data for use in emissions determinations. The reporter must record and report the basis for the best available data in these cases.

§ 98.236 Data reporting requirements.

In addition to the information required by § 98.3(c), each annual report must contain reported emissions and related information as specified in this section.

(a) Report annual emissions separately for each of the industry segments listed in paragraphs (a)(1) through (8) of this section in metric tons CO_2e per year at standard conditions. For each segment, report emissions from each source type § 98.232(a) in the aggregate, unless specified otherwise. For example, an onshore natural gas production operation with multiple reciprocating compressors must report emissions from all reciprocating compressors as an aggregate number.

(1) Onshore petroleum and natural gas production.

(2) Offshore petroleum and natural gas production.

(3) Onshore natural gas processing.

(4) Onshore natural gas transmission compression.

(5) Underground natural gas storage.

(6) LNG storage.

(7) LNG import and export.

(8) Natural gas distribution. Report each source in the aggregate for pipelines and for Metering and Regulating (M&R) stations.

(b) Offshore petroleum and natural gas production is not required to report activity data and emissions for each aggregated source under § 98.236(c). Reporting requirements for offshore petroleum and natural gas production is set forth by BOEMRE in compliance with 30 CFR 250.302 through 304.

(c) For each aggregated source, unless otherwise specified, report activity data and emissions (in metric tons CO_2e per year at standard conditions) for each aggregated source type as follows:

(1) For natural gas pneumatic devices (refer to Equation W–1 of § 98.233), report the following:

(i) Actual count and estimated count separately of natural gas pneumatic high bleed devices as applicable.

(ii) Actual count and estimated count separately of natural gas pneumatic low bleed devices as applicable.

(iii) Actual count and estimated count separately of natural gas pneumatic intermittent bleed devices as applicable.

(iv) Report emissions collectively.

(2) For natural gas driven pneumatic pumps (refer to Equation W–2 of § 98.233), report the following,

(i) Count of natural gas driven pneumatic pumps.

(ii) Report emissions collectively.

(3) For each acid gas removal unit (refer to Equation W–3 and Equation W–4 of § 98.233), report the following:

(i) Total throughput off the acid gas removal unit using a meter or engineering estimate based on process knowledge or best available data in million cubic feet per year.

(ii) For Calculation Methodology 1 and Calculation Methodology 2 of § 98.233(d), fraction of CO_2 content in the vent from the acid gas removal unit (refer to § 98.233(d)(6)).

(iii) For Calculation Methodology 3 of § 98.233(d), volume fraction of CO_2 content of natural gas into and out of the acid gas removal unit (refer to § 98.233(d)(7) and (d)(8)).

(iv) Report emissions from the AGR unit recovered and transferred outside the facility.

(v) Report emissions individually.

(4) For dehydrators, report the following:

(i) For each Glycol dehydrator with a throughput greater than or equal to 0.4 MMscfd (refer to § 98.233(e)(1)), report the following:

(A) Glycol dehydrator feed natural gas flow rate in MMscfd, determined by engineering estimate based on best available data.

(B) Glycol dehydrator absorbent circulation pump type.

(C) Whether stripper gas is used in glycol dehydrator.

(D) Whether a flash tank separator is used in glycol dehydrator.

(E) Type of absorbent.

(F) Total time the glycol dehydrator is operating in hours.

(G) Temperature, in degrees Fahrenheit and pressure, in psig, of the wet natural gas.

(H) Concentration of CH_4 and CO_2 in natural gas.

(I) What vent gas controls are used (refer to §98.233(e)(3) and (e)(4)).

(J) Report vent and flared emissions individually.

(ii) For all glycol dehydrators with a throughput less than 0.4 MMscfd (refer to §98.233, Equation W–5 of §98.233), report the following:

(A) Count of glycol dehydrators.

(B) Whether any vent gas controls are used (refer to §98.233(e)(3) and (e)(4)).

(C) Report vent emissions collectively.

(iii) For absorbent desiccant dehydrators (refer to Equation W–6 of §98.233), report the following:

(A) Count of desiccant dehydrators.

(B) Report emissions collectively.

(5) For well venting for liquids unloading (refer to Equations W–7, W–8 and W–9 of §98.233), report the following by field:

(i) Count of wells vented to the atmosphere for liquids unloading.

(ii) Count of plunger lifts.

(iii) Cumulative number of unloadings vented to the atmosphere.

(iv) Average flow rate of the measured well venting in cubic feet per hour (refer to §98.233(f)(1)(i)(A)).

(v) Average casing diameter in inches.

(vi) Report emissions collectively.

(6) For well completions and workovers, report the following for each field:

(i) For gas well completions and workovers with hydraulic fracturing (refer to Equation W–10 of §98.233):

(A) Total count of completions in calendar year.

(B) Average flow rate of the measured well completion venting in cubic feet per hour (refer to §98.233(g)(1)(i) or (g)(1)(ii)).

(C) Total count of workovers in calendar year.

(D) Average flow rate of the measured well workover venting in cubic feet per hour (refer to §98.233(g)(1)(i) or (g)(1)(ii)).

(E) Total number of days of gas venting to the atmosphere during backflow for completion.

(F) Total number of days of gas venting to the atmosphere during backflow for workovers.

(G) Report number of completions and workovers employing reduced emissions completions and engineering estimate based on best available data of the amount of gas recovered to sales.

(H) Report vent emissions collectively. Report flared emissions collectively.

(ii) For gas well completions and workovers without hydraulic fracturing (refer to Equation W–13 of §98.233):

(A) Total count of completions in calendar year.

(B) Total count of workovers in calendar year.

(C) Total number of days of gas venting to the atmosphere during backflow for completion.

(D) Report vent emissions collectively. Report flared emissions collectively.

(7) For each blowdown vent stack (refer to Equation W–14 of §98.233), report the following:

(i) Total number of blowdowns per equipment type in calendar year.

(ii) Report emissions collectively per equipment type.

(8) For gas emitted from produced oil sent to atmospheric tanks:

(i) For wellhead gas-liquid separator with oil throughput greater than or equal to 10 barrels per day, using Calculation Methodology 1 and 2 of §98.233(j), report the following by field:

(A) Number of wellhead separators sending oil to atmospheric tanks.

(B) Estimated average separator temperature, in degrees Fahrenheit, and estimated average pressure, in psig.

(C) Estimated average sales oil stabilized API gravity, in degrees.

(D) Count of hydrocarbon tanks at well pads.

(E) Best estimate of count of stock tanks not at well pads receiving your oil.

(F) Total volume of oil from all wellhead separators sent to tank(s) in barrels per year.

(G) Count of tanks with emissions control measures, either vapor recovery system or flaring, for tanks at well pads.

(H) Best estimate of count of stock tanks assumed to have emissions control measures not at well pads, receiving your oil.

(I) Range of concentrations of flash gas, CH_4 and CO_2.

(J) Report emissions individually for Calculation Methodology 1 and 2 of § 98.233(j).

(ii) For wells with oil production greater than or equal to 10 barrels per day, using Calculation Methodology 3 and 4 of § 98.233(j), report the following by field:

(A) Total volume of sales oil from all wells in barrels per year.

(B) Total number of wells sending oil directly to tanks.

(C) Total number of wells sending oil to separators off the well pads.

(D) Sales oil API gravity range for (B) and (C) of this section, in degrees.

(E) Count of hydrocarbon tanks on wellpads.

(F) Count of hydrocarbon tanks, both on and off well pads assumed to have emissions control measures: either vapor recovery system or flaring of tank vapors.

(G) Report emissions collectively for Calculation Methodology 3 and 4 of § 98.233(j).

(iii) For wellhead gas-liquid separators and wells with throughput less than 10 barrels per day, using Calculation Methodology 5 of § 98.233(j) Equation W–15 of § 98.233), report the following:

(A) Number of wellhead separators.

(B) Number of wells without wellhead separators.

(C) Total volume of oil production in barrels per year.

(D) Best estimate of fraction of production sent to tanks with assumed control measures: either vapor recovery system or flaring of tank vapors.

(E) Count of hydrocarbon tanks on well pads.

(F) Report CO_2 and CH_4 emissions collectively.

(iv) If wellhead separator dump valve is functioning improperly during the calendar year (refer to Equation W–16 of § 98.233), report the following:

(A) Count of wellhead separators that dump valve factor is applied.

(9) For transmission tank emissions identified using optical gas imaging instrument per § 98.234(a) (refer to § 98.233(k)), or acoustic leak detection of scrubber dump valves report the following for each tank:

(i) Report emissions individually.

(ii) [Reserved]

(10) For well testing (refer to Equation W–17 of § 98.233), report the following for each basin:

(i) Number of wells tested per basin in calendar year.

(ii) Average gas to oil ratio for each basin.

(iii) Average number of days the well is tested in a basin.

(iv) Report emissions of the venting gas collectively.

(11) For associated natural gas venting (refer to Equation W–18 of § 98.233), report the following for each basin:

(i) Number of wells venting or flaring associated natural gas in a calendar year.

(ii) Average gas to oil ratio for each basin.

(iii) Report emissions of the flaring gas collectively.

(12) For flare stacks (refer to Equation W–19, W–20, and W–21 of § 98.233), report the following for each flare:

(i) Whether flare has a continuous flow monitor.

(ii) Volume of gas sent to flare in cubic feet per year.

(iii) Percent of gas sent to un-lit flare determined by engineering estimate and process knowledge based on best available data and operating records.

(iv) Whether flare has a continuous gas analyzer.

(v) Flare combustion efficiency.

(vi) Report uncombusted and combusted CO_2 and CH_4 emissions separately.

(13) For each centrifugal compressor:

(i) For compressors with wet seals in operational mode (refer to Equations W–22 through W–24 of § 98.233), report the following for each degassing vent:

(A) Number of wet seals connected to the degassing vent.

(B) Fraction of vent gas recovered for fuel or sales or flared.

(C) Annual throughput in million scf, use an engineering calculation based on best available data.

(D) Type of meters used for making measurements.

(E) Reporter emission factor for wet seal oil degassing vents in cubic feet per hour (refer to Equation W–24 of § 98.233).

(F) Total time the compressor is operating in hours.

(G) Report seal oil degassing vent emissions for compressors measured (refer to Equation W–22 of § 98.233) and for compressors not measured (refer to Equation W–23 and Equation W–24 of § 98.233).

(ii) For wet and dry seal centrifugal compressors in operating mode, (refer to Equations W–22 through W–24 of § 98.233), report the following:

(A) Total time in hours the compressor is in operating mode.

(B) Reporter emission factor for blowdown vents in cubic feet per hour (refer to Equation W–24 of § 98.233).

(C) Report blowdown vent emissions when in operating mode (refer to Equation W–23 and Equation W–24 of § 98.233).

(iii) For wet and dry seal centrifugal compressors in not operating, depressurized mode (refer to Equations W–22 through W–24 of § 98.233), report the following:

(A) Total time in hours the compressor is in shutdown, depressurized mode.

(B) Reporter emission factor for isolation valve emissions in shutdown, depressurized mode in cubic feet per hour (refer to Equation W–24 of § 98.233).

(C) Report the isolation valve leakage emissions in not operating, depressurized mode in cubic feet per hour (refer to Equation W–23 and Equation W–24 of § 98.233).

(iv) Report total annual compressor emissions from all modes of operation (refer to Equation W–24 of § 98.233).

(v) For centrifugal compressors in onshore petroleum and natural gas production (refer to Equation W–25 of § 98.233), report the following:

(A) Count of compressors.

(B) Report emissions (refer to Equation W–25 of § 98.233) collectively.

(14) For reciprocating compressors:

(i) For reciprocating compressors rod packing emissions with or without a vent in operating mode, report the following:

(A) Annual throughput in million scf, use an engineering calculation based on best available data.

(B) Total time in hours the reciprocating compressor is in operating mode.

(C) Report rod packing emissions for compressors measured (refer to Equation W–26 of § 98.233) and for compressors not measured (refer to Equation W–27 and Equation W–28 of § 98.233).

(ii) For reciprocating compressors blowdown vents not manifold to rod packing vents, in operating and standby pressurized mode (refer to Equations W–26 through W–28 of § 98.233), report the following:

(A) Total time in hours the compressor is in standby, pressurized mode.

(B) Reporter emission factor for blowdown vents in cubic feet per hour (refer to § 98.233, Equation W–28).

(C) Report blowdown vent emissions when in operating and standby pressurized modes (refer to Equation W–27 and Equation W–28 of § 98.233).

(iii) For reciprocating compressors in not operating, depressurized mode (refer to Equations W–26 through W–28 of § 98.233), report the following:

(A) Total time the compressor is in not operating, depressurized mode.

(B) Reporter emission factor for isolation valve emissions in not operating, depressurized mode in cubic feet per hour (refer to Equation W–28 of § 98.233).

(C) Report the isolation valve leakage emissions in not operating, depressurized mode.

(iv) Report total annual compressor emissions from all modes of operation (refer to Equation W–27 and Equation W–28 of § 98.233).

(v) For reciprocating compressors in onshore petroleum and natural gas production (refer to Equation W–29 of § 98.233), report the following:

(A) Count of compressors.

(B) Report emissions collectively.

(15) For each equipment leak sources that uses emission factors for estimating emissions (refer to § 98.233(q) and (r).

(i) For equipment leaks found in each leak survey (refer to § 98.233(q)), report the following:

(A) Total count of leaks found in each complete survey listed by date of

survey and each type of leak source for which there is a leaker emission factor in Tables W–2, W–3, W–4, W–5, W–6, and W–7 of this subpart.

(B) Concentration of CH_4 and CO_2 as described in Equation W–30 of § 98.233.

(C) Report CH_4 and CO_2 emissions (refer to Equation W–30 of § 98.233) collectively by equipment type.

(ii) For equipment leaks calculated using population counts and factors (refer to § 98.233(r)), report the following:

(A) For source categories § 98.230(a)(3), (a)(4), (a)(5), (a)(6), and (a)(7), total count for each type of leak source in Tables W–2, W–3, W–4, W–5, and W–6 of this subpart for which there is a population emission factor, listed by major heading and component type.

(B) For onshore production (refer to § 98.230 paragraph (a)(2)), total count for each type of major equipment in Table W–1B and Table W–1C of this subpart, by field.

(C) Report CH_4 and CO_2 emissions (refer to Equation W–31 of § 98.233) collectively by equipment type.

(16) For local distribution companies, report the following:

(i) Number of custody transfer gate stations.

(ii) Number of non-custody transfer gate stations.

(iii) Custody transfer gate station meter run leak factor (refer to Equation W–32 of § 98.233).

(iv) Number of below grade M&R stations with inlet pressure greater than 300 psig.

(v) Number of below grade M&R stations with inlet pressure between 100 and 300 psig.

(vi) Number of below grate M&R stations with inlet pressure less than 100 psig.

(vii) Number of miles of unprotected steel distribution mains.

(viii) Number of miles of protected steel distribution mains.

(ix) Number of miles of plastic distribution mains.

(x) Number of miles of cast iron distribution mains.

(xi) Number of unprotected steel distribution services.

(xii) Number of protected steel distribution services.

(xiii) Number of plastic distribution services.

(xiv) Number of copper distribution services.

(xv) Total emissions from each natural gas distribution facility.

(17) For each EOR injection pump blowdown (refer to Equation W–37 of § 98.233), report the following:

(i) Pump capacity, in barrels per day.

(ii) Volume of critical phase gas between isolation valves.

(iii) Number of blowdowns per year.

(iv) Critical phase EOR injection gas density.

(v) Report emissions collectively.

(18) For EOR hydrocarbon liquids dissolved CO_2 for each field (refer to Equation W–38 of § 98.233), report the following:

(i) Volume of crude oil produced in barrels per year.

(ii) Amount of CO_2 retained in hydrocarbon liquids in metric tons per barrel, under standard conditions.

(iii) Report emissions individually.

(19) For onshore petroleum and natural gas production and natural gas distribution combustion emissions, report the following:

(i) Cumulative number of external fuel combustion units with a rated heat capacity equal to or less than 5 mmBtu/hr, by type of unit.

(ii) Cumulative number of external fuel combustion units with a rated heat capacity larger than 5 mmBtu/hr, by type of unit.

(iii) Cumulative emissions from external fuel combustion units with a rated heat capacity larger than 5 mmBtu/hr, by type of unit.

(iv) Cumulative volume of fuel combusted in external fuel combustion units with a rated heat capacity larger than 5 mmBtu/hr, by fuel type.

(v) Cumulative number of all internal combustion units, by type of unit.

(vi) Cumulative emissions from internal combustion units, by type of unit.

(vii) Cumulative volume of fuel combusted in internal combustion units, by fuel type.

(d) Report annual throughput as determined by engineering estimate based on best available data for each industry segment listed in paragraphs (a)(1) through (a)(8) of this section.