OMB Control No. 2060-0328 Expires 03/31/2019

Natural Gas STAR Annual Report - Transmission Segment

FORM VERSION: REPORTING SEASON 20XX

| Partner Name | |
|--------------|------|
| | 20XX |

Use the Table of Contents below to navigate to the different tabs of the form. You can use column B to indicate if you reported data on a specific tab.

| Distribution Emission Sources | Data Reported | Information |
|------------------------------------|---------------|---|
| Compressor Engines | | Replace reciprocating engines with turbines |
| Equipment Leaks | | Directed inspection and maintenance at compressor stations |
| Pneumatic Controllers | | Convert high-bleed controllers to low-bleed; convert high-bleed or low-bleed controllers to zero-emitting controllers; remove controllers from service with no replacement |
| Additional Transmission Activities | | Use this tab to report all other methane reductions in the Transmission segment. You will be able to select the technology/practice used from the list of Natural Gas STAR Partner Reported Opportunities. If the activity you are reporting is not included in the list, please contact EPA at GasSTAR@epa.gov |

The public reporting and recordkeeping burden for this collection of information is estimated to average 51 hours for each new response and 25 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.

Compressor Engines

Replace reciprocating engines with turbines

| Start Year | | unes with turbines | End Year | Calculation | |
|------------|--|----------------------------------|-----------|--|---------------------------------|
| Start feat | Eligible Sunset Years for this Activity | Automatically calculate sunsets? | Liid Teal | Method: Default, Standard, or Other | Number of Turbines Installed |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Return to Table of Contents

| | Calculate Using Def | fault |
|---|---|---|
| Horsepower of Turbine Engines Installed (average) | Hours Turbine Engines were Used (average) | Calculated Total Methane Emission Reduction Based on Default Values {[Number of Turbines Installed]x[Horsepower of Turbine Engines Installed]x[Total Hours Turbine Engines were Used]x[0.234 scf/hp/hr / 1000]} |
| | | 0 |
| | | 0 |
| | | 0 |
| | | 0 |
| | | 0 |
| | | 0 |
| | | 0 |
| | | 0 |
| | | 0 |
| | | 0 |
| | | 0 |
| | | |

| r | T | |
|---|---|-----|
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | O |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | U |
| | | |
| | | |
| | | 0 |
| | | O O |
| | | |
| | | |
| | | 0 |
| | | - |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | I | |

| r | T | |
|---|---|-----|
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | O |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | U |
| | | |
| | | |
| | | 0 |
| | | O O |
| | | |
| | | |
| | | 0 |
| | | - |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | I | |

| r | T | |
|---|---|-----|
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | O |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | U |
| | | |
| | | |
| | | 0 |
| | | O O |
| | | |
| | | |
| | | 0 |
| | | - |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | I | |

| r | T | |
|---|---|-----|
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | O |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | U |
| | | |
| | | |
| | | 0 |
| | | O O |
| | | |
| | | |
| | | 0 |
| | | - |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | I | |

| r | T | |
|---|---|-----|
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | O |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | U |
| | | |
| | | |
| | | 0 |
| | | O O |
| | | |
| | | |
| | | 0 |
| | | - |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | 0 |
| | | |
| | | |
| | | 0 |
| | | |
| | | |
| | | |
| | I | |

| 1 | ^ |
|------|-----|
| | 0 |
| | |
| | |
| | 0 |
| | O |
| | |
| | |
| | 0 |
| | O |
| | |
| | |
| | 0 |
| | · · |
| | |
| | |
| | 0 |
| | · · |
| | |
| | |
| | 0 |
| | U |
| | |
| | |
| | 0 |
| | U |
| | |
| | |
| | 0 |
| | 0 |
| | |
| | |
| | |
| | 0 |
| | |
| | |
| | |
| | 0 |
| | |
| | |
| | _ |
| | 0 |
| | |
| | |
| | |
| | 0 |
| | |
| | |
| | _ |
| | 0 |
| | |
| | |
| | |
| | 0 |
| | |
| | |
| | |
| | |

| | | | Calculate Usin | g Standard Calculation |
|--|---|------------------------------------|---------------------------------|--|
| Number of Reciprocated Engines Retired | Emisison Rate of Reciprocated Engines Retired (Mcf CH4/MMcf of fuel used) | of Reciprocated Engines Retired | Number of Turbines Installed | Emisison Rate of Turbines Installed (Mcf CH4/MMcf of fuel used) |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| on | | |
|--|--|---|
| Fuel Consumption of Turbines Installed (MMcf/hr) | Calculated Total Methane Emission Reduction Based on Standard Calculation {([Number of Reciprocated Engines Retired]x[Emissions Rate of Reciprocated Engine Retired]x[Fuel Consumption of Reciprocated Engine Retired])- ([Number of Turbines Installed]x[Emissions Rate of Turbines Installed]x[Fuel Consumption of Turbines Installed])} | Total Methane Emission Reduction Based on Other Assumptions (Mcf/yr) |
| | 0 | |
| | 0 | |
| | 0 | |
| | 0 | |
| | 0 | |
| | 0 | |
| | 0 | |
| | 0 | |
| | 0 | |
| | 0 | |
| | 0 | |

| | 0 | |
|--|---|---|
| | • | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | 0 | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | | _ |

| | 0 | |
|--|---|---|
| | • | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | 0 | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | | _ |

| | 0 | |
|--|---|---|
| | • | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | 0 | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | | _ |

| | 0 | |
|--|---|---|
| | • | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | 0 | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | | _ |

| | 0 | |
|--|---|---|
| | • | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | 0 | |
| | 0 | |
| | | |
| | | |
| | | |
| | ^ | |
| | 0 | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | 0 | |
| | U | |
| | | |
| | | |
| | | |
| | | _ |

| 0 | |
|---------------------------------------|--|
| | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| | |
| 0 | |
| ľ | |
| | |
| | |
| | |
| 0 | |
| 0 | |
| | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| | |
| 0 | |
| l | |
| | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| | |
| 0 | |
| _ | |
| | |
| | |
| | |
| 0 | |
| · · · · · · · · · · · · · · · · · · · | |
| | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| | |
| 0 | |
| _ | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| | |
| 0 | |
| l | |
| | |
| | |
| | |
| l . | |

| Other Calculation |
|------------------------------------|
| Explain Reduction Calculation Used |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |

| | _ |
|---------|---|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| <u></u> | |

| | _ |
|---------|---|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| <u></u> | |

| | _ |
|---------|---|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| <u></u> | |

| | _ |
|---------|---|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| <u></u> | |

| | _ |
|---------|---|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| <u></u> | |

| |
|------|
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |

| Dravide additional comments or detail about how your company | | | | | | |
|---|--|--|--|--|--|--|
| Provide additional comments or detail about how your company implemented this BMP | | | | | | |
| ' | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Equipment Leaks

Directed inspection and maintenance at compressor stations

| Year | Total | Total | Total | Calculation | |
|------|-----------------------------------|--------------------------|--------------------------------|--------------------------------|---|
| | Number of Surveys Conducted | Number of Leaks Found | Number of Leaks Repaired | Method: Default or Other | Total Number of Facilities at Which Leaks Repaired |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Return to Table of Contents

| Calculate Using Default | |
|--|--|
| Calculated Total Methane Emission Reduction based on default values {[Total Number of Facilities at Which Leaks Repaired]x[12200 Average Annual Leak Rate per Facility at 70% Efficiency]} | Total Methane Emission Reduction Based on Actual Field Measurement or Other Assumptions (Mcf/yr) |
| 0 | |
| 0 | |
| 0 | |
| 0 | |
| 0 | |
| 0 | |
| 0 | |
| 0 | |
| 0 | |
| 0 | |
| 0 | |
| 0 | |
| | |

| 0 | |
|---|--|
| | |
| | |
| - | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| _ | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| | |

| 0 | |
|---|--|
| | |
| | |
| - | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| _ | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| | |

| 0 | |
|---|--|
| | |
| | |
| - | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| _ | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| 0 | |
| 0 | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| | |

| 0 | |
|---|--|
| | |
| | |
| - | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| _ | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| 0 | |
| 0 | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| | |

| 0 | |
|---|--|
| | |
| | |
| - | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| _ | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| | |

| 0 | |
|----------|----------|
| | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| 0 | |
| 0 | |
| | |
| | |
| | |
| 0 | † |
| ' | |
| | |
| | |
| | |
| 0 | <u> </u> |
| 0 | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| | |
| 0 | |
| Ĭ | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| _ | |
| 0 | |
| | |
| | |
| | |
| ^ | |
| 0 | |
| | |
| | |
| | |
| ^ | |
| 0 | |
| | |
| | |
| | |
| | |

| Other Calculation |
|------------------------------------|
| Explain Reduction Calculation Used |
| Explain Reduction Calculation Oscu |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |

| |
|------|
| |
| |
| |
| |
| |
| |
| |
| |

| |
|------|
| |
| |
| |
| |
| |
| |
| |
| |

| |
|------|
| |
| |
| |
| |
| |
| |
| |
| |

| |
|------|
| |
| |
| |
| |
| |
| |
| |
| |

| |
|------|
| |
| |
| |
| |
| |
| |
| |
| |

| Provide additional comments or detail about how your company implemented this BMP | | | |
|---|--|--|--|
| implemented this BMP | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | |
|-------|--|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| · | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Convert high-bleed controllers to low-bleed; convert high-bleed or low-bleed controllers to zero-emitting controlle

| | | | Convert high-bleed to low-bleed | | |
|------------|--------------------|---|--|---------------------------------------|--|
| Start Year | New or Ongoing? | Average Methane Content of Gas (enter as a decimal; leave blank to use default 95% methane) | Average annual operating hours (leave blank to use default 8760 hours) | Number of controllers converted | Calculated Total Methane Emission Reductions (Mcf/yr) |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| | | |
|--|--|------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | |
|--|--|------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | |
|--|--|------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | |
|--|--|------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | |
|--|--|------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

<u>Contents</u>

2rs; remove controllers from service with no replacement

| | | no replacement | | |
|---|--|---|--|--|
| Convert hig | n-bleed to | Convert low-bleed to | | |
| zero-bleed/remo | ive from service | zero-bleed/remove from service | | |
| Number of controllers converted/removed from service | Calculated Total Methane Emission Reductions (Mcf/yr) | Number of controllers converted/removed from service | Calculated Total Methane Emission Reductions (Mcf/yr) | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| Provide additional comments or detail about how your company implemented this BMP | Durvide additional comments or detail shout how your comment | | | |
|---|---|--|--|--|
| | Provide additional comments or detail about now your company implemented this RMP | | | |
| | iniplemented this divir | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| | |
|-----------------|--|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Additional Transmission Activities

| Start Year | Select the Activity | Fligible | Automatically |
|------------|---------------------|-------------------------------|---|
| Start (Cal | Sciect the Activity | Eligible Sunset | Automatically calculate sunsets (if Sunset Years >1)? |
| | | Years for this Activity | (if Sunset Years |
| | | for this | >1)? |
| | | Activity | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Return to Table of Contents

| End Year | Emission Reduction | Basis for Emission Reduction Estimate |
|----------|-----------------------|--|
| | (Mcf/yr) | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| Explain Reduction Calculation Osed | Explain Reduction Calculation Used | |
|------------------------------------|------------------------------------|---|
| | Explain Reduction Calculation Osed | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | _ |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | _ |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| Describe how your company implemented this activity (e.g., number of units installed or other activities conducted) |
|---|
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |

This sheet summarizes values used in calculations in this workbook. If you have questions on any

Equipment Leaks

Default Values

| Average Annual Leak Rate per Facility ¹ | 12,200 | mcf/yr |
|--|--------|--------------------------------|
| Efficiency ² | 0.7 | percent (expressed as decimal) |

Replace Reciprocating Engines with Turbines

Default Values

| Average hourly reduction potential ³ | 0.234 | scf/hp/hr |
|---|-------|-------------|
| Average nounty reduction potential | 0.207 | oci/iip/iii |

Reciprocating compressor exhaust methane emission factor is 0.24 scf/HP-hour. Turbine compressor drivers emission factor is 0.0057 scf/HP-hour. The difference is 0.234 scf/HP-hour.

Pneumatic Controllers

Emission Factors Source: 40 CFR 98, Table W-3B

| Low Continuous Bleed Pneumatic Device Ver | 1.37 | scf whole gas / hr / device |
|---|------|-----------------------------|
| High Continuous Bleed Pneumatic Device Ve | 18.2 | scf whole gas / hr / device |

Default Values

| Operating hours | 8760 Assumes 24/7 operation all year |
|--------------------------------|--------------------------------------|
| Methane content of natural gas | 95% Source: 40 CFR 98.233(u)(2)(iii) |

¹ Derived from EPA Report to Congress, 1993.

² Derived from "Cost Effective Leak Mitigation at Natural Gas Transmission Compressor Stations," sponsored

³ Derived from "Methane Emissions from the Natural Gas Industry," Volume 6, Vented and Combustion Sou

| of the values used, please contact EPA at GasSTAR@epa.gov |
|---|
| |
| |
| |
| |
| d by the Pipeline Research Committee International (PRCI), EPA and GRI, 1999. Irce Summary, co-sponsored by the Gas Research Institute and EPA, June 1996. |
| |
| |
| |
| |