6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 98

[EPA-HQ-OAR-2011-0147; FRL-9714-3]

RIN 2060-AR53

2012 Technical Corrections, Clarifying and Other Amendments to the Greenhouse Gas Reporting Rule, and Confidentiality Determinations for Certain Data Elements of the Fluorinated Gas Source Category

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The EPA is amending specific provisions of the Greenhouse Gas Reporting Rule to provide greater clarity and flexibility to facilities subject to reporting emissions from the industrial waste landfill, petroleum and natural gas systems, fluorinated gas production, and electronics manufacturing source categories. These source categories will report greenhouse gas data for the first time in September 2012. The changes do not significantly change the overall calculation and monitoring requirements of the Greenhouse Gas Reporting Rule or add additional requirements for reporters. The EPA is also making confidentiality determinations for four new data elements for the fluorinated gas production source category of the Greenhouse Gas Reporting Rule. Lastly, we are finalizing an

amendment to the general provisions to defer the reporting deadline for a data element used as an input to an emission equation in the fluorinated gas production source category until 2015.

DATES: This final rule is effective on [INSERT THE DATE OF PUBLICATION OF THIS FINAL RULE IN THE FEDERAL REGISTER], except for the amendments to 40 CFR 98.3(c)(4) and the confidentiality determinations for subpart L described in section II.D of the Supplementary Information, which are effective on [INSERT THE DATE 30 DAYS AFTER PUBLICATION OF THIS FINAL RULE IN THE FEDERAL REGISTER].

ADDRESSES: The EPA has established a docket for this action under Docket ID No. EPA-HQ-OAR-2011-0147. All documents in the docket are listed in the http://www.regulations.gov index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and is publicly available only in hard copy. Publicly available docket materials are available either electronically in http://www.regulations.gov or in hard copy at the Air Docket, EPA/DC, EPA West Building, Room 3334, 1301 Constitution Ave., NW., Washington, DC. This Docket Facility is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays.

The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Air Docket is (202) 566-1742.

FOR FURTHER INFORMATION CONTACT: Carole Cook, Climate Change Division, Office of Atmospheric Programs (MC-6207J), Environmental Protection Agency, 1200 Pennsylvania Ave., NW, Washington, DC 20460; telephone number: (202) 343-9263; fax number: (202) 343-2342; e-mail address: GHGReportingRule@epa.gov. For technical information and implementation materials, please go to the Greenhouse Gas Reporting Rule Program website at http://www.epa.gov/climatechange/emissions/ghgrulemaking.html. To submit a question, select Rule Help Center, followed by "Contact Us."

Worldwide Web (WWW). In addition to being available in the docket, an electronic copy of this final rule will also be available through the WWW. Following the Administrator's signature, a copy of this action will be posted on the EPA's Greenhouse Gas Reporting Program website at http://www.epa.gov/climatechange/emissions/ghgrulemaking.html.

SUPPLEMENTARY INFORMATION:

Regulated Entities. The Administrator determined that this action is subject to the provisions of Clean Air Act (CAA) section 307(d). See CAA section 307(d)(1)(V) (the provisions of

section 307(d) apply to "such other actions as the Administrator may determine"). These amended regulations could affect owners or operators of direct emitters of GHGs. Regulated categories and affected entities may include those listed in Table 1 of this preamble:

Table 1. Examples of Affected Entities by Category

Category	NAICS	Examples of affected facilities
Petroleum and Natural Gas Systems	486210	Pipeline transportation of natural gas.
	221210	Natural gas distribution facilities.
	211	Extractors of crude petroleum and natural gas.
	211112	Natural gas liquid extraction facilities.
Electronics Manufacturing	334111	Microcomputers manufacturing facilities.
	334413	Semiconductor, photovoltaic (solid-state) device manufacturing facilities.
	334419	LCD unit screens manufacturing facilities.
	334419	MEMS manufacturing facilities.
Fluorinated Gas Production	325120	Industrial gases manufacturing facilities.
Industrial Waste Landfills	562212	Solid waste landfills.
	322110	Pulp mills.
	322121	Paper mills.
	322122	Newsprint mills.
	322130	Paperboard mills.
	311611	Meat processing facilities.
	311411	Frozen fruit, juice, and vegetable manufacturing facilities.
	311421	Fruit and vegetable canning facilities.
	221320	Sewage treatment facilities.

Table 1 of this preamble is not intended to be exhaustive, but rather lists the types of facilities that the EPA is now aware could be potentially affected by the reporting requirements. Other types of facilities not listed in the table could also be affected. To determine whether you are affected by

this action, you should carefully examine the applicability criteria found in 40 CFR part 98, subpart A or the relevant criteria in the sections related to direct emitters of GHGs. If you have questions regarding the applicability of this action to a particular facility, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

What is the effective date? This final rule is effective on [INSERT THE DATE OF PUBLICATION OF THIS FINAL RULE IN THE FEDERAL REGISTER], except for the amendments to 40 CFR 98.3(c)(4) (the subpart A amendments that affect subpart I) and the confidentiality determinations for subpart L, which are effective on [INSERT THE DATE 30 DAYS AFTER PUBLICATION OF THIS FINAL RULE IN THE FEDERAL REGISTER]. Section 553(d) of the Administrative Procedure Act (APA), 5 U.S.C. Chapter 5, generally provides that rules may not take effect earlier than 30 days after they are published in the Federal Register. EPA is issuing this final rule under section 307(d)(1) of the Clean Air Act, which states: ''The provisions of section 553 through 557 * * * of Title 5 shall not, except as expressly provided in this section, apply to actions to which this subsection applies.'' Thus, section 553(d) of the APA does not apply to this rule. EPA is nevertheless acting consistently with the purposes underlying APA section 553(d) in making the final rule provisions, except for the amendments to 40 CFR 98.3(c)(4) (the

subpart A amendments that affect subpart I) and the subpart L confidentiality determinations, effective on [INSERT THE DATE OF PUBLICATION OF THIS FINAL RULE IN THE FEDERAL REGISTER]. This final rule, except for the amendments to 40 CFR 98.3(c)(4) (the subpart A amendments that affect subpart I) and the subpart L confidentiality determinations, temporarily requires less detailed reporting under subpart L than would otherwise have been required by the November 2010 Subpart L final rule (75 FR 74774), defers the deadline for reporting a data element used as an input to emission equations under subpart L, removes a data reporting requirement and otherwise provides flexibilities under subpart W, and removes the requirement for some facilities to report under subpart TT. A shorter effective date in such circumstances is consistent with the purposes of APA section 553(d), which provides an exception for any action that grants or recognizes an exemption or relieves a restriction.

Judicial Review. Under section 307(b)(1) of the CAA, judicial review of this final rule is available only by filing a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit (the Court) by [INSERT THE DATE 60 DAYS AFTER THE DATE OF PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER]. Under CAA section 307(d)(7)(B), only an objection to this final rule that was raised with reasonable specificity during the period for public comment can be raised

during judicial review. Section 307(d)(7)(B) of the CAA also provides a mechanism for the EPA to convene a proceeding for reconsideration, "[i]f the person raising an objection can demonstrate to EPA that it was impracticable to raise such objection within [the period for public comment] or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule." Any person seeking to make such a demonstration to us should submit a Petition for Reconsideration to the Office of the Administrator, Environmental Protection Agency, Room 3000, Ariel Rios Building, 1200 Pennsylvania Ave., NW., Washington, DC 20460, with a copy to the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section, and the Associate General Counsel for the Air and Radiation Law Office, Office of General Counsel (Mail Code 2344A), Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20004. Note, under CAA section 307(b)(2), the requirements established by this final rule may not be challenged separately in any civil or criminal proceedings brought by the EPA to enforce these requirements.

Acronyms and Abbreviations. The following acronyms and abbreviations are used in this document.

CAA	Clean Air Act
CBI	confidential business information

CFR	Code of Federal Regulations
CH_4	methane
CO_2	carbon dioxide
DOC	degradable organic carbon
EF	emission factor
EPA	U.S. Environmental Protection Agency
FR	Federal Register
GHG	greenhouse gas
GHGRP	Greenhouse Gas Reporting Program
kg/ft^3	kilograms per cubic foot
CO_2e	carbon dioxide equivalent
N_2O	nitrous oxide
NAICS	North American Industry Classification System
NTTAA	National Technology Transfer and Advancement Act
OMB	Office of Management and Budget
psia	pounds per square inch absolute
QSARs	quantitative structure activity relationships
RFA	Regulatory Flexibility Act
SF_6	sulfur hexafluoride
U.S.	United States
UMRA	Unfunded Mandates Reform Act of 1995

Organization of This Document. The following outline is provided to aid in locating information in this preamble.

I. Background

A. Organization of This Preamble

This preamble consists of three sections. The first section provides background on 40 CFR part 98 and describes the purpose and legal authority for this action.

The second section of this preamble summarizes the revisions made to the specific requirements for the general provisions (subpart A), industrial waste landfills (subpart TT), petroleum and natural gas systems (subpart W) and fluorinated gas production (subpart L) of 40 CFR part 98. It also describes the major changes made to these source categories since proposal and provides a brief summary of significant public comments and EPA's responses on issues specific to each source category. Additional responses to significant comments can be found in the

document "2012 Technical Corrections, Clarifying and Other Amendments to the Greenhouse Gas Reporting Rule, and Confidentiality Determinations for Certain Data Elements of the Fluorinated Gas Source Category – Responses to Public Comment" in the docket to this rulemaking.

The third section of this preamble discusses the various statutory and executive order requirements applicable to this rulemaking.

B. Background on the Final Rule

This action finalizes amendments to provisions in 40 CFR part 98, subparts A, TT, W, and L. The 2009 final GHG Reporting Rule was published in the Federal Register on October 30, 2009 (74 FR 56260, hereafter referred to as the "2009 final rule" or "Part 98"). The 2009 final rule, which finalized reporting requirements for 30 source categories, did not include subparts TT, W, and L. Subsequent notices were published in 2010 finalizing the requirements for subpart TT (75 FR 39736, July 12, 2010), subpart W (75 FR 74458, November 30, 2010), and subpart L (75 FR 74774, December 1, 2010). Following the promulgation of these subparts, the EPA finalized four technical corrections and clarifying amendments to these and other subparts under the Greenhouse Gas Reporting Program (GHGRP).[1]

[1] 75 FR 66434, October 28, 2010; 75 FR 79092, December 17, 2010; 76 FR 73866, November 29, 2011; 76 FR 80554, December 23, 2011.

In a separate recent action, the EPA proposed corrections, clarifying, and other amendments to subparts A, TT, W, and L on May 21, 2012 (77 FR 29935), hereinafter "2012 Technical Corrections Proposal." In that action, the EPA proposed several amendments to specific provisions in these subparts to provide greater clarity and flexibility to facilities subject to reporting in 2012. The EPA also proposed an amendment to Table A–7 of subpart A to add a subpart L data element that was inadvertently omitted in the final deferral rule[2] to defer its reporting deadline until 2015. In this action, the EPA is finalizing amendments to provisions in subparts A, TT, W, and L.

On January 10, 2012 (77 FR 1434), the EPA proposed confidentiality determinations for data elements (excluding those used as inputs to emission equations) in eight subparts of Part 98, including subpart L. In the 2012 Technical Corrections Proposal, the EPA proposed, among other things, four new data elements for subpart L and confidentiality status for those four new subpart L data elements. In this action, the EPA is finalizing the addition of four new data elements to subpart L and their confidentiality determinations.

C. Legal Authority

The EPA is promulgating these rule amendments under its existing CAA authority, specifically authorities provided in CAA

[2] 76 FR 53057, August 25, 2011

section 114. As stated in the preamble to the 2009 final rule (74 FR 56260, October 30, 2009) and the Response to Comments on the April 10, 2009 initial proposed rule,[3] Volume 9, Legal Issues, CAA section 114 provides the EPA broad authority to require the information proposed to be gathered by this rule because such data would inform and are relevant to the EPA's carrying out a wide variety of CAA provisions. As discussed in the preamble to the initial proposed rule (74 FR 16448, April 10, 2009), CAA section 114(a)(1) authorizes the Administrator to require emissions sources, persons subject to the CAA, manufacturers of control or process equipment, or persons who the Administrator believes may have necessary information to monitor and report emissions and provide such other information the Administrator requests for the purposes of carrying out any provision of the CAA. For further information about the EPA's legal authority, see the preambles to the 2009 proposed and final rules and EPA's Response to Comments, Volume 9.

In addition, the EPA is making confidentiality determinations for four data elements in subpart L, under its authorities provided in sections 114, 301, and 307 of the CAA. As mentioned above, CAA section 114 provides the EPA authority to obtain the information in Part 98, including the four new data elements we have added to subpart L. Section 114(c)

[3] See http://www.epa.gov/climatechange/emissions/responses.html

requires that the EPA make information obtained under section 114 publicly available, except where information qualifies for confidential treatment. Section 114(c) excludes emission data from qualifying for confidential treatment. The Administrator has determined that this action (amendment and confidentiality determination) is subject to the provisions of section 307(d) of the CAA.

D. How do these amendments apply to 2012 reports?

As explained in the preamble to the 2012 Technical Corrections Proposal, our response to comments, and this notice, we believe that it is feasible for reporters to implement the changes for the 2011 reporting year, for which reports are due by September 28, 2012. The revisions that apply to the reporting for 2011 are primarily technical corrections, and provide clarification regarding the existing regulatory requirements or reduce the amount of information that is required to be reported.

In the case of 40 CFR part 98, subpart A, the amendment is merely a harmonizing change to a technical correction finalized in February 2012 for subpart I (see 77 FR 10373). This change is effective for reporting year 2012 and does not affect reporting year 2011. The February 2012 subpart I technical correction required reporters to calculate emissions of certain additional fluorinated heat transfer fluids under subpart I; however, the

February 2012 correction inadvertently omitted an amendment to a corresponding requirement in subpart A to include those calculated emissions in the annual GHG report. This action corrects this omission by requiring that reporters include these emissions from heat transfer fluids in their facility level totals reported to the EPA in the annual GHG report. Additionally, as proposed, this rule adds one data element to Table A-7 to Subpart A (Table A-7 lists data elements whose reporting deadline is deferred until 2015). This element was inadvertently omitted in the final deferral rule defers the reporting of one additional input until 2015. Because this reduces the reporting requirements, the EPA has determined that it is feasible for this amendment to apply to the reporting year 2011; therefore this data element would not need to be reported until 2015.

In the case of 40 CFR part 98, subpart TT, this final rule excludes some facilities from the reporting requirements and reduces the burden by making it easier for facilities to determine applicability of subpart TT under the GHG Reporting Rule. The excluded facilities are not expected to emit GHGs since they receive only inert wastes that do not generate methane.

In the case of 40 CFR part 98, subpart W, the amendments include technical corrections that, while important to allow

reporters to calculate emissions accurately, do not materially affect the actions facilities must take to comply with the rule. For example, in this action the EPA has corrected the emission factors in Table W-1A of subpart W for the onshore petroleum and natural gas production segment, due to an error in the December 23, 2011 Technical Revisions to the Petroleum and Natural Gas Systems Category of the Greenhouse Gas Reporting Rule (76 FR 80554, December 23, 2011, referred hereinafter as the "December 2011 technical corrections final rule"), where EPA incorrectly revised several of the emission factors in this table. This final rule corrects this error but does not materially affect the actions a facility must undertake to comply with subpart W.

In the case of 40 CFR part 98, subpart L, facilities subject to subpart L will report greenhouse gas emissions in a more aggregated manner in 2012 and 2013. This amendment is temporary (i.e., for 2012 and 2013 only) to allow the EPA time to fully evaluate concerns recently raised by stakeholders regarding reporting, and subsequent EPA release, of certain emission data.

As explained above, we have concluded that it is appropriate to have these amendments to subpart A, Table A-7 and subparts TT and W apply to the 2011 reporting year, for which reporting occurs on September 28, 2012. For additional background information regarding some of these amendments,

please refer to the Technical Support Document for the 2012 Technical Corrections, Clarifying and Other Amendments to Certain Provisions of the Greenhouse Gas Reporting Rule proposal, available in the docket for this rulemaking (EPA-HQ-OAR-2011-0147-0041).

E. How do these amendments affect confidentiality determinations?

The amendments in this action do not affect the confidentiality determinations for subpart A data elements finalized in the "Confidentiality Determinations for Data Required Under the Mandatory Greenhouse Gas Reporting Rule and Amendments to Special Rules Governing Certain Information Obtained Under the Clean Air Act,"[4] (hereinafter referred to as the "2011 Final CBI rule") or the proposed determinations for subparts W,[5] L,[6] and TT.[7] In this notice, we are also finalizing confidentiality determinations for the four new subpart L data elements also added in this rule. The confidentiality determinations for these new data elements together with our rationale are discussed in Section II.D.1 of this preamble.

[4] See 75 FR 30782, May 26, 2011.
[5] See 77 FR 11039, February 24, 2012.
[6] See 77 FR 1434, January 10, 2012.
[7] See 75 FR 30782, May 26, 2011 for final confidentiality determination for subpart TT. See 77 FR 1434, January 10, 2012 for proposed confidentiality determinations for new subpart TT data elements added by the December 2011 technical corrections final rule subsequent to the final confidentiality determinations made in 75 FR 30782. For the final determinations for the new subpart TT data elements, see the recently signed action titled Final Confidentiality Determinations For Nine Subparts and Amendments to Subparts A and I Under the Mandatory Reporting of Greenhouse Gases Rule.

This rule does not include confidentiality determinations for subparts A, W, and TT. For the subpart A amendments, we are not making any confidentiality determinations because the data element being added is a subset of another data element in subpart I for which we have already proposed a CBI determination. Additionally, we are not making any confidentiality determination at this time for the subpart L data element added to Table A-7 of subpart A to defer the deadline for reporting until 2015. For subpart W, in addition to deleting an existing data element, the amendments in this action make only minor clarifications to the existing reporting requirements in that subpart, which do not change the type of data to be reported. Therefore, there is no change to the proposed confidentiality determinations for the data elements in that subpart. There are no amendments to the reporting requirements for subpart TT.

II. Final Amendments and Responses to Public Comments

In this action, the EPA is amending several provisions in subparts A, TT, W, and L of 40 CFR part 98 to provide greater clarity and flexibility. The amendments are listed in this section by subpart, followed by a more detailed summary of the final amendments to the various provisions and the EPA's responses to major comments submitted on those amendments. We indicate where an amendment is being finalized as proposed and

where an amendment differs from that which was proposed in the 2012 Technical Corrections Proposal. For additional comments and EPA's response to those comments please see the comment response document available in Docket ID No. EPA-HQ-OAR-2011-0147.

A. Subpart A - General Provisions

1. Summary of Final Amendments

As proposed, this action amends the general reporting requirements of 40 CFR 98.3(c)(4) of subpart A, which specifies the types of data and format for reporting emissions in the annual GHG reports (e.g., annual emissions from each source category by GHG). In addition to the proposed amendments to 98.3(c)(4), EPA has included one additional edit to 40 CFR 98.3(c)(4) that did not appear in the proposal. This additional amendment adds the text "and each fluorinated heat transfer fluid (as defined in §98.98)" to the introductory sentence of 40 CFR 98.3(c)(4). Although this edit was not proposed in the 2012 Technical Corrections Proposal, it is being added as a clarifying change to the regulatory language. EPA has determined that this additional edit does not substantively change the amendments that were proposed and is administrative in nature. The amendment to subpart A that was proposed in the 2012 Technical Corrections proposal specifies that facilities subject to subpart I must include all fluorinated HTFs listed in Table A-1 of subpart A in the computation of CO_2e that is required by

40 CFR 98.3(c)(4)(i). Specifically, facilities must report each fluorinated HTF that is also a fluorinated GHG under 40 CFR 98.3(c)(4)(iii)(E) and each fluorinated HTF that is not a fluorinated GHG in the new data element, 40 CFR 98.3(c)(4)(iii)(F). This change, effective for reporting year 2012, conforms with the amendments to reporting requirements for heat transfer fluids (fluorinated HTFs) that were published on February 22, 2012 (77 FR 10373). This change simplifies reporting for facilities and reduces burden by amending subpart A to be consistent with the requirements in subpart I. Given that facilities are already required to calculate emissions of fluorinated HTFs under subpart I, reporters already have the necessary data to comply with the final rule amendments.

As proposed in the 2012 Technical Corrections Proposal, we are also amending Table A-7 to subpart A to add a subpart L data element used as an input to an emission equation (Equation L-6) that was inadvertently omitted in the final deferral rule. Table A-7 to subpart A lists the inputs to emission equations whose reporting deadlines have been deferred until March 31, 2015. Table A-7 to subpart A is amended to include the data element, "the mass of each fluorine-containing product produced by the process" (40 CFR 98.126(b)(7)); as is already the case with all other subpart L data elements assigned to the inputs to

equations data category, this change defers the reporting deadline for this data element until March 31, 2015.

2. Summary of Comments and Responses

We received no comments on the proposed amendments to subpart A.

B. Subpart TT – Industrial Waste Landfills

1. Summary of Final Amendments

As proposed, we are amending subpart TT to exempt industrial waste landfills that receive only inert materials from reporting under this subpart. As discussed in the preamble to the proposed rule (77 FR 29935, May 21, 2012), this amendment ensures that landfills that are not expected to emit GHGs are excluded from reporting under this subpart. Specifically, we are adding, as proposed, a degradable organic content (DOC) value exclusion (provided in weight percent on a wet basis) as 40 CFR 98.460(c)(2)(xiii).

2. Summary of Comments and Responses

We received two comments on the proposed amendment to subpart TT. Both comments supported EPA's proposed amendments.

This section contains a brief summary of one of the comments received on the proposed changes to subpart TT and our response. Additional comments and responses thereto can be found in the document, "Response to Comments: 2012 Technical Corrections, Clarifying and Other Amendments of the Mandatory

Reporting of Greenhouse Gases Rule, and Confidentiality Determinations for Certain Data Elements of the Fluorinated Gas Source Category" (see EPA–HQ–OAR–2011–0147).

Comment: One commenter requested clarification on the number of test results from the use of the anaerobic biodegradation test that are required to determine whether or not a facility meets the definition of the source category under this subpart.

Response: One representative sample must be taken and tested using an anaerobic biodegradation test in order to determine if a waste stream is inert and therefore the landfill is exempted from reporting under 40 CFR 98.460(c)(2)(xiii). This is consistent with the number of samples required for determining an exemption using the volatile solids concentration under 40 CFR 98.460(c)(2)(xii). The EPA agrees that a clarification is needed because Part 98 currently does not specify the number of samples necessary to determine whether the exemption applies. Therefore, we have added text to 40 CFR 98.464(b) to provide this clarification. The EPA notes that while only one representative sample must be taken from each waste stream to be tested, the anaerobic biodegradation test must be performed according to the steps described in 40 CFR 98.464(b)(i), which requires multiple waste samples to be tested. Therefore, if only one representative sample is taken

from a waste stream, the sample taken must be of sufficient size to be subdivided and tested according to the requirements in 40 CFR 98.464(b)(i).

C. Subpart W – Petroleum and Natural Gas Systems

1. Summary of Final Amendments

The EPA is finalizing several technical corrections and amendments to subpart W as proposed in the 2012 Technical Corrections Proposal to correct equations and otherwise clarify provisions in the rule to ensure consistency across the calculation, monitoring, and reporting requirements in subpart W and thereby facilitate reporting. The EPA is finalizing the following technical corrections and amendments as proposed:

- Removing a factor of 1,000 from the denominator of Equation W-6 in 40 CFR 98.233(e)(5) so that the emissions are calculated in standard cubic feet rather than thousand standard cubic feet.
- Providing reporters with the option to take and use more than the prescribed number of sample measurements per unique well tubing diameter and pressure group combination per sub-basin.
- Changing the parameter "FRp" to "FR" in Equation W-7 in 40 CFR 98.233(f)(1) to avoid confusion.
- Amending the parameter "Tp" and its definition in Equation W-7 to clarify that it refers to the cumulative amount of time in hours of venting for each well as opposed to the time for the measured well(s).
- Revising the definition of parameter "SPp" in Equation W-8 in 40 CFR 98.233(f)(2) to clarify that the reporter must take a ratio of casing to tubing pressure.
- Updating Equation W-8 and also Equation W-9 in 40 CFR 98.233(f)(2) and (f)(3) by replacing the subscript "q" with "p" in parameter "SFR" to match the definition of parameter "SFRp."

- Clarifying that the terms “Vp” and “HRp,q” in Equations W-8 and W-9 are to be monitored per unloading event.
- Clarifying that Calculation Methodology 3 applies to well venting, not “each” well venting and that parameter “W” in Equation W-9 is the total number of wells with plunger lift assist.
- Revising the term “backflow” to read “flowback” in 40 CFR 98.233(g) and (g)(1).
- Adding subscript “s” to several parameters in Equations W-10A and W-10B to clarify that these parameters are at standard conditions.
- Clarifying that the flow volume variable “FVs,p” in Equation W-10B is at standard cubic feet.
- Clarifying that the outputs of Equations W-11A and W-11B are at actual conditions by inserting the word “actual” in the definition of flow rate, “FR,” and also adding a subscript “a” to denote inputs at actual conditions.
- Adding a reference to Equation W-12 in 40 CFR 98.233(g)(1)(iii) in the parameter definition “FRs,p” to convert “FRa” to standard conditions.
- In Equations W-11A and W-11B, clarifying the definition of orifice cross sectional area, “A” to state “Cross sectional open area of the restriction orifice (m^2).” (Adding the terms “open” and "the restriction.”)
- Providing reporters with the option to take and use more than the prescribed number of sample measurements per sub-basin and well type (horizontal or vertical).
- Amending Equation W-13 to clarify that the output is a sum of emissions from all completions and workovers without hydraulic fracturing within a sub-basin.
- Revising parameter “Es,n” in the parameter description to match the letter case of the term in Equation W-14B, revising the term “Ta” to “Ta,p” in Equation W-14B, and clarifying that the temperature is for each blowdown “p.”
- Revising 40 CFR 98.233(j)(5) to clarify that the term “throughput” refers to “average daily throughput of oil.”
- Revising the definition of “Count” in Equation W-15 of 40 CFR 98.233(j)(5) to clarify that the reporters are to count only the separators or wells that feed oil directly to the storage tank.
- Revising the parameter definition of “1000” to accurately describe the conversion occurring through this parameter.

- Revising the definition of "PR" in Equation W-17B of 40 CFR 98.233(l)(3) to clarify that the production rate is in actual and not standard conditions.
- Removing and reserving 40 CFR 98.233(n)(7) to harmonize the language with the reporting requirements in 40 CFR 98.236.
- Providing the proper notation for the summations in Equations W-23, W-24, W-27, and W-28 so that owners and operators may correctly calculate GHG emissions from centrifugal and reciprocating compressors.
- Amending 40 CFR 98.233(o)(7) to remove the word "thousand" in parameter "EF_i" in Equation W-25.
- Revising the definition of parameter EFi in Equation W-25 in 40 CFR 98.233(o)(7) by deleting the term "thousand."
- Amending an incorrect reference in 40 CFR 98.233(r)(2) to "Table W-1A" instead of "Table 1-A."
- Revising the phrase "meter or regulator" in 40 CFR 98.233(r)(6)(ii) and replacing it with "meter/regulator."
- Revising 40 CFR 98.233(t) to clarify that reporters do not need to alter their calculation results to standard conditions if the results already reflect standard conditions.
- Revising the definition of parameter "ρi" in Equation W-36 to amend the density value of CH_4 to be 0.0192 kg/ft3. Replacing the parameter "E_{CO2}" with "$E_{a,CO2}$" in the parameter definition for Equation W-39A in 40 CFR 98.233(z)(2)(iii) to match the parameters in the equation.
- Revising the definition of "HHV" in Equation W-40 in 40 CFR 98.233(z)(2)(vi) to reflect the "higher" heating value represented by the acronym.
- Amending 40 CFR 98.236(c)(5)(ii)(D) to clarify that the average internal casing diameter of all wells, as opposed to each well, must be reported.
- Amending 40 CFR 98.236(c)(9) to remove reference to the optical gas imaging instrument.
- Amending 40 CFR 98.236(c)(13)(iii)(C) to replace the units of "cubic feet per hour" with "metric tons of CO_2e for each gas" to align the units of this data reporting element to those of the general provisions of Part 98, 40 CFR 98.3(c)(4)(i), which require reporting of annual emissions in units of mass in metric tons of CO_2e.
- Updating the incorrect reference to "Equation W-30" in 40 CFR 98.236(c)(15)(i)(B) to read "Equation W-30A," updating

the incorrect reference to "Equation W-30" in 40 CFR 98.236(c)(15)(i)(C) to read "Equation W-30A," and deleting the unnecessary reference to "parameter GHGi" in 40 CFR 98.236(c)(15)(i)(C).

- Removing the text references to "(a)(4)" and "W-3" in 40 CFR 98.236(c)(15)(ii)(A) by deleting the unnecessary references to "(a)(8)."
- Deleting "and CH4" from the reporting requirements for EOR injection pumps in 40 CFR 98.236(c)(17)(v) to make the data reporting requirements consistent with the calculation procedures in Equation W-37.
- Revising the incorrect title of Table W-1A of subpart W by deleting "Table A-1A" and correcting it to "Table W-1A."
- Correcting the emission factors in Table W-1A of subpart W as proposed.
- Amending Table W-5 of subpart W to provide the cross-reference for footnote 2, by adding a reference associated with footnote 2 to Vapor Recovery Compressor.

In addition to finalizing the amendments proposed in the 2012 Technical Corrections Proposal, the EPA is finalizing several additional corrections to address areas where further clarifications to the subpart W were considered appropriate based on comments received on the 2012 Technical Corrections Proposal:

- Removing the factors 365 days and "T" from Equation W-6 of subpart W and adding a new factor "N" for the number of dehydrator openings in the calendar year.
- Correcting the definition of parameter "SPp" in Equations W-8 to state that casing pressure is to be measured for wells with no packer, as opposed to taking the shut-in pressure or surface pressure measurement for wells with no packers.
- Correcting the definition of the term "PRs,p" in Equation W-10A to remove the phrase "under actual conditions, converted to standard conditions."

- Correcting the definition of the terms "SGs,p" and "EnFs,p" in Equation W-10A to include omitted subscripts in the parameter references.
- Correcting the definition of the term "W" in Equation W-12 by replacing the word "formation" with "combination."
- Amending 40 CFR 98.233(o)(5), (o)(6), (o)(7), (p)(7), and (p)(7)(i) to clarify that the annual emissions must be estimated for each compressor for each mode-source combination measured in the reporting year.
- Correcting the definitions of the terms "Es,n" and "Ea,n" in Equation W-33 by deleting the parentheses around the terms "FRs,p" and "FRa,p", respectively.
- Amending 40 CFR 98.236(c)(6), (c)(13)(i)(G), (c)(13)(ii)(C), (c)(13)(iii)(C), (c)(13)(iv), (c)(13)(v)(B), (c)(14)(i)(C), (c)(14)(ii)(C), (c)(14)(iii)(C), (c)(14)(iv), and (c)(14)(v)(B) to clarify emission reporting requirements for compressors.

Since the amendments to subpart W finalized in this action do not change the type of information that must be collected, the methods used to collect the data, or materially affect how the emissions are calculated, we are requiring reporters to implement the amendments finalized in this action for the September 28, 2012 reporting deadline.

2. Summary of Comments and Responses

This section contains a brief summary of comments on the proposed changes to subpart W and responses. Additional comments and responses thereto can be found in the document, "Response to Comments: 2012 Technical Corrections, Clarifying and Other Amendments of the Mandatory Reporting of Greenhouse Gases Rule, and Confidentiality Determinations for Certain Data Elements of the Fluorinated Gas Source Category" (see EPA-HQ-OAR-2011-0147).

The EPA received several comments on the 2012 Technical Corrections Proposal that the EPA has determined to be out of the scope of this rulemaking. These comments were diverse in nature, and covered several provisions within subpart W. Some of the comments were more technical in nature, for example, one comment included a revised definition of parameter "Tp" of Equation W-7 to allow for reporters to use alternative methods such as engineering estimates based on best available data to determine the cumulative amount of time in hours of venting for specific wells. Other comments included more substantive revisions and clarifications to the final provisions, for example several comments were submitted on the monitoring provisions for both centrifugal and reciprocating compressors and included revisions to equation parameters and definitions and address concerns previously raised by reporters. Also, by way of a third example, some of the comments submitted were requests for clarification on the final provisions, for example, one comment included a request for clarification on the requirement in 40 CFR 98.236 for reporting of “annual throughput as determined by engineering estimate based on best available data.” The EPA has reviewed these comments, and although these comments are out of the scope of the 2012 Technical Corrections proposal, the EPA is considering ways to address these comments

including possible future rulemakings or development of materials to post on EPA's subpart W website.

Comment: One commenter recommended that Equation W-6 be amended to account for situations where desiccant dehydrator molecular sieves are used. The commenter further stated that this change was necessary because natural gas processors commonly use desiccant dehydrator molecular sieves which typically only require the dehydrator to be opened to the atmosphere once every 3 or 4 years when the molecular sieves are replaced. The commenter noted that the proposed Equation W-6 accounts for the number of dehydrator vessel openings by dividing 365 days per year by the number of days "T" between refilling. The commenter recommended revising Equation W-6 by removing both the 365 day factor in the numerator and the variable "T" in the denominator and adding a new term "N" (number of dehydrator change-outs per year) to the numerator.

Response: The EPA has reviewed the commenter's suggested change to Equation W-6 to account for situations where desiccant dehydrator molecular sieves are used in desiccant dehydrators such that the equation will accurately adjust for the number of times the dehydrator vessel is opened to the atmosphere when it may occur less frequently than once per year. While the revision that EPA proposed in the 2012 Technical Corrections Proposal included a proposed amendment to Equation W-6 separate from what

the commenter suggested, we agree that Equation W-6 can be amended as noted by the commenter to adjust for dehydrator vessels that are opened once over a multiple year time period. In these cases where vessels are opened less frequently than once per year, using Equation W-6 as written in the final subpart W rule would result in an inaccurate estimate of emissions. Therefore, we have amended Equation W-6 of subpart W as recommended by the commenter. EPA believes that finalizing this technical correction does not change the type of information collected by reporters who would use this equation, and that it is feasible to implement this correction for the 2011 reporting year.

Comment: Two commenters expressed support for EPA's proposed technical corrections to Equations W-23, W-24, W-27, and W-28. However, two commenters further noted that even though the 2012 Technical Corrections Proposal correctly proposed removing the summation terms in Equations W-23, W-24, W-27 and W-28, the equations for calculating emissions from centrifugal compressors (Equations W-23 and W-24) and reciprocating compressors (Equations W-27 and W-28) were still incomplete because either the parameters or the definitions of those parameters did not fully align with the proposed technical amendments. Commenters recommended either revising the parameter definition for "$E_{s,i}$" or including a definition for the operator

"m" in the equation definitions for Equation W-23 and W-27. Commenters also recommended including a definition for the parameter "$MT_{m,p}$" in Equation W-24 and W-28.

Response: In the 2012 Technical Corrections Proposal, the EPA proposed to make corrections, though few, to Equations W-23, W-24, W-27 and W-28 so that owners and operators would correctly calculate GHG emissions using those equations. In this action, the EPA is finalizing the amendments to both the centrifugal compressor and reciprocating compressor emission sources as proposed in the 2012 Technical Corrections Proposal. In response to those comments, the EPA is finalizing a limited set of additional corrections for both the centrifugal and reciprocating compressor emission sources. Specifically, in Equations W-23 and W-27, the EPA has finalized a correction to the definition for parameter "$E_{s,i}$" such that the proposed amendments in the 2012 Technical Corrections Rule would correctly align with the proposed amendment to remove the erroneous summation sign from these equations. EPA has reviewed the comments submitted, and in this action is revising the definition for parameter "$E_{s,i}$" in Equations W-23 and W-27, by adding the subscript "m" so the parameter now reads "$E_{s,i,m}$". EPA has also revised the parameter definition to clarify that the annual volumetric GHG emissions are to be calculated for each centrifugal compressor (for Equation W-23) and for each

reciprocating compressor (Equation W-27) for each of the mode-source combination in cubic feet. Similarly, for Equations W-24 and W-28 the EPA has revised the definition for parameters "$MT_{m,p}$" and "m" in response to comments received on the 2012 Technical Corrections proposed rule. The definition for parameter "$MT_{m,p}$" has been clarified to state that this parameter refers to the flow measurement from all compressor sources in each mode-source combination in standard cubic feet per hour, and the definition for parameter "m" has been clarified to state that this parameter refers to each compressor mode-source combination.

Comment: One commenter agreed with the proposed change to 40 CFR 98.236(c)(13)(iii)(C) to correct the units for the centrifugal compressor emission source to be reported in units of mass as opposed to units of cubic feet per hour. This same commenter further noted that EPA should also apply a correction to the data reporting requirements for other provisions in 40 CFR 98.236(c)(13) and (c)(14) such that data from these two emissions sources, centrifugal compressors and reciprocating compressors would be reported consistently on a mass unit basis. The commenter also noted that the references to the equations in 40 CFR 98.233 that are cited in the data reporting requirements for 40 CFR 98.236(c)(13) and (14) should be removed.

Response: In the 2012 Technical Corrections Proposal, the EPA proposed a correction to the reporting units for centrifugal compressors such that the data would be reported in mass units for carbon dioxide equivalent instead of units of cubic feet per minute. EPA agrees with the commenters and has corrected the units for the applicable provisions in 40 CFR 98.236(c)(13) and (14) such that the data will be reported consistently on a mass basis. The EPA recognizes that corrections to the units to the data reporting requirements in 40 CFR 98.236(c)(13) and (14) were not proposed in the 2012 Technical Corrections Proposal; however, the EPA believes that applying the correction proposed in the 2012 Technical Corrections Proposal throughout the data reporting requirements for these emission sources would be logical, and would also assist reporters in submitting the data. Subpart W reporters are required to submit their data to the EPA by September 28, 2012 for data collected in 2011. Because these reports are being submitted for the first time, the EPA considers this amendment necessary to ensure that the units for these data reporting requirements are consistent. Further, the EPA believes that this change is a technical correction that is logical in nature to apply to similar provisions for these two emission sources. Further, EPA believes that this change would result in less burden on reporters. Lastly, in line with the commenters suggestion to remove the 40 CFR 98.233 equation

references found within specific data elements in 40 CFR 98.236(c)(13) and (14), EPA has agreed with the commenter and in this action has removed the 40 CFR 98.233 equation references from the following data reporting elements, 40 CFR 98.236(c)(13)(i)(G), 98.236(c)(13)(ii)(C), 98.236(c)(13)(iii)(C), 98.236(c)(14)(i)(C), 98.236(c)(14)(ii)(C), 98.236(c)(14)(iii)(C), and 98.236(c)(14)(iv).

Comment: One commenter questioned the proposed amendments to the population emission factors in Table W-1A of subpart W. This commenter specifically questioned why the EPA increased the emission factors for valves, flanges, connectors, open-ended lines, and "other" components as listed in Table W-1A to Subpart W. The commenter further noted that the values previously included in Table W-1A were close to the commenter's estimates when rounded up. Finally, the commenter recommended EPA not revise the Table W-1A emission factors for valves, flanges, connectors, open-ended lines, and "other" components.

Response: The EPA disagrees with the commenter that the Table W-1A population emission factors should not be revised. In the December 2011 technical corrections final rule (76 FR 80592), the emission factors were converted from a standard temperature of 68 °F to a standard temperature of 60 °F. In the December 2011 Final Rule, the EPA inadvertently used an

incorrect intermediary version of Table W–1A to convert the emission factors, including the emission factors for the components noted by the commenter. The emission factors proposed in the 2012 Technical Corrections for Table W-1A show the emission factors correctly adjusted to a standard temperature of 60°F. In this action, EPA is finalizing the emission factors in Table W-1A as proposed in the 2012 Technical Corrections Proposal.

Comment: One commenter stated that Equation W-14A contains an error in the purge factor that causes the equation to yield erroneous results. The commenter further stated that because the volume being purged is converted from actual cubic feet to standard cubic feet, inconsistent units were being subtracted, (i.e. standard cubic feet purged and actual cubic feet "purge factor") in Equation W-14A. The commenter also stated that the inconsistency would result in a negative number if the volume of the purged item in standard cubic feet was less than that of actual cubic feet, (i.e. actual conditions are hotter or a lower pressure than standard conditions). Finally, the commenter stated that if the item is not being purged, the commenter believes the calculation should not be used, as there would be no GHG emissions from the blowdown stack.

Response: The EPA agrees with the commenter that the natural gas remaining in the unique physical volume after the

blowdown is complete without purging is at actual conditions. However, after a blowdown, “actual conditions” are essentially equivalent to atmospheric conditions, or standard conditions (as a simplifying assumption explained further below).

Equation W-14A calculates the volume of natural gas emitted from blowdowns. When equipment is depressurized, the gas contained in the unique volume expands as it goes from actual conditions (process pressure and temperature) to standard conditions (i.e., atmospheric pressure and temperature). Equation W-14A accounts for this physical change. After expansion (i.e., venting), some gas will remain in the equipment or unique physical volume if the equipment is not purged. This unvented gas should be subtracted from the volume of expanded gas. If the remaining gas in the equipment is purged, then the purge factor in Equation W-14A equals zero and nothing will be subtracted from the emissions calculated earlier in the equation as all of the expanded gas volume has been emitted to the atmosphere. If the remaining gas is not purged, then the purge factor equals one and the unique physical volume will be subtracted as it was not vented and released to the atmosphere. There are several simplifying assumptions in the equation to facilitate its use. It is assumed that the process temperature and/or pressure are significantly different than standard conditions. It is also assumed that the equipment is fully

vented to the atmosphere, resulting in the final condition of the gas being at atmospheric temperature and pressure. It is also assumed that the atmospheric temperature and pressure are not significantly different than standard conditions. These simplifying assumptions are true in a majority, if not all cases.

D. Subpart L – Fluorinated Gas Production

1. Summary of Final Amendments and Confidentiality Determinations

Final amendments. As explained in Section I.D of this preamble, the EPA is deferring detailed reporting of GHG emissions from fluorinated gas production facilities until 2014 in today's final rule. In the meantime, the EPA is requiring that GHG emissions be reported in a more aggregated manner than previously required for the initial two years of reporting under subpart L. These changes pertain only to subpart L, and are temporary (i.e., for reporting in 2012 and 2013) to allow the EPA sufficient time to fully evaluate concerns raised by stakeholders that reporting, and subsequent EPA release, of certain emissions would reveal trade secrets.

For reporting in 2012 and 2013, we are requiring owners and operators of facilities producing fluorinated gases to report annual total facility-wide fluorinated GHG emissions from 2011

and 2012 respectively in tons of CO_2e.[8] The facilities are not required to report process level emissions or individual fluorinated GHGs in 2012 and 2013. These amendments do not change any other requirements of Part 98 or affect the deferral of the reporting deadline for subpart L data elements used as inputs to emission equations until March 31, 2015 (76 FR 53057, August 25, 2011). These amendments do not change the requirement that these subpart L data elements in today's final rule be retained as records in a form that is suitable for expeditious inspection and review (required for all Part 98 records by 40 CFR 98.3(g)).

As proposed, this final rule provides that owners and operators of facilities producing fluorinated gases are not required to submit the data elements listed below until March 31, 2014:

- 40 CFR 98.3(c)(4)(iii)
- 40 CFR 98.126 (a)(2), (a)(3), (a)(4), (a)(6),(b), (c), (d), (e), (f), (g), and (h).

Fluorinated gas producers subject to subpart L are required to report only the data elements in 40 CFR 98.126(a)(5) (the methods used) and in paragraph 40 CFR 98.126(j) (facility-level CO_2e emissions) for reporting of 2011 and 2012 emissions in 2012

[8] This includes emissions from all fluorinated gas production processes, all fluorinated gas transformation processes that are not part of a fluorinated gas production process, all fluorinated gas destruction processes that are not part of a fluorinated gas production process or a fluorinated gas transformation process, and venting of residual fluorinated GHGs from containers returned from the field.

and 2013. Consistent with 40 CFR 98.126(e), a facility must include any excess emissions, converted to CO_2e, that result from malfunctions of the destruction device when reporting total facility CO_2e under 40 CFR 98.126(j). However, as noted in 40 CFR 98.126(j), these excess emissions do not need to be reported separately but must be included in the facility-wide CO_2e reported. In this action, we have also amended 98.126(a)(5) as proposed to require facilities to report the methods used to determine emissions at a facility level rather than linking each method to a particular process.

The EPA requires that facilities use Equation A-1 of subpart A to calculate CO_2e from the mass of fluorinated GHG emissions. For fluorinated GHGs that do not have a global warming potential (GWP) listed in Table A-1, facilities are required to use either a default GWP or their best estimate of the GWP, based on the information described in 40 CFR 98.123(c)(1)(vi)(A)(3).[9] As discussed further in Section II.D.2 of this preamble, we have clarified that use of quantitative structure activity relationships (QSARs), which are based on the chemical structure of the compound, is an acceptable method for estimating the GWP in situations where neither pure standards of the compound nor fourier transform infrared spectroscopy (FTIR)

[9] This is part of the provision of subpart L that allows facilities to request to use provisional GWPs to calculate whether they must use stack testing to establish an emission factor for a vent. Note that EPA is not requiring approval of best-estimate GWPs in this action.

spectra for the chemicals mixed with the compound (i.e., impurities) are available.

As proposed, the default GWP used depends on the type of fluorinated GHG. For fully fluorinated GHGs, the default GWP is 10,000, which is based on the average GWP of the fully fluorinated GHGs in Table A-1 of subpart A. For the purposes of subpart L, the EPA is finalizing as proposed the addition of the definition of "fully fluorinated GHGs" to 40 CFR 98.128: "fluorinated GHGs that contain only single bonds and in which all available valence locations are filled by fluorine atoms. This includes but is not limited to saturated perfluorocarbons, SF_6, NF_3, SF_5CF_3, fully fluorinated linear, branched and cyclic alkanes, fully fluorinated ethers, fully fluorinated tertiary amines, fully fluorinated aminoethers, and perfluoropolyethers." As proposed, for other fluorinated GHGs, the default GWP is 2,000, which is based on the average GWP of the other fluorinated GHGs on Table A-1 of subpart A.

As proposed, we are adding four new data elements to the subpart L reporting requirements. Facilities that use one or more default or best-estimate GWPs are required to report the amounts of CO_2e emissions that were calculated using each of the two default values as well as using best-estimate GWPs. This enables the EPA to understand the potential impact of the default or best-estimate GWPs on the uncertainty of the overall

estimated emissions of the facility. (Default and best-estimate GWPs are likely to have higher uncertainties than GWPs from Table A-1.) Also as proposed, facilities using default or best-estimate GWPs for fluorinated GHGs without GWPs in Table A-1 of subpart A are required to keep records of the GWP they used for each GHG. As proposed, facilities using best-estimate GWPs are also required to keep records of the data and analysis that were used to develop the GWPs, in a form that is suitable for expeditious inspection and review (required for all Part 98 records by 40 CFR 98.3(g)). As discussed further in Section II.D.2 of this preamble, we are updating the proposed recordkeeping requirement to specify that where QSARs are used to estimate GWPs, facilities must retain information related to the reliability of GWPs based on the QSARs.

Final Confidentiality Determinations. We are finalizing the confidentiality determinations for the four new subpart L data elements (listed in Table 2 of this preamble) as proposed. In the proposal, we assigned these four data elements to the "Emissions" data category because they describe emissions exhausted to the atmosphere, and apply to these data elements the categorical confidentiality determination the EPA made in the 2011 Final CBI rule for that data category, i.e., the data elements in this data category are "emission data" under CAA section 114(c) and 40 CFR 2.301(a)(2)(i). We received no

comments on our proposed category assignment and confidentiality determination described above. We are therefore finalizing the determination that these data elements are "emission data," which are not eligible for confidential treatment under section 114(c) of the CAA.

Table 2. Reporting Data Elements and Confidentiality Determinations

	Citation	Data Element	Data Category (Finalized CBI Determination[10])
1	98.126(j)(3)	You must report the total fluorinated GHG emissions of the facility, expressed in tons of CO_2e.	Emissions (Emission Data: Made available to the public)
2	98.126(j)(3)(ii)	Provide the total annual emissions across fluorinated GHGs for the entire facility, in metric tons of CO_2e, that were calculated using the default GWP of 2000.	Emissions (Emission Data: Made available to the public)
3	98.126(j)(3)(iii)	Provide the total annual emissions across fluorinated GHGs for the entire facility, in metric tons of CO_2e, that were calculated using the default GWP of 10,000.	Emissions (Emission Data: Made available to the public)
4	98.126(j)(3)(iv)	Provide the total annual emissions across fluorinated GHGs for the entire facility, in metric tons of CO_2e, that were calculated using your best estimate of the GWP.	Emissions (Emission Data: Made available to the public)

2. Summary of Comments and Responses

This section contains a brief summary of comments on the proposed changes to subpart L and responses.

[10] The CBI determinations of these data categories were finalized in the 2011 Final CBI Rule (May 26, 2011, 76 FR 30782).

Additional comments and responses thereto can be found in the document, "Response to Comments: 2012 Technical Corrections, Clarifying and Other Amendments of the Mandatory Reporting of Greenhouse Gases Rule, and Confidentiality Determinations for Certain Data Elements of the Fluorinated Gas Source Category" (see EPA-HQ-OAR-2011-0147).

Comment: One commenter recommended that 40 CFR 98.126(j) be revised to clarify that comparable methods for best-estimate GWPs based on use of professional judgment are acceptable if they result in accuracy that is comparable to the accuracy associated with the methods described in 40 CFR 98.123(c)(1)(vi)(A)(3). This commenter stated that measurement of the low-pressure gas phase infrared absorption spectrum for a particular fluorinated GHG is not possible where neither pure standards of the "target" fluorinated GHG nor FTIR spectra for the impurities are available. In such circumstances, the commenter recommended the EPA allow reporters to use quantitative structure activity relationships (QSARs) that mathematically relate the radiative forcing and/or atmospheric lifetime (i.e., reaction rate) of a compound to the chemical's structure (i.e., type of compound, number of carbon-halogen bonds, etc.). The commenter believes that QSARs are a valid approach for obtaining a "best estimate" of GWP in situations where infrared spectroscopy cannot be used and that this

approach is consistent with the methods that are described in 40 CFR 98.123(c)(1)(vi)(A)(3). The commenter also stated that comparisons between measured and QSAR-derived GWPs have shown that the uncertainty associated with QSAR-derived estimates of radiative forcing is between 18 to 23 percent and that the uncertainty associated with QSAR-derived estimates of the atmospheric lifetime is 30 percent on average for a given class of compounds. The commenter stated that the overall uncertainty of QSAR-derived GWPs is a combination of these two uncertainties, but that use of a QSAR-based GWP is still more accurate than the default GWPs of 2,000 or 10,000 provided in the rule.

Response: The EPA agrees with the commenter that for purposes of this rule, use of QSARs is an acceptable alternative method for estimating GWPs of fluorinated GHGs that do not have a GWP listed in Table A-1 of subpart A. QSARs are based on statistical analysis correlating the chemical or biological activity of compounds (including, e.g., radiative forcing and reaction rates) with their molecular structure and/or properties. The activity of one or more compounds is estimated (modeled) based on the activity of compounds with similar structures. The accuracy of QSAR-derived estimates depends on the structural similarity between the "target" compound and the group of compounds (often called "analogs") used to model it and

on the quantity and quality of the measurements of the activity of the analogs, among other factors. We are finding use of QSARs acceptable for purposes of this rule because they can provide reasonable estimates of the likely radiative forcing[11] and lifetime of the compound, which is what the provisions described at 40 CFR 98.123(c)(1)(vi)(A)(3) are intended to ensure.

As requested by the commenter, we have revised 40 CFR 98.126(j) to specify that the use of QSARs for determining GWPs is an acceptable method for situations where the infrared spectrum of a fluorinated GHG cannot be measured because neither pure standards of the "target" fluorinated GHG nor FTIR spectra for the impurities are available. In addition, we have revised the proposed recordkeeping requirements at 40 CFR 98.127 to require retention of information related to the reliability of GWPs based on QSARs. This includes information on how the structure of the "target" fluorinated GHG is similar to the structures of the fluorinated GHGs used to model the radiative forcing and/or reaction rate of the "target" fluorinated GHG, the quality and quantity of the measurements of the radiative forcings and/or reaction rates of the fluorinated GHGs used to model these parameters for the "target" fluorinated GHG, any estimated uncertainties of the modeled forcings and/or reaction

[11] Note that the actual radiative forcing also depends on other variables, such as whether or not the gas is sufficiently long-lived to become well-mixed in the atmosphere.

rates, and descriptions and results of any efforts to validate the QSAR model(s).

Although we find the use of QSARs to be acceptable in this situation, we disagree with the commenter's recommendation that the rule be revised to state that any comparable methods based on use of professional judgment are acceptable if they result in accuracy that is comparable to the accuracy associated with the methods described in 40 CFR 98.123(c)(1)(vi)(A)(3). Since the commenter provided no description of any other alternative methods, we are unable to assess whether other methods based on professional judgment would provide an acceptable level of accuracy. Thus, we are not including a blanket provision permitting use of comparable methods based on professional judgment.

III. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This final rule, which finalizes several corrections to specific provisions in subparts A, TT, W, and L to provide greater clarity and flexibility to facilities subject to reporting in 2012 and finalizes confidentiality determinations for amended subpart L reporting requirements, is not a "significant regulatory action" under the terms of Executive

Order 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011).

B. Paperwork Reduction Act

These final rule amendments and confidentiality determinations do not increase the recordkeeping and reporting burden associated with Part 98. The amendments to subpart L result in a net decrease in burden since they result in less detailed reporting under subpart L than would otherwise have been required by the December 2010 Subpart L final rule. Although we have added new recordkeeping provisions to subpart L, these apply only to those facilities electing to use the optional QSAR approach to determining GWPs instead of the default factors provided in the rule. Additionally, the subpart L confidentiality determinations do not impose any additional burden. The subpart A amendment is merely a harmonizing change to a technical correction finalized in February 2012 for subpart I that clarifies the existing reporting requirements. The subpart TT amendment excludes some facilities from the reporting requirements and reduces the burden by making it easier for facilities to determine applicability of subpart TT under the GHG Reporting Rule. Finally, the subpart W amendments are technical corrections and clarifications that help clarify GHG calculations and reporting and do not materially affect the

actions facilities must take to comply with the rule or add any additional reporting requirements. The OMB has previously approved the information collection requirements for subparts A on October 30, 2009, subpart L on December 1, 2010, subpart W promulgated on November 30, 2010, subpart TT promulgated on July 12, 2010 under 40 CFR part 98 under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 et seq., and has assigned OMB control numbers 2060-0629; 2060-0650; and 2060-0647; and 2060-0649 respectively. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9. Further information on the EPA's assessment on the impact on burden can be found in the 2012 Technical Corrections and Amendments Cost Memo in docket number EPA-HQ-OAR-2011-0147.

C. Regulatory Flexibility Act (RFA)

The RFA generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of this final rule on small entities, a small entity is defined as: (1) a small

business as defined by the Small Business Administration's regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of these final rule amendments on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. These rule amendments and confidentiality determinations will not impose any additional burden on small entities beyond that currently required by 40 CFR part 98, subpart A promulgated on October 30, 2009; subpart TT promulgated on July 12, 2010; subpart W promulgated on November 30, 2010, or subpart L promulgated on December 1, 2010. The EPA is promulgating the amendments in this action to provide clarity, add flexibility, to address ambiguity in the rule provisions, and to make corrections where necessary to assist reporters in implementation of these subparts.

Further, the EPA took several steps to reduce the impact of 40 CFR part 98 on small entities when developing the final GHG reporting rules in 2009 and 2010. Specifically, the EPA determined appropriate thresholds that reduced the number of

small businesses reporting. In addition, the EPA conducted several meetings with industry associations to discuss regulatory options and the corresponding burden on industry, such as recordkeeping and reporting. Finally, the EPA continues to conduct significant outreach on the GHG reporting program and maintains an "open door" policy for stakeholders to help inform the EPA's understanding of key issues for the industries.

D. Unfunded Mandates Reform Act (UMRA)

This final rule does not contain a Federal mandate that may result in expenditures of $100 million or more for state, local, and tribal governments, in the aggregate, or the private sector in any one year. Thus, the final rule amendments and confidentiality determinations for are not subject to the requirements of section 202 and 205 of the UMRA. This rule is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments. The final amendments will not impose any new requirements that are not currently required for 40 CFR part 98, and the final rule amendments will not unfairly apply to small governments. Therefore, this action is not subject to the requirements of section 203 of the UMRA.

E. Executive Order 13132: Federalism

The final rule amendments and confidential determinations to Part 98 do not have federalism implications. They will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. These amendments and confidentiality determinations apply directly to facilities that supply certain products that would result in GHGs when released, combusted or oxidized and facilities that directly emit greenhouses gases. They do not apply to governmental entities unless the government entity owns a facility that directly emits GHGs above threshold levels, so relatively few government facilities would be affected. This regulation also does not limit the power of states or localities to collect GHG data and/or regulate GHG emissions. Thus, Executive Order 13132 does not apply to this action.

Although section 6 of Executive Order 13132 does not apply to this action, the EPA did consult with state and local officials or representatives of state and local governments in developing subparts A on October 30, 2009; subpart TT promulgated on July 12, 2010; subpart W promulgated on November 30, 2010; and subpart L promulgated on December 1, 2010. A summary of the EPA’s consultations with state and local

governments is provided in Section VIII.E of the preamble to the 2009 final rule.

F. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

This action does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). This final rule, which finalizes several corrections to specific provisions in subparts A, TT, W, and L to provide greater clarity and flexibility to facilities subject to reporting in 2012 and finalizes confidentiality determinations for amended subpart L reporting requirements, will not increase the burden associated with the current requirements of 40 CFR part 98. Thus, Executive Order 13175 does not apply to this action.

G. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks

The EPA interprets Executive Order 13045 (62 FR 19885, April 23, 1997) as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under section 5-501 of the Executive Order has the potential to influence the regulation. This action is not subject to Executive Order 13045 because it does not establish an environmental standard intended to mitigate health or safety risks.

H. Executive Order 13211: Actions that Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211 (66 FR 28355, May 22, 2001), because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law No. 104-113 (15 U.S.C. 272 note) directs the EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs the EPA to provide Congress, through OMB, explanations when the EPA decides not to use available and applicable voluntary consensus standards. The final rule amendments do not involve technical standards. Therefore, the EPA did not consider the use of any voluntary consensus standards.

J. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629, February 16, 1994) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

The EPA has determined that the final rule amendments and confidentiality determinations will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it does not affect the level of protection provided to human health or the environment because it is a rule addressing information collection and reporting procedures.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 et seq., as added by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. The EPA will submit a report containing this rule and other

required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication in the Federal Register. A major rule cannot take effect until 60 days after it is published in the Federal Register. This action is not a "major rule" as defined by 5 U.S.C. 804(2). This final rule is effective on [INSERT THE DATE OF PUBLICATION OF THIS FINAL RULE IN THE FEDERAL REGISTER], except for the amendments to 40 CFR 98.3(c)(4) (the subpart A amendments that affect subpart I) and the confidentiality determinations for subpart L, which are effective on [INSERT THE DATE 30 DAYS AFTER PUBLICATION OF THIS FINAL RULE IN THE FEDERAL REGISTER].

List of Subjects in 40 CFR Part 98

Environmental protection, Administrative practice and procedure, Greenhouse gases, Suppliers, Reporting and recordkeeping requirements.

__August 3, 2012_____
Dated:

_____
Lisa P. Jackson,
Administrator.

For the reasons stated in the preamble, title 40, chapter I, of the Code of Federal Regulations is amended as follows:

PART 98—[AMENDED]

1. The authority citation for part 98 continues to read as follows:

Authority: 42 U.S.C. 7401 et seq.

Subpart A—[Amended]

2. Amend § 98.3 by:

a. Revising paragraphs (c)(4) introductory text, (c)(4)(i), and (c)(4)(iii)(E);

b. Adding paragraph (c)(4)(iii)(F); and

c. Revising paragraph (c)(4)(vi).

The additions and revisions read as follows:

§98.3 What are the general monitoring, reporting, recordkeeping and verification requirements of this part?

* * * * *

(c) * * *

(4) For facilities, except as otherwise provided in paragraph (c)(12) of this section, report annual emissions of CO_2, CH_4, N_2O, each fluorinated GHG (as defined in §98.6), and each fluorinated heat transfer fluid (as defined in §98.98) as follows.

(i) Annual emissions (excluding biogenic CO_2) aggregated for all GHG from all applicable source categories, expressed in metric tons of CO_2e calculated using Equation A–1 of this subpart. For electronics manufacturing (as defined in §98.90), starting in reporting year 2012 the CO_2e calculation must include each fluorinated heat transfer fluid (as defined in §98.98) whether or not it is also a fluorinated GHG.

* * * * *

(iii) * * *

(E) Each fluorinated GHG (as defined in §98.6), including those not listed in Table A–1 of this subpart.

(F) For electronics manufacturing (as defined in §98.90), each fluorinated heat transfer fluid (as defined in §98.98) that is not also a fluorinated GHG as specified under (c)(4)(iii)(E) of this section. This requirement applies beginning in reporting year 2012.

* * * * *

(vi) When applying paragraph (c)(4)(i) of this section to fluorinated GHGs and fluorinated heat transfer fluids, calculate and report CO_2e for only those fluorinated GHGs and fluorinated heat transfer fluids listed in Table A–1 of this subpart.

* * * * *

3. Amend Table A-7 to subpart A of part 98 by revising the entries for subpart L to read as follows:

Table A-7 to Subpart A of Part 98--Data Elements that Are Inputs to Emission Equations and for Which the Reporting Deadline Is March 31, 2015

Subpart	Rule Citation (40 CFR part 98)	Specific data elements for which reporting date is March 31, 2015 ("All" means all data elements in the cited paragraph are not required to be reported until March 31, 2015)
* * * * * * *		
L	98.126(b)(1)	Only data used in calculating the absolute errors and data used in calculating the relative errors.
L	98.126(b)(2)	All.
L	98.126(b)(6)	Only mass of each fluorine-containing reactant fed into the process.
L	98.126(b)(7)	Only mass of each fluorine-containing product produced by the process.
L	98.126(b)(8)(i)	Only mass of each fluorine-containing product that is removed from the process and fed into the destruction device.
L	98.126(b)(8)(ii)	Only mass of each fluorine-containing by-product that is removed from the process and fed into the destruction device.
L	98.126(b)(8)(iii)	Only mass of each fluorine-containing reactant that is removed from the process and fed into the destruction device.

Subpart	Rule Citation (40 CFR part 98)	Specific data elements for which reporting date is March 31, 2015 ("All" means all data elements in the cited paragraph are not required to be reported until March 31, 2015)
L	98.126(b)(8)(iv)	Only mass of each fluorine-containing by-product that is removed from the process and recaptured.
L	98.126(b)(8)(v)	All.
L	98.126(b)(9)(i)	All.
L	98.126(b)(9)(ii)	All.
L	98.126(b)(9)(iii)	All.
L	98.126(b)(10)	All.
L	98.126(b)(11)	All.
L	98.126(b)(12)	All.
L	98.126(c)(1)	Only quantity of the process activity used to estimate emissions.
L	98.126(c)(2)	All.
L	98.126(d)	Only estimate of missing data.
L	98.126(f)(1)	All.
L	98.126(g)(1)	All.
L	98.126(h)(2)	All.
* * * * * * *		

Subpart L—[Amended]

4. Amend § 98.126 by:

a. Revising paragraphs (a) introductory text and (a)(5); and

b. Adding paragraph (j).

The additions and revisions read as follows:

§98.126 Data reporting requirements.

(a) All facilities. In addition to the information required by §98.3(c), you must report the information in paragraphs (a)(2) through (a)(6) of this section according to the schedule in paragraph (a)(1) of this section, except as otherwise provided in paragraph (j) of this section or in §98.3(c)(4)(vii) and Table A-7 of Subpart A of this part.

* * * * *

(5) The methods used to determine the mass emissions of each fluorinated GHG, i.e., mass balance, process-vent-specific emission factor, or process-vent-specific emission calculation factor, at the facility. If you use the process-vent-specific emission factor or process-vent-specific emission calculation factor method, report the methods used to estimate emissions from equipment leaks.

* * * * *

(j) Special provisions for reporting years 2011 and 2012 only. For reporting years 2011 and 2012, the owner or operator of a facility must comply with paragraphs (j)(1), (j)(2), and (j)(3) of this section.

(1) Timing. The owner or operator of a facility is not required to report the data elements at §98.3(c)(4)(iii) and §98.126(a)(2), (a)(3), (a)(4), (a)(6), (b), (c), (d), (e), (f), (g), and (h) of this section until the later of March 31, 2014

or the date set forth for that data element at §98.3(c)(4)(vii) and Table A-7 of Subpart A of this part.

(2) Excess emissions. Excess emissions of fluorinated GHGs resulting from destruction device malfunctions must be reflected in the reported facility-wide CO_2e emissions but are not required to be reported separately.

(3) Calculation and reporting of CO_2e. You must report the total fluorinated GHG emissions covered by this subpart, expressed in metric tons of CO_2e. This includes emissions from all fluorinated gas production processes, all fluorinated gas transformation processes that are not part of a fluorinated gas production process, all fluorinated gas destruction processes that are not part of a fluorinated gas production process or a fluorinated gas transformation process, and venting of residual fluorinated GHGs from containers returned from the field. To convert fluorinated GHG emissions to CO_2e for reporting under this section, use Equation A-1 of §98.2. For fluorinated GHGs whose GWPs are not listed in Table A-1 of Subpart A of this part, use either the default GWP specified below or your best estimate of the GWP based on the information described in §98.123(c)(1)(vi)(A)(3). Use of quantitative structure activity relationships (QSARs) is an acceptable method for determining GWPs in situations where pure standards of the "target" fluorinated GHG are not available, the "target" fluorinated GHG

cannot be isolated from gas streams, and FTIR spectra for the impurities are not available.

(i) If you choose to use a default GWP rather than your best estimate of the GWP for fluorinated GHGs whose GWPs are not listed in Table A-1 to this subpart, use a default GWP of 10,000 for fluorinated GHGs that are fully fluorinated GHGs and use a default GWP of 2000 for other fluorinated GHGs.

(ii) Provide the total annual emissions across fluorinated GHGs for the entire facility, in metric tons of CO_2e, that were calculated using the default GWP of 2000.

(iii) Provide the total annual emissions across fluorinated GHGs for the entire facility, in metric tons of CO_2e, that were calculated using the default GWP of 10,000.

(iv) Provide the total annual emissions across fluorinated GHGs for the entire facility, in metric tons of CO_2e, that were calculated using your best estimate of the GWP.

5. Amend § 98.127 by:

a. Revising the introductory text.

b. Adding paragraph (k).

The addition and revisions read as follows:

§98.127 Records that must be retained.

In addition to the records required by §98.3(g), you must retain the dated records specified in paragraphs (a) through (k) of this section, as applicable.

* * * * *

(k) For fluorinated GHGs whose GWPs are not listed in Table A-1 to subpart A of this part, maintain records of the GWPs used to calculate facility-wide CO_2e emissions under §98.127(j). Where you used your best estimate of the GWP, maintain records of the data and analysis used to develop that GWP, including the data elements at §98.123(c)(1)(vi)(A)(1)through (3). If you have used QSARs to estimate the GWP, include information documenting the level of accuracy of the QSAR-derived GWP, including information on how the structure of the "target" fluorinated GHG is similar to the structures of the fluorinated GHGs used to model the radiative forcing and/or reaction rate of the "target" fluorinated GHG, the quality and quantity of the measurements of the radiative forcings and/or reaction rates of the fluorinated GHGs used to model these parameters for the "target" fluorinated GHG, any estimated uncertainties of the modeled forcings and/or reaction rates, and descriptions and results of any efforts to validate the QSAR model(s).

6. Amend § 98.128 by adding the definition of "Fully fluorinated GHGs" in alphabetical order to read as follows:

§98.128 Definitions.

* * * * *

Fully fluorinated GHGs means fluorinated GHGs that contain only single bonds and in which all available valence locations are filled by fluorine atoms. This includes but is not limited to saturated perfluorocarbons, SF_6, NF_3, SF_5CF_3, fully fluorinated linear, branched and cyclic alkanes, fully fluorinated ethers, fully fluorinated tertiary amines, fully fluorinated aminoethers, and perfluoropolyethers.

* * * * *

Subpart W—[Amended]

7. Amend § 98.233 by:

a. In paragraph (e)(5), revising Equation W-6 and all of its definitions;

b. Revising paragraph (f)(1) introductory text, Equation W-7, and the definition of parameter "T_p" in Equation W-7, removing the definition of parameter "FR_p", and adding in its place the definition of parameter "FR";

c. Revising paragraphs (f)(1)(i) introductory text and (f)(1)(i)(A).

d. In paragraph (f)(2), revising Equation W-8 and the definitions of parameters "SP_p", "V_p", and "$HR_{p,q}$" in Equation W-8;

e. Revising paragraph (f)(3) introductory text, Equation W-9, and the definitions of parameters "W", "V_p", and "$HR_{p,q}$" in Equation W-9;

f. In paragraph (g), revising Equations W-10A and W-10B, removing the definitions of "FRM", "PR_p", "EnF_p", "SG_p", and "FV_p", and adding in their place respectively the definitions of "FRM_s", "$PR_{s,p}$", "$EnF_{s,p}$", "$SG_{s,p}$", and "$FV_{s,p}$";

g. Revising paragraph (g)(1) introductory text;

h. In paragraph (g)(1)(ii), revising Equations W-11A and W-11B, and the definitions of parameter "A" in both Equations W-11A and W-11B, and removing the definitions of parameter "FR" in both Equations W-11A and W-11B,, and adding in their place respectively the definitions of parameter "FR_a";

i. In paragraph (g)(1)(iii), revising Equation W-12, and all of its definitions;

j. Revising paragraph (g)(3)(i);

k. In paragraph (h), revising the definition of parameter "$E_{s,n}$" in Equation W-13;

l. In paragraph (i)(3), revising the definition of parameter "$E_{S,N}$" in Equation W-14A, revising Equation W-14B, removing the definition of parameter "T_a" in Equation W-14B, and adding in its place the definition of parameter "$T_{a,p}$";

m. Revising paragraph (j)(5) introductory text and the definition of parameters "Count" and "1,000" in Equation W-15;

n. In paragraph (l)(3) introductory text revising the definition of parameter "PR" in Equation W-17B;

o. Removing and reserving paragraph (n)(7);

p. In paragraph (o)(5) introductory text, revising Equation W-23, removing the definition of parameter "$E_{s,i}$", and adding in its place the definition of parameter "$E_{s,i,m}$" .

q. In paragraph (o)(6), revising Equation W-24 and the definition of parameter "m", and removing the definition of parameter "MT_m", and adding in its place the definition of parameter "$MT_{m,p}$";

r. In paragraph (o)(7), revising the definition of "EF_i" in Equation W-25;

s. In paragraph (p)(7) introductory text, revising Equation W-27, removing the definition of parameter "$E_{s,i}$" in Equation W-27, and adding in its place the definition of parameter "$E_{s,i,m}$";

t. In paragraph (p)(7)(i) introductory text, revising Equation W-28 and the definition of parameter "m", and removing the definition of parameter "MT_m", and adding in its place the definition of parameter "$MT_{m,p}$";

u. Revising paragraph (r)(2) introductory text;

v. Revising paragraph (r)(6)(ii) introductory text;

w. Revising paragraph (t) introductory text, paragraph (t)(1) introductory text, and the definition of parameters "$E_{s,n}$" and "$E_{a,n}$" in Equation W-33;

x. In paragraph (v), revising the definition of "ρ_i" in Equation W-36;

y. In paragraph (z)(2)(iii), removing the definition of "E_{CO2}" in Equations W-39A and W-39B, and adding in its place the definition of "$E_{a,CO2}$";

z. In paragraph (z)(2)(vi), revising the definition of parameter "HHV" in Equation W-40.

The addition and revisions read as follows:

§98.233 Calculating GHG emissions.

* * * * *

(e) * * *

(5) * * *

$$E_{s,n} = \frac{(H*D^2*P*P_2*\%G*N)}{(4*P_1*100)} \quad \text{(Eq. W-6)}$$

Where:

$E_{s,n}$	=	Annual natural gas emissions at standard conditions in cubic feet.
H	=	Height of the dehydrator vessel (ft).
D	=	Inside diameter of the vessel (ft).
P_1	=	Atmospheric pressure (psia).
P_2	=	Pressure of the gas (psia).
P	=	pi (3.14).
%G	=	Percent of packed vessel volume that is gas.
N	=	Number of dehydrator openings in the calendar year.
100	=	Conversion of %G to fraction.

* * * * *

(f) * * *

(1) Calculation Methodology 1. For at least one well of each unique well tubing diameter group and pressure group combination in each sub-basin category (see §98.238 for the definitions of tubing diameter group, pressure group, and sub-basin category), where gas wells are vented to the atmosphere to expel liquids accumulated in the tubing, a recording flow meter shall be installed on the vent line used to vent gas from the well (e.g., on the vent line off the wellhead separator or atmospheric storage tank) according to methods set forth in §98.234(b). Calculate emissions from well venting for liquids unloading using Equation W-7 of this section.

$$E_{a,n} = \sum_{p=1}^{h} T_p FR \qquad \text{(Eq. W-7)}$$

* * * * *

T_p = Cumulative amount of time in hours of venting for each well, p, of the same tubing diameter group and pressure group combination in a sub-basin during the year.

FR = Average flow rate in cubic feet per hour for all measured wells venting for the duration of the liquids unloading, under actual conditions as determined in paragraph (f)(1)(i) of this section.

(i) Determine the well vent average flow rate as specified under paragraph (f)(1)(i) of this section for at least one well in a unique well tubing diameter group and pressure group combination in each sub-basin category.

(A) The average flow rate per hour of venting is calculated for each unique tubing diameter group and pressure group combination in each sub-basin category by dividing the recorded total flow by the recorded time (in hours) for all measured liquid unloading events with venting to the atmosphere.

* * * * *

(2) * * *

$$E_{s,n} = \sum_{p=1}^{W}\left[V_p \times \left(\left(0.37 \times 10^{-3}\right) \times CD_p^2 \times WD_p \times SP_p\right) + \sum_{q=1}^{V_p}\left(SFR_p \times \left(HR_{p,q} - 1.0\right) \times Z_{p,q}\right)\right] \quad \text{(Eq. W-8)}$$

* * * * *

SPp = For each well, p, shut-in pressure or surface pressure for wells with tubing production or casing pressure for each well with no packers in pounds per square inch absolute (psia); or casing-to-tubing pressure ratio of one well with no packer from the same sub-basin multiplied by the tubing pressure of each well, p, in the sub-basin, in pounds per square inch absolute (psia).

V_p = Number of unloading events per year per well, p.

* * * * *

$HR_{p,q}$ = Hours that each well, p, was left open to the atmosphere during each unloading event, q.

* * * * *

(3) Calculation Methodology 3. Calculate emissions from well venting to the atmosphere for liquids unloading with plunger lift assist using Equation W-9 of this section.

$$E_{s,n} = \sum_{p=1}^{W}\left[V_p \times \left(\left(0.37 \times 10^{-3}\right) \times TD_p^2 \times WD_p \times SP_p\right) + \sum_{q=1}^{V_p}\left(SFR_p \times \left(HR_{p,q} - 0.5\right) \times Z_{p,q}\right)\right] \quad \text{(Eq. W-9)}$$

* * * * *

W = Total number of wells with plunger lift assist and well venting for liquids unloading for each sub-basin.

* * * * *

V_p = Number of unloading events per year for each well, p.

* * * * *

$HR_{p,q}$ = Hours that each well, p, was left open to the atmosphere during each unloading event, q.

* * * * *

(g) * * *

$$E_{s,n} = \sum_{p=1}^{W}\left[T_p \times FRM_s \times PR_{s,p} - EnF_{s,p} - SG_{s,p}\right] \quad \text{(Eq. W-10A)}$$

$$E_{s,n} = \sum_{p=1}^{W}\left[FV_{s,p} - EnF_{s,p}\right] \quad \text{(Eq. W-10B)}$$

* * * * *

FRM_s = Ratio of flowback during well completions and workovers from hydraulic fracturing to 30-day production rate from Equation W-12.

$PR_{s,p}$ = First 30-day average production flow rate in standard cubic feet per hour of each well p, as required in paragraph (g)(1) of this section.

$EnF_{s,p}$ = Volume of CO_2 or N_2 injected gas in cubic feet at standard conditions that was injected into the reservoir during an energized fracture job for each well p. If the fracture process did

not inject gas into the reservoir, then $EnF_{s,p}$ is 0. If injected gas is CO_2 then $EnF_{s,p}$ is 0.

$SG_{s,p}$ = Volume of natural gas in cubic feet at standard conditions that was recovered into a flow-line for well p as per paragraph (g)(3) of this section. This parameter includes any natural gas that is injected into the well for clean-up. If no gas was recovered, $SG_{s,p}$ is 0.

$FV_{s,p}$ = Flow volume of each well (p) in standard cubic feet measured using a recording flow meter (digital or analog) on the vent line to measure flowback during the completion or workover according to methods set forth in §98.234(b).

(1) The average flow rate for flowback during well completions and workovers from hydraulic fracturing shall be determined using measurement(s) for Calculation Methodology 1 or calculation(s) for Calculation Methodology 2 described in this paragraph (g)(1) of this section. If Equation W-10A is used, the number of measurements or calculations shall be determined per sub-basin and well type (horizontal or vertical) as follows: at least one measurement or calculation for less than or equal to 25 completions or workovers; at least two measurements or calculations for 26 to 50 completions or workovers; at least three measurements or calculations for 51 to 100 completions or workovers; at least four measurements or calculations for 101 to 250 completions or workovers; and at least five measurements or calculations for greater than 250 completions or workovers.

* * * * *

(ii) * * *

$$FR_a = 1.27 * 10^5 * A * \sqrt{3430 * T_u * \left[\left(\frac{P_2}{P_1} \right)^{1.515} - \left(\frac{P_2}{P_1} \right)^{1.758} \right]} \qquad \text{(Eq. W-11A)}$$

Where:

FR_a = Average flow rate in cubic feet per hour, under actual subsonic flow conditions.

A = Cross sectional open area of the restriction orifice (m^2).

* * * * *

$$FR_a = 1.27 * 10^5 * A * \sqrt{187.08 * T_u} \qquad \text{(Eq. W-11B)}$$

Where:

FR_a = Average flow rate in cubic feet per hour, under actual sonic flow conditions.

A = Cross sectional open area of the restriction orifice (m^2).

* * * * *

(iii) * * *

$$FRM_s = \frac{\sum_{p=1}^{N} FR_{s,p}}{\sum_{p=1}^{N} PR_{s,p}} \qquad \text{(Eq. W-12)}$$

Where:

FRM_s = Ratio of flowback rate during well completions and workovers from hydraulic fracturing to 30-day production rate.

$FR_{s,p}$ = Measured flowback rate from Calculation Methodology 1 described in paragraph (g)(1)(i) of this section or calculated flow rate from Calculation Methodology 2 described in

paragraph (g)(1)(ii) of this section in standard cubic feet per hour for well(s) p for each sub-basin and well type (horizontal or vertical) combination. Measured and calculated FR_a values shall be converted from actual conditions (FR_a) to standard conditions ($FR_{s,p}$) for each well p using Equation W-33 in paragraph (t) of this section. You may not use flow volume as used in Equation W-10B converted to a flow rate for this parameter.

$PR_{s,p}$ = First 30-day production rate in standard cubic feet per hour for each well p that was measured in the sub-basin and well type combination.

N = Number of measured or calculated well completions or workovers using hydraulic fracturing in a sub-basin and well type combination.

* * * * *

(3) * * *

(i) Use the factor $SG_{s,p}$ in Equation W-10A of this section, to adjust the emissions estimated in paragraphs (g)(1) through (g)(4) of this section by the magnitude of emissions captured using purpose designed equipment that separates saleable gas from the flowback as determined by engineering estimate based on best available data.

* * * * *

(h) * * *

* * * * *

$E_{s,n}$ = Annual natural gas emissions in standard cubic feet from gas well venting during well completions and workovers without hydraulic fracturing.

* * * * *

(i) * * *

(3) * * *

* * * * *

$E_{s,n}$ = Annual natural gas venting emissions at standard conditions from blowdowns in cubic feet.

* * * * *

$$E_{s,n} = \sum_{p=1}^{N}\left[V\left(\frac{(459.67+T_s)(P_{a,b,p}-P_{a,e,p})}{(459.67+T_{a,p})P_s}\right)\right] \quad \text{(Eq. W-14B)}$$

* * * * *

$T_{a,p}$ = Temperature at actual conditions in the unique physical volume (°F) for each blowdown "p".

* * * * *

(j) * * *

(5) Calculation Methodology 5. For well pad gas-liquid separators and for wells flowing off a well pad without passing through a gas-liquid separator with annual average daily throughput of oil less than 10 barrels per day use Equation W-15 of this section:

* * * * *

Count = Total number of separators or wells with annual average daily throughput less than 10 barrels per day. Count only separators or wells that feed oil directly to the storage tank.

1,000 = Conversion from thousand standard cubic feet to standard cubic feet.

* * * * *

(l) * * *

(3) * * *

* * * * *

PR = Average annual production rate in actual cubic feet per day for the gas well(s) being tested.

* * * * *

(o) * * *

(5) * * *

$$E_{s,i,m} = EF_m * T_m * GHG_i \quad \text{(Eq. W-23)}$$

* * * * *

$E_{s,i,m}$ = Annual total volumetric GHG emissions at standard conditions from each centrifugal compressor for mode-source combination m, in cubic feet.

* * * * *

(6) * * *

$$EF_m = \frac{\sum_{p=1}^{Count_m} MT_{m,p}}{Count_m} \quad \text{(Eq. W-24)}$$

* * * * *

$MT_{m,p}$ = Flow measurements from all centrifugal compressor sources in each mode-source combination, m, for each measured compressor, p, in standard cubic feet per hour.

m = Compressor mode-source combination as listed in paragraph (o)(1)(i) through (o)(1)(iii).

* * * * *

(7) * * *

Where:

EF_i = Emission factor for GHG_i. Use 1.2×10^7 standard cubic feet per year per compressor for CH_4 and 5.30×10^5 standard cubic feet per year per compressor for CO_2 at 60°F and 14.7 psia.

* * * * *

(p) * * *

(7) * * *

$$E_{s,i,m} = EF_m * T_m * GHG_i \quad \text{(Eq. W-27)}$$

* * * * *

$E_{s,i,m}$ = Annual total volumetric GHG emissions at standard conditions from each reciprocating compressor for mode-source combination m, in cubic feet.

(i) * * *

$$EF_m = \frac{\sum_{p=1}^{Count_m} MT_{m,p}}{Count_m} \quad \text{(Eq. W-28)}$$

* * * * *

$MT_{m,p}$ = Flow measurements from all reciprocating compressor sources in each mode-source combination, m, for each measured compressor, p, in standard cubic feet per hour.

m = Compressor mode-source combination as listed in (p)(1) through (p)(3).

* * * * *

(r) * * *

(2) Onshore petroleum and natural gas production facilities shall use the appropriate default population emission factors listed in Table W-1A of this subpart for equipment leaks from valves, connectors, open ended lines, pressure relief valves, pump, flanges, and other. Major equipment and components associated with gas wells are considered gas service components in reference to Table W-1A of this subpart and major natural gas equipment in reference to Table W-1B of this subpart. Major equipment and components associated with crude oil wells are considered crude service components in reference to Table W-1A of this subpart and major crude oil equipment in reference to Table W-1C of this subpart. Where facilities conduct EOR operations the emissions factor listed in Table W-1A of this subpart shall be used to estimate all streams of gases, including recycle CO_2 stream. The component count can be determined using either of the methodologies described in this paragraph (r)(2). The same methodology must be used for the entire calendar year.

* * * * *

(6) * * *

(ii) Emissions from all above grade metering-regulating stations (including above grade TD transfer stations) shall be calculated by applying the emission factor calculated in Equation W-32 and the total count of meter/regulator runs at all

above grade metering-regulating stations (inclusive of TD transfer stations) to Equation W-31. The facility wide emission factor in Equation W-32 will be calculated by using the total volumetric GHG emissions at standard conditions for all equipment leak sources calculated in Equation W-30B in paragraph (q)(8) of this section and the count of meter/regulator runs located at above grade transmission-distribution transfer stations that were monitored over the years that constitute one complete cycle as per paragraph (q)(8)(i) of this section. A meter on a regulator run is considered one meter/regulator run. Reporters that do not have above grade T-D transfer stations shall report a count of above grade metering-regulating stations only and do not have to comply with §98.236(c)(16)(xix).

* * * * *

(t) Volumetric emissions. If equation parameters in §98.233 are already at standard conditions, which results in volumetric emissions at standard conditions, then this paragraph does not apply. Calculate volumetric emissions at standard conditions as specified in paragraphs (t)(1) or (2) of this section, with actual pressure and temperature determined by engineering estimates based on best available data unless otherwise specified.

(1) Calculate natural gas volumetric emissions at standard conditions using actual natural gas emission temperature and

pressure, and Equation W-33 of this section for conversions of $E_{a,n}$ or conversions of FR_a (whether sub-sonic or sonic).

* * * * *

$E_{s,n}$ = Natural gas volumetric emissions at standard temperature and pressure (STP) conditions in cubic feet, except $E_{s,n}$ equals $FR_{s,p}$ for each well p when calculating either subsonic or sonic flowrates under 98.233(g).

$E_{a,n}$ = Natural gas volumetric emissions at actual conditions in cubic feet, except $E_{a,n}$ equals $FR_{a,p}$ for each well p when calculating either subsonic or sonic flowrates under 98.233(g).

* * * * *

(v) * * *

* * * * *

ρ_i = Density of GHG_i. Use 0.0526 kg/ft^3 for CO_2 and N_2O, and 0.0192 kg/ft^3 for CH_4 at 60°F and 14.7 psia .

* * * * *

(z) * * *

(2) * * *

(iii) * * *

* * * * *

$E_{a,CO2}$ = Contribution of annual CO_2 emissions from portable or stationary fuel combustion sources in cubic feet, under actual conditions.

* * * * *

(vi) * * *

* * * * *

HHV = For the higher heating value for field gas or process vent gas, use 1.235 x 10^{-3} mmBtu/scf for HHV.

* * * * *

8. Section 98.236 is amended by:

a. Revising paragraph (c)(5)(ii)(D).

b. Revising paragraph (c)(9) introductory text.

c. Revising paragraphs (c)(13)(i)(G), (c)(13)(ii)(C), (c)(13)(iii)(C), (c)(13)(iv), and (c)(13)(v)(B).

d. Revising paragraphs (c)(14)(i)(C), (c)(14)(ii)(C), (c)(14)(iii)(C), (c)(14)(iv), and (c)(14)(v)(B).

e. Revising paragraphs (c)(15)(i)(B), (c)(15)(i)(C), and (c)(15)(ii)(A).

f. Revising paragraph (c)(17)(v).

The revisions read as follows:

§98.236 Data reporting requirements.

* * * * *

(c) * * *

(5) * * *

(ii) * * *

(D) Average internal casing diameter, in inches, for all wells, where applicable.

* * * * *

(9) For transmission tank emissions identified in §98.233(k) from scrubber dump valves report the following:

* * * * *

(13) * * *

(i) * * *

(G) Report seal oil degassing vent emissions for compressors measured and for compressors not measured in metric tons of CO_2e for each gas.

(ii) * * *

(C) Report blowdown vent emissions when in operating mode in metric tons of CO_2e for each gas.

(iii)* * *

(C) Report the isolation valve leakage emissions in not operating, depressurized mode in metric tons of CO_2e for each gas.

(iv) Report total annual compressor emissions from all modes of operation in metric tons of CO_2e for each gas.

(v) * * *

(B) Report annual emissions in metric tons of CO_2e for each gas (refer to Equation W-25 of §98.233) collectively.

(14) * * *

(i) * * *

(C) Report rod packing emissions for compressors measured and for compressors not measured in metric tons of CO_2e for each gas.

(ii) * * *

(C) Report blowdown vent emissions when in operating and standby pressurized modes in metric tons of CO_2e for each gas.

(iii) * * *

(C) Report isolation valve leakage emissions in not operating, depressurized mode in metric tons of CO_2e for each gas.

(iv) Report total annual compressor emissions from all modes of operation in metric tons of CO_2e for each gas.

(v) * * *

(B) Report annual emissions in metric tons of CO_2e for each gas collectively (refer to Equation W-29 of §98.233).

(15) * * *

(i) * * *

(B) For onshore natural gas processing, range of concentrations of CH_4 and CO_2 (refer to Equation W-30A of §98.233).

(C) Annual CO_2 and CH_4 emissions in metric tons CO_2e for each gas (refer to Equation W-30A of §98.233), by component type.

(ii) * * *

(A) For source categories §98.230(a)(5), (a)(6), and (a)(7), total count for each component type in Tables 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.

* * * * *

(17) * * *

(v) For each EOR pump, report annual CO_2 emissions, expressed in metric tons CO_2e for each gas.

* * * * *

9. Revise Table A-1A of Subpart W of part 98 to read as follows:

Table A-1A of Subpart W–Default Whole Gas Emission Factors for Onshore Petroleum and Natural Gas Production

Onshore petroleum and natural gas production	Emission Factor (scf/hour/component)
Eastern U.S.	
Population Emission Factors - All Components, Gas Service[1]	
Valve	0.027
Connector	0.003
Open-ended Line	0.061
Pressure Relief Valve	0.040
Low Continuous Bleed Pneumatic Device Vents[2]	1.39
High Continuous Bleed Pneumatic Device Vents[2]	37.3
Intermittent Bleed Pneumatic Device Vents[2]	13.5
Pneumatic Pumps[3]	13.3
Population Emission Factors - All Components, Light Crude Service[4]	
Valve	0.05
Flange	0.003
Connector	0.007
Open-ended Line	0.05
Pump	0.01
Other[5]	0.30
Population Emission Factors - All Components, Heavy Crude Service[6]	
Valve	0.0005
Flange	0.0009
Connector (other)	0.0003
Open-ended Line	0.006
Other[5]	0.003
Western U.S.	
Population Emission Factors - All Components, Gas Service[1]	
Valve	0.121
Connector	0.017
Open-ended Line	0.031
Pressure Relief Valve	0.193

Onshore petroleum and natural gas production	Emission Factor (scf/hour/component)
Low Continuous Bleed Pneumatic Device Vents[2]	1.39
High Continuous Bleed Pneumatic Device Vents[2]	37.3
Intermittent Bleed Pneumatic Device Vents[2]	13.5
Pneumatic Pumps[3]	13.3
Population Emission Factors - All Components, Light Crude Service[4]	
Valve	0.05
Flange	0.003
Connector (other)	0.007
Open-ended Line	0.05
Pump	0.01
Other[5]	0.30
Population Emission Factors - All Components, Heavy Crude Service[6]	
Valve	0.0005
Flange	0.0009
Connector (other)	0.0003
Open-ended Line	0.006
Other[5]	0.003

[1] For multi-phase flow that includes gas, use the gas service emissions factors

[2] Emission Factor is in units of "scf/hour/device"

[3] Emission Factor is in units of "scf/hour/pump"

[4] Hydrocarbon liquids greater than or equal to 20˚API are considered "light crude"

[5] "Others" category includes instruments, loading arms, pressure relief valves, stuffing boxes, compressor seals, dump lever arms, and vents.

[6] Hydrocarbon liquids less than 20˚API are considered "heavy crude"

10. Amend Table W-5 of Subpart W of part 98 by revising the entry for "Vapor Recovery Compressor" to read as follows:

Table W-5 of Subpart W–Default Methane Emission Factors for Liquefied Natural Gas (LNG) Storage

LNG Storage	Emission Factor (scf/hour/component)
* * * * * * *	
Vapor Recovery Compressor[2]	4.17

* * * * *

[2]Emission Factor is in units of "scf/hour/device."

Subpart TT—[Amended]

11. Amend § 98.460 by adding paragraph (c)(2)(xiii) to read as follows:

§98.460 Definition of source category.

* * * * *

(c) * * *

(2) * * *

(xiii) Other waste material that has a DOC value of 0.3 weight percent (on a wet basis) or less. DOC value must be determined using a 60-day anaerobic biodegradation test procedure identified in §98.464(b)(4)(i)(A).

* * * * *

12. Section 98.464(b) is revised to read as follows:

§98.464 Monitoring and QA/QVC requirements.

* * * * *

(b) For each waste stream placed in the landfill during the reporting year for which you choose to determine volatile solids concentration for the purposes of §98.460(c)(2)(xii) or choose to determine a landfill-specific DOCx for use in Equation TT-1 of this subpart or for the purposes of §98.460(c)(2)(xiii) of this subpart, you must collect and test a representative sample of that waste stream using the methods specified in paragraphs (b)(1) through (b)(4) of this section.

* * * * *

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