ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 98

[EPA–HQ–OAR–2015–0526; FRL–9954–42–OAR]

RIN 2060–AS60

2015 Revisions and Confidentiality Determinations for Data Elements Under the Greenhouse Gas Reporting Rule

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule; notice of final action on reconsideration.

SUMMARY: The Environmental Protection Agency (EPA) is amending specific provisions in the Greenhouse Gas Reporting Rule to streamline and improve implementation of the rule, to improve the quality and consistency of the data collected under the rule, and to clarify or provide minor updates to certain provisions that have been the subject of questions from reporting entities. This action also finalizes confidentiality determinations for certain data elements. In addition, this is the final action on reconsideration in response to a Petition for Reconsideration regarding specific aspects of the Greenhouse Gas Reporting Rule.

DATES: This rule is effective on January 1, 2017, except for amendatory instructions 3, 5, 6, 8, 10 through 25, 31 through 34, 36, 38 through 44, 46 through 50, 55 through 61, 63, 64, and 69 through 92, which are effective on January 1, 2018; and amendatory instructions 35, 37, 45, 51 through 54, which are effective on January 1, 2019.

The incorporation by reference of certain publications listed in 40 CFR 98.7(l) and 40 CFR 98.324 is approved by the Director of the Federal Register as of January 1, 2017. The incorporation by reference of certain publications listed in 40 CFR 98.7(e), 40 CFR 98.34, and 40 CFR 98.36 is approved by the Director of the Federal Register as of January 1, 2018.

ADDRESSES: The EPA has established a docket for this action under Docket Id. No. EPA–HQ–OAR–2015–0526. 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.,* confidential business information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be 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, William Jefferson Clinton Building (WJC) 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) 343–9334; fax number: (202) 343–2342; email address: *GHGReporting@epa.gov.*

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 at *www.regulations.gov.* Following the Administrator's signature, a copy of this action will be posted on the EPA's Greenhouse Gas Reporting Program Web site at *http://www.epa.gov/ghgreporting.*

SUPPLEMENTARY INFORMATION:

Regulated entities. These final revisions affect entities that must submit annual greenhouse gas (GHG) reports under the Greenhouse Gas Reporting Program (GHGRP) (40 CFR part 98). This final rule will impose on entities across the U.S. a degree of reporting consistency for Greenhouse Gas Emissions from most sectors of the economy and therefore is ''nationally applicable'' within the meaning of section 307(b)(1) of the Clean Air Act (CAA). Further, the Administrator has determined that rules codified in 40 CFR part 98 are subject to the provisions of 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 are amendments to existing regulations and will affect owners or operators of certain suppliers and direct emitters of GHGs. Regulated categories and entities include, but are not limited to, those listed in Table 1 of this preamble:

TABLE 1—EXAMPLES OF AFFECTED ENTITIES BY CATEGORY

Category	NAICS	Examples of affected facilities
General Stationary Fuel Combustion Sources	.....	Facilities operating boilers, process heaters, incinerators, turbines, and internal combustion engines.
	211	Extractors of crude petroleum and natural gas.
	321	Manufacturers of lumber and wood products.
	322	Pulp and paper mills.
	325	Chemical manufacturers.
	324	Petroleum refineries, and manufacturers of coal products.
	316, 326, 339	Manufacturers of rubber and miscellaneous plastic products.
	331	Steel works, blast furnaces.
	332	Electroplating, plating, polishing, anodizing, and coloring.
	336	Manufacturers of motor vehicle parts and accessories.
	221	Electric, gas, and sanitary services.
	622	Health services.
	611	Educational services.
Acid Gas Injection Projects	211111 or 211112	Projects that inject acid gas containing CO_2 underground.
Adipic Acid Production	325199	Adipic acid manufacturing facilities.
Aluminum Production	331312	Primary aluminum production facilities.
Ammonia Manufacturing	325311	Anhydrous and aqueous ammonia manufacturing facilities.
CO_2 Enhanced Oil and Gas Recovery Projects	211	Oil and gas extraction projects using CO_2 enhanced oil and gas recovery.
Electrical Equipment Use	221121	Electric bulk power transmission and control facilities.
Electronics Manufacturing	334111	Microcomputers manufacturing facilities.

TABLE 1—EXAMPLES OF AFFECTED ENTITIES BY CATEGORY—Continued

Category	NAICS	Examples of affected facilities
	334413	Semiconductor, photovoltaic (solid-state) device manufacturing facilities.
	334419	LCD unit screens manufacturing facilities. MEMS manufacturing facilities.
Glass Production	327211	Flat glass manufacturing facilities.
	327213	Glass container manufacturing facilities.
	327212	Other pressed and blown glass and glassware manufacturing facilities.
HCFC–22 Production and HFC–23 Destruction	325120	Chlorodifluoromethane manufacturing facilities
Hydrogen Production	325120	Hydrogen manufacturing facilities.
Iron and Steel Production	331111	Integrated iron and steel mills, steel companies, sinter plants, blast furnaces, basic oxygen process furnace shops.
Lime Production	327410	Calcium oxide, calcium hydroxide, dolomitic hydrates manufacturing facilities.
Nitric Acid Production	325311	Nitric acid manufacturing facilities.
Petrochemical Production	32511	Ethylene dichloride manufacturing facilities.
	325199	Acrylonitrile, ethylene oxide, methanol manufacturing facilities.
	325110	Ethylene manufacturing facilities.
	325182	Carbon black manufacturing facilities.
Phosphoric Acid Production	325312	Phosphoric acid manufacturing facilities.
Petroleum Refineries	324110	Petroleum refineries.
Pulp and Paper Manufacturing	322110	Pulp mills.
	322121	Paper mills.
	322130	Paperboard mills.
Municipal Solid Waste Landfills	562212	Solid waste landfills.
	221320	Sewage treatment facilities.
Soda Ash Manufacturing	325181	Alkalies and chlorine manufacturing facilities.
	212391	Soda ash, natural, mining and/or beneficiation.
Suppliers of Coal Based Liquids Fuels	211111	Coal liquefaction at mine sites.
Suppliers of Petroleum Products	324110	Petroleum refineries.
Suppliers of Natural Gas and NGLs	221210	Natural gas distribution facilities.
	211112	Natural gas liquid extraction facilities.
Suppliers of Industrial Greenhouse Gases	325120	Industrial gas manufacturing facilities.
Suppliers of Carbon Dioxide	325120	Industrial gas manufacturing facilities.
Underground Coal Mines	212113	Underground anthracite coal mining operations.
	212112	Underground bituminous coal mining operations.
Industrial Wastewater Treatment	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.
	325193	Ethanol manufacturing facilities.
	324110	Petroleum refineries.
Industrial Waste Landfills	562212	Solid waste landfills.
	221320	Sewage treatment facilities.
	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.

Table 1 of this preamble is not intended to be exhaustive, but rather provides a guide for readers regarding facilities likely to be affected by this action. Other types of facilities than those listed in the table could also be subject to reporting requirements. 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 industrial gas suppliers and 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. Many facilities that are affected by 40 CFR part 98 have GHG emissions from multiple source categories listed in Table 1 of this preamble.

What is the effective date? As proposed, the EPA will phase in the final amendments over the 2016, 2017, and 2018 reports in order to stagger the implementation of these revisions over several years. The effective dates listed in the **DATES** section of this preamble reflect when the amendments will be published in the CFR. The first set of amendments in this final rule is effective on January 1, 2017. These amendments include several amendments to subpart A (General Provisions), all amendments to subpart

I (Electronics Manufacturing), all amendments to subpart HH (Municipal Solid Waste Landfills), and one amendment to subpart FF (Underground Coal Mines). Further explanation of these amendments and their effective date is in sections I.E, III.A, III.F, III.R, and III.S of this preamble. 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**. The 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. The EPA is nevertheless acting consistently with the purposes underlying APA section 553(d) in making the first set of amendments to this rule effective on January 1, 2017. Section 553(d) allows an effective date less than 30 days after publication for a rule that ''grants or recognizes an exemption or relieves a restriction'' or ''as otherwise provided by the agency for good cause found and published with the rule.'' As explained below, the EPA finds that there is good cause for the first set of amendments to this rule to become effective on January 1, 2017, even though this may result in an effective date fewer than 30 days from date of publication in the **Federal Register**.

Judicial Review. Under CAA section 307(b)(1), 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 February 7, 2017. 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 that 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.

ASTM American Society for Testing and Materials
BAMM Best Available Monitoring Methods
CAA Clean Air Act
CAS Chemical Abstracts Service
CBI Confidential business information
CEMS Continuous emission monitoring system
CFR Code of Federal Regulations
CH_4 Methane
CO_2 Carbon dioxide
CO_2e Carbon dioxide equivalent
CP Common Pipe
DCU Delayed coking unit
DE Destruction efficiency
DRE Destruction or removal efficiency
EDC Ethylene dichloride
e-GGRT Electronic Greenhouse Gas Reporting Tool
EF Emission factor
EIA Energy Information Administration
EO Executive Order
ER Enhanced oil and gas recovery
EPA U.S. Environmental Protection Agency
F–GHG Fluorinated greenhouse gas
FR Federal Register
GHG Greenhouse gas
GHGRP Greenhouse Gas Reporting Program
GP Aggregation of units
GWP Global warming potential
Hg Mercury
HHV High heat value
HTF Heat transfer fluid
ICR Information Collection Request
IPCC Intergovernmental Panel on Climate Change
ISBN International Standard Book Number
IVT Inputs Verification Tool
kg Kilograms
LDC Local distribution company
mmBtu/hr Million British thermal units per hour
mmcfd Million cubic feet per day
MDRS Mine Data Retrieval System
MSHA Mine Safety and Health Administration
MSW Municipal solid waste
$mtCO_2e$ Metric tons of CO_2 equivalents
N_2O Nitrous oxide
NGL Natural gas liquid
NAICS North American Industry Classification System
OAQPS Office of Air Quality Planning and Standards
ODS Ozone-depleting substances
OMB Office of Management and Budget
PRA Paperwork Reduction Act
PFC Perfluorocarbon
psig Pounds per square inch gauge
QA/QC Quality assurance/quality control
RFA Regulatory Flexibility Act
RY Reporting year
SF_6 Sulfur hexafluoride
U.S. United States
UMRA Unfunded Mandates Reform Act of 1995
VCM Vinyl chloride monomer

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I. Background

A. How is this preamble organized?

The first section of this preamble contains background information regarding the origin of the final amendments. This section also discusses the EPA's legal authority under the CAA to promulgate (including subsequent amendments to) the Greenhouse Gas Reporting Rule, codified at 40 CFR part 98 (hereinafter referred to as ''Part 98'') and the EPA's legal authority to make confidentiality determinations for new or revised data elements required by this amendment or for existing data elements for which a confidentiality determination has not previously been proposed. Section I of this preamble also discusses when the final amendments will apply and provides additional information regarding materials referenced in this rulemaking. Section II of this preamble describes the types of final amendments included in this rulemaking. Section III of this preamble is organized by Part 98 subpart and contains detailed information on the final revisions to each subpart. It also describes the major changes made to each source category since proposal and provides a brief summary of significant public comments and the EPA's responses on issues specific to each source category. Section IV of this preamble discusses the final confidentiality determinations for new or substantially revised (*i.e.,* requiring additional or different data to be reported) data reporting elements, as well as for certain existing data elements in subparts I, Z, MM, and NN. Section V of this preamble discusses the impacts of the final amendments. Finally, section VI of this preamble describes the statutory and executive order requirements applicable to this action.

B. Executive Summary

The EPA is finalizing the proposed revisions to Part 98, with some changes made in response to public comments. The final revisions include amendments to the calculation, monitoring, reporting, and recordkeeping requirements of Part 98 as follows:

- Revisions to streamline implementation and reduce burden. Such revisions include revising requirements to focus EPA and reporter resources on relevant data, removing reporting requirements for specific facilities that report little to no

emissions, or removing reported data elements that are no longer necessary.

• Amendments to improve quality of data. These amendments ensure that accurate data are being collected under the rule and expand monitoring or reporting requirements that are necessary to improve verification and improve the accuracy of data used to inform the Inventory of U.S. Greenhouse Gas Emissions and Sinks (hereafter referred to as the ''U.S. GHG Inventory''). In some cases, the EPA is changing the proposed amendments in this final rule to reduce the burden to reporters (*e.g.,* not finalizing certain proposed revisions to reporting or monitoring requirements).

• Minor amendments to better reflect industry processes and emissions, including amendments to calculation, monitoring, or measurement methods that address prior petitioner or commenter concerns (*e.g.,* amendments that provide additional flexibility for facilities or that more accurately reflect industry processes and emissions).

• Minor clarifications and corrections to improve understanding of the rule, including corrections to errors in terms and definitions in certain equations; clarifications that provide additional information for reporters to better or more fully understand compliance obligations; changes to correct cross references within and between subparts; and other editorial or harmonizing changes.

This action also finalizes confidentiality determinations for the reporting of certain data elements added or substantially revised in these final amendments, and for certain existing data elements for which no confidentiality determination has been made previously.[1] Finally, section III.S of this preamble describes final amendments in response to a Petition for Reconsideration of specific aspects of subpart HH, which applies to municipal solid waste landfills.[2]

These final amendments are anticipated to increase burden for Part 98 reporters in cases where the amendments expand current applicability, monitoring, or reporting, and are anticipated to decrease burden for reporters in cases where they streamline Part 98 to remove notification or reporting requirements or simplify the data that must be reported. The estimated incremental change in burden from these amendments to Part 98 includes burden associated with: (1) Changes to the reporting requirements by adding, revising, or removing existing reporting requirements; and (2) revisions to the applicability of subparts such that additional facilities will be required to report. The EPA is not finalizing proposed revisions to the monitoring requirements for underground coal mines that would have significantly increased the burden for these reporters. The EPA has also adjusted the burden for the collection of certain data from subpart C (General Stationary Combustion) reporters to better reflect the activities performed in the collection of the data. The remaining amendments that the EPA is finalizing in this action are not anticipated to have a significant impact on burden.

As discussed in section I.E of this preamble, we are implementing these changes in stages for the 2016, 2017, and 2018 reports in order to stagger the implementation of these changes over time. The burden has been determined based on which revisions will be implemented for a given set of reports (*e.g.,* the burden for reporting year (RY) 2016 reports only reflects changes to subparts I (Electronics Manufacturing) and HH (Municipal Solid Waste Landfills), some of the changes to subpart A (General Provisions), and one of the changes to subpart FF (Underground Coal Mines)). The EPA determined that one-time implementation costs will be incurred for certain revisions to applicability and monitoring requirements that will first apply to RY2017 and RY2018; therefore, we have estimated costs through RY2019 to reflect the subsequent annual costs incurred by industry. As more fully explained in section V of this preamble, the EPA has determined that the total estimated incremental burden associated with all revisions in this final rulemaking will be $636,124 over the three years covered by this final rule, with an estimated annual burden of $189,150 per year once all changes have been implemented. The incremental implementation costs for each reporting year are summarized in Table 2 of this preamble.

TABLE 2—INCREMENTAL BURDEN FOR REPORTING YEARS 2016–2019

[$/year]

Reporting year	2016	2017	2018	2019
Total Annual Cost (all subparts)	$5K	$407K	$224K	$190K

C. Background on This Final Rule

The GHG Reporting Rule was published in the **Federal Register** on October 30, 2009 (74 FR 56260). The final rule became effective on December 29, 2009 and requires reporting of GHGs from various facilities and suppliers, consistent with the 2008 Consolidated Appropriations Act.[3] The EPA issued additional rules in 2010 finalizing the requirements for subpart T—Magnesium Production, subpart FF—Underground Coal Mines, subpart II—Industrial Wastewater Treatment, and subpart TT—Industrial Waste Landfills (75 FR 39736, July 12, 2010); subpart I—Electronics Manufacturing, subpart L—Fluorinated Gas Production, subpart DD—Electrical Transmission and Distribution Equipment Use, subpart QQ—Importers and Exporters of Fluorinated GHGs Contained in Pre-Charged Equipment or Closed-Cell Foams, and subpart SS—Electrical Equipment Manufacture or Refurbishment (75 FR 74774, December 1, 2010); and subpart RR—Geologic Sequestration of Carbon Dioxide and subpart UU—Injection of Carbon Dioxide (75 FR 75060, December 1, 2010). Following the promulgation of these subparts, the EPA finalized several technical and clarifying amendments to these and other subparts under the GHGRP. A number of subparts have been revised since promulgation (75 FR

[1] During the development of Part 98, the EPA received a number of comments from stakeholders regarding their concern that some of the data reported consisted of confidential business information that, if released to the public, would likely harm their competitive position. The EPA has subsequently published a series of notices to establish determinations for the confidentiality status of data required to be reported under the GHGRP (*i.e.,* ''confidentiality determinations''). See section IV.A of this preamble for additional information.

[2] Waste Management Petition for Reconsideration of 2013 Revisions to Greenhouse Gas Reporting Rule and Final Confidentiality Determinations for New or Substantially Revised Data Elements. Available in Docket Id. No. EPA–HQ–OAR–2012–0934.

[3] Consolidated Appropriations Act, 2008, Public Law 110–161, 121 Stat. 1844, 2128.

79092, December 17, 2010; 76 FR 73866, November 29, 2011; 77 FR 10373, February 22, 2012; 77 FR 29935, May 21, 2012; 77 FR 51477, August 24, 2012; 78 FR 68162, November 13, 2013; 78 FR 71904, November 29, 2013; 79 FR 63750, October 24, 2014; and 79 FR 73750, December 11, 2014). The amendments generally did not change the basic requirements of Part 98, but were intended to improve clarity and ensure consistency across the calculation, monitoring, and data reporting requirements.

On January 15, 2016, the EPA proposed amendments to provisions in Part 98 in the ''2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' (hereafter ''Proposed 2015 Revisions'') (81 FR 2536). The EPA is finalizing those amendments and confidentiality determinations in this action, with certain changes since proposal following consideration of comments submitted. Responses to significant comments submitted on the proposed amendments can be found in sections III, IV, and V of this preamble.

D. Legal Authority

The EPA is finalizing these rule amendments under its existing CAA authority provided in CAA section 114. As stated in the preamble to the 2009 final GHG reporting rule (74 FR 56260), CAA section 114(a)(1) provides the EPA broad authority to require the information gathered by this rule because such data will inform and are relevant to the EPA's carrying out a wide variety of CAA provisions. See the preambles to the proposed and final GHG reporting rule for further information.

In addition, the EPA is finalizing confidentiality determinations for new, revised, and existing data elements in Part 98 under its authorities provided in sections 114, 301, and 307 of the CAA. Section 114(c) of the CAA requires that the EPA make publicly available information obtained under CAA section 114, except for information (excluding emission data) that qualifies for confidential treatment. The Administrator has determined that this final rule is subject to the provisions of section 307(d) of the CAA. Section 307(d) contains a set of procedures relating to the issuance and review of certain CAA rules.

E. When will the final amendments become effective?

As proposed, the EPA will phase in the final amendments over the 2016, 2017, and 2018 reports in order to stagger the implementation of these revisions over several years. The effective dates listed in the **DATES** section of this preamble reflect when the amendments will be published in the CFR. What these dates mean for practical purposes, that is, what reporters will need to do year-by-year, is detailed in sections I.E.1 through I.E.3 below and in the corresponding subpart-specific sections in section III of this preamble. The amendments can be thought of in two categories. In general, amendments in the first category add applicability (*i.e.* more facilities must report) or impact monitoring or calibration of meters such that a facility must change what they do to comply with the rule during the reporting year (January 1 through December 31 of each year); these amendments will become effective starting on January 1 of that reporting year. Amendments in the second category change or clarify calculations, clarify provisions, amend reporting requirements, or correct mistakes to improve understanding of the rule, but do not result in any changes to monitoring, calibration, or applicability; these amendments will become effective on the January 1 immediately following the relevant reporting year. Amendments in the second category affect what must be done to prepare the reports during the year of the report submission but do not affect any actions the facilities needed to have taken during the reporting year.

1. Amendments That Are Effective on January 1, 2017

Table 3 of this preamble lists the affected subparts, the final revisions that are effective on January 1, 2017, and the RY report in which those changes will first be reflected. January 1, 2017, is the effective date, which is the date that the CFR regulatory text is revised to reflect those changes. However, the report in which that amendment will first be reflected is either RY2016 or RY2017, depending upon the substance of that change, as in what that change requires the reporter to do to comply with it.

Changes with effective date January 1, 2017, that will be reflected starting with the RY2016 report are those that require no changes to be made by reporters during the reporting year, but rather are clarifications, corrections, or changes to reporting requirements, *i.e.,* changes the reporter must comply with in preparation of the report. These changes with effective date January 1, 2017, will therefore apply to and will be reflected in RY2016 reports that are submitted in 2017. These changes do not impact applicability, monitoring, or calibration of meters.

More specifically, regarding the reasoning behind this timing, we are finalizing as proposed that all changes to subparts I and HH, and a minor revision to subpart A (the revised definition of ''Gas collection system or landfill gas collection system''), will apply to reports for RY2016, which must be submitted in 2017. We have determined that it is feasible for existing reporters to implement these changes to subparts A, I, and HH for RY2016 because these changes are consistent with the data collection and calculation methodologies in the current rule. The final revisions to these subparts do not add new monitoring requirements, and do not substantially affect the type of information that must be collected. No comments were received on the proposed effective date for revisions to these subparts.

We are also finalizing that the amendments to 40 CFR 98.2(i)(3) and (5) and 40 CFR 98.3(h) are effective on January 1, 2017, and will apply starting with RY2016 reports. These amendments serve to reduce burden on reporters and are feasible to make effective as soon as possible, therefore they will be reflected starting with the RY2016 reports submitted in 2017. See section III.A.3 of this preamble for more detail on the timing of these final revisions.

Changes with effective date January 1, 2017 that will be reflected starting with the RY2017 reports affect monitoring. Both the subpart A revision to 40 CFR 98.7(l)(1) and the subpart FF revision to 40 CFR 98.324(b)(1) require use of the most recent Mine Safety and Health Administration (MSHA) Handbook entitled Coal Mine Safety and Health General Inspection Procedures Handbook Number: PH116–V–1, June 2016 (MSHA Handbook). Under this final rule, reporters must use this MSHA Handbook for monitoring from January 1, 2017, through December 31, 2017, and the resulting data must be used in the RY2017 report submitted in 2018. See section III.R.3 of this preamble for more detail on the timing of these revisions.

TABLE 3—PART 98 AMENDMENTS EFFECTIVE JANUARY 1, 2017

Subpart affected [a]	Revisions reflected starting with RY2016 reports [b]	Revisions reflected starting with RY2017 reports [c]
A—General Provisions	§ 98.2(i)(3) and (5); § 98.3(h); § 98.6 (definition of "Gas collection system or landfill gas collection system" only).	§ 98.7(l)(1).
I—Electronics Manufacturing	All changes in subpart	N/A.
FF—Underground Coal Mines	N/A	§ 98.324(b)(1).
HH—Municipal Solid Waste Landfills	All changes in subpart	N/A.

[a] Subpart names may also be found in the Table of Contents for this preamble.
[b] RY2016 reports will be submitted to the EPA by March 31, 2017.
[c] RY2017 reports will be submitted to the EPA by April 2, 2018.

2. Amendments That Are Effective January 1, 2018

Table 4 of this preamble lists the affected subparts and final amendments that are effective January 1, 2018 and the RY report in which those changes will first be reflected. January 1, 2018, is the date on which these amendments will appear in the CFR. However, the report for which that amendment will first be reflected is either RY2017 or RY2018, depending upon the substance of that change, as in what that change requires the reporter to do to comply with it. Changes that will be reflected starting with the RY2017 report are feasible for reporters to implement for RY2017 because these changes are consistent with the monitoring and data collection in the current rule. In most cases, the final revisions include minor revisions such as editorial corrections, corrections to cross-references, and technical clarifications regarding the existing regulatory requirements. Where calculation equations are proposed to be modified, the changes generally clarify terms in the emission calculation equations and do not materially affect monitoring requirements. In some cases, we are adding flexibility by providing alternative monitoring methods or missing data procedures that will reduce burden on reporters. Although some of the revisions included in Table 4 of this preamble will include reporting additional data, the EPA has determined that the data collected will be readily available to reporters.

For a number of subparts all revisions are being finalized as proposed in this action. This is the case with the following subparts: E, F, N, O, P, Q, U, Z, AA, II, LL, MM, and UU.

The changes in Table 4 of this preamble, that will be reflected starting in RY2018 reports submitted in 2019 are those that require new facilities to report to the GHGRP (40 CFR 98.220 in subpart V, all revisions to subpart OO, and related revisions to Table A–5) or that require calibration of meters (40 CFR 98.164(b)(1) in subpart P). We are making these revisions effective January 1, 2018, so that the new reporters for subparts V and OO, and subpart P reporters that have not already calibrated their meters according to these requirements, will take the necessary action to begin monitoring or calibrate meters to be in full compliance with these revisions throughout RY2018.

In past rulemakings, the EPA has typically required monitoring to begin a few months after finalization of revised rules, and has offered Best Available Monitoring Methods (BAMM) to be used temporarily to provide sufficient time for facilities to come into full compliance with the newly finalized monitoring methods. In this action, to avoid the need to offer the use of BAMM and to stagger the burden associated with making revisions to the EPA's electronic Greenhouse Gas Reporting Tool (e-GGRT), we are finalizing the revisions to these subparts to be effective January 1, 2018, and apply to RY2018 reports. Subparts P, V, and OO reporters, including new reporters, will begin following the revised rule requirements on January 1, 2018, and submit the first annual reports using the revised monitoring and data collection methods on March 31, 2019. This schedule allows at least one year for subpart P, V, and OO reporters to acquire, install, and calibrate any new monitoring equipment, as well as implement any changes to existing monitoring methods, for RY2018.

TABLE 4—PART 98 AMENDMENTS EFFECTIVE JANUARY 1, 2018

Subpart affected [a]	Revisions reflected starting with RY2017 Reports [b]	Revisions reflected starting with RY2018 reports [b]
A—General Provisions	§ 98.2 (except § 98.2(i)(3)); § 98.3 (except § 98.3(h)); § 98.4; § 98.6 (except definition of "Gas collection system or landfill gas collection system"); § 98.7(e)(33); and Tables A–3 and A–4.	Table A–5.
C—General Stationary Fuel Combustion Sources	All changes in subpart	N/A.
E—Adipic Acid Production	All changes in subpart	N/A.
F—Aluminum Production	All changes in subpart	N/A.
G—Ammonia Manufacturing	All changes in subpart	N/A.
N—Glass Production	All changes in subpart	N/A.
O—HCFC–22 Production and HFC–23 Destruction	All changes in subpart	N/A.
Q—Iron and Steel Production	All changes in subpart	N/A.
P—Hydrogen Production	N/A	§ 98.164(b)(1).
S—Lime Manufacturing	All changes in subpart	N/A.
U—Miscellaneous Uses of Carbonate	All changes in subpart	N/A.
V—Nitric Acid Production	N/A	§ 98.220 and § 98.223(a)(2).
X—Petrochemical Production	All changes in subpart	N/A.
Z—Phosphoric Acid Production	All changes in subpart	N/A.
AA—Pulp and Paper Manufacturing	All changes in subpart	N/A.

TABLE 4—PART 98 AMENDMENTS EFFECTIVE JANUARY 1, 2018—Continued

Subpart affected [a]	Revisions reflected starting with RY2017 Reports [b]	Revisions reflected starting with RY2018 reports [b]
CC—Soda Ash Manufacturing	All changes in subpart	N/A.
DD—Use of Electric Transmission and Distribution Equipment.	All changes in subpart	N/A.
FF—Underground Coal Mines	All changes in subpart (except § 98.324(b)(1))	N/A.
II—Industrial Wastewater Treatment	All changes in subpart	N/A.
LL—Suppliers of Coal-based Liquid Fuels	All changes in subpart	N/A.
MM—Suppliers of Petroleum Products	All changes in subpart	N/A.
NN—Suppliers of Natural Gas and Natural Gas Liquids	All changes in subpart	N/A.
OO—Suppliers of Industrial Greenhouse Gases	N/A	All changes in subpart.
PP—Suppliers of Carbon Dioxide	All changes in subpart	N/A.
TT—Industrial Waste landfills	All changes in subpart	N/A.
UU—Injection of Carbon Dioxide	All changes in subpart	N/A.

[a] Subpart names may also be found in the Table of Contents for this preamble.
[b] RY2017 reports will be submitted to the EPA by April 2, 2018.
[c] RY2018 reports will be submitted to the EPA by April 1, 2019.

3. Amendments That Are Effective January 1, 2019

The revisions listed in Table 5 of this preamble will be effective January 1, 2019, and will be reflected starting with RY2018 reports, which must be submitted in 2019. January 1, 2019, is the date on which these amendments will appear in the CFR. All changes in Table 5 of this preamble are consistent with the data collection and monitoring in the current rule; therefore, the reporter does not need to take action during the reporting year. In most cases, the final revisions include minor revisions such as editorial corrections, corrections to cross-references, and technical clarifications regarding the existing regulatory requirements. Where calculation equations are modified, the changes generally clarify terms in the emission calculation equations and do not materially affect monitoring requirements or how emissions are calculated. Although some of the revisions included in Table 5 of this preamble will include reporting additional data, the EPA has determined that the data collected will be readily available to reporters.

In the case of subparts P and V, the amendments listed in Table 5 of this preamble are effective January 1, 2019, whereas other amendments to these subparts, ones that affect applicability or calibration of meters, are effective one year earlier so that reporters can take action starting January 1, 2018, and the changes will be reflected in the RY2018 report (see Table 4 of this preamble). In the case of subpart Y, while no changes are being made to applicability or monitoring methods, the final amendments represent substantive changes to the calculation of emissions. These amendments will be effective January 1, 2019, and, as proposed, the changes will be reflected in the RY2018 report, in order to give reporters adequate time to become familiar with the new calculations and give the Agency time to make the necessary changes to e-GGRT for this subpart.

TABLE 5—PART 98 AMENDMENTS EFFECTIVE JANUARY 1, 2019

Subpart affected [a]	Revisions reflected starting with RY2018 reports [b]
P—Hydrogen Production	§ 98.163(b)(3) and all changes to § 98.166.
V—Nitric Acid Production	§ 98.226(h).
Y—Petroleum Refineries	All changes in subpart.

[a] Subpart names may also be found in the Table of Contents for this preamble.
[b] RY2018 reports will be submitted to the EPA by April 1, 2019.

F. Where can I get a copy of information related to the final rule?

This preamble references several documents developed to support the final rulemaking. These documents provide additional information regarding the final changes to Part 98, and supplementary information that the EPA considered in the development of the final revisions. These documents are referenced in sections II through V of this preamble and are available in the docket to this rulemaking or other rulemaking dockets, as follows:

- ''Final Table of 2015 Revisions to the Greenhouse Gas Reporting Rule.'' EPA memorandum summarizing the less substantive minor corrections, clarifications, and harmonizing revisions, as discussed in section II of this preamble. Available in the docket for this rulemaking, Docket Id. No. EPA–HQ–OAR–2015–0526.
- ''Revised Emission Methodology for Delayed Coking Units.'' From Jeff Coburn, RTI to Brian Cook, EPA, dated June 4, 2015. Memorandum supporting final revisions to subpart Y (Petroleum Refineries) as discussed in section III.M of this preamble. Available in the docket for this rulemaking, Docket Id. No. EPA–HQ–OAR–2015–0526.
- ''Emission Estimation Protocol for Petroleum Refineries. Version 3.'' Prepared for U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC. August 2015. Available at: *https://www3.epa.gov/ttn/chief/efpac/protocol/ProtocolReport2015.pdf.*
- ''U.S. Underground Coal Mine Ventilation Air Methane Exhaust Characterization'' (July 2010). Available in the docket for this rulemaking, Docket Id. No. EPA–HQ–OAR–2015–0526.
- ''Identifying Opportunities for Methane Recovery at U.S. Coal Mines: Profiles of Selected Gassy Underground Coal Mines 2002–2006.'' Available in the docket for this rulemaking, Docket Id. No. EPA–HQ–OAR–2015–0526.

• Waste Management Petition for Reconsideration of 2013 Revisions to Greenhouse Gas Reporting Rule and Final Confidentiality Determinations for New or Substantially Revised Data Elements. Available in Docket Id. No. EPA–HQ–OAR–2012–0934.

• ''Review of Oxidation Studies and Associated Cover Depth in the Peer-Reviewed Literature.'' From Kate Bronstein, Meaghan McGrath, and Jeff Coburn, RTI to Rachel Schmeltz, EPA, dated June 17, 2015, Memorandum supporting proposed revisions to subpart HH (Municipal Solid Waste Landfills) as discussed in section III.S of this preamble. Available in the docket for this rulemaking, Docket Id. No. EPA–HQ–OAR–2015–0526.

• Refinery Demonstration of Optical Technologies for Measurement of Fugitive Emissions and for Leak Detection (Roy McArthur, Environment Canada, and Allan Chambers and Mel Strosher, Carbon and Energy Management, March 31, 2006). Available in Docket Id. No. EPA–HQ–OAR–2015–0526.

• ''Measurement and Analysis of Benzene and VOC Emissions in the Houston Ship Channel Area and Selected Surrounding Major Stationary Sources Using DIAL (Differential Absorption Light Detection and Ranging) Technology to Support Ambient HAP Concentrations Reductions in the Community.'' Loren Raun & Dan W. Hoyt, Bur. Pollution Control & Prevention, City of Houston, 2011. Available in Docket Id. No. EPA–HQ–OAR–2015–0526.

• Heath, L.S. et al. 2010. Greenhouse Gas and Carbon Profile of the U.S. Forest Products Industry Value Chain. Environmental Science and Technology 44(2010) 3999–4005. Available in Docket Id. No. EPA–HQ–OAR–2015–0526.

• Letter to Leif Hockstad, U.S. EPA, from William C. Herz, National Lime Association re: Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990–2012. Available in Docket Id. No. EPA–HQ–OAR–2015–0526.

• National Lime Association comments on Inventory of U.S. Greenhouse Gas Emissions and Sinks (78 FR 12013, February 22, 2013), Arline M. Seeger. Available in Docket Id. No. EPA–HQ–OAR–2015–0526.

• ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions.'' Memorandum listing all final new, substantially revised, and existing data elements with final category assignments and confidentiality determinations, as described in section IV of this preamble. Available in the docket for this rulemaking, Docket Id. No. EPA–HQ–OAR–2015–0526.

• ''Summary of Evaluation of Greenhouse Gas Reporting Program (GHGRP) Part 98 'Inputs to Emission Equations' Data Elements Deferred Until 2013.'' Memorandum, December 17, 2012. Available in the docket for this rulemaking, Docket Id. No. EPA–HQ–OAR–2015–0526.

• ''Assessment of Burden Impacts of Final 2015 Revisions to the Greenhouse Gas Reporting Rule.'' Memorandum describing the costs of the final revisions to Part 98, as discussed in section V of this preamble. Available in the docket for this rulemaking, Docket Id. No. EPA–HQ–OAR–2015–0526.

G. Material Incorporated by Reference

In this final rulemaking, the EPA is including regulatory text for 40 CFR 98.7 that includes incorporation by reference. In accordance with requirements of 1 CFR 51.5, the EPA is incorporating by reference the following:

• Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples using Radiocarbon Analysis (ASTM D6866–16), which will apply to subpart C reporters (see section III.B.2 of this preamble). These standards are test methods that provide how to experimentally measure biobased carbon content of solids, liquids, and gaseous samples using radiocarbon analysis. These standards distinguish carbon resulting from contemporary biomass-based inputs from those derived from fossil-based inputs. These standards utilize accelerator mass spectrometry, isotope ratio mass spectrometry, and liquid scintillation counter techniques to quantify the biobased content of a product. Anyone may access the standards on the ASTM Web site (*www.astm.org/*) for additional information. These standards are available to everyone at a cost determined by the ASTM ($50). The ASTM also offers memberships or subscriptions that allow unlimited access to their methods. The cost of obtaining these methods is not a significant financial burden, making the methods reasonably available for reporters. The EPA will also make a copy of these documents available in hard copy at the appropriate EPA office (see the **FOR FURTHER INFORMATION CONTACT** section of this preamble for more information) for review purposes only.

• Inspection and sampling standards from the Coal Mine Safety and Health General Inspection Procedures Handbook Number: PH16–V–1 (June 2016) as published by the Mine Safety and Health Administration (MSHA), which will apply to subpart FF reporters (see section III.R.2 of this preamble). This handbook provides general procedures for gathering samples of methane concentration from coal mines and making quarterly measurements of flow rate, temperature, pressure, and moisture content. The handbook is available free of charge through the MSHA Web site (*www.msha.gov*). The EPA has also made, and will continue to make, these documents available electronically through *www.regulations.gov.*

Because these standards do not present a significant financial burden to reporters, the EPA has determined that these methods are reasonably available. The EPA has also made, and will continue to make, these documents generally available in hard copy at the appropriate EPA office (see the **FOR FURTHER INFORMATION CONTACT** section of this preamble for more information).

II. Overview of Final Revisions to Part 98

In the proposed rule, the EPA identified four categories of revisions that we are finalizing in this rulemaking, which include the following:

• Revisions to streamline implementation of the rule by reducing or simplifying requirements that ease burden on reporters and the EPA, such as revising requirements to focus GHGRP and reporter resources on relevant data, removing reporting requirements for specific facilities that report little to no emissions, or removing reported data elements that are no longer necessary.

• Amendments that expand monitoring, applicability, or reporting requirements that are necessary to enhance the quality of the data collected, improve verification of collected data under the GHGRP, and improve the accuracy of data included in the U.S. GHG Inventory.

• Other amendments, such as amendments to calculation, monitoring, or measurement methods that address prior petitioner or commenter concerns (*e.g.,* amendments that provide additional flexibility for facilities or that more accurately reflect industry processes and emissions).

• Minor clarifications and corrections, including corrections to terms and definitions in certain equations; clarifications that provide additional information for reporters to better or more fully understand compliance obligations; changes to

correct cross references within and between subparts; and other editorial or harmonizing changes that improve the public's understanding of the rule.

The final revisions in this action advance the EPA's goal of maximizing rule effectiveness. For example, these revisions clarify existing rule provisions, thus enabling government, regulated entities, and the public to easily identify and understand rule requirements. In addition, specific changes such as increasing the flexibility given to reporting entities related to requesting extensions for revising annual reports will make compliance easier than non-compliance. The changes also serve to clarify whether and when reporting requirements apply to a facility, and more specifically when a facility may discontinue reporting, therefore allowing a regulated entity to regularly assess their compliance and prevent non-compliance.

The changes will also improve EPA's ability to assess compliance by adding reporting elements that allow the EPA to more thoroughly verify GHG data and understand trends in emissions. For example, the new requirement to report the date of installation of any abatement equipment at adipic acid and nitric acid production facilities will increase the EPA's and the public's understanding of the use of and trends in emissions reduction technologies. Lastly, the changes will further advance the ability of the GHGRP to provide access to quality data on greenhouse gas emissions by adding key data elements to improve the usefulness of the data. One example is the addition of the reporting of emissions by state for suppliers of natural gas (subpart NN reporters). These data will allow users of the GHGRP data to more easily identify the state within which the reporter operated, which will be useful for determining state-level GHG totals associated with natural gas supply and increase transparency and usefulness of the data reported.

Section III of this preamble describes the specific changes in each of the above categories that we are finalizing for each subpart in more detail. Additional details for the specific final amendments for each subpart are summarized in the memorandum, ''Final Table of 2015 Revisions to the Greenhouse Gas Reporting Rule'' (hereafter referred to as the ''Final Table of Revisions'') available in the docket for this rulemaking (EPA–HQ–OAR–2015–0526). The Final Table of Revisions describes each final change within a subpart and includes minor revisions that were proposed but are not discussed in detail in this preamble (*e.g.,* straightforward clarifications of requirements to better reflect the EPA's intent; harmonizing changes within subparts (such as changes in terminology); corrections to calculation terms and cross-references; editorial and minor error corrections; and removal of redundant text). The Final Table of Revisions provides the existing rule text, the finalized changes, and indications of which amendments are being finalized as proposed and which amendments differ from the proposal.

III. Final Revisions to Each Subpart and Responses to Public Comment

This section summarizes the final substantive amendments for each Part 98 subpart, as generally described in section II of this preamble. The amendments to each subpart are followed by a summary of the major comments on those amendments, the EPA's responses to those comments, and a description of when the amendments become effective. Sections III.A through III.AA of this preamble also identify where additional minor corrections to a subpart are included in the Final Table of Revisions. A complete listing of all comments and the EPA's responses is located in the comment response document in Docket Id. No EPA–HQ–OAR–2015–0526. Additional rationale for these amendments is available in the preamble to the proposed rule (81 FR 2536).

A. Subpart A—General Provisions

In this action, we are finalizing several amendments, clarifications, and corrections to subpart A of Part 98. This section discusses the substantive changes to subpart A. We are finalizing as proposed all of the minor corrections and clarifications to subpart A presented in the Final Table of Revisions (see Docket Id. No. EPA–HQ–OAR–2015–0526). We are also finalizing confidentiality determinations for new data elements resulting from these revisions to subpart A; see section IV of this preamble and the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for these data elements.

The EPA received several comments for subpart A. Substantive comments are addressed in section III.A.2 of this preamble; see the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart A.

1. Summary of Final Amendments to Subpart A

a. Revisions to Subpart A To Streamline Implementation

The EPA is finalizing several amendments intended to simplify and streamline the requirements of subpart A, with minor revisions. First, we are revising 40 CFR 98.2(i) to clarify the EPA's policies allowing reporters to cease reporting under Part 98. As proposed, we are retaining the current language in 40 CFR 98.2(i)(1) and (2) (*i.e.,* ''reported emissions'') to continue to refer to direct emitters and are adding new paragraph 40 CFR 98.2(i)(4) to clarify that the provisions of 40 CFR 98.2(i)(1) and (2) apply to suppliers (*i.e.,* by specifying in 40 CFR 98.2(i)(4) that 40 CFR 98.2(i)(1) and (2) apply to suppliers by substituting the term ''quantity of GHG supplied'' for ''emissions'' in 40 CFR 98.2(i)(1) and (2)). Further, as proposed, we have clarified that, for suppliers, these off-ramp provisions apply individually to each importer, exporter, petroleum refinery, fractionator of natural gas liquids, local natural gas distribution company, and producer of carbon dioxide (CO_2), nitrous oxide (N_2O), or fluorinated greenhouse gases. The off-ramp requirements for suppliers in the final rule will be applied separately from those for direct emitters. This will occur whether the supplier and direct emitter report as two separate entities in e-GGRT or, for simplicity, as one entity in e-GGRT. See the preamble to the proposed rule (81 FR 2547) for additional information.

The EPA is also finalizing revisions to 40 CFR 98.2(i)(3) to specify that reporting is not required for a subpart after all processes covered by that subpart cease to operate, provided the owner or operator submits a notification to the Administrator on the cessation of operation. The EPA is finalizing this revision with one minor change. We proposed that the notification must be submitted by March 31 of the year following the cessation of operation. As discussed in section III.A.2 of this preamble, we received comments requesting that a reporter be offered more flexibility in the notification deadline. Therefore, in the final rule, the EPA is adding one additional year to the notification deadline than was proposed. As such, a facility that ceased

to operate all hydrogen producing processes on July 1, 2015, for example, will be required to report subpart P data covering the first half of 2015 by March 31, 2016, as usual, but will be now allowed to remove subpart P from the 2016 reporting form it submits by March 31, 2017, as long as it notified EPA of the operation cessation by March 31, 2017, as well. This revision provides ample time for reporters to submit the notification and makes it possible for the EPA to rely on the existing design of e-GGRT to implement the notification of cessation (see section III.A.2 of this preamble for additional information). Note that 40 CFR 98.2(i)(3) does not apply to seasonal or other temporary cessation of operations, and that reporting must resume for any future calendar year during which any of the GHG-emitting processes or operations resume operation.

We are finalizing a revision to 40 CFR 98.2(i)(3) to streamline reporting for operators of underground coal mines subject to 40 CFR part 98, subpart FF, with changes from proposal. Specifically, we are allowing owners and operators of underground mines the opportunity to cease reporting under the GHGRP if the underground mine(s) are abandoned and sealed. This revision is discussed in detail in section III.R of this preamble.

The EPA is adding a new provision in 40 CFR 98.2(i)(5), as proposed, to clarify that if the operations of a facility or supplier are changed such that a process or operation no longer meets the ''Definition of Source Category'' as specified in an applicable subpart, then the owner or operator is exempt from reporting under any such subpart for the reporting years following the year in which the change occurs, provided that the owner or operator submits a notification to the Administrator that announces the cessation of reporting for the process or operation. The EPA is finalizing this revision with one minor change. For consistency with the final revisions to 40 CFR 98.2(i)(3), we are revising 40 CFR 98.2(i)(5) to clarify that the notification is due no later than March 31 following the first reporting year in which the subpart processes or operations no longer meet the ''Definition of Source Category'' for an entire reporting year. This will be the due date for the first annual GHG report from the facility that omits a subpart from a prior year; therefore, EPA will need to be notified no later than this date to understand the reason for the missing subpart. For any future calendar year during which the process or operation meets the ''Definition of Source Category'' as specified in an applicable subpart, the owner or operator will be required to resume reporting for the process or operation. See section III.A.2 of this preamble for additional information on this change.

Lastly, the EPA is finalizing a provision, on which comment was sought, to discontinue maintaining annual reporting forms once five years have passed. As a result of comments received, the EPA is memorializing that change in practice in subpart A at 40 CFR 98.3(h). The EPA initially outlined a plan to discontinue maintaining annual reporting forms that are more than five years old, thereby limiting a facility's ability to resubmit those prior year reports. The EPA chose five years in part to keep with the recordkeeping requirements for reporters who are required to use the EPA's Inputs Verification Tool (IVT). As discussed in section III.A.2 below, the EPA received comments requesting that facilities that are not required to use IVT and that are only required to maintain records for three years per 40 CFR 98.3(g) should only be required to resubmit a report for three years. The EPA understands from those comments that some reporters would be unable to resubmit reports if they no longer have the facility records to review. Therefore, though we will maintain annual reporting forms for five years, we are revising 40 CFR 98.3(h) so that the annual report resubmission requirements only apply to the years for which a facility must retain records according to 40 CFR 98.3(g). As noted below, however, there could be circumstances where even though the facility was not required to maintain records or resubmit a report, the Agency would request any data still available to supplement previously reported data (*e.g.,* EPA-issued section 114 letter to determine compliance or request data for regulatory development).

b. Revisions to Subpart A To Improve the Quality of Data Collected Under Part 98

The EPA is finalizing several amendments to subpart A that will improve the quality of the data collected under the GHGRP, with only minor revisions from proposal. We are revising 40 CFR 98.3(c) as proposed to revise the content of the annual report to include the chemical name, CAS registry number, and the linear chemical formula for individually reported fluorinated GHGs and fluorinated heat transfer fluids (HTF).

We are finalizing revisions to 40 CFR 98.3(c)(8) as proposed to clarify the missing data provisions. The EPA received one substantive comment on these proposed revisions, as discussed in section III.A.2 of this preamble, but has determined that the revisions can be finalized as proposed.

We are finalizing revisions to 40 CFR 98.4(i) to update the content of the certificate of representation (COR) to include a list of all the 40 CFR part 98 subparts under which the facility or supplier intends to report, with one minor change. We adding a clarification that the list of anticipated subparts does not need to be revised with revisions to the COR or if the actual applicable subparts change.

Finally, we are adding 40 CFR 98.2(i)(6) as proposed to include a requirement that a facility must inform the EPA whenever the facility (or supplier) stops reporting under one e-GGRT identification number because the emissions (or quantity supplied) are being reported under another e-GGRT identification number. The date by which the reporter must notify the EPA of this change is the March 31 following the reporting year in which the change occurred, as proposed. On that date, the EPA will be expecting, but will not receive, a report from the subsumed facility. Therefore, the EPA will need to be notified of this change by that date to understand the reason for the missing report from the subsumed facility.

c. Other Amendments to Subpart A

As proposed, we are finalizing revisions to 40 CFR 98.3(h)(4) to remove the requirement that the request for an extension of the 45-day period for submission of a revised report beyond the automatic 30 days must be submitted at least five days prior to the expiration of the automatic 30-day extension. These revisions simplify the process for requesting an extension for the reporter to respond to EPA questions on a submitted report or submit a revised report to correct a reporting error identified by the EPA during report verification.

We are also amending the definitions of ''gas collection system'' and ''ventilation hole or shaft'' in 40 CFR 98.6 as proposed in section III.A.3 of the preamble to the proposed rule (81 FR 2550). These amendments serve to clarify the definitions of these terms for reporters. The EPA received no comments objecting to the proposed revisions.

2. Summary of Comments and Responses on Subpart A

This section summarizes the significant comments and responses related to the proposed amendments to subpart A. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015

Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart A.

Comment: One commenter questioned the EPA's proposed revisions to 40 CFR 98.2(i) to clarify when reporters may cease reporting. The commenter expressed concern that if a reporter does not notify EPA by the March 31st deadline following the cessation of applicable processes or operations, that they would then be required to report zero emissions indefinitely. The commenter provided an example of a circumstance where a process or operation is ceased temporarily, but after the March 31st notification deadline it is determined that the cessation is permanent. The commenter requested clarification that the reporter would still be able to notify the EPA of the change before March 31st of the next year and not be subject to reporting for the reporting year following notification.

Response: It was not the EPA's intent to establish a one-time only notification deadline after which a facility will not be allowed to cease reporting for a closed process. The reason for proposing a notification deadline was to minimize unnecessary follow-up verification activities. If a reporter has failed to inform the EPA of a process closure and the report is missing data for a previously reported process or contains significant emissions differences from the prior year's report, then error flags are generated for the report in e-GGRT. This results in unnecessary time spent by both the EPA and the facility to resolve the error flags. Therefore, once a facility reports under a particular subpart, reporting must continue each year until after all processes under that subpart either are permanently closed (40 CFR 98.2(i)(3)) or no longer meet the definition of source category as specified in the applicable subpart (40 CFR 98.2(i)(5)).

It was always the EPA's intention to implement this revision in a streamlined, sensible way that uses the existing features of e-GGRT as much as possible, with minimal or no changes from year to year. As such, the EPA is editing the proposed text for 40 CFR 98.2(i)(3) and (5) so that under this final action the notification will be due no later than March 31 following the first reporting year in which the subpart processes or operations have ceased (or no longer meet the definition of the applicable subpart) for an entire reporting year. Thus, a facility that permanently ceases operations of a process in July of 2016 will report the part-year 2016 emissions of that process as usual by March 31, 2017, and will notify the EPA of the cessation of that process no later than March 31, 2018. The EPA recognizes that the reporting of 2016 data for this closed process that occurs on March 31, 2017, will not look or feel any different than in prior years, so a facility may unintentionally neglect to take the extra notification step. This edit to the proposed language provides such facilities and suppliers with some additional flexibility in the notification deadline. This edit also makes it possible for the EPA to rely on the existing design of e-GGRT as the cessation notification mechanism by allowing the reporter to clear the subpart check box on the Facility Overview screen in e-GGRT when completing the reporting forms for the first full year after which the subpart processes or operations ceased. Reporters will not be required to enter further process data or emissions information once the subpart check box is cleared.

Reporters who desire to notify the EPA in advance of the deadline in the final rule will be able to submit a notification to the EPA informing them of the process closure using the Help Desk or another equally streamlined and simple procedure in e-GGRT. In the example above, a facility that permanently ceases operations of a process in July of 2016 will report the part-year 2016 emissions of that process by March 31, 2017 and could, at that time, submit a notification to the EPA to indicate the permanent closure of the process prior to the next reporting year. The EPA has retained this option to provide flexibility for reporters who wish to notify earlier. The EPA may consider minor changes to e-GGRT in the future to provide reporters with an alternative means to provide this notification.

Regarding the commenter's concerns related to temporary closures at the time of the reporting deadline, the ability to cease reporting for a subpart after a permanent closure and the process for doing so are not affected by any temporary closure that precedes the permanent closure. In the context of the GHGRP, the process or operation is permanently closed whenever the owner or operator determines that the process or operation will never resume again. For example, consider a facility for which all subpart S processes and operations cease to operate in July. At the time of cessation (in July) the owner or operator assumes the cessation will be temporary. However, one month later (in August) the owner determines that the cessation is in fact permanent and the operations will never resume. In this example, the permanent cessation of operation occurred in August. If the determination later proves to be incorrect, and the process or operation resumes, then the owner or operator must resume reporting for the relevant process or operation, as specified in 40 CFR 98.2(h)(3).

Emissions must be reported for the process or operation for any periods of temporary closure. This includes reporting subpart emissions of zero metric tons if, on the date that reporting occurs, the reporter determines that the cessation during the entire prior reporting year was only temporary and expects operations to resume at some time in the future. It is logical in this case for the facility to submit zero subpart emissions rather than remove the subpart entirely because it is in the facility's best interest to retain the subpart reporting form so that e-GGRT can pre-populate certain data fields in future reporting years and the facility does not have to re-enter as much data.

In reviewing this comment, the EPA has made additional minor technical changes reflected in subpart A. The phrase ''this paragraph (i)(3) does not apply to facilities with municipal solid waste landfills or industrial waste landfills. . . .'' has been revised to ''this paragraph (i)(3) does not apply to the municipal solid waste landfill source category (subpart HH) or the industrial waste landfill source category (subpart TT).'' This change clarifies that a municipal solid waste landfill or industrial waste landfill can cease reporting for a subpart other than subpart HH or TT following its cessation of operation.

Comment: The EPA received several comments on our proposal to discontinue maintaining annual reporting forms older than the prior five years, thereby limiting a facility's ability to resubmit those prior year reports. Four commenters agreed that limiting the resubmittal of prior year reports to five years was appropriate and reasonable. One of those commenters requested that the five-year period be included as an amendment to Part 98. The commenter asserted that the EPA cannot currently prohibit a reporter from resubmitting a report to comply with the existing rule if an error is discovered (see 40 CFR 98.3(h)(1)). The commenter noted that without an amendment to the rule, the EPA would still be obligated to maintain the forms necessary for reporters to comply with the resubmission requirement should it be triggered. The commenter also urged

that an amendment to the rule is necessary to clarify whether a reporter could be required to respond to an EPA notification of potential error after the five-year period has passed.

Other commenters insisted that the five-year period was unreasonable for some reporters. The commenters noted that the five-year recordkeeping requirement only applies to facilities using the IVT when reporting. The commenters stated that some reporters are only subject to a three-year recordkeeping requirement, as noted in a footnote to the preamble of the proposed rule (81 FR 2548). The commenters recommended that EPA establish the resubmittal period based on the recordkeeping requirements applicable to a particular reporter (either three years or five years), to ensure that the report resubmission requirements are consistent with the recordkeeping provisions promulgated in 40 CFR 98.3(g).

Response: After consideration of the comments received, the EPA is finalizing, with some changes, our proposal to discontinue maintaining annual reporting forms that are more than five years old, thereby limiting a facility's ability to resubmit those prior year reports. The EPA is making corresponding revisions to 40 CFR 98.3(h).

The EPA agrees that a limitation on the resubmittal of prior year reports should be implemented as an amendment to Part 98. Section 98.3(h)(1) and (2) specifies that reporters are required to resubmit an annual report if either they or the EPA identify one or more substantive errors in the report. A reporter cannot resubmit a report to comply with those requirements, however, if the reporting form is no longer available. We also agree with the comment that a facility may be unable to resubmit a report once its mandatory recordkeeping period has passed. The EPA proposed to discontinue the maintenance of reporting forms after five years, thereby limiting the resubmission requirements for all facilities to five years. The EPA initially selected a five-year time period in part because of the recordkeeping requirements for facilities required to use the EPA's verification software (*i.e.,* the IVT). Per 40 CFR 98.3(g), facilities who are required to use the IVT are required to maintain all records at the facility for five years, including records for those subparts for which the IVT is not required. The EPA previously finalized the 5-year record retention time for facilities using the IVT in the ''Revisions to Reporting and Recordkeeping Requirements, and Confidentiality Determinations Under the Greenhouse Gas Reporting Program'' (79 FR 63750, October 24, 2014). However, per 40 CFR 98.3(g), facilities that are not required to use the IVT for any subparts under which they are reporting are only required to maintain records for three years.

After considering these comments, the EPA is amending 40 CFR 98.3(h) to specify that the paragraphs in that section only apply to the recordkeeping requirement time period specified in 40 CFR 98.3(g). The EPA does not intend to request a report resubmission for a reporting year beyond that time period; however, there may be circumstances where the Agency may request additional data to supplement previously reported data (*e.g.,* EPA-issued section 114 letter to determine compliance or request data for regulatory development).

Although reporters will not be required by regulation to resubmit reports for any year beyond which they must maintain records, the revisions to 40 CFR 98.3(h) will not prevent facilities from voluntarily resubmitting reports for up to five years. The EPA recognizes that, in addition to resubmitting reports when required, reporters sometimes voluntarily resubmit annual reports to better reflect facility emissions. The EPA's primary reason for discontinuing the maintenance of annual reporting forms after five years is to minimize the burden on the EPA. Although some subparts do not use the verification software (*e.g.,* subpart HH—Municipal Solid Waste Landfills) and do not trigger the 5-year recordkeeping provision on their own, the EPA will continue to maintain and make available reporting forms for all subparts for the prior five years. Therefore, we are not limiting voluntary resubmittal of reports based on the three-year recordkeeping retention requirements. As such, reporters who have maintained records for five years will still be able to acquire the prior year reporting forms for any applicable subpart for up to five years and resubmit the reporting forms during this time frame.

The EPA has determined that by making these additional revisions, the Agency will continue to streamline the requirements of Part 98 by reducing the burden on regulated entities to resubmit reports, as well as reducing the burden on the EPA to maintain forms beyond five reporting years, while allowing for correction of the data set where data records exist to support it. Further, the EPA has determined that these additional changes will have minimal impact on the quality of the data provided to the Agency. As noted in the preamble to the proposed rule (81 FR 2548), to date, resubmissions for past years have not impacted overall sector or total emission trends. Therefore, the EPA does not anticipate that applying the requirements to resubmit reports to only the recordkeeping period (three years for facilities not required to use the IVT or five years for facilities required to use the IVT) will significantly impact the quality of the data collected.

Comment: The EPA received several comments on the proposal to clarify the missing data provisions in 40 CFR 98.3(c)(8). Commenters asserted that the proposed revisions would expand the data reporting requirements and increase the burden on reporters and the EPA. The commenters stated that there is no reason to revise the current rule requirements (*i.e.,* the combination of the existing subpart A requirements and, where necessary, additional subpart-specific recordkeeping provisions). The commenters believed that the proposed revisions to 40 CFR 98.3(c)(8) would have significant impacts on the e-GGRT and the IVT systems, requiring additional time to set up the entry fields in the systems and to apply confidentiality determinations to the types of data elements that they believed would be required to be collected under the proposed change.

Response: The EPA is finalizing this revision as proposed. The EPA disagrees with the commenters that the revisions to 40 CFR 98.3(c)(8) will significantly expand the data reporting requirements. The commenters have misconstrued the nature of the revision. Each individual subpart of Part 98 has always specified both the subpart-specific parameters for which substitute data value calculations are allowed and the allowable substitute data value calculations. 40 CFR 98.3(c)(8) was included in Part 98 merely to authorize the EPA to collect information on the frequency of use of the substitute data value calculations that are specified in the individual subparts. This final revision to subpart A does not change the subpart-specific parameters for which substitute data value calculations are already specified and does not enhance the EPA's ability to collect information on substitute data value calculations beyond those calculations contained in each individual subpart. Rather the revision harmonizes the language of 40 CFR 98.3(c)(8) with the language used in individual subparts in order to fully realize the original intended purpose of 40 CFR 98.3(c)(8).

The revision clarifies the type of data that is already required to be collected

by substituting the term ''parameter'' for ''data element,'' consistent with the terminology in the ''Procedures for estimating missing data'' sections in most subparts. This clarification recognizes that the missing data provisions provided in each subpart apply to measured parameters that are monitored or used in calculating emissions. Due to rule changes adopted since the GHGRP was initially published, some data that are used to calculate emissions are not reported. Specifically, Part 98 allows for an alternative verification method where some parameters that are inputs to calculation methodologies are not reported but instead are used by the EPA's IVT to verify the reported emissions. Accordingly, it was unclear whether the term ''data element'' in the version of 40 CFR 98.3(c)(8) pre-dating this clarification referred only to those data elements that are required to be reported in the ''Data reporting requirements'' section of each subpart. However, even if a specific parameter is not collected by the EPA, it was always the EPA's intention to require reporters to account for use of missing data procedures if missing data procedures are specified in the applicable subpart.

The EPA identified at least one instance of this conflict in 40 CFR part 98 that precipitated the proposal of this clarification. In the ''Procedures for estimating missing data'' section of subpart O (HCFC–22 Production and HFC–23 Destruction) (40 CFR 98.155), the regulation specifies missing data calculations for chemical concentration in a product and for product mass. The reporter is required to use these two parameters to calculate chemical mass. However, as specified in the subpart O ''Data reporting requirements'' section (40 CFR 98.156), only the chemical mass is collected by the EPA—not the chemical concentration in the product or the product mass. Under subpart A, it was unclear whether missing data information would need to include information on the frequency of use of missing data procedures for chemical concentration and product mass, or only for chemical mass. Information on the frequency of use of missing data procedures for chemical mass by itself did not explain whether the flow rate or concentration data were missing (or both). This was a problem because it impeded the EPA's understanding of data quality if the flow rate was relatively constant but the concentration was not. In addition, this aggregate reporting of missing data led to bizarre results, where the number of hours of missing data for chemical mass exceeded the total number of hours in a year because missing data methods were used for both of the parameters that fed into that data element. With the revision to 40 CFR 98.3(c)(8) being finalized in this action, the EPA is clarifying that subpart A requires reporting of use of missing data procedures for all the parameters for which the applicable subpart specifies missing data procedures. For subpart O, this means that subpart A requires reporting of information on the use of missing data procedures for each of the input parameters. The EPA will update e-GGRT to collect this information for subpart O.

The EPA has not to date identified any other instances of this conflict in 40 CFR part 98, but we recognize that some additional cases may become apparent in the future. If and when they do, the EPA will update e-GGRT to collect information on the use of missing data procedures for those parameters. The EPA fully expects the update to e-GGRT in subpart O and any other necessary e-GGRT update in the future to present a very minimal increase in burden on reporters. For those subparts that are affected, a simple and flexible system for entering this information can be implemented. If the applicable subpart does not specify use of missing data procedures for a parameter, then reporters will not need to report use of missing data procedures for that parameter unless and until the EPA changes the applicable subpart to require use of such procedures. Where the applicable subpart does specify use of missing data procedures for a parameter but the parameter is not included in e-GGRT, reporters will need to submit information on use of missing data procedures for that parameter only when e-GGRT is updated to collect such information for the relevant subpart.

Section 98.3(c)(8) requires only identification of the parameters for which missing data procedures were used and the duration for which the missing data procedures were used for each parameter. The revision does not require that the reporter provide the value of the parameter, but only identify the parameter. For example, a reporter might indicate that the missing data procedures were used for ''monthly production data'' for two months of the reporting year, but would not report the monthly production data values used.

3. When the Final Revisions to Subpart A Become Effective

As shown in Tables 3 and 4 of this preamble, final revisions to subpart A become effective on either January 1, 2017 or January 1, 2018 and will be reflected starting either with RY2016 reports submitted in 2017 or with RY2017 reports submitted in 2018.

We are finalizing that the amendments to 40 CFR 98.2(i)(3) and (5) and 40 CFR 98.3(h) are effective on January 1, 2017, and will apply starting with RY2016 reports. These amendments serve to reduce burden on reporters and can be implemented with minimal lead time, therefore they will be reflected starting with the RY2016 reports submitted in 2017. At proposal these amendments were to be effective with all other amendments to 40 CFR 98.2 and apply to RY2017 reports. However, for 40 CFR 98.2(i)(3), because this amendment serves to allow coal mines that have ceased operations and are abandoned and sealed to stop reporting to the program, thereby serving to reduce burden on these coal mines for the reasons discussed in section III.R below, and is can be implemented with minimal lead time, this revision will be reflected starting with the RY2016 reports. Similarly, the amendment to 40 CFR 98.2(i)(5) allows facilities that have an operation that no longer meets the ''Definition of Source Category,'' as specified in an applicable subpart, to discontinue complying with that subpart for the reporting year following the year in which the change occurs, as described in section III.A.1.a of this preamble. This revision also serves to reduce burden on facilities that meet this new provision and is feasible to make effective as soon as possible, therefore, this revision will be reflected starting with the RY2016 reports.

We are also finalizing that the amendment to 40 CFR 98.3(h) is effective on January 1, 2017, and will apply starting with the RY2016 reports. As described in section III.A.1.a of this preamble, the amendment to 40 CFR 98.3(h) will apply the report resubmission requirements to the reporting years for which a facility is required to retain records. At proposal, we requested comment on discontinuing the maintenance of annual reporting forms for the prior five years but did not propose a change to subpart A. Upon consideration of comments received, as described in section III.A.2 of this preamble, we are finalizing an amendment to the rule that applies the existing report resubmission requirements to a facility's recordkeeping requirements period. Because this amendment reduces burden on reporters by limiting the reporting years to which the resubmission requirements apply and reduces burden on the Agency by capping the electronic reporting forms that must be maintained, and because it

can be implemented with minimal lead time, this revision will be effective on January 1, 2017 and reflected in RY2016 reports.

We are finalizing that the amendment to 40 CFR 98.7(l)(1) is effective January 1, 2017 and will apply starting with the RY2017 report submitted in 2018. This amendment updates the reference to the MSHA Handbook to the most recent 2016 edition. More explanation of this revision and its timing can be found in section III.R.3 of this preamble.

The remaining amendments to subpart A are shown in Table 4 of this preamble and are consistent with the description in section I.E.2 of this preamble. All remaining amendments are effective January 1, 2018 and will be reflected in RY2017 reports submitted in 2018, with the exception of the revision to Table A–5. The revisions to Table A–5 are effective on January 1, 2018 and will be reflected in RY2018 reports submitted in 2019. These revisions are related to applicability of facilities in subpart OO. See section III.W.3 for more detail on the revisions to Table A–5.

B. Subpart C—General Stationary Fuel Combustion Sources

We are finalizing several amendments to subpart C of Part 98 (General Stationary Fuel Combustion Sources). This section discusses the substantive changes to subpart C; additional minor corrections and clarifications are summarized in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526). We are also finalizing confidentiality determinations for new data elements resulting from these revisions to subpart C as proposed; see section IV of this preamble and the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for these data elements.

The EPA received several comments on subpart C. Substantive comments are addressed in section III.B.2 of this preamble; see the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart C.

1. Summary of Final Amendments to Subpart C

a. Revisions to Subpart C To Improve Quality of Data Collected in Part 98

We are finalizing revisions that improve the EPA's ability to verify data under Part 98, while generally resulting in only a slight increase in burden for reporters. First, as proposed, the EPA is requiring reporting of the moisture content used to correct the default HHV for wood and wood residuals (dry basis) in Table C–1 to subpart C, in accordance with the procedures of footnote 5 in Table C–1. The EPA is finalizing as proposed the addition of the moisture correction calculation as a reporting element, as well as a data element that will be entered into IVT. As proposed, we are allowing reporters to elect under 40 CFR 98.3(d)(3)(v) and 40 CFR 98.36(a) (for subpart C sources that do not meet the criteria specified in 40 CFR 98.36(f)) to either enter the moisture content into IVT or, if potential disclosure is not a concern to the reporter, report the data.[4] If a reporter elects to enter the data into IVT, the reporter will also be required to keep a record of the data as specified in 40 CFR 98.37(b)(37). The EPA is finalizing that, for sources that meet the criteria in 40 CFR 98.36(f), there are no disclosure concerns and the moisture content of the wood and wood residuals must be reported in e-GGRT.

For emissions reported using the aggregation of units (GP) and common pipe (CP) configurations, the EPA is finalizing as proposed a requirement to report the cumulative maximum rated heat input capacity for all units (within the configuration) that have a maximum rated heat input capacity greater than or equal to 10 (mmBtu/hr). The EPA received several significant comments regarding this requirement as discussed in section III.B.2 of this preamble.

When reporting the cumulative maximum rated heat input capacity, reporters will not be required to account for units less than 10 mmBtu/hr. For GP configurations, this means that the cumulative maximum rated heat input capacity will be determined as the sum of the maximum rated heat input capacities for all units in the group that are greater than or equal to 10 mmBtu/hr and less than or equal to 250 mmBtu/hr. Units with a maximum rated heat input capacity greater than 250 mmBtu/hr are not allowed to use the GP configuration. For CP configurations, the cumulative maximum rated heat input capacity will be determined as the sum of the maximum rated heat input capacities for all units served by the pipe that are greater than or equal to 10 (mmBtu/hr). Note that fuel use and corresponding emissions are still required to be reported for units with a maximum rated heat input capacity less than 10 (mmBtu/hr). Emissions reporting of GHGs for GP and CP configurations will remain unchanged.

b. Other Amendments to Subpart C

We are finalizing other revisions to the requirements of 40 CFR part 98, subpart C to: (1) Clarify the reporting requirements when the results of HHV sampling are received less frequently than monthly for certain sources; (2) streamline the conversion factors used to convert short tons to metric tons; and (3) revise Tables C–1 and C–2 to more clearly define emission factors for certain petroleum products.

First, as proposed, we are amending 40 CFR 98.33(a)(2)(ii)(A) to clarify the definition of terms for Equation C–2b in cases where the results of HHV sampling are received less frequently than monthly. This finalized revision replaces the term ''month'' in the equation inputs ''$(HHV)_I$,'' ''$(Fuel)_I$,'' and ''n'' with the term ''samples.''

We are finalizing changes to Tables C–1 and C–2 to remove duplication and to further classify several fuels to provide clarity. We are removing duplication of default HHV and CO_2 emission factors for petroleum coke in Table C–1 and including the fuel under a new category entitled ''Petroleum products—solid.''

Next, we are finalizing changes to Table C–1 to move the fuel propane gas from the ''Other fuels—gaseous'' category into a new category entitled ''Petroleum products—gaseous.'' As proposed, we are also retaining propane under the ''Petroleum products'' category, which we are renaming to ''Petroleum products—liquid'' to clarify that all fuels in this category are liquid fuels. In conjunction with the changes to Table C–1, we are also finalizing, as proposed, a change to Table C–2 to revise the ''Petroleum (All fuel types in Table C–1)'' category to ''Petroleum Products (All fuel types in Table C–1),'' which will encompass all liquid, solid, and gaseous petroleum products and clarify that the methane (CH_4) and nitrous oxide (N_2O) emissions for these fuels should be calculated and reported accordingly. We are also finalizing a change to Table C–2 to streamline the CH_4 and N_2O emission factors for fuels in the ''Other fuels—solid'' category. As

[4] If a reporter elects to report the moisture content of wood and wood residuals for a source that does not meet the criteria specified in 40 CFR 98.36(f), e-GGRT will require the reporter to waive the right to make confidentiality claims before reporting the moisture content via e-GGRT.

proposed, we are combining the MSW and tire line items into an ''Other fuels—solid'' category, which will encompass all three solid fuels (*i.e.,* MSW, tires and plastics).

Finally, we are updating the Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples using Radiocarbon Analysis (ASTM D6866–08) to the most current standard. We initially proposed to update ASTM D6866–08 to the current standard at the time of proposal, Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples using Radiocarbon Analysis (ASTM D6866–12). As discussed in section III.B.2 of this preamble, we received several comments expressing the concern that the proposed version of the standards (ASTM D6866–12) was in the process of being revised, and an updated version of these standards (ASTM D6866–16) was published on June 1, 2016. We are updating the final rule to revise references to the method in 40 CFR 98.34(d) and (e), 40 CFR 98.36(e)(2), and 40 CFR 98.7(e)(33) to refer to the current June 2016 standards.

2. Summary of Comments and Responses on Subpart C

This section summarizes the significant comments and responses related to the proposed amendments to subpart C. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart C.

Comment: Several significant comments were received regarding the new requirement to report cumulative maximum rated heat input capacity for GP and CP configurations. Commenters stated that the intended use of this new data element was unclear. Commenters also stated that the new data element would not provide any meaningful data to the program. Multiple commenters stated that the cumulative maximum rated heat input capacity could be determined from existing data. Commenters questioned the EPA's decision to exclude units that are less than 10 mmBtu/hr, with one commenter suggesting that the EPA should consider lowering the threshold to 2.5 mmBtu/hr. Commenters also disagreed with the EPA's proposed assessment that the burden associated with collecting this data element would be minimal.

Response: The EPA appreciates the comments received regarding this new data reporting requirement for GP and CP configurations, but disagrees with many of the commenters' positions. The EPA intends to use the cumulative maximum rated heat input capacity to verify that emissions reported under the GP and CP configurations are not over reported. This is in the interest of the GHGRP and to reporters as well, because this information will assist in ensuring that reported emissions have not been over stated. Five years of report verification have demonstrated that over-reporting in GP and CP configurations does occur and that it is often difficult to detect for the approximately 7,000 configurations under subpart C. The EPA currently is able to identify when gross over-reporting has occurred only at one of these configurations (*e.g.,* a single GP configuration reports more than several hundred billion metric tons of CO_2). Because the EPA has no information regarding the cumulative maximum rated heat input capacity or the total number of units in a GP or CP configuration, it is very difficult to identify when over-reporting has occurred. With this new information, the EPA will be able to identify significant over-reporting in these configurations, as described below.

The cumulative maximum rated heat input capacity can be used to approximate the maximum potential to emit for all units in the group. The EPA will then apply a multiplier to the potential emissions to account for margin of error. Because many units often operate under design capacity, exceeding the design capacity potential to emit times a margin of error multiplier is a clear indication that emissions have been overstated or that the cumulative maximum rated heat input capacity has been understated.

Regarding the commenter's statement that this data element can be approximated with existing reported data, the EPA notes that back calculating the average maximum rated heat input capacity is not practical for two reasons. First, if emissions are over reported for a GP or CP configuration, back calculating from a possible over reported value simply propagates the potential error. Because the main reason for collecting these new data elements is to verify that emissions from these configurations are not over reported, back calculating will not provide any meaningful verification. Secondly, reporters commonly use the Tier 3 calculation methodologies. In many instances, the equation inputs for these calculations are claimed as confidential and in this case, back calculating is infeasible.

Regarding the EPA's exemption for units that are less than 10 mmBtu/hr maximum rated heat input capacity, as per the data from reporting year 2014, the EPA concluded that the emissions contribution of units less than 10 mmBtu/hr is small compared to the total emissions in aggregations with units greater than 10 mmBtu/hr. The EPA believes that meaningful data verification can be achieved by only collecting cumulative maximum rated heat input capacity for units greater than 10 mmBtu/hr. This is due to the fact the bulk of emissions reported under these configurations appears to originate from emissions units that are greater than 10 mmBtu/hr maximum rated heat input capacity.

If the highest maximum rated heat input capacity of all units in a configuration is below 10 mmBtu/hr, the EPA has determined that reporting the cumulative maximum rated heat input capacity is not necessary. Configurations under this threshold are still required to report the highest maximum rated heat input capacity of any unit in the group and the emissions associated with the GP or CP configuration, per existing requirements under 40 CFR 98.3(c)(1) and (3), but will not be required to report the cumulative maximum rated heat input capacity for all units in the configuration. As described in the preamble to the proposed rule, the EPA maintains that the 10 mmBtu/hr threshold value will provide meaningful data for the purposes of verification while simultaneously easing the burden of tracking small sources.

As noted, units less than 10 mmBtu/hr typically contribute minor emissions to the overall subpart C emissions profile. As discussed in the preamble to the proposal, there were approximately 7,000 GP and CP configurations reported in 2014, out of the total 18,000 configurations reported in subpart C. Of the 7,000, approximately 2,250 reported that the highest maximum rated heat input capacity of any unit in the configuration was less than 10 mmBtu/hr. The total non-biogenic CO_2 reported from these 2,250 configurations was approximately 2 percent of the total non-biogenic CO_2 reported for all 7,000 GP and CP configurations. The remaining 98 percent of non-biogenic CO_2 reported came from the 4,750 GP and CP configurations that identified the highest maximum rated heat input capacity of any unit as greater than or equal to 10 mmBtu/hr. These data provide evidence that using the heat input capacity information from units

greater than or equal to 10 mmBtu/hr will allow for meaningful data validation without mandating overly burdensome requirements for reporters.

Regarding the comment that the EPA should consider lowering the threshold to 2.5 mmBtu/hr, the EPA believes that lowering the proposed threshold to 2.5 mmBtu/hr, as opposed to 10 mmBtu/hr, would increase burden without significantly increasing the EPA's ability to verify emissions data, as the difference would represent less than 2 percent of the non-biogenic CO_2 emissions. The EPA acknowledges that the burden under subpart C will increase as a result of the requirement to report these new data elements. The EPA also acknowledges that the burden estimate provided in the preamble to the proposal was understated for subpart C. The burden estimate provided at the time of proposal did not account for the fact that in order to report these two new data elements, reporters would need to collect and sum the cumulative maximum rated heat input capacity for multiple units in each aggregated CP or GP configuration. The EPA has revised the burden estimate to reflect this need. Based on our revised burden estimate (see the memorandum, ''Assessment of Burden Impacts of Final 2015 Revisions to the Greenhouse Gas Reporting Rule'' available in Docket Id. No. EPA–HQ–OAR–2015–0526), the EPA still finds that the overall burden increase for subpart C is justified given the magnitude and uncertainty of emissions represented in GP and CP configurations under subpart C.

When the EPA reviewed the existing subpart C data set as described in the preamble to the proposed rule (81 FR 2551), we determined that over 50 percent of the non-biogenic CO_2 reported under subpart C is reported using GP or CP configurations. Because this represents a significant portion of the subpart C emissions profile, the EPA has determined that further information is needed to ensure that these data are not being over reported.

The EPA also notes that the maximum rated heat input capacity for all units contained in a GP configuration should have been determined at some point in prior year reporting. The GP configuration is allowed only for units that are less than 250 mmBtu/hr. As such, facilities utilizing this configuration should have already determined the maximum rated heat input capacity of the units in these aggregations in order to confirm that they are less than 250 mmBtu/hr. As for the CP configurations, the EPA maintains that existing air permits and compliance records for other federal and state regulations likely contain the heat input capacity data required to be reported.

Finally, the EPA acknowledges that existing state and federal requirements likely already require facilities to report this data element. Commenters have stated that the EPA should use this data element to perform verification in lieu of requiring facilities to report it under the GHGRP. Although operating permits and other compliance records likely contain this information, these documents are not readily available to the EPA. Even if this information were readily available to the Agency, the EPA has no means by which to determine what permitted units are included in a GP or CP configuration. The EPA maintains that facilities have the best information available and are the only entities capable of determining the cumulative maximum rated heat input capacity of their chosen GP and CP configurations.

Comment: The EPA received several comments indicating that the proposed update of the Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples using Radiocarbon Analysis from ASTM D6866–08 to ASTM D6866–12 should not be finalized as the proposed standards were in the process of being updated by ASTM, and that the proposed version would soon be out of date. Commenters requested that the updated version of the standards would be more appropriate to incorporate in the rule, as they would include a more accurate variable that could affect the calculation of the biogenic CO_2 fraction.

Response: The EPA agrees with commenters that incorporating the most recent version of the test methods is appropriate to ensure that accurate biogenic CO_2 fractions are reported. Following the public comment period, an updated version of ASTM D6866 was published on June 1, 2016 (ASTM D6866–16). The EPA reviewed the updated standards and determined that these test methods remain appropriate and can continue to be used under the GHGRP, and would result in improved data quality. Therefore, we are updating the final rule to revise references to these methods to refer to the revised June 2016 standards.

3. When the Final Amendments to Subpart C Become Effective

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart C will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart C.

C. Subpart E—Adipic Acid Production

In this action, we are finalizing amendments to subpart E of Part 98 (Adipic Acid Production), as proposed. This section discusses the amendments to subpart E. We are also finalizing as proposed confidentiality determinations for new data elements resulting from the revisions to subpart E; see the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for this data element. The EPA received no comments objecting to the proposed revisions to subpart E.

1. Revisions to Subpart E To Streamline Implementation

We are finalizing one amendment that is intended to simplify and streamline the requirements of subpart E and increase the efficiency of the report submittal process. Subpart E provides the option of requesting the Administrator to approve an alternative method for determining N_2O emissions from adipic acid production. Previously, reporters were required to request such approval annually in all circumstances. As proposed, the EPA is revising 40 CFR 98.53(a)(2) to state conditions under which annual approval will not be required. The reporter must continue to request approval annually where there have been changes in the reporter's requested methodology. If a reporter receives approval to use an alternative method in the previous reporting year and the methodology has not changed, the EPA is allowing use of the alternative method to be automatically approved for subsequent reporting years. Reporters will only need to notify the EPA that they are using a previously approved alternative method and will not require further approval from the Agency. This notification will be included in the annual report submission. If, however, a reporter makes any changes to the previously-approved alternative method, then the reporter must request permission to use the revised method as stated in 40 CFR 98.53(a)(2). These revisions are being finalized as proposed.

2. Revisions to Subpart E To Improve the Quality of Data Collected Under Part 98 and Improve the U.S. GHG Inventory

We are finalizing one amendment that is intended to improve the quality of

data collected under subpart E while generally resulting in only a slight increase in burden for reporters. As proposed, we are revising 40 CFR 98.56(f) to require reporting of the date of installation of any N_2O abatement technology (if applicable). This data element may be carried over from one reporting year to the next. The reporter will not be required to make changes unless additional abatement technology is installed at a later date.

3. When the Final Amendments to Subpart E Become Effective

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart E will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart E.

D. Subpart F—Aluminum Production

In this action, we are finalizing several amendments to 40 CFR part 98, subpart F (Aluminum Production), as proposed. This section discusses the substantive changes to subpart F; additional minor corrections and clarifications are summarized in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526). The EPA received no comments objecting to the proposed changes to subpart F.

We are finalizing amendments to 40 CFR part 98, subpart F, to improve the quality of the data collected under Part 98 and improve the U.S. GHG Inventory. As proposed, we are requiring reporting of two data elements that influence perfluorocarbon (PFC) emissions from aluminum production: annual average anode effect minutes per cell-day and annual smelter-specific slope coefficients. We are also finalizing our determination that the annual average of the anode effect minutes per cell day is CBI. See the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information. In conjunction with our determination that the annual average of the anode effect minutes is CBI, we are revising, as proposed, our previous finding that the annual smelter-specific slope coefficients, which are inputs to emission equations, present disclosure concerns associated with this input to equation, and are finalizing our proposal to collect these data. Note that we will continue to use IVT to verify the results of Equation F–2. See the preamble to the proposed rule (81 FR 2553) for additional information on this change.

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart F will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart F.

E. Subpart G—Ammonia Manufacturing

In this action, we are finalizing several amendments to subpart G of Part 98 (Ammonia Manufacturing). This section discusses all of the final revisions to subpart G. We are also finalizing as proposed confidentiality determinations for new data elements resulting from the revisions to subpart G; see section IV of this preamble and the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for this data element.

The EPA received several comments for subpart G. Substantive comments are addressed in section III.E.2 of this preamble; see the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart G.

1. Summary of Final Amendments to Subpart G

a. Revisions to Subpart G To Improve Quality of Data Collected in Part 98 and Improve the U.S. GHG Inventory

We are finalizing revisions that will allow the EPA to collect data that will improve the EPA's understanding of GHG emissions from ammonia manufacturing while generally resulting in only a slight increase in burden for reporters. As proposed, we are amending 40 CFR 98.76(a) to require reporting of annual ammonia production for facilities where a continuous emissions monitoring system (CEMS) is used to measure CO_2 emissions; 40 CFR 98.76(b)(2) to require reporting of annual feedstock consumption; and 40 CFR 98.76(b)(7) to require reporting of annual average carbon content.

b. Other Amendments to Subpart G

We are finalizing multiple amendments to subpart G to clarify the EPA's intentions related to the reporting of annual ammonia production and annual methanol production and making one change from proposal.

The change from proposal is with regard to the proposed revisions to 40 CFR 98.76(b)(15) to indicate that facilities must report the annual methanol production for each process unit in 40 CFR 98.76(b)(15) regardless of whether the methanol is subsequently destroyed, vented, or sold as product. As discussed in section III.E.2 of this preamble, the EPA received comments objecting to the proposed revisions, and for the reasons discussed below is instead clarifying that while intentionally produced methanol must be reported, it is not necessary to report the unintended generation of methanol as a by-product. The final rule revises 40 CFR 98.76(b)(15) to ''Annual quantity of methanol intentionally produced as a desired product, for each process unit (metric tons).''

2. Summary of Comments and Responses on Subpart G

This section summarizes the significant comments and responses related to the proposed amendments to subpart G. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart G.

Comment: One commenter opposed the EPA's proposal to clarify 40 CFR 98.76(b)(15) to add that annual methanol production must be reported ''regardless of whether the methanol is subsequently destroyed, vented, or sold as product.'' The commenter opposed reporting of methanol that is vented or destroyed as part of the annual methanol production. The commenter stated that the amount of methanol produced does not contribute to the GHG emission calculations, which are based on fuel and feedstock. The commenter also asserted that the EPA should not attempt to capture the generation of by-products in the ammonia production process, due to the complexity of determining the amount of methanol vented or destroyed. The commenter noted that methanol is generated in the low temperature shift reaction portion of the ammonia manufacturing unit, and, in much

smaller quantities, in the high temperature shift reaction portion of the ammonia manufacturing unit. The commenter stated that methanol can leave the process in either a gaseous stream or as a process condensate. The commenter noted that some facilities use a low methanol catalyst in the low temperature shift reactor to control the amount of methanol produced. The commenter stated that process condensate is normally routed back into the condensate stripper where methanol is stripped and routed to the ammonia reformer for combustion. The commenter argued that this portion should not be accounted for in the amount of methanol destroyed.

Response: The EPA agrees with the commenter that reporting of unintentional methanol production by subpart G reporters is not necessary. The current requirement is to report ''Annual methanol production for each process unit (metric tons),'' without limitation. As demonstrated by reports in RY2014 and RY2015, the amount of methanol from most subpart G reporters, which are thought to be reporting unintentional production, is very small relative to the total quantity of intentional methanol production being reported across the GHGRP (subparts G, P, and X). Reporters that have intentional methanol production are more likely to have existing mechanisms in place for measuring the quantity than reporters that have unintentional methanol production. Therefore, the burden for quantifying the small amounts of unintentional methanol production is expected to be higher than the burden required to report intentional methanol production. In striking a balance between the burden required to quantify the small amount of unintentional methanol production and the EPA's potential uses for the methanol data being requested, the EPA has decided not to finalize the proposed language for 40 CFR 98.76(b)(15), which was ''Annual methanol production for each process unit (metric tons), regardless of whether the methanol is subsequently destroyed, vented, or sold as product.'' Instead, the EPA is revising this requirement to read: ''Annual quantity of methanol intentionally produced as a desired product, for each process unit (metric tons).'' These final revisions are included in the Final Table of Revisions to this rulemaking (see Docket Id. No. EPA–HQ–OAR–2015–0526).

3. When the Final Amendments to Subpart G Become Effective

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart G will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018.

We received comment on our proposed implementation schedule for subpart G requesting an additional year before implementation of the new reporting requirements (*i.e.,* annual ammonia production for facilities using a continuous emission monitoring system (CEMS), annual consumption, and annual average carbon content data) to align the implementation schedule with the schedule for implementing the new reporting requirements for subpart V—Nitric Acid Production (*i.e.,* RY2018). The commenter requested this change because some facilities are subject to both subparts. The EPA does not agree that an additional year is needed for implementation of the new reporting requirements for subpart G or that the reporting schedules for these amendments for subparts G and V need to be aligned. First, all existing ammonia production plants are already required to report ammonia production under 40 CFR 98.76(b)(14) (*i.e.,* these data have been reported for RY2014 and RY2015), and according to the GHG reports for subpart G received to date, no existing ammonia production plants subject to subpart G use CEMS. Therefore, while the new requirement for reporters using CEMS to report annual ammonia production introduces no additional burden to plants currently reporting to the GHGRP, should any plants choose to use CEMS in the future, the requirement will be in place. Second, the new requirement for reporters to calculate and report annual consumption and annual average carbon content (using monthly data) introduces only a minor burden because these facilities are already required to use monthly consumption and carbon content data to calculate emissions, including entering these data into IVT. Third, the requirements of subparts G and V have no common input parameters, therefore, there is no need for facilities to coordinate reporting of the data reported under subparts G and V. As such, the EPA sees no compelling reason to delay the implementation schedule for subpart G. Therefore, the final amendments to subpart G will be effective January 1, 2018, and will be reflected starting with RY2017 reports, as proposed.

F. Subpart I—Electronics Manufacturing

In this action, we are finalizing several amendments to subpart I of Part 98 (Electronics Manufacturing). This section discusses the substantive revisions to subpart I; additional minor amendments, corrections, and clarifications are summarized in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526). We are also finalizing confidentiality determinations for new data elements resulting from these revisions to subpart I; see section IV of this preamble and the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for these data elements.

The EPA received several comments for subpart I. Substantive comments are addressed in section III.F.2 of this preamble; see the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart I.

1. Summary of Final Amendments to Subpart I

This section discusses the substantive revisions to subpart I to improve the quality of data collected under Part 98. We are finalizing the proposed revisions to Equation I–24 with some modifications as described in section III.F.2 of this preamble. We are also finalizing clarifications to one provision of the Triennial Report requirement at 40 CFR 98.96(y) with some modifications from the proposal as described in section III.F.2 of this preamble. We are finalizing all of the proposed minor corrections presented in the Table of 2015 Revisions (see Docket Id. No. EPA–HQ–OAR–2015–0526), with one additional change to Table I–4 as discussed in this section.

As part of the stack testing methodology in 40 CFR 98.93(i), Equation I–24 calculates the weighted-average destruction or removal efficiency for individual F–GHGs across process types. The equation is intended to account for the fact that emissions from different process types are destroyed with different efficiencies. Previously, Equation I–24 weighted the fraction of the fluorinated GHG destroyed by the quantity of gas consumed by each process type. However, the quantity and type of gas flowing into destruction devices are also

affected by (1) The quantity of each input gas dissociated by the process (which varies across process types and sub-types) and (2) the quantity of by-product gas generated by the process (which also varies across process types and sub-types). The revision (and renaming) of Equation I–24A, for input gases, and the addition of Equation I–24B, for by-product gases, enable facilities to properly account for these effects. The addition of Equation I–24B also defines a term, d_{kf}, which is used in several other equations but has not previously been defined.

For the triennial technology report required of certain facilities as specified in 40 CFR 98.96(y), we are revising paragraph (y)(2)(iv) to require that any utilization and by-product formation rate data include the input gases used and measured, the utilization rates measured, the by-product formation rates measured, the process type, the process sub-type for chamber clean processes, the wafer size, and the method used for the measurements. We are requiring that any destruction or removal efficiency (DRE) data include the input gases used and measured, the destruction and removal efficiency measured, the process type, and the method used for the measurements.

The data elements specified in the final amendments to 40 CFR 98.96(y)(2)(iv) differ in several respects from the data elements specified in the proposed amendments. First, the final rule limits the required data elements to the parameters used to categorize the current sets of default emission factors and DREs or, in the case of the measurement method, to assure data quality. We are not finalizing the proposed requirements for facilities to provide the film type, the substrate type, and the linewidth or technology node. Second, the final rule includes two slightly different sets of requirements for reporting utilization and byproduct formation rate data and for reporting destruction or removal efficiency data; these different requirements reflect the different criteria used to classify the corresponding default factors in subpart I. Finally, we have removed the qualification ''where available'' from the list of required data elements. These modifications to the proposed requirements arose from public comments and from our review of the purpose of the requirements, as discussed in section III.F.2 of this preamble.

In this final rule, we are finalizing revisions that we proposed to five default factors in Table I–3 for 150 and 200 mm fabs. This is to correct typographical and calculation errors. One of the corrected default factors, the 1-Ui value for NF_3 used in the remote plasma clean process subtype, is intended to be the same as the corresponding value for 300 mm fabs in Table I–4. (This is because a single dataset was used to develop the 1-Ui value for NF_3 used in remote plasma clean across both sets of wafer sizes.) However, we did not propose to correct the value in Table I–4. Because the correction is applicable to Table I–4 as well as to Table I–3, and we received no negative comments on the Table I–3 correction, we are making the correction to Table I–4 in this final rule. The correction revises the default I-Ui value for NF_3 used in the remote plasma clean subtype from 0.018 to 0.017.

2. Summary of Comments and Responses on Subpart I

This section summarizes the significant comments and responses related to the proposed amendments to subpart I. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart I.

Comment: One commenter expressed concern that the revisions to Equation I–24, including revision of Equation I–24 and the addition of Equation I–24B for stack testing at semiconductor fabs, would require reporters to essentially employ both the default emission factor method and the stack testing method, because the revised equations would require that facilities perform calculations using the default emission factor method to make adjustments for variations in the usage and performance of abatement. The commenter noted that any revisions to the default emissions factors would therefore change the emissions of a facility that performs stack testing. The commenter argued that the proposed revisions would discourage the use of the stack testing method, especially for facilities with abatement systems installed.

Finally, the commenter argued that the EPA has not demonstrated that the added complexity and cost will result in a more accurate emissions estimate.

Response: We demonstrated that the added accuracy of the revised equations justifies their added complexity in the preamble to the proposed rule and are providing further explanation here. As we explained in the preamble to the proposed rule (81 FR 2555, January 15, 2016), we proposed these revisions to Equation I–24 because the original equation relied on GHG gas *consumption* by process type, rather than GHG *emissions* by process type, to determine the weighted average DRE. As explained in the proposal preamble, the original equation introduced several sources of error because it did not account for either input gas utilization or by-product formation, both of which can make the distribution of emissions of an F–GHG between process types very different from the distribution of consumption of that F–GHG between process types. These sources of error are eliminated in the revised Equations I–24 A and I–24B.

We disagree with the commenter that the added complexity of the revised equations is excessive and will discourage use of the stack-test method. The original Equation I–24 required users to apportion gas usage by process type (*i.e.,* to either etching/wafer cleaning or chamber cleaning). The revised equations require reporters to additionally apportion gases used in chamber cleaning to the appropriate sub-type, but the added burden of this step is expected to be low. We analyzed gas usage patterns in RY2014 and found that, on average, between 56 and 80 percent of the time that a fab used an F–GHG in chamber cleaning, the fab used that F–GHG in only one chamber cleaning subtype.[5] Only five to eight percent of the time was an F–GHG used in all three chamber cleaning subtypes. Once they have apportioned gas usage, reporters will simply apply the default utilization rates and byproduct formation rates from Tables I–3 and I–4 to the apportioned gases, and this step can be simplified with the use of a spreadsheet.

The commenter does not address how the term d_{kf}, which is used in several equations in the stack test method (*e.g.,* Equations I–20 and I–22), would be defined without the addition of Equation I–24B. We note that equating d_{kf} to the previous definition of d_{if} (that is, weighting process types by input gas consumption rather than by by-product

[5] The 56-percent figure was based on the assumptions that (1) Every combination of wafer size and chamber cleaning process subtype for which CF_4 or C_2F_6 emissions were reported used CF_4 or C_2F_6 as an input gas and (2) emissions of particular F–GHGs that were reported as zero represent very small emissions rather than no emissions of that F–GHG. The 80-percent figure was based on the assumptions that (1) For combinations of wafer size and chamber cleaning process subtype that have no input gas emission factors for CF_4 or C_2F_6, but that do have by-product generation factors for these gases, CF_4 or C_2F_6 are emitted as by-product gases rather than input gases, and (2) emissions of particular F–GHGs that were reported as zero are truly zero.

emissions) would lead to large errors in the weighted DRE for by-products because the shares of F–GHGs consumed by the two process types can be very different from the shares of F–GHGs emitted as by-products from the two process types (particularly for CF_4 and C_2F_6). For example, based on the 2009 and 2010 F–GHG consumption data that were provided by the semiconductor industry to EPA, the weighted average DRE for by-product C_2F_6 would be 0.6 based on consumption but 0.97 based on by-product emissions, using the Table I–16 default DREs for both process types.

In response to the commenter's assertion that the revision effectively requires users of the stack method to employ the emission factor method as well as stack testing procedures, we reiterate that the incremental effort associated with implementing the revision is expected to be modest, as discussed above. We also note that facilities using the stack method are already required to use a modified version of the emission factor method to perform preliminary estimates of emissions and to estimate emissions from stack systems that are not tested. (See 40 CFR 98.93(i)(1) and (4)).

Finally, regarding the impact of changes in default emission factors on the calculated emissions of facilities that use stack testing, we anticipate that this impact will be considerably smaller than the initial impact of weighting process-type and sub-type DREs by F–GHG emissions rather than by consumption, particularly where most emissions are by-product emissions from a process type other than the process type that consumes the F–GHG. In this case, the process that emits the F–GHG by-product but does not consume it is given a weight of almost zero when consumption is used as the weighting factor; but it is given a weight of nearly one when by-product emissions are used as the weighting factor. In contrast, all subsequent changes to emission factors, with the exception of the very largest ones, are likely to have relatively limited impact on this weighting, and consequently on calculated emissions.

Comment: One commenter expressed concern that the proposed list of the data elements to be submitted with emission factor and DRE data in the Triennial Report would increase burden on reporters, was inconsistent with the terms of the final rule negotiated between the EPA and industry members, and would result in the collection of data that were not relevant to setting accurate emission factors. This commenter argued that the EPA should wait until after the submission of the first Triennial Report in 2017 before finalizing any revisions to the requirements for the report. The commenter stated that some of the data elements went beyond the original goals for the Triennial Report and would require facilities submitting reports to collect additional data that are not typically collected during testing and that were found not to be relevant to emissions during the development of the current subpart I requirements. Specifically, the commenter argued that input gas, wafer size, and process type were sufficient to characterize emissions considering precision, accuracy, and technical feasibility, and that several other data elements, such as film type and technology node, were not statistically relevant to calculating emission factors.

The commenter also asserted that several of the proposed data requirements were irrelevant to characterizing DRE data, including film type, substrate type, linewidth or technology node, process type, and utilization rates measured.

Finally, the commenter claimed that the information being sought raised confidentiality issues because the industry considers the requested product and technology information to be CBI. The commenter argued that, although linewidth estimates were available in publicly available databases such as the World Fab Forecast, those data were only estimates and their accuracy was questionable. Thus, disclosing linewidth or technology node threatens the disclosure of intellectual property. The commenter concluded by stating that several of the proposed data elements, such as film type and technology node, were the same types of data that were required in the recipe-specific emission factor reporting that was removed from the rule in the amendments that were finalized on November 13, 2013 (78 FR 68162) as a result of the industry's petition for reconsideration and EPA's grant of the petition.

Response: As noted above, the EPA is finalizing a list of data elements that must be submitted as part of emission factor and DRE measurements included in the Triennial Report. After considering this comment, we have limited this list to those parameters that are absolutely necessary for relating the new data to the existing data and to the corresponding default emissions factors and DRE factors. Rather than specifying additional parameters that may affect emission and DRE factors, the EPA is relying on the existing requirements of 40 CFR 98.96(y)(2), which state in part that the Triennial Report must describe (1) ''How the gases and technologies used in semiconductor manufacturing using 200 mm and 300 mm wafers in the United States have changed in the past three years and whether any of the identified changes are likely to have affected the emissions characteristics of semiconductor manufacturing processes in such a way that the default utilization and by-product formation rates or default destruction or removal efficiency factors of this subpart may need to be updated'' and (2) ''the effect on emissions of the implementation of new process technologies and/or finer line width processes in 200 mm and 300 mm technologies, the introduction of new tool platforms, and the introduction of new processes on previously tested platforms.'' We have concluded that these requirements, in combination with the introductory sentence of 40 CFR 98.96(y)(2)(iv), which requires reporters to ''provide any utilization and by-product formation rates and/or destruction or removal efficiency data that have been collected in the previous three years that support the changes in semiconductor manufacturing processes described in the report,'' already require reporters to explain how each measurement illustrates one or more of the changes in semiconductor manufacturing processes described in the report. As discussed below, this in turn requires reporters to discuss the parameters whose changes are (or are not) affecting emission factors and emissions.

As noted in the proposed rule, the EPA's intent in specifying the list of data requirements is to allow us to better understand the data being submitted and its implications for the current subpart I default utilization rates, by-product formation rates, and DREs. To achieve this goal, the submitted data must include information on two relationships: The relationship between the new data and the existing emission factors and DREs, and the relationship between the new data and the technological developments in semiconductor manufacturing. The relatively limited list of parameters in the final revision to 40 CFR 98.96(y)(2)(iv) illuminates the first relationship, while the explanation of the link between the data and the changes in semiconductor manufacturing illuminates the second.

The proposed amendment to 40 CFR 98.96(y)(2)(iv) would have required the submission of the specified data elements only ''where available.'' Thus, it would not have required facilities submitting the Triennial Report to

collect any new data, but only to submit data that were already in their possession (and, as specified in the November 13, 2013 amendments to subpart I, that supported the description of the technological changes in the Triennial Report). Nevertheless, we agree with the commenter that some of the proposed data elements, specifically, film type, linewidth, and substrate type, would not necessarily be helpful to illuminating how the processes or DRE equipment for which the submitted measurements were made are different from the processes and equipment that are represented by the current default factors. First, these particular parameters may not be the key drivers that result in a new set of processes having different emission factors from the old set of processes. Second, by itself, information on linewidth and substrate type would be difficult to relate to the data on which the current factors are based because this information was not included in the earlier data.

We believe that the existing text of 40 CFR 98.96(y)(2) requires reporters to explain how the measurements illustrate the impacts of the changes in semiconductor manufacturing described in the report. This allows reporters to focus on the relevant parameters and to explain how and how much they are influencing emission factors and emissions, which is more informative than simply providing the value of a parameter by itself. For example, where a new tool platform has been introduced, *e.g.,* because a tool manufacturer is now supplying a market that it did not supply previously, the Triennial Report should describe this development and note that the new data have expanded the set of represented tool manufacturers for a particular gas and process type relative to the old data. (It would not be necessary for the reporter to specify the ''new'' manufacturer.)[6] Similarly, where emission factors have changed because a new film type that includes less (or more) carbon is being manufactured, the Triennial Report should note that the decrease (or increase) in carbon has resulted in a lower (or higher) CF_4 emission factor from NF_3 chamber cleaning processes. This type of qualitative description allows Triennial Report submitters to avoid identifying exact values or entities that may pose disclosure concerns. (While the data elements included in 40 CFR 98.96(y)(2)(i), (ii), (iii), and (v) have been determined to be CBI, semiconductor manufacturers have historically been reluctant to submit certain sensitive data despite this determination.)

The EPA is aware of multiple parameters that may affect emission factors and DREs. For emission factors, these include radio frequency power, pressure, flow rate, film type, feature type, and tool platform in addition to process type and wafer size, and this list is probably not exhaustive. For DREs, these include equipment make and model and age as well as input gas and process type. The reason that only some of these parameters were used to establish the categories for the default emission factors in Tables I–3 and I–4 and for the default DREs in Table I–16 was not because the other parameters did not influence emissions.[7] Rather, it was because adding one or more other parameters would have increased the burden and complexity of the calculations under subpart I and would have introduced another source of error from the additional F–GHG apportioning required, offsetting the decrease in model error associated with including the additional parameter (see 77 FR 63551). Thus, if one or more of the parameters listed above is a driver behind a change in emission factors for certain sets of processes in the field, facilities should note this in their reports. Acknowledging the relevance of a parameter does not compel the EPA to expand the number of categories of default factors in Tables I–3, I–4, or I–16 to reflect the influence of that parameter, but helps us to understand how and why the new data are different from the old data, and therefore whether and how the current default emission factors and DREs may need to be updated. Again, this is the goal of the revision to 40 CFR 98.96(y)(2)(iv). We anticipate that, except in extraordinary circumstances, updates would consist of revisions to emission factors and DREs in the current set of categories, not an increase in the number of categories.

The EPA agrees that some of the proposed data requirements are not relevant to DREs, and the EPA has therefore distinguished in the final rule between the data required for DREs and the data required for emission factors in the Triennial Report. However, the EPA disagrees with the commenter's assertion that process type is not relevant to DREs, which is contradicted by the fact that the current rule includes different sets of default DREs for etch processes and chamber clean processes.[8] Thus, the EPA has retained ''process type'' in the list of data elements that must be submitted with DRE data.

Because the limited sets of data elements required by this final rule should always be available and are necessary for the measurements to be meaningful, we have removed the qualification ''where available'' from the lists of required data elements for emission factor and DRE measurements.

3. When the Final Amendments to Subpart I Become Effective

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.1 of this preamble, all amendments to subpart I will be effective on January 1, 2017 as proposed and will be reflected starting with RY2016 reports that are submitted in 2017. No comments were received on the timing of revisions to subpart I.

G. Subpart N—Glass Production

In this action, we are finalizing amendments to subpart N of Part 98 (Glass Production) as proposed. This section discusses the substantive revisions to subpart N; additional minor corrections are summarized in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526).

The EPA received only supportive comments for subpart N; therefore, there are no changes from proposal to the final rule based on these comments. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart N.

[6] A similar approach was used by the Semiconductor Industry Association (SIA) to describe the representativeness of emission factor measurements with respect to tool manufacturers during the development of the November 13, 2013 final amendments to subpart I. (See, *e.g.,* SIA's ''Report to EPA on Etch Factor Proposal for Fab GHG Emissions Reporting,'' page 18, EPA–HQ–OAR–2011–0028–0074.)

[7] For example, the report cited by the contractor (''Report to EPA on Etch Factor Proposal for Fab GHG Emissions Reporting,'' Docket item number EPA–HQ–OAR–2011–0028–0074) showed that radio frequency power had the second-highest R squared value of any single-variable model.

[8] During the development of the current subpart I requirements, SIA supported using process type to organize and apply default DREs. In the document titled, ''Briefing Paper on Abatement Issues: Destruction Removal Efficiency (DRE), SIA stated, ''SIA is proposing an alternative method to group abatement systems and apply the DREs to F-gas emissions. This alternative is based on a combination of the process types [emphasis added] as defined in the MRR and the gas or gas groups being treated by the abatement units'' (SIA. Briefing Paper on Abatement Issues: Destruction Removal Efficiency (DRE), January 10, 2012, EPA–HQ–OAR–2011–0028–0045).

We are finalizing amendments that are intended to clarify the rule requirements in subpart N, while resulting in no impact on burden for reporters. Specifically, the revisions clarify that a default value of 1.0 can be used for the fraction of calcination and the carbonate mass fraction for each carbonate type contained in the raw materials charged to the furnace. As proposed, we are revising 40 CFR 98.144(b), 40 CFR 98.144(c), 40 CFR 98.144(d), 40 CFR 98.146(b)(5), and 40 CFR 98.146(b)(7) to clarify that no further chemical analysis is required if the default value of 1.0 is selected. These amendments will clarify the original intent of the requirements and address multiple Help Desk questions. Additional minor editorial corrections may be found in the Final Table of Revisions in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526).

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart N will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart N.

H. Subpart O—HCFC–22 Production and HFC–23 Destruction

1. Summary of Final Amendments to Subpart O

We are finalizing all amendments to subpart O of Part 98 (HCFC–22 Production and HFC–23 Destruction) as proposed. This section discusses all of the revisions to subpart O. We are also finalizing as proposed confidentiality determinations for new data elements resulting from the revisions to subpart O; see section IV of this preamble and the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for these data elements.

The EPA received several comments for subpart O. Substantive comments are addressed in section III.H.2 of this preamble; see the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart O.

a. Revisions to Subpart O To Streamline Implementation

This section discusses the amendments to subpart O to simplify and streamline GHGRP requirements and increase the efficiency of the report submittal process. We are finalizing these revisions to subpart O as proposed. Specifically, we are removing the reporting requirements at 40 CFR 98.156(d)(2), (3), and (4), which include, respectively, the concentration (mass fraction) of HFC–23 at the outlet of the destruction device, the flow rate at the outlet of the destruction device in kilograms per hour, and the emission rate calculated from these two parameters. As discussed in the proposed rule, reporting of these data elements is no longer needed due to previous revisions to subpart O (81 FR 2556).

b. Revisions to Subpart O To Improve the Quality of Data Collected Under Part 98

This section discusses the amendments to subpart O to improve the quality of data collected under Part 98. We are finalizing these revisions to subpart O as proposed. Specifically, we are (1) Reinstating in 40 CFR 98.156(d) reporting of the method used to calculate the revised destruction efficiency and (2) requiring facilities to report HCFC–22 production and HFC–23 emissions for each HCFC–22 production process rather than for the facility as a whole. As described in the preamble to proposed rule (81 FR2556), these amendments will allow the EPA to collect data that will improve the EPA's understanding of GHG emissions from HCFC–22 production and HFC–23 destruction while generally resulting in only a slight increase in burden to reporters.

2. Summary of Comments and Responses on Subpart O

This section summarizes the significant comments and responses related to the proposed amendments to subpart O. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart O.

Comment: One commenter disagreed with the EPA's proposed reinstatement of the requirement to report the method used to calculate the revised destruction efficiency. In the preamble to the proposed rule, the EPA stated that this data element was inadvertently removed by the Final Inputs Rule and was important for understanding data quality. The commenter argued that this rationale did not justify reinstatement of the data element, especially given that the previous change was made just 18 months ago. The commenter noted that the EPA was also proposing to reinstate previously removed data elements for other subparts, and expressed the opinion that the number of regulatory revisions in the GHGRP, which has been effect for six years, should be decreasing, not increasing. The commenter concluded that the EPA should avoid removing and reinstating data elements as such changes ''place an undue burden on reporters and undermine confidence in the GHGRP.''

Response: While we agree with the commenter that it is important to minimize instances where the EPA inadvertently removes a data element and then reinstates it, we disagree that avoiding such reversals is more important than correcting an error that hinders our understanding of data quality. As noted in the preamble to the proposed rule (81 FR 2556), reporting of the method used to calculate the revised destruction efficiency helps us to understand the rigor of the method and the reliability of the resulting revised destruction efficiency. We do not believe that the reinstatement of this data element, which will be implemented through a revision to the e-GGRT data reporting system, places an undue burden on reporters. Similarly, we do not believe that the reinstatement represents an acceleration of the rate of amendment of Part 98 or undermines confidence in the GHGRP. The Final Inputs Rule removed 378 data elements from Part 98 (79 FR 63752); only three of these are being reinstated by this final rule.

3. When the Final Amendments to Subpart O Become Effective

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart O will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart O.

I. Subpart Q—Iron and Steel Production

In this action we are finalizing amendments to subpart Q of Part 98 (Iron and Steel Production). This section discusses one substantive revision to

subpart Q; additional minor amendments, corrections, and clarifications are summarized in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526). The EPA received no comments objecting to the proposed revisions to subpart Q.

We are finalizing a revision to subpart Q to align with final revisions to subpart Y (Petroleum Refineries). Under 40 CFR 98.172(b), facilities that report under subpart Q are referred to provisions in 40 CFR part 98, subpart Y, for reporting CO_2 emissions from flares that burn blast furnace gas or coke oven gas. The final revisions clarify that subpart Q facilities should exclude pilot gas from the flare gas GHG emissions. Additional information regarding these final revisions may be found in section III.M.1 of this preamble.

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart Q will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart Q.

J. Subpart S—Lime Manufacturing

In this action we are finalizing several amendments to subpart S of Part 98 (Lime Manufacturing). This section discusses all final amendments to subpart S. We are also finalizing as proposed confidentiality determinations for new data elements resulting from the revisions to subpart S; see section IV of this preamble and the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for these data elements.

The EPA received several comments for subpart S. Substantive comments are addressed in section III.J.2 of this preamble; see the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart S.

1. Summary of Final Amendments to Subpart S

a. Revisions to Subpart S To Improve the Quality of Data Collected in Part 98

The EPA is requiring as proposed reporting of three data elements that influence CO_2 emissions from lime manufacturing: Annual emission factors for each lime product type produced, annual emission factors for each calcined byproduct/waste by lime type that is sold, and annual average results of chemical composition analysis of each type of lime product produced and calcined byproduct/waste sold.

After consideration of comments received requesting clarity on how a reporter is to calculate annual emission factors, as described in section III.J.2 below, the EPA is finalizing 40 CFR 98.193(b)(2)(vi), (vii) and (viii), which contain new Equations S–5 to S–10 to calculate the 12-month average based on monthly emission factors for lime product type produced and calcined byproduct/waste by lime type that is sold, in addition to the associated monthly results of the chemical composition analysis of each type of lime product produced and calcined byproduct/waste that is sold. As described in the preamble to the proposed rule (81 FR 2557), collecting these data will allow us to understand why emissions have increased or decreased in a particular year or over longer periods. Thus they are important for informing the development of future GHG policies and programs. In addition, they are important for explaining U.S. emission trends through the U.S. GHG Inventory.

2. Summary of Comments and Response on Subpart S

This section summarizes the significant comments and responses related to the proposed amendments to subpart S. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart S.

Comment: Two commenters stated that the EPA should refrain from collecting and retaining highly confidential business information unless there is a compelling reason to do so. In this case, the commenters assert that an assessment or evaluation of emission factors over long periods of time will not be a reliable indicator of why overall GHG emissions may have increased or decreased. The commenters explain that calcination-related emissions make up approximately 54 percent of total CO_2 emissions in the lime industry, with minimal variability in emission factors month to month or year to year for the various product or calcined byproduct/waste type produced. Further, the commenters state that changes and variability in emissions are far more likely to be influenced by changes in production which are driven by market conditions, and to a lesser extent from variability in fuel combustion emissions which are already reported under the GHG Reporting Rule, subpart C. The commenters conclude that the proposed new data points will be of negligible value and at the same time will increase the potential for sensitive information to inadvertently be made public.

Response: The EPA disagrees with the commenter that reporting new data points will be of negligible value. Emission factors in combination with production data do inform trends and represent an emission intensity or emission rate associated with the lime production process (*e.g.,* GHG emission per unit of production by lime type). The collection of these data (annual average emissions factors for each lime product produced by type, annual emissions factors or calcined byproduct/waste by lime type that is sold, in addition to their associated annual average results from chemical composition analysis) will enhance the ability for EPA to understand emission trends, in particular emission rates at facilities to understand why emissions are decreasing or increasing, in conjunction with other existing data collected under GHGRP. In addition, collection of this information will also advance integration of GHGRP information into the U.S. GHG Inventory, and hence improve those estimates to better reflect industry conditions and related annual trends from lime production than the current use of IPCC default factors. The EPA adds that separate from this rulemaking the National Lime Association has provided comments to the EPA during the public review of the U.S. GHG Inventory (comments dated February 22, 2013, March 14, 2014) [9] to discontinue use of IPCC default emissions factors, specifically for calcined byproducts

[9] See ''Letter to Leif Hockstad, U.S. EPA, from William C. Herz, National Lime Association re: Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990–2012'' and ''National Lime Association comments on Inventory of U.S. Greenhouse Gas Emissions and Sinks (78 FR 12013, February 22, 2013), Arline M. Seeger''. Available in Docket Id. No. EPA–HQ–OAR–2015–0526.

such as lime kiln dust. Further, as noted in these comments by National Lime Association on the U.S. GHG Inventory, this information required in this final rule will complement production data the EPA is currently collecting on lime produced that is sold under 40 CFR 98.196(a)(6) and (b)(18). Finally, this information will enhance EPA's ability to compare and verify emissions across subpart S, but also the EPA's ability to integrate GHGRP information is also enhanced by the ability to present a transparent and consistent basis for estimating emissions with underlying activity parameters within the inventory report.

The EPA acknowledges commenter's concerns about the potentially confidential nature of the new data elements. As noted in the section III.J of the preamble to the proposed rule, the EPA determined these elements will be eligible for confidential treatment and will only publish information (*e.g.,* national averages based on GHGRP facility-level data) that meet criteria for aggregation and publication of CBI information in **Federal Register** Notification–9911–98–OAR.[10]

Comment: One commenter requested that the EPA add clear and unambiguous language that defines ''Annual emission factor.'' The commenter stated that the proposed rule does not adequately explain how these elements are to be calculated. The commenter suggested that the most sensible and least burdensome method is a straight 12-month average of the monthly emission factors. According to the commenter, this calculation method should be explicitly prescribed in the final rule if the data points are required.

Response: The EPA agrees that clear language, in particular prescribing the calculation method in the rule, will facilitate reporting of these new data points. Per the commenter's specific recommendation, the EPA has added 40 CFR 98.193(b)(2)(vi), (vii) and (viii), which contain new Equations S–5 to S–10 to specify calculation of the 12-month average based on monthly emission factors for lime product type produced and calcined byproduct/waste by lime type that is sold, in addition to the associated monthly results of the chemical composition analysis of each type of lime product produced and calcined byproduct/waste that is sold.

[10] *See https://www.epa.gov/ghgreporting/confidential-business-information-ghg-reporting#CBI__Data__Aggregation.*

3. When the Final Amendments to Subpart S Become Effective

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart S will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart S.

K. Subpart V—Nitric Acid Production

In this action, we are finalizing three amendments to subpart V of Part 98 (Nitric Acid Production). This section discusses the revisions to subpart V; additional minor clarifications, including a change to the final rule, are summarized in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526). We are also finalizing as proposed confidentiality determinations for new data elements resulting from the revisions to subpart V; see section IV of this preamble and the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for these data elements.

The EPA received only supportive comments for subpart V; therefore, there are no changes from proposal to the final rule based on these comments. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart V.

1. Revisions to Subpart V To Streamline Implementation

We are finalizing one amendment that is intended to simplify and streamline the requirements of subpart V and increase the efficiency of the report submittal process. Subpart V provides the option of requesting the Administrator to approve an alternative method of determining N_2O emissions from adipic acid production. Previously, reporters were required to request such approval annually in all circumstances. As proposed, we are revising 40 CFR 98.223(a)(2) to state conditions under which annual approval will not be required. As further discussed in section III.C of this preamble for subpart E, the EPA is allowing for use of the alternative method to be automatically approved for the next reporting year if the reporter received approval to use an alternative method in the previous reporting year and the method has not changed. Reporters who do not wish to change their method from the one approved for the prior year will only need to notify the EPA in the annual report submission that they are using an already approved alternative method. If, however, a reporter makes any changes to the previously-approved alternative method, then the reporter must request permission to use the revised method as stated in 40 CFR 98.223(a)(2). These revisions are being finalized as proposed.

2. Revisions to Subpart V To Improve the Quality of Data Collected Under Part 98

We are finalizing two amendments that are intended to improve the quality of data collected under subpart V. First, as proposed, we are revising 40 CFR 98.220 to revise the definition of the source category to require reporting from all reporters that produce nitric acid, regardless of the nitric acid strength. We are finalizing an updated definition of nitric acid to apply to all nitric acid strengths, to ensure that subpart V reporting captures all N_2O emissions related to the production of nitric acid. These final changes are summarized in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526).

As proposed, we are also revising 40 CFR 98.226(h) to require reporting of the date of installation of any N_2O abatement technology (if applicable). This date is readily available or already collected by reporters, and would not require additional data collection or monitoring. This data element can be carried over from one reporting year to the next. The reporter will not be required to make changes unless additional abatement technology is installed at a later date.

3. When the Revisions to Subpart V Become Effective

Two of the three amendments to subpart V are effective on January 1, 2018 as shown in Table 4 of this preamble and are consistent with the description of amendments effective on that date in section I.E.2 of this preamble. The remaining amendment to subpart V is effective on January 1, 2019 as shown in Table 5 of this preamble. Although some amendments to subpart V are effective January 1, 2018 and some

are effective January 1, 2019, all amendments to subpart V will be reflected in RY2018 reports that are submitted in 2019 as shown in Tables 4 and 5 of this preamble. No comments were received on the timing of revisions to subpart V.

The amendments to 40 CFR 98.220 of subpart V require new facilities to report to the GHGRP. We are making these revisions effective January 1, 2018 so that the new reporters will take the necessary action to begin monitoring to be in full compliance with these revisions throughout 2018.

The amendment to 40 CFR 98.223(a)(2) serves to simplify and streamline reporting for subpart V facilities by allowing for the use of an alternative method for determining N_2O emissions if the reporter received approval to use an alternative method in a prior reporting year and the method has not changed. Reporters who do not wish to change their method from the one approved for the prior year will only need to notify the EPA in the annual report submission that they are using an already approved alternative method. If, however, a reporter makes any changes to the previously-approved alternative method, then the reporter must request permission to use the revised method as stated in 40 CFR 98.223(a)(2). Subpart V specifies that notification, if needed, of the use of alternative monitoring must be submitted within the first 30 days of the reporting year, which equates to January 30. Because the notification, if needed, must take place within the reporting year, we are making this amendment effective January 1, 2018, so that reporters will not have to notify the Agency if they are using the same alternative method as in the previous reporting year.

The amendment to 40 CFR 98.226(h) adds one new reporting requirement to subpart V, the date of installation of any N_2O abatement technology. This date is readily available to the reporters and is consistent with the data collection and monitoring in the current rule; because the reporter does not need to take action during the reporting year, this revision will be effective January 1, 2019 and reflected in RY2018 reports that are submitted in 2019.

L. Subpart X—Petrochemical Production

In this action we are finalizing several amendments, clarifications, and corrections to subpart X of Part 98 (Petrochemical Production). This section discusses the substantive revisions to subpart X. We are finalizing as proposed all of the minor amendments, corrections, and clarifications presented in the Final Table of Revisions (see Docket Id. No. EPA–HQ–OAR–2015–0526). We are also finalizing as proposed confidentiality determinations for new data elements resulting from the revisions to subpart X; see section IV of this preamble and the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for these data elements.

The EPA received several comments for subpart X. Substantive comments are addressed in section III.L.2 of this preamble; see the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart X.

1. Summary of Final Amendments to Subpart X

a. Revisions to Subpart X To Streamline Implementation

We are finalizing a revision to subpart X to align with the final revisions to subpart Y. Under 40 CFR 98.243(c), facilities that report to subpart X are referred to provisions in subpart Y for reporting CO_2, CH_4, and N_2O emissions from flares. The final revisions clarify that facilities should exclude pilot gas from the flare gas GHG emissions. Additional information regarding these final revisions may be found in section III.M.1 of this preamble.

We are also finalizing, with minor clarification to what was proposed (see section III.L.2 of this preamble), amendments to 40 CFR 98.246(a)(5) to allow operators of an integrated ethylene dichloride (EDC) and vinyl chloride monomer (VCM) process to report the measured quantity of VCM and an estimate of the amount of EDC produced as an intermediate in the process. We are also finalizing as proposed a modification of 40 CFR 98.240(a) to indicate that a reporter may elect to consider the entire integrated process (rather than just the EDC operations) to be the petrochemical process for the purposes of complying with the mass balance method.

b. Revisions to Subpart X Improve the Quality of Data Collected in Part 98

We are finalizing as proposed the addition of reporting requirements for facilities that use the mass balance approach to determine emissions under 40 CFR 98.243(c) to report the annual average of the measurements of the carbon content and molecular weight of each feedstock and product reported under subpart X. Collection of the carbon content of each feedstock and product will enhance the quality and accuracy of the data collected under the GHGRP by providing additional information that will be used to verify the accuracy of reported emissions. Once this data element and the molecular weight of the feedstock or product are aggregated to the national level, they will be used to improve national emission estimates in the U.S. GHG Inventory, while resulting in only a slight increase in burden for reporters.

2. Summary of Comments and Responses on Subpart X

This section summarizes the significant comments and responses related to the proposed amendments to subpart X. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart X.

Comment: One commenter expressed confusion with the revision of 40 CFR 98.246(a)(5). According to the commenter, in the preamble, the EPA seems to require facilities using the optional method to report both the measured amount of VCM produced and an estimate of EDC produced as an intermediate (81 FR 2588). The commenter stated that the regulatory text does not appear to require this approach. The commenter provided suggested revisions to clarify the reporting requirements.

Response: The final amendments to 40 CFR 98.246(a)(5) retain the proposed requirement to report either a measured or estimated amount of intermediate EDC produced in an integrated EDC/VCM process unit. We are retaining both options for this reporting requirement to provide reporters additional flexibility. Additionally, the final amendments to 40 CFR 98.246(a)(5) clarify our intentions by making two changes to the proposed language. First, we have made a minor change to the proposed language under 40 CFR 98.246(a)(5) to

remove any reference to VCM produced being required to be reported under this specific paragraph of the rule. This revision does not change the fact that the amount of VCM produced in an integrated EDC/VCM process unit must still be reported, regardless of whether the reported amount of intermediate EDC produced is estimated or measured, as reporting of the amount of VCM produced is already required under the reporting requirement for all products in 40 CFR 98.246(a)(13) and we neither proposed nor intended for this revision to make any changes to 40 CFR 98.246(a)(13). This minor change from proposal is intended to clarify the revision and eliminate the proposed duplicative requirement for reporting of VCM production. Second, we have made a change to the proposed language in subpart X to require that the estimated quantity of EDC is to be based on process knowledge and best available data.

The commenter recommended removing the proposed option for reporting the measured quantity of EDC for an integrated EDC/VCM process. Although we expect that a reporter that elects to consider an integrated EDC/VCM process to be the petrochemical process unit is unlikely to measure the amount of intermediate EDC produced, we do not want to preclude that possibility. Thus, we have retained both proposed reporting options for the amount of intermediate EDC produced in the final rule. After further consideration of the comment, we realized that the commenter also may have been confused because the proposed option to report a measured quantity of EDC did not mention reporting the amount of VCM. Although the proposed revision to 40 CFR 98.246(a)(5) did not indicate that the amount of VCM must be reported for such processes when the reported amount of intermediate EDC is based on measurements, the amount of VCM is currently, and would still have been, required to be reported under 40 CFR 98.246(a)(13); this requirement is unchanged in the final rule. To further clarify this point, we removed any mention of VCM from 40 CFR 98.246(a)(5) in the final rule to specify that only intermediate EDC production for any integrated EDC/VCM process unit that a reporter elects to consider as the petrochemical process unit would be reported under 40 CFR 98.246(a)(5). VCM production for any integrated EDC/VCM process unit that a reporter elects to consider as the petrochemical process unit will continue to be reported under 40 CFR 98.246(a)(13). This change is intended to reduce confusion and remove duplicative reporting requirements for VCM production from these process units. Additionally, we have clarified subpart X to specify that if the reporter elects to report an estimated value, the estimated value is to be based on process knowledge and best available data. This additional language should provide guidance to reporters with regard to how the estimate of intermediate EDC production is to be determined, which will help to further reduce confusion over the revised requirements in 98.246(a)(5). This language is consistent with EPA's intentions in the proposal for how reporters should determine the estimated value. Identical modifications have also been made to the proposed revisions in 40 CFR 98.246(b)(8). These final revisions are included in the Final Table of Revisions to this rulemaking (see Docket Id. No. EPA–HQ–OAR–2015–0526).

3. When the Final Amendments to Subpart X Become Effective

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart X will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart X.

M. Subpart Y—Petroleum Refineries

In this action we are finalizing several amendments to 40 CFR part 98, subpart Y (Petroleum Refineries), to reduce burden for reporters, improve data quality, and provide corrections and clarifications. This section discusses the substantive revisions to subpart Y. We are finalizing as proposed the minor corrections and clarifications to subpart Y of Part 98. These minor revisions are summarized in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526). We are also finalizing as proposed confidentiality determinations for new and revised data elements resulting from the revisions to subpart Y; see section IV of this preamble and the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for these data elements.

The EPA received several comments for subpart Y. Substantive comments are addressed in section III.M.2 of this preamble; see the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart Y.

1. Summary of Final Amendments to Subpart Y

a. Revisions to Subpart Y To Streamline Implementation

We are finalizing as proposed the amendment to paragraph 40 CFR 98.253(b) to clarify that pilot gas, which is the gas used to maintain a pilot flame at the flare tip, may be, but is not required to be, excluded from the quantity of flare gas used to perform GHG emissions calculations. As we described in the proposed rule, such emissions are relatively small and may be difficult to determine without installation of a meter, a burden we did not intend to require. We are making a minor change to the proposed revision, as reflected in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526). The final revision to subpart Y more clearly states that all gas discharges must be included in the flare GHG emission calculation with the exception noted above. This minor change from proposal does not alter the intent of this revision.

After consideration of comments received, as discussed in section III.M.2 of this preamble, we are finalizing as proposed the amendment to 40 CFR 98.256(e) to require that facilities provide a yes/no indication as to whether a flare has a flare gas recovery system. As discussed in the proposed rule, this requirement will provide critical information for characterizing flare emissions, assessing trends, and informing policy decisions, while adding only a slight burden to reporters. These two revisions affect subpart Y as well as subparts Q and X, as described in the preamble to the proposed rule (81 FR 2560).

b. Revisions to Subpart Y To Improve the Quality of the Data Collected Under Part 98

We are finalizing as proposed all of the amendments to the delayed coking unit (DCU) GHG emission calculation methodology to require facilities to use the steam generation model. As further described in the proposed rule preamble, these amendments provide a more accurate means of estimating

methane emissions from DCUs and also align the GHGRP methodology with the methodology recently incorporated into the Emission Estimation Protocol for Petroleum Refineries, Version 3, by EPA's Office of Air Quality Standards and Planning (OAQPS) (the Refinery Protocol [11]).

In particular, the proposed amendments for determining the mass of coke in the coke drum, the mass of water in the coke drum, and the average temperature of the coke bed contents are being finalizing as proposed. For the mass of coke in the coke drum, the amendments require reporters to determine this quantity based on either (1) Company records, or (2) drum dimensions, drum outage (parameters already required to be recorded under the current rule) and a new equation provided in the rule (Equation Y–18a). For the mass of water in the coke drum, the amendments require reporters to determine this quantity based on the height of water in the coke drum and the mass of coke in the coke drum. For determining the average temperature of the coke bed contents, the amendments require reporters to comply with one of two methods, either: (1) A method based on the measured overhead temperature of the drum, or (2) a method based on the overhead pressure using a temperature pressure correlation equation provided in the rule. The use of the temperature-pressure correlation will allow reporters to use current pressure monitoring and recordkeeping practices to obtain the information needed to implement the new methodology. As such, the new methodology will not require the installation or use of new monitoring systems.

Additionally, we are finalizing as proposed to allow facilities that have DCU vent gas measurements to use these measurements to develop a unit-specific methane emissions factor for the DCU. This allows both reporters that have previously used the combined Equation Y–18/Y–19 method, as well as other reporters, to use the measurement data available to provide an improved, site specific emissions estimate. If a unit specific methane emissions factor is not available, we are finalizing as proposed that reporters must use the default methane emissions factor for DCU of 7.9 kg methane per metric ton of steam generated.

[11] Emission Estimation Protocol for Petroleum Refineries. Version 3. Prepared for U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC. August 2015. See *https://www3.epa.gov/ttn/chief/efpac/protocol/ProtocolReport2015.pdf.*

With regard to reporting requirements for emissions from DCUs, we are finalizing as proposed the amendment that the new methodology be used to estimate the emissions for each DCU and that all DCU data elements be reported at the unit level. As further discussed in the preamble to the proposed rule, this revision provides information necessary for us to verify reported data, and streamlines reporting requirements for reporters.

In related revisions, we are finalizing as proposed the revisions to 40 CFR 98.253(j) to delete ''CH_4 emissions if you elected to use the method in paragraph (i)(1) of this section,'' because the DCU methodology no longer includes an option to use a combination of techniques to determine the CH_4 emissions from DCU decoking operations. We are also finalizing as proposed the inclusion of ''coke produced per cycle'' in the list of quantities of petroleum process streams that are determined using company records in 40 CFR 98.254(j), and the addition of a requirement that temperature and pressure measurements associated with the DCU are to be determined ''using process instrumentation operated, maintained, and calibrated according to manufacturer's instructions.'' These revisions are included to clarify monitoring requirements associated with the new DCU methodology. Additionally, we are finalizing as proposed the revisions to the recordkeeping requirements in 40 CFR 98.257 associated with the DCU to harmonize the recordkeeping requirements with the new DCU methodology equations.

We are finalizing as proposed amendments to revise 40 CFR 98.253(h)(1) to clarify that reporters with ''asphalt blowing operations controlled either by vapor scrubbing or by another non-combustion control device'' must use Equations Y–14 and Y–15 to calculate their GHG emissions. Lastly, we are also finalizing as proposed revisions to 40 CFR 98.253(h)(2) to clarify that reporters with ''asphalt blowing operations controlled by either a thermal oxidizer, a flare, or other vapor combustion control device'' must use Equations Y–16a/Y–16b and Y–17 to calculate their GHG emissions. These amendments will yield more accurate emissions values as reporters will now be required to use the most appropriate equations for ''other'' control systems used for asphalt blowing operations.

2. Summary of Comments and Responses

This section summarizes the significant comments and responses related to the proposed amendments to subpart Y. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart Y.

Comment: One commenter objected to the amendments to 40 CFR 98.256(e)(3) and (6), stating that the proposed amendments are redundant and duplicative. The commenter stated that the EPA already has this information under 40 CFR part 60, subpart Ja—Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007 (henceforth referred to as NSPS Ja) and that they do not support reporting this information under the GHGRP. The commenter also noted that, due to the special modification provisions set forth in 40 CFR 60.100a(c), nearly all refinery flares with few exceptions fall under NSPS Ja. The commenter stated that the NSPS Ja requirements at 40 CFR 60.103a(a) require carbon content, molecular weight and annual mass of flare gas combusted, and an indication of whether or not each flare is serviced by a flare gas recovery system to be documented in the flare management plan and submitted to the EPA. The commenter stated that the EPA does not need to have the same information submitted to it under two separate rules because such duplicative reporting is wasteful and unnecessary.

Response: The proposed revisions in 40 CFR 98.256(e)(6) are modifications to existing reporting requirements to provide more direct reporting requirements for reporters using mass flow meters, so that those reporters would no longer need to separately determine the molecular weight of the gas and volumetric flow rate and instead must report only the measured mass flow rate. This amendment reduces GHGRP reporting burden for reporters that use mass flow meters. This information, which is needed for verification of the reported emissions, is not available in the NSPS Ja flare management plans so reporting this information is not duplicative. We are therefore finalizing the amendments to 40 CFR 98.256(e)(6) related to reporting the carbon content of flare gas, and

either the volume and molecular weight of that gas or the mass of that gas, as proposed.

Regarding the proposed revision to 40 CFR 98.256(e)(3), while the presence of a flare gas recovery system could be gleaned from flare management plans for flares subject to the NSPS Ja requirements, not every flare required to report under the GHGRP is subject to the NSPS Ja requirements. We have received approximately 170 flare management plans covering approximately 340 flares under NSPS Ja; however, there were 495 flares at refineries included in facilities' GHGRP reports in 2014. Therefore, adding the proposed reporting requirement to the GHGRP will cover many additional flares where it is unknown to us whether a flare gas recovery system is in place. Additionally, the proposed revision will allow EPA to gather information on flare gas recovery systems at petrochemical production and iron and steel production facilities. Part 98 requires facilities in these industries to use the methodology specified in subpart Y for flares. Facilities in these industries are not subject to NSPS Ja.

For the subset of flares subject to NSPS Ja, it would be time consuming for us to compile the information regarding the presence of a flare gas recovery system from submitted flare management plans and update this information annually. The amount of time required by the GHGRP reporter to make this indication would be very low. For most flares, the presence of a flare gas recovery system would not change annually (exceptions include cases where a flare gas recovery system was newly installed). Potentially, once this data element is initially reported in RY2018, the EPA may be able to develop a way to ''carry over'' the reported information from a facility's RY2018 report and pre-populate this information in each facility's subsequent reports. If the carry-over process is implemented, the reporter would only need to enter the information once (for RY2018) and make changes to this data element in future reporting years only when the presence of the flare gas recovery system changed. This potential future reporting process should reduce burden even further, if implemented. Additionally, having this information reported within the GHGRP data system will allow the EPA to publish and review the information alongside the rest of the reported data related to flares, which greatly improves the usability of the information by allowing for streamlined comparison of the GHGRP reported emissions for flares with and without flare gas recovery systems to better gauge the effectiveness of these systems.

For the reasons outlined above, after full consideration of this comment we are finalizing revisions to 40 CFR 98.256(e)(3) and (6) as proposed.

Comment: Several commenters provided comments opposing the proposed steam generation model method for calculating methane emissions from DCUs on several grounds. One commenter stated that the proposed method will significantly overstate the amount of steam that is generated upon opening the coke drum to the atmosphere and thus overstate the methane emissions because of the following incorrect assumptions: (1) There is a uniform temperature throughout the entire coke bed and the quench water at the time the vent is started; (2) the amount of heat evolved is derived from cooling the entire mass of coke and quench water from that initial uniform temperature to 212 °F; (3) 10 percent of the heat removed from the coke bed and quench water is dissipated through the coke drum and overhead metal and the balance of the heat removed from the coke bed (90 percent) goes into steam generation; and (4) 100 percent of the water in the coke drum at the time of venting is at its bubble point (*i.e.,* all the heat evolved goes toward affecting evaporation and none of it is used in heating the water to the boiling point).

The commenter further stated that these assumptions are not supported by the experience of the commenters or the available data. Commenters note that coker process experts report significant temperature gradients through the coke mass and the quench water throughout the drum. The commenters assert that at the time a coke drum is opened to the atmosphere the water and coke in the bottom of the drum is at approximately the temperature of the incoming quench water (much less than 212 °F). Therefore, the commenter states, the required assumption that the entire mass of coke and quench water is at 212 °F, regardless of the actual temperature readings, overstates the heat in the drum and thus the heat generated significantly. Commenters provided data showing that, for the five DCUs presented, the bottom of the drums, as reflected in the initial drain water temperature, was at temperatures below 150 °F. Furthermore, commenters noted that the vast majority of quench water drained from these units was below 212 °F, demonstrating that most of the quench water in the drums when they were opened to the atmosphere was not at its bubble (boiling) point. Commenters assert that this is typical for DCUs in general.

Commenters further described the cooling process noting that the quench water (100 to 130 °F) continuously enters from the bottom of the coke drum and, as the coke in the drum cools, the quench water accumulates in the lower coke bed, being of higher density than the water above, some of which is at its bubble point. According to the commenters, the amount of sub-cooled water in the coke drum and its temperature prior to atmospheric venting is dependent on a number of factors, but some cokers completely cool their bed, such that 99 percent of the water is sub-cooled. According to the commenter, the typical range is from 50 percent to 99 percent subcooling. Thus, the commenters state that at best (the 50 percent case) the proposed equations will overstate steam and methane generation by 100 percent and in most cases will overstate it by even more.

Response: After consideration of this comment, for the reasons stated in this preamble, the proposed rule preamble, and in this docket, we are finalizing the steam generation model method for calculating methane emissions from DCUs as proposed.

First, with respect to the comment that we have assumed that there is a uniform temperature throughout the entire coke bed when first opening the coke bed to the atmosphere, we do not agree that the commenter's statement is fully accurate, as our position is that the methodology acknowledges and accounts for the existence of a temperature gradient. While the proposed method does calculate an average bed temperature for the methane emissions calculation, this calculation acknowledges that there is a temperature gradient by using both the temperature at the top of the coke bed (or overhead line temperature) and at the bottom of the coke bed to determine the average temperature of the coke bed.

Second, regarding the commenter's questioning of the methodology's assumption that the entire mass of coke and quench water is above 212 °F at the time a coke drum is opened to the atmosphere, we note that the methodology is designed to account for emissions from the entire decoking process (which includes venting, water draining, drum deheading, and coke cutting) while reducing burden on reporters. To reduce burden, rather than requiring reporters to use separate equations to calculate emissions from each part of the process listed above, the methodology estimates total emissions from these processes based on steam generation at the time of venting to the

atmosphere. The methodology relies on certain assumptions in order to calculate total emissions that are reasonable estimates. We do acknowledge that it is physically possible for the average temperature of the coke bed to be at or below 212 °F when opened to the atmosphere, but even if the average temperature of the coke bed were beneath 212 °F and minimal amounts of steam were generated, methane emissions still occur for multiple reasons, which the methodology is designed to also account for. To name a couple of examples, pockets of gas trapped within the coke bed may not be released until the coke is cut from the drum, or emissions may still occur from the drain water. Using a temperature at or below 212 °F within this methodology would not account for these emissions accurately. If the methodology were changed to allow for temperatures at or below 212 °F to be used, this methodology could not accurately represent emissions from the entire intended process, requiring that additional equations would need to be added to the rule to account for emissions that occur during other parts of the decoking process. While we have considered this alternative, we have determined that this methodology provides a reasonable estimation of emissions from the process and is less burdensome. Therefore, in order to properly account for all decoking process emissions using the methodology being finalized, $T_{initial}$ in equation Y–18e must be greater than 212 °F, regardless of the venting temperature or pressure, to account for methane emissions that are not directly associated with steam formation.

Third, we maintain that a 10 percent convective heat loss is an appropriate assumption (for more detailed reasoning, please see the Refinery Protocol's Response to Comments document available in that action's docket). The commenter provided no evidence to suggest otherwise. Due to the large size of the vessel, the volume of the vessel is much larger than the surface area and the convective heat loss is expected to be only a small portion of the evaporative heat loss over the duration of the venting and draining process.

Fourth, with respect to the assumption that 100 percent of the water in the coke drum at the time of venting is at its bubble point (*i.e.,* all the heat evolved goes toward affecting evaporation and none of it is used in heating the water to the boiling point), we maintain the reasoning behind these assumptions for the key reasons we discussed above. Specifically, the model is designed to estimate emissions from the entire decoking process, so a minimum average bed temperature of greater than 212 °F is necessary and appropriate to account for any emissions from the coke cutting process and drain water. We also note that the heat capacity of the coke and water (per degree temperature change) is about 100 times the heat of vaporization for a given mass of water. As such, if some of the water had to be raised to the bubble point first, this ''heat sink'' typically has only a small impact on the quantity of steam generated and hence the calculated emissions.

The commenter offered limited data on drum water temperatures from one company to suggest that the assumptions cited are inaccurate. First, these data do not appear to be representative of DCU operations nationwide. Forty percent of the DCU included in this company's data use water overflow technique. Based on information collected during the development of the December 1, 2015, amendments to 40 CFR part 63, subpart CC (80 FR 75178), which included new standards for DCU at petroleum refineries, this water overflow technique is estimated to be used at about 4 percent of operating DCU (see Docket Id. No. EPA–HQ–OAR–2010–0682, Item Numbers –0061 through –0069, –0085, –0188, –0202, –0203, –0216, –0219, –0719, and –0747). This method allows the operator to use an unlimited amount of water and continually overflow the coke drum with water to reach a target cooling temperature. Thus, these units are expected to be more effectively cooled than units commonly used in the industry. To calculate methane emissions with the proposed method, these DCU would generally use the minimum default temperatures. Therefore, the emissions calculated with the proposed method would appropriately be lower for DCU with water overflow than the industry average, but would still account for methane emissions that occur from the overflow water and the coke cutting phase.

Second, the drain water temperature, particularly at the start of draining, is not necessarily representative of the average coke bed temperature. Cooling water is added at the base of the DCU, below the bottom of the coke bed. Thus, the initial temperature of the drain water may represent water that has never contacted the coke bed. Additionally, the primary flow of water at the base of the coke bed will be through specific channels in the coke bed. In fact, even within the coke bed, the water will generally flow through specific channels. As such, there can be pockets of hot coke within the coke bed even though the water in the channels and the coke immediately surrounding these channels are at a much lower temperature. Therefore, the drain water temperature may not provide an accurate assessment of the average coke bed temperature.

Finally, the drain water temperature observed will be dependent on the lag time between when venting begins and draining begins. Certainly, if the pressure of the system is 12 pounds per square inch gauge (psig) at the start of the venting cycle, there must be significant steam generation (which is what causes the elevated pressure) and therefore, a portion of the coke bed must be well over 212 °F. If the water is drained very soon after initiation of atmospheric venting, the drain water profile is expected to rise well above 212 °F. However, if draining is delayed for an hour or so, the continued generation of steam at the top of the coke bed would help to cool the top of the coke bed. Thus, if one waits to drain long enough the evaporative heat loss effect would cool the bed (as predicted by the heat balance model) and the drain water temperature would not exceed 212 °F.

We maintain that the proposed model with the assumptions described above is the most accurate available for estimating methane emissions from the DCU considering the releases that can occur during all phases of the decoking operations. Table 1 in the technical memorandum ''Revised Emission Methodology for Delayed Coking Units'' (Docket Id. No. EPA–HQ–OAR–2015–0526–006), shows that the emissions predicted using the proposed steam generation model compares well with measured emissions from the DCU steam vent (which does not consider other emissions from draining, deheading, or coke cutting), particularly for DCU that did not begin draining soon after initiating venting. After consideration of this comment, for the reasons stated in this preamble, the proposed rule preamble, and in this docket, we are finalizing as proposed.

Comment: One commenter opposed the revision to the emissions calculations for DCUs for the following reasons: (1) Poor accuracy; and (2) that EPA cannot ''align'' Part 98 with the Refinery Protocol unless the change in methodology is voluntary. With regard to poor accuracy, the commenter described how the EPA ranks calculation methods in the order of accuracy, ''Method 1'' through ''Method 5,'' with Method 1 being the most preferred/accurate. The commenter

states that the methodology EPA is proposing is ranked as ''Method ¾,'' indicating a poor level of accuracy. Consequently, the proposal does not appear to improve or further the accuracy of the inventory. The commenter asserts that the EPA has failed to adequately explain the relative accuracy between the existing and proposed methods in quantitative terms, leading to the conclusion that one poor method is being replaced for another. The commenter further states that given that most methane emissions are controlled from DCUs in combustion devices meeting 98 percent Destruction and Removal Efficiency (DRE), this change in methodology will not result in a meaningful improvement in the overall accuracy of the inventory.

With regard to the need to make this change voluntary, the commenter describes that during the development of Version 3 of the Refinery Protocol it was made clear that the use of the factors and methods therein were voluntary, not mandatory. According to the commenter, the EPA Technology Transfer Network Web page clearly states, ''We are not requiring the use of the Refinery Protocol, just as we do not require the use of AP–42. It is simply another tool for use in estimating emissions when site-specific test data do not exist or are not available'' and this was understood between both OAQPS and the refining sector. Therefore, the commenter considers the proposed revisions to the federal GHG inventory rule that would require the use of these calculation methodologies, as a circumvention of the function and purpose of the Refinery Protocol. The commenter finds that it is inappropriate to develop calculation methods with the understanding that their use is optional, only to then make their use mandatory in rulemaking under the guises of ''alignment'' between the two. The commenter states that, should EPA make the use of the Refinery Protocol methodology in Part 98 an option, this would be considered true alignment between inventory and Refinery Protocol and an acceptable solution to the commenter.

Response: The Refinery Protocol ranks different types of methodologies that can be used to quantify emissions in terms of their relative accuracy to provide an order of preference for which inventory emission estimates should be developed based on the information available to the emissions inventory compilers. Methodology Rank 1 (highest rank) is reserved for direct continuous emission monitoring of the emissions. Methodology Rank 2 is similar, but allows, for example, direct concentration measurements and flow rates estimated by F-factors. As noted in the Refinery Protocol, Methodology Ranks 1 and 2 are not applicable for DCU decoking operation emissions because of the nature of the vent (high steam content) and varied locations that emissions can be released. Thus, for DCU, Methodology Rank ¾ is the best, most accurate method available.

During development of the Refinery Protocol, we determined that the newer methodology is a more accurate way to determine the total emissions from DCU than the existing methodology in the rule based on comparisons between the emissions calculated using each methodology and DCU source test measurement of the decoking venting step. Table 1 in the technical memorandum ''Revised Emission Methodology for Delayed Coking Units'' (Docket Id. No. EPA–HQ–OAR–2015–0526–006) clearly compares the emissions predicted using the old ''depressuring model'' (Equation Y–18) with emissions predicted using the proposed steam generation model, as well as emissions measured from the DCU steam vent. We expect most refineries will use the pressure correlation alternative provided in the rule we are finalizing as proposed, and this method provided an estimate of within a factor of 1.4 of the measured emissions and would yield a result even closer to the measured emissions if other decoking operation emissions were included. The depressuring model, on the other hand, resulted in emissions that were a factor of 10 lower than the measured emissions and would underestimate emissions by an even larger amount if other decoking operation emissions were included in the measurements. The data we have provided in the docket record clearly demonstrate that the proposed steam generation model is more accurate than the old depressuring model.

We agree that prior to the decoking process, there is an initial depressurization, steaming, and cooling phase where the emissions are required to be routed to a closed vent system and either recovered as product or controlled via a flare or similar device. During this phase, there are no emissions when the vapors are recovered as product and flared emissions are accounted for by the flare methodology in 40 CFR 98.253(b). While the emissions from the initial cooling cycle may be controlled, they are not accounted for in the DCU methodology, which only considers emissions that occur in the decoking steps after this initial, controlled cooling phase. As such, the commenter's suggestion that most methane emissions are controlled from DCUs in combustion devices meeting 98 percent DRE, is incomplete.

After this initial cooling period, the coke drum gases are no longer routed to the closed vent system and are instead diverted to the atmosphere. This uncontrolled, atmospheric venting is the start of the decoking operations and the DCU emissions estimated for the GHGRP in accordance with 40 CFR 98.253(i) include only these direct atmospheric emissions. Therefore, we disagree with commenter's statement that the proposed methodology's emission estimates are overstated, since emissions that occur from the DCU while the emissions are being vented to controls (*i.e.,* during the initial cooling cycle) are not included at all in the DCU emissions methodology in 40 CFR 98.253(i).

We disagree with the commenter that the new DCU calculation methodology must be voluntary. Generally, we want facilities to use the most accurate method possible, rather than providing several methodologies of varying accuracies that facilities can voluntarily choose between, and we desire consistent methods be used where practical to allow for reported emissions to be compared on a level playing field across facilities. In certain cases where it may appear that we provide alternative methodologies for facilities to voluntarily select from (such as the alternatives provided for flares), these methodologies provide options on the basis of the monitoring equipment available, and so are not truly optional but rather prescribed based upon the existing monitoring equipment. In the example of methodologies for flares, if carbon content is measured, the reporter must use Equation Y–1A or Y–1B in 40 CFR 98.253(b)(1)(ii)(A); they cannot elect to use Equation Y–2 in 40 CFR 98.253(b)(1)(ii)(B) or Y–3 in 40 CFR 98.253(b)(1)(ii)(C). Where we do allow methods to be selected voluntarily, as in the case of Equations Y–1A and Y–1B, we do so because the methods yield very consistent results (within 0.1 percent for typical range of CO_2 concentrations in flare gas).

This is not the case when comparing the old DCU methodology with the new DCU methodology. The old DCU methodology was found to underestimate actual CH_4 emissions from the DCU by a factor of 10, which is much less accurate than the new methodology, meaning that we do not find that the emissions calculated by the two methods are consistent enough for us to allow the methods to be used interchangeably (as we did in the case

of Equation Y–1A and Y–1B in 40 CFR98.253(b)(1)(ii)(A)). Furthermore, in the finalized methodology for DCU, we have provided reporters with options to use either pressure monitoring data or overhead temperature data to determine the average initial bed temperature. We specifically provided the pressure monitoring alternative because the pressure of the vessel prior to venting was already a monitoring requirement. Since no new monitoring requirements are necessary to begin use of the methodology being finalized, to ensure methods are employed consistently across all reporters, and based on the method's proven ability to better predict the emissions measured from these sources, we are finalizing this method as mandatory for all reporters, as proposed.

Comment: One commenter noted that DCU emissions are highly dependent on coker operating parameters, and EPA should allow the use of site-specific coking unit emissions models and estimation methods. The commenter describes that some DCU have new designs and operational procedures that are intended to lower emissions, and the generic calculation methodology may substantially overestimate emissions. The commenter further states that in some jurisdictions, emission measurements on delayed coker vents are required on a three-year basis. The commenter asserts that facilities that have such measurements should have the option of using them for calculating methane emissions as part of subpart Y reporting, and that if a facility is using site-specific calculations and measurement data for reporting of coker vent emissions, it may need to estimate emissions from draining if the drain water temperature is above 212 °F for some portion of the draining period. The commenter offered a proposed methodology (outlined below) and asserted that emissions from draining when drain water temperatures are below 212 °F are negligible, as are emissions from coke cutting, because methane has a very low solubility in water. The commenter stated that one company indicated that approximately 0.2 percent of methane would be expected to partition into the aqueous phase. As a result, the commenter says the potential methane emissions in DCU drain water would be expected to be low compared to those from the venting part of the unit operational cycle.

The commenter suggested that emissions from steam flashing during draining could be estimated based on evaluation of coke drum drain temperature during the entire drain period. According to the commenter, if drain water temperatures are never above 212 °F, there would be no attendant methane emissions added to those from the vent, since there should be negligible methane dissolved in water that has already flashed and cooled. The commenter further states that if drain temperatures rise above 212 °F, the mass of steam would be calculated based on the following modified version of Equation Y–18e:

$$Msteam = fHotDrain \times \left[\frac{Mwater \times Cp,water + Mcoke \times Cp,coke \times (THotDrain - 212}{\Delta Hvap} \right] \quad \text{(Eq. Y-18e)}$$

Where:

fHotDrain = Fraction of time during drain that drain water is >212 °F (for example, if drain time was 60 minutes and temperature was above 212 °F during the last 15 minutes of draining, then fHotDrain = 15/60 = 0.25).

THotDrain = The minute-averaged temperature of the water when it is >2 12 °F (for example, if drain temperatures were above 212 °F during the last 15 minutes of draining, then THotDrain = (213 + 216 + 220 + 222 + 224 + 230 + 232 + 234 + 236 + 238 + 240 + 240 + 240 + 240 + 240)/15 = 229 °F).

Per the commenter, methane emissions from draining would then be determined by using the conservative assumption that the methane concentration in the drain steam is the same as the vent steam.

The commenter also asserted that the drilling process should have negligible emissions unless there is ongoing chemical reaction, formation of coke, or tail gas and liquid hydrocarbons due to uncompleted reaction when feeding the coke drum. According to the commenter, drilling emissions cannot be directly measured but can be correlated to hot spots, coke drum blowbacks, coke dust incidents, and odors. Further the commenter states that because these conditions are so undesirable from a safety and community perspective, these occurrences have been minimized and thus it is reasonable to assume the coke cutting contribution to overall coker emissions is quite small. The commenter then asserts that isolated hot spots in the coke bed, as indicated by steam generation during coke cutting, if they occur at all, are less than 0.1 percent of the coke bed volume. According to the commenter, the amount of methane released is well within the accuracy of the proposed calculations and the associated large assumptions, and can be ignored.

Response: After careful consideration of this comment, we are finalizing the methodology as proposed. We agree that the DCU decoking emissions are unit-specific and the new methodology includes a variety of unit-specific inputs including the mass of water in the drum, the mass of coke in the drum, and the drum overhead temperature or pressure. New unit designs that allow for more effectively cooling of the coke bed will operate with lower overhead temperatures and will show lower emissions than units that cannot achieve these overhead temperatures.

As noted in the response to comment above, the methodology we are finalizing is intended to estimate releases from all phases of the decoking process. We agree the methane emissions from the coke-cutting process will not necessarily be related to steam generation, so, in order to account for these emissions in our methodology, we intentionally do not allow temperature inputs that would estimate no (or negative) emissions from the DCU even if the overhead temperature is below 212 °F.

In our methodology, we allow facilities that have vent measurement data to develop their own site-specific emissions factor for methane emissions (in kg CH_4 per metric ton of steam emitted in the vent line). As such, facilities can use measurement data when available to further refine their DCU emissions.

We compared the commenter's suggested methodology to our methodology, which includes the use of a site-specific emission factor along with the proposed steam generation quantity. We found our method to be a more appropriate means by which to incorporate site-specific measurement data for the following reasons. First, the vent emissions measured are highly dependent on the time period between initiation of venting and draining. A facility can drain immediately when measuring emissions from the vent to minimize the emissions released via the vent. However, it may be more common practice to delay draining for a longer

period after venting during routine operations. In this event, using the measured venting emissions from the source test and then estimating the drain emissions as suggested by the commenter could significantly underestimate the DCU emissions from these steps. Second, the commenter's suggested methodology does not consider releases that can occur during drum deheading and coke cutting, but rather assumes these to be negligible. DIAL measurement studies of DCU emissions [12] measured elevated emissions from the drainage area during the coke cutting process. While emissions during the coke cutting step may not be proportional to steam generation, we disagree that these emissions should be assumed to be zero, and instead maintain that a robust methodology must account for these emissions. Thus, the commenter's suggested methodology could misrepresent measured emissions based on the timing of draining, and is too limited in scope for our intended purposes.

3. When the Final Amendments to Subpart Y Become Effective

As shown in Table 5 of this preamble and consistent with the description of amendments in section I.E.3 of this preamble, all amendments to subpart Y will be effective on January 1, 2019 as proposed and will be reflected starting with RY2018 reports that are submitted in 2019. No comments were received on the timing of revisions to subpart Y.

N. Subpart Z—Phosphoric Acid Production

In this action, we are finalizing amendments to subpart Z of Part 98 (Phosphoric Acid Production). This section discusses all the amendments to subpart Z. We are also finalizing as proposed confidentiality determinations for new data elements resulting from the revisions to subpart Z; see section IV of this preamble and the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for these data elements.

The EPA received only supportive comments for subpart Z; therefore, there are no changes from proposal to the final rule based on these comments. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart Z.

As proposed, we are revising 40 CFR 98.266(f)(3) to require that the annual report must include the annual phosphoric acid production capacity (tons) for each wet-process phosphoric acid line, rather than the annual permitted phosphoric acid production capacity, for the reasons discussed in the proposed rule (81 FR 2561). We are removing the word ''permitted'' from the requirement to report the process-level production capacity, noting that not all facilities have a permitted production capacity at the process level or produce to the permitted capacity. We are also clarifying, as proposed, the units of measurement for this reporting requirement. The pre-existing text for 40 CFR 98.266(f)(3) requires the reporting of ''annual phosphoric acid permitted production capacity (tons) for each wet-process phosphoric acid process line (metric tons).'' In this action, we are removing the phrase ''(metric tons)'' from this text to clarify that the unit of measurement is ''tons'' and not ''metric tons.''

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart Z will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart Z.

O. Subpart AA—Pulp and Paper Manufacturing

In this action, we are finalizing three amendments and clarifications to subpart AA of Part 98 (Pulp and Paper Manufacturing) as proposed. This section discusses all of the final revisions to subpart AA. The EPA received only minor comments for subpart AA and there are no changes from proposal to the final rule based on these comments. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart AA.

We are finalizing as proposed all amendments to subpart AA for the reasons described in the preamble to the proposed rule (81 FR 2562). First, we are finalizing as proposed amendments to 40 CFR 98.273(a)(1), (b)(1), and (c)(1), which refer to the subpart C calculation methodologies for CO_2 emissions from combustion of fossil fuel, to clarify that Tier 4 CEMS are not used to report emissions under subpart AA. Second, we are finalizing as proposed the revision of 40 CFR 98.275(b) to allow use of the daily mass of spent liquor solids fired reported under 40 CFR 63.866(c)(1) as an alternative to using maximum values for missing spent liquor solids measurements. Lastly, we are finalizing as proposed the clarifications in Table AA–2 to subpart AA to more clearly distinguish between kraft rotary lime kilns and calciners.

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart AA will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart AA.

P. Subpart CC—Soda Ash Manufacturing

In this action, we are finalizing one minor correction to subpart CC of Part 98 (Soda Ash Manufacturing). This section discusses the substantive revisions that were proposed for subpart CC, but that the EPA is not finalizing. The minor correction that the EPA is finalizing is summarized in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526).

The EPA received several comments for subpart CC. Substantive comments are addressed in section III.P.2 of this preamble; see the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart CC.

[12] *See* Refinery Demonstration of Optical Technologies for Measurement of Fugitive Emissions and for Leak Detection (Roy McArthur, Environment Canada, and Allan Chambers and Mel Strosher, Carbon and Energy Management, March 31, 2006); and Measurement and Analysis of Benzene and VOC Emissions in the Houston Ship Channel Area and Selected Surrounding Major Stationary Sources Using DIAL (Differential Absorption Light Detection and Ranging) Technology to Support Ambient HAP Concentrations Reductions in the Community (Loren Raun & Dan W. Hoyt, Bur. Pollution Control & Prevention, City of Houston, 2011), available in Docket Id. No. EPA–HQ–OAR–2015–0526.

1. Summary of Final Amendments to Subpart CC

No substantive amendments to subpart CC are being finalized for this rulemaking. In response to comments and based on updated analysis as described in section III.P.2 of this preamble, the EPA is not finalizing the two proposed amendments to revise 40 CFR 98.296(a) and (b) that would have required reporting of the facility-level annual consumption of trona or liquid alkaline feedstock.

2. Summary of Comments and Responses on Subpart CC

This section summarizes the significant comments and responses related to the proposed amendments to subpart CC. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart CC.

Comment: Several commenters do not support the EPA's proposed revision related to facility-level feedstock reporting under subpart CC, stating that the EPA did not provide sufficient justification for the proposed revisions. The commenters cite the preamble to the proposed rule, saying that the EPA asserts that these data elements are already required for facilities that use CEMS. However, the commenters state there are a very limited number of soda ash manufacturers and that very few of the manufacturing lines monitor emissions using CEMS. Therefore, the commenters object to the significant additional recordkeeping and reporting efforts that would be posed by these amendments, particularly because the rule already requires reporting of outputs of both soda ash produced and GHG emitted, in their view wholly fulfilling the statutory requirements for the program. The commenters cite the EPA's own U.S. GHG Inventory report to question the justification that the reporting of trona inputs and outputs would ''improve the quality of the US GHG Inventory,'' stating that the EPA refers to the relatively low uncertainty levels in the emission estimates for soda ash manufacturing. The commenters further cite the EPA's report, which says that the primary source of uncertainty in this sector occurs downstream from the manufacturing sites that would be affected by this rulemaking. The commenters conclude that the proposed revisions would therefore not improve the inventory estimates in any material way and do not warrant the additional regulatory burden.

Response: At this time, the EPA is not finalizing the proposal to require reporting of annual consumption of trona or liquid alkaline feedstock at the facility level, but may do so in the future. The EPA recognizes that a similar data element was removed in the Final Inputs rule and is currently reported only by facilities monitoring emissions via CEMS (79 FR 63750, October 24, 2014).[13] The proposed new data element is similar, but not identical to the one removed from 40 CFR 98.296(b)(5) in the Final Inputs rule. The proposed new data element would have required reporting of annual consumption of trona or liquid alkaline feedstock at the facility level, whereas the data element removed in the Final Inputs rule required reporting of monthly consumption. As proposed, this new data element would have been treated as CBI. In preparing to finalize this rulemaking, the EPA has conducted an updated assessment on use of this proposed information and determined that the information very likely will not meet the EPA's criteria for aggregation and publication of CBI information contained in **Federal Register** Notification–9911–98–OAR.[14] Inability to aggregate and publish this information presents a significant barrier to its use for publishing analyses to inform future GHG policies and programs, such as emission intensities for this industry, and for integration into the U.S. GHG Inventory.

Although the EPA is not finalizing these proposed data elements at this time, the Agency disagrees with commenters on the value of these data to enhance estimates for the U.S. GHG Inventory. As commenters note, the current method applied in the U.S. GHG Inventory overestimates emissions from Soda Ash Production, so it does not accurately reflect annual national emissions from this industry. The EPA currently estimates CO_2 process emissions from soda ash production using a tier 1 approach, based on application of default emission factors provided in the 2006 IPCC Guidelines to estimated national trona consumption. National consumption of trona is approximated in the U.S. GHG Inventory based on national trona production presented in voluntary surveys conducted by USGS. As noted in the Overview Chapter of the 2006 IPCC Guidelines for National GHG Inventories, ''accuracy and precision should, in general, improve from tier 1 to tier 3'' (p.8). The tier 3 methods in the 2006 IPCC Guidelines recommend estimating emissions by aggregating plant-level information per Volume 3, Chapter 3.3: Natural Soda Ash Production as noted in the preamble to this proposed rule. Further, inclusion of the emission factors derived from emissions and trona ore consumption would account for fractional purity of trona ore and reflect an improvement from IPCC defaults. Facilities subject to subpart CC must measure the inorganic carbon contents of trona inputs and/or soda ash outputs on a monthly basis and apply this factor to estimate their emissions. Requiring reporting of trona consumption, in addition to the inorganic carbon contents of trona inputs and/or soda ash outputs, would allow tier 3 methods aggregating plant-level data to be used in preparing the U.S. GHG Inventory emissions estimates. However, as noted above, use of GHGRP information in the U.S. GHG Inventory also necessitates transparent presentation of underlying activity data (*e.g.,* national production based on facility level data), emission factors (*e.g.,* derived from production and emissions), in addition to aggregated emissions, which would not be feasible if the information was determined to be CBI.

3. When the Final Amendments to Subpart CC Become Effective

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, the one remaining minor amendment to subpart CC will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart CC.

Q. Subpart DD—Use of Electric Transmission and Distribution Equipment

In this action, the EPA is finalizing several amendments to 40 CFR part 98, subpart DD (Use of Electric Transmission and Distribution Equipment), to improve the quality and usefulness of the data received by the GHGRP. This section discusses all of the final revisions to subpart DD. We are also finalizing confidentiality determinations for new data elements resulting from these revisions to subpart DD; see section IV of this preamble and

[13] Refer to Table 1 in the memorandum ''Data Elements Deferred to March 31, 2015: Final List of 'Inputs to Equations' Data Elements Not To Be Reported,'' September 2014 (see Docket Id. No. EPA–HQ–OAR–2010–0929).

[14] *See https://www.epa.gov/ghgreporting/confidential-business-information-ghg-reporting#CBI Data Aggregation.*

the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Final 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for these data elements.

The EPA received several comments for subpart DD. Substantive comments are addressed in section III.Q.2 of this preamble; see the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart DD.

1. Summary of Final Amendments to Subpart DD

We are finalizing, as proposed, the addition of a data element to require the reporter to provide the name of the U.S. state, states, or territory in which the electric power system lies. We are not finalizing the proposed requirement to report the total miles of transmission and distribution lines that lie in each state. The EPA received several comments regarding this proposed amendment, which are discussed in section III.Q.2 of this preamble.

We are finalizing as proposed the addition of reporting elements to subpart DD that are related to the nameplate capacities and numbers of pieces of new and retired equipment. Specifically, we are finalizing as proposed amendments to add reporting of the nameplate capacities of new hermetically sealed-pressure switchgear at 40 CFR 98.306(a)(2), new SF_6- or PFC-insulated equipment other than hermetically sealed-pressure switchgear at 40 CFR 98.306(a)(3), retired hermetically sealed-pressure switchgear at 40 CFR 98.306(a)(4), and retired SF_6- or PFC-insulated equipment other than hermetically sealed-pressure switchgear at 40 CFR 98.306(a)(5). We are also finalizing as proposed new reporting requirements for the numbers of pieces of new hermetically sealed-pressure switchgear during the year (40 CFR 98.306(n)(1)); new SF_6- or PFC-insulated equipment other than hermetically sealed-pressure switchgear during the year (40 CFR 98.306(n)(2)); retired hermetically sealed-pressure switchgear during the year (40 CFR 98.306(n)(3)); and retired SF_6- or PFC-insulated equipment other than hermetically sealed-pressure switchgear during the year (40 CFR 98.306(n)(4)). See section III.Q.2 of this preamble for the summary of comments and response received on the addition of these reporting requirements.

2. Summary of Comments and Responses on Subpart DD

This section summarizes the significant comments and responses related to the proposed amendments to subpart DD. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart DD.

Comment: The EPA proposed adding new reporting requirements at 40 CFR 98.306(m) to make data collected under subpart DD more useful to the public. The new data elements would require the electric power system to provide the name of the U.S. state, states, or territory in which the electric power system lies and the total miles of transmission and distribution lines that lie in each state or territory. These data elements would allow users of GHGRP data to more easily identify the state, states, or territory within which the electric power system lies. This would also be useful for determining state- and territory-level GHG emissions associated with particular electric power systems. Several commenters objected to the proposal that electric power systems report information on the miles of transmission and distribution lines within each state(s) or territory in which the facility lies. Commenters argued that this additional reporting requirement would be burdensome on facilities that cross state boundaries, as these facilities may not record this information.

Response: In this final rule, the EPA is adding the requirement to report the state(s) or territory in which the electric power system lies. This information is readily available to electric power systems and the EPA did not receive any comments on this aspect of the proposed requirement. The EPA had assumed that facilities would likewise know the miles of transmission and distribution miles within each state, but commenters stated this was not the case and that the new requirement would increase burden. Because the EPA did not intend to require submission of information that was not already within the facilities' possession, the EPA is only adding the reporting requirement that facilities report the state(s) or territory in which they lie. This will allow the EPA to provide some information on the location of these electric power systems to the users of GHGRP data. Many facilities may not cross state or territory borders, and, in these cases, the EPA can clearly include the emissions from these facilities in the relevant state or territory's emissions totals.

Comment: Several commenters objected to the proposal that electric power systems report detailed information on two categories of equipment, SF_6- or PFC-insulated hermetically sealed-pressure equipment and SF_6- or PFC-insulated equipment other than hermetically sealed-pressure equipment. For each of these equipment categories, this information includes the number of pieces of new equipment, the number of pieces of retired equipment, the total nameplate capacity of new equipment, and the total nameplate capacity of retired equipment. Commenters stated that electric power systems do not currently record whether or not a particular piece of equipment is hermetically sealed when the equipment is purchased and retired. Commenters further stated that electric power systems would therefore need to reconfigure tracking systems, which would significantly increase burden. One of these commenters asserted that the EPA had not demonstrated that this increased burden on reporters is necessary in light of the limited value of the information it would provide the EPA. One commenter stated that equipment manufacturers and suppliers do not provide the nameplate capacity of hermetically sealed equipment that are components of a larger system, only the nameplate capacity of the larger equipment (including all components). Further, some commenters stated that the EPA had not adequately defined ''hermetically sealed.''

Response: The EPA is finalizing its proposal to require electric power systems to report detailed information on both SF_6- or PFC-insulated hermetically sealed-pressure equipment and SF_6- or PFC-insulated equipment other than hermetically sealed-pressure equipment. Regarding the comment that electric power systems do not currently record whether equipment is hermetically sealed when the equipment is purchased or retired and that tracking systems would need to be updated to include these data, the EPA notes that electric power system must already distinguish between these two equipment types to satisfy the existing reporting requirements in 40 CFR 98.306. Under the current reporting framework, electric power systems must report the nameplate capacity of all equipment in the facility at the

beginning of each year, *excluding* hermetically sealed-pressure switchgear. Electric power systems must then report the nameplate capacity of new equipment and equipment retired during the year, *including* hermetically sealed-pressure switchgear.

When these reporting requirements were initially promulgated, the EPA agreed with public comments that it would be too burdensome for electric power systems to survey and report the nameplate capacity of all hermetically sealed-pressure equipment across the facility at the beginning of the year, given that electric power systems could contain thousands of pieces of this type of equipment. Thus, the EPA excluded hermetically sealed-pressure equipment from the total nameplate capacity of equipment at the beginning of the year that must be reported by facilities under 40 CFR 98.306(a)(1). However, as discussed in the preamble to the final rule (75 FR 74803; December 1, 2010), the EPA included hermetically sealed pressure equipment in the nameplate capacities of new equipment added to the facility or retired during the year under 40 CFR 98.306(a)(2) and (3). Electric power systems have subsequently reported these data, including the distinction between these equipment types, to the EPA for five years. The EPA does not have access to tracking systems used by electric power systems. However, the EPA concludes that these systems must distinguish between these equipment types in order to meet the existing requirements. It is not clear from the comment how the additional level of reporting would require an expansion of those tracking systems.

We are interested in the numbers of pieces of and SF_6 nameplate capacities of electrical equipment (including hermetically sealed-pressure equipment) for a number of reasons. As stated in the preamble to the proposed rule, this information will provide insight into the average SF_6 charge sizes of hermetically sealed-pressure equipment and other SF_6-insulated electrical equipment, as well as the relative importance of hermetically sealed pressure equipment and other SF_6-insulated electrical equipment as emission sources. Both of these factors affect the choice of emission-reducing policies and programs to consider for these two types of equipment. For example, hermetically sealed-pressure equipment typically leaks very little during its lifetime and is often not designed to be serviced. Emissions are generally delayed until the equipment is retired. However, at that point, emissions can consist of the full charge unless equipment users are aware of the presence of SF_6 inside the equipment and of the methods for recovering it. Discussions with SF_6 recycling experts indicate that users of hermetically sealed-pressure equipment are sometimes not aware that it contains SF_6, which is generally not an issue for other SF_6-insulated equipment. Even when users are aware that the hermetically sealed-pressure equipment contains SF_6, the procedures for effectively and efficiently recovering the SF_6 from that equipment differ from those for recovering the SF_6 from other SF_6-insulated equipment. Because hermetically sealed-pressure equipment generally lacks adequate access ports, special piercing devices are often required to recover the charge. Similarly, because individual pieces of sealed-pressure equipment have relatively small charge sizes, it is often most economical to recover the charge from several pieces of equipment at one time rather than to recover the charge as each piece is decommissioned.[15] Therefore, if the quantities of SF_6 contained in hermetically sealed-pressure equipment are significant, it is important to consider policies and programs that will appropriately address these potential end-of-life emissions.

We are also interested in the quantities of SF_6 in hermetically sealed-pressure equipment for purposes of improving the U.S. GHG Inventory. As indicated in the proposed rule, we currently estimate SF_6 emissions for electrical transmission and distribution facilities that do not report to the GHGRP by developing and applying an emission factor based on miles of transmission lines. This approach was developed based on the understanding that SF_6 in U.S. electrical equipment is contained primarily in transmission equipment rated above 34.5 kilovolts. However, if a significant share of SF_6 in U.S. electrical equipment is actually contained in hermetically-sealed-pressure equipment, which is generally used in lower-voltage distribution applications, then it may be appropriate to use miles of distribution lines in addition to miles of transmission lines to estimate the emissions of non-reporting facilities. We believe that this potential improvement to the inventory, as well as the increased insight into the appropriate range of policies and programs to reduce emissions from electrical equipment, justify the modest additional burden associated with separately reporting the nameplate capacities and numbers of pieces of hermetically sealed-pressure equipment.

Regarding the comment that equipment manufacturers and suppliers do not provide the nameplate capacity of hermetically sealed-pressure equipment that is a component of a larger piece of equipment, the EPA does not agree that this as a novel issue that would prevent facilities from satisfying the new reporting requirements. As discussed above, electric power systems have already been required to report the total nameplate capacities of new equipment and retired equipment, *including* hermetically sealed-pressure equipment, under 40 CFR 98.306(a). Electric power systems have also been required to update the total nameplate capacity of all equipment across the facility, *excluding* hermetically sealed-pressure equipment. Thus, in cases where a larger piece of equipment includes both hermetically sealed and other than hermetically sealed components, electric power systems have already faced the question of how to report these components under the existing regulation. In the case where a larger piece of equipment includes both hermetically sealed-pressure and other than hermetically sealed-pressure components, where the hermetically sealed-pressure components are an inherent part of the larger equipment, and where the equipment manufacturer has included only one nameplate capacity that encompasses all components, the electric power system may treat the entirety of the larger piece of equipment as other than hermetically sealed-pressure for purposes of reporting under subpart DD.

Regarding the comment that the EPA has not defined ''hermetically sealed,'' the EPA again notes that electric power systems have been reporting information to EPA for several years, distinguishing between hermetically sealed-pressure equipment and other equipment. Several references provide definitions for ''sealed pressure systems'' and ''sealed-for-life equipment,'' including, *e.g.,* the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and the International Electrotechnical Commission Standard 60694. The 2006 IPCC Guidelines define ''sealed pressure systems'' and ''sealed-for-life equipment'' as ''equipment that does not require any refilling (topping up) with gas during its lifetime and which generally contains less than 5 kg of gas per functional unit.'' The EPA's interpretation of ''hermetically sealed-pressure equipment'' has been and continues to be consistent with that of

[15] Telephone call between Deborah Ottinger, EPA, and Lukas Rothlisberger, Dilo Company, July 29, 2016.

these references. In the preamble to the April 10, 2010 proposed rule (75 FR 18652) that included subpart DD, the EPA noted that sealed-pressure equipment, unlike closed-pressure equipment, generally does not require periodic refilling (topping up) with gas during its lifetime; and in the December 10, 2010 Response to Comments Document (available in Docket Id. No EPA–HQ–OAR–2009–0927), the EPA observed that sealed-pressure equipment generally contains anywhere from a few ounces to 15 pounds of SF_6. The EPA has not proposed to alter the existing conventions in any way. The EPA is expanding the reporting requirements to include more details on activities that electric power systems are already required to track and report. Electric power systems have been able to satisfy these requirements, and therefore the EPA does not agree that ''hermetically sealed'' must be defined for the purposes of these additional reporting requirements.

3. When the Final Amendments to Subpart DD Become Effective

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart DD will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018.

We received comment on our proposed schedule for subpart DD amendments, requesting an additional year before implementation of the new reporting requirements (*i.e.,* reporting separately the nameplate capacities and numbers of pieces of hermetically sealed-pressure equipment and other equipment installed and retired during the year). We proposed that the amendments to subpart DD apply to RY2017 reports. The commenter contended that some reporters will need more time to update their asset management tracking systems to segregate reporting of hermetically sealed-pressure equipment from other types of SF_6-containing equipment. The commenter provided an example facility that will need to revise their Environmental Management Information System program, which currently is set up to automatically generate their report in XML format. We do not agree that facilities subject to subpart DD will need an additional year to revise their asset management systems in order to comply with the revised reporting requirements. We note that electric power systems must already distinguish between the two equipment types to satisfy the existing reporting requirements and conclude that asset management systems must already distinguish between these equipment types (see section III.Q.2 of this preamble for additional information). The revised reporting requirements for subpart DD do not require electric power systems to change what they do to comply with the rule during RY2017. Therefore, the final amendments to subpart DD will become effective January 1, 2018, and be reflected starting with RY2017 reports as proposed, meaning that several additional data elements will be submitted for the first time in the RY2017 report submitted in 2018.

R. Subpart FF—Underground Coal Mines

In this action, we are finalizing several amendments, clarifications, and corrections to subpart FF of Part 98 (Underground Coal Mines). This section discusses the substantive revisions to subpart FF; additional minor amendments, corrections, and clarifications are summarized in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526). We are also finalizing confidentiality determinations for new data elements resulting from these revisions to subpart FF; see section IV of this preamble and the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Final 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for these data elements.

The EPA received several comments for subpart FF. Substantive comments are addressed in section III.R.2 of this preamble; see the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart FF.

1. Summary of Final Amendments to Subpart FF

a. Revisions to Subpart FF To Streamline Implementation

This section describes revisions to Part 98 that will streamline implementation of the rule requirements under subpart FF.

First, the EPA is finalizing, with a change from proposal, an amendment to 40 CFR 98.2(i)(3) to give owners and operators of underground mines the opportunity to cease reporting under the GHGRP if the underground mine(s) are abandoned and sealed. Specifically, we are amending paragraph (i)(3) to make clear that for underground coal mines cessation of operations also includes that the facility is abandoned and sealed, and are deleting ''underground coal mines'' from the list of exceptions under paragraph (i)(3). This amendment differs from what was included in the proposal for this rule, in which we proposed to amend paragraph (i)(3) to state that the paragraph (i)(3) would not apply to underground coal mines, except those whose status is determined to be ''abandoned'' by MSHA. The final revision to (i)(3) more precisely meets the intended purpose of the proposed revision to (i)(3), to give owners and operators of abandoned and sealed mines at the time they produce quantities of GHG emissions far below the reporting threshold the opportunity to cease reporting under the GHGRP. See section III.R.2 of this preamble for further discussion of the rationale for this change.

Second, in 40 CFR 98.6, the EPA is finalizing as proposed a revision to the definition of ''ventilation hole or shaft.'' The definition is being further clarified to include mine portal and adit to the definition. Portal and adit are terms sometimes used to describe mine entries and shafts. The intent of the rule is to capture all points in the ventilation system where methane emissions may exhaust to the atmosphere. Adding these terms will provide clarity for reporters. The EPA received no comments on the proposed amendment.

Third, the EPA is finalizing, as proposed, several amendments to clarify when moisture content is to be reported. The first several amendments apply to 40 CFR 98.326, which lists the data reporting requirements for subpart FF. The EPA is amending 40 CFR 98.326(o) to require reporting of moisture content only in those cases where the volumetric flow rate and CH_4 concentration from a specific mine ventilation or degasification monitoring point are not measured on the same dry or wet basis, and in the case that flow rate is measured with a flow meter that does not automatically correct for moisture content. For example, if the volumetric flow rate at a specified monitoring point is measured on a dry basis but CH_4 concentration at that monitoring point is measured on a wet basis, then the reporter must report moisture content for the monitoring point unless they are using a flow meter that automatically corrects for moisture

content. The EPA is amending 40 CFR 98.326(f) through (i) to require reporters to specify whether volumetric flow rate and CH_4 concentration measurements for ventilation and degasification systems are determined on a wet or dry basis. The EPA is also amending 40 CFR 98.326(f) and (h) to specify that, where a flow meter is used, the reporter must indicate whether the flow meter automatically corrects for moisture content. This information will provide the necessary information for the reporter and for the EPA to determine if moisture content should be reported for an individual facility. The EPA received no comments on these proposed amendments.

Last, the EPA is finalizing as proposed several amendments related to moisture content in 40 CFR 98.323 and 40 CFR 98.324, which lists the requirements for calculating GHG emissions. The EPA is amending 40 CFR 98.323(a)(2) to read, ''Values of V, C, T, P, and, if applicable, (f_{H2O}), . . .'' so that ''if applicable'' more explicitly applies to the moisture content term, (f_{H2O}). The EPA is making the same amendment to 40 CFR 98.323(b)(1) and 40 CFR 98.324(b)(1). The revisions to 40 CFR 98.323 and 40 CFR 98.324 are being made to ensure consistency with the revision to 40 CFR 98.326(o). These revisions will provide clarity for reporters. The EPA received no comments on these proposed amendments.

b. Revisions to Subpart FF To Improve the Quality of Data Collected Under Part 98

The EPA proposed three revisions to subpart FF to improve the quality of data received by the GHGRP: (1) An amendment to 40 CFR 98.324(b) to no longer allow MSHA quarterly inspection reports to be used as a source of data for monitoring methane liberated from ventilation systems; (2) the addition of annual coal production to the list of data reporting requirements outlined in 40 CFR 98.326; and (3) a revision to 40 CFR 98.324(b)(1) to require use of the most recent edition of the MSHA Handbook for inspections and sampling procedures entitled, Coal Mine Safety and Health General Inspection Procedures Handbook Number: PH13–V–1, February 2013.

The EPA received no comments on the proposal to require the use of the most recent edition of the MSHA Handbook. However, in June 2016, MSHA published an updated version of the handbook (see Coal Mine Safety and Health General Inspection Procedures Handbook Number: PH16–V–1, June 2016 in Docket Id. No. EPA–HQOAR–2015–0526). Following review of this update, we have determined that the inspection and sampling procedures contained in the June 2016 edition of the MSHA Handbook are not significantly different from the procedures contained in the February 2013 edition of the Handbook, which was the most recent edition at the time of the proposal. We are finalizing in 40 CFR 98.324(b)(1) a requirement to use the procedures in the June 2016 MSHA Handbook as they are the most current and appropriate for use under the GHGRP, and will improve the quality of the data collected under the GHGRP as intended in the proposed rule.

Based on consideration of public comment and as discussed in section II.R.2 of this preamble, the EPA is not finalizing the requirement to report coal production data or the revision to eliminate the use of MSHA quarterly inspection reports to be used as a source of data for monitoring methane liberated from ventilation systems. Rather, the EPA is finalizing a more limited amendment to the subpart FF reporting requirements, amending 40 CFR 98.326(a) to require each mine relying on data obtained from MSHA to report methane liberated from ventilation systems to the GHGRP to include, as attachments to its GHGRP report, the MSHA reports it relied upon to complete the GHGRP report. This amendment will help the EPA assist reporters in interpreting the MSHA data correctly during verification, thus resulting in an improvement in the quality of the data reported to the GHGRP, as intended in the proposal, by mines that choose to rely on MSHA data. This assistance will build upon the guidance the EPA provided in 2015 in the document ''Technical Guidance on Using Mine Ventilation Data from the Mine Safety and Health Administration (MSHA) to report Quarterly Methane Emissions from Mine Ventilation Systems.'' [16]

c. Other Amendments to Subpart FF

This section describes final amendments being made to Part 98 in response to issues raised by reporters and to more closely align rule requirements with the processes conducted at specific facilities. The following revisions to subpart FF are in response to comments and questions we have received since reporting under subpart FF began in 2011. The EPA did not receive comment on any of these proposed revisions and is therefore finalizing these amendments as proposed.

First, in 40 CFR 98.323(a) and (b), we are clarifying, for Equations FF–1 and FF–3, the method for determining the number of days in a month or week (n) where active ventilation and degasification are taking place. In both equations, the definition of Number of Days (n) is being clarified to note that (n) is determined by taking the number of hours in the monitoring period and dividing by 24 hours per day.

Second, in 40 CFR 98.323(b)(2), the text is being amended to state that the quarterly sum of CH_4 liberated from ventilation and degasification systems, respectively, ''must be'' rather than ''should be'' determined as the sum of the CH_4 liberated at each monitoring point during that quarter. This revision is being made because calculating the quarterly sum of CH_4 liberated is required rather than being optional.

Third, in 40 CFR 98.326(r)(2), we are clarifying the start date and end date for a well, shaft, or vent hole. The start date of a well, shaft, or vent hole is the date of actual initiation of operations and may begin in a year prior to the reporting year. For purposes of reporting, we are amending paragraph (r)(2) to state that the end date of a well, shaft, or vent hole is the last day of the reporting year if the well, shaft, or vent hole is operating on that date.

Fourth, in 40 CFR 98.326(r)(3), we are adding language clarifying the method for determining and reporting the number of days a well, shaft, or vent hole was in operation during the reporting year. The number of days is determined by dividing the total operating hours in the reporting year by 24 hours per day. This revision is consistent with similar revisions to the method for determining number of days in Equations FF–1 and FF–3, discussed earlier in this section.

Last, the EPA is finalizing the amendment to remove ''if applicable'' in 40 CFR 98.324(h) to clarify that the provision requiring the owner or operator to document the procedures used to ensure the accuracy of gas flow rate, gas composition, temperature, pressure, and moisture content measurements is a requirement for all reporters.

2. Summary of Comments and Responses on Subpart FF

This section summarizes the significant comments and responses related to the proposed amendments to subpart FF. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and

[16] See *https://www.epa.gov/sites/production/files/2015-08/documents/tech_guidance_mine_vent_data.pdf.*

Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart FF.

Comment: In the proposed rule the EPA included a requirement that subpart FF reporters would be able, under provision 40 CFR 98.2(i)(3), to discontinue reporting the GHGRP once their status is determined to be ''abandoned'' by MSHA. Commenters responded to this proposal by noting that there is often a significant time lag between when a mine is abandoned and sealed and when MSHA makes publicly available in its Mine Data Retrieval System (MDRS) that a mine has been abandoned and sealed. Therefore, according to the commenters, if EPA were to finalize the amendment as proposed, some abandoned and sealed mines would be required to report while awaiting an update to their abandonment status in the MDRS database.

Response: The EPA agrees with this observation, and in addition has determined that, because reports submitted by abandoned and sealed mines during the first four years of the GHGRP show that such mines produce quantities of GHG emissions far below the reporting threshold, these data are of limited value for the GHGRP and result in additional reporting burden for facilities. Therefore, the EPA has determined that it is appropriate to enable underground coal mines that have ceased operations and have been abandoned and sealed to cease reporting to the GHGRP per the provisions of 40 CFR 98.2(i)(3). We are therefore revising the text in this paragraph to delete ''underground coal mines'' from the list of exceptions and adding the following sentence: ''Cessation of operations, in the context of underground coal mines, includes, but is not limited to, abandoning and sealing the facility.'' Rather than stating that paragraph (i)(3) would not apply to underground coal mines, as was proposed, the change from proposal that we are finalizing more precisely meets the proposed revisions' intended purpose of enabling abandoned and sealed mines to cease reporting when they are no longer operating, and are producing GHG emissions far below the threshold, consistent with the provisions for other facility types covered by the GHGRP that are allowed to cease reporting after cessation of operations under this provision. We have removed the proposed requirement that we rely on the MSHA determination of the mine's operational status as ''abandoned'' as, while that was one mechanism to provide confidence that the closed mines are sealed and therefore not emitting methane, by explicitly describing in 40 CFR 98.2(i)(3) that cessation of operations for underground coal mines includes that the facility is abandoned and sealed, we are providing a similar level of confidence an MSHA determination would. Allowing underground coal mines that have ceased operations and are abandoned and sealed to stop reporting to the GHGRP will streamline reporting under subpart FF by limiting reporting to facilities actively emitting measurable volumes of CH_4.

Furthermore, the EPA believes that the amendment to 40 CFR 98.2(i)(3) has the added benefit of removing a perceived conflict with 40 CFR 98.320(c), ''Definition of the source category'', in subpart FF. This provision exempts abandoned and closed underground coal mines as source categories required to report to the GHGRP. The EPA believes the amendment to 40 CFR 98.2(i)(3) will remove any ambiguity and uncertainty, clarifying when underground coal mines may cease reporting to the GHGRP and streamlining implementation of the GHGRP.

Comment: In the proposed rule the EPA included an amendment to 40 CFR 98.324(b) to no longer allow MSHA quarterly inspection reports to be used as a source of data for monitoring methane liberated from ventilation systems. Several commenters disagreed with the removal of the MSHA method, and one commenter stated that the EPA should ''[allow] reporters to demonstrate the validity of the MSHA data for their mines'' and recommended that the EPA ''allow reporters to propose, for EPA approval, mechanisms by which their site specific data can be demonstrated to meet a baseline quality criterion for 40 CFR part 98 reporting purposes.''

Response: The EPA proposed to disallow the use of MSHA data because we determined that, through several reporting cycles and a review of MSHA quarterly inspection reports for 30 of the highest emitting mines, the quarterly flow rate data gathered by MSHA, standing alone, cannot reliably be used for GHGRP reporting purposes. The EPA's concerns with respect to reliability and consistency in MSHA sampling have not been with MSHA's procedure for taking samples in shaft approaches. The EPA is not questioning or discounting the veracity of MSHA monitoring. On the contrary, as evidenced by the continued reference to MSHA's Inspection Handbook, the EPA supports the sampling method used by MSHA. Instead, as stated in the preamble to the proposed rule, our concerns have centered on the data gaps created by changes in reported sampling locations, by the inconsistent naming of approaches where samples are taken from quarter-to-quarter, and with the errors made by reporters when interpreting the data contained in the MSHA report for use in their GHGRP reports.

In the preamble to the proposed rule, the EPA expressed concern with data gaps where MSHA quarterly reports did not include CH_4 concentration and volumetric air flow data from a mine shaft approach in a reporting quarter. A mine ventilation shaft aggregates ventilation flow from one or more approaches that are, in effect, horizontal tunnels carrying ventilation air to an upcast shaft. To calculate the methane liberation for the shaft, the MSHA inspector takes volumetric air flow measurements and air samples for CH_4 concentration measurements in each approach. Total methane flow in each approach is calculated from these measurements. MSHA then adds the methane flows for each approach to calculate total CH_4 liberation for the shaft. There are occasions when an MSHA inspector does not take air samples and volumetric flow measurements in a particular approach for safety or other reasons, even though samples were taken in the previous quarter. For example, the ventilation shaft may aggregate flow from three approaches and in quarter 3 of the reporting year, MSHA measures CH_4 concentration and volumetric air flow in only two of the approaches. This can result in a significant change in reported methane liberation at the subject ventilation shaft in quarter 3 if the reporter only adds two approaches' values together, rather than accounting for three approaches.

The GHGRP specifies required procedures to use when data are missing (40 CFR 98.325). Additionally, as outlined in the guidance document ''Technical Guidance on Using Mine Ventilation Data from the Mine Safety and Health Administration (MSHA) to report Quarterly Methane Emissions from Mine Ventilation Systems'' (hereafter referred to as the ''Mine Ventilation Data Guidance Document''),[17] we recommend that the reporter use Missing Data procedures to estimate methane flow in the third approach for quarter 3 for scenarios

[17] *See https://www.epa.gov/sites/production/files/2015-08/documents/tech_guidance_mine_vent_data.pdf.*

such as when the third approach is still active and samples are taken in the following quarter. The reported methane liberation at the ventilation monitoring point for quarter 3 in the subpart FF report would then include actual measurements from two approaches and estimated measurements using missing data procedures for one approach. We originally proposed removing MSHA reports as a monitoring method, in part, because it is very difficult for the EPA to confirm the reported methane liberation value in a given quarter without some type of supporting data. This concern will be addressed by submission of the MSHA quarterly reports because EPA access to the MSHA quarterly reports will allow the Agency to verify whether this process has been followed, identify where the data gaps occur, advise the reporter how to address the data gaps, and verify the report when corrected.

The second concern the EPA identified in the preamble to the proposed rule with MSHA data was the use of different names for the same approaches. Approaches to mine shafts are assigned a name by the MSHA inspector in the quarterly MSHA inspection reports. There are instances where an MSHA inspector assigns a name to an approach that is different from the name given previously. First, it is important to understand that this is likely to impact a subpart FF report only when the Agent or Designated Representative of the subpart FF report is unfamiliar with the mine plan. The EPA believes that most reporters understand their operations well and misreporting is likely only in a limited number of cases. Additionally, the EPA believes that even when different names are used for the same approach, they are often similar enough to conclude that they are referring to the same approach. And again, the EPA believes that reporters are knowledgeable enough of their operations to correctly align the same shaft approach even where the name is different. Still, without further information, such as the submission of MSHA quarterly reports, the EPA lacks critical information necessary for verifying subpart FF reports where this data gap potentially exists. The MSHA report provides the EPA with a quick set of reference data to compare to the subpart FF report and allow the EPA to accurately advise the reporter during the verification process on the potential error and the solution; thus, facilitating more accurate and timely reporting under subpart FF.

The final concern EPA identified was incorrect interpretation of MSHA data by reporters when translating information from the MSHA reports into their subpart FF reporting. Similar to what was described above, without further information, such as the submission of MSHA quarterly reports, the EPA lacks critical information necessary for verifying subpart FF reports where these errors potentially occur. Again, submission of the MSHA report will address this concern by providing the EPA with a quick set of reference data to compare to the subpart FF report, which the EPA can then utilize to correct errors during the verification process.

Although the EPA expressed concerns with the use of MSHA data in the preamble to the proposed rule, we also noted that ''if complete, MSHA data may provide a reasonable estimate of methane emissions from underground coal mines.'' We also sought comment on whether there are other alternatives that would achieve the same objectives for improved data quality from mine ventilation systems and encouraged commenters to submit studies, data, and background information that could support additional analysis (81 FR2566). No comments were received that discussed other alternatives or provided supporting information.

After careful consideration, the EPA is convinced that implementation of a sound quality assurance process entailing the submission of the MSHA reports on which the subpart FF data are based, combined with our ability to correct errors through the verification process, will sufficiently address the EPA's stated concerns regarding the potential for gaps in MSHA data. The MSHA quarterly reports will allow a direct comparison with the subpart FF report so that the EPA may follow up with the reporter during the verification process if there are inconsistencies. We also continue to encourage use of the Mine Ventilation Data Guidance Document to streamline the quality assurance process. The Mine Ventilation Data Guidance Document not only presents examples of MSHA quarterly reports and how to interpret them, but discusses procedures to use when data are missing as required by the rule (40 CFR 98.325). The EPA believes that these measures will encourage greater consistency in identifying shafts and approaches by common reference names and clarify the number of approaches to each upcast shaft.

Therefore, the EPA is retaining the ability for mines to use MSHA data, and is including in this final rule an amendment to 40 CFR 98.324(b) requiring each facility using MSHA data to attach to its annual GHGRP report the quarterly MSHA reports it relied upon to prepare its annual GHGRP report. This will enable the EPA to verify the MSHA data against that reported to the GHGRP while limiting additional burden to the reporter. Reporters using MSHA data as the monitoring method are in possession of the MSHA quarterly reports, since they relied upon these reports to complete the subpart FF annual report. Moreover, use of MSHA data is one of three monitoring method options currently available to reporters. Reporters remain free to choose either of two other alternatives that exist in the rule: Grab samples (40 CFR 98.324(b)(1)) or a continuous emissions monitoring system or CEMS (40 CFR 98.324(b)(3)).

Comment: Commenters objected to the new proposed requirement to report coal production information to the EPA in order to facilitate the verification process, stating that methane liberated may have little relationship to coal production.

Response: The requirement to report coal production was proposed because such data would enable the EPA to directly evaluate, in a facility's GHGRP report itself, whether a mine's emission trend and its coal production trend appear reasonably aligned. Such an evaluation would reduce burden on reporters by reducing the number of verification messages these reporters would receive when EPA reviewed changes in emissions. While the EPA recognizes that many factors impact methane liberation, including the rate of coal production, mine development, geologic conditions, changes in the mine plan, changes in the ventilation plan, and other factors, the EPA also observes that coal production and methane emissions are often closely aligned. Therefore, the EPA believes that coal production data facilitates a more accurate and effective verification process for the GHGRP.

However, the EPA recognizes that information on each mine's coal production is publicly available through the MSHA database by April 1 of each year, in time for the EPA to begin verification activities on submitted GHGRP reports. Therefore, rather than requiring mines to report coal production information to the EPA in their subpart FF reports as proposed, the EPA is not including this requirement in this final rule, and will instead continue to rely on the publicly available data published by MSHA to compare trends in each mine's coal production with its reported methane emissions. However, the EPA notes that, if MSHA changes the publication date for this information to a later date, mines may anticipate an increase in the number of data verification messages from the EPA

enquiring about emissions changes from year to year.

3. When the Final Amendments to Subpart FF Become Effective

As shown in Table 3 of this preamble and consistent with the description of amendments in sections I.E.1 of this preamble, one amendment to subpart FF will be effective on January 1, 2017 and will be reflected starting with RY2017 reports that are submitted in 2018. All other amendments to subpart FF are effective on January 1, 2018 as shown in Table 4 of this preamble and are consistent with the description of amendments effective on that date in section I.E.2 of this preamble. Although one amendment to subpart FF is effective January 1, 2017 and others are effective January 1, 2018, all amendments to subpart FF will be reflected in RY2017 reports that are submitted in 2018 as shown in Tables 3 and 4 of this preamble. These effective dates are different from what was proposed for subpart FF. Although no comments were received related specifically to the timing of revisions to subpart FF, several of the final amendments to subpart FF are significantly different from what was proposed, due to consideration of comments that were received. As a result, we are also finalizing effective dates that are different from what was proposed.

We are finalizing that the subpart FF revision to 40 CFR 98.324(b)(1), and the corresponding amendment to 40 CFR 98.7(l)(1), which update the references to the MSHA Handbook to reflect the most recent 2016 version, are effective on January 1, 2017, and will be implemented starting in RY2017. At proposal these amendments were to be implemented starting in RY2018 along with all other changes to subpart FF. As discussed in the preamble to the proposed amendments (81 FR 2543, January 15, 2016), we had selected RY2018 as the proposed date for all revisions related to FF to be implemented (except revisions to 40 CFR 98.2(i) streamlining the reporting requirements for closed coal mines, which we proposed to be implemented starting with RY2017) because those proposed revisions included removal of the option in 40 CFR 98.324(b)(2) to use MSHA quarterly inspection reports as a source of data for monitoring methane liberated from ventilation systems. We had determined that it would not have been feasible for facilities to acquire, install, and calibrate new monitoring equipment or to perform more frequent monitoring, and would not have been feasible for the EPA to integrate all associated revisions to reporting requirements into e-GGRT and verification activities, in time for RY2017. However, in our final rule amendments for subpart FF, we are not finalizing our proposed removal of the option to use MSHA quarterly inspection reports as a source of data for monitoring methane liberated from ventilation systems. Refer to section III.R.2 of this preamble for a discussion of the comments received on the EPA's proposed removal of the option to use MSHA quarterly reports and the EPA's rationale for not finalizing its proposal. The update to the MSHA Handbook reflected in the subpart FF revision to 40 CFR 98.324(b)(1), and the corresponding amendments to 40 CFR 98.7(l)(1) are feasible for reporters to implement in RY2017, as they will not result in wholesale monitoring changes and will not require any changes to the e-GGRT system or verification activities. As a result, we are finalizing the effective date for these provisions as January 1, 2017.

With the exception of 40 CFR 98.324(b)(1), as described above, we are making the amendments to subpart FF effective January 1, 2018; they will be reflected in RY2017 reports. As discussed in the preamble to the proposed amendments (81 FR 2543; January 15, 2016) and in section I.E.2 of this preamble, while we had stated that these revisions would apply beginning January 1, 2018, we had also made clear that our intention with this proposal was that this corresponded to these revisions first being reflected in RY2018 reports for all revisions related to subpart FF (except revisions in 40 CFR 98.2(i) of subpart A, streamlining the reporting requirements for closed coal mines, which we proposed to be implemented starting with RY2017). However, since we are not finalizing our proposed removal of the option to use MSHA quarterly inspection reports as a source of data for monitoring methane liberated from ventilation systems, the amendments to subpart FF can now be reflected in the RY2017 reports that are submitted in 2018. The final revisions do not substantially revise the monitoring requirements and are consistent with the data collection and calculation methodologies in the current rule. Where the EPA is requiring reporting of additional information or data, such as requiring each facility using MSHA data to attach to its annual GHGRP report the quarterly MSHA reports it relied upon to prepare its annual GHGRP report, the data collected are readily available to reporters. Where calculation equations are modified, the changes clarify terms in the emission calculation equations and do not materially affect monitoring requirements or how emissions are calculated. Furthermore, at proposal, we requested comment on whether underground coal mine facilities would be able to meet ''these revised requirements'' by RY2017 (81 FR 2543, January 15, 2016). We received no comments indicating that these revisions could not be implemented and reflected started with RY2017 reports. For these reasons, we have determined that January 1, 2018, is an appropriate effective date and provides sufficient time for reporters to adjust to these amendments for RY2017 reports submitted in 2018.

S. Subpart HH—Municipal Solid Waste Landfills

In this action, we are finalizing several amendments to subpart HH of Part 98 (Municipal Solid Waste Landfills) to reduce burden for reporters, improve data quality, clarify terms, and take final action on our reconsideration of all issues in a Petition for Reconsideration.[18] We are completing our response to the Petition for Reconsideration through this rulemaking. This section discusses the substantive revisions to subpart HH. We are finalizing as proposed the minor corrections and clarifications to subpart HH of Part 98, including editorial changes and clarifications to reporting requirements. These minor revisions are summarized in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526). We are also finalizing confidentiality determinations for new and revised data elements resulting from the revisions to subpart HH; see section IV of this preamble and the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for these data elements.

The EPA received several comments for subpart HH. Substantive comments are addressed in section III.S.2 of this preamble; see the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality

[18] Waste Management Petition for Reconsideration of 2013 Revisions to Greenhouse Gas Reporting Rule and Final Confidentiality Determinations for New or Substantially Revised Data Elements. Available in Docket Id. No. EPA–HQ–OAR–2012–0934.

Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart HH.

1. Summary of Final Amendments to Subpart HH

a. Revisions to Subpart HH To Streamline Implementation

We are finalizing as proposed the revision to 40 CFR 98.346(f) to remove the requirement to report the surface area for each type of cover material used at the facility to reduce burden for reporters. As we stated in the proposed rule (81 FR 2567), the final amendment will still require the reporting of the total surface area of the landfill containing waste (in square meters) and an identification of the type(s) of cover material used, as this information is used during verification to check the consistency of the collection efficiency reported by the landfill. No comments were received on this proposed revision. This revision will reduce burden to reporters, and that the surface area for each cover material used has not been useful in assessing or verifying reported emissions.

b. Revisions to Subpart HH To Improve the Quality of Data Collected Under Part 98

We are finalizing as proposed revisions to 40 CFR 98.346(i)(5) to require reporting of the annual operating hours of the gas collection system associated with the measurement location, and to require reporting of the destruction efficiency and annual operating hours active gas flow was sent to the destruction device associated with the measurement location. We are also finalizing as proposed the removal of the requirement to report the annual operating hours for each destruction device associated with a given measurement location. In addition, we are finalizing as proposed the revision to move the requirement to report the annual operating hours of the gas collection system for each measurement location from 40 CFR 98.346(i)(7) to 40 CFR 98.346(i)(5) to consolidate all reporting requirements that are associated with each measurement location to the same paragraph, consistent with reporting organization used in e-GGRT. No comments were received on these proposed revisions. These revisions will allow the EPA to collect data that will improve the EPA's understanding of sector GHG emissions, allow for more accurate calculation of emissions by e-GGRT, and facilitate verification of the data reported, while generally resulting in only a slight burden for reporters.

We are not finalizing the proposed revisions to the method to calculate the gas collection efficiency, thus reporters continue to be required to use the current area-based approach as defined in Table HH–3 to subpart HH. The EPA did not receive comments in support of the volume-based approach, or in support of allowing facilities to use either approach. We did receive comments in support of maintaining the area-based approach, and after consideration of such comments, we are not amending the approach to calculate the gas collection efficiency. See section III.S.2 of this preamble for further explanation of the comments received and the EPA's responses.

After consideration of comments received, we are finalizing with changes our proposed revisions regarding the description of area type A5 in Table HH–3 and the proposed definition of alternative final covers. In the description of area type A5 in Table HH–3 in this final rule, we are removing ''alternative'' from the portion of the proposed description ''. . . alternative final cover (as approved by the relevant agency) . . .'' We are also finalizing a definition of final cover in 40 CFR 98.348 to mean ''materials used at a landfill to meet final closure regulations of the relevant federal, state, or local authority'' instead of the proposed definition of ''alternative final cover.'' These changes from proposal will still achieve the intended purpose, as described in the proposed rule (81 FR 2568), of broadening the description of area type A5 to include alternative final covers so that facilities with landfill gas collection and alternative final covers, that had been approved by the state, local, or other agency responsible for permitting the landfill, can use the 95 percent collection efficiency in their emissions calculations. See section III.S.2 for a summary of the comments received and the EPA's responses.

We are finalizing as proposed the addition of the ''methane emissions for the landfill'' as a reporting element in 40 CFR 98.346(i)(13). This new paragraph directs reporters to ''Choose the methane emissions from either Equation HH–6 of this subpart or Equation HH–8 of this subpart that best represents the emissions from the landfill. If the quantity of recovered CH_4 from Equation HH–4 of this subpart is used as the value of G_{CH4} in Equation HH–6 of this subpart, use the methane emissions calculated using Equation HH–8 of this subpart as the methane emissions for the landfill.'' No comments were received on this proposed revision. We reference our review and conclusions described in the proposed rule (81 FR 2568). These revisions are necessary to prevent inaccurate values from being reported as the final subpart HH methane emissions.

c. Other Amendments to Subpart HH and Grant of Petition for Reconsideration

On January 28, 2014, the EPA received an administrative petition for reconsideration from Waste Management, Inc. (hereafter referred to as ''Petitioner''), regarding the inclusion of minimum soil cover requirements in order to use the flux-dependent soil oxidation fractions, titled ''Waste Management's Petition for Reconsideration of 2013 Revisions to Greenhouse Gas Reporting Rule and Final Confidentiality Determinations for New or Substantially Revised Data Elements Docket Id. EPA–HQ–OAR–2012–0934'' (hereafter referred to as the ''Petition for Reconsideration,'' available in the docket for this rulemaking). See the proposal for this final rule (81 FR 2569) for a detailed discussion of the specific issue raised in the Petition for Reconsideration, the review and analysis that was undertaken since the Petition for Reconsideration was received, and the revisions the EPA proposed in response to the petition.

Consistent with our previous review and analysis, we are finalizing the amendments to revise and clarify the soil cover requirements in Table HH–4 to subpart HH as follows. First, we are finalizing as proposed the amendment to revise the requirement for ''. . . a soil cover of at least 24 inches . . .'' to read ''. . . final cover or intermediate or interim soil cover . . .'' Second, we are finalizing as proposed the definition of intermediate or interim soil cover in 40 CFR 98.348 to mean ''the placement of material over waste in a landfill for a period of time prior to disposal of additional waste and/or final closure as defined by state regulation, permit, guidance or written plan, or state accepted best management practice.'' Third, we are finalizing as proposed the addition of a footnote to Table HH–4 stating that the landfill must have a soil cover of 12 inches or greater to use an oxidation fraction of 0.25 or 0.35, to address the case where a landfill is located in a state that does not have an intermediate or interim soil cover requirement as defined. We are addressing in this final action the Petition for Reconsideration through these specific revisions to Table HH–4,

directly addressing the concerns raised by the Petitioner as we deem appropriate after full evaluation of the information presented by Petitioners, further review and analysis as described in the proposed rule, and consideration of comments received on the proposed revisions. The EPA is completing its response to the Petition for Reconsideration through this rulemaking. See section III.S.2 of this preamble for further explanation of the comments received and our responses.

In addition, with regard to Table HH–4, which contains descriptions of the conditions under which certain oxidation fractions may be used in the emissions calculations, we are finalizing as proposed the revision to the phrase ''. . . for a majority of the landfill area containing waste . . .'' to read ''. . . for at least 50 percent of the landfill area containing waste . . .'' to clarify that we intend the majority of the landfill to mean 50 percent or more by area. After consideration of public comments received, which contained suggested revisions to Table HH–4, we are additionally revising conditions C4, C5, C6, and C7 to begin with the phrase ''For landfills that do not meet the conditions in C2 or C3 above . . .'', and revising condition C2 to remove ''. . . an alternative final cover (approved by the relevant agency) . . .'' and add ''. . . or other non-soil barrier meeting the definition of final cover. . . .'' We are finalizing these related additional changes to Table HH–4 so that Table HH–4 more clearly states which oxidation fraction may be used in calculating emissions depending upon conditions in place at the landfill. We agree that the text provided by commenters, in addition to what was proposed, provides even further clarity so that a landfill owner or operator can be certain as to which oxidation fraction is appropriate to use. These changes will also allow the descriptions in Table HH–4 to be consistent with the revisions to Table HH–3 and the addition of the definition for final cover instead of alternative final cover, as described in section II.S.1.b of this preamble.

Lastly, after consideration of comments, we are not finalizing revisions to Table HH–4 to require landfills that have passive or active vent systems that service greater than 50-percent of the landfill area containing waste or landfills that have only passive or active vent systems to use the default 10 percent oxidation fraction in their emission calculations because we think there is currently a lack of rigorous, scientifically based measurement data on methane oxidation for landfills meeting the criteria at issue. Although we are not finalizing the proposed revisions to Table HH–4 that used the term ''passive vent,'' we are finalizing the proposed definition of this term in 40 CFR 98.348 since it is still included in 40 CFR 98.346(h) and (i)(7), and such definition is useful for reporters. We are not finalizing the proposed definition of ''active venting'' since, with the final subpart HH revisions described above, this term will not be used in this subpart. See section III.S.2 for the comments received and the EPA's responses.

2. Summary of Comments and Responses

This section summarizes the significant comments and responses related to the proposed amendments to subpart HH. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart HH.

Comment: Several commenters provided feedback on the EPA's proposal and request for comment on whether revisions should be made to Table HH–3 to allow reporters to be given the option to calculate collection efficiency using the existing area weighted average approach or a proposed volume weighted average approach, whether reporters should be required to use one approach over another depending on landfill specific characteristics, and what those characteristics should be. The commenters were firmly supportive of maintaining the current area weighted average approach stating that reporters have used this approach since the beginning of the program and have become familiar with collecting data and performing the calculations as required. Commenters further questioned why the EPA would propose a method such as the volume weighted average that is not supported in peer-reviewed scientific literature, stating that waste depth and refuse volume were not parameters considered in peer-reviewed studies, so their effect on collection efficiency is undetermined. In contrast, commenters state that the area weighted method is grounded in peer-reviewed scientific literature. The commenters expressed concern that the EPA would set site specific conditions under which one or the other calculation method would be required to be used. Lastly, the commenters state that the EPA has not provided any analysis showing that a change in approach will improve emission estimates and may instead introduce further uncertainty to the calculations. No comments were received providing support for a volume weighted average approach or the option to use such a method. Additionally, no comments were received on site specific conditions when one approach might be more appropriate or accurate than the other.

Response: The area-based approach for calculating the collection efficiency for the entire facility relies on the surface area while the volume-based approach relies on both the surface area and the depth of each area type in Table HH–3. These parameters are included in the current reporting requirements for subpart HH. During both the reporting period and while verifying the data submitted in GHG reports, we received questions and suggestions from reporters via the GHGRP Help Desk to improve the methodology for calculating the collection efficiency specifically for older landfills with large surface areas without active gas collection (area type A2 in Table HH–3). The reporters stated that the current area-based calculation overestimates emissions results and that a volume-based calculation may be more accurate for these scenarios. For these reasons the EPA proposed the option of a volume-weighted approach to calculate collection efficiency. The EPA did a cursory examination of reported data in 2013, but we were not able to find a definitive set of criteria that would support requiring facilities to use the volume-based approach over the area-based approach, which is why we requested feedback on this option and when it could be used. After consideration of comments and based on our current inability to determine when it would be appropriate for a facility to use the proposed alternative approach, we will maintain the ability for reporters to use the area-based approach to calculate the collection efficiency and are not finalizing the additional option to calculate the collection efficiency at this time.

As described in the EPA Peer Review Handbook,[19] the EPA considers peer-reviewed material to have undergone a documented in-depth assessment of the assumptions, calculations, extrapolations, alternate interpretations, methodology, acceptance criteria, and conclusions pertaining to the scientific or technical work product and the documents that support them. This

[19] U.S. Environmental Protection Agency. October 2015. Peer Review Handbook 4th Edition.

assessment must be conducted by qualified individuals or organizations who are independent of those who performed the work and who are collectively equivalent in technical expertise to those who performed the original work. The commenters state that their primary concern is that the volume-based approach to calculating collection efficiency has no basis in the peer-reviewed scientific literature, whereas the area-weighted approach does; however, no citations were provided by the commenter documenting peer review of the area-weighted approach. Both the area-weighted and volume-based approaches were developed using technical knowledge and engineering concepts. The EPA is not aware that these approaches to estimate landfill gas collection efficiency have been published in peer-reviewed journal articles, reports, or other peer-reviewed materials.

Comment: Several commenters provided feedback on the EPA's proposal to broaden the description of area type A5 in Table HH–3 to include alterative final covers and provide a definition of alternative final covers in 40 CFR 98.348. Some commenters generally supported the concept of these changes but they requested clarifying the language to avoid ambiguity. These commenters stated that the Resource Conservation and Recovery Act (RCRA) subtitle D authorizes states to approve final covers with designs or materials that differ from federal performance requirements as long as the state determines that they are equally protective. These covers are simply called ''final covers'' and commenters felt the GHG reporting rule should refer to them using the same terminology. Commenters suggested a definition for use in 40 CFR 98.348 as follows: Final cover means materials used at a landfill that meets final closure regulations of the competent federal, state, or local authority. Commenters also suggested corresponding edits to Tables HH–3 and HH–4 where the term is used.

Response: We agree with the commenters that adding the term final cover versus alternative final cover best meets the intent of our proposed revision, and are therefore finalizing with several changes from proposal. The state, local, or other agency responsible for permitting the landfill determines whether a final cover meets the applicable regulatory requirements and has been shown to adequately protect human health and the environment. As such, we are providing a definition for final cover to reflect the appropriate terminology used by those entities and consistent with RCRA subtitle D, to mean materials used at a landfill to meet final closure regulations of the relevant federal, state, or local authority. This definition is inclusive of both traditional and alternative final covers. Because the term 'final cover,' as defined, better captures the intent of the proposal, we are not including the term 'alternative final cover' in this final rule. We also proposed to revise area type A5 in Table HH–3 with the intention of broadening the description of area type A5 to include alternative final covers, so that facilities with landfill gas collection and alternative final covers, that had been approved by the state, local, or other agency responsible for permitting the landfill, can use the 95 percent collection efficiency in their emissions calculations. We similarly proposed to revise condition C2 in Table HH–4 to account for landfills with final covers that consist of material other than geomembranes by adding the term alternative final cover. After consideration of the comments and the corresponding changes made regarding the related revisions, we are finalizing these amendments with changes from proposal so that Tables HH–3 and HH–4 are consistent with the finalized definition of final cover. We are not adding the term alternative final covers in area type A5 of Table HH–3 or in condition C2 of Table HH–4. The final revisions allow facilities with gas collection and approved final covers, whether traditional or alternative, to use the 95 percent collection efficiency in their emissions calculations.

Comment: Waste Management Inc., the Petitioner for the Petition for Reconsideration (hereafter the ''Petitioner''), supported the EPA's proposed revisions to Table HH–4 in response to their petition. The Petitioner further acknowledged that this revision to Table HH–4 is meant ''to complete [the EPA's] response to'' the Petition for Reconsideration. In their comments, the Petitioner reiterated extensive explanation for the basis for these revisions and further requested that the EPA confirm in the preamble to the final rule ''that depth of cover is not the sole, or master variable for determining methane flux.'' The Petitioner also stated that ''the EPA should consider bolstering its decision to replace the 24-inch soil cover requirement with intermediate or interim soil cover, by more comprehensively describing the underlying literature when it finalizes the 2015 Revisions.'' The Petitioner further stated that the ''EPA should more clearly state that the scientific record does not support 24 inches of soil cover as a reasonable and scientifically-sound prerequisite for use of the binned approach'' for oxidation fractions. Lastly, the Petitioner cited several perceived shortcomings in the memorandum prepared by RTI International (RTI Memo), in particular that only 27 of the 90 peer-reviewed studies were reviewed in response to the Petition for Reconsideration. The Petitioner stated that ''[t]herefore, the Agency should request that RTI revise its analysis to acknowledge that the scientific literature does not support cover depth as a primary factor influencing methane oxidation, and that two-thirds of the relevant measurements do not reference soil cover depths.''

Other commenters similarly supported the revisions the EPA proposed to remove the 24-inch soil cover requirement and instead reference intermediate or interim cover requirements. However, the Agency also received comments stating that we should retain the minimum depth requirement of 24 inches of soil cover for the use of soil oxidation factors in excess of 10 percent. These commenters questioned the rationale for the EPA effectively ignoring the uncertainty of assuming that oxidation rates in 12 inches of soil cover will be equivalent to those reported in the studies where cover soils were at least 24 inches thick.

Response: The EPA appreciates the comment submitted by the Petitioner in support of the proposed revisions to address their Petition for Reconsideration. As stated in section III.S.1.c, the EPA is completing its response to the Petition for Reconsideration through this final rulemaking. As stated in the preamble to the proposed rule (81 FR 2569), after reviewing the scientific literature on the methane oxidation, we determined that while the literature is not conclusive regarding the minimum soil cover necessary for oxidation to occur, it does show that oxidation generally occurs with at least 12 inches of soil cover. As described in the Findings section of the memorandum (81 FR 2569, EPA Docket Id. No. EPA–HQ–OAR–2015–0526–0008) documenting the literature review that led to the proposed revisions (hereafter referred to as the RTI Memorandum) in 11 of the studies reviewed, most of the methane oxidation appears to occur in the top 12 to 15 inches of cover soil. Our review of state permitting requirements also found that most states require at least 12 inches of intermediate or interim soil cover. Therefore, if an active landfill is receiving waste, the landfill should be applying a minimum 12-inch soil cover as intermediate or interim cover. As

such, in the final amendments to Table HH–4 we are replacing the 24-inch soil cover requirement with the requirement for interim or intermediate cover, and further provide that if the landfill is located in a state without requirements for interim or intermediate cover, the landfill must have a soil cover of 12 inches or greater in order to use one of the higher oxidation fraction values.

We agree with the Petitioner's comment that the depth of soil cover is not the sole or ''master'' variable for determining methane flux and that not all studies reported the soil cover depth, but note that all studies included some amount of soil cover and maintain that some amount of soil cover is important for methane oxidation to occur. As noted in the RTI Memorandum, methane oxidation rates are influenced by a number of variables, including the flow velocity of the landfill gas, or methane flux, through the soil surface; the porosity of the soil layer; the number and types of microorganisms in the soil layer; and the soil surface temperature or moisture content. Upon receiving the Petition for Reconsideration, which challenged the cover depth requirement, we reviewed the peer-reviewed literature on landfill methane oxidation. As stated in the RTI Memorandum, all of the ninety studies included soil characteristic data, meaning that there was some soil cover in place at the landfills or simulated environments in these studies, and after reviewing these studies we concluded that some amount of soil cover is necessary for oxidation to occur. Having made that conclusion, we focused our review on those studies that reported a methane oxidation value and a soil cover depth, as not all studies included this granularity of detail, to attempt to inform the determination of the soil cover depth at which methane oxidation occurs. As stated above, the review did yield data to support that most of the methane oxidation appears to occur in the top 12 to 15 inches of cover soil, which also reaffirms our conclusion that soil cover is a necessary factor for methane oxidation to occur. For all the reasons discussed in this section, these revisions, which are our final action on the Petition, are intended to address the Petitioner's concerns and are based on the scientific literature and landfill practice as required by state permitting. We do not agree that the further revisions to the language or the supporting documents suggested by the Petitioner is warranted, or necessary to support our final amendments.

With regard to the comments received stating that we should retain the minimum depth requirement of 24 inches of soil cover for the use of soil oxidation factors in excess of 10 percent, based on our review of the literature, and as stated above, the review of the scientific literature did not support a conclusion on the optimum depth of 24 inches of soil cover for methane oxidation. The review did identify several studies describing that most of the methane oxidation appears to occur in the top 12 to 15 inches of cover soil, which corresponds to most state requirements for intermediate or interim cover. We therefore incorporated intermediate or interim soil cover to reference state requirements, and specify that, in the absence of state requirements regarding intermediate or interim soil cover, that there must be at least 12 inches of soil cover, as a way to ensure that adequate soil cover is present in order for the facility to use the higher oxidation values.

Comment: Several commenters objected to the proposed revisions to Table HH–4 that would require landfills that have passive or active vents that service greater than 50 percent of the landfill area containing waste or that only have passive or active vents to use the default 10 percent oxidation fraction in their emissions calculations. Commenters described the situations in which passive and active vents are used in areas that are unable to produce enough gas to support an active gas collection and control system or an active flare. These vents help prevent gas build up that may cause cracks and fissures in the landfill cover. Commenters stated that the EPA's ''overly conservative'' methodology already accounts for any methane loss through vents. Commenters further stated that the studies EPA cited to support the proposed revision, Liptay et al. 1998 [20] and Chanton et al. 2000,[21] do not in fact ''measure emissions from vents, nor did they attempt to estimate the proportional impact of emissions from vents, relative to emissions moving through the surface of the landfill, and subject to oxidation in the cover.'' Commenters presented alternative measured findings from another study, Green et al 2012,[22] which they claimed contradicted the rationale for EPA's proposal. Commenters also provided suggested language for Table HH–4 that address their concerns and provide clarity.

Response: We agree with the commenters that the two studies identified in the memo entitled ''Review of Oxidation Studies and Associated Cover Depths in the Peer-Reviewed Literature,'' Docket Id. No. EPA–HQ–OAR–2015–0526–0008, do not sufficiently support the proposed revision to restrict the oxidation fractions that may be used by landfills that have only passive or active vents or for landfills with passive vents/passive flares that service greater than 50 percent of the landfill area containing waste. We also agree with the importance of the type of field studies noted by the commenters. However, we have not been able to identify additional studies in the peer-reviewed body of evidence supporting methane oxidation fractions higher than 10 percent for landfills without gas collection and control systems that primarily vent their gases. We had hoped that with proposing this revision and soliciting comment on restricting the oxidation fractions for these landfills, we would receive information about studies that definitely support or refute such a proposal. Given the current lack of rigorous, scientifically based measurement data on methane oxidation for landfills meeting the criteria in C2 of Table HH–4, we are not finalizing the proposed revision to criteria C3 of Table HH–4: ''or for landfills with passive vents/passive flares that service greater than 50 percent of the landfill area containing waste, or for landfills with only passive vents/passive flares or active venting.'' Should we identify studies that more clearly support restricting the oxidation fractions that may be used by landfills with only passive or active vents or with these vents over a majority of the landfill surface, we may consider proposing such a revision again in the future.

In this final rule, we are also clarifying the descriptions in Table HH–4 for conditions C4, C5, C6, and C7 to state that ''For landfills that do not meet the conditions in C2 or C3 above . . .'' to make clear that if the landfill does not meet the final conditions of C2 or C3 (*i.e.,* C2: Having a geomembrane cover of other non-soil barrier meeting the definition of final cover with less than 12 inches of soil cover for greater than 50 percent of the landfill area containing waste, and C3: Electing not to determine methane flux) then that landfill may use the oxidation fractions listed assuming the remainder of the

[20] Liptay et al. 1998. ''Use of stable isotopes to determine methane oxidation in landfill cover soils. Journal of Geophysical Research, 103:8243–8250.

[21] Chanton et al. 2000. Seasonal variation in methane oxidation in landfill cover soils as determined by an in situ stable isotope technique. Global Biogeochemical Cycles, 14:51–60.

[22] Green, R. et al. 2012. ''Measured and Modeled Methane Emissions at Closed MSW Landfills without Gas Collection,'' Proceedings of the Global Waste Management Symposium, San Antonio, Texas.

condition is met (*i.e.,* the methane flux rate is of the amount specified in Table HH–4). These clarifying edits were suggested by the commenters, and after consideration, we agree that these related additional changes to Table HH–4 more clearly state which oxidation fraction may be used in calculating emissions depending upon conditions in place at the landfill. We agree that the text provided by commenters, in addition to what was proposed, provides even further clarity so that a landfill owner or operator can be certain as to which oxidation fraction is appropriate to use.

3. When the Final Amendments to Subpart HH Become Effective

As shown in Table 3 of this preamble and consistent with the description of amendments in section I.E.1 of this preamble, all amendments to subpart HH will be effective on January 1, 2017, as proposed and will be reflected starting with RY2016 reports that are submitted in 2017. No comments were received on the timing of revisions to subpart HH.

T. Subpart II—Industrial Wastewater Treatment

We are finalizing amendments to subpart II of Part 98 (Industrial Wastewater) as proposed. This section discusses the substantive revisions to subpart II; additional minor amendments, corrections, and clarifications, including a change to the final rule, are summarized in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526). We are also finalizing as proposed confidentiality determinations for new and revised data elements resulting from the revisions to subpart II; see section IV of this preamble and the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for these data elements. The EPA received no comments objecting to the proposed revisions to subpart II.

1. Revisions to Subpart II To Improve the Quality of Data Collected Under Part 98 and Improve the U.S. GHG Inventory

The EPA is finalizing amendments to subpart II reporting requirements that will enhance the quality and accuracy of the data collected under the GHGRP, improve verification of collected data, and provide additional data to support estimates included in the U.S. GHG Inventory, while generally resulting in only a slight increase in burden for reporters. We are finalizing an amendment to 40 CFR 98.356 to require facilities that perform ethanol production to indicate whether their facility uses a wet milling process or a dry milling process. To clarify this requirement, we are finalizing amendments to 40 CFR 98.358 to add definitions of ''wet milling'' and ''dry milling.'' The EPA intends to use the data on the numbers of facilities with wet versus dry milling processes and their respective wastewater characteristics to improve the understanding of the data collected under the GHGRP, better understand trends in industrial wastewater technology for use in future policies and programs, update assumptions used in the U.S. GHG Inventory, and thereby improve the estimates of U.S. emissions from wastewater treatment at ethanol production facilities. In addition, the EPA intends to update the U.S. GHG Inventory using data on the level of biogas recovery in use at wet milling facilities and at dry milling facilities.

2. Other Amendments to Subpart II

The EPA is also finalizing as proposed an amendment to 40 CFR 98.358 to add a definition of the term ''weekly average.'' This amendment will serve to resolve uncertainties in the reporting requirements in 40 CFR 98.356(b)(1) and 40 CFR 98.356(d)(3) through (6) regarding how to calculate weekly averages for chemical oxygen demand (COD) and 5-day biochemical oxygen demand (BOD_5) concentration, CH_4 concentration, biogas temperature, biogas moisture content, and biogas pressure. This amendment will have no impact on burden for reporters.

3. When the Final Amendments to Subpart II Become Effective

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart II will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart II.

U. Subpart LL—Suppliers of Coal-Based Liquid Fuels

In this action, we are finalizing several amendments to subpart LL of Part 98 (Suppliers of Coal-based Liquid Fuels). This section discusses the substantive revisions to subpart LL; additional minor amendments, corrections, and clarifications are summarized in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526). The EPA received no comments objecting to the proposed revisions to subpart LL.

We are finalizing several revisions to 40 CFR part 98, subpart LL (Suppliers of Coal-based Liquid Fuels) to clarify requirements and amend data reporting requirements, resulting in a decrease in burden for reporters.

As proposed, we are removing the requirements of 40 CFR 98.386(a)(4), (8), and (15), (b)(4), and (c)(4) for each facility, importer, and exporter to report the annual quantity of each coal-based liquid fuel on the basis of the measurement method used. Reporters will continue to report the annual quantities of each coal-based liquid fuel in metric tons or barrels at 40 CFR 98.386(a)(2), (6), and (14), (b)(2), and (c)(2). We are also clarifying, as proposed, that the quantity of bulk natural gas liquids (NGLs) reported under 40 CFR 98.386(a)(20) should not include NGLs already reported as individual products under 40 CFR 98.386(a)(2). These revisions not only clarify the reporting requirements, but also harmonize subpart LL requirements with those of subpart MM.

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart LL will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart LL.

V. Subpart NN—Suppliers of Natural Gas and Natural Gas Liquids

We are finalizing several amendments to subpart NN of Part 98 (Suppliers of Natural Gas and Natural Gas Liquids). This section discusses the substantive revisions to subpart NN. Additional minor corrections, including corrections made for the first time in the final rule, are presented in the Table of 2015 Revisions (see Docket Id. No. EPA–HQ–OAR–2015–0526). We are also finalizing as proposed confidentiality determinations for new data elements resulting from the revisions to subpart NN; see section IV of this preamble and the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for these data elements.

The EPA received one comment requesting clarification on the proposed revisions to subpart NN in the Table of 2015 Revisions; this comment has been addressed by implementing the change suggested by the commenter, along with other harmonizing changes. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart NN.

We are finalizing one amendment to subpart NN that will improve the quality of the data collected under Part 98. We are adding a new reporting requirement at 40 CFR 98.406(b)(14), as proposed, to require local distribution companies (LDCs) to provide the name of the U.S. state or territory covered in the report. The EPA received no comments on this proposed revision.

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart NN will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart NN.

W. Subpart OO—Suppliers of Industrial Greenhouse Gases

We are finalizing all amendments to subpart OO of Part 98 (Suppliers of Industrial Greenhouse Gases) as proposed. This section discusses all the revisions to subpart OO; additional minor clarifications, including minimal changes to the final rule, are summarized in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526). The EPA received several comments for subpart OO. We are also finalizing as proposed confidentiality determinations for new data elements resulting from the revisions to subpart OO; see section IV of this preamble and the memorandum ''Final Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for additional information on the final category assignments and confidentiality determinations for these data elements. Substantive comments are addressed in section III.W.2 of this preamble; see the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart OO.

1. Summary of Final Amendments to Subpart OO

This section discusses the substantive revisions to subpart OO to improve the quality of data collected under Part 98. We are finalizing all revisions to subpart OO as proposed. These revisions include two revisions to the definition of the source category to include (1) Facilities that destroy 25,000 $mtCO_2e$ or more of industrial GHGs and/or fluorinated heat transfer fluids annually, and (2) entities that produce, import, or export fluorinated heat transfer fluids that are not also fluorinated greenhouse gases. They also include an expansion of the scope of reporting to include production, transformation, destruction, imports and exports of heat transfer fluids that are not also fluorinated GHGs.

2. Summary of Comments and Responses on Subpart OO

This section summarizes the significant comments and responses related to the proposed amendments to subpart OO. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart OO.

Comment: One commenter disagreed with the EPA's proposed expansion of the definition of the source category and the scope of reporting. Regarding the proposed expansion of the scope of reporting to cover fluorinated heat transfer fluids that are not also fluorinated GHGs, the commenter asserted that the burden required to implement these changes was not ''modest,'' as had been stated by the EPA in the preamble to the proposed rule. The commenter agreed with the EPA that all suppliers of fluorinated HTFs that are not also fluorinated GHGs are believed to report under subpart OO already, and that these suppliers would need to report one to 12 additional compounds. However, the commenter argued that this would require ''significant additional activities,'' including additional monitoring, QA/QC, and recordkeeping.

The commenter stated that the costs associated with the proposed subpart OO requirements account for 23 percent of the first year costs and 21 percent of the subsequent year costs for all subparts, other than subpart FF, affected by the proposed revisions. The commenter went on to argue that ''the minor impact of fluorinated HTFs, as compared to other fluorinated GHGs for which EPA currently requires reporting . . . does not justify the cost.'' The commenter urged the EPA to reconsider the proposed revision, but stated that if the EPA decided to require reporting of fluorinated HTFs, the EPA should apply these only to facilities with fluorinated HTF emissions above the 25,000-ton-CO_2-equivalent threshold.

Regarding the proposed expansion of the definition of the source category to include facilities that destroy fluorinated GHGs or fluorinated HTFs, the commenter argued that the EPA should have a more rigorous rationale, supported by data, before undertaking this expansion. The commenter claimed that the EPA's justification for requiring destruction facilities to report their destruction relied on conjecture, quoting the proposed rule as saying that lack of information from destruction facilities ''*may* [commenter's emphasis] result in an underestimate'' of the quantities destroyed. The commenter recommended that the EPA undertake additional research to identify the potential number of destruction facilities and to estimate the potential quantity of industrial GHGs destroyed annually.

Response: As explained in the preamble to the proposed rule, the EPA's goal in expanding the definition of the source category and scope of reporting under subpart OO is to ensure that the EPA has a more accurate understanding of the U.S. supplies of both fluorinated GHGs and fluorinated HTFs.

Specifically, as stated in the preamble to the proposed rule, collecting information on the U.S. supply of fluorinated HTFs will enable us to compare reported supplies to the demand for fluorinated HTFs that we calculate based on the emissions (1) Reported under subpart I, and (2) estimated for electronics facilities that do not report under subpart I (*e.g.,* because they fall below the threshold). Also as stated in the proposed rule, similar comparisons for other fluorinated compounds (*e.g.,* SF_6) have alerted the EPA to potential underestimates of emissions. Such potential errors are of particular concern for fluorinated heat transfer fluids, many of which are fully fluorinated

compounds with atmospheric lifetimes of thousands of years and GWPs near 10,000.

The commenter claimed that the impact of fluorinated HTFs that are not fluorinated GHGs does not justify the cost of reporting them under subpart OO, which the commenter asserted was ''not modest.'' The commenter argued that the estimated costs of the revisions to subpart OO comprised a significant percentage of the total costs of the entire revisions rule, excluding the costs of the revisions to subpart FF. However, as detailed in the economic analysis for the proposed rule,[23] only a small fraction of the costs of the revisions to subpart OO cited by the commenter consist of the costs associated with requiring reporting of fluorinated heat transfer fluids that are not also fluorinated GHGs. Specifically, for facilities reporting their production, imports, exports, transformation, and destruction of fluorinated HTFs that are not also fluorinated GHGs, the EPA estimated per-facility costs to be $132 in $2011 ($146 in $2014) for the first and subsequent years. The EPA estimated that a total of three facilities would incur these costs, leading to total annual costs of $397 in $2011 ($438 in $2014) from the reporting of fluorinated HTFs that are not also fluorinated GHGs.[24] We consider these costs to be well justified by the insight gained into supplies and emissions of potent and long-lived fluorinated HTFs.

The commenter did not offer any justification for establishing a separate threshold for reporting supplies of fluorinated HTFs that are not also fluorinated GHGs, and we are not establishing a separate threshold in this final rule. As noted in the preamble to the proposed rule, the thresholds for industrial GHG suppliers consist of no threshold for producers, and thresholds for importers and exporters of 25,000 $mtCO_2e$, summed across CO_2, N_2O, and all fluorinated GHGs. Importers and exporters who exceed the threshold have been required to report their imports and exports of all of these GHGs, as applicable. (Note that CO_2 supplies are reported under subpart PP.) Including fluorinated HTFs that are not also fluorinated GHGs in this total, and in the corresponding reporting requirements, is consistent with the GHGRP's long-established approach to reporting of industrial GHG supplies as well as other GHG-related supplies.

Regarding the expansion of the definition of the industrial gas suppliers source category to include facilities that destroy fluorinated GHGs and fluorinated HTFs, we believe that the rationale provided in the preamble to the proposed rule is sufficient to support the revision. As explained there, because the previous definition of the source category excluded entities that destroyed but did not produce, import, or export fluorinated GHGs, significant amounts of destruction of fluorinated GHGs may not have been reported, resulting in an overestimate of the fluorinated GHG supply. We noted that the fluorinated GHG market includes participants who neither produce nor import industrial GHGs but who may destroy them or send them off site for destruction. For example, these participants include free-standing destruction facilities and refrigerant reclaimers who clean used HFCs for reuse. We also cited the destruction market for ozone-depleting substances (ODS), which are chemically similar to fluorinated GHGs, are manufactured and imported by many of the same facilities and companies that manufacture and import fluorinated GHGs, and are used in many of the same applications as fluorinated GHGs. Based on reporting by ODS destruction facilities to the EPA under the Stratospheric Protection Program, we observed that this market includes multiple hazardous waste treatment facilities that use a variety of different destruction technologies to destroy significant quantities of ODS. We concluded that five to 10 of these facilities (or similar facilities) would be required to report their destruction of fluorinated GHGs and HTFs given the expansion of the definition of the industrial gas supplier source category and the application of the 25,000-$mtCO_2e$ threshold for facilities that do not also produce fluorinated GHGs. Based on this analysis, we believe that the cost of reporting by fluorinated GHG destruction facilities will be justified by its benefits.

Finally, we note that because the purpose of the expanded definition of the source category is to gather information on the quantities of fluorinated GHGs destroyed, it is not reasonable to expect a precise estimate of these quantities before the expanded definition goes into effect.

3. When the Final Amendments to Subpart OO Become Effective

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart OO will be effective on January 1, 2018 as proposed and will be reflected starting with RY2018 reports that are submitted in 2019. The amendments to subpart OO require new facilities to report to the GHGRP. We are making these revisions effective January 1, 2018 so that the new reporters will take the necessary action to begin monitoring to be in full compliance with these revisions throughout 2018. The corresponding revisions to Table A–5 of subpart A, which serve to add these new facilities under subpart OO, will also be effective on January 1, 2018 and will be reflected in RY2018 reports. No comments were received on the timing of revisions to subpart OO or the corresponding revision to Table A–5.

X. Subpart PP—Suppliers of Carbon Dioxide

We are finalizing as proposed one minor correction to subpart PP of Part 98 (Suppliers of Carbon Dioxide). This minor revision is summarized in the Final Table of Revisions available in the docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526).

The EPA received three comments on subpart PP. These include substantive comments regarding the proposed confidentiality determinations for certain data reporting elements of subpart PP for which no determination had been previously established, which are addressed in section IV.C of this preamble. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart PP.

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, the amendments to subpart PP will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart PP.

Y. Subpart RR—Geologic Sequestration of Carbon Dioxide

No substantive amendments to subpart RR of Part 98 (Geologic

[23] ''Assessment of Burden Impacts of 2015 Revisions to the Greenhouse Gas Reporting Rule'', Docket Number EPA–HQ–OAR–2015–0526–0015.

[24] EPA estimated the total cost of the revisions to subpart OO, across all subpart OO reporters, to be $36,787 in $2011 in the first year ($38,502 in $2014) and $27,194 in $2011 in subsequent years ($29,138 in $2014). Most of this total is accounted for by the eight facilities that EPA estimated would be reporting destruction of F–GHGs and F–HTFs for the first time. For these facilities, the per-facility costs were estimated to be $4,527 and $3,327 in $2011 ($4,813 and $3,642 in $2014) for the first and subsequent years respectively.

Sequestration of Carbon Dioxide) are being finalized for this rulemaking. The EPA had proposed to add a data reporting element to 40 CFR 98.446 to require reporters to indicate whether the facility is injecting a CO_2 stream in subsurface geologic formations to enhance the recovery of oil or natural gas. The purpose of this proposed data element was linked to our proposed development of categorical confidentiality determinations for subpart RR data elements for which confidentiality is currently evaluated on a case-by-case basis (77 FR 48072, 48081 through 48083; August 13, 2012). The EPA is not finalizing the proposed subpart RR confidentiality determinations at this time; see section IV of this preamble for additional information. Therefore, the EPA is not finalizing the proposed data reporting element. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart RR.

Z. Subpart TT—Industrial Waste Landfills

In this action, we are finalizing several amendments to Table TT–1 to subpart TT of Part 98 (Industrial Waste Landfills). This section discusses the substantive revisions to Table TT–1; one minor correction is summarized in the Final Table of Revisions available in the Docket for this rulemaking (Docket Id. No. EPA–HQ–OAR–2015–0526).

The EPA received several comments for subpart TT. Substantive comments are addressed in section III.Z.2 of this preamble; see the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart TT.

1. Revisions to Subpart TT To Improve the Quality of Data Collected Under Part 98

In this action, the EPA is finalizing as proposed amendments to Table TT–1 to subpart TT to create four separate categories of pulp and paper waste types and degradable organic carbon (DOC) values for boiler ash, kraft recovery (causticizing) wastes, wastewater treatment sludges, and other (which includes hydropulper rejects, bark wastes, and digester knots). We are also finalizing as proposed a footnote to Table TT–1 explaining what is meant by kraft recovery waste. These separate categories and corresponding DOC values allow for more accurate methane generation calculations for industrial waste landfills at pulp and paper manufacturing facilities that segregate their waste streams. After consideration of public comments, we are retaining the waste category in Table TT–1 for general pulp and paper manufacturing wastes that we had proposed to remove. However, we are assigning a corresponding DOC value of 0.15 instead of the previous value of 0.20 for this waste type. As described in further detail below at section III.Z.2., this additional category to the four proposed and finalized categories provides an appropriate DOC value for use by industrial waste landfills at pulp and paper facilities that do not segregate their waste into separate streams, except to account for industrial sludge, and general industrial waste facilities that accept waste from multiple industries that may be unable to report separate pulp and paper manufacturing waste streams. Additionally, reporters that accept waste streams from different industries should be able to track waste streams by industrial source and therefore quantify industrial waste received from different industries. Without retaining this fifth category, these reporters would no longer have been able to accurately calculate methane generation from their facility with the proposed DOC values, which is not what we intended; therefore, the fifth waste category is needed to allow proper calculations to be performed.

Additionally, we explained at proposal that we intended to require the pulp and paper industry to use the industry-specific wastewater sludge default DOC value, and had proposed to revise the ''Industrial Sludge'' category to be ''Industrial Sludge (other than pulp and paper industry sludge).'' Consistent with this proposed revision, we are further clarifying instead in a footnote to the Industrial Sludge portion of Table TT–1 that if a facility can segregate out sludge from the pulp and paper industry from other sludge received, a DOC value of 0.12 must be applied to that portion of the sludge, instead of the general 0.09 industrial sludge value. This specificity is intended to ensure more accurate calculation of methane generation at industrial waste landfills.

2. Summary of Comments and Responses on Subpart TT

This section summarizes the significant comments and responses related to the proposed amendments to subpart TT. See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subpart TT.

Comment: Two commenters were pleased with the EPA's proposal to use default DOC values for the four specific pulp and paper industry waste types and agreed with the proposed values of 0.06 for boiler ash, 0.025 for kraft recovery wastes, 0.12 for pulp and paper wastewater treatment sludge, and 0.20 for ''other pulp and paper wastes.'' These commenters also recommended an additional default DOC category and value for ''pulp and paper manufacturing wastes, general'' in Table TT–1, with an assigned DOC value of 0.10 (wet basis), stating that this category and value could be used by pulp and paper manufacturing facilities that do not segregate their wastes into separate streams. The commenters stated that the value of 0.10 is the weighted average of the waste stream-specific DOC values reported to the GHGRP for subpart TT by pulp and paper facilities in 2013, and is therefore appropriate for estimating industrial landfill methane emissions from general pulp and paper manufacturing wastes. One of the commenters cited a memorandum from RTI International to the EPA in support of modifications to the pulp and paper DOC value for the Waste Chapter of the U.S. GHG Inventory (please see the memorandum titled ''Investigate the potential to update DOC and k values for the Pulp and Paper industry in the US Solid Waste Inventory'' in Docket Id. No. EPA–HQ–OAR–2015–0526) as support for this 0.10 value. The commenters also stated that the EPA should not preclude this general option for pulp and paper mills that, for whatever reason, find it more appropriate to report their waste DOC values in the aggregate.

Response: The EPA agrees that a general category and corresponding DOC value should be retained in Table TT–1 for pulp and paper manufacturing wastes so that industrial landfills at pulp and paper manufacturing facilities that do not segregate their waste into separate streams, except to account for industrial sludge, can more accurately

calculate methane generation than what would have been allowed in the proposed rule. While we agree that the value should be lower than the 0.20 in Table TT–1, the analysis in the memo cited by the commenter shows that the value for general waste from pulp and paper manufacturing facilities should be 0.15, accounting for all values reported for all waste streams at pulp and paper facilities, except for industrial sludge, at pulp and paper facilities. A lower DOC value of 0.10 can be calculated when considering only the 21 out of 76 pulp and paper facilities that provided waste-stream-specific DOC values in their 2013 annual reports, but there is still uncertainty behind the types and quantities of waste streams disposed of in dedicated pulp and paper industrial waste landfills and we cannot exclude the reporters that are unable to report waste stream specific data. Therefore, when we calculate a value that is to be used for general pulp and paper waste we need to include the entire universe of available data from reporters at pulp and paper manufacturing facilities (76 in total) including those that use default values. Additionally, the DOC value of 0.15 for general pulp and paper manufacturing waste (other than industrial sludge) also corresponds with the DOC value of 0.16 as presented in Heath et al. (2010) [25] for general pulp and paper manufacturing waste. Therefore, the final DOC value for pulp and paper manufacturing wastes is supported by our analysis of the best available information at this time. We may re-assess waste-stream specific data and how they impact the DOC value assigned for general pulp and paper waste (other than industrial sludge) in future reporting years as additional facilities choose to perform waste stream-specific analyses or choose to report using the pulp and paper waste-type specific DOC values.

3. When the Final Amendments to Subpart TT Become Effective

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subpart TT will be effective on January 1, 2018, as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to subpart TT.

[25] Heath, L.S. et al. 2010. Greenhouse Gas and Carbon Profile of the U.S. Forest Products Industry Value Chain. Environmental Science and Technology 44(2010) 3999–4005.

AA. Other Minor Revisions, Clarifications, and Corrections

In addition to the substantive amendments in sections III.A through III.Z of this preamble, we are finalizing minor revisions, clarifications, and corrections to subparts P, U, MM, and UU of Part 98 as proposed. The EPA received no comments objecting to the proposed revisions to subparts P (Hydrogen Production), U (Miscellaneous Use of Carbonate), MM (Suppliers of Petroleum Products), and UU (Injection of Carbon Dioxide).

The final revisions to these subparts are provided in the Final Table of Revisions for this rulemaking, available in Docket Id. No. EPA–HQ–OAR–2015–0526, and include clarifying requirements to better reflect the EPA's intent, corrections to calculation terms or cross-references that do not revise the output of calculations, harmonizing changes within a subpart (such as changes to terminology), corrections to simple typographical errors, and other minor corrections (*e.g.,* removal of redundant text).

As shown in Table 4 of this preamble and consistent with the description of amendments in section I.E.2 of this preamble, all amendments to subparts U, MM, and UU will be effective on January 1, 2018 as proposed and will be reflected starting with RY2017 reports that are submitted in 2018. No comments were received on the timing of revisions to these subparts.

The EPA received one comment on our proposed implementation schedule for subpart P (Hydrogen Production). We had proposed that amendments to subpart P would be effective for RY2017. The commenter requested an additional year before implementation of the proposed ''additional requirements'' in 40 CFR 98.164 for calibration of fuel flow meters, based on the premise that additional time would be needed because facilities would need to shut down operations to implement these new requirements (see Docket Id. No. EPA–HQ–OAR–2015–0526–0044). The proposed revisions were intended to be a clarification of the existing calibration requirements for fuel flow meters. The EPA originally intended that feedstock flow measurements be made with the same accuracy as the fuel flow measurements, and we have never intended for reporters to conclude that there were no monitoring or quality assurance requirements for the fuel flow. The pre-existing calculation methodology in subpart P clearly indicates that flow rate measurements for both fuels and feedstocks are required, and the calibration requirement in 40 CFR 98.164(b)(1) indicates that feedstock flow meters must meet the same requirements as fuel flow meters used under the Tier 3 methodology in 40 CFR part 60, subpart C. However, it is apparent from the comment received that some reporters under subpart P have interpreted subpart P as not requiring monitoring or QA for the fuel flow. Though we expect all facilities currently have a flow meter on the fuel line, we understand from this comment that it is possible that a few reporters will need to upgrade their flow monitoring system to meet the requirements as clarified in this action. As such, we are postponing until January 1, 2018, the effective date for this amendment to subpart P to allow these revisions to be coordinated with facilities' planned downtime schedules.

All other amendments to subpart P are effective on January 1, 2019 as shown in Table 5 of this preamble and are consistent with the description of amendments effective on that date in section I.E.3 of this preamble. Although some amendments to subpart P are effective January 1, 2018 and some are effective January 1, 2019, all amendments to subpart P will be reflected in RY2018 reports that are submitted in 2019 as shown in Tables 4 and 5 of this preamble.

See the document ''Summary of Public Comments and Responses for Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a complete listing of all comments and responses related to subparts P, U, MM, and UU.

IV. Final Confidentiality Determinations for New or Substantially Revised Data Reporting Elements or Other Part 98 Reporting Elements for Which No Determination Has Been Previously Established

This section provides a summary of the EPA's final confidentiality determinations for new and substantially revised data elements, certain existing Part 98 data elements for which no determination has been previously established, and the significant comments and responses related to the proposed confidentiality determinations for these data elements. Section IV.A of this preamble addresses commenters' concerns with the EPA's format for proposing and finalizing categorical confidentiality determinations for new or substantially revised data reporting elements assigned to data categories with categorical confidentiality determinations. Section

IV.B of this preamble addresses the EPA's final confidentiality determinations for all new or substantially revised data reporting elements. Section IV.C of this preamble addresses the EPA's final confidentiality determinations for certain existing Part 98 data reporting elements for which no determination has been previously established.

The EPA also proposed to revise the confidentiality determinations for two existing data elements in subpart NN for which the confidentiality determinations had previously been established. The EPA received no comments on the proposed revised confidentiality determinations for subpart NN, and is finalizing the confidentiality determinations as proposed. For additional information and rationale for the confidentiality determinations for these data elements, see the preamble to the proposed rule (81 FR 2593, January 15, 2016).

The EPA's comment response document in Docket Id. No. EPA–HQ–OAR–2015–0526 provides a complete listing of all comments related to these topics and the EPA's responses.

A. EPA's Format for Proposing and Finalizing Categorical Confidentiality Determinations for New or Substantially Revised Data Reporting Elements Assigned to Data Categories With Categorical Confidentiality Determinations

This section addresses the format used by the EPA for proposing categorical confidentiality determinations for new or substantially revised data reporting elements assigned to data categories with categorical confidentiality determinations. In the preamble to the proposed rule, we referenced the memorandum titled ''Proposed Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526 for a list of the proposed new, substantially revised, and existing data elements, their proposed category assignments, and their proposed confidentiality determinations. This memorandum included proposed confidentiality determinations for all data elements, including data elements assigned to data categories with categorical confidentiality determinations that were not further discussed in the preamble.

Three commenters questioned this format for proposing confidentiality determinations for certain new and substantially revised data reporting elements included in the proposed rule, and expressed confusion over whether the EPA had adequately proposed confidentiality determinations for these data elements, which were assigned to data categories with categorical confidentiality determinations. Specifically, commenters argued that the EPA failed to propose confidentiality determinations for the new and substantially revised data elements assigned to data categories with categorical confidentiality determinations, because the proposed determinations were not located in the preamble. One commenter contended that the EPA must re-propose these confidentiality determinations in order to provide an opportunity for public comment, as required under the Administrative Procedure Act. The commenters were concerned that the EPA would not be able to afford CBI protection for proposed new reporting elements in subpart CC (40 CFR 98.296(a)(1) and (b)(5)) and subpart O, even though the EPA had indicated in the supporting memorandum that we had determined that these data should be handled as CBI.

We disagree with the comment that the EPA failed to propose confidentiality determinations for the new and substantially revised data elements assigned to data categories with categorical confidentiality determinations. In the proposed rule, the EPA stated that it was applying the same approach as previously used for making confidentiality determinations for data elements reported under the GHGRP, which consisted of assigning data elements to an appropriate data category and then either assigning the previously determined category-based confidentiality determination or making an individual determination if the data element is assigned to a category for which no category-based determination was previously made (see 81 FR 2574, January 15, 2016). Refer to section IV.B of the preamble to the proposed rule for further discussion of this approach, which was finalized in a previous rulemaking (76 FR 30782, May 26, 2011). The EPA clarified that ''[t]he data categories used were those finalized in the 2012 CBI Rule,'' which included final confidentiality determinations on a categorical basis for a number of these data categories. *Id.* Using this approach, we stated in section IV.C of the preamble to the proposed amendments ''the EPA is proposing to assign each of the 117 new or substantially revised data reporting requirements to the appropriate direct emitter or supplier data category'' (see 81 FR 2575). For new and substantially revised reporting elements assigned to data categories without a categorical determination, we proposed confidentiality determinations. However, for data elements proposed to be assigned to a data category with a ''previously determined category-based confidentiality determination,'' we referred the reader to the supporting memorandum for the proposed confidentiality determinations: ''Proposed Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions, available in Docket Id. No. EPA–HQ–OAR–2015–0526.'' (81 FR 2575). In that memorandum, the EPA identified the data categories and their established category-based confidentiality determinations. The memorandum shows the proposed categorical assignment for each of the data elements at issue. Using this format, the EPA proposed confidentiality determinations for those data elements proposed to be assigned to a data category with a categorical determination. The EPA has previously used this format (*i.e.,* locating in a memorandum EPA's proposed confidentiality determinations for data elements assigned to data categories with categorical confidentiality determinations) to propose confidentiality determinations in prior rulemakings, as in the November 29, 2013 revisions proposal (78 FR 71904). As in previous rulemakings that used the same format, the EPA specifically requested comment on the proposed category assignments and confidentiality determinations. In light of the detailed information that the EPA provided in the proposed rule regarding its approach for making confidentiality determinations and the resulting determinations, the EPA disagrees with the comment that the EPA failed to propose confidentiality determinations for the new and substantially revised data elements assigned to data categories with categorical confidentiality determinations. With respect to the Administrative Procedure Act, the notice and opportunity for comment described above are consistent with the rulemaking requirements of that statute. This rule is promulgated pursuant to section 307(d) of the Clean Air Act. The actions described above and the inclusion in the docket of the supporting memorandum are consistent with the requirements for proposed rules in section 307(d)(3) of the Clean Air Act.

Regarding the commenters' concern specifically about the EPA's handling of new data elements in subpart O that the EPA proposed to be CBI, the EPA is

finalizing the determinations as proposed, as the EPA did not receive adverse comment on the proposed determinations. Regarding commenters' concerns about the specific data elements in subpart CC (40 CFR 98.296(a)(1) and (b)(5)), the EPA is not finalizing the addition of these data elements, as discussed in section III.P of this preamble.

B. Final Confidentiality Determinations for New or Substantially Revised Data Reporting Elements

1. Summary of Final Confidentiality Determinations

The EPA is finalizing the confidentiality determinations for new or substantially revised data reporting elements as they were proposed for all subparts except subparts A (General Provisions), I (Electronics Manufacturing), S (Lime Manufacturing), X (Petrochemical Production), CC (Soda Ash Manufacturing), DD (Electrical Transmission and Distribution Equipment Use), FF (Underground Coal Mines), HH (Municipal Solid Waste Landfills), and RR (Geologic Sequestration of Carbon Dioxide). For all subparts except subparts A, I, S, X, CC, DD, FF, HH, and RR, please refer to the preamble to the proposed rule (81 FR 2574; January 15, 2016) for additional information regarding the proposed confidentiality determinations.

For subparts I, CC, DD, FF, HH, and RR, the EPA is not finalizing the proposed confidentiality determinations for certain data elements because the EPA is not finalizing the requirement to report these data elements (see sections III.F, III.P, III.Q, III.R, III.S, and III.Y of this preamble for additional information.) These data elements are:

- Three data elements under subpart I (proposed 40 CFR 98.96(y)(2)(iv): The film type being manufactured, substrate type, and linewidth or technology node for any utilization, by-product formation rate, and/or destruction or removal efficiency data submitted).
- Two data elements under subpart CC (proposed 98.296(a)(1) and (b)(5): Annual consumption of trona or liquid alkaline feedstock).
- One data element under subpart DD (proposed 40 CFR 98.306(m): Total miles of transmission and distribution lines located within each state or territory).
- One data element under subpart FF (proposed 40 CFR 98.326(u): Annual coal production).
- One data element under subpart HH (proposed 40 CFR 98.346(i)(7): An indication of whether the gas collection efficiency was determined on an area-weighted average basis or a volume-weighted average basis).
- One data element under RR (proposed 40 CFR 98.446(g): Whether the CO_2 stream is being injected in subsurface geologic formations to enhance the recovery of oil or natural gas).

The EPA is finalizing a confidentiality determination for one new data element for subpart FF resulting from changes from the proposed rule to this final rule. As discussed in section III.R of this preamble, which describes revisions to subpart FF, in lieu of eliminating the use of MSHA quarterly inspection reports as a source for data for monitoring methane liberated from ventilation systems, we are finalizing an amendment to 40 CFR 98.326(a) to require each mine relying on data obtained from MSHA to include, as attachments to its GHGRP report, the MSHA reports it relied upon to complete the GHGRP report. Given that the MSHA reports are the basis of a calculation method and will be used to determine whether a reporter selected the correct inputs for a GHG emission calculation, we consider these reports to be ''emissions data'' under 40 CFR 2.301(a)(2) because they contain ''information necessary to determine * * * the amount'' of an emission emitted by the source. We are therefore assigning this data element to the Calculation Methodology and Methodological Tier Category and apply the categorical determination of emissions data (not CBI) for that data category to this final data element. As emission data, these reports do not qualify for confidential treatment under section 114 of the CAA. In any event, although MSHA does not publish these reports directly, they have previously indicated that they do not consider the reports to be sensitive and would likely release them in response to a Freedom of Information Act (FOIA) request.[26] Data from these reports are also provided to the EPA for the U.S. Greenhouse Gas Inventory, and are also published in part through reports produced by EPA's Coalbed Methane Outreach Program.[27] Further, the EPA has previously concluded that there is no potential disclosure concern with respect to certain data referenced in these reports.[28] Those data are being reported under 40 CFR 98.326(a), (f), and (g).

In addition to this new data element, there are 13 data elements in subparts A, I, S, X, and DD that have been clarified or minimally revised since proposal, although the same information will be collected. These data elements and how they have been clarified in the final rule are listed in the following table. Because the information to be collected has not changed since proposal, we are finalizing the proposed confidentiality determinations for these data elements as proposed (see Table 6 of this preamble). For additional information on the rationale for the confidentiality determinations for these data elements, see the preamble to the proposed rule (81 FR 2574; January 15, 2016) and the memorandum ''Proposed Data Category Assignments and Confidentiality Determinations for Data Elements in the Proposed 2015 Revisions'' in Docket Id. No. EPA–HQ–OAR–2015–0526. As discussed in section IV.A of this preamble, the EPA applied the same approach previously used for making confidentiality determinations for data elements reported under the GHGRP by assigning data elements to an appropriate data category and then assigning the previously determined categorical confidentiality determination or making an individual case-by-case determination if the data element was assigned to a category for which no category-based determination was previously made.

[26] See ''Summary of Evaluation of Greenhouse Gas Reporting Program (GHGRP) Part 98 ''Inputs to Emission Equations'' Data Elements Deferred Until 2013'' Memorandum, December 17, 2012. Available in the docket for this rulemaking, Docket Id. No. EPA–HQ–OAR–2015–0526.

[27] See, *e.g.,* ''U.S. Underground Coal Mine Ventilation Air Methane Exhaust Characterization'' (July 2010) and ''Identifying Opportunities for Methane Recovery at U.S. Coal Mines: Profiles of Selected Gassy Underground Coal Mines 2002–2006,'' available in the docket for this rulemaking, Docket Id. No. EPA–HQ–OAR–2015–0526.

[28] See ''Summary of Evaluation of Greenhouse Gas Reporting Program (GHGRP) Part 98 ''Inputs to Emission Equations'' Data Elements Deferred Until 2013'' Memorandum, December 17, 2012. Available in the docket for this rulemaking, Docket Id. No. EPA–HQ–OAR–2015–0526.

TABLE 6—DATA ELEMENTS (WITH TECHNICAL OR CLARIFYING REVISIONS SINCE PROPOSAL, BUT NO CHANGE IN DATA TO BE REPORTED) AND THEIR FINAL CATEGORY ASSIGNMENT AND CONFIDENTIALITY DETERMINATION

Subpart and citation (40 CFR)	Final data category assignment and confidentiality determination	Data element description, as proposed	Data element description, as finalized
Subpart A (General Provisions): 98.2(i)(3) (proposed); 98.2(i)(3) (finalized).	Facility and Unit Identifier Information (categorical determination as established in 2011: Emission data).	If one or more processes or operations at a facility or supplier cease to operate, but not all applicable processes or operations cease to operate, a notification to the Administrator that announces the cessation of reporting for the process or operation no later than March 31 of the year following such changes.	If one or more processes or operations at a facility or supplier cease to operate, but not all applicable processes or operations cease to operate, a notification to the Administrator that announces the cessation of reporting for the process or operation no later than March 31 following the first reporting year in which the process or operation has ceased for an entire reporting year.
Subpart A (General Provisions): 98.2(i)(5) (proposed); 98.2(i)(5) (finalized).	Facility and Unit Identifier Information (categorical determination as established in 2011: Emission data).	If the operations of a facility or supplier are changed such that a process or operation no longer meets the ''Definition of Source Category'' as specified in an applicable subpart, a notification to the Administrator that announces the cessation of reporting no later than March 31 of the year following such changes.	If the operations of a facility or supplier are changed such that a process or operation no longer meets the ''Definition of Source Category'' as specified in an applicable subpart and the owner or operator discontinues complying with any such subpart for the reporting years following the year in which change occurs, a notification to the Administrator that announces the cessation of reporting for the process or operation no later than March 31 following the first reporting year in which such changes persist for an entire reporting year.
Subpart I (Electronics Manufacturing): 98.96(y)(2)(iv) (proposed); 98.96(y)(2)(iv) (finalized).	Emissions Data (categorical determination as established in 2011: Emission data).	The report must include the information described in paragraphs (y)(2)(i) through (v) of this section. (iv) . . . For any utilization, by-product formation rate, and/or destruction or removal efficiency data submitted, the report must describe, where available, the: Methods used for the measurements.	The report must include the information described in paragraphs (y)(2)(i) through (v) of this section. (iv) . . . For any utilization, by-product formation rate, and/or destruction or removal efficiency data submitted, the report must include: The methods used for the measurements.
Subpart I (Electronics Manufacturing): 98.96(y)(2)(iv) (proposed); 98.96(y)(2)(iv) (finalized).	Unit/Process Static Characteristics That are Not Inputs to Emission Equations; (categorical determination as established in 2011: Not emission data; case-by-case determination: Not CBI).	The report must include the information described in paragraphs (y)(2)(i) through (v) of this section. (iv) . . . For any utilization, by-product formation rate, and/or destruction or removal efficiency data submitted, the report must describe, where available: The wafer size.	The report must include the information described in paragraphs (y)(2)(i) through (v) of this section. (iv) . . . For any utilization or by-product formation rate data submitted, the report must include: The wafer size.
Subpart I (Electronics Manufacturing): 98.96(y)(2)(iv) (proposed); 98.96(y)(2)(iv) (finalized).	Emissions Data (categorical determination as established in 2011: Emission data).	The report must include the information described in paragraphs (y)(2)(i) through (v) of this section. (iv) . . . For any utilization, by-product formation rate, and/or destruction or removal efficiency data submitted, the report must describe, where available: The process type, process subtype for chamber clean processes.	The report must include the information described in paragraphs (y)(2)(i) through (v) of this section. (iv) . . . For any utilization or by-product formation rate data submitted, the report must include: The process type, process subtype for chamber clean processes. The report must include the information described in paragraphs (y)(2)(i) through (v) of this section. (iv) . . . For any destruction or removal efficiency data submitted, the report must describe: The process type.
Subpart I (Electronics Manufacturing): 98.96(y)(2)(iv) (proposed); 98.96(y)(2)(iv) (finalized).	Emissions Data (categorical determination as established in 2011: Emission data).	The report must include the information described in paragraphs (y)(2)(i) through (v) of this section. (iv) . . . For any utilization, by-product formation rate, and/or destruction or removal efficiency data submitted, the report must describe, where available: The input gases used and measured.	The report must include the information described in paragraphs (y)(2)(i) through (v) of this section. (iv) . . . For any utilization or by-product formation rate, and/or destruction or removal efficiency data submitted, the report must include: The input gases used and measured.
Subpart S (Lime Manufacturing): 98.196(b)(19).	Production/Throughput Data That are Not Inputs to Emission Equations (categorical determination as established in 2011: Not emission data but CBI).	Annual emission factors for each lime product type produced.	Annual average emission factors for each lime product type produced.
Subpart S (Lime Manufacturing): 98.196(b)(20).	Production/Throughput Data That are Not Inputs to Emission Equations (categorical determination as established in 2011: Not emission data but CBI).	Annual emission factors for each calcined byproduct/waste by lime type that is sold.	Annual average emission factors for each calcined byproduct/waste by lime type that is sold.
Subpart X (Petrochemical Production): 98.246(a)(5) (proposed); 98.246(a)(5) (finalized).	Production/Throughput Data That are Not Inputs to Emission Equations (categorical determination as established in 2011: Not emission data but CBI).	If your petrochemical process is an integrated ethylene dichloride and vinyl chloride monomer process, report either the measured ethylene dichloride production (metric tons) or both the measured quantity of vinyl chloride monomer production (metric tons) and an estimate of the ethylene dichloride production (metric tons).	If you are electing to consider the petrochemical process unit to be the entire integrated ethylene dichloride/vinyl chloride monomer process, report the amount of intermediate ethylene dichloride produced (metric tons). The reported amount of intermediate EDC produced may be a measured quantity or an estimate that is based on process knowledge and best available data.
Subpart X (Petrochemical Production): 98.246(a)(14) (proposed); 98.246(a)(14) (finalized).	Unit/Process Operating Characteristics That are Not Inputs to Emission Equations (categorical determination as established in 2011: Not emission data; case-by-case determination: CBI).	Annual average of the measurements of the carbon content of each feedstock and product. (i) For feedstocks and products that are gaseous or solid, report this quantity in kg carbon per kg of feedstock or product. (ii) For liquid feedstocks and products, report this quantity either in units of kg carbon per kg of feedstock or production, or kg C per gallon of feedstock or product.	Annual average of the measurements or determinations of the carbon content of each feedstock and product conducted according to § 98.243(c)(3) or (c)(4). (i) For feedstocks and products that are gaseous or solid, report this quantity in kg C per kg of feedstock or product. (ii) For liquid feedstocks and products, report this quantity either in units of kg C per kg of feedstock or product, or kg C per gallon of feedstock or product.

TABLE 6—DATA ELEMENTS (WITH TECHNICAL OR CLARIFYING REVISIONS SINCE PROPOSAL, BUT NO CHANGE IN DATA TO BE REPORTED) AND THEIR FINAL CATEGORY ASSIGNMENT AND CONFIDENTIALITY DETERMINATION—Continued

Subpart and citation (40 CFR)	Final data category assignment and confidentiality determination	Data element description, as proposed	Data element description, as finalized
Subpart X (Petrochemical Production): 98.246(a)(15) (proposed); 98.246(a)(15) (finalized).	Unit/Process Operating Characteristics That are Not Inputs to Emission Equations; (categorical determination as established in 2011: Not emission data; case-by-case determination: CBI).	For each gaseous feedstock and product, the annual average of the measurements of molecular weight in units of kg per kg mole.	For each gaseous feedstock and product, the annual average of the measurements or determinations of the molecular weight in units of kg per kg mole, conducted according to §98.243(c)(3) or (c)(4).
Subpart X (Petrochemical Production): 98.246(b)(8) (proposed); 98.246(b)(8) (finalized).	Production/Throughput Data That are Not Inputs to Emission Equations (categorical determination: Not emission data but CBI).	If your petrochemical process is an integrated ethylene dichloride and vinyl chloride monomer process, report either the measured ethylene dichloride production (metric tons) or both the measured quantity of vinyl chloride monomer production (metric tons) and an estimate of the ethylene dichloride product (metric tons).	If you are electing to consider the petrochemical process unit to be the entire integrated ethylene dichloride/vinyl chloride monomer process, report the amount of ethylene dichloride produced (metric tons). The reported amount of intermediate EDC produced may be a measured quantity or an estimate that is based on process knowledge and best available data.
Subpart DD (Electrical Transmission and Distribution Equipment Use): 98.306(n) (proposed); 98.306(n) (finalized).	''Unit/Process 'Static' Characteristics that Are Not Inputs to Emission Equations'' Direct Emitter Data Category (categorical determination as established in 2011: Not emission data; case-by-case determination: Not CBI).	The following numbers of pieces of equipment: (1) New hermetically sealed-pressure switchgear during the year. (2) New SF6- or PFC-insulated equipment other than hermetically sealed-pressure switchgear during the year. (3) Retired hermetically sealed-pressure switchgear during the year. (4) Retired SF6- or PFC-insulated equipment other than hermetically sealed-pressure switchgear during the year.	The number of SF_6- or PFC-containing pieces of equipment in each of the following equipment categories: (1) New hermetically sealed-pressure switchgear during the year. (2) New equipment other than hermetically sealed-pressure switchgear during the year. (3) Retired hermetically sealed-pressure switchgear during the year. (4) Retired equipment other than hermetically sealed-pressure switchgear during the year.

For all other confidentially determinations for the new or substantially revised data reporting elements for these subparts, the EPA is finalizing the confidentiality determinations as they were proposed. Please refer to the preamble to the proposed rule (81 FR 2574; January 15, 2016) for additional information regarding these confidentiality determinations.

2. Response to Public Comments on Proposed Confidentiality Determinations

The EPA received several comments related to the proposed confidentiality determinations for new or substantially revised data elements. The EPA received only supportive comments on the proposed confidentiality determinations for all data elements except certain data elements in subparts I, V, and DD as described in this section. These supportive comments may be found in the EPA's comment response document in Docket Id. No. EPA–HQ–OAR–2015–0526.

For subparts I, V, and DD, we received comments questioning the proposed confidentiality determination of certain new and substantially revised data elements in subparts I, V, and DD, including requests that the data elements be treated as confidential. For the reasons described in section III.F of this preamble, we are not finalizing three data elements proposed to be included in the Triennial Report under subpart I (40 CFR 98.96(y)(2)(iv): Film type being manufactured, substrate type, and linewidth or technology node) where commenters questioned the proposed confidentiality determination. As such, we are not finalizing category assignments or confidentiality determinations for these data elements.

For subparts V and DD, summaries of the commenters' concerns and the EPA's responses thereto are provided below. Additional comments and the EPA's responses may be found in the comment response document noted above.

Comment: One commenter opposed the proposed confidentiality determination of ''Not CBI'' for the date of abatement technology installation in 40 CFR 98.226(h) and requested that this data element be considered CBI.

Response: The EPA disagrees that the reported date of abatement technology installation should be treated as CBI. The commenter failed to provide any justification for their contention that this data element should be treated as CBI. As discussed in the preamble to the proposed amendments (81 FR 2594; January 15, 2016), the EPA requested that commenters disagreeing with EPA's ''Not CBI'' determination indicate why the data element is entitled to confidential treatment under the provisions in 40 CFR 2.208. Specifically, the EPA requested that commenters specify how the public release of the data element would or would not cause a competitive disadvantage to a reporter and how this data element may be different from or similar to data that are already publicly available. If the commenter was making the argument that competitors could use the particular data element to discern sensitive information, the EPA requested that the commenter describe the pathway by which this could occur and explain how the discerned information would negatively affect a reporter's competitive position, as well as describe any unique process or aspect of a facility that would be revealed if the new or revised data element were made publicly available. If the commenter was making the argument that the data element would cause harm only when used in combination with other publicly available data, the EPA requested that the commenter describe the other data, identify the public source(s) of these data, explain how the combination of data could be used to cause competitive harm, and describe the measures currently taken to keep the data confidential. As noted above, the commenter failed to provide any such rationale. Based on our evaluation of this new data element, we see no reason why the date of installation would be considered proprietary information. The GHGRP Web site already publicly releases the number and type of abatement technologies used by reporters under 40 CFR part 98, subpart V (see *https://ghgdata.epa.gov/ghgp/service/facilityDetail/2014?id=1002830&ds=E&et=undefined&popup=true*). As stated in the preamble to the proposed rule (81 FR 2577; January 15, 2016), the date of installation does not

provide insight into current production rates, raw material consumption, or other information that competitors could use to discern market share and other sensitive information. Further, information regarding the date of installation of abatement devices constitutes general information that is already available to the public through other sources (*e.g.,* construction permits). For the reasons stated above, the EPA is finalizing its confidentiality determinations for 40 CFR 98.226(h) as proposed.

Comment: One commenter contended that EPA should change its proposed confidentiality determination for the proposed subpart DD reporting requirements because detailed equipment counts, equipment types, and linked geographical data will relay company-specific information that may jeopardize competitive advantage in the industry. The commenter requested that the requirements for reporters to distinguish between hermetically sealed-pressure equipment and other SF_6-containing equipment be considered CBI.

Response: We are finalizing as proposed our determination of ''Not CBI'' for the new subpart DD reporting elements. Among these new elements are the numbers of SF_6- or PFC-containing pieces of equipment in each of the following categories: (i) New hermetically sealed-pressure switchgear during the year; (ii) new equipment other than hermetically sealed-pressure switchgear during the year; (iii) retired hermetically sealed-pressure switchgear during the year; and (iv) retired equipment other than hermetically sealed-pressure switchgear during the year. While the commenter asserts that publishing these data elements ''will relay company-specific information that may jeopardize competitive advantage in the industry,'' the commenter does not provide any explanation of or support for this assertion. Thus, we conclude, as stated in the preamble to the proposed rule (81 FR 2578), that DD reporters are ''are public or publicly-regulated utilities that are not affected by competitive market conditions that may apply to other industries'' and that ''these [required] data elements do not disclose any information about a manufacturing process or operating conditions that would be proprietary.'' Moreover, even if ''detailed equipment counts [and] equipment types'' posed disclosure concerns, we note that these new requirements are only for facilities to report the numbers of pieces of equipment that are new or retired during the year by one of two broad equipment types, not for facilities to report detailed inventories of the numbers of pieces and types of equipment in use. Regarding the commenter's statement that the equipment counts would be linked to geographical data, we did not propose that facilities report the counts of new and retiring equipment by state, but that facilities report their miles of transmission and distribution lines by state. As discussed in section III.Q of this preamble, we are requiring in the final rule that facilities report only the states in which they lie.

C. Final Confidentiality Determinations for Other Part 98 Data Reporting Elements for Which No Determination Has Been Previously Established

1. Summary of Final CBI Determinations

The EPA is finalizing all confidentiality determinations for other Part 98 data reporting elements for which no determination has been previously established as they were proposed, except confidentiality determinations that were proposed for subpart PP (40 CFR 98.426(h)(1) through (3)) and subpart RR (40 CFR 98.446(a)(1), 40 CFR 98.446(a)(2)(i) through (iii), 40 CFR 98.446(a)(3)(i) through (iii), 40 CFR 98.446(b)(1) through (4), 40 CFR 98.446(c), and 40 CFR 98.446(f)(4)(i) through (iv)). Please refer to the preamble to the proposed rule (81 FR 2574, January 15, 2016) for additional information regarding the proposed confidentiality determinations.

The EPA is not finalizing confidentiality determinations that were proposed for subpart PP or subpart RR because we do not have sufficient information at this time to make categorical determinations. Currently, these subpart PP requirements potentially affect few facilities; however, there is the potential for growth in the number of affected facilities in the future. The EPA is therefore not finalizing categorical confidentiality determinations at this time for these subpart PP data elements in order to allow the agency to consider the potentially broader group of affected facilities likely to exist in the future. Further, because these subpart PP data elements are related to the subpart RR data elements, the EPA is also not finalizing confidentiality determinations for these subpart RR data elements at this time.

2. Response to Comments on Proposed Confidentiality Determinations

The EPA received several comments related to the proposed confidentiality determinations for the other Part 98 data reporting elements for which no determination has been previously established. The EPA received only supportive or minor comments on the proposed confidentiality determinations for all data elements except 40 CFR 98.426(h)(3), and is finalizing the confidentiality determinations as proposed. These comments may be found in the EPA's comment response document in Docket Id. No. EPA–HQ–OAR–2015–0526.

For 40 CFR 98.426(h)(3), a summary of this comment and EPA's response thereto is provided below.

Comment: The EPA received comments both supporting and opposing the ''Not CBI'' determination for the subpart PP data element that requires reporting of the amount of CO_2 captured from an electric generating unit and delivered to a facility reporting under subpart RR. The commenters opposing the ''Not CBI'' determination asserted that the quantity of CO_2 transferred by the EGU and the quantity of CO_2 received at the ER facility are essentially the same, and that publication of the quantity of CO_2 transferred by the EGU would likely cause significant competitive harm, resulting in unwillingness on the part of the ER industry to purchase such CO_2. They recommended that, analogous to subpart RR, EPA add a data element to subpart PP that distinguishes between ER and non-ER sites and treat that data element consistently with ER facility CBI determinations in subparts RR and UU. One commenter supported the proposed ''Not CBI'' determination for the amount of CO_2 transferred to a subpart RR facility, but recommended that the EPA balance the needs of industry and the need for public confidence in the ability of ER to sequester CO_2.

Response: After careful consideration of public comment, the EPA is not finalizing categorical confidentiality determinations for this subpart PP data element. We do not have sufficient information at this time to make categorical determinations. Currently, these requirements potentially affect few facilities; however, there is the potential for growth in the number of affected facilities in the future. The EPA is therefore not finalizing categorical confidentiality determinations at this time in order to allow the Agency to consider the potentially broader group of affected facilities likely to exist in the future.

The commenters requested that EPA add a data reporting element to subpart PP that distinguishes between CO_2 being sent to ER and non-ER subpart RR facilities. The purpose of the

commenter's request was linked to the development of a categorical confidentiality determination for 40 CFR 98.426(h)(3). Because the EPA is not finalizing categorical confidentiality determinations at this time for 40 CFR 98.426(h)(3), the EPA is not finalizing the commenters' request to add a data reporting element to subpart PP.

V. Impacts of the Final Amendments

This section of the preamble examines the costs and economic impacts of the final rule and the estimated economic impacts of the rule on affected entities.

The revisions in this final rule are anticipated to increase burden in cases where the amendments expand the applicability or reporting requirements of Part 98, and are anticipated to decrease burden in cases where the amendments streamline Part 98 to remove notification or reporting requirements or simplify the data that must be reported. Most subparts include revisions that will result in some increase in burden, as well as revisions that will result in some decrease in burden. As discussed in the preamble to the proposed rule, in several cases the final rule amendments are anticipated to result in a decrease in burden, but we were unable to quantify this decrease. Therefore, the impacts for the final rule generally reflect an increase in burden for most subparts.

The EPA received several comments on the proposed revisions and the impacts of the proposed rule. As a result of these comments, the EPA has, in some cases, revised the final rule requirements and updated the impacts analysis to reflect these changes. For some subparts, we are not finalizing revisions to monitoring or reporting requirements that would have required reporters to collect or submit additional data. For example, for subpart I (Electronics Manufacturing) reporters, as discussed in section III.F of this preamble, we are revising the information required to be collected as part of the triennial report in this final rule and not finalizing the collection of certain proposed data. Similarly, the EPA is not finalizing certain data elements that were proposed to be added to subparts CC (Soda Ash Manufacturing), DD (Electrical Transmission and Distribution Equipment Use), HH (Municipal Solid Waste Landfills), and RR (Geologic Sequestration of Carbon Dioxide). For subpart FF (Underground Coal Mines) reporters, we are not finalizing revisions that would have eliminated the use of MSHA quarterly inspection reports to be used as a source of data for monitoring methane liberated from ventilation systems, and we are not finalizing revisions that would have required reporters to report coal production data. Therefore, the final burden for these subparts has been revised to reflect only those requirements that are being finalized, and is significantly lower than proposed.

In other cases, the EPA has adjusted the burden of the final rule to better reflect the costs associated with the final revisions. For example, for subpart C (General Stationary Combustion), we have revised the burden estimate for the reporting of the cumulative maximum rated heat input capacity for all units within the GP or CP configuration that have a maximum rated heat input capacity greater than or equal to 10 (mmBtu/hr). As discussed in section III.B of this preamble, the EPA agrees with commenters that the burden provided in the proposed rule for these data elements was understated. The revised burden estimate reflects additional time and labor that may be required to collect the maximum rated heat input capacity for multiple units and to aggregate these capacities, and therefore reflects an overall increase in burden for subpart C reporters. Additional information on these estimates may be found in section V.A of this preamble.

As discussed in section I.E of this preamble, we are implementing the final revisions in stages for the 2016, 2017, and 2018 RY reports in order to stagger the implementation of these changes over time and provide time for needed software revisions. The burden has been determined based on when the revisions would be implemented. One-time implementation costs will accrue for certain revisions to applicability and reporting provisions that will apply in RY2017 and RY2018; therefore, we have estimated costs through RY2019 to reflect the subsequent year costs incurred by industry. The incremental implementation costs for all subparts for each reporting year are summarized in Table 7 of this preamble. The estimated incremental burden is $636,124 ($2014) for all proposed revisions affecting RY2016 through RY2018, including $5,268 from revisions that apply to RY2016 reports, $407,268 from revisions that apply to RY2017 reports, and $223,588 from revisions that apply to RY2018 reports. The estimated annual burden is $189,150 ($2014) per year following implementation of all changes. The incremental burden by subpart is shown in Table 8 of this preamble. One-time implementation costs are incorporated into first year costs, while subsequent year costs represent the annual burden that will be incurred in total by all affected reporters.

TABLE 7—INCREMENTAL BURDEN FOR REPORTING YEARS 2016–2019

[$2014/year]

Cost summary	RY2016	RY2017	RY2018	RY2019
First Year Costs	[a] $5,268	$402,789	[b] $129,397	
Subsequent Year Annual Costs for Revisions Implemented in:				
2016		4,479	4,479	[a] 5,268
2017			89,712	89,712
2018				94,959
Total Costs by Year (all subparts)	5,268	407,268	223,588	[a] 189,939

[a] Includes additional labor costs of $789 for reporting data elements for subpart I for a triennial report submitted once every three years. Total Costs by Year for RY2019 are based on all subsequent year costs ($189,150) plus these additional labor costs for subpart I.

[b] Includes one-time implementation costs for new reporters under subparts V and OO.

TABLE 8—INCREMENTAL BURDEN BY SUBPART

[$2014]

Subpart	Costs for additional reporters		Costs for revisions to reporting		Total cost	
	First-Year	Subsequent-Year	First-Year	Subsequent-Year	First-Year	Subsequent-Year
Revisions Reflected Starting in RY2016						
A[a]	$0	$0	$606	$606	$606	$606
I[b]	0	0	789	0	789	0
HH	0	0	3,872	3,872	3,872	3,872
Total Costs for Revisions Implemented in RY2016					5,268	4,479
Revisions Reflected Starting in RY2017						
A[a]	0	0	4,179	4,179	4,179	4,179
C	0	0	387,587	74,511	387,587	74,511
E	0	0	11	11	11	11
F	0	0	66	66	66	66
G	0	0	252	252	252	252
N[c]	0	0	0	0	0	0
O	0	0	117	117	117	117
Q[c]	0	0	460	460	460	460
S	0	0	833	833	833	833
U[c]	0	0	0	0	0	0
X	0	0	1,403	1,403	1,403	1,403
Z	0	0	44	44	44	44
AA[c]	0	0	0	0	0	0
CC[c]	0	0	0	0	0	0
DD	0	0	1,038	1,038	1,038	1,038
FF	0	0	2,265	2,265	2,265	2,265
II	0	0	2,722	2,722	2,722	2,722
LL[d]	0	0	−18	−18	−18	−18
MM[c]	0	0	0	0	0	0
NN	0	0	1,830	1,830	1,830	1,830
PP[c]	0	0	0	0	0	0
TT[c]	0	0	0	0	0	0
UU[c]	0	0	0	0	0	0
Total Costs for Revisions Implemented in RY2017					402,789	89,712
Revisions Reflected Starting in RY2018						
P[c]	0	0	0	0	0	0
V	88,583	63,509	135	135	88,718	63,644
Y	0	0	1,534	1,534	1,534	1,534
OO	38,502	29,138	643	643	39,145	29,781
Total Costs for Revisions Implemented in RY2018					129,397	94,959
Total	127,085	92,646	410,369	96,503	537,454	189,150

[a] Costs for subpart A for RY2016 reflect revisions to 40 CFR 98.2(i)(3) and (5) related to notifying the Administrator the facility or supplier will cease reporting. All other costs for subpart A are reflected in revisions starting in RY2017.

[b] Costs for subpart I include new data elements related to the triennial technology report required by 40 CFR 98.96(y). The first report must be submitted with RY2016 reports on March 31, 2017 and every three years thereafter. Subpart I reporters will subsequently incur these costs ($789) every three years. For the purposes of estimating burden, the annual costs associated with the data elements were included in the total incremental estimates for RY2016 and RY2019 (see Table 7 of this preamble) and not for RY2017 or RY2018, and are not reflected in the total subsequent year costs.

[c] The final changes to this subpart include only minor revisions, clarifications, and corrections that have no impact on the burden to reporters.

[d] This entry is a negative value because certain reporting requirements were removed from subpart LL and no new reporting requirements were added for the subpart, resulting in a net cost savings for this source category.

A full discussion of the impacts may be found in the memorandum, ''Assessment of Burden Impacts of Final 2015 Revisions to the Greenhouse Gas Reporting Rule,'' available in Docket Id. No. EPA–HQ–OAR–2015–0526.

A. How was the incremental burden of the final rule estimated?

The estimated incremental change in burden from the final amendments to Part 98 include burden associated with: (1) Revisions to the reporting requirements by adding, revising, or removing existing reporting requirements (20 subparts); and (2) revisions to the applicability of subparts such that additional facilities would be required to report under Part 98 (subparts V and OO).

1. Burden Associated With the Revision of Reporting Requirements

The final rule includes amendments that add reporting requirements or revise existing reporting requirements to

collect more detailed facility data. The final amendments collectively add or revise data elements in 20 subparts of part 98, including 92 data elements that were not previously required to be collected. The collection of these new and revised data elements does not add new monitoring requirements, and does not substantially affect the type of information that must be collected. For all of these additional data elements, the EPA has estimated a nominal additional cost to report the data element and fulfill the recordkeeping requirements. The final amendments will also remove 18 data elements in subparts O, Y, DD, HH, and LL. For these data elements, the EPA has estimated a nominal reduction in cost, since reporters would no longer be required to report the data element.

All costs to the regulated industry resulting from revisions to the reporting requirements for the GHGRP are annual labor costs (*i.e.,* the cost of labor by facility staff to meet the rule's information collection requirements). For each subpart, the EPA determined the incremental change in annual hourly labor estimates by multiplying the number of data elements that were added, revised, or removed in each subpart by the number of hours required to review each data element and the number of affected reporters for each subpart. Where data elements were removed in subparts O, Y, DD, HH, and LL, a reduction in the annual hourly labor estimate was assumed. Labor costs were applied to the total annual hour estimates for each labor category to obtain the total costs for each subpart.

The EPA is revising the burden associated with the reporting of one new data element for subpart C reporters in this final rule. As discussed in section III.B of this preamble, for emissions reported using the aggregation of units (GP) and common pipe (CP) configurations, the EPA is finalizing as proposed requirements under 40 CFR 98.36(c)(1)(iii) and 40 CFR 98.36(c)(3)(ii) to report the cumulative maximum rated heat input capacity for all units (within each configuration) that have a maximum rated heat input capacity greater than or equal to 10 (mmBtu/hr). However, several commenters disagreed with our assessment that the burden associated with this data element was minimal. Commenters urged that collection of this data element could be burdensome to reporters from a time, resources, and cost perspective given the number of units, noting that this data element would need to be reassessed and updated annually for accuracy. After further consideration, we have adjusted the annual hourly labor estimate associated with the reporting of this data element to include the additional time needed to determine the units included under each configuration and to aggregate the maximum rated heat input capacities for all units greater than 10 (mmBtu/hr). To adjust the burden, the EPA multiplied the revised annual hourly labor estimate by the number of affected reporters anticipated. The EPA determined that an increase in the estimated associated burden is reasonable because the reporting of this data element requires the collection and aggregation of data from multiple units included in the configuration. After the first year of reporting, a reporter would only be anticipated to update the data element to adjust the units included under a GP or CP configuration to reflect facility changes. Therefore, the annual hourly labor estimates for this data element reflect first- and subsequent-year costs.

In this final rule, the anticipated incremental cost associated with the addition, revision, and removal of reporting requirements from all subparts is $5,268 for RY2016, $402,789 for RY2017, and $2,313 for RY2018. The estimated annual burden from these reporting revisions is $96,503 per year following implementation of all revisions. The total annual burden for each subpart is assumed to be equal for the first and subsequent years, with the exception of subparts C and I. For subpart C, the estimated incremental cost associated with reporting the new, revised, and removed data elements includes additional burden and costs ($313,077) for certain subpart C reporters for the initial collection and aggregation of data for the reporting of the cumulative maximum rated heat input capacity for units included in a GP or CP configuration (40 CFR 98.36(c)(1)(iii) or 40 CFR 98.36(c)(3)(ii)), which is anticipated to affect 3,597 reporters. This additional burden applies to RY2017 only; for all subsequent years, the burden for these data elements is anticipated at $74,511. For subpart I, the new data elements in the final rule pertain to the triennial technology report required under 40 CFR 98.96(y), which must first be submitted with RY2016 reports on or before March 31, 2017 and every three years thereafter. For the purposes of estimating burden, the annual costs associated with these data elements ($789) were applied to RY2016 only.

2. Burden Associated With Revisions That Affect Applicability

The EPA is finalizing revisions that affect the applicability of two subparts of part 98: Subpart V (Nitric Acid Production) and subpart OO (Suppliers of Industrial Greenhouse Gases). These final revisions, which will apply beginning in RY2018, are anticipated to require reporting for four additional reporters under subpart V, and five to ten additional reporters under subpart OO. (For the purposes of estimating burden, an average of eight additional reporters were assumed to be required to report under subpart OO of part 98). The majority of facilities within these industries already report under part 98; specifically, all four of the affected reporters under subpart V already submit annual reports. The total incremental burden from revisions to applicability is $127,085 in the first year and $92,646 in subsequent years ($2014). The incremental burden for the additional reporters for subpart V includes first-year costs of $88,583 ($22,146 per facility) and subsequent year costs of $63,509 ($15,877 per facility). The incremental burden for the additional reporters for subpart OO includes first-year costs of $38,502 ($4,813 per facility) and subsequent year costs of $29,138 ($3,642 per facility).

To estimate the cost impacts for additional reporters, the recent information collection requests for the GHG reporting program [29] were used to obtain the first year average cost per facility that is incurred from reporting under subparts V and OO (updated to $2014) and the subsequent year burden. These average costs per facility include labor costs, capital costs, and operation and maintenance costs. We determined total reporting costs for each subpart by assigning these costs to model facilities that are representative of each industry sector. The total cost for each subpart was determined by multiplying the model facilities cost by the number of affected facilities.

B. Additional Impacts of the Proposed Revisions to Part 98

In addition to amendments that revise the existing applicability or reporting requirements of part 98, the EPA is finalizing additional revisions and other clarifications to several subparts in part 98 that are not anticipated to have a significant impact on burden. These include revisions discussed in section III of this preamble that are intended to streamline the rule requirements, including revisions to clarify and revise

[29] See Supporting Statement Part A: Information Collection Request for the Greenhouse Gas Reporting Program. OMB Control No. 2060–0629. EPA ICR No. 2300.10. (U.S. EPA, 2013) and Supporting Statement Part A: Information Collection Request for the Greenhouse Gas Reporting Program. OMB Control No. 2060–0629. EPA ICR No. 2300.17. (U.S. EPA, 2016)

the requirements of part 98 in order to focus GHGRP and reporter resources on relevant data, to expand and clarify the conditions under which a facility can cease reporting, or to clarify requirements for facilities that report very little or no emissions, and revisions that would improve the efficiency of the reporting and verification process. These revisions are anticipated to minimally reduce burden for reporters.

The EPA is also finalizing revisions that are intended to improve the quality of the rule but that do not impact burden, such as amending calculation methods to improve the accuracy of the emissions estimate (*e.g.,* subparts I and Y); these amendments increase the accuracy of reported emissions, but do not require additional monitoring or data collection by reporters, and have no additional impact on burden.

We are finalizing, for certain subparts, revised monitoring or measurement methods that more closely align rule requirements with different operating scenarios in the industry. Other amendments provide flexibility for reporters and clarify reporting requirements. These amendments are anticipated to have no impact or minimally decrease burden for reporters.

The final revisions also include minor amendments, corrections, and clarifications, including simple revisions of requirements such as clarifying changes to definitions, calculation methodologies, monitoring and quality assurance requirements, missing data procedures, and reporting requirements. These revisions clarify part 98 to better reflect the EPA's intent, and do not present any additional burden on reporters.

A full discussion of the burden associated with the final revisions for each subpart may be found in the memorandum, ''Assessment of Burden Impacts of Final 2015 Revisions to the Greenhouse Gas Reporting Rule'' available in Docket Id. No. EPA–HQ–OAR–2015–0526.

VI. Statutory and Executive Order Reviews

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

This action is a significant regulatory action that was submitted to the Office of Management and Budget (OMB) for review because the amendments raise novel legal or policy issues. Any changes made in response to OMB recommendations have been documented in the docket. The EPA prepared an analysis of the burden associated with this action. A copy of the analysis is available in Docket Id. No. EPA–HQ–OAR–2015–0526 and is briefly summarized in section V of this preamble.

B. Paperwork Reduction Act (PRA)

The information collection activities in this rule have been submitted for approval to the OMB under the PRA. The Information Collection Request (ICR) document that the EPA prepared has been assigned EPA ICR number 2300.18. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here. The information collection requirements are not enforceable until OMB approves them.

This action amends specific provisions in the Greenhouse Gas Reporting Rule to streamline and improve implementation of the rule, improve the quality and consistency of the data collected under the rule, and to clarify or make minor updates to certain provisions that have been the subject of questions from reporting entities. These amendments will improve the quality and consistency of the data collected, as well as improve the efficiency of the reporting process for both the EPA and reporters. The amendments are anticipated to increase burden in cases where they expand current applicability, monitoring, or reporting, and are anticipated to decrease burden in cases where they streamline part 98 to remove notification or reporting requirements or simplify the data that must be reported.

Specifically, this action amends the reporting requirements to add or revise 112 data elements in 20 subparts of part 98. These revisions are necessary to improve the quality of the data collected under the GHGRP. The EPA is also removing 18 data elements in five subparts, which streamlines rule requirements. This action also amends the applicability of two subparts of part 98: Subparts V (Nitric Acid Production) and OO (Suppliers of Industrial Greenhouse Gases). These amendments could increase the number of facilities required to report under part 98. Impacts associated with the revisions to the applicability and reporting requirements are detailed in the memorandum ''Assessment of Burden Impacts of Final 2015 Revisions to the Greenhouse Gas Reporting Rule'' (see Docket Id. No. EPA–HQ–OAR–2015–0526). Burden is defined at 5 CFR 1320.3(b).

The total estimated incremental burden and costs associated with the revisions is 9,196 hours and $636,124 ($2014) over the three years covered by the information collection. These costs include $5,268 in RY2016, $407,268 in RY2017, and $223,588 in RY2018, averaging $212,041 over the three years. The total estimated reporters affected by the amendments is 7,971. The frequency of response for these revisions is once annually, with the exception of certain data elements for subpart I that will be submitted once every three years.

The estimated incremental costs and hour burden associated with the addition and revision of 112 data elements and the removal of 18 data elements in 20 subparts include $5,268 ($2014) in RY2016, $402,789 in RY2017, and $2,313 for RY2018. The estimated burden from these revisions is $96,503 ($2014) per year following implementation of all revisions. The total annual burden for each subpart is assumed to be equal for the first and subsequent years, with the exception of subparts C and I. For subpart C, the estimated incremental cost associated with reporting the new, revised, and removed data elements includes additional burden and costs ($313,077) for certain subpart C reporters for the initial collection and aggregation of data for the reporting of the cumulative maximum rated heat input capacity for units included in a GP or CP configuration (40 CFR 98.36(c)(1)(iii) or 40 CFR 98.36(c)(3)(ii)). This additional burden applies to RY2017 only. For subpart I, the new data elements pertain to the triennial technology report required under 40 CFR 98.96(y), which must first be submitted with RY2016 reports on or before March 31, 2017 and every three years thereafter. For the purposes of estimating burden for the three years covered by the information collection, the annual costs associated with these data elements ($789) will apply for RY2016 only.

The estimated incremental cost burden associated with additional reporters to subparts V and OO is $127,085 in the first year (RY2018) and $92,646 in subsequent years. The incremental burden for the additional reporters for subpart V includes first-year costs of $88,583 and subsequent year costs of $63,509. The incremental burden for the additional reporters for subpart OO includes first-year costs of $38,502 and subsequent year costs of $29,138. The estimated number of likely new respondents that will result from these amendments is 12, including four additional reporters under subpart V, and an average of eight additional reporters for subpart OO. The annual hourly burden for these additional reporters is based on the annual average hourly burden for existing reporters

under subparts V and OO, which is 186 hours and 56 hours per reporter, respectively.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9. When OMB approves this ICR, the Agency will announce that approval in the **Federal Register** and publish a technical amendment to 40 CFR part 9 to display the OMB control number for the approved information collection activities contained in this final rule.

C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. In making this determination, the impact of concern is any significant adverse economic impact on small entities. An agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, has no net burden or otherwise has a positive economic effect on the small entities subject to the rule. The impact to small entities due to the revisions was evaluated for each subpart. The EPA conducted a screening assessment comparing compliance costs for revisions to reporting requirements, applicability to new reporters, and monitoring revisions under subparts V and OO to specific receipts data for establishments owned by small businesses in each industry. This ratio constitutes a ''sales'' test that computes the annualized compliance costs of this rule as a percentage of sales and determines whether the ratio exceeds 1 percent. The cost-to-sales ratios were constructed at the establishment level (average reporting program costs per establishment/average establishment receipts) for several business size ranges. We determined that the cost-to-sales ratios are less than 1 percent for all establishments in all business size ranges for subparts V and OO. Therefore, we have determined that there will not be a significant economic impact to small entities for these subparts. Refer to the memorandum ''Assessment of Burden Impacts of Final 2015 Revisions to the Greenhouse Gas Reporting Rule'' (see Docket Id. No. EPA–HQ–OAR–2015–0526) for further discussion of this analysis. For all other subparts, which are only affected by revisions for adding, revising, or removing reporting requirements, we determined that these facilities will experience average annual impacts of approximately $16 per facility in the first year and $11 per facility in subsequent years. Subpart C reporters would be anticipated to experience the highest facility burden of $111 per facility in the first year and $24 in subsequent years. For subpart C reporters, this burden represents less than 3 percent of the total annual facility costs. Because these costs are minimal, no small entity impacts are anticipated for the remaining subparts. Refer to the memorandum ''Assessment of Burden Impacts of Final 2015 Revisions to the Greenhouse Gas Reporting Rule'' (see Docket Id. No. EPA–HQ–OAR–2015–0526) for further discussion of this analysis.

Although there are no significant small entity impacts associated with this action, the EPA took several steps to reduce the impact on small entities. These final rule amendments include multiple revisions intended to streamline implementation and reduce the monitoring, recordkeeping, and reporting burden for all entities, including small entities. Other rule amendments are minor corrections, clarifying, and other amendments that will not impose any new requirement on small entities that are not currently regulated by part 98. In addition, the EPA conducted several meetings with industry associations to discuss regulatory options and the corresponding burden on industry. We have therefore concluded that this action will have no net regulatory burden for all directly regulated small entities. The EPA continues to conduct significant outreach on the GHGRP 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 action does not contain an unfunded mandate of $100 million or more as described in UMRA, 2 U.S.C. 1531–1538. See section V of this preamble for an explanation of costs for this action. This final rule is also not subject to the requirements of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments. None of the facilities currently known to undertake these activities are owned by small governments.

E. Executive Order 13132: Federalism

This action does not have federalism implications. It 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.

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

This action does not have tribal implications as specified in Executive Order 13175. The rule amendments will not result in any significant changes to the monitoring, recordkeeping, and reporting currently required for entities subject to 40 CFR part 98. Thus, Executive Order 13175 does not apply to this action. Consistent with the EPA Policy on Consultation and Coordination with Indian Tribes, the EPA consulted with tribal officials during the development of the rules for part 98. A summary of that consultation is provided in sections VIII.E and VIII.F of the preamble to the October 30, 2009 final GHG reporting rule.

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

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that concern environmental health or safety risks that the EPA has reason to believe may disproportionately affect children, per the definition of ''covered regulatory action'' in section 2–202 of the Executive Order. This action is not subject to Executive Order 13045 because it does not concern an environmental health risk or safety risk.

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

This action is not a ''significant energy action'' because it is not likely to have a significant adverse effect on the supply, distribution or use of energy. Part 98 relates to monitoring, reporting, and recordkeeping and does not impact energy supply, distribution, or use. This final rule amends calculation and reporting requirements for the GHGRP. In addition, the EPA is finalizing confidentiality determinations for new and revised data elements and for certain existing data elements for which a confidentiality determination has not previously been proposed, or where the EPA has determined that the previous determination was no longer appropriate. These amendments and confidentiality determinations do not make any changes to the existing monitoring, calculation, and reporting requirements under part 98 that affect the supply, distribution, or use of energy.

I. National Technology Transfer and Advancement Act

This rulemaking does not involve technical standards.

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

The EPA believes that this action is not subject to Executive Order 12898 (59 FR 7629, February 16, 1994) because it does not establish an environmental health or safety standard. This regulatory action includes amendments to a previously promulgated rule addressing information collection and reporting procedures and does not affect the level of protection provided to human health or the environment.

K. Congressional Review Act

This action is subject to the CRA, and the EPA will submit a rule report to each House of the Congress and to the Comptroller General of the United States. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2).

List of Subjects in 40 CFR Part 98

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

Dated: November 17, 2016.

Gina McCarthy,

Administrator.

For the reasons stated in the preamble, the Environmental Protection Agency amends title 40, chapter I, of the Code of Federal Regulations as follows:

PART 98—MANDATORY GREENHOUSE GAS REPORTING

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

Authority: 42 U.S.C. 7401–7671q.

Subpart A—General Provision

■ 2. Amend § 98.2 by revising paragraph (i)(3) and adding a reserved paragraph (i)(4) and paragraph (i)(5) to read as follows:

§ 98.2 Who must report?

(i) * * *

(3) If the operations of a facility or supplier are changed such that all applicable processes and operations subject to paragraphs (a)(1) through (4) of this section cease to operate, then the owner or operator may discontinue complying with this part for the reporting years following the year in which cessation of such operations occurs, provided that the owner or operator submits a notification to the Administrator that announces the cessation of reporting and certifies to the closure of all applicable processes and operations no later than March 31 of the year following such changes. If one or more processes or operations subject to paragraphs (a)(1) through (4) of this section at a facility or supplier cease to operate, but not all applicable processes or operations cease to operate, then the owner or operator is exempt from reporting for any such processes or operations in the reporting years following the reporting year in which cessation of the process or operation occurs, provided that the owner or operator submits a notification to the Administrator that announces the cessation of reporting for the process or operation no later than March 31 following the first reporting year in which the process or operation has ceased for an entire reporting year. Cessation of operations in the context of underground coal mines includes, but is not limited to, abandoning and sealing the facility. This paragraph (i)(3) does not apply to seasonal or other temporary cessation of operations. This paragraph (i)(3) does not apply to the municipal solid waste landfills source category (subpart HH of this subpart), or the industrial waste landfills source category (subpart TT of this part). The owner or operator must resume reporting for any future calendar year during which any of the GHG-emitting processes or operations resume operation.

(4) [Reserved]

(5) If the operations of a facility or supplier are changed such that a process or operation no longer meets the ''Definition of Source Category'' as specified in an applicable subpart, then the owner or operator may discontinue complying with any such subpart for the reporting years following the year in which change occurs, provided that the owner or operator submits a notification to the Administrator that announces the cessation of reporting for the process or operation no later than March 31 following the first reporting year in which such changes persist for an entire reporting year. The owner or operator must resume complying with this part for the process or operation starting in any future calendar year during which the process or operation meets the ''Definition of Source Category'' as specified in an applicable subpart.

* * * * *

■ 3. Effective January 1, 2018, amend § 98.2 by revising paragraphs (a)(1) and (i)(1) and (2) and adding paragraphs (i)(4) and (6) to read as follows:

§ 98.2 Who must report?

(a) * * *

(1) *A facility that contains any source category that is listed in Table A–3 of this subpart.* For these facilities, the annual GHG report must cover stationary fuel combustion sources (subpart C of this part), miscellaneous use of carbonates (subpart U of this part), and all applicable source categories listed in Tables A–3 and A–4 of this subpart.

* * * * *

(i) * * *

(1) If reported emissions are less than 25,000 metric tons CO_2e per year for five consecutive years, then the owner or operator may discontinue complying with this part provided that the owner or operator submits a notification to the Administrator that announces the cessation of reporting and explains the reasons for the reduction in emissions. The notification shall be submitted no later than March 31 of the year immediately following the fifth consecutive year of emissions less than 25,000 tons CO_2e per year. The owner or operator must maintain the corresponding records required under § 98.3(g) for each of the five consecutive years prior to notification of discontinuation of reporting and retain such records for three years following the year that reporting was discontinued. The owner or operator must resume reporting if annual emissions in any future calendar year increase to 25,000 metric tons CO_2e per year or more.

(2) If reported emissions are less than 15,000 metric tons CO_2e per year for three consecutive years, then the owner or operator may discontinue complying with this part provided that the owner or operator submits a notification to the Administrator that announces the cessation of reporting and explains the reasons for the reduction in emissions. The notification shall be submitted no later than March 31 of the year immediately following the third consecutive year of emissions less than 15,000 tons CO_2e per year. The owner or operator must maintain the corresponding records required under § 98.3(g) for each of the three consecutive years and retain such records for three years prior to notification of discontinuation of reporting following the year that reporting was discontinued. The owner or operator must resume reporting if annual emissions in any future calendar

year increase to 25,000 metric tons CO_2e per year or more.

* * * * *

(4) The provisions of paragraphs (i)(1) and (2) of this section apply to suppliers subject to subparts LL through QQ of this part by substituting the term ''quantity of GHG supplied'' for ''emissions.'' For suppliers, the provisions of paragraphs (i)(1) and (2) apply individually to each importer and exporter and individually to each petroleum refinery, fractionator of natural gas liquids, local natural gas distribution company, and producer of CO_2, N_2O, or fluorinated greenhouse gases (*e.g.,* a supplier of industrial greenhouse gases might qualify to discontinue reporting as an exporter of industrial greenhouse gases but still be required to report as an importer; or a company might qualify to discontinue reporting as a supplier of industrial greenhouse gases under subpart OO of this part but still be required to report as a supplier of carbon dioxide under subpart PP of this part).

* * * * *

(6) If an entire facility or supplier is merged into another facility or supplier that is already reporting GHG data under this part, then the owner or operator may discontinue complying with this part for the facility or supplier, provided that the owner or operator submits a notification to the Administrator that announces the discontinuation of reporting and the e-GGRT identification number of the reconstituted facility no later than March 31 of the year following such changes.

* * * * *

■ 4. Amend § 98.3 by revising paragraph (h) introductory text and paragraph (h)(4) to read as follows:

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

* * * * *

(h) *Annual GHG report revisions.* This paragraph applies to the reporting years for which the owner or operator is required to maintain records for a facility or supplier according to the time periods specified in paragraph (g) of this section.

* * * * *

(4) Notwithstanding paragraphs (h)(1) and (2) of this section, upon request by the owner or operator, the Administrator may provide reasonable extensions of the 45-day period for submission of the revised report or information under paragraphs (h)(1) and (2). If the Administrator receives a request for extension of the 45-day period, by email to an address prescribed by the Administrator prior to the expiration of the 45-day period, the extension request is deemed to be automatically granted for 30 days. The Administrator may grant an additional extension beyond the automatic 30-day extension if the owner or operator submits a request for an additional extension and the request is received by the Administrator prior to the expiration of the automatic 30-day extension, provided the request demonstrates that it is not practicable to submit a revised report or information under paragraphs (h)(1) and (2) within 75 days. The Administrator will approve the extension request if the request demonstrates to the Administrator's satisfaction that it is not practicable to collect and process the data needed to resolve potential reporting errors identified pursuant to paragraph (h)(1) or (2) within 75 days.

* * * * *

■ 5. Effective January 1, 2018, amend § 98.3 by:

■ a. Revising paragraph (c)(4)(iii) introductory text;

■ b. Adding paragraph (c)(4)(iii)(G); and

■ c. Revising paragraphs (c)(5)(ii), (c)(8), and (d)(1)(i).

The revisions and addition read as follows:

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

* * * * *

(c) * * *

(4) * * *

(iii) Annual emissions from each applicable source category, expressed in metric tons of each applicable GHG listed in paragraphs (c)(4)(iii)(A) through (F) of this section.

* * * * *

(G) For each reported fluorinated GHG and fluorinated heat transfer fluid, report the following identifying information:

(*1*) Chemical name. If the chemical is not listed in Table A–1 of this subpart, then use the method of naming organic chemical compounds as recommended by the International Union of Pure and Applied Chemistry (IUPAC).

(*2*) The CAS registry number assigned by the Chemical Abstracts Registry Service. If a CAS registry number is not assigned or is not associated with a single fluorinated GHG or fluorinated heat transfer fluid, then report an identification number assigned by EPA's Substance Registry Services.

(*3*) Linear chemical formula.

* * * * *

(5) * * *

(ii) Quantity of each GHG from each applicable supply category in Table A–5 to this subpart, expressed in metric tons of each GHG. For each reported fluorinated GHG, report the following identifying information:

(A) Chemical name. If the chemical is not listed in Table A–1 of this subpart, then use the method of naming organic chemical compounds as recommended by the International Union of Pure and Applied Chemistry (IUPAC).

(B) The CAS registry number assigned by the Chemical Abstracts Registry Service. If a CAS registry number is not assigned or is not associated with a single fluorinated GHG, then report an identification number assigned by EPA's Substance Registry Services.

(C) Linear chemical formula.

* * * * *

(8) Each parameter for which a missing data procedure was used according to the procedures of an applicable subpart and the total number of hours in the year that a missing data procedure was used for each parameter. Parameters include not only reported data elements, but any data element required for monitoring and calculating emissions.

* * * * *

(d) * * *

(1) * * *

(i) Monitoring methods currently used by the facility that do not meet the specifications of a relevant subpart.

* * * * *

■ 6. Effective January 1, 2018, amend § 98.4 by adding paragraph (i)(6) to read as follows:

§ 98.4 Authorization and responsibilities of the designated representative.

* * * * *

(i) * * *

(6) A list of the subparts that the owners and operators anticipate will be included in the annual GHG report. The list of potentially applicable subparts is required only for an initial certificate of representation that is submitted after January 1, 2018 (*i.e.,* for a facility or supplier that previously was not registered under this part). The list of potentially applicable subparts does not need to be revised with revisions to the COR or if the actual applicable subparts change.

* * * * *

■ 7. Amend § 98.6 by revising the definition for ''Gas collection system or landfill gas collection system'' to read as follows:

§ 98.6 Definitions.

* * * * *

Gas collection system or landfill gas collection system means a system of

pipes used to collect landfill gas from different locations in the landfill by means of a fan or similar mechanical draft equipment (forced convection) to a single location for treatment (thermal destruction) or use. Landfill gas collection systems may also include knock-out or separator drums and/or a compressor. A single landfill may have multiple gas collection systems. Landfill gas collection systems do not include ''passive'' systems, whereby landfill gas flows naturally (without forced convection) to the surface of the landfill where an opening or pipe (vent) is installed to allow for the flow of landfill gas to the atmosphere or to a remote flare installed to combust landfill gas that is passively emitted from the vent. Landfill gas collection systems also do not include ''active venting'' systems, whereby landfill gas is conveyed to the surface of the landfill using forced convection, but the landfill gas is never recovered or thermally destroyed prior to release to the atmosphere.

* * * * *

■ 8. Effective January 1, 2018, amend § 98.6 by adding a definition for ''Reporting year'' in alphabetical order and revising the definition for ''Ventilation hole or shaft'' to read as follows:

§ 98.6 Definitions.

* * * * *

Reporting year means the calendar year during which the GHG data are required to be collected for purposes of the annual GHG report. For example, reporting year 2014 is January 1, 2014 through December 31, 2014, and the annual report for reporting year 2014 is submitted to EPA on March 31, 2015.

* * * * *

Ventilation hole or shaft means a vent hole, shaft, mine portal, adit or other mine entrance or exits employed at an underground coal mine to serve as the outlet or conduit to move air from the ventilation system out of the mine.

* * * * *

■ 9. Amend § 98.7 by revising paragraph (l)(1) to read as follows:

§ 98.7 What standardized methods are incorporated by reference into this part?

* * * * *

(l) * * *

(1) PH16–V–1, Coal Mine Safety and Health General Inspection Procedures Handbook, June 2016, IBR approved for § 98.324(b).

* * * * *

■ 10. Effective January 1, 2018, amend § 98.7 by revising paragraph (e)(33) to read as follows:

§ 98.7 What standardized methods are incorporated by reference into this part?

* * * * *

(e) * * *

(33) ASTM D6866–16 Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples Using Radiocarbon Analysis, approved June 1, 2016, IBR approved for §§ 98.34(d) and (e), and 98.36(e).

* * * * *

■ 11. Effective January 1, 2018, amend Table A–3 to subpart A of part 98 by revising the heading for the entry ''Source Categories Applicable in 2010 and Future Years'' and the entry for ''Additional Source Categories Applicable in 2011 and Future Years'' to read as follows:

TABLE A–3 TO SUBPART A OF PART 98—SOURCE CATEGORY LIST FOR § 98.2(a)(1)

Source Categories [a] Applicable in Reporting Year 2010 and Future Years						
*	*	*	*	*	*	*
Additional Source Categories [a] Applicable in Reporting Year 2011 and Future Years						
*	*	*	*	*	*	*

[a] Source categories are defined in each applicable subpart.

■ 12. Effective January 1, 2018, amend Table A–4 to subpart A of part 98 by revising the heading for the entry for ''Source Categories Applicable in 2010 and Future Years'' and the entry for ''Additional Source Categories Applicable in 2011 and Future Years'' to read as follows:

TABLE A–4 TO SUBPART A—SOURCE CATEGORY LIST FOR § 98.2(a)(2)

Source Categories [a] Applicable in Reporting Year 2010 and Future Years						
*	*	*	*	*	*	*
Additional Source Categories [a] Applicable in Reporting Year 2011 and Future Years						
*	*	*	*	*	*	*

[a] Source categories are defined in each applicable subpart.

■ 13. Effective January 1, 2018, amend Table A–5 to subpart A of part 98:

■ a. By revising the heading for the entry for ''Supplier Categories Applicable in 2010 and Future Years'';

■ b. Under the entry for ''Industrial greenhouse gas suppliers (subpart OO)'' by adding entries (D) through (G); and

■ c. By revising the entry ''Additional Supplier Categories Applicable in 2011 and Future Years.''

The revisions read as follows:

TABLE A–5 TO SUBPART A—SUPPLIER CATEGORY LIST FOR § 98.2(a)(4)

Supplier Categories [a] Applicable in Reporting Year 2010 and Future Years						
*	*	*	*	*	*	*
Industrial greenhouse gas suppliers (subpart OO):						

TABLE A–5 TO SUBPART A—SUPPLIER CATEGORY LIST FOR § 98.2(a)(4)—Continued

* * * * * * *
(D) Starting with reporting year 2018, all producers of fluorinated heat transfer fluids.
(E) Starting with reporting year 2018, importers of fluorinated heat transfer fluids with annual bulk imports of N_2O, fluorinated GHG, fluorinated heat transfer fluids, and CO_2 that in combination are equivalent to 25,000 metric tons CO_2e or more.
(F) Starting with reporting year 2018, exporters of fluorinated heat transfer fluids with annual bulk exports of N_2O, fluorinated GHG, fluorinated heat transfer fluids, and CO_2 that in combination are equivalent to 25,000 metric tons CO_2e or more.
(G) Starting with reporting year 2018, facilities that destroy 25,000 $mtCO_2e$ or more of fluorinated GHGs or fluorinated heat transfer fluids annually.
* * * * * * *
Additional Supplier Categories Applicable[a] in Reporting Year 2011 and Future Years
* * * * * * *

[a] Suppliers are defined in each applicable subpart.

Subpart C—General Stationary Fuel Combustion Sources

■ 14. Effective January 1, 2018, amend § 98.33 in paragraph (a)(2)(ii)(A) by revising parameters ''$(HHV)_I$,'' ''$(Fuel)_I$,'' and ''n'' of Equation C–2b and revising paragraphs (a)(5)(i)(C), (a)(5)(ii)(C), and (a)(5)(iii)(C) to read as follows:

§ 98.33 Calculating GHG emissions.

* * * * *

(a) * * *

(2) * * *

(ii) * * *

(A) * * *

* * * * *

$(HHV)_I$ = Measured high heat value of the fuel, for sample period ''i'' (which may be the arithmetic average of multiple determinations), or, if applicable, an appropriate substitute data value (mmBtu per mass or volume).

$(Fuel)_I$ = Mass or volume of the fuel combusted during the sample period ''i,'' (*e.g.,* monthly, quarterly, semi-annually, or by lot) from company records (express mass in short tons for solid fuel, volume in standard cubic feet (*e.g.,* for gaseous fuel, and volume in gallons for liquid fuel).

n = Number of sample periods in the year.

* * * * *

(5) * * *

(i) * * *

(C) Divide the cumulative annual CO_2 mass emissions value by 1.1023 to convert it to metric tons.

(ii) * * *

(C) Divide the cumulative annual CO_2 mass emissions value by 1.1023 to convert it to metric tons.

(iii) * * *

(C) Divide the cumulative annual CO_2 mass emissions value by 1.1023 to convert it to metric tons.

* * * * *

■ 15. Effective January 1, 2018, amend § 98.34 by revising paragraphs (d) and (e) to read as follows:

§ 98.34 Monitoring and QA/QC requirements.

* * * * *

(d) Except as otherwise provided in § 98.33(b)(1)(vi) and (vii), when municipal solid waste (MSW) is either the primary fuel combusted in a unit or the only fuel with a biogenic component combusted in the unit, determine the biogenic portion of the CO_2 emissions using ASTM D6866–16 Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples Using Radiocarbon Analysis) and ASTM D7459–08 Standard Practice for Collection of Integrated Samples for the Speciation of Biomass (Biogenic) and Fossil-Derived Carbon Dioxide Emitted from Stationary Emissions Sources (both incorporated by reference, see § 98.7). Perform the ASTM D7459–08 sampling and the ASTM D6866–16 analysis at least once in every calendar quarter in which MSW is combusted in the unit. Collect each gas sample during normal unit operating conditions for at least 24 total (not necessarily consecutive) hours, or longer if the facility deems it necessary to obtain a representative sample. Notwithstanding this requirement, if the types of fuels combusted and their relative proportions are consistent throughout the year, the minimum required sampling time may be reduced to 8 hours if at least two 8-hour samples and one 24-hour sample are collected under normal operating conditions, and arithmetic average of the biogenic fraction of the flue gas from the 8-hour samples (expressed as a decimal) is within ±5 percent of the biogenic fraction from the 24-hour test. There must be no overlapping of the 8-hour and 24-hour test periods. Document the results of the demonstration in the unit's monitoring plan. If the types of fuels and their relative proportions are not consistent throughout the year, an optional sampling approach that facilities may wish to consider to obtain a more representative sample is to collect an integrated sample by extracting a small amount of flue gas (*e.g.,* 1 to 5 cc) in each unit operating hour during the quarter. Separate the total annual CO_2 emissions into the biogenic and non-biogenic fractions using the average proportion of biogenic emissions of all samples analyzed during the reporting year. Express the results as a decimal fraction (*e.g.,* 0.30, if 30 percent of the CO_2 is biogenic). When MSW is the primary fuel for multiple units at the facility, and the units are fed from a common fuel source, testing at only one of the units is sufficient.

(e) For other units that combust combinations of biomass fuel(s) (or heterogeneous fuels that have a biomass component, *e.g.,* tires) and fossil (or other non-biogenic) fuel(s), in any proportions, ASTM D6866–16 and ASTM D7459–08 (both incorporated by reference, see § 98.7) may be used to determine the biogenic portion of the CO_2 emissions in every calendar quarter in which biomass and non-biogenic fuels are co-fired in the unit. Follow the procedures in paragraph (d) of this section. If the primary fuel for multiple units at the facility consists of tires, and the units are fed from a common fuel source, testing at only one of the units is sufficient.

* * * * *

■ 16. Effective January 1, 2018, amend § 98.36 by adding paragraphs (c)(1)(iii) and (c)(3)(ii) and revising paragraphs (e)(2)(i), (e)(2)(x) introductory text, and (e)(2)(xi) to read as follows:

§ 98.36 Data reporting requirements.

* * * * *

(c) * * *

(1) * * *

(iii) Cumulative maximum rated heat input capacity of the group (mmBtu/hr). The cumulative maximum rated heat input capacity shall be determined as the sum of the maximum rated heat

input capacities for all units in the group, excluding units less than 10 (mmBtu/hr).

* * * * *

(3) * * *

(ii) Cumulative maximum rated heat input capacity of the units served by the common pipe (mmBtu/hr). The cumulative maximum rated heat input capacity shall be determined as the sum of the maximum rated heat input capacities for all units served by the common pipe, excluding units less than 10 (mmBtu/hr).

* * * * *

(e) * * *

(2) * * *

(i) For the Tier 1 Calculation Methodology, report:

(A) The total quantity of each type of fuel combusted in the unit or group of aggregated units (as applicable) during the reporting year, in short tons for solid fuels, gallons for liquid fuels and standard cubic feet for gaseous fuels, or, if applicable, therms or mmBtu for natural gas.

(B) If applicable, the moisture content used to calculate the wood and wood residuals wet basis HHV for use in Equations C–1 and C–8 of this subpart, in percent.

* * * * *

(x) When ASTM methods D7459–08 and D6866–16 (both incorporated by reference, see § 98.7) are used to determine the biogenic portion of the annual CO_2 emissions from MSW combustion, as described in § 98.34(d), report:

* * * * *

(xi) When ASTM methods D7459–08 and D6866–16 (both incorporated by reference, see § 98.7) are used in accordance with § 98.34(e) to determine the biogenic portion of the annual CO_2 emissions from a unit that co-fires biogenic fuels (or partly-biogenic fuels, including tires if you are electing to report biogenic CO_2 emissions from tire combustion) and non-biogenic fuels, you shall report the results of each quarterly sample analysis, expressed as a decimal fraction (*e.g.,* if the biogenic fraction of the CO_2 emissions is 30 percent, report 0.30).

* * * * *

■ 17. Effective January 1, 2018, amend § 98.37 by revising paragraph (a) and adding paragraph (b)(37) to read as follows:

§ 98.37 Records that must be retained.

* * * * *

(a) The applicable records specified in §§ 98.34(f), 98.35(b), and 98.36(e).

(b) * * *

(37) Moisture content used to calculate the wood and wood residuals wet basis HHV (percent), if applicable (Equations C–1 and C–8 of this subpart).

■ 18. Effective January 1, 2018, amend Table C–1 to subpart C of part 98 by:

■ a. Removing the entries ''Petroleum Coke'' under ''Petroleum products'', ''Petroleum Coke'' under ''Other fuels—solid'', and ''Propane Gas'' under ''Other fuels—gaseous'';

■ b. Removing the heading ''Petroleum products'' in the ''Fuel type'' column and adding in its place the heading ''Petroleum products—liquid''; and

■ c. Adding heading ''Petroleum products—solid'' and its entry ''Petroleum Coke'', and heading ''Petroleum products—gaseous'', and its entry ''Propane Gas'' after the entry ''Crude Oil''.

The additions read as follows:

TABLE C–1 TO SUBPART C OF PART 98—DEFAULT CO_2 EMISSION FACTORS AND HIGH HEAT VALUES FOR VARIOUS TYPES OF FUEL

[Default CO_2 emission factors and high heat values for various types of fuel]

Fuel type	Default high heat value	Default CO_2 emission factor
* * *	* * *	*
Petroleum products—solid	mmBtu/short ton	kg CO_2/mmBtu
Petroleum Coke	30.00	102.41
Petroleum products—gaseous	mmBtu/scf	kg CO_2/mmBtu
Petroleum products—liquid	mmBtu/gallon	kg CO_2/mmBtu
Propane Gas	2.516×10^{-3}	61.46
* * *	* * *	*

* * * * *

Table C–2 to Subpart C of Part 98 [Amended]

■ 19. Effective January 1, 2018, amend Table C–2 to subpart C of part 98 by:

■ a. Removing from the ''Fuel type'' column, the entry ''Petroleum (All fuel types in Table C–1)'' and adding in its place the entry ''Petroleum Products (All fuel types in Table C–1)'';

■ b. Removing from the ''Fuel type'' column, the entry ''Municipal Solid Waste'' and adding in its place the entry ''Other Fuels—Solid''; and

■ c. Removing the entry ''Tires''.

Subpart E—Adipic Acid Production

■ 20. Effective January 1, 2018, amend § 98.53 by revising paragraph (a)(2) to read as follows:

§ 98.53 Calculating GHG emissions.

(a) * * *

(2) Request Administrator approval for an alternative method of determining N_2O emissions according to paragraphs (a)(2)(i) through (iv) of this section.

(i) If you received Administrator approval for an alternative method of determining N_2O emissions in the previous reporting year and your methodology is unchanged, your alternative method is automatically approved for the next reporting year.

(ii) You must notify the EPA of your use of a previously approved alternative method in your annual report.

(iii) Otherwise, you must submit the request within 45 days following promulgation of this subpart or within the first 30 days of each subsequent reporting year.

(iv) If the Administrator does not approve your requested alternative method within 150 days of the end of the reporting year, you must determine the N_2O emissions for the current reporting period using the procedures specified in paragraph (a)(1) of this section.

* * * * *

■ 21. Effective January 1, 2018, amend § 98.56 by revising paragraph (f) to read as follows:

§ 98.56 Data reporting requirements.

* * * * *

(f) Types of abatement technologies used and date of installation for each (if applicable).

* * * * *

Subpart F—Aluminum Production

■ 22. Effective January 1, 2018, amend § 98.65 by revising paragraph (a) introductory text and removing Equation F–8 and adding Equation F–9 in its place to read as follows:

§ 98.65 Procedures for estimating missing data.

* * * * *

(a) Where anode or paste consumption data are missing, CO_2 emissions can be estimated from aluminum production by using Equation F–9 of this section.

$$ECO_2 = EF_p \times MP_p + EF_s \times MP_s \quad \text{(Eq. F-9)}$$

* * * * *

■ 23. Effective January 1, 2018, amend § 98.66 by adding paragraph (c)(2) and revising paragraph (c)(3) to read as follows:

§ 98.66 Data reporting requirements.

* * * * *

(c) * * *

(2) Anode effect minutes per cell-day (AE-mins/cell-day), anode effect frequency (AE/cell-day), anode effect duration (minutes). (Or anode effect overvoltage factor ((kg CF4/metric ton Al)/(mV/cell day)), potline overvoltage (mV/cell day), current efficiency (%)).

(3) Smelter-specific slope coefficients (or overvoltage emission factors) and the last date when the smelter-specific slope coefficients (or overvoltage emission factors) were measured.

* * * * *

Subpart G—Ammonia Manufacturing

■ 24. Effective January 1, 2018, amend § 98.74 by adding paragraph (f) to read as follows:

§ 98.74 Monitoring and QA/QC requirements.

* * * * *

(f) You may use company records or an engineering estimate to determine the annual ammonia production and the annual methanol production.

* * * * *

■ 25. Effective January 1, 2018, amend § 98.76 by revising paragraph (a) introductory text, adding paragraphs (a)(3) and (b)(2) and (7), and revising paragraph (b)(15) to read as follows:

§ 98.76 Data reporting requirements.

* * * * *

(a) If a CEMS is used to measure CO_2 emissions, then you must report the relevant information required under § 98.36 for the Tier 4 Calculation Methodology and the information in paragraphs (a)(1) through (3) of this section:

* * * * *

(3) Annual ammonia production (metric tons, sum of all process units reported within subpart G of this part).

(b) * * *

(2) Annual quantity of each type of feedstock consumed for ammonia manufacturing (scf of feedstock or gallons of feedstock or kg of feedstock).

* * * * *

(7) Annual average carbon content of each type of feedstock consumed.

* * * * *

(15) Annual quantity of methanol intentionally produced as a desired product, for each process unit (metric tons).

Subpart I—Electronics Manufacturing

■ 26. Amend § 98.93 by:

■ a. Revising paragraph (a)(1) introductory text;

■ b. Revising Equation I–9 in paragraph (a)(1);

■ c. Revising parameters ''N_{il}'' and ''F_{il}'' of Equation I–12 in paragraph (d);

■ d. Revising paragraphs (i)(1)(ii) and (iv);

■ e. Revising Equation I–17 in paragraph (i)(3)(ii);

■ f. Revising parameter ''d_{if}'' of Equation I–19 in paragraph (i)(3)(ii);

■ g. Revising parameter ''d_{kf}'' of Equation I–20 in paragraph (i)(3)(iv);

■ h. Revising parameter ''d_{if}'' of Equation I–21 in paragraph (i)(3)(v);

■ i. Revising parameter ''d_{kf}'' of Equation I–22 in paragraph (i)(3)(vi); and

■ j. Revising paragraph (i)(3)(viii) and paragraph (i)(4) introductory text.

The revisions read as follows:

§ 98.93 Calculating GHG emissions.

(a) * * *

(1) If you manufacture semiconductors, you must adhere to the procedures in paragraphs (a)(1)(i) through (iii) of this section. You must calculate annual emissions of each input gas and of each by-product gas using Equations I–6 and I–7 of this subpart, respectively. If your fab uses less than 50 kg of a fluorinated GHG in one reporting year, you may calculate emissions as equal to your fab's annual consumption for that specific gas as calculated in Equation I–11 of this subpart, plus any by-product emissions of that gas calculated under paragraph (a) of this section.

* * * * *

$$BE_{ijk} = B_{ijk} * C_{ij} * \left(1 - \left(a_{ij} * d_{jk} * UT_{ijk}\right)\right) * 0.001 \quad \text{(Eq. I-9)}$$

* * * * *

(d) * * *

* * * * *

N_{il} = Number of containers of size and type l used at the fab and returned to the gas distributor containing the standard heel of input gas i.

F_{il} = Full capacity of containers of size and type l containing input gas i (kg).

* * * * *

(i) * * *

(1) * * *

(ii) You must use representative data from the previous reporting year to estimate the consumption of input gas i as calculated in Equation I–13 of this subpart and the fraction of input gas i and by-product gas k destroyed in abatement systems for each stack system as calculated by Equations I–24A and I–24B of this subpart. If you were not required to submit an annual report under subpart I for the previous reporting year and data from the previous reporting year are not

available, you may estimate the consumption of input gas i and the fraction of input gas i destroyed in abatement systems based on representative operating data from a period of at least 30 days in the current reporting year. When calculating the consumption of input gas i using Equation I–13 of this subpart, the term ''f_{ij}'' is replaced with the ratio of the number of tools using input gas i that are vented to the stack system for which you are calculating the preliminary estimate to the total number of tools in the fab using input gas i, expressed as a decimal fraction. You may use this approach to determining f_{ij} only for this preliminary estimate.

* * * * *

(iv) If you anticipate an increase or decrease in annual consumption or emissions of any fluorinated GHG, or the number of tools connected to abatement systems greater than 10 percent for the current reporting year compared to the previous reporting year, you must account for the anticipated change in your preliminary estimate. You may account for such a change using a quantifiable metric (*e.g.,* the ratio of the number of tools that are expected to be vented to the stack system in the current year as compared to the previous reporting year, ratio of the expected number of wafer starts in the current reporting year as compared to the previous reporting year), engineering judgment, or other industry standard practice.

* * * * *

(3) * * *

(ii) * * *

$$E_{is} = MW_i * Q_s * \frac{1}{SV} * \frac{1}{10^3} * \sum_{m=1}^{N} \frac{X_{ism}}{10^9} * \Delta t_m \qquad \text{(Eq. I-17)}$$

* * * * *

(iii) * * *

* * * * *

d_{if} = Fraction of fluorinated GHG input gas i destroyed or removed in abatement systems connected to process tools in fab f, as calculated in Equation I–24A of this subpart (expressed as decimal fraction). If the stack system does not have abatement systems on the tools vented to the stack system, the value of this parameter is zero.

* * * * *

(iv) * * *

* * * * *

d_{kf} = Fraction of fluorinated GHG by-product gas k destroyed or removed in abatement systems connected to process tools in fab f, as calculated in Equation I–24B of this subpart (expressed as decimal fraction).

* * * * *

(v) * * *

* * * * *

d_{if} = Fraction of fluorinated GHG input gas i destroyed or removed in abatement systems connected to process tools in fab f that are included in the stack testing option, as calculated in Equation I–24A of this subpart (expressed as decimal fraction).

* * * * *

(vi) * * *

* * * * *

dk_f = Fraction of fluorinated GHG by-product k destroyed or removed in abatement systems connected to process tools in fab f that are included in the stack testing option, as calculated in Equation I–24B of this subpart (expressed as decimal fraction).

* * * * *

(viii) When using the stack testing option described in paragraph (i) of this section, you must calculate the weighted-average fraction of each fluorinated input gas i and each fluorinated byproduct gas k destroyed or removed in abatement systems for each fab f, as applicable, by using Equation I–24A (for input gases) and Equation I–24B (for by-product gases) of this subpart.

$$d_{if} = \frac{\sum_j [C_{ijf} \times (1 - U_{ij})) \times DRE_{ij}]}{\sum_j [C_{ijf} \times (1 - U_{ij})]} \qquad \text{(Eq. I-24A)}$$

$$d_{kf} = \frac{\sum_j (C_{ijf} \times B_{ijk} \times DRE_{jk})}{\sum_j (C_{ijf} \times B_{ijk})} \qquad \text{(Eq. I-24B)}$$

Where:

d_{if} = The average weighted fraction of fluorinated GHG input gas i destroyed or removed in abatement systems in fab f (expressed as a decimal fraction).

d_{kf} = The average weighted fraction of fluorinated GHG by-product gas k destroyed or removed in abatement systems in fab f (expressed as a decimal fraction).

C_{ijf} = The amount of fluorinated GHG input gas i consumed for process type or sub-type j fed into abatement systems in fab f as calculated using Equation I–13 of this subpart (kg).

$(1 - U_{ij})$ = The default emission factor for input gas i used in process type or sub-type j, from applicable Tables I–3 through I–7 of this subpart.

B_{ijk} = The default byproduct gas formation rate factor for by-product gas k from input gas i used in process type or sub-type j, from applicable Tables I–3 through I–7 of this subpart.

DRE_{ij} = Destruction or removal efficiency for fluorinated GHG input gas i in abatement systems connected to process tools where process type or sub-type j is used (expressed as a decimal fraction) determined according to § 98.94(f).

DRE_{jk} = Destruction or removal efficiency for fluorinated GHG by-product gas k in abatement systems connected to process tools where input gas i is used in process type or sub-type j (expressed as a decimal fraction) determined according to § 98.94(f).

f = fab.

i = Fluorinated GHG input gas.

j = Process type or sub-type.

(4) *Method to calculate emissions from stack systems that are not tested.* You must calculate annual fab-level emissions of each fluorinated GHG input gas and byproduct gas for those fluorinated GHG listed in paragraphs (i)(4)(i) and (ii) of this section using default utilization and by-product formation rates as shown in Table I–11, I–12, I–13, I–14, or I–15 of this subpart, as applicable, and by using Equations I–8, I–9, and I–13 of this subpart. When using Equations I–8, I–9, and I–13 to fulfill the requirements of this paragraph, you must use, in place of the term C_{ij} in each equation, the total consumption of each fluorinated GHG

meeting the criteria in paragraph (i)(4)(i) of this section or that is used in tools vented to the stack systems that meet the criteria in paragraph (i)(4)(ii) of this section. You must use, in place of the term a_{ij}, the fraction of fluorinated GHG meeting the criteria in paragraph (i)(4)(i) of this section used in tools with abatement systems or that is used in tools with abatement systems that are vented to the stack systems that meet the criteria in paragraph (i)(4)(ii) of this section. You also must use the results of Equations I–24A and I–24B of this subpart in place of the terms d_{ij} in Equation I–8 and d_{jk} in Equation I–9, respectively, and use the results of Equation I–23 of this subpart in place of the results of Equation I–15 of this subpart for the term UT_{ij}.

* * * * *

■ 27. Amend § 98.94 by revising paragraphs (f) introductory text and (j)(5)(ii) introductory text to read as follows:

§ 98.94 Monitoring and QA/QC requirements.

* * * * *

(f) If your fab employs abatement systems and you elect to reflect emission reductions due to these systems, or if your fab employs abatement systems designed for fluorinated GHG abatement and you elect to calculate fluorinated GHG emissions using the stack test method under § 98.93(i), you must comply with the requirements of paragraphs (f)(1) through (3) of this section. If you use an average of properly measured destruction or removal efficiencies for a gas and process sub-type or process type combination, as applicable, in your emission calculations under § 98.93(a), (b), and/or (i), you must also adhere to procedures in paragraph (f)(4) of this section.

* * * * *

(j) * * *

(5) * * *

(ii) *Criteria to test less frequently.* After the first 3 years of annual testing, you may calculate the relative standard deviation of the emission factors for each fluorinated GHG included in the test and use that analysis to determine the frequency of any future testing. As an alternative, you may conduct all three tests in less than 3 calendar years for purposes of this paragraph (j)(5)(ii), but this does not relieve you of the obligation to conduct subsequent annual testing if you do not meet the criteria to test less frequently. If the criteria specified in paragraphs (j)(5)(ii)(A) and (B) of this section are met, you may use the arithmetic average of the three emission factors for each fluorinated GHG and fluorinated GHG byproduct for the current year and the next 4 years with no further testing unless your fab operations are changed in a way that triggers the re-test criteria in paragraph (j)(8) of this section. In the fifth year following the last stack test included in the previous average, you must test each of the stack systems for which testing is required and repeat the relative standard deviation analysis using the results of the most recent three tests (*i.e.,* the new test and the two previous tests conducted prior to the 4-year period). If the criteria specified in paragraphs (j)(5)(ii)(A) and (B) of this section are not met, you must use the emission factors developed from the most recent testing and continue annual testing. You may conduct more than one test in the same year, but each set of emissions testing for a stack system must be separated by a period of at least 2 months. You may repeat the relative standard deviation analysis using the most recent three tests, including those tests conducted prior to the 4-year period, to determine if you are exempt from testing for the next 4 years.

* * * * *

■ 28. Amend § 98.96 by:

■ a. Revising paragraphs (c)(2), (d), and (e);

■ b. Revising parameters ''d_{if}'' and ''d_{kf}'' of Equation I–28 in paragraph (r)(2); and

■ c. Revising paragraph (y)(2)(iv).

The revisions read as follows:

§ 98.96 Data reporting requirements.

* * * * *

(c) * * *

(2) When you use the procedures specified in § 98.93(a), each fluorinated GHG emitted from each process type or process sub-type as calculated in Equations I–8 and I–9 of this subpart, as applicable.

* * * * *

(d) The method of emissions calculation used in § 98.93 for each fab.

(e) Annual production in terms of substrate surface area (*e.g.,* silicon, PV-cell, glass) for each fab, including specification of the substrate.

* * * * *

(r) * * *

(2) * * *

* * * * *

d_{if} = Fraction of fluorinated GHG i destroyed or removed in abatement systems connected to process tools in fab f, as calculated from Equation I–24A of this subpart, which you used to calculate total emissions according to the procedures in § 98.93(i)(3) (expressed as a decimal fraction).

* * * * *

d_{kf} = Fraction of fluorinated GHG byproduct k destroyed or removed in abatement systems connected to process tools in fab f, as calculated from Equation I–24B of this subpart, which you used to calculate total emissions according to the procedures in § 98.93(i)(3) (expressed as a decimal fraction).

* * * * *

(y) * * *

(2) * * *

(iv) It must provide any utilization and byproduct formation rates and/or destruction or removal efficiency data that have been collected in the previous 3 years that support the changes in semiconductor manufacturing processes described in the report. For any utilization or byproduct formation rate data submitted, the report must include the input gases used and measured, the utilization rates measured, the byproduct formation rates measured, the process type, the process subtype for chamber clean processes, the wafer size, and the methods used for the measurements. For any destruction or removal efficiency data submitted, the report must include the input gases used and measured, the destruction and removal efficiency measured, the process type, and the methods used for the measurements.

* * * * *

■ 29. Amend § 98.97 by revising paragraphs (d)(5) introductory text and (d)(7) to read as follows:

§ 98.97 Records that must be retained.

* * * * *

(d) * * *

(5) In addition to the inventory specified in § 98.96(p), the information in paragraphs (d)(5)(i) through (iii) of this section:

* * * * *

(7) Records of all inputs and results of calculations made to determine the average weighted fraction of each gas destroyed or removed in the abatement systems for each stack system using Equations I–24A and I–24B of this subpart, if applicable. The inputs should include an indication of whether each value for destruction or removal efficiency is a default value or a measured site-specific value.

* * * * *

■ 30. Revise Table I–3 of subpart I to read as follows:

TABLE I–3 TO SUBPART I OF PART 98—DEFAULT EMISSION FACTORS ($1–U_{ij}$) FOR GAS UTILIZATION RATES (U_{ij}) AND BY-PRODUCT FORMATION RATES (B_{ijk}) FOR SEMICONDUCTOR MANUFACTURING FOR 150 MM AND 200 MM WAFER SIZES

Process type/sub-type	Process gas i												
	CF_4	C_2F_6	CHF_3	CH_2F_2	C_2HF_5	CH_3F	C_3F_8	C_4F_8	NF_3	SF_6	C_4F_6	C_5F_8	C_4F_8O
Etching/Wafer Cleaning													
$1–U_i$	0.81	0.72	0.51	0.13	0.064	0.70	NA	0.14	0.19	0.55	0.17	0.072	NA
BCF_4	NA	0.10	0.085	0.079	0.077	NA	NA	0.11	0.0040	0.13	0.13	NA	NA
BC_2F_6	0.046	NA	0.030	0.025	0.024	0.0034	NA	0.037	0.025	0.11	0.11	0.014	NA
BC_4F_6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC_4F_8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC_3F_8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC_5F_8	0.0012	NA	0.0012	NA	NA	NA	NA	0.0086	NA	NA	NA	NA	NA
$BCHF_3$	0.10	0.047	NA	0.049	NA	NA	NA	0.040	NA	0.0012	0.066	0.0039	NA
Chamber Cleaning													
In situ plasma cleaning:													
$1–U_i$	0.92	0.55	NA	NA	NA	NA	0.40	0.10	0.18	NA	NA	NA	0.14
BCF_4	NA	0.21	NA	NA	NA	NA	0.20	0.11	0.050	NA	NA	NA	0.13
BC_2F_6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.045
BC_3F_8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Remote plasma cleaning:													
$1–U_i$	NA	NA	NA	NA	NA	NA	NA	NA	0.017	NA	NA	NA	NA
BCF_4	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA	NA	NA
BC_2F_6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC_3F_8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
In situ thermal cleaning:													
$1–U_i$	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BCF_4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC_2F_6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC_3F_8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes: NA = Not applicable; *i.e.,* there are no applicable default emission factor measurements for this gas. This does not necessarily imply that a particular gas is not used in or emitted from a particular process sub-type or process type.

■ 31. Revise Table I–4 of subpart I to read as follows:

TABLE I–4 TO SUBPART I OF PART 98—DEFAULT EMISSION FACTORS ($1–U_{ij}$) FOR GAS UTILIZATION RATES (U_{ij}) AND BY-PRODUCT FORMATION RATES (B_{ijk}) FOR SEMICONDUCTOR MANUFACTURING FOR 300 MM AND 450 MM WAFER SIZE

Process type/ sub-type	Process gas i											
	CF_4	C_2F_6	CHF_3	CH_2F_2	CH_3F	C_3F_8	C_4F_8	NF_3	SF_6	C_4F_6	C_5F_8	C_4F_8O
Etching/Wafer Cleaning												
$1–U_i$	0.65	0.80	0.42	0.21	0.33	0.30	0.18	0.15	0.32	0.15	0.10	NA
BCF_4	NA	0.21	0.095	0.049	0.045	0.21	0.045	0.046	0.040	0.059	0.11	NA
BC_2F_6	0.079	NA	0.064	0.052	0.00087	0.18	0.031	0.045	0.044	0.074	0.083	NA
BC_4F_6	NA	NA	0.00010	NA	NA	NA	0.018	NA	NA	NA	NA	NA
BC_4F_8	0.00063	NA	0.00080	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC_3F_8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00012	NA
$BCHF_3$	0.011	NA	NA	0.050	0.0057	0.012	0.027	0.025	0.0037	0.019	0.0069	NA
BCH_2F_2	NA	NA	0.0036	NA	0.0023	NA	0.0015	0.00086	0.000029	0.000030	NA	NA
BCH_3F	0.0080	NA	0.0080	0.0080	NA	0.00073	NA	0.0080	NA	NA	NA	NA
Chamber Cleaning												
In situ plasma cleaning:												
$1–U_i$	NA	NA	NA	NA	NA	NA	NA	0.23	NA	NA	NA	NA
BCF_4	NA	NA	NA	NA	NA	NA	NA	0.037	NA	NA	NA	NA
BC_2F_6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC_3F_8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Remote Plasma Cleaning:												
$1–U_i$	NA	NA	NA	NA	NA	0.063	NA	0.017	NA	NA	NA	NA
BCF_4	NA	NA	NA	NA	NA	NA	NA	0.075	NA	NA	NA	NA
BC_2F_6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC_3F_8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE I–4 TO SUBPART I OF PART 98—DEFAULT EMISSION FACTORS ($1–U_{ij}$) FOR GAS UTILIZATION RATES (U_{ij}) AND BY-PRODUCT FORMATION RATES (B_{ijk}) FOR SEMICONDUCTOR MANUFACTURING FOR 300 MM AND 450 MM WAFER SIZE—Continued

Process type/ sub-type	Process gas i											
	CF_4	C_2F_6	CHF_3	CH_2F_2	CH_3F	C_3F_8	C_4F_8	NF_3	SF_6	C_4F_6	C_5F_8	C_4F_8O
In Situ Thermal Cleaning:												
$1–U_i$	NA	NA	NA	NA	NA	NA	NA	0.28	NA	NA	NA	NA
BCF_4	NA	NA	NA	NA	NA	NA	NA	0.010	NA	NA	NA	NA
BC_2F_6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC_3F_8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes: NA = Not applicable; *i.e.,* there are no applicable default emission factor measurements for this gas. This does not necessarily imply that a particular gas is not used in or emitted from a particular process sub-type or process type.

Subpart N—Glass Production

■ 32. Effective January 1, 2018, amend § 98.144 by revising paragraphs (b), (c), and (d) to read as follows:

§ 98.144 Monitoring and QA/QC requirements.

* * * * *

(b) Unless you use the default value of 1.0, you must measure carbonate-based mineral mass fractions at least annually to verify the mass fraction data provided by the supplier of the raw material; such measurements shall be based on sampling and chemical analysis using consensus standards that specify X-ray fluorescence. For measurements made in years prior to the emissions reporting year 2014, you may also use ASTM D3682–01 (Reapproved 2006) Standard Test Method for Major and Minor Elements in Combustion Residues from Coal Utilization Processes or ASTM D6349–09 Standard Test Method for Determination of Major and Minor Elements in Coal, Coke, and Solid Residues from Combustion of Coal and Coke by Inductively Coupled Plasma—Atomic Emission Spectrometry (both incorporated by reference, see § 98.7).

(c) Unless you use the default value of 1.0, you must determine the annual average mass fraction for the carbonate-based mineral in each carbonate-based raw material by calculating an arithmetic average of the monthly data obtained from raw material suppliers or sampling and chemical analysis.

(d) Unless you use the default value of 1.0, you must determine on an annual basis the calcination fraction for each carbonate consumed based on sampling and chemical analysis using an industry consensus standard. If performed, this chemical analysis must be conducted using an x-ray fluorescence test or other enhanced testing method published by an industry consensus standards organization (*e.g.,* ASTM, ASME, API, etc.).

■ 33. Effective January 1, 2018, amend § 98.146 by revising paragraphs (b)(5) introductory text and (b)(7) to read as follows:

§ 98.146 Data reporting requirements.

* * * * *

(b) * * *

(5) Results of all tests, if applicable, used to verify the carbonate-based mineral mass fraction for each carbonate-based raw material charged to a continuous glass melting furnace, as specified in paragraphs (b)(5)(i) through (iii) of this section.

* * * * *

(7) Method used to determine decimal fraction of calcination, unless you used the default value of 1.0.

* * * * *

■ 34. Effective January 1, 2018, amend § 98.147 by revising paragraphs (b)(3), (b)(4) introductory text, and (d)(2) and (3) to read as follows:

§ 98.147 Records that must be retained.

* * * * *

(b) * * *

(3) Data on carbonate-based mineral mass fractions provided by the raw material supplier for all raw materials consumed annually and included in calculating process emissions in Equation N–1 of this subpart, if applicable.

(4) Results of all tests, if applicable, used to verify the carbonate-based mineral mass fraction for each carbonate-based raw material charged to a continuous glass melting furnace, including the data specified in paragraphs (b)(4)(i) through (v) of this section.

* * * * *

(d) * * *

(2) Annual amount of each carbonate-based raw material charged to each continuous glass melting furnace (tons) (Equation N–1 of this subpart).

(3) Decimal fraction of calcination achieved for each carbonate-based raw material for each continuous glass melting furnace (specify the default value, if used, or the value determined according to § 98.144) (percentage, expressed as a decimal) (Equation N–1 of this subpart).

Subpart O—HCFC–22 Production and HFC–23 Destruction

■ 35. Effective January 1, 2018, amend § 98.156 by revising paragraphs (a) introductory text and (d) to read as follows:

§ 98.156 Data reporting requirements.

(a) In addition to the information required by § 98.3(c), the HCFC–22 production facility shall report the following information for each HCFC–22 production process:

* * * * *

(d) If the HFC–23 concentration measured pursuant to § 98.154(l) is greater than that measured during the performance test that is the basis for the destruction efficiency (DE), the facility shall report the method used to calculate the revised destruction efficiency, specifying whether § 98.154(l)(1) or (2) has been used for the calculation.

* * * * *

Subpart P—Hydrogen Production

■ 36. Effective January 1, 2019, amend § 98.163 by revising parameter ''CO_2'' of Equation P–3 in paragraph (b)(3) to read as follows:

§ 98.163 Calculating GHG emissions.

* * * * *

(b) * * *

(3) * * *

* * * * *

CO_2 = Annual CO_2 emissions from fuel and feedstock consumption (metric tons/yr).

* * * * *

■ 37. Effective January 1, 2018, amend § 98.164 by revising paragraph (b)(1) to read as follows:

§ 98.164 Monitoring and QA/QC requirements.

* * * * *

(b) * * *

(1) Calibrate all oil and gas flow meters that are used to measure liquid and gaseous fuel and feedstock volumes (except for gas billing meters) according to the monitoring and QA/QC requirements for the Tier 3 methodology in § 98.34(b)(1). Perform oil tank drop measurements (if used to quantify liquid fuel or feedstock consumption) according to § 98.34(b)(2). Calibrate all solids weighing equipment according to the procedures in § 98.3(i).

* * * * *

■ 38. Effective January 1, 2019, amend § 98.166 by revising paragraphs (b)(4), (d), and (e) to read as follows:

§ 98.166 Data reporting requirements.

* * * * *

(b) * * *

(4) Annual quantity of ammonia intentionally produced as a desired product, if applicable (metric tons).

* * * * *

(d) Annual quantity of carbon other than CO_2 collected and transferred off site in either gas, liquid, or solid forms (kg carbon), excluding methanol.

(e) Annual quantity of methanol intentionally produced as a desired product, if applicable, (metric tons) for each process unit.

Subpart Q—Iron and Steel Production

■ 39. Effective January 1, 2018, amend § 98.173 by revising Equation Q–5 in paragraph (b)(1)(v) to read as follows:

§ 98.173 Calculating GHG emissions.

* * * * *

(b) * * *

(1) * * *

(v) * * *

$$CO_2 = \frac{44}{12} * \left[\frac{(Iron) * (C_{iron}) + (Scrap) * \left(C_{scrap}\right) + (Flux) * (C_{Flux}) + (Electrode) * (C_{Electrode}) + (Carbon)}{* (C_{Carbon}) - (Steel) * (C_{Steel}) + \left(F_g\right) * \left(C_{gf}\right) * \frac{MW}{MVC} * 0.001 - (Slag) * \left(C_{Slag}\right) - (R) * (C_R)} \right] \quad \text{(Eq. Q-5)}$$

* * * * *

■ 40. Effective January 1, 2018, amend § 98.176 by revising Equation Q–10 in paragraph (e)(6)(ii), Equation Q–11 in paragraph (e)(6)(iii), Equation Q–12 in paragraph (e)(6)(iv), and the parameter ''n'' of Equation Q–12 in paragraph (e)(6)(iv) to read as follows:

§ 98.176 Data reporting requirements.

* * * * *

(e) * * *

(6) * * *

(ii) * * *

$$NFI = \sum_{i=1}^{n} \begin{pmatrix} O + Iron + Scrap + Flux + Carbon + Coal + Feed \\ + Electrode + Steel_{in} + Ore + Other \end{pmatrix} \quad \text{(Eq. Q-10)}$$

* * * * *

(iii) * * *

$$Products = \sum_{i=1}^{n} (P + R + Steel_{out} + Slag + Coke + Sinter + Iron + NM) \quad \text{(Eq. Q-11)}$$

* * * * *

(iv) * * *

$$CF_{avg} = \frac{\sum_{i=1}^{n} (F_{g,i} * \frac{MW_i}{MVC} * C_{gf,i} * 0.001 + F_{l,i} * C_{lf,i} * 0.001 + F_{s,i} * C_{sf})}{Fuel} \quad \text{(Eq. Q-12)}$$

* * * * *

n = Number of gaseous, liquid, and solid fuel inputs to each process unit as used in Equation Q–9 of this section.

* * * * *

Subpart S—Lime Manufacturing

■ 41. Effective January 1, 2018, amend § 98.193 by revising paragraph (b)(2) introductory text and adding paragraphs (b)(2)(vi) through (viii) to read as follows:

§ 98.193 Calculating GHG emissions.

* * * * *

(b) * * *

(2) Calculate and report process and combustion CO_2 emissions from all lime kilns separately using the procedures specified in paragraphs (b)(2)(i) through (viii) of this section.

* * * * *

(vi) You must calculate an annual average emission factor for each type of lime product produced using Equation S–5 of this section.

$$EF_{LIME,i,avg} = \frac{1}{n} \sum_{i=1}^{n} EF_{LIME,i,n} \quad \text{(Eq. S-5)}$$

Where:

$EF_{LIME,i,avg}$ = Annual average emission factor for lime type i, (metric tons CO_2/ton lime)

$EF_{LIME,i,n}$ = Emission factor for lime type i, for calendar month n (metric tons CO_2/ton lime) from Equation S–1 of this section.

n = Number of calendar months with calculated $EF_{LIME,i,n}$ value used to calculate annual emission factor.

(vii) You must calculate an annual average emission factor for each type of calcined byproduct/waste by lime type that is sold using Equation S–6 of this section.

$$EF_{LKD,i,avg} = \frac{1}{n}\sum_{i=1}^{n} EF_{LKD,i,n} \quad \text{(EQ. S-6)}$$

Where:

$EF_{LKD,i,avg}$ = Annual average emission factor for calcined lime byproduct/waste type i sold (metric tons CO_2/ton lime byproduct).

$EF_{LKD,i,n}$ = Emission factor for calcined lime byproduct/waste type i sold, for calendar month n (metric tons CO_2/ton lime byproduct) from Equation S–2 of this section.

n = Number of calendar months with calculated $EF_{LKD,i,n}$ value used to calculate annual emission factor.

(viii) You must calculate an annual average result of chemical composition analysis of each type of lime product produced and calcined byproduct/waste sold using Equations S–7 through S–10 of this section.

$$CaO_{i,avg} = \frac{1}{n}\sum_{i=1}^{n} CaO_{i,n} \quad \text{(Eq. S-7)}$$

Where

$CaO_{i,avg}$ = Annual average calcium oxide content for lime type i (metric tons CaO/metric ton lime).

$CaO_{i,n}$ = Calcium oxide content for lime type i, for calendar month n, determined according to § 98.194(c) for Equation S–1 of this section (metric tons CaO/metric ton lime).

n = Number of calendar months with calculated $CaO_{,i,n}$ value used to calculate annual average calcium oxide content.

$$MgO_{i,avg} = \frac{1}{n}\sum_{i=1}^{n} MgO_{i,n} \quad \text{(Eq. S-8)}$$

Where:

$MgO_{i,avg}$ = Annual average magnesium oxide content for lime type i (metric tons MgO/metric ton lime).

$MgO_{i,n}$ = Magnesium oxide content for lime type i, for calendar month n, determined according to § 98.194(c) for Equation S–1 of this section (metric tons MgO/metric ton lime).

n = Number of calendar months with calculated $MgO_{,i,n}$ value used to calculate annual average magnesium oxide content.

$$CaO_{LKD,i,avg} = \frac{1}{n}\sum_{i=1}^{n} CaO_{LKD,i,n} \quad \text{(Eq. S-9)}$$

Where:

$CaO_{LKD,i,avg}$ = Annual average calcium oxide content for calcined lime byproduct/waste type i sold (metric tons CaO/metric ton lime).

$CaO_{LKD,i,n}$ = Calcium oxide content for calcined lime byproduct/waste type i sold, for calendar month n, determined according to § 98.194(c) for Equation S–2 of this section (metric tons CaO/metric ton lime).

n = Number of calendar months with calculated $CaO_{LKD,i,n}$ value used to calculate annual average calcium oxide content.

$$MgO_{LKD,i,avg} = \frac{1}{n}\sum_{i=1}^{n} MgO_{LKD,i,n} \quad \text{(Eq. S-10)}$$

Where:

$MgO_{LKD,i,avg}$ = Annual average magnesium oxide content for calcined lime byproduct/waste type i sold (metric tons MgO/metric ton lime).

$MgO_{LKD,i,n}$ = Magnesium oxide content for calcined lime byproduct/waste type i sold, for calendar month n, determined according to § 98.194(c) for Equation S–2 of this section (metric tons MgO/metric ton lime).

n = Number of calendar months with calculated $MgO_{LKD,i,n}$ value used to calculate annual average magnesium oxide content.

■ 42. Effective January 1, 2018, amend § 98.196 by revising paragraph (b) introductory text and adding paragraphs (b)(19) through (21) to read as follows:

§ 98.196 Data reporting requirements.

* * * * *

(b) If a CEMS is not used to measure CO_2 emissions, then you must report the information listed in paragraphs (b)(1) through (21) of this section.

* * * * *

(19) Annual average emission factors for each lime product type produced.

(20) Annual average emission factors for each calcined byproduct/waste by lime type that is sold.

(21) Annual average results of chemical composition analysis of each type of lime product produced and calcined byproduct/waste sold.

Subpart U—Miscellaneous Uses of Carbonate

■ 43. Effective January 1, 2018, amend § 98.216 by revising paragraph (e) introductory text to read as follows:

§ 98.216 Data reporting requirements.

* * * * *

(e) If you followed the calculation method of § 98.213(a), you must report the information in paragraphs (e)(1) through (3) of this section.

* * * * *

Subpart V—Nitric Acid Production

■ 44. Effective January 1, 2018, revise § 98.220 to read as follows:

§ 98.220 Definition of source category.

This source category includes a nitric acid production facility using one or more trains to produce weak nitric acid (30 to 70 percent in strength). Starting with reporting year 2018, this source category includes all nitric acid production facilities using one or more trains to produce nitric acid (any

strength). A nitric acid train produces nitric acid through the catalytic oxidation of ammonia.

■ 45. Effective January 1, 2018, amend § 98.223 by revising paragraph (a)(2) to read as follows:

§ 98.223 Calculating GHG emissions.

(a) * * *

(2) Request Administrator approval for an alternative method of determining N_2O emissions according to paragraphs (a)(2)(i) through (iv) of this section.

(i) If you received Administrator approval for an alternative method of determining N_2O emissions in the previous reporting year and your methodology is unchanged, your alternative method is automatically approved for the next reporting year.

(ii) You must notify the EPA of your use of a previously approved alternative method in your annual report.

(iii) Otherwise, if you have not received Administrator approval for an alternative method of determining N_2O emissions in a prior reporting year or your methodology has changed, you must submit the request within the first 30 days of each subsequent reporting year.

(iv) If the Administrator does not approve your requested alternative method within 150 days of the end of the reporting year, you must determine the N_2O emissions for the current reporting period using the procedures specified in paragraph (a)(1) of this section.

* * * * *

■ 46. Effective January 1, 2019, amend § 98.226 by revising paragraph (h) to read as follows:

§ 98.226 Data reporting requirements.

* * * * *

(h) Abatement technologies used (if applicable) and date of installation of abatement technology.

* * * * *

Subpart X—Petrochemical Production

■ 47. Effective January 1, 2018, amend § 98.240 by revising paragraph (a) to read as follows:

§ 98.240 Definition of the source category.

(a) The petrochemical production source category consists of processes as described in paragraphs (a)(1) and (2) of this section.

(1) The petrochemical production source category consists of all processes that produce acrylonitrile, carbon black, ethylene, ethylene dichloride, ethylene oxide, or methanol, as either an intermediate in the on-site production of other chemicals or as an end product for sale or shipment off site, except as specified in paragraphs (b) through (g) of this section.

(2) When ethylene dichloride and vinyl chloride monomer are produced in an integrated process, you may consider the entire integrated process to be the petrochemical process for the purpose of complying with the mass balance option in § 98.243(c). If you elect to consider the integrated process to be the petrochemical process, then the mass balance must be performed over the entire integrated process.

* * * * *

■ 48. Effective January 1, 2018, amend § 98.243 by revising paragraphs (c)(3), (c)(4) introductory text, and (c)(4)(i) to read as follows:

§ 98.243 Calculating GHG emissions.

* * * * *

(c) * * *

(3) Collect a sample of each feedstock and product at least once per month and determine the molecular weight (for gaseous materials when the quantity is measured in scf) and carbon content of each sample according to the procedures of § 98.244(b)(4). If multiple valid molecular weight or carbon content measurements are made during the monthly measurement period, average them arithmetically. However, if a particular liquid or solid feedstock is delivered in lots, and if multiple deliveries of the same feedstock are received from the same supply source in a given calendar month, only one representative sample is required. Alternatively, you may use the results of analyses conducted by a feedstock supplier, or product customer, provided the sampling and analysis is conducted at least once per month using any of the procedures specified in § 98.244(b)(4).

(4) If you determine that the monthly average concentration of a specific compound in a feedstock or product is greater than 99.5 percent by volume or mass, then as an alternative to the sampling and analysis specified in paragraph (c)(3) of this section, you may determine molecular weight and carbon content in accordance with paragraphs (c)(4)(i) through (iii) of this section.

(i) Calculate the molecular weight and carbon content assuming 100 percent of that feedstock or product is the specific compound.

* * * * *

■ 49. Effective January 1, 2018, amend § 98.246 by revising paragraphs (a)(5) and (a)(6)(ii) and (iii), adding paragraphs (a)(14) and (15), and revising paragraphs (b)(2), (3), and (8) to read as follows:

§ 98.246 Data reporting requirements.

* * * * *

(a) * * *

(5) Annual quantity of each type of petrochemical produced from each process unit (metric tons). If you are electing to consider the petrochemical process unit to be the entire integrated ethylene dichloride/vinyl chloride monomer process, report the amount of intermediate EDC produced (metric tons). The reported amount of intermediate EDC produced may be a measured quantity or an estimate that is based on process knowledge and best available data.

(6) * * *

(ii) Description of each type of measurement device (*e.g.,* flow meter, weighing device) used to determine volume or mass in accordance with § 98.244(b)(1) through (3).

(iii) Identification of each method (*i.e.,* method number, title, or other description) used to determine volume or mass in accordance with § 98.244(b)(1) through (3).

* * * * *

(14) Annual average of the measurements or determinations of the carbon content of each feedstock and product, conducted according to § 98.243(c)(3) or (4).

(i) For feedstocks and products that are gaseous or solid, report this quantity in kg C per kg of feedstock or product.

(ii) For liquid feedstocks and products, report this quantity either in units of kg C per kg of feedstock or product, or kg C per gallon of feedstock or product.

(15) For each gaseous feedstock and product, the annual average of the measurements or determinations of the molecular weight in units of kg per kg mole, conducted according to § 98.243(c)(3) or (4).

(b) * * *

(2) For CEMS used on stacks that include emissions from stationary combustion units that burn any amount of off-gas from the petrochemical process, report the relevant information required under § 98.36(c)(2) and (e)(2)(vi) for the Tier 4 calculation methodology. Section 98.36(c)(2)(ii), (ix) and (x) do not apply for the purposes of this subpart.

(3) For CEMS used on stacks that do not include emissions from stationary combustion units, report the information required under § 98.36(b)(6) and (7), (b)(9)(i) and (ii) and (e)(2)(vi).

* * * * *

(8) Annual quantity of each type of petrochemical produced from each process unit (metric tons). If you are electing to consider the petrochemical

process unit to be the entire integrated ethylene dichloride/vinyl chloride monomer process, report the amount of intermediate EDC produced (metric tons). The reported amount of intermediate EDC produced may be a measured quantity or an estimate that is based on process knowledge and best available data.

* * * * *

■ 50. Effective January 1, 2018, amend § 98.247 by revising paragraph (a) to read as follows:

§ 98.247 Records that must be retained.

* * * * *

(a) If you comply with the CEMS measurement methodology in § 98.243(b), then you must retain under this subpart the records required for the Tier 4 Calculation Methodology in § 98.37, records of the procedures used to develop estimates of the fraction of total emissions attributable to petrochemical processing and combustion of petrochemical process off-gas as required in § 98.246(b), and records of any annual average HHV calculations.

* * * * *

■ 51. Effective January 1, 2018, amend § 98.248 by revising the definition for ''Product'' to read as follows:

§ 98.248 Definitions.

* * * * *

Product means each of the following carbon-containing outputs from a process: The petrochemical, recovered byproducts, and liquid organic wastes that are not combusted onsite. Product does not include process vent emissions, fugitive emissions, or wastewater.

Subpart Y—Petroleum Refineries

■ 52. Effective January 1, 2019, amend § 98.253 by:

■ a. Revising paragraphs (b) introductory text, (b)(1)(iii)(B), (h)(1) introductory text, and (h)(2) introductory text;

■ b. Revising parameters ''0.98'' of Equations Y–16a and Y–16b and ''0.02'' of Equation Y–17 in paragraph (h)(2); and

■ c. Revising paragraphs (i) and (j) introductory text.

The revisions read as follows:

§ 98.253 Calculating GHG emissions.

* * * * *

(b) For flares, calculate GHG emissions according to the requirements in paragraphs (b)(1) through (3) of this section. All gas discharged through the flare stack must be included in the flare GHG emissions calculations with the exception of gas used for the flare pilots, which may be excluded.

(1) * * *

(iii) * * *

(B) For periods of normal operation, use the average higher heating value measured for the fuel gas used as flare sweep or purge gas for the higher heating value of the flare gas. If higher heating value of the fuel gas is not measured, the higher heating value of the flare gas under normal operations may be estimated from historic data or engineering calculations.

* * * * *

(h) * * *

(1) For uncontrolled asphalt blowing operations or asphalt blowing operations controlled either by vapor scrubbing or by another non-combustion control device, calculate CO_2 and CH_4 emissions using Equations Y–14 and Y–15 of this section, respectively.

* * * * *

(2) For asphalt blowing operations controlled by either a thermal oxidizer, a flare, or other vapor combustion control device, calculate CO_2 using either Equation Y–16a or Y–16b of this section and calculate CH_4 emissions using Equation Y–17 of this section, provided these emissions are not already included in the flare emissions calculated in paragraph (b) of this section or in the stationary combustion unit emissions required under subpart C of this part (General Stationary Fuel Combustion Sources).

* * * (Eq. Y–16a)

* * * * *

0.98 = Assumed combustion efficiency of the control device.

* * * * *

* * * (Eq. Y–16b)

* * * * *

0.98 = Assumed combustion efficiency of the control device.

* * * * *

* * * (Eq. Y–17)

* * * * *

0.02 = Fraction of methane uncombusted in the controlled stream based on assumed 98% combustion efficiency.

* * * * *

(i) For each delayed coking unit, calculate the CH_4 emissions from delayed decoking operations (venting, draining, deheading, and coke-cutting) according to the requirements in paragraphs (i)(1) through (5) of this section.

(1) Determine the typical dry mass of coke produced per cycle from company records of the mass of coke produced by the delayed coking unit. Alternatively, you may estimate the typical dry mass of coke produced per cycle based on the delayed coking unit vessel (coke drum) dimensions and typical coke drum outage at the end of the coking cycle using Equation Y–18a of this section.

$$M_{coke} = \rho_{bulk} \times \left(\left(H_{drum} - H_{outage} \right) \times \frac{\pi \times D^2}{4} \right) \quad \text{(Eq. Y-18a)}$$

Where:

M_{coke} = Typical dry mass of coke in the delayed coking unit vessel at the end of the coking cycle (metric tons/cycle).

ρ_{bulk} = Bulk coke bed density (metric tons per cubic feet; mt/ft^3). Use the default value of 0.0191 mt/ft^3.

H_{drum} = Internal height of delayed coking unit vessel (feet).

H_{outage} = Typical distance from the top of the delayed coking unit vessel to the top of the coke bed (*i.e.,* coke drum outage) at the end of the coking cycle (feet) from company records or engineering estimates.

D = Diameter of delayed coking unit vessel (feet).

(2) Determine the typical mass of water in the delayed coking unit vessel at the end of the cooling cycle prior to venting to the atmosphere using Equation Y–18b of this section.

$$M_{water} = \rho_{water} \times \left(\left(H_{water} \right) \times \frac{\pi \times D^2}{4} - \frac{M_{coke}}{\rho_{particle}} \right) \quad \text{(Eq. Y-18b)}$$

Where:

M_{water} = Mass of water in the delayed coking unit vessel at the end of the cooling cycle just prior to atmospheric venting (metric tons/cycle).

ρ_{water} = Density of water at average temperature of the delayed coking unit vessel at the end of the cooling cycle just prior to atmospheric venting (metric tons per cubic feet; mt/ft^3). Use the default value of 0.0270 mt/ft^3.

H_{water} = Typical distance from the bottom of the coking unit vessel to the top of the water level at the end of the cooling cycle just prior to atmospheric venting (feet) from company records or engineering estimates.

M_{coke} = Typical dry mass of coke in the delayed coking unit vessel at the end of the coking cycle (metric tons/cycle) as determined in paragraph (i)(1) of this section.

$\rho_{particle}$ = Particle density of coke (metric tons per cubic feet; mt/ft^3). Use the default value of 0.0382 mt/ft^3.

D = Diameter of delayed coking unit vessel (feet).

(3) Determine the average temperature of the delayed coking unit vessel when the drum is first vented to the atmosphere using either Equation Y–18c or Y–18d of this section, as appropriate, based on the measurement system available.

$$T_{initial} = (T_{overhead} + T_{bottom})/2 \qquad \text{(Eq. Y-18c)}$$

Where:

$T_{initial}$ = Average temperature of the delayed coking unit vessel when the drum is first vented to the atmosphere (°F).

$T_{overhead}$ = Temperature of the delayed coking unit vessel overhead line measured as near the coking unit vessel as practical just prior to venting to the atmosphere. If the temperature of the delayed coking unit vessel overhead line is less than 216 °F, use $T_{overhead}$ = 216 °F.

T_{bottom} = Temperature of the delayed coking unit vessel near the bottom of the coke bed. If the temperature at the bottom of the coke bed is less than 212 °F, use T_{bottom} = 212 °F.

$$T_{initial} = -0.039\ P_{overhead}^2 + 3.13\ P_{overhead} + 220 \qquad \text{(Eq. Y-18d)}$$

Where:

$T_{initial}$ = Average temperature of the delayed coking unit vessel when the drum is first vented to the atmosphere (°F).

$P_{overhead}$ = Pressure of the delayed coking unit vessel just prior to opening the atmospheric vent (pounds per square inch gauge, psig).

(4) Determine the typical mass of steam generated and released per decoking cycle using Equation Y–18e of this section.

$$M_{steam} = \frac{\left(1 - f_{ConvLoss}\right) \times \left(M_{water} \times C_{p,water} + M_{coke} \times C_{p,coke}\right) \times \left(T_{initial} - T_{final}\right)}{\Delta H_{vap}} \qquad \text{(Eq. Y-18e)}$$

Where:

M_{steam} = Mass of steam generated and released per decoking cycle (metric tons/cycle).

$f_{ConvLoss}$ = fraction of total heat loss that is due to convective heat loss from the sides of the coke vessel (unitless). Use the default value of 0.10.

M_{water} = Mass of water in the delayed coking unit vessel at the end of the cooling cycle just prior to atmospheric venting (metric tons/cycle).

$C_{p,water}$ = Heat capacity of water (British thermal units per metric ton per degree Fahrenheit; Btu/mt-°F). Use the default value of 2,205 Btu/mt-°F.

M_{coke} = Typical dry mass of coke in the delayed coking unit vessel at the end of the coking cycle (metric tons/cycle) as determined in paragraph (i)(1) of this section.

$C_{p,coke}$ = Heat capacity of petroleum coke (Btu/mt-°F). Use the default value of 584 Btu/mt-°F.

$T_{initial}$ = Average temperature of the delayed coking unit vessel when the drum is first vented to the atmosphere (°F) as determined in paragraph (i)(3) of this section.

T_{final} = Temperature of the delayed coking unit vessel when steam generation stops (°F). Use the default value of 212 °F.

ΔH_{vap} = Heat of vaporization of water (British thermal units per metric ton; Btu/mt). Use the default value of 2,116,000 Btu/mt.

(5) Calculate the CH_4 emissions from decoking operations at each delayed coking unit using Equation Y–18f of this section.

$$CH_4 = M_{steam} \times EmF_{DCU} \times N \times 0.001 \qquad \text{(Eq. Y-18f)}$$

Where:

CH_4 = Annual methane emissions from the delayed coking unit decoking operations (metric ton/year).

M_{steam} = Mass of steam generated and released per decoking cycle (metric tons/cycle) as determined in paragraph (i)(3) of this section.

EmF_{DCU} = Methane emission factor for delayed coking unit (kilograms CH_4 per metric ton of steam; kg CH_4/mt steam) from unit-specific measurement data. If you do not have unit-specific measurement data, use the default value of 7.9 kg CH_4/metric ton steam.

N = Cumulative number of decoking cycles (or coke-cutting cycles) for all delayed coking unit vessels associated with the delayed coking unit during the year.

0.001 = Conversion factor (metric ton/kg).

(j) For each process vent not covered in paragraphs (a) through (i) of this section that can reasonably be expected to contain greater than 2 percent by volume CO_2 or greater than 0.5 percent by volume of CH_4 or greater than 0.01 percent by volume (100 parts per million) of N_2O, calculate GHG emissions using Equation Y–19 of this section. You must also use Equation Y–19 of this section to calculate CH_4 emissions for catalytic reforming unit depressurization and purge vents when methane is used as the purge gas, and

CO_2 and/or CH_4 emissions, as applicable, if you elected this method as an alternative to the methods in paragraph (f), (h), or (k) of this section.

* * * * *

■ 53. Effective January 1, 2019, amend § 98.254 by revising paragraph (j), redesignating paragraph (k) as paragraph (l), and adding new paragraph (k) to read as follows:

§ 98.254 Monitoring and QA/QC requirements.

* * * * *

(j) Determine the quantity of petroleum process streams using company records. These quantities include the quantity of coke produced per cycle, asphalt blown, quantity of crude oil plus the quantity of intermediate products received from off site, and the quantity of unstabilized crude oil received at the facility.

(k) Determine temperature or pressure of delayed coking unit vessel using process instrumentation operated, maintained, and calibrated according to the manufacturer's instructions.

* * * * *

■ 54. Effective January 1, 2019, amend § 98.256 by revising paragraphs (e)(3) and (6), (h)(5)(ii)(A), and (k) to read as follows:

§ 98.256 Data reporting requirements.

* * * * *

(e) * * *

(3) A description of the flare service (general facility flare, unit flare, emergency only or back-up flare) and an indication of whether or not the flare is serviced by a flare gas recovery system.

* * * * *

(6) If you use Equation Y–1a in § 98.253, an indication of whether daily or weekly measurement periods are used, annual average carbon content of the flare gas (in kg carbon per kg flare gas), and, either the annual volume of flare gas combusted (in scf/year) and the annual average molecular weight (in kg/kg-mole), or the annual mass of flare gas combusted (in kg/yr).

* * * * *

(h) * * *

(5) * * *

(ii) * * *

(A) The annual volume of recycled tail gas (in scf/year).

* * * * *

(k) For each delayed coking unit, the owner or operator shall report:

(1) The unit ID number (if applicable).

(2) Maximum rated throughput of the unit, in bbl/stream day.

(3) Annual quantity of coke produced in the unit during the reporting year, in metric tons.

(4) The calculated annual CH_4 emissions (in metric tons of CH_4) for the delayed coking unit.

(5) The total number of delayed coking vessels (or coke drums) associated with the delayed coking unit.

(6) The basis for the typical dry mass of coke in the delayed coking unit vessel at the end of the coking cycle (mass measurements from company records or calculated using Equation Y–18a of this subpart).

(7) An indication of the method used to estimate the average temperature of the coke bed, $T_{initial}$ (overhead temperature and Equation Y–18c of this subpart or pressure correlation and Equation Y–18d of this subpart).

(8) An indication of whether a unit-specific methane emissions factor or the default methane emission factor was used for the delayed coking unit.

* * * * *

■ 55. Effective January 1, 2019, amend § 98.257 by:

■ a. Revising paragraphs (b) introductory text and (b)(41) through (45);

■ b. Removing paragraph (b)(46);

■ c. Redesignating paragraphs (b)(47) through (67) as paragraphs (b)(53) through (73);

■ d. Adding new paragraph (b)(46) and paragraphs (b)(47) through (52); and

■ e. Revising newly redesignated paragraph (b)(65).

The revisions and additions read as follows:

§ 98.257 Records that must be retained.

* * * * *

(b) *Verification software records.* You must keep a record of the file generated by the verification software specified in § 98.5(b) for the applicable data specified in paragraphs (b)(1) through (73) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (b)(1) through (73) of this section.

* * * * *

(41) Typical dry mass of coke in the delayed coking unit vessel at the end of the coking cycle (metric tons/cycle) from company records or calculated using Equation Y–18a of this subpart (Equations Y–18a, Y–18b and Y–18e in § 98.253) for each delayed coking unit.

(42) Internal height of delayed coking unit vessel (feet) (Equation Y–18a in § 98.253) for each delayed coking unit.

(43) Typical distance from the top of the delayed coking unit vessel to the top of the coke bed (*i.e.,* coke drum outage) at the end of the coking cycle (feet) from company records or engineering estimates (Equation Y–18a in § 98.253) for each delayed coking unit.

(44) Diameter of delayed coking unit vessel (feet) (Equations Y–18a and Y–18b in § 98.253) for each delayed coking unit.

(45) Mass of water in the delayed coking unit vessel at the end of the cooling cycle prior to atmospheric venting (metric ton/cycle) (Equations Y–18b and Y–18e in § 98.253) for each delayed coking unit.

(46) Typical distance from the bottom of the coking unit vessel to the top of the water level at the end of the cooling cycle just prior to atmospheric venting (feet) from company records or engineering estimates (Equation Y–18b in § 98.253) for each delayed coking unit.

(47) Mass of steam generated and released per decoking cycle (metric tons/cycle) (Equations Y–18e and Y–18f in § 98.253) for each delayed coking unit.

(48) Average temperature of the delayed coking unit vessel when the drum is first vented to the atmosphere (°F) (Equations Y–18c, Y–18d, and Y–18e in § 98.253) for each delayed coking unit.

(49) Temperature of the delayed coking unit vessel overhead line measured as near the coking unit vessel as practical just prior to venting the atmosphere (Equation Y–18c in § 98.253) for each delayed coking unit.

(50) Pressure of the delayed coking unit vessel just prior to opening the atmospheric vent (psig) (Equation Y–18d in § 98.253) for each delayed coking unit.

(51) Methane emission factor for delayed coking unit (kilograms CH_4 per metric ton of steam; kg CH_4/mt steam) (Equation Y–18f in § 98.253) for each delayed coking unit.

(52) Cumulative number of decoking cycles (or coke-cutting cycles) for all delayed coking unit vessels associated with the delayed coking unit during the year (Equation Y–18f in § 98.253) for each delayed coking unit.

* * * * *

(65) Specify whether the calculated or default loading factor L specified in § 98.253(n) is entered, for each liquid loaded to each vessel (methods specified in § 98.253(n)).

* * * * *

Subpart Z—Phosphoric Acid Production

■ 56. Effective January 1, 2018, amend § 98.266 by revising paragraph (f)(3) to read as follows:

§ 98.266 Data reporting requirements.

* * * * *

(f) * * *

(3) Annual phosphoric acid production capacity (tons) for each wet-process phosphoric acid process line.

* * * * *

Subpart AA—Pulp and Paper Manufacturing

■ 57. Effective January 1, 2018, amend § 98.273 by revising paragraphs (a)(1), (b)(1), and (c)(1) to read as follows:

§ 98.273 Calculating GHG emissions.

(a) * * *

(1) Calculate fossil fuel-based CO_2 emissions from direct measurement of fossil fuels consumed and default emissions factors according to the Tier 1 methodology for stationary combustion sources in § 98.33(a)(1). Tiers 2 or 3 from § 98.33(a)(2) or (3) may be used to calculate fossil fuel-based CO_2 emissions if the respective monitoring and QA/QC requirements described in § 98.34 are met.

* * * * *

(b) * * *

(1) Calculate fossil CO_2 emissions from fossil fuels from direct measurement of fossil fuels consumed and default emissions factors according to the Tier 1 Calculation Methodology for stationary combustion sources in § 98.33(a)(1). Tiers 2 or 3 from § 98.33(a)(2) or (3) may be used to calculate fossil fuel-based CO_2 emissions if the respective monitoring and QA/QC requirements described in § 98.34 are met.

* * * * *

(c) * * *

(1) Calculate CO_2 emissions from fossil fuel from direct measurement of fossil fuels consumed and default HHV and default emissions factors, according to the Tier 1 Calculation Methodology for stationary combustion sources in § 98.33(a)(1). Tiers 2 or 3 from § 98.33(a)(2) or (3) may be used to calculate fossil fuel-based CO_2 emissions if the respective monitoring and QA/QC requirements described in § 98.34 are met.

* * * * *

■ 58. Effective January 1, 2018, amend § 98.275 by revising paragraph (b) to read as follows:

§ 98.275 Procedures for estimating missing data.

* * * * *

(b) For missing measurements of the mass of spent liquor solids or spent pulping liquor flow rates, use the lesser value of either the maximum mass or fuel flow rate for the combustion unit, or the maximum mass or flow rate that the fuel meter can measure. Alternatively, records of the daily spent liquor solids firing rate obtained to comply with § 63.866(c)(1) of this chapter may be used, adjusting for the duration of the missing measurements, as appropriate.

* * * * *

■ 59. Effective January 1, 2018, amend Table AA–2 to subpart AA of part 98 by:

■ a. Revising the column headings for ''Kraft lime kilns'' and ''Kraft calciners'';

■ b. Revising the entry for ''Petroleum coke'';

■ c. Revising footnote a; and

■ d. Adding footnote b.

The revisions read as follows:

TABLE AA–2 TO SUBPART AA OF PART 98—KRAFT LIME KILN AND CALCINER EMISSIONS FACTORS FOR CH_4 AND N_2O

Fuel	Fossil fuel-based emissions factors (kg/mmBtu HHV)			
	Kraft rotary lime kilns		Kraft calciners [a]	
	CH_4	N_2O	CH_4	N_2O
* * * *	*		*	*
Petroleum coke	0.0027	0	[b] NA	[b] NA
* * * *	*		*	*

[a] Includes, for example, fluidized bed calciners at kraft mills.
[b] Emission factors for kraft calciners are not available.

Subpart CC—Soda Ash Manufacturing

■ 60. Effective January 1, 2018, amend § 98.294 by revising paragraph (a)(2) to read as follows:

§ 98.294 Monitoring and QA/QC requirements.

* * * * *

(a) * * *

(2) Measure the mass of trona input to each soda ash manufacturing line on a monthly basis using belt scales or methods used for accounting purposes.

* * * * *

Subpart DD—Electrical Transmission and Distribution Equipment Use

■ 61. Effective January 1, 2018, amend § 98.306 by:

■ a. Revising paragraphs (a)(2) and (3);

■ b. Adding paragraphs (a)(4) and (5);

■ c. Revising paragraphs (b) and (c); and

■ d. Adding paragraphs (m) and (n).

The revisions and additions read as follows:

§ 98.306 Data reporting requirements.

* * * * *

(a) * * *

(2) New hermetically sealed-pressure switchgear during the year.

(3) New equipment other than hermetically sealed-pressure switchgear during the year.

(4) Retired hermetically sealed-pressure switchgear during the year.

(5) Retired equipment other than hermetically sealed-pressure switchgear during the year.

(b) Transmission miles (length of lines carrying voltages above 35 kilovolts).

(c) Distribution miles (length of lines carrying voltages at or below 35 kilovolts).

* * * * *

(m) State(s) or territory in which the facility lies.

(n) The number of SF_6- or PFC-containing pieces of equipment in each of the following equipment categories:

(1) New hermetically sealed-pressure switchgear during the year.

(2) New equipment other than hermetically sealed-pressure switchgear during the year.

(3) Retired hermetically sealed-pressure switchgear during the year.

(4) Retired equipment other than hermetically sealed-pressure switchgear during the year.

Subpart FF—Underground Coal Mines

■ 62. Effective January 1, 2018, amend § 98.323 by:

■ a. Revising parameter ''n'' of Equation FF–1 in paragraph (a);

■ b. Revising paragraphs (a)(1) introductory text and (a)(2);

■ c. Revising parameters ''CH_{4D}'' and ''n'' of Equation FF–3 in paragraph (b); and

■ d. Revising paragraphs (b)(1) and (b)(2) introductory text.

The revisions read as follows:

§ 98.323 Calculating GHG emissions.

(a) * * *

* * * * *

n = The number of days in the quarter where active ventilation of mining operations is taking place at the monitoring point. To obtain the number of days in the quarter, divide the total number of hours in the quarter where active ventilation is taking place by 24 hours per day.

* * * * *

(1) The quarterly periods are:

* * * * *

(2) Values of V, C, T, P, and, if applicable, (f_{H2O}), must be based on measurements taken at least once each quarter with no fewer than 6 weeks between measurements. If measurements are taken more frequently than once per quarter, then use the average value for all measurements taken. If continuous measurements are taken, then use the average value over the time period of continuous monitoring.

* * * * *

(b) * * *

* * * * *

CH_{4D} = Weekly CH_4 liberated from the monitoring point (metric tons CH_4).

* * * * *

n = The number of days in the week that the system is operational at that measurement point. To obtain the number of days in the week, divide the total number of hours that the system is operational by 24 hours per day.

* * * * *

(1) Values for V, C, T, P, and, if applicable, (f_{H2O}), must be based on measurements taken at least once each calendar week with at least 3 days between measurements. If measurements are taken more frequently than once per week, then use the average value for all measurements taken that week. If continuous measurements are taken, then use the average values over the time period of continuous monitoring when the continuous monitoring equipment is properly functioning.

(2) Quarterly total CH_4 liberated from degasification systems for the mine must be determined as the sum of CH_4 liberated determined at each of the monitoring points in the mine, summed over the number of weeks in the quarter, as follows:

* * * * *

■ 63. Amend § 98.324 by revising paragraph (b)(1) to read as follows:

§ 98.324 Monitoring and QA/QC requirements.

* * * * *

(b) * * *

(1) Collect quarterly or more frequent grab samples (with no fewer than 6 weeks between measurements) for methane concentration and make quarterly measurements of flow rate, temperature, pressure, and, if applicable, moisture content. The sampling and measurements must be made at the same locations as Mine Safety and Health Administration (MSHA) inspection samples are taken, and should be taken when the mine is operating under normal conditions. You must follow MSHA sampling procedures as set forth in the MSHA Handbook entitled, Coal Mine Safety and Health General Inspection Procedures Handbook, Handbook Number: PH16–V–1 (incorporated by reference, see § 98.7). You must record the date of sampling, flow, temperature, pressure, and moisture measurements, the methane concentration (percent), the bottle number of samples collected, and the location of the measurement or collection.

* * * * *

■ 64. Effective January 1, 2018, amend § 98.324 by revising paragraph (h) to read as follows:

§ 98.324 Monitoring and QA/QC requirements.

* * * * *

(h) The owner or operator shall document the procedures used to ensure the accuracy of gas flow rate, gas composition, temperature, pressure, and moisture content measurements. These procedures include, but are not limited to, calibration of flow meters, and other measurement devices. The estimated accuracy of measurements and the technical basis for the estimated accuracy shall be recorded.

■ 65. Effective January 1, 2018, amend § 98.326 by revising paragraphs (a), (f) through (i), (o), and (r)(2) and (3) to read as follows:

§ 98.326 Data reporting requirements.

* * * * *

(a) Quarterly CH_4 liberated from each ventilation monitoring point, (metric tons CH_4). Where MSHA reports are the monitoring method chosen under § 98.324(b), each annual report must include the MSHA reports used to report quarterly CH_4 concentration and volumetric flow rate as attachments.

* * * * *

(f) Quarterly volumetric flow rate for each ventilation monitoring point and units of measure (scfm or acfm), date and location of each measurement, and method of measurement (quarterly sampling or continuous monitoring), used in Equation FF–1 of this subpart. Specify whether the volumetric flow rate measurement at each ventilation monitoring point is on dry basis or wet basis; and, if a flow meter is used, indicate whether or not the flow meter automatically corrects for moisture content.

(g) Quarterly CH_4 concentration for each ventilation monitoring point, dates and locations of each measurement, and method of measurement (sampling or continuous monitoring). Specify whether the CH_4 concentration measurement at each ventilation monitoring point is on dry basis or wet basis.

(h) Weekly volumetric flow rate used to calculate CH_4 liberated from degasification systems and units of measure (acfm or scfm), and method of measurement (sampling or continuous monitoring), used in Equation FF–3 of this subpart. Specify whether the volumetric flow rate measurement at each degasification monitoring point is on dry basis or wet basis; and, if a flow meter is used, indicate whether or not the flow meter automatically corrects for moisture content.

(i) Quarterly CH_4 concentration (%) used to calculate CH_4 liberated from degasification systems, and if the data is based on CEMS or weekly sampling. Specify whether the CH_4 concentration measurement at each degasification monitoring point is on dry basis or wet basis.

* * * * *

(o) Temperature (°R), pressure (atm), moisture content (if applicable), and the moisture correction factor (if applicable) used in Equations FF–1 and FF–3 of this subpart; and the gaseous organic concentration correction factor, if Equation FF–9 of this subpart was required. Moisture content is required to be reported only if CH_4 concentration is measured on a wet basis and volumetric flow is measured on a dry basis, if CH_4 concentration is measured on a dry basis and volumetric flow is measured on a wet basis; and, if a flow meter is used, the flow meter does not automatically correct for moisture content.

* * * * *

(r) * * *

(2) Start date and close date of each well, shaft, and vent hole. If the well, shaft, or vent hole is operating through the end of the reporting year, December 31st of the reporting year shall be the close date for purposes of reporting.

(3) Number of days the well, shaft, or vent hole was in operation during the

reporting year. To obtain the number of days in the reporting year, divide the total number of hours that the system was in operation by 24 hours per day.

* * * * *

Subpart HH—Municipal Solid Waste Landfills

■ 66. Amend § 98.346 by revising paragraphs (f) and (i)(5) and (7) and adding paragraph (i)(13) to read as follows:

§ 98.346 Data reporting requirements.

* * * * *

(f) The surface area of the landfill containing waste (in square meters), identification of the type(s) of cover material used (as either organic cover, clay cover, sand cover, or other soil mixtures).

* * * * *

(i) * * *

(5) An indication of whether destruction occurs at the landfill facility, off-site, or both. If destruction occurs at the landfill facility, also report for each measurement location:

(i) The number of destruction devices associated with the measurement location.

(ii) The annual operating hours of the gas collection system associated with the measurement location.

(iii) For each destruction device associated with the measurement location, report:

(A) The destruction efficiency (decimal).

(B) The annual operating hours where active gas flow was sent to the destruction device.

* * * * *

(7) A description of the gas collection system (manufacturer, capacity, and number of wells), the surface area (square meters) and estimated waste depth (meters) for each area specified in Table HH–3 to this subpart, the estimated gas collection system efficiency for landfills with this gas collection system and an indication of whether passive vents and/or passive flares (vents or flares that are not considered part of the gas collection system as defined in § 98.6) are present at the landfill.

* * * * *

(13) Methane emissions for the landfill (*i.e.,* the subpart HH total methane emissions). Choose the methane emissions from either Equation HH–6 or Equation HH–8 of this subpart that best represents the emissions from the landfill. If the quantity of recovered CH_4 from Equation HH–4 of this subpart is used as the value of G_{CH4} in Equation HH–6, use the methane emissions calculated using Equation HH–8 as the methane emissions for the landfill.

■ 67. Amend § 98.348 by adding definitions for ''Final cover,'' ''Intermediate or interim cover,'' and ''Passive vent'' in alphabetical order to read as follows:

§ 98.348 Definitions.

* * * * *

Final cover means materials used at a landfill to meet final closure regulations of the competent federal, state, or local authority.

* * * * *

Intermediate or interim cover means the placement of material over waste in a landfill for a period of time prior to the disposal of additional waste and/or final closure as defined by state regulation, permit, guidance or written plan, or state accepted best management practice.

* * * * *

Passive vent means a pipe or a system of pipes that allows landfill gas to flow naturally, without the use of a fan or similar mechanical draft equipment, to the surface of the landfill where an opening or pipe (vent) allows for the free flow of landfill gas to the atmosphere or to a passive vent flare without diffusion through the top layer of surface soil.

* * * * *

■ 68. Amend Table HH–3 to subpart HH of part 98 by:

■ a. Revising the entry for ''A5''; and

■ b. Adding heading ''Weighted average collection efficiency for landfills:'' after the entry for ''A5.''

The revision and addition read as follows:

TABLE HH–3 TO SUBPART HH OF PART 98—LANDFILL GAS COLLECTION EFFICIENCIES

Description	Landfill gas collection efficiency
* * * * * * *	
A5: Area with a final soil cover of 3 feet or thicker of clay or final cover (as approved by the relevant agency) and/or geomembrane cover system and active gas collection CE5: 95%.	
Weighted average collection efficiency for landfills:	
* * * * * * *	

■ 69. Amend Table HH–4 to subpart HH of part 98 by:

■ a. Revising the entries ''C2'' through ''C7'';

■ b. Redesignating footnote ''a'' as footnote ''b''; and

■ c. Adding new footnote ''a.''

The revisions and addition read as follows:

TABLE HH–4 TO SUBPART HH OF PART 98—LANDFILL METHANE OXIDATION FRACTIONS

Under these conditions:	Use this landfill methane oxidation fraction:
* * * * * * *	
C2: For landfills that have a geomembrane (synthetic) cover or other non-soil barrier meeting the definition of final cover with less than 12 inches of cover soil for greater than 50% of the landfill area containing waste	0.0
C3: For landfills that do not meet the conditions in C2 above and for which you elect not to determine methane flux	0.10
C4: For landfills that do not meet the conditions in C2 or C3 above and that do not have final cover, or intermediate or interim cover[a] for greater than 50% of the landfill area containing waste	0.10

TABLE HH–4 TO SUBPART HH OF PART 98—LANDFILL METHANE OXIDATION FRACTIONS—Continued

Under these conditions:	Use this landfill methane oxidation fraction:
C5: For landfills that do not meet the conditions in C2 or C3 above and that have final cover, or intermediate or interim cover[a] for greater than 50% of the landfill area containing waste and for which the methane flux rate[b] is less than 10 grams per square meter per day ($g/m^2/d$)	0.35
C6: For landfills that do not meet the conditions in C2 or C3 above and that have final cover or intermediate or interim cover[a] for greater than 50% of the landfill area containing waste and for which the methane flux rate[b] is 10 to 70 $g/m^2/d$	0.25
C7: For landfills that do not meet the conditions in C2 or C3 above and that have final cover or intermediate or interim cover[a] for greater than 50% of the landfill area containing waste and for which the methane flux rate[b] is greater than 70 $g/m^2/d$	0.10

[a] Where a landfill is located in a state that does not have an intermediate or interim cover requirement, the landfill must have soil cover of 12 inches or greater in order to use an oxidation fraction of 0.25 or 0.35.

* * * * *

Subpart II—Industrial Wastewater Treatment

■ 70. Effective January 1, 2018, amend § 98.356 by revising paragraph (a) introductory text and adding paragraph (b)(6) to read as follows:

§ 98.356 Data reporting requirements.

* * * * *

(a) Identify the anaerobic processes used in the industrial wastewater treatment system to treat industrial wastewater and industrial wastewater treatment sludge, provide a unique identifier for each anaerobic process, indicate the average depth in meters of each anaerobic lagoon, and indicate whether biogas generated by each anaerobic process is recovered. Provide a description or diagram of the industrial wastewater treatment system, identifying the processes used, indicating how the processes are related to each other, and providing a unique identifier for each anaerobic process. Each anaerobic process must be identified as one of the following:

* * * * *

(b) * * *

(6) If the facility performs an ethanol production processing operation as defined in § 98.358, you must indicate if the facility uses a wet milling process or a dry milling process.

* * * * *

■ 71. Effective January 1, 2018, amend § 98.358 by adding definitions for ''Dry milling,'' ''Wet milling,'' and ''Weekly average'' in alphabetical order to read as follows:

§ 98.358 Definitions.

* * * * *

Dry milling means the process in which shelled corn is milled by dry process, without an initial steeping step.

* * * * *

Wet milling means the process in which shelled corn is steeped in a dilute solution of sulfurous acid (sulfur dioxide dissolved in water) prior to further processing.

Weekly average means the sum of all values measured in a calendar week divided by the number of measurements.

Subpart LL—Suppliers of Coal-based Liquid Fuels

■ 72. Effective January 1, 2018, revise § 98.382 to read as follows:

§ 98.382 GHGs to report.

Suppliers of coal-based liquid fuels must report the CO_2 emissions that would result from the complete combustion or oxidation of fossil-fuel products (besides coal or crude oil) produced, used as feedstock, imported, or exported during the calendar year. Additionally, producers must report CO_2 emissions that would result from the complete combustion or oxidation of any biomass co-processed with fossil fuel-based feedstocks.

■ 73. Effective January 1, 2018, revise § 98.383 to read as follows:

§ 98.383 Calculating GHG emissions.

Suppliers of coal-based liquid fuels must follow the calculation methods of § 98.393 as if they applied to the appropriate coal-to-liquid product supplier (*i.e.,* calculation methods for refiners apply to producers of coal-to-liquid products and calculation methods for importers and exporters of petroleum products apply to importers and exporters of coal-to-liquid products).

(a) In calculation methods in § 98.393 for petroleum products or petroleum-based products, suppliers of coal-to-liquid products shall also include coal-to-liquid products.

(b) In calculation methods in § 98.393 for non-crude feedstocks or non-crude petroleum feedstocks, producers of coal-to-liquid products shall also include coal-to-liquid products that enter the facility to be further processed or otherwise used on site.

(c) In calculation methods in § 98.393 for petroleum feedstocks, suppliers of coal-to-liquid products shall also include coal and coal-to-liquid products that enter the facility to be further processed or otherwise used on site.

■ 74. Effective January 1, 2018, revise § 98.384 to read as follows:

§ 98.384 Monitoring and QA/QC requirements.

Suppliers of coal-based liquid fuels must follow the monitoring and QA/QC requirements in § 98.394 as if they applied to the appropriate coal-to-liquid product supplier. Any monitoring and QA/QC requirement for petroleum products in § 98.394 also applies to coal-to-liquid products.

■ 75. Effective January 1, 2018, revise § 98.385 to read as follows:

§ 98.385 Procedures for estimating missing data.

Suppliers of coal-based liquid fuels must follow the procedures for estimating missing data in § 98.395 as if they applied to the appropriate coal-to-liquid product supplier. Any procedure for estimating missing data for petroleum products in § 98.395 also applies to coal-to-liquid products.

■ 76. Effective January 1, 2018, amend § 98.386 by:

■ a. Removing and reserving paragraphs (a)(4) and (8);

■ b. Revising the introductory text to paragraphs (a)(9) through (11);

■ c. Removing and reserving paragraph (a)(15);

■ d. Revising paragraph (a)(20);

■ e. Removing and reserving paragraph (b)(4);

■ f. Revising the introductory text to paragraphs (b)(5) and (6);

■ g. Removing and reserving paragraph (c)(4); and

■ h. Revising the introductory text to paragraphs (c)(5) and (6).

The revisions read as follows:

§ 98.386 Data reporting requirements.

* * * * *

(a) * * *

(9) For every feedstock reported in paragraph (a)(2) of this section for which Calculation Method 2 in § 98.393(f)(2) was used to determine an emissions factor, report:

* * * * *

(10) For every non-solid feedstock reported in paragraph (a)(2) of this section for which Calculation Method 2 in § 98.393(f)(2) was used to determine an emissions factor, report:

* * * * *

(11) For every product reported in paragraph (a)(6) of this section for which Calculation Method 2 in § 98.393(f)(2) was used to determine an emissions factor, report:

* * * * *

(20) Annual quantity of bulk NGLs in metric tons or barrels received for processing during the reporting year. Report only quantities of bulk NGLs not reported in paragraph (a)(2) of this section.

(b) * * *

(5) For each product reported in paragraph (b)(2) of this section for which Calculation Method 2 in § 98.393(f)(2) used was used to determine an emissions factor, report:

* * * * *

(6) For each non-solid product reported in paragraph (b)(2) of this section for which Calculation Method 2 in § 98.393(f)(2) was used to determine an emissions factor, report:

* * * * *

(c) * * *

(5) For each product reported in paragraph (c)(2) of this section for which Calculation Method 2 in § 98.393(f)(2) was used to determine an emissions factor, report:

* * * * *

(6) For each non-solid product reported in paragraph (c)(2) of this section for which Calculation Method 2 in § 98.393(f)(2) used was used to determine an emissions factor, report:

* * * * *

■ 77. Effective January 1, 2018, revise § 98.387 to read as follows:

§ 98.387 Records that must be retained.

Suppliers of coal-based liquid fuels must retain records according to the requirements in § 98.397 as if they applied to the appropriate coal-to-liquid product supplier (*e.g.,* retaining copies of all reports submitted to EPA under § 98.386 and records to support information contained in those reports). Any records for petroleum products that are required to be retained in § 98.397 are also required for coal-to-liquid products.

Subpart MM—Suppliers of Petroleum Products

§ 98.395 [Amended]

■ 78. Effective January 1, 2018, amend § 98.395 by removing paragraph (c).

Subpart NN—Suppliers of Natural Gas and Natural Gas Liquids

■ 79. Effective January 1, 2018, revise § 98.401 to read as follows:

§ 98.401 Reporting threshold.

Any supplier of natural gas and natural gas liquids that meets the requirements of § 98.2(a)(4) must report GHG emissions associated with the products they supply.

■ 80. Effective January 1, 2018, amend § 98.403 by:

■ a. Revising paragraph (a)(1) introductory text;

■ b. Removing parameter ''CO_2.'' of Equation NN–1 in paragraph (a)(1) and adding in its place a parameter for ''CO_{2i}'';

■ c. Revising paragraph (a)(2) introductory text;

■ d. Removing parameter ''CO_2.'' of Equation NN–2 in paragraph (a)(2) and adding in its place a parameter for ''CO_{2i}'';

■ e. In paragraph (b)(1):

■ i. Removing parameter ''CO_2.'' of Equation NN–3 and adding in its place a parameter for ''CO_{2j}''; and

■ ii. Revising parameter ''Fuel'' of Equation NN–3;

■ f. Removing parameter ''CO_2.'' of Equation NN–4 in paragraph (b)(2)(ii) and adding in its place a parameter for ''CO_{2k}'';

■ g. In paragraph (b)(3)(i):

■ i. Removing parameter ''CO_2.'' of Equation NN–5a and adding in its place a parameter for ''CO_{2l}''; and

■ ii. Revising parameter ''EF'' of Equation NN–5a;

■ h. Removing parameter ''CO_2.'' of Equation NN–5b in paragraph (b)(3)(ii) and adding in its place a parameter for ''CO_{2n}'';

■ i. Revising the parameters of Equation NN–6 in paragraph (b)(4);

■ j. In paragraph (c)(1)(ii):

■ i. Removing parameter ''CO_2.'' of Equation NN–7 and adding in its place a parameter for ''CO_{2m}''; and

■ ii. Revising parameter ''$Fuel_g$'' of Equation NN–7; and

■ k. Revising the parameters of Equation NN–8 in paragraph (c)(2).

The revisions read as follows:

§ 98.403 Calculating GHG emissions.

(a) * * *

(1) *Calculation Methodology 1.* NGL fractionators shall estimate CO_2 emissions that would result from the complete combustion or oxidation of the product(s) supplied using Equation NN–1 of this section. The annual volume of each NGL product supplied ($Fuel_h$) shall include any amount of that NGL supplied in a mixture or blend of two or more products listed in Tables NN–1 and NN–2 of this subpart. The annual volume of each NGL product supplied shall exclude any amount of that NGL contained in bulk NGLs exiting the facility (*e.g.,* y-grade, o-grade, and other bulk NGLs). LDCs shall estimate CO_2 emissions that would result from the complete combustion or oxidation of the natural gas received at the city gate (including natural gas that is transported by, but not owned by, the reporter) using Equation NN–1 of this section. For each product, use the default value for higher heating value and CO_2 emission factor in Table NN–1 of this subpart. Alternatively, for each product, a reporter-specific higher heating value and CO_2 emission factor may be used, in place of one or both defaults provided they are developed using methods outlined in § 98.404. For each product, you must use the same volume unit throughout the equation.

* * * * *

CO_{2i} = Annual CO_2 mass emissions that would result from the combustion or oxidation of each product ''h'' for redelivery to all recipients (metric tons).

* * * * *

(2) *Calculation Methodology 2.* NGL fractionators shall estimate CO_2 emissions that would result from the complete combustion or oxidation of the product(s) supplied using Equation NN–2 of this section. The annual volume of each NGL product supplied ($Fuel_h$) shall include any amount of that NGL supplied in a mixture or blend of two or more products listed in Tables NN–1 and NN–2 of this subpart. The annual volume of each NGL product supplied shall exclude any amount of that NGL contained in bulk NGLs exiting the facility (*e.g.,* y-grade, o-grade, and other bulk NGLs). LDCs shall estimate CO_2 emissions that would result from the complete combustion or oxidation of the natural gas received at the city gate (including natural gas that is transported by, but not owned by, the reporter) using Equation NN–2 of this section. For each product, use the default CO_2 emission factor found in Table NN–2 of this subpart. Alternatively, for each product, a reporter-specific CO_2 emission factor may be used in place of the default factor, provided it is developed using methods outlined in § 98.404. For each

product, you must use the same volume unit throughout the equation.

* * * * *

CO_{2i} = Annual CO_2 mass emissions that would result from the combustion or oxidation of each product ''h'' (metric tons)

* * * * *

(b) * * *

(1) * * *

* * * * *

CO_{2j} = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas for redelivery to transmission pipelines or other LDCs (metric tons).

Fuel = Total annual volume of natural gas supplied to downstream gas transmission pipelines and other local distribution companies (Mscf per year).

* * * * *

(2) * * *

(ii) * * *

* * * * *

CO_{2k} = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas delivered to each large end-user k, as defined in paragraph (b)(2)(i) of this section (metric tons).

* * * * *

(3) * * *

(i) * * *

* * * * *

CO_{2l} = Annual CO_2 mass emissions that would result from the combustion or oxidation of the net change in natural gas stored on system by the LDC within the reporting year (metric tons).

* * * * *

EF = CO_2 emission factor for natural gas placed into/removed from storage (MT CO_2/Mscf).

(ii) * * *

* * * * *

CO_{2n} = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas received that bypassed the city gate and is not otherwise accounted for by Equation NN–1 or NN–2 of this section (metric tons).

* * * * *

(4) * * *

* * * * *

CO_2 = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas delivered to LDC end-users not covered in paragraph (b)(2) of this section (metric tons).

CO_{2i} = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas received at the city gate as calculated in paragraph (a)(1) or (2) of this section (metric tons).

CO_{2j} = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas delivered to transmission pipelines or other LDCs as calculated in paragraph (b)(1) of this section (metric tons).

CO_{2k} = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas delivered to each large end-user as calculated in paragraph (b)(2) of this section (metric tons).

CO_{2l} = Annual CO_2 mass emissions that would result from the combustion or oxidation of the net change in natural gas stored by the LDC within the reported year as calculated in paragraph (b)(3)(i) of this section (metric tons).

CO_{2n} = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas that was received by the LDC directly from sources bypassing the city gate, and is not otherwise accounted for in Equation NN–1 or NN–2 of this section, as calculated in paragraph (b)(3)(ii) of this section (metric tons).

(c) * * *

(1) * * *

(ii) * * *

* * * * *

CO_{2m} = Annual CO_2 mass emissions that would result from the combustion or oxidation of each fractionated NGL product ''g'' received from other fractionators (metric tons).

$Fuel_g$ = Total annual volume of each NGL product ''g'' received from other fractionators (bbls).

* * * * *

(2) * * *

* * * * *

CO_2 = Annual CO_2 mass emissions that would result from the combustion or oxidation of fractionated NGLs delivered to customers or on behalf of customers less the quantity received from other fractionators (metric tons).

CO_{2i} = Annual CO_2 mass emissions that would result from the combustion or oxidation of fractionated NGLs delivered to all customers or on behalf of customers as calculated in paragraph (a)(1) or (2) of this section (metric tons).

CO_{2m} = Annual CO_2 mass emissions that would result from the combustion or oxidation of fractionated NGLs received from other fractionators and calculated in paragraph (c)(1) of this section (metric tons).

■ 81. Effective January 1, 2018, amend § 98.404 by revising paragraphs (a)(1) introductory text and (a)(3) and (4) to read as follows:

§ 98.404 Monitoring and QA/QC requirements.

(a) * * *

(1) NGL fractionators and LDCs shall determine the quantity of NGLs and natural gas using methods in common use in the industry for billing purposes as audited under existing Sarbanes Oxley regulation.

* * * * *

(3) NGL fractionators shall use measurement for NGLs at custody transfer meters or at such meters that are used to determine the NGL product slate delivered from the fractionation facility.

(4) If a NGL fractionator supplies a product that is a mixture or blend of two or more products listed in Tables NN–1 and NN–2 of this subpart, the NGL fractionator shall report the quantities of the constituents of the mixtures or blends separately.

* * * * *

■ 82. Effective January 1, 2018, amend § 98.406 by:

■ a. Revising paragraphs (a)(1) and (2) and (a)(4)(ii);

■ b. Revising paragraphs (b)(1), (6), (12), and (b)(13) introductory text; and

■ c. Adding paragraph (b)(14).

The revisions and addition read as follows:

§ 98.406 Data reporting requirements.

(a) * * *

(1) Annual quantity (in barrels) of each NGL product supplied (including fractionated NGL products received from other NGL fractionators) in the following product categories: Ethane, propane, normal butane, isobutane, and pentanes plus ($Fuel_h$ in Equations NN–1 and NN–2 of this subpart).

(2) Annual quantity (in barrels) of each NGL product received from other NGL fractionators in the following product categories: Ethane, propane, normal butane, isobutane, and pentanes plus ($Fuel_g$ in Equation NN–7 of this subpart).

* * * * *

(4) * * *

(ii) Supplied to downstream users.

* * * * *

(b) * * *

(1) Annual volume in Mscf of natural gas received by the LDC at its city gate stations for redelivery on the LDC's distribution system, including for use by the LDC ($Fuel_h$ in Equations NN–1 and NN–2 of this subpart).

* * * * *

(6) Annual volume in Mscf of natural gas delivered to downstream gas transmission pipelines and other local distribution companies (Fuel in Equation NN–3 of this subpart).

* * * * *

(12) For each large end-user reported in paragraph (b)(7) of this section, report:

(i) The customer name, address, and meter number(s).

(ii) Whether the quantity of natural gas reported in paragraph (b)(7) of this section is the total quantity delivered to a large end-user's facility, or the quantity delivered to a specific meter located at the facility.

(iii) If known, report the EIA identification number of each LDC customer.

(13) The annual volume in Mscf of natural gas delivered by the LDC (including natural gas that is not owned

by the LDC) to each of the following end-use categories. For definitions of these categories, refer to EIA Form 176 (Annual Report of Natural Gas and Supplemental Gas Supply & Disposition) and Instructions.

* * * * *

(14) The name of the U.S. state or territory covered in this report submission.

* * * * *

■ 83. Effective January 1, 2018, amend Table NN–2 to subpart NN of part 98 by revising the title to the table and the heading of the third column to read as follows:

TABLE NN–2 TO SUBPART NN OF PART 98—DEFAULT FACTORS FOR CALCULATION METHODOLOGY 2 OF THIS SUBPART

Fuel	Unit	Default CO_2 emission factor (MT CO_2/Unit) [1]
*	*	*

[1] Conditions for emission value presented in MT CO_2/bbl are 60 °F and saturation pressure.

Subpart OO—Suppliers of Industrial Greenhouse Gases

■ 84. Effective January 1, 2018, amend § 98.410 by revising paragraph (a) and adding paragraphs (d) and (e) to read as follows:

§ 98.410 Definition of the source category.

(a) The industrial gas supplier source category consists of any facility that produces fluorinated GHGs or nitrous oxide; any bulk importer of fluorinated GHGs or nitrous oxide; and any bulk exporter of fluorinated GHGs or nitrous oxide. Starting with reporting year 2018, this source category also consists of any facility that produces fluorinated HTFs; any bulk importer of fluorinated HTFs; any bulk exporter of fluorinated HTFs; and any facility that destroys fluorinated GHGs or fluorinated HTFs.

* * * * *

(d) To produce a fluorinated HTF means to manufacture, from any raw material or feedstock chemical, a fluorinated GHG used for temperature control, device testing, cleaning substrate surfaces and other parts, and soldering in processes including but not limited to certain types of electronics manufacturing production processes. Fluorinated heat transfer fluids do not include fluorinated GHGs used as lubricants or surfactants. For fluorinated heat transfer fluids under this subpart, the lower vapor pressure limit of 1 mm Hg in absolute at 25 °C in the definition of fluorinated greenhouse gas in § 98.6 shall not apply. Fluorinated heat transfer fluids include, but are not limited to, perfluoropolyethers, perfluoroalkanes, perfluoroethers, tertiary perfluoroamines, and perfluorocyclic ethers. Producing a fluorinated HTF does not include the reuse or recycling of a fluorinated HTF, the creation of intermediates, or the creation of fluorinated HTFs that are released or destroyed at the production facility before the production measurement at § 98.414(a).

(e) For purposes of this subpart, to destroy fluorinated GHGs or fluorinated HTFs means to cause the expiration of a previously produced (as defined in paragraphs (b) and (d) of this section) fluorinated GHG or fluorinated HTF to the destruction efficiency actually achieved. Such destruction does not result in a commercially useful end product. For purposes of this subpart, such destruction does not include HFC–23 destruction as defined at § 98.150 or the dissociation of fluorinated GHGs that occurs during electronics manufacturing as defined at § 98.90. For example, such destruction does not include the dissociation of fluorinated GHGs that occurs during etch or chamber cleaning processes or during use of abatement systems that treat the fluorinated GHGs vented from such processes at electronics manufacturing facilities.

■ 85. Effective January 1, 2018, revise § 98.412 to read as follows

§ 98.412 GHGs to report.

You must report the GHG emissions that would result from the release of the nitrous oxide and each fluorinated GHG that you produce, import, export, transform, or destroy during the calendar year. Starting with reporting year 2018, you must also report the emissions that would result from the release of each fluorinated HTF that is not also a fluorinated GHG and that you produce, import, export, transform, or destroy during the calendar year.

■ 86. Effective January 1, 2018, amend § 98.413 by:

■ a. Revising paragraph (a) introductory text;

■ b. Revising the parameters of Equation OO–1 in paragraph (a);

■ c. Revising paragraph (b) introductory text;

■ d. Revising the parameters of Equation OO–2 in paragraph (b);

■ e. Revising paragraph (c) introductory text;

■ f. Revising parameters ''T'' and ''E_T'' of Equation OO–3 in paragraph (c);

■ g. Revising paragraph (d) introductory text; and

■ h. Revising parameters ''D'' and ''F_D'' of Equation OO–4 in paragraph (d).

The revisions read as follows:

§ 98.413 Calculating GHG emissions.

(a) Calculate the total mass of the nitrous oxide and each fluorinated GHG or fluorinated HTF produced annually, except for amounts that are captured solely to be shipped off site for destruction, by using Equation OO–1 of this section:

* * * * *

P = Mass of fluorinated GHG, fluorinated HTF, or nitrous oxide produced annually.

P_p = Mass of fluorinated GHG, fluorinated HTF, or nitrous oxide produced over the period ''p''.

(b) Calculate the total mass of the nitrous oxide and each fluorinated GHG or fluorinated HTF produced over the period ''p'' by using Equation OO–2 of this section:

* * * * *

P_p = Mass of fluorinated GHG, fluorinated HTF, or nitrous oxide produced over the period ''p'' (metric tons).

O_p = Mass of fluorinated GHG, fluorinated HTF, or nitrous oxide that is measured coming out of the production process over the period p (metric tons).

U_p = Mass of used fluorinated GHG, fluorinated HTF, or nitrous oxide that is added to the production process upstream of the output measurement over the period ''p'' (metric tons).

(c) Calculate the total mass of the nitrous oxide and each fluorinated GHG or fluorinated HTF transformed by using Equation OO–3 of this section:

* * * * *

T = Mass of fluorinated GHG, fluorinated HTF, or nitrous oxide transformed annually (metric tons).

* * * * *

E_T = The fraction of the fluorinated GHG, fluorinated HTF, or nitrous oxide fed into the transformation process that is transformed in the process (metric tons).

(d) Calculate the total mass of each fluorinated GHG or fluorinated HTF destroyed by using Equation OO–4 of this section:

* * * * *

D = Mass of fluorinated GHG or fluorinated HTF destroyed annually (metric tons).

F_D = Mass of fluorinated GHG or fluorinated HTF fed into the destruction device annually (metric tons).

* * * * *

■ 87. Effective January 1, 2018, amend § 98.414 by revising paragraphs (a) through (i), (l), (n) introductory text, (n)(3) through (5), and (o) to read as follows:

§ 98.414 Monitoring and QA/QC requirements.

(a) The mass of fluorinated GHGs, fluorinated HTFs, or nitrous oxide coming out of the production process shall be measured using flowmeters, weigh scales, or a combination of volumetric and density measurements with an accuracy and precision of one percent of full scale or better. If the measured mass includes more than one fluorinated GHG or fluorinated HTF, the concentrations of each of the fluorinated GHGs or fluorinated HTFs, other than low-concentration constituents, shall be measured as set forth in paragraph (n) of this section. For each fluorinated GHG or fluorinated HTF, the mean of the concentrations of that fluorinated GHG (mass fraction) measured under paragraph (n) shall be multiplied by the mass measurement to obtain the mass of that fluorinated GHG or fluorinated HTF coming out of the production process.

(b) The mass of any used fluorinated GHGs, fluorinated HTFs, or used nitrous oxide added back into the production process upstream of the output measurement in paragraph (a) of this section shall be measured using flowmeters, weigh scales, or a combination of volumetric and density measurements with an accuracy and precision of one percent of full scale or better. If the mass in paragraph (a) is measured by weighing containers that include returned heels as well as newly produced fluorinated GHGs or fluorinated HTFs, the returned heels shall be considered used fluorinated GHGs or fluorinated HTFs for purposes of this paragraph (b) and § 98.413(b).

(c) The mass of fluorinated GHGs, fluorinated HTFs, or nitrous oxide fed into the transformation process shall be measured using flowmeters, weigh scales, or a combination of volumetric and density measurements with an accuracy and precision of one percent of full scale or better.

(d) The fraction of the fluorinated GHGs, fluorinated HTFs, or nitrous oxide fed into the transformation process that is actually transformed shall be estimated considering yield calculations or quantities of unreacted fluorinated GHGs, fluorinated HTFs, or nitrous oxide permanently removed from the process and recovered, destroyed, or emitted.

(e) The mass of fluorinated GHGs, fluorinated HTFs, or nitrous oxide sent to another facility for transformation shall be measured using flowmeters, weigh scales, or a combination of volumetric and density measurements with an accuracy and precision of one percent of full scale or better.

(f) The mass of fluorinated GHGs or fluorinated HTFs sent to another facility for destruction shall be measured using flowmeters, weigh scales, or a combination of volumetric and density measurements with an accuracy and precision of one percent of full scale or better. If the measured mass includes more than trace concentrations of materials other than the fluorinated GHG or fluorinated HTF, the concentration of the fluorinated GHG or fluorinated HTF shall be estimated considering current or previous representative concentration measurements and other relevant process information. This concentration (mass fraction) shall be multiplied by the mass measurement to obtain the mass of the fluorinated GHG or fluorinated HTF sent to another facility for destruction.

(g) You must estimate the share of the mass of fluorinated GHGs or fluorinated HTFs in paragraph (f) of this section that is comprised of fluorinated GHGs or fluorinated HTFs that are not included in the mass produced in § 98.413(a) because they are removed from the production process as by-products or other wastes.

(h) You must measure the mass of each fluorinated GHG or fluorinated HTF that is fed into the destruction device and that was previously produced as defined at § 98.410(b). Such fluorinated GHGs or fluorinated HTFs include but are not limited to quantities that are shipped to the facility by another facility for destruction and quantities that are returned to the facility for reclamation but are found to be irretrievably contaminated and are therefore destroyed. You must use flowmeters, weigh scales, or a combination of volumetric and density measurements with an accuracy and precision of one percent of full scale or better. If the measured mass includes more than trace concentrations of materials other than the fluorinated GHG or fluorinated HTF being destroyed, you must estimate the concentrations of the fluorinated GHG or fluorinated HTF being destroyed considering current or previous representative concentration measurements and other relevant process information. You must multiply this concentration (mass fraction) by the mass measurement to obtain the mass of the fluorinated GHG or fluorinated HTF fed into the destruction device.

(i) Very small quantities of fluorinated GHGs or fluorinated HTFs that are difficult to measure because they are entrained in other media such as destroyed filters and destroyed sample containers are exempt from paragraphs (f) and (h) of this section.

* * * * *

(l) In their estimates of the mass of fluorinated GHGs or fluorinated HTFs destroyed, facilities that destroy fluorinated GHGs or fluorinated HTFs shall account for any temporary reductions in the destruction efficiency that result from any startups, shutdowns, or malfunctions of the destruction device, including departures from the operating conditions defined in state or local permitting requirements and/or oxidizer manufacturer specifications.

* * * * *

(n) If the mass coming out of the production process includes more than one fluorinated GHG or fluorinated HTF, you shall measure the concentrations of all of the fluorinated GHGs or fluorinated HTFs, other than low-concentration constituents, as follows:

* * * * *

(3) *Frequency of measurement.* Perform the measurements at least once by February 15, 2011 if the fluorinated GHG product is being produced on December 17, 2010. Perform the measurements within 60 days of commencing production of any fluorinated GHG product that was not being produced on December 17, 2010. For fluorinated HTF products that are not also fluorinated GHG products, perform the measurements at least once by February 28, 2018, if the fluorinated HTF product is being produced on January 1, 2018. Perform the measurements within 60 days of commencing production of any fluorinated HTF product that was not being produced on January 1, 2018. Repeat the measurements if an operational or process change occurs that could change the identities or significantly change the concentrations of the fluorinated GHG or fluorinated HTF constituents of the fluorinated GHG or fluorinated HTF product. Complete the repeat measurements within 60 days of the operational or process change.

(4) *Measure all product grades.* Where a fluorinated GHG or fluorinated HTF is produced at more than one purity level (*e.g.,* pharmaceutical grade and refrigerant grade), perform the measurements for each purity level.

(5) *Number of samples.* Analyze a minimum of three samples of the fluorinated GHGs or fluorinated HTF product that have been drawn under conditions that are representative of the process producing the fluorinated GHGs or fluorinated HTF product. If the

relative standard deviation of the measured concentrations of any of the fluorinated GHGs or fluorinated HTF constituents (other than low-concentration constituents) is greater than or equal to 15 percent, draw and analyze enough additional samples to achieve a total of at least six samples of the fluorinated GHG or fluorinated HTF product.

(o) All analytical equipment used to determine the concentration of fluorinated GHGs or fluorinated HTFs, including but not limited to gas chromatographs and associated detectors, IR, FTIR and NMR devices, shall be calibrated at a frequency needed to support the type of analysis specified in the site GHG Monitoring Plan as required under paragraph (n) of this section and § 98.3(g)(5). Quality assurance samples at the concentrations of concern shall be used for the calibration. Such quality assurance samples shall consist of or be prepared from certified standards of the analytes of concern where available; if not available, calibration shall be performed by a method specified in the GHG Monitoring Plan.

* * * * *

■ 88. Effective January 1, 2018, amend § 98.416 by:
■ a. Revising paragraph (a);
■ b. Revising paragraphs (b) introductory text and (b)(3) and (6);
■ c. Adding paragraph (b)(7);
■ d. Revising paragraphs (c) introductory text, (c)(1) through (6), and (c)(8) through (10);
■ e. Revising paragraphs (d) introductory text, (d)(1), and (d)(4) through (6); and
■ f. Adding paragraphs (i) and (j).

The revisions and additions read as follows:

§ 98.416 Data reporting requirements.

* * * * *

(a) Each fluorinated GHG, fluorinated HTF, or nitrous oxide production facility shall report the following information:

(1) Mass in metric tons of nitrous oxide and each fluorinated GHG or fluorinated HTF produced at that facility by process, except for amounts that are captured solely to be shipped off site for destruction.

(2) Mass in metric tons of nitrous oxide and each fluorinated GHG or fluorinated HTF transformed at that facility, by process.

(3) Mass in metric tons of each fluorinated GHG or fluorinated HTF that is destroyed at that facility and that was previously produced as defined at § 98.410(b). Quantities to be reported under paragraph (a)(3) of this section include but are not limited to quantities that are shipped to the facility by another facility for destruction and quantities that are returned to the facility for reclamation but are found to be irretrievably contaminated and are therefore destroyed.

(4) [Reserved]

(5) Total mass in metric tons of nitrous oxide and each fluorinated GHG or fluorinated HTF sent to another facility for transformation.

(6) Total mass in metric tons of each fluorinated GHG or fluorinated HTF sent to another facility for destruction, except fluorinated GHGs and fluorinated HTFs that are not included in the mass produced in § 98.413(a) because they are removed from the production process as byproducts or other wastes. Quantities to be reported under paragraph (a)(6) of this section could include, for example, fluorinated GHGs that are returned to the facility for reclamation but are found to be irretrievably contaminated and are therefore sent to another facility for destruction.

(7) Total mass in metric tons of each fluorinated GHG or fluorinated HTF that is sent to another facility for destruction and that is not included in the mass produced in § 98.413(a) because it is removed from the production process as a byproduct or other waste.

(8)–(9) [Reserved]

(10) Mass in metric tons of nitrous oxide and each fluorinated GHG or fluorinated HTF fed into the transformation process, by process.

(11) Mass in metric tons of each fluorinated GHG or fluorinated HTF that is fed into the destruction device and that was previously produced as defined at § 98.410(b). Quantities to be reported under paragraph (a)(11) of this section include but are not limited to quantities that are shipped to the facility by another facility for destruction and quantities that are returned to the facility for reclamation but are found to be irretrievably contaminated and are therefore destroyed.

(12) Mass in metric tons of nitrous oxide and each fluorinated GHG or fluorinated HTF that is measured coming out of the production process, by process.

(13) Mass in metric tons of used nitrous oxide and of each used fluorinated GHG or fluorinated HTF added back into the production process (*e.g.,* for reclamation), including returned heels in containers that are weighed to measure the mass in § 98.414(a), by process.

(14) Names and addresses of facilities to which any nitrous oxide, fluorinated GHGs, or fluorinated HTFs were sent for transformation, and the quantities (metric tons) of nitrous oxide and of each fluorinated GHG or fluorinated HTF that were sent to each for transformation.

(15) Names and addresses of facilities to which any fluorinated GHGs or fluorinated HTFs were sent for destruction, and the quantities (metric tons) of each fluorinated GHG or fluorinated HTF that were sent to each for destruction.

(16) Where missing data have been estimated pursuant to § 98.415, the reason the data were missing, the length of time the data were missing, the method used to estimate the missing data, and the estimates of those data.

(b) Any facility or importer that destroys fluorinated GHGs or fluorinated HTFs shall submit a one-time report containing the information in paragraphs (b)(1) through (6) of this section for each destruction process by the applicable date set forth in paragraph (b)(7) of this section. Facilities and importers that previously submitted one-time reports under this paragraph for all destruction devices used to destroy fluorinated GHGs or fluorinated HTFs are exempt from this requirement unless they meet the conditions in paragraph (b)(6) of this section.

* * * * *

(3) Methods used to record the mass of fluorinated GHG or fluorinated HTF destroyed.

* * * * *

(6) If any process changes (including the acquisition of a new destruction device) affect unit destruction efficiency or the methods used to record the mass of fluorinated GHG or fluorinated HTF destroyed, then a revised report must be submitted to reflect the changes. The revised report must be submitted to EPA within 60 days of the change.

(7)(i) Any fluorinated GHG production facility or importer that destroys fluorinated GHGs must submit the one-time destruction report by March 31, 2011 or within 60 days of commencing fluorinated GHG destruction, whichever is later.

(ii) Any fluorinated GHG production facility or importer that destroys fluorinated HTFs that are not also fluorinated GHGs must submit the one-time destruction report by March 31, 2019 or within 60 days of commencing fluorinated HTF destruction, whichever is later.

(iii) Any facility that destroys fluorinated GHGs or fluorinated HTFs but does not produce or import fluorinated GHGs must submit the one-time destruction report by March 31,

2019 or within 60 days of commencing fluorinated GHG or fluorinated HTF destruction, whichever is later.

(c) Each bulk importer of fluorinated GHGs, fluorinated HTFs, or nitrous oxide shall submit an annual report that summarizes its imports at the corporate level, except for shipments including less than twenty-five kilograms of fluorinated GHGs, fluorinated HTFs, or nitrous oxide, transshipments, and heels that meet the conditions set forth at § 98.417(e). The report shall contain the following information for each import:

(1) Total mass in metric tons of nitrous oxide and each fluorinated GHG or fluorinated HTF imported in bulk, including each fluorinated GHG or fluorinated HTF constituent of the fluorinated GHG or fluorinated HTF product that makes up between 0.5 percent and 100 percent of the product by mass.

(2) Total mass in metric tons of nitrous oxide and each fluorinated GHG or fluorinated HTF imported in bulk and sold or transferred to persons other than the importer for use in processes resulting in the transformation or destruction of the chemical.

(3) Date on which the fluorinated GHGs, fluorinated HTFs, or nitrous oxide were imported.

(4) Port of entry through which the fluorinated GHGs, fluorinated HTFs, or nitrous oxide passed.

(5) Country from which the imported fluorinated GHGs, fluorinated HTFs, or nitrous oxide were imported.

(6) Commodity code of the fluorinated GHGs, fluorinated HTFs, or nitrous oxide shipped.

* * * * *

(8) Total mass in metric tons of each fluorinated GHG or fluorinated HTF destroyed by the importer.

(9) If applicable, the names and addresses of the persons and facilities to which the nitrous oxide, fluorinated GHGs, or fluorinated HTFs were sold or transferred for transformation, and the quantities (metric tons) of nitrous oxide and of each fluorinated GHG or fluorinated HTF that were sold or transferred to each facility for transformation.

(10) If applicable, the names and addresses of the persons and facilities to which the fluorinated GHGs or fluorinated HTFs were sold or transferred for destruction, and the quantities (metric tons) of each fluorinated GHG or fluorinated HTF that were sold or transferred to each facility for destruction.

(d) Each bulk exporter of fluorinated GHGs, fluorinated HTFs, or nitrous oxide shall submit an annual report that summarizes its exports at the corporate level, except for shipments including less than twenty-five kilograms of fluorinated GHGs, fluorinated HTFs, or nitrous oxide, transshipments, and heels. The report shall contain the following information for each export:

(1) Total mass in metric tons of nitrous oxide and each fluorinated GHG or fluorinated HTF exported in bulk.

* * * * *

(4) Commodity code of the fluorinated GHGs, fluorinated HTFs, or nitrous oxide shipped.

(5) Date on which, and the port from which, the fluorinated GHGs, fluorinated HTFs, or nitrous oxide were exported from the United States or its territories.

(6) Country to which the fluorinated GHGs, fluorinated HTFs, or nitrous oxide were exported.

* * * * *

(i) Each facility that destroys fluorinated GHGs or fluorinated HTFs but does not otherwise report under this section shall report the mass in metric tons of each fluorinated GHG or fluorinated HTF that is destroyed at that facility and that was previously produced as defined at § 98.410(b) or (d), as applicable. Quantities to be reported under this paragraph (i) include but are not limited to quantities that are shipped to the facility by another facility for destruction and quantities that are returned to the facility for reclamation but are found to be irretrievably contaminated and are therefore destroyed.

(j) By March 31, 2019, all facilities that produce fluorinated HTFs that are not also fluorinated GHGs shall submit a one-time report that includes the concentration of each fluorinated HTF or fluorinated GHG constituent in each fluorinated HTF product as measured under § 98.414(n). If the facility commences production of a fluorinated HTF product that was not included in the initial report or performs a repeat measurement under § 98.414(n) that shows that the identities or concentrations of the fluorinated HTF or fluorinated GHG constituents of a fluorinated HTF product have changed, then the new or changed concentrations, as well as the date of the change, must be provided in a revised report. The revised report must be submitted to EPA by the March 31st that immediately follows the new or repeat measurement under § 98.414(n).

■ 89. Effective January 1, 2018, amend § 98.417 by revising paragraphs (a) introductory text, (a)(3) and (4), and (b) to read as follows:

§ 98.417 Records that must be retained.

(a) In addition to the data required by § 98.3(g), the fluorinated GHG or fluorinated HTF production facility shall retain the following records:

* * * * *

(3) Dated records of the total mass in metric tons of each reactant fed into the fluorinated GHG, fluorinated HTF, or nitrous oxide production process, by process.

(4) Dated records of the total mass in metric tons of the reactants, by-products, and other wastes permanently removed from the fluorinated GHG, fluorinated HTF, or nitrous oxide production process, by process.

(b) In addition to the data required by paragraph (a) of this section, any facility that destroys fluorinated GHGs or fluorinated HTFs shall keep records of test reports and other information documenting the facility's one-time destruction efficiency report in § 98.416(b).

* * * * *

■ 90. Effective January 1, 2018, amend § 98.418 by revising the definition of ''Low-concentration constituent'' to read as follows:

§ 98.418 Definitions.

* * * * *

Low-concentration constituent means, for purposes of fluorinated GHG or fluorinated HTF production and export, a fluorinated GHG or fluorinated HTF constituent of a fluorinated GHG or fluorinated HTF product that occurs in the product in concentrations below 0.1 percent by mass. For purposes of fluorinated GHG or fluorinated HTF import, low-concentration constituent means a fluorinated GHG or fluorinated HTF constituent of a fluorinated GHG or fluorinated HTF product that occurs in the product in concentrations below 0.5 percent by mass. Low-concentration constituents do not include fluorinated GHGs or fluorinated HTFs that are deliberately combined with the product (*e.g.,* to affect the performance characteristics of the product).

Subpart PP—Suppliers of Carbon Dioxide

■ 91. Effective January 1, 2018, amend § 98.425 by revising paragraph (b) introductory text to read as follows:

§ 98.425 Procedures for estimating missing data.

* * * * *

(b) Whenever the quality assurance procedures in § 98.424(b) cannot be followed to determine concentration of the CO_2 stream, the most appropriate of

the following missing data procedures shall be followed:

* * * * *

Subpart TT—Industrial Waste Landfills

■ 92. Effective January 1, 2018, amend Table TT–1 to subpart TT of part 98 by:

■ a. Removing the entry ''Pulp and Paper (other than industrial sludge)'';

■ b. Adding a heading entry for ''Pulp and Paper Industry:''; subheading ''Pulp and paper wastes segregated into separate streams:''; subordinate entries for ''Boiler Ash'', ''Wastewater Sludge'', ''Kraft Recovery Wastes'', and ''Other Pulp and Paper Wastes (not otherwise listed)''; subheading ''Pulp and paper wastes not segregated into separate streams:''; and subordinate entry for ''Pulp and paper manufacturing wastes, general (other than industrial sludge).''

■ c. Revising the entry ''Industrial Sludge'' and footnote a; and

■ d. Adding footnotes ''b'' and ''c''.

The revisions and additions read as follows:

TABLE TT–1 TO SUBPART TT OF PART 98—DEFAULT DOC AND DECAY RATE VALUES FOR INDUSTRIAL WASTE LANDFILLS

Industry/waste type	DOC (weight fraction, wet basis)	k [dry climate [a]] (yr^{-1})	k [moderate climate [a]] (yr^{-1})	k [wet climate [a]] (yr^{-1})
* * *	*	*	*	*
Pulp and Paper Industry:				
Pulp and paper wastes segregated into separate streams:				
Boiler Ash	0.06	0.02	0.03	0.04
Wastewater Sludge	0.12	0.02	0.04	0.06
Kraft Recovery Wastes [b]	0.025	0.02	0.03	0.04
Other Pulp and Paper Wastes (not otherwise listed)	0.20	0.02	0.03	0.04
Pulp and paper wastes not segregated into separate streams:				
Pulp and paper manufacturing wastes, general (other than industrial sludge)	0.15	0.02	0.03	0.04
* * *	*	*	*	*
Industrial Sludge [c]	0.09	0.02	0.04	0.06
* * *	*	*	*	*

[a] The applicable climate classification is determined based on the annual rainfall plus the recirculated leachate application rate. Recirculated leachate application rate (in inches/year) is the total volume of leachate recirculated from company records or engineering estimates and applied to the landfill divided by the area of the portion of the landfill containing waste [with appropriate unit conversions].
Dry climate = precipitation plus recirculated leachate less than 20 inches/year;
Moderate climate = precipitation plus recirculated leachate from 20 to 40 inches/year (inclusive);
Wet climate = precipitation plus recirculated leachate greater than 40 inches/year.
Alternatively, landfills that use leachate recirculation can elect to use the k value for wet climate rather than calculating the recirculated leachate rate.

[b] Kraft Recovery Wastes include green liquor dregs, slaker grits, and lime mud, which may also be referred to collectively as causticizing or recausticizing wastes.

[c] A facility that can segregate out pulp and paper industry wastewater sludge must apply the 0.12 DOC value to that portion of the sludge.

Subpart UU—Injection of Carbon Dioxide

■ 93. Effective January 1, 2018, amend § 98.474 by revising paragraph (c)(2) to read as follows:

§ 98.474 Monitoring and QA/QC requirements.

* * * * *

(c) * * *

(2) You must convert all measured volumes of CO_2 to the following standard industry temperature and pressure conditions for use in Equation UU–2 of this subpart: Standard cubic meters at a temperature of 60 degrees Fahrenheit and at an absolute pressure of 1 atmosphere.

* * * * *

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