report this activity annually.

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

Standard calculation

*Methane emissions reduction = [Annual emissions from high-bleed devices being replaced (in Mcf/yr) - Annual emissions for the replacement devices (in Mcf/yr)] x Number of devices replaced*

*Please specify your data source:*

- Field measurement
- Manufacturer specifications

Calculation using default

*Methane emissions reduction = 124 Mcf/yr x Number of devices replaced*

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 \$7.00/Mcf]*

**G. How many high-bleed devices do you plan to replace next year?** \_\_\_\_\_ devices

### Previous Years' Activities

*Use the table below to report any past activities implemented, but not previously reported to the Natural Gas STAR Program*

Year	# Devices Replaced	Total Cost of Replacements (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.



# Production Sector Annual Report

OMB Control No. 2060-0328  
Approval Expires 3/31/2008

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

### Current Year Activities

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

*(Note: Each facility requires its own reporting form)* \_\_\_\_\_

**B. Facility 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.

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

Standard calculation

Calculation using default

*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*

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

*Please specify your data source:*

- Field measurement
- Manufacturer specifications

*\*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*

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 \$7.00/Mcf]*

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

### Previous Years' Activities

*Use the table below to report any past activities implemented, but not previously reported to the Natural Gas STAR Program*

Year	# 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.



# Production Sector Annual Report

OMB Control No. 2060-0328  
Approval Expires 3/31/2008

## Partner Reported Opportunities (PROs) (For more details on PROs, visit [epa.gov/gasstar/techprac.htm](http://epa.gov/gasstar/techprac.htm))

### Current Year Activities

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

(Note: Each facility requires its own reporting form) \_\_\_\_\_

**B. Activity description: Please provide a separate PRO reporting form for each activity and facility reported**

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

**E. 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.

**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 \$7.00/Mcf]

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

### Previous Years' Activities

*Use the table below to report any past implementation of this PRO, but not previously reported to Natural Gas STAR*

Year	Frequency of Practice/Activity or # 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.

\* Gas STAR allows certain technologies/practices to count towards a company's emission reductions beyond the year they were initially implemented. For example, a technology implemented in 2007 can accrue emission reductions in future years. Gas STAR designates the length of time that these reductions accrue as "sunset dates." The Appendix lists these sunset dates. Companies can choose to allow EPA to apply the sunset dates or choose to report each technology/practice on an annual basis (i.e. not using sunset dates).



## Production Sector Annual Report

OMB Control No. 2060-0328  
Approval Expires 3/31/2008

### 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 Web site).
- Participation in Natural Gas STAR program activities (e.g., contributions to case studies, presentation at annual workshop).

---

Additional Accomplishments:

---

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



# Production Sector Annual Report

OMB Control No. 2060-0328  
Approval Expires 3/31/2008

## Appendix

### Methane Emission Reduction Technologies & Practices— Production Sector

The list below describes a variety of methane emission reduction technologies that Natural Gas STAR partners in the production 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/techprac.htm](http://epa.gov/gasstar/techprac.htm).

#### Compressors/Engines

- Automate systems operation to reduce venting\*
- Automated air/fuel ratio controls (10 years)\*
- Catalytic converter installation (10 years)
- Convert engine starting to nitrogen (10 years)\*
- Convert to low pressure compressor starters (10 years)
- Eliminate unnecessary equipment and/or systems\*
- Increase compression capacity to reduce venting/flaring
- Install electric compressors (10 years)\*
- Install electric motors (10 years)
- Install lean burn compressor (10 years)
- Redesign blowdown systems and alter ESD practices\*
- Reducing emissions when taking compressors off-line\*
- Reducing methane emissions from compressor rod packing systems\*
- Replace gas starters with air (10 years)\*
- Replace ignition - reduce false starts\*
- Turbine fuel use optimization

#### Dehydrators

- Install condensers on glycol dehydrators (10 years)
- Install flares (10 years)\*
- Optimize glycol circulation and install of flash tank separators in dehydrators \*
- Replacing gas-assisted glycol pumps with electric pumps (10 years)\*
- Replacing glycol dehydrators with desiccant dehydrators (10 years)\*
- Reroute glycol skimmer gas\*
- Shutdown glycol dehydrator stripping gas in winter

#### Directed Inspection & Maintenance

- DI&M at compressor stations\*
- DI&M: leak detection using lower emission threshold
- DI&M: survey and repair leaks

#### Pipelines

- Inject blowdown gas into low pressure mains\*
- Pipeline replacement and repair
- Using pipeline pumpdown techniques to lower gas line pressure before maintenance \*

#### Pneumatics/Controls

- Capture/use gas released from gas-operated pneumatic pumps
- Convert gas pneumatic controls to instrument air (10 years)\*
- Convert gas-driven chemical pumps to instrument air (10 years)\*
- Convert pneumatics to mechanical controls (10 years)\*
- Install controllers on gas-assisted methanol pump (10 years)
- Install electronic flare ignition devices (10 years)\*
- Install no bleed controllers (10 years)
- Install non-venting dump controllers (10 years)
- Reduce gas pressure on pneumatic devices

#### Tanks

- Consolidate crude oil production and water storage tanks (10 years)\*
- Convert water tank blanket from natural gas to produced CO<sub>2</sub> gas (10 years)\*
- Install evactors (10 years)
- Install flash gas compressors (10 years)
- Install hydrocarbon liquid stabilizer (10 years)
- Install pressurized storage of condensate (10 years)\*
- Installing VRUs on crude oil storage tanks (10 years)\*
- Protective tank coatings to reduce leaks (10 years)
- Recycle line recovers gas during condensate loading\*
- Reduce excess blanket gas blow-by to the atmosphere

#### Valves

- Install BASO valves (10 years)\*
- Install plugs on valves and open ended lines (10 years)
- Test and repair pressure safety valves\*



## Production Sector Annual Report

OMB Control No. 2060-0328  
Approval Expires 3/31/2008

### *Appendix (cont.)*

#### **Wells**

- Artificial lift: gas lift (10 years)
- Artificial lift: pressure swabbing
- Connect casing to vapor recovery unit *OR* Install compressors to capture casinghead gas (10 years)\*
- Gas well "smart" automation system (10 years)\*
- Gas well unloading time optimization\*
- Green completions\*
- Install automated shut-in cycle units to reduce well venting (10 years)
- Install flash tank separator on water gathering system (10 years)
- Install pumpjacks on low water production gas wells (10 years)\*
- Install pumps for separators (10 years)
- Install soap launcher/soap unit (10 years)
- Install velocity tubing strings (10 years)\*
- Installing plunger lift systems at gas wells (10 years)\*
- Installing plunger lift systems at gas wells (10 years)\*
- Lower heater-treater temperature\*
- Use foaming agents\*

#### **Other**

- Capture and use waste heat to reduce gas usage and emissions
- Flare reduction program
- Install flares (10 years)\*
- Nitrogen rejection unit optimization\*
- Recover gas from separators
- Re-inject gas for enhanced oil recovery
- Re-inject gas into crude

The public reporting and recordkeeping burden for this collection of information is estimated to average 60 hours for each new response and 27 hours for subsequent responses. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.