ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 86 and 98

[EPA–HQ–OAR–2010–0109; FRL–9213–5]

RIN 2060–A079

Mandatory Reporting of Greenhouse Gases

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: EPA is amending specific provisions in the 2009 Final Mandatory Greenhouse Gas Reporting rule to correct certain technical and editorial errors that have been identified since promulgation and to clarify and update certain provisions that have been the subject of questions from reporting entities. These final changes include additional information to better or more fully understand compliance obligations, corrections to data reporting elements so they more closely conform to the information used to perform emission calculations, and other corrections and amendments.

DATES: The final rule amendments are effective on November 29, 2010. The incorporation by reference of certain publications listed in the final rule amendments are approved by the director of the **Federal Register** as of November 29, 2010.

ADDRESSES: EPA has established a docket under Docket ID No. EPA–HQ–OAR–2010–0109 for this action. All documents in the docket are listed on the *http://www.regulations.gov* index. Although listed in the index, some information is not publicly available, *e.g.,* CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through *http://www.regulations.gov* or in hard copy at EPA's Docket Center, Public Reading Room, EPA West Building, Room 3334, 1301 Constitution Ave., NW., Washington, DC. This Docket Facility is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the Air Docket is (202) 566–1742.

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

SUPPLEMENTARY INFORMATION:

Regulated Entities. The Administrator determined that this action is subject to the provisions of Clean Air Act (CAA) section 307(d). *See* CAA section 307(d)(1)(V) (the provisions of section 307(d) apply to "such other actions as the Administrator may determine"). These are final amendments to existing regulations. These amended regulations affect owners or operators of certain fossil fuel suppliers, direct emitters of greenhouse gases, and manufacturers of highway heavy-duty vehicles. Regulated categories and entities include those listed in Table 1 of this preamble:

TABLE 1—EXAMPLES OF AFFECTED ENTITIES BY CATEGORY

Category	NAICS	Examples of affected facilities
Adipic Acid Production	325199	Adipic acid manufacturing facilities.
Cement Production	327310	Portland cement manufacturing plants.
Ferroalloy Production	331112	Ferroalloys 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.
Phosphoric Acid Production	325312	Phosphoric acid manufacturing facilities.
Soda Ash Manufacturing	325181	Alkali and chlorine manufacturing facilities.
	212391	Soda ash, natural, mining and/or beneficiation.
Titanium Dioxide Production	325188	Titanium dioxide manufacturing facilities.
Zinc Production	331419	Primary zinc refining facilities.
	331492	Zinc dust reclaiming facilities, recovering from scrap and/or alloying purchased metals.
Municipal Solid Waste Landfills	562212	Solid Waste Landfills.
	221320	Sewage Treatment Facilities.
Suppliers of Coal Based Liquids Fuels	211111	Coal liquefaction at mine sites.
Suppliers of Natural Gas and NGLs	221210	Natural gas distribution facilities.
	211112	Natural gas liquid extraction 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. Table 1 of this preamble lists the types of facilities that EPA is now aware could be potentially affected by the reporting requirements. 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 fossil fuel suppliers, direct emitters of GHGs, and manufacturers of highway heavy-duty vehicles. If you have questions regarding the applicability of this action to a particular facility, consult the person listed in the preceding **FOR FURTHER GENERAL INFORMATION CONTACT** section.

Judicial Review. Under section 307(b)(1) of the Clean Air Act (CAA), judicial review of this final rule is available only by filing a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit (the Court) by December 27, 2010. 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 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 GENERAL INFORMATION CONTACT** section, and the Associate General Counsel for the Air and Radiation Law Office, Office of General Counsel (Mail Code 2344A), Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20004. Note, under CAA section 307(b)(2), the requirements established by this final rule may not be challenged separately in any civil or criminal proceedings brought by EPA to enforce these requirements.

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

AFPC	Association of Fertilizer and Phosphate Chemists
AOD	argon-oxygen decarburization
API	American Petroleum Institute
ASTM	American Society for Testing and Materials
C&D	construction and demolition
CAA	Clean Air Act
CaO	calcium oxide
CBI	confidential business information
CEMS	continuous emission monitoring system
CFR	Code of Federal Regulations
CH_4	methane
CKD	cement kiln dust
CO_2	carbon dioxide
DE	destruction efficiency
DOC	degradable organic carbon
EAF	electric arc furnace
EF	emission factor
EIA	Energy Information Administration
EPA	U.S. Environmental Protection Agency
FR	**Federal Register**
GHG	greenhouse gas
HHV	higher heating value
ID	identification
kg	kilograms
lb	pound
LNG	liquefied natural gas
LMPs	lime manufacturing plants
MCF	Methane Correction Factor
MgO	magnesium oxide
Mscf	thousand standard cubic feet
MSW	municipal solid waste
MSWLF	municipal solid waste landfill
N_2O	nitrous oxide
NAICS	North American Industry Classification System
NGLs	natural gas liquids
NO_X	nitrogen oxides
NTTAA	National Technology Transfer and Advancement Act
OMB	Office of Management and Budget
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RFA	Regulatory Flexibility Act
SBREFA	Small Business Regulatory Enforcement Fairness Act
SWDS	solid waste disposal site
TSCA	Toxic Substances Control Act (TSCA)
U.S.	United States
UMRA	Unfunded Mandates Reform Act of 1995
VOD	vacuum oxygen decarburization

Table of Contents

I. Background

A. How is this preamble organized?

The first section of this preamble contains the basic background information about the origin of these rule amendments. This section also discusses EPA's use of our legal authority under the CAA to collect data under the mandatory GHG reporting rule.

The second section of this preamble describes in detail the rule changes that are being promulgated to correct technical errors, to provide clarification, and to address implementation issues identified by EPA and others. This section also presents a summary and EPA's response to the major public comments submitted on the proposed rule amendments, and significant changes, if any, made since proposal in response to those comments.

Finally, the last (third) section of the preamble discusses the various statutory and executive order requirements applicable to this final rulemaking.

B. Background on This Action

The final Mandatory Reporting of Greenhouse Gases Rule (40 CFR part 98 or Part 98) was signed by EPA Administrator Lisa Jackson on September 22, 2009 and published in the **Federal Register** on October 30, 2009 (74 FR 56260, October 30, 2009). Part 98, which became effective on December 29, 2009, included reporting of greenhouse gas (GHG) information from facilities and suppliers, consistent with the 2008 Consolidated Appropriations Act.[1] These source categories capture approximately 85 percent of U.S. GHG emissions through reporting by direct emitters as well as suppliers of fossil fuels and industrial

---

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

gases and manufacturers of mobile sources.

EPA published a notice proposing amendments to Part 98 to, among other things, correct certain technical and editorial errors that have been identified since promulgation and clarify or propose amendments to certain provisions that have been the subject of questions from reporting entities. The proposal was published on June 15, 2010 (75 FR 33950). The public comment period for the proposed rule amendments ended on July 30, 2010. EPA did not receive any requests to hold a public hearing.

In addition to the notice published on June 15, 2010 (75 FR 33950), EPA published a second proposal on August 11, 2010 (75 FR 48744). The second notice proposed to correct certain technical and editorial errors in Part 98 that were identified since promulgation and clarify or propose amendments to certain provisions that were the subject of questions from reporting entities, primarily to subparts not addressed in the June 15, 2010 proposal. The August 11, 2010 proposal complements the proposal published on June 15, 2010.

C. Legal Authority

EPA is promulgating these rule amendments under its existing CAA authority, specifically authorities provided in CAA sections 114 and 208.

As stated in the preamble to the final Part 98 (74 FR 56260), CAA sections 114 and 208 provide EPA broad authority to require the information mandated by this rule because such data will inform and are relevant to EPA's carrying out a wide variety of CAA provisions. As discussed in the preamble to the initial proposed Part 98 (74 FR 16448, April 10, 2009) CAA section 114(a)(1) authorizes the Administrator to require emissions sources, persons subject to the CAA, manufacturers of process or control equipment, and persons whom the Administrator believes may have necessary information to monitor and report emissions and provide such other information the Administrator requests for the purposes of carrying out any provision of the CAA (except for a provision of title II with respect to manufacturers of new motor vehicles or new motor vehicle engines[2]). Section 208 of the CAA provides EPA with similar broad authority regarding the manufacturers of new motor vehicles or new motor vehicle engines, and other persons subject to the requirements of parts A and C of title II. For further information about EPA's legal authority, *see* the preambles to the proposed and final Part 98.[3]

D. How will these amendments apply to 2011 reports?

With two exceptions, we have determined that it is feasible for reporters to implement these changes for the 2010 reporting year because the revisions primarily provide additional clarifications regarding the existing regulatory requirements, generally do not affect the type of information that must be collected and do not substantially affect how emissions are calculated. Our rationale for this determination is explained in the preamble to the proposed rule amendments.[4]

In summary, these amendments, with the two exceptions described below, do not require any additional monitoring or information collection above what was already included in Part 98. Therefore, we have determined that reporters can use the same information that they have been collecting for each subpart to calculate and report GHG emissions for 2010 and submit reports in 2011 under the amended subparts.

The first exception is for reporting CO_2 emissions from certain types of decarburization vessels at iron and steel sources under subpart Q. EPA has determined, based on public comments, that it is necessary to allow a delay in reporting from certain decarburization vessels until the 2011 data collection year (and the subsequent annual GHG emissions reports submitted to EPA by March 31, 2012). The delay in implementation was determined to be necessary because although the 2009 final rule was clear that emissions from argon oxygen-decarburization vessels were required to be reported, the inclusion of other types of decarburization vessels was not clear. A more detailed description of the affected decarburization vessels and our rationale is available in Section II.I of this preamble.

The second exception is related to crude oil reporting requirements in subpart MM. We are providing reporters some flexibility in defining a batch of crude oil for purposes of reporting crude oil data for reporting year 2010. A more detailed description of the type of flexibility we are providing and our rationale is available in Section II.R of this preamble. EPA notes that crude oil data does not impact the CO_2 calculations for 2010 or for any other reporting year.

II. Final Amendments and Responses to Public Comments

We are amending 40 CFR part 86 to appropriately incorporate the regulatory text into the regulations at 40 CFR 86.1844–01.

In 40 CFR Part 98, we are amending various subparts to correct errors in the regulatory language that were identified as a result of working with affected industries to implement the various subparts of Part 98. We are also amending certain rule provisions to provide greater clarity. The amendments to 40 CFR Part 98 include the following types of changes:

- Changes to correct cross references within and between subparts.
- Additional information to better or more fully understand compliance obligations in a specific provision, such as the reference to a standardized method that must be followed.
- Amendments to certain equations to better reflect actual operating conditions.
- Corrections to terms and definitions in certain equations.
- Corrections to data reporting requirements so that they more closely conform to the information used to perform emission calculations.
- Other amendments related to certain issues identified as a result of working with the reporters during rule implementation and outreach.

The final amendments promulgated by this action reflect EPA's consideration of the comments received on the proposal. The major public comments and EPA's responses for each subpart are provided in this preamble. Our responses to additional significant public comments on the proposal are presented in a comment summary and response document available in Docket ID No. EPA–HQ–OAR–2010–0109.

A. Mobile Sources

1. Summary of Final Amendments and Major Changes Since Proposal

Manufacturers of highway heavy-duty vehicles, as well as manufacturers of highway heavy-duty engines, are subject to GHG reporting requirements. EPA inadvertently omitted the regulatory text covering manufacturers of highway heavy-duty vehicles. We are amending 40 CFR part 86 to correct that error by incorporating the appropriate language into the regulations at 40 CFR 86.1844–01.

2. Summary of Comments and Responses

EPA did not receive any comments on the proposed amendments to 40 CFR

---

[2] Although there are exclusions in CAA section 114(a)(1) regarding certain title II requirements applicable to manufacturers of new motor vehicles and motor vehicle engines, CAA section 208 authorizes the gathering of information related to those areas.

[3] 74 FR 16448 (April 10, 2009) and 74 FR 56260 (October 30, 2009).

[4] 75 FR 33952–33953 (June 15, 2010).

part 86 and is finalizing the amendments as proposed.

B. Subpart A—General Provisions

1. Summary of Final Amendments and Major Changes Since Proposal

We are adding and changing several definitions to subpart A to clarify terms used in other subparts of Part 98. Similarly, we are amending 40 CFR 98.7 (incorporation by reference) to accommodate changes in the standard methods that are allowed by other subparts of Part 98.

We are amending the following definitions in 40 CFR 98.6:

- Carbonate-based mineral.
- Carbonate-based mineral mass fraction.
- Carbonate-based raw material.
- Crude oil.
- Decarburization vessel.
- Gas collection system or landfill gas collection system.
- Mscf.
- Non-crude feedstocks.

We are amending the definitions of “carbonate-based mineral,” “carbonate-based mineral mass fraction,” and “carbonate-based raw material” in order to include barium carbonate, potassium carbonate, lithium carbonate, and strontium carbonate, because these carbonates are consumed in the glass industry subject to subpart N.

We are amending the definition of “crude oil” in 40 CFR 98.6 so that it is consistent with the definition in the Energy Information Administration’s (EIA) *Definitions of Petroleum Products and Other Terms (Revised January 2010)*[5], with one additional provision to accommodate the needs of this program to ensure complete reporting of petroleum products, including the unique circumstances that have been raised in comments. We are adding a crude oil reporting requirement in subpart MM (40 CFR 98.396 (a)(22)) to accommodate this provision.

We are amending the definition of “decarburization vessel” in 40 CFR 98.6 to include vessels that are used to further refine molten steel with the primary intent of reducing the carbon content of the steel.

We are amending the definition of “gas collection system or landfill gas collection system,” in 40 CFR 98.6 to clarify that the *passive* vents/flares are not considered part of a landfill gas collection system for purposes of subpart HH, to state that such a system collects gas actively by means of a fan or similar mechanical draft equipment, versus collecting gas passively. Based on a comment received, we are also clarifying that a single landfill may have more than one gas collection system.

We are also amending the definition of “Mscf” in 40 CFR 98.6 to indicate that “Mscf” means *thousand* standard cubic feet.

We are also amending the definition of “non-crude feedstocks” in 40 CFR 98.6 to remove the phrase “as a feedstock” in order to avoid confusion with the definition of “feedstock.” Under subpart MM, refiners must calculate annual CO_2 emissions that would result from the complete combustion or oxidation of each non-crude feedstock. Our intention in subpart MM is to capture all petroleum products and natural gas liquids that enter a refinery to be further refined or otherwise used on site. By removing the term “as a feedstock” from the definition of “non-crude feedstocks” we are aligning the definition to the original intent of subpart MM.

We are also incorporating by reference 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” for subpart N.

Major changes since proposal are identified in the following list. The rationale for these and any other significant changes can be found in this preamble or the Response to Comments: Technical Corrections, Clarifying and Other Amendments (*see* EPA–HQ–OAR–2010–0109).

- In the definitions of “carbonate-based mineral,” “carbonate-based mineral mass fraction,” and “carbonate-based raw material,” adding lithium carbonate and strontium carbonate, as well as the proposed additions of barium carbonate and potassium carbonate.
- Expanding the proposed definition of crude oil to include petroleum products injected into a crude supply or reservoir.
- Narrowing the definition of *decarburization vessel* to include only vessels for which the primary intent is reducing the carbon content of the steel.
- Incorporating by reference 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” for subpart N.

2. Summary of Comments and Responses

This section contains a brief summary of major comments and responses. Several comments were received on this subpart. Responses to additional significant comments received can be found in Response to Comments: Technical Corrections, Clarifying and Other Amendments (see EPA–HQ–OAR–2010–0109).

Comment: One commenter responded to EPA’s question regarding whether other carbonates not listed in the proposed definitions are consumed in glass production, and the commenter noted that they consume lithium carbonate and strontium carbonate.

Response: EPA appreciates the clarification and has added these carbonates to the definitions of carbonate-based materials in 40 CFR 98.6 and to Table N–1 to subpart N.

Comment: EPA received several comments on our proposal to amend the definition of crude oil. Two commenters supported the proposed definition of crude oil because it is identical to the definition used for reporting to the Energy Information Administration (EIA) and it will be easier for reporters to calculate and report the same data for both agencies’ crude oil reporting requirements. One commenter suggested that EPA expand it even further by adding the word “nitrogen” to describe non-hydrocarbons, referencing atmospheric conditions rather than just atmospheric pressure, removing the requirement that hydrocarbon liquids must be comingled with a crude stream, and including natural gas processing plant liquids captured by gravity separation. Therefore, the commenter did not support using a definition of crude oil that is identical to the definition used by EIA. Two commenters submitted information about situations where a petroleum product is re-injected into a crude supply line or back into a reservoir. One of these two commenters reported that they inject a mixture of products, some of which meet the proposed definition of crude and some of which do not, and specifically requested clarification on how to treat such a mixture with respect to crude oil and petroleum product reporting.

Response: In today’s final rule, EPA is retaining the amendatory text proposed for the definition of crude oil and making amendments beyond what was proposed to address the comments received and improve technical accuracy.

EPA agrees with commenters that a definition of crude oil for Part 98 that is identical to the EIA definition makes it easier for refineries to comply with both agencies’ reporting requirements. However, EPA considered comments requesting amendments to the crude oil definition in an effort to ensure the definition is technically accurate and to allow for complete reporting.

---

[5] *http://www.eia.doe.gov/pub/oil_gas/petroleum/survey_forms/psmdefs_2010.pdf.*

EPA considered including natural gas processing plant liquids captured by gravity separation in the crude oil definition, but concluded that doing so would create ambiguity in the regulatory text. EPA has always required natural gas liquids (NGLs) received by the refinery to be reported as non-crude feedstock because the vast majority is being reported by fractionators as product supplied under subpart NN, and EPA does not want these volumes to be double counted across the industry. Because refiners would be unable to physically distinguish NGLs from gravity separation from NGLs reported as product by fractionators under subpart NN, EPA does not concur that such an edit is an improvement to the proposed definition and has not made the suggested change in the definition.

EPA agrees with the comment that specifying atmospheric conditions (temperature and pressure), rather than just atmospheric pressure, is technically more accurate and has made this change in the final definition. This change allows for conditions under which liquids may drop out because of lower temperatures that may not have dropped out in warmer temperatures and atmospheric pressure. EPA has concluded that adding "nitrogen" as an example of non-hydrocarbons does not improve technical accuracy and is not necessary since it is clear that nitrogen is a non-hydrocarbon. Therefore, EPA has not made this change to the final definition.

EPA considered removing the qualification that hydrocarbon liquids must be comingled with a crude stream to meet the crude oil definition and concluded that removing that qualification would create ambiguity. EPA determined that it may be difficult for refineries to distinguish between such hydrocarbon liquids (which commenters suggested should be treated as crude oil) and natural gas liquids or petroleum products (which EPA required be treated as non-crude feedstock) when received and to, therefore, determine how to comply with the rule. EPA has concluded that we cannot delete such text from the crude oil definition unless we specifically seek comment on the impact of such a revision to reporters. Therefore, such an amendment is outside of the scope of this rulemaking.

Finally, EPA is expanding the proposed definition of crude oil to include petroleum products that are received or produced at a refinery and subsequently injected into a crude supply or reservoir by the same refinery owner or operator. EPA is making this addition because, in these situations, petroleum products will be comingled with crude oil to the point of being indistinguishable from crude oil. Whenever a refinery receives the comingled crude oil downstream they will report it as crude oil to EPA. Therefore, this addition is needed to prevent double-counting among reporters under subpart MM. EPA has concluded that the additions to the definition beyond what is used by EIA will only apply to a small minority of refineries that face the unique circumstances presented by commenters and that all other refineries will be able to report to EPA according to the same definition that they use to report to EIA.

With this amendment in place, EPA will need data on the volume injected into a crude supply or reservoir from this small minority of refineries in order to conduct effective verification on the full set of data submitted under subpart MM. Therefore, we are making a harmonizing amendment to subpart MM to require reporting on the volume of any crude oil injected into a crude supply or reservoir under a new paragraph 40 CFR 98.396(a)(22).

Comment: One commenter noted that the Phosphate Mining States Methods Used and Adopted by the Association of Fertilizer and Phosphate Chemists (AFPC) Manual 10th Edition—Version 1.9 had been updated to the version 1.92, which includes a protocol for collecting grab samples of phosphate rock to be tested for chemical composition.

Response: EPA agrees that it is important to allow phosphoric acid facilities to follow the latest standard protocol for grab samples of phosphate rock. In light of this, EPA has finalized requirements to use an industry consensus standard or industry standard practice for collecting grab samples. As an example, the Association of Fertilizer and Phosphate Chemists (AFPC) Manual 10th Edition—Version 1.92 and future versions of that manual would be an acceptable standard.

C. Subpart E—Adipic Acid Production

1. Summary of Final Amendments and Major Changes Since Proposal

We are amending Equation E–1, Equation E–2 and Equation E–3 in 40 CFR 98.53. First, we are amending these equations so that the calculation equations are internally consistent. Currently, the equations do not correctly address situations in which a facility has more than one production unit or process line with separate N_2O control or abatement technology on the separate production units or process lines, and the technologies are not operated 100 percent of the time. In these circumstances, the current equations will not provide an accurate calculation of N_2O emissions. We are amending the equations so that emissions are calculated separately for each production unit or process line (or groups of units or lines) that has a separate control or abatement technology, and then the emissions for all such units or lines are summed to determine the overall N_2O emissions for the facility. For consistency with these amendments, we are also amending 40 CFR 98.54(a), 98.56(j), and 98.57(c) for monitoring and QA/QC, reporting, and recordkeeping, respectively.

We are amending 40 CFR 98.53(b)(1) to address performance testing when a group of adipic acid production units share a common abatement technology or emission point.

We are amending Equation E–3 of subpart E to accommodate N_2O abatement technology located after the emission test (sampling) point and re-designating it as Equation E–3a of subpart E. There are three ways in which abatement technology can be employed. Equation E–3a of subpart E is for one N_2O abatement technology. We are amending Equation E–3a of subpart E further so that the annual adipic acid produced by adipic acid unit "z" (P_z) is used rather than annual adipic acid produced by unit(s) for which N_2O abatement technology "N" is operating ($P_{a,N}$). Also, the summation was removed.

We are adding Equation E–3b of subpart E to accommodate multiple N_2O abatement technologies in series and we are adding Equation E–3c of subpart E to accommodate multiple N_2O abatement technologies in parallel. We are also adding a new Equation E–3d of subpart E for facilities that do not have any N_2O abatement technology located after the test (sampling) point.

We are adding Equation E–4 of subpart E to sum the emissions from Equations E–3a through E–3d of subpart E for each adipic acid production unit "z".

We are amending the language in 40 CFR 98.54(a)(3) and 98.56(k) regarding the Administrator approved alternative method to clarify that this alternative method is for determining N_2O emissions rather than N_2O concentration. Also, we are amending the language in 40 CFR 98.54(a)(1), (e) and (f) to clarify the location of the test (sampling) point used for the performance test and to clarify that the performance test should be conducted when the process is operating normally. As promulgated, the language can be misconstrued that EPA is requiring the facility to shut down any N_2O abatement technology during the performance testing. This was not intended because many, if not all, of the N_2O abatement technologies in use must be operated at all times that the adipic acid facility is operated to control emissions of NO_X in order to comply with state and federal regulations limiting NO_X emissions. The amendments clarify that testing can occur before or after N_2O abatement technology as long as the destruction efficiency of the N_2O abatement technology is properly accounted for and adipic acid production is quantified while abatement equipment is operating. Finally, we are clarifying under 40 CFR 98.57(f) that facilities should retain records of all data collected during performance tests, not just the calculated emission factor. This clarification is consistent with the general recordkeeping requirements in 40 CFR 98.3(g)(2)(ii).

Major changes since proposal are identified in the following list. The rationale for these and any other significant changes can be found in this preamble or the Response to Comments: Technical Corrections, Clarifying and Other Amendments (*see* EPA–HQ–OAR–2010–0109).

- Language was added to 40 CFR 98.53(b)(1) to address performance testing when multiple adipic acid production units exhaust to a common emission point.
- Changed the emission factor in Equation E–1 of subpart E from $EF_{N_2O,N}$ to $EF_{N_2O,z}$ to eliminate confusion.
- Changed the description of the emission factor, $EF_{N_2O,z}$ from "Average facility-specific N_2O emission factor for each adipic acid production unit (lb N_2O generated/ton adipic acid produced)" to "Average facility-specific N_2O emission factor for each adipic acid production unit "z" (lb N_2O/ton adipic acid produced)."
- Changed the terms "waste gas stream" and "air stream" to "vent stream" at 40 CFR 98.53(b)(1) and 98.53(g)(1).
- Edited Equation E–1 and Equation E–3a of subpart E to include changes above.
- Added Equation E–3b, Equation E–3c, Equation E–3d and Equation E–4 of subpart E.

2. Summary of Comments and Responses

This section contains a brief summary of major comments and responses. Several comments were received on this subpart. Responses to additional significant comments received can be found in Response to Comments: Technical Corrections, Clarifying and Other Amendments (*see* EPA–HQ–OAR–2010–0109).

Comment: One commenter raised the issue that there are situations where multiple adipic acid production units exhaust to a common abatement technology or emission point and should be addressed during the performance test.

Response: EPA has added language at 40 CFR 98.53(b)(1) to address performance testing for a group of adipic acid production units exhausting to a common abatement technology or emission point and for other possible situations that were not accurately addressed by the proposed Equation V–3a of subpart V (abatement technologies used in series and backup abatement technologies operated periodically. We are aware of at least one facility where multiple units exhaust through a common abatement technology.

Comment: One commenter suggested that the subscript letter "N" in the term $EF_{N_2O,N}$ used in Equation E–1 of subpart E be explained and changed to avoid confusion with the term "N" in Equations E–2 and E–3a. The commenter also suggested that the word "generated" be struck from the definition of EF $_{N_2O,N}$ in Equation E–1 of subpart E to reflect that the emission factor may now be determined either before or after abatement. If measured after abatement, $EF_{N_2O,N}$ represents the controlled emission rate instead of the amount of $_{N_2O}$ generated. The commenter suggested a similar change to Equations E–3a and E–3b of subpart E where the terms $EF_{N_2O,N}$ and EF_{N_2O} respectively, are used.

Response: EPA agrees that the subscript letter "N" in the term $EF_{N_2O,N}$ used in Equation E–1 of subpart E could be confused with the term "N" used in Equations E–2 and E–3a of subpart E. Therefore, the subscript "N" has been changed to subscript "z" in Equation E–1 of subpart E. EPA also agrees that $EF_{N_2O,N}$ represents the controlled emission rate instead of the amount of $_{N_2O}$ generated, if the test point is located after the abatement technology. Therefore, the definition of $EF_{N_2O,z}$ has been revised to be the average facility-specific $_{N_2O}$ emission factor for each adipic acid production unit "z", in units of lb N_{N_2O}/ton adipic acid produced.

EPA also removed the word "generated" in Equations E–3a and E–3b of subpart E for the definitions of the terms $EF_{N_2O,N}$ and EF_{N_2O}, respectively.

Comment: One commenter agreed with the proposed amendments to correctly calculate emissions in which an abatement technology is not operated 100 percent of the time. The commenter requested that additional changes be made to Equation E–3a in 40 CFR 98.53(g)(1). The commenter suggested the use of P_a (annual adipic acid produced for unit a) instead of P_{aN} (annual adipic acid produced by unit(s) for which $_{N_2O}$ abatement technology "N" is operating), and noted that the summation over the range of 1 to N should include only the term (1–(DF_N*AF_N)), to accurately represent the effect of multiple abatement devices on each unit.

Response: EPA agrees that annual adipic acid produced from unit "z" (P_z) should be used rather than annual adipic acid produced by unit(s) for which $_{N_2O}$ abatement technology "N" is operating ($P_{a,N}$). These changes have been made in the final rule.

D. Subpart H—Cement Production

1. Summary of Final Amendments and Major Changes Since Proposal

We are amending 40 CFR 98.84(b) to correct the most recent ASTM standard, to ASTM C114–09 rather than C114–07, for determining the weight fraction of magnesium oxide (MgO) and calcium oxide (CaO) in clinker. In addition we have learned through questions from reporters, that for some facilities it is more efficient to sample clinker for the weight fraction of total MgO and CaO as it exits the kiln rather than from bulk storage. Some facilities do perform this analysis on clinker on a daily basis. We are amending the rule to allow facilities the option to determine a monthly value based on the arithmetic average of the daily samples.

Through reporters we have also learned that facilities use direct measurement in conjunction with other factors (e.g., kiln feed) to determine clinker production. These procedures are verified periodically for accuracy. We are amending 40 CFR 98.84(d) to allow facilities to use these existing procedures for measuring clinker produced and verify those on a monthly basis. Facilities are already required to measure clinker on a monthly basis. Concurrent with this change, we are amending 40 CFR 98.86(b) so that facilities that do not estimate combined process and combustion emissions using continuous emission monitoring systems (CEMS) will be required to report the kiln specific feed-to-kiln ratios used to calculate clinker produced for EPA verification of emissions associated with clinker production. For consistency, we are clarifying 40 CFR 98.84(e) to allow similar flexibility in determination of cement kiln dust produced.

Further, we understand from facilities' questions that an analysis of the organic carbon contents of raw materials could be determined from a composite sample of the kiln feed or from sampling each raw material in the kiln feed depending on the existing sampling methods and raw material storage procedures at the facility. We are amending the calculation and monitoring procedures in 40 CFR 98.83(d)(3) and 98.84(c) to allow facilities the option to use either sampling procedure for estimating carbon dioxide (CO_2) emissions from raw materials.

We are also correcting and clarifying the recordkeeping requirements under 40 CFR 98.87(a) and (b) for facilities with CEMS and for facilities without CEMS. In Part 98, the recordkeeping requirements listed under 40 CFR 98.87(a)(1) and (a)(2) should have been listed under 40 CFR 98.87(b). Facilities using CEMS to estimate combined process and combustion CO_2 emissions from kilns do not need to calculate process emissions using the clinker based emissions methodology provided in Subpart H and, therefore, would not have the relevant records requested in 40 CFR 98.87(a)(1) and (a)(2).

Major changes since proposal are identified in the following list. The rationale for these and any other significant changes can be found in this preamble or the Response to Comments: Technical Corrections, Clarifying and Other Amendments document (see EPA–HQ–OAR–2010–0109).

- Clarifying the cement kiln dust (CKD) monitoring requirements in 40 CFR 98.84(e);
- Changing cement production reporting requirements under 40 CFR 98.86 to require annual, facility-wide cement production instead of monthly, kiln-specific cement production; and

2. Summary of Comments and Responses

This section contains a brief summary of major comments and responses. Several comments were received on this subpart. Responses to additional significant comments received can be found in Response to Comments: Technical Corrections, Clarifying and Other Amendments document (*see* EPA–HQ–OAR–2010–0109).

Comment: One commenter expressed concern that the monthly verification of the feed-to-clinker ratio, required under 40 CFR 98.94(d), is unduly burdensome. The commenter suggested that EPA change subpart H to require quarterly verification instead of monthly.

Response: Because subpart H requires cement manufacturers to report clinker production on a monthly basis, we are requiring facilities that estimate clinker production using a feed-to-clinker ratio to verify the accuracy of that ratio also on a monthly basis. We provided cement manufacturers the option to use a feed-to-clinker ratio instead of direct clinker measurement to provide flexibility and consistency with current industry practices. We note the commenter's concern regarding the burden of monthly verification. However, other industry comments generally support this requirement.

Comment: One commenter stated that the CKD measurement requirements under 40 CFR 98.84(e) should be revised to be consistent with the clinker measurement requirements under 40 CFR 98.84(d). Specifically, 40 CFR 98.84(d) allows facilities to determine monthly clinker quantities by either reconciling weigh hopper or belt weigh feeder measurements against inventory measurements, or by direct weight measurement of raw feed and applying a feed-to-clinker ratio. Meanwhile, 40 CFR 98.84(e) requires facilities to determine quarterly CKD quantities by direct weight measurement. The commenter points out that the CKD quantity has a lesser impact on CO_2 emission calculations than the clinker quantity. Therefore, the rule should not have more stringent measurement requirements for CKD than for clinker. The commenter also states that direct weight measurement devices should not be required to be installed if they are currently not being utilized at the facility, and requests that facilities be permitted to use the same methods currently in place for accounting purposes to determine the quantity of CKD not recycled to the kiln.

Response: The rule currently allows for the type of flexibility that the commenter is requesting. The rule lists direct weight measurement as an example technique that may be used; however, the examples provided in the rule are not an exhaustive list. Facilities should determine the quantity of CKD not recycled to the kiln for each kiln using the same plant techniques used for accounting purposes. We have revised the language in 40 CFR 98.84(e) to clarify this flexibility.

Comment: Two commenters noted that reporting requirements in 40 CFR 98.86(a)(2) and 98.86(b)(3) require cement manufacturers to report monthly cement production from each kiln at the facility. The commenters pointed out that cement kilns produce clinker—not cement. The clinker from each cement kiln is subsequently sent to a mill and pulverized into a fine powder, and mixed with other ingredients to produce cement. Plants that operate multiple kilns may combine the clinker from all kilns and store the combined clinker before feeding it to the cement mill. Because of the variability of the amount of clinker produced by different kilns, and the varying methods of storage, the commenters proposed that EPA require cement manufacturers to report the total quantity of cement produced by the facility on an annual rather than monthly, kiln-specific basis.

Response: EPA agrees with the commenter that the requirements in 40 CFR 98.86(a)(2) and 98.86(b)(3) are inconsistent with cement plant manufacturing practices, and should not be required on a kiln-specific basis. In addition, we agree that due to the variations in storage time between clinker production and cement production, cement production data are not needed on a monthly basis. This reporting requirement was added for verification of reported emissions, not calculating emissions. Therefore, we have revised the rule to require facilities to report cement production on an annual, facility-wide basis.

E. Subpart K—Ferroalloy Production

1. Summary of Final Amendments and Major Changes Since Proposal

We are amending 40 CFR 98.112(a) to be consistent with the requirement described in 40 CFR 98.113(d) to calculate methane (CH_4) emissions from an electric arc furnace (EAF) used for the production of all ferroalloys for which an applicable CH_4 emission factor is provided in the rule. These alloys and the associated CH_4 emission factors are listed in Table K–1 to subpart K. Subpart K in Part 98 contained calculation and reporting procedures for quantifying process CH_4 emissions from all ferroalloys listed in Table K–1 to subpart K, but CH_4 was inadvertently not included in the *GHGs to Report* section.

We are also amending the introductory language for 40 CFR 98.113 to clarify the applicability of the procedures for calculating CO_2 and CH_4 emissions in that section. Finally, we are amending the language in 40 CFR 98.116 to clarify that the data reporting requirements in 40 CFR 98.116(b) are for each EAF and those in 40 CFR 98.116(d)(1) and (e)(1) are for any ferroalloy product identified in 40 CFR 98.110. We are also amending 40 CFR 98.116(d) to correct an incorrect cross-reference to 40 CFR 98.36.

2. Summary of Comments and Responses

EPA did not receive any comments on the proposed amendments to subpart K and is finalizing the amendments to this subpart as proposed.

F. Subpart N—Glass Production

1. Summary of Final Amendments and Major Changes Since Proposal

We are amending subpart N to add CO_2 emission factors to Table N–1 to subpart N for barium carbonate, potassium carbonate, lithium carbonate, and strontium carbonate. These raw materials were not included in Part 98, but EPA has since learned that they are also used by the glass industry. EPA is also amending 40 CFR 98.144(b) to allow for an additional method for determining the carbonate mineral mass fraction of raw materials used in glass production. Specifically, in addition to ASTM D3682–01, reporters can also use 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." We are also amending the introductory language to 40 CFR 98.146(a) to correct an incorrect cross-reference to 40 CFR 98.36 and to clarify in 40 CFR 98.146(a)(2) that reporting of glass production is by furnace and from all furnaces combined, consistent with the calculation methods. We are amending 40 CFR 98.146(b)(7) and (9) to correct typographical errors.

Major changes since proposal are identified in the following list. The rationale for these changes can be found in this preamble.

- Added an emission factor for lithium carbonate.
- Added an emission factor for strontium carbonate.
- Removed the requirement for analysis by an "independent certified laboratory." When the final subpart N was published on October 30, 2009, EPA agreed with commenters that analyses do not have to be performed by an independent certified laboratory, but this language inadvertently remained in subpart N.

2. Summary of Comments and Responses

This section contains a brief summary of major comments and responses. One comment letter was received on this subpart.

Comment: One commenter asked that emission factors for lithium carbonate and strontium carbonate be added to subpart N, in addition to those being added for barium carbonate and potassium carbonate.

Response: EPA has added these two compounds to the final subpart N. EPA was not previously aware of use of these carbonates in glass production in the United States during the initial proposal of the rule. While less common, these carbonates are used in glass production to add different properties to glass products and EPA therefore agrees that these emission factors should be included in the final rule.

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

1. Summary of Final Amendments and Major Changes Since Proposal

We are amending 40 CFR 98.154(k), the requirement to monitor HFC–23 emitted from process vents, to refer to Equation O–7 of subpart O rather than Equation O–6 of subpart O. In 40 CFR 98.154(k), (l), and (o) and in 40 CFR 98.156(b), we are amending the language so that the term "destruction device" is used rather than the narrower term "thermal oxidizer."

We are amending the reporting requirements in 40 CFR 98.156(c) and (d) to clarify that only facilities that are required to recalculate the destruction efficiency of their destruction device under 40 CFR 98.154(l) must report the flow rate of HFC–23 being fed into the destruction device, the flow rate at the outlet of the destruction device, and the emission rate of the device. In addition, such facilities will be required to report the newly calculated DE of the device, the HFC–23 concentration measurement used in the DE calculation, and whether 40 CFR 98.154(l)(1) or (l)(2) was used for the calculation. Under these two paragraphs, other HFC–23 destruction facilities will be required to report only the results of their annual measurement of the HFC–23 concentration at the outlet of the destruction device.

We are amending the reporting requirements in 40 CFR 98.156(e) to clarify that the one-time report for HFC–23 destruction facilities is due by March 31, 2011 or within 60 days of commencing HFC–23 destruction. The amendment was necessary because it was not clear when the one-time report must be submitted. The amendment will make the due date in 40 CFR 98.156(e) consistent with the due date for a similar report required in Subpart OO.

In general, these amendments to the reporting requirements for HFC–23 destruction facilities make them consistent with the monitoring requirements for these facilities. The due dates for the one-time report are consistent with those elsewhere in Part 98 for the source categories that are required to begin monitoring in 2010.

2. Summary of Comments and Responses

EPA did not receive any comments on the proposed amendments to subpart O and is finalizing the amendments to this subpart as proposed.

H. Subpart P—Hydrogen Production

1. Summary of Final Amendments and Major Changes Since Proposal

We are amending the definition of the source category in 40 CFR 98.160(c) to clarify that hydrogen production facilities located within other facilities are also included in the source category if they are not owned by, or under the direct control of, the other facility's owner and operator. This clarification was necessary to correct a misunderstanding that the original rule text limited the source universe to hydrogen production facilities located within petroleum refineries.

Broadly, we are amending subpart P to remove several references to "process" CO_2 emissions. EPA received information from industry indicating that the use of the term "process" in the context of calculating and reporting CO_2 emissions resulted in confusion in differentiating between process and combustion emissions. We are clarifying the text in the rule by removing references to the term "process" from the rule language.

We are removing the requirements in 40 CFR 98.162(b) for owners or operators to report CO_2, CH_4 and N_2O combustion emissions from each hydrogen production process unit using the emissions calculation methods in subpart C. This provision results in double counting of combustion-related emissions from hydrogen production process units, as these combustion emissions are already accounted for when following the calculation methods in 40 CFR 98.163(a) or (b). CO_2 emissions will still be reported under 40 CFR 98.162(a) using the procedures in 40 CFR 98.163(a) or 98.163(b).

We are also amending language describing the calculation of GHG emissions from gaseous, liquid and solid fuels and feedstocks in 40 CFR 98.163. The clarified language specifies that each gaseous, liquid or solid fuel and feedstock will need to be calculated based on its respective equations detailed in the rule language. This removes the concern that the language was unclear as to which fuel and feedstock stream should be used to calculate CO_2 emissions.

Lastly, we are amending 40 CFR 98.166(c) to strike "quarterly" and "kg" (kilogram). Some facilities subject to subpart P may also be subject to subpart PP—Suppliers of Carbon Dioxide. Quarterly reporting of CO_2 quantities (in kilograms) was not consistent with subpart PP.

2. Summary of Comments and Responses

All comments received on the proposed amendments to subpart P were supportive and EPA is finalizing the amendments to this subpart as proposed.

I. Subpart Q—Iron and Steel Production

1. Summary of Final Amendments and Major Changes Since Proposal

We are amending the subpart Q requirements regarding emissions from flares to clarify the requirements and correct certain deficiencies in the rule pertaining to flares burning off-gases from argon-oxygen decarburization (AOD) and other decarburization processes. Section 98.172(b) of Part 98 required reporting of CO_2 emissions from flares using procedures from subpart Y (Petroleum Refineries), without distinguishing flares burning off-gases from AOD or other decarburization processes from other types of flares.

The referenced equations in subpart Y and the further instructions in 40 CFR 98.172(b) are applicable to estimating emissions from burning coke oven gas or blast furnace gas, but are not applicable for estimating emissions from flares burning the off-gases from AOD or other decarburization processes. We are, therefore, amending the language in 40 CFR 98.172(b) to clarify that for subpart Q facilities, flare emissions must be estimated for flares burning blast furnace gas or coke oven gas. Similarly, we are amending the introductory text in 40 CFR 98.175 to specify that the missing data procedures in subpart Y (Petroleum Refineries) at 40 CFR 98.255(b) must be followed for flares burning coke oven gas or blast furnace gas. We are also amending the introductory text for the data reporting requirements in 40 CFR 98.176 to include flares burning coke oven gas or blast furnace gas.

Subpart Q in Part 98 also referenced incorrect equations from subpart Y. We are amending and correcting the references in 40 CFR 98.172(b) to the subpart Y flare equations. Equations Y–2 and Y–3 of subpart Y are the correct equations; the promulgated subpart Q of subpart Q incorrectly referenced Equation Y–1 of subpart Y.

We are amending the reporting requirements in 40 CFR 98.176(e)(3) to clarify that fuel consumption needs to be reported separately for each type of fuel and other process input and output material. We are also adding paragraphs (g) and (h) to 40 CFR 98.176. Paragraph (g) requires facilities to report the annual amount of coal charged to coke ovens because it is used to estimate CO_2 emissions from coke pushing. Paragraph (h) incorporates the same reporting requirements specified in 40 CFR 98.256(e) of subpart Y (Petroleum Refineries) for flares burning coke oven gas or blast furnace gas.

We are amending the recordkeeping requirements in 40 CFR 98.177(d) to clarify the units and processes for which annual operating hours need to be recorded.

We are also amending the requirements in the promulgated rule to estimate GHG emissions from AOD vessels to clarify that they also apply to any other type of vessel used with the primary intent of removing carbon from molten steel (decarburization), such as vacuum oxygen decarburization. Because of the clarification noted above to include all types of decarburization vessels used primarily to remove carbon, we are replacing the term "argon-oxygen decarburization vessels" with the term "decarburization vessels" throughout subpart Q and replacing the definition of "argon-oxygen decarburization vessels" with a definition for "decarburization vessels" in order to maintain reporting of the CO_2 emissions from these vessels.

In response to comments, we are clarifying the definition of "decarburization vessels" to include only those decarburization vessels, such as AOD and vacuum oxygen decarburization vessels, used with the primary intent of removing carbon from the steel. We are also delaying the reporting of GHG emissions from decarburization vessels that are not AOD vessels until reports submitted in 2012, instead of requiring reporting with the first reports submitted to EPA in March 2011.

Major changes since proposal are identified in the following list. The rationale for these and any other significant changes can be found in this preamble or the Response to Comments: Technical Corrections, Clarifying and Other Amendments document (see EPA–HQ–OAR–2010–0109).

- Clarifying the definition of "decarburization vessels" to include only those decarburization vessels used with the primary intent of removing carbon from the steel.
- Delaying the reporting of GHG emissions from decarburization vessels that are not AOD vessels until reports submitted in 2012.

2. Summary of Comments and Responses

This section contains a brief summary of major comments and responses. Several comments were received on this subpart. Responses to additional significant comments received can be found in Response to Comments: Technical Corrections, Clarifying and Other Amendments document (see EPA–HQ–OAR–2010–0109).

Comment: We received three comments on our proposal to clarify the definition of decarburization vessels to include all decarburization vessels rather than just argon-oxygen decarburization (AOD). Two commenters noted that the proposal was not merely a technical correction or clarification, but was instead a substantive change to subpart Q as promulgated. According to the commenters, the new definition of decarburization vessel, which includes a list of the covered processes and the phrase "or other decarburization vessels," was too broad and inclusive. The commenters noted that most steel plants, whether integrated or electric arc furnace producers, employ several different kinds of refining processes to improve the quality of the steel produced, and some of these refining processes, such as AODs, are primarily intended to reduce carbon. However, the commenters stated that other processes, such as vacuum degassing, electro-slag remelting, and vacuum-arc remelting, are primarily intended to reduce dissolved gases such as hydrogen, nitrogen, and oxygen in the molten steel, and carbon reduction is only incidental. According to the commenters, making these processes subject to subpart Q would require facilities to make numerous adjustments to their monitoring plans and conduct additional sampling. For these reasons, the commenters believe that the proposed amendment would add significant new requirements and represent a substantive change rather than being merely a clarification. One commenter argued that the time and effort to verify GHG emissions from vacuum degassing would be burdensome, estimating that it would increase the resources needed to comply with subpart Q by 50 percent. The commenter stated that the added burden of data collection, measurements, recordkeeping, and reporting of these emissions is not justified by the addition of vacuum degassing and other refining operations to the reporting requirements.

Two of the commenters estimated that the additional processes included in the proposed amendment contribute "substantially less than 1 percent" of the emissions from the sector. Another commenter estimated they contributed only 0.02 percent of the emissions. The same commenter argued that because these emissions are relatively insignificant and would be extremely difficult to quantify for reporting purposes, they should continue to be excluded from reporting obligations. The commenter also rejected the rationale that emissions from all decarburization vessels should be reported because EPA is also proposing to limit reporting of emissions from flares to those burning coke oven gas or blast furnace gas only (an amendment that the commenter supports), which would obviate reporting of vacuum degasser flare emissions. The commenter estimated that the emissions are so low they would be difficult to detect, and measuring such emissions through either the carbon-mass balance approach or a site-specific emission factor would be burdensome and potentially infeasible. The commenter concluded that EPA has not provided a rational basis for inclusion of decarburization vessels within the GHG Reporting Program.

Two commenters recommended that if EPA proceeds by adding a definition for "decarburization vessel," the definition should be revised. One commenter suggested that the definition be clarified such that it includes only vessels for which the primary purpose is decarburization. The other commenter asked that it be revised to read "any vessel used to further refine molten steel with the primary intent of reducing carbon content of the steel that also requires flaring the off-gas to oxidize CO to CO_2."

All three commenters stated that if EPA chooses to include all decarburization vessels as proposed, they should not be included in the reports submitted to EPA in 2011. Two commenters explained that making this change retroactive to data collection in 2010 is untenable because companies were obligated to develop comprehensive GHG Monitoring Plans in early 2010 and to begin recordkeeping in January 2010 in order to be able to report for the entire 2010 reporting year by March 2011.

One commenter stated that by expanding the decarburization vessel definition in Subpart Q to include vacuum degassing and other refining operations beyond AODs, facilities with these operations will need to make adjustments to their monitoring plans, conduct additional sampling of inputs and outputs for these operations, make programmatic modifications to tracking software, and re-train employees. The commenter claimed that it will be impossible to collect the necessary samples of steel and dust or sludge and perform analyses representative of the months that have elapsed since the beginning of 2010 in order to perform a mass balance, and it is also unrealistic to expect companies to consider the option of establishing a site-specific emission factor for these units because of all of activities that would be required to perform testing. The commenter recommended that EPA follow the course set in its July 12, 2010 final rule notice adding four new source categories to Part 98 (75 FR 39735). The commenter said that EPA recognized in that notice that it would be unrealistic to require those operations to report emissions for 2010 and made these new rules effective with the data collection in 2011.

Two commenters recommended that if EPA proceeds with the proposed changes, those requirements should be effective no sooner than 2011 and should be reportable in March 2012. One commenter argued that by amending a rule to include data acquisition and management after a reporting period has already begun is arbitrary and capricious and will significantly add to the burden the regulated community faces when attempting to collect meaningful data. The commenter stated that any such amendment should be prospective in nature and not impact calculations and sampling already underway.

Response: After consideration of these comments, we agree that the proposed new definition of "decarburization vessels" was too broad and would include certain steel refining processes that were not intended (i.e., those whose primary purpose is not removal of carbon). Some of the additional processes cited by the commenters have a primary purpose to remove dissolved gases, and although some carbon may be incidentally removed, the CO_2 emissions from these processes are a small percent of total GHG emissions from iron and steel making. Because the change in carbon content of the steel is so small, it is difficult to accurately quantify the emissions by a carbon balance, and it is problematic to measure them because of the sampling and other difficulties mentioned by the commenters. Consequently, we are revising the definition of "decarburization vessels" to include those for which the primary purpose is removal of carbon, including but not limited to AOD and vacuum oxygen decarburization (VOD). We are not adding the suggested revision that the definition should include only those decarburization vessels equipped with flares because not all AOD and VOD vessels are equipped with flares. The revised definition makes the amendment a technical clarification that is more consistent with the final rule as originally promulgated.

We also agree that additional time would be required to gather the data to report emissions from decarburization vessels other than AOD vessels, and we are amending the reporting requirements so that these emissions are reported beginning in March 2012 for the year 2011. However, the final amendments will not require a delay in the reporting period for AOD vessels because facilities with AOD vessels have known since the original promulgation of subpart Q that these decarburization vessels would be included in the reporting for 2010.

J. Subpart S—Lime Manufacturing

1. Summary of Final Amendments and Major Changes Since Proposal

We are amending the cross reference to 40 CFR 98.193(b)(1) in the introductory language to 40 CFR 98.195; it incorrectly referenced 40 CFR 98.193(b)(2).

We are also amending the terminology used throughout subpart S to clarify whether the calculation and reporting requirements are referring to calcined byproducts and waste materials by adding the word "calcined" to the lime byproduct and waste terminology, as needed. We are also amending the terminology in the subpart to clarify when the calculation and reporting requirements apply to lime products that are produced at the facility.

2. Summary of Comments and Responses

EPA did not receive any comments on the proposed amendments to subpart S and is finalizing the amendments to this subpart as proposed.

K. Subpart V—Nitric Acid Production

1. Summary of Final Amendments and Major Changes Since Proposal

We are amending 40 CFR 98.223 and 98.224 to clarify how N_2O emissions are to be measured if a facility has an N_2O abatement device. The first amendment clarifies the location of the test (sampling) point used for the performance test in several paragraphs in 40 CFR 98.223. As promulgated, the language could be misconstrued to require the nitric acid facility to shut down any N_2O abatement technology during the performance testing. This was not the intention as many, if not all, of the N_2O abatement technologies in use must be operated at all times that the nitric acid facility is operated to control emissions of NO_X in order to comply with state and federal regulations limiting NO_X emissions. The amendments will clarify that testing can occur before or after N_2O abatement technology as long as the testing properly accounts for destruction efficiency.

We are amending Equation V–3 of subpart V to accommodate N_2O abatement technology located after the emission test (sampling) point, and re-designating it as Equation V–3a of subpart V. Equation V–3a is also corrected so that the term on the left-hand side of the equation is changed from EF_{N_2Ot} to E_{N_2Ot}.

There are three ways in which abatement technology can be employed. Equation V–3a of subpart V is for one N_2O abatement technology. We are adding Equation V–3b of subpart V to accommodate multiple N_2O abatement technologies in series and we are adding Equation V–3c of subpart V to accommodate multiple N_2O abatement technologies in parallel.

We are also including a new Equation V–3d of subpart V for facilities that do not have N_2O abatement technology located after the test (sampling) point.

In addition, we are clarifying in 40 CFR 98.223 that the annual performance test must be conducted for each nitric acid train, consistent with the equations in 40 CFR 98.223. Additional changes were made to the monitoring requirements in 40 CFR 98.224 to conform to the changes in the calculation methods in 40 CFR 98.223. We are amending 40 CFR 98.224(a)(1) to clarify when during a nitric acid production campaign facilities must conduct the performance test.

We are also amending the language concerning the Administrator-approved alternative method for determining N_2O emissions in 40 CFR 98.223(a)(2)(ii), 98.224(a)(3), and 98.226(n). The alternative method is for determining N_2O emissions rather than N_2O concentration or an N_2O emission factor. The language has been changed to correct this point.

We are amending the data reporting requirements in 40 CFR 98.226(g) and (m) to be consistent with the calculation methods which are for each nitric acid train, not the facility.

Major changes since proposal are identified in the following list. The rationale for these and any other significant changes can be found in this preamble or the Response to Comments: Technical Corrections, Clarifying and Other Amendments document (see EPA–HQ–OAR–2010–0109).

- Changed the description of the emission factor, EF_{N_2Ot} from "lb N_2O generated/ton nitric acid produced, 100 percent acid basis" to "lb N_2O/ton nitric acid produced, 100 percent acid basis."
- Changed the term "air stream" to "vent stream" at 40 CFR 98.223(g)(1).
- Added Equations E–3b and E–3c of subpart E.

2. Summary of Comments and Responses

This section contains a brief summary of major comments and responses. Two sets of comments were received on this subpart. Responses to additional significant comments received can be found in Response to Comments: Technical Corrections, Clarifying and Other Amendments document (see EPA–HQ–OAR–2010–0109).

Comment: One commenter noted that the regulation for Adipic Acid is similar to the regulation for Nitric Acid and asked that EPA compare the clarifications made to each of these subparts for consistency.

Response: EPA agrees that there are similarities between the two subparts. Although the commenter did not provide specific examples for subpart V, EPA reviewed the commenter's suggested clarifications for subpart E and made the following comparable changes to subpart V:

EPA agrees with the change to the term "air stream." The term has been changed to "vent stream" in 40 CFR 98.223(g)(1) as this is more consistent with terminology used to identify testing locations at current facilities.

EPA agrees that there could be situations at nitric acid facilities where multiple trains exhaust to a common abatement technology. Language has been added to 98.223(b)(1) to add flexibility for facilities that have a group of trains that exhaust to the same abatement equipment. Further, the equations do not correctly address situations in which a facility has separate N_2O control or abatement technology on the separate train or process lines, back-up controls in parallel on a single train, and these technologies are not operated 100 percent of the time (i.e., operated during maintenance operations on primary controls). We have learned that some facilities could have existing controls (e.g., NSCR) and may apply additional controls during the production process (e.g secondary catalysts in oxidation reactor) in the future.

In these circumstances, the current equations will not provide an accurate calculation of N_2O emissions. To address the three ways in which abatement technology can be employed EPA has revised 40 CRR 98.223 to include calculation methods to accurately account for these possible abatement applications. The current Equation V–3a of subpart V is for one N_2O abatement technology. EPA has added Equation V–3b and V–3c to accommodate situations where multiple N_2O abatement technologies operate in series and or multiple abatement technologies in parallel, respectively. Equation V–3d of subpart V addresses the situation when facilities that do not have N_2O abatement technology.

Comment: According to one commenter, facilities do not have information to determine a point during the campaign which is representative of the average emissions over the entire campaign. The commenter requested that 40 CFR 98.224(a)(1) be modified to ensure that performance tests are conducted during representative operations while enabling operating facilities to document and demonstrate compliance with this objective.

Response: The purpose of this language was to capture emissions data when the process was operating normally. This requirement is to ensure that the emission factor developed through this performance test is an accurate depiction of the quantity of N_2O emitted per quantity of nitric acid produced over the course of an entire year. A campaign was used as a reference due to concerns that N_2O rates from nitric acid plants are somewhat below average at the beginning of a campaign and above average at the end of a campaign. Testing during either of those times could result in an emission factor developed during non-representative conditions. For example, at the end of a campaign, the age of the catalyst may influence emissions. As long as the choice of the timing of the testing is documented and the methods used to determine the timing are documented, this requirement is met. EPA has clarified "average emissions over the entire campaign" to "average emissions rate from nitric acid campaigns" as it is the emissions rate that is obtained during the performance test and a facility may run more than one production campaign over a reporting year. EPA does not agree that the additional changes recommended are needed.

The rule offers flexibility in determining the timing of the performance testing. Facilities may refer to literature and continuous monitoring data from similar facilities in other countries. This literature and data could be used to determine an appropriate test point from a representative or typical nitric acid campaign. The rule provides facilities flexibility on methods to determine this testing point. Further, facilities can also apply to EPA to use alternative methods for determining N_2O emissions.

L. Subpart Z—Phosphoric Acid Production

1. Summary of Final Amendments and Major Changes Since Proposal

We are renumbering Equation Z–1 as Z–1a of subpart Z and adding a new Equation Z–1b of subpart Z. Equation Z–1b will be used to calculate CO_2 emissions when the method used to analyze phosphate rock provides a direct estimate of CO_2 emissions instead of just inorganic carbon content.

We have learned from facilities that the "Phosphate Mining States Methods Used and Adopted by the Association of Fertilizer and Phosphate Chemists AFPC Manual 10th Edition—Version 1.9" (AFPC manual) does not currently contain a procedure for obtaining a representative grab sample of rock for testing. A recently updated version of the AFPC manual, Version 1.92, does contain the appropriate sampling procedures. To add flexibility to the rule, we are amending 40 CFR 98.264(a) to allow facilities to use the appropriate industry consensus standards or industry standard practices currently available. We are also amending 40 CFR 98.264(a) to clarify that the grab sample must be collected prior to entering the mill for accurate analysis of inorganic carbon contents.

We are amending 40 CFR 98.266 to correct a cross reference in the introductory text of that section, and to revise paragraph (c) to clarify that the annual arithmetic average percent inorganic carbon in phosphate rock is to be reported as the percent by weight, expressed as a decimal fraction. We are also adding a new paragraph (f)(9) to 40 CFR 98.266 to specify that facilities need to report the total annual process CO_2 emissions from the phosphoric acid production facility, in metric tons. Facilities must calculate these emissions already in 40 CFR 98.263(b)(2) using Equation Z–2 of subpart Z.

Major changes since proposal are identified in the following list. The rationale for these and any other significant changes can be found in this preamble or the Response to Comments: Technical Corrections, Clarifying and Other Amendments document (see EPA–HQ–OAR–2010–0109).

- Renumbered Equation Z–1 as Equation Z–1a of subpart Z.
- Added a new Equation Z–1b of subpart Z.
- Revised 98.364(a) and (b) to allow facilities to use the appropriate industry consensus standard or industry standard practice.

2. Summary of Comments and Responses

This section contains a brief summary of major comments and responses. Several comments were received on this subpart. Responses to additional significant comments received can be found in Response to Comments: Technical Corrections, Clarifying and Other Amendments document (see EPA–HQ–OAR–2010–0109).

Comment: One commenter requested that Equation Z–1 be revised to accurately reflect the output of the AFPC Manual's method for the analysis of phosphate rock. Regarding the inorganic carbon determinations, the equation assumes that the AFPC Manual's test is for inorganic carbon and the equation provides for calculation of CO_2 emissions using inorganic carbon content as an input. However, the AFPC Manual's test is for CO_2 directly, making Equation Z–1 of subpart Z inapplicable as written to the AFPC Manual's test output. The commenter suggested a technical amendment to correct this minor misalignment by removing the factor to convert inorganic carbon to CO_2 from Equation Z–1.

Response: EPA agrees that this change is warranted. However, EPA has decided not to replace Equation Z–1 but to renumber Equation Z–1 as Equation Z–1a and to add the revised equation as Equation Z–1b. This subpart would still allow facilities to use other methods (e.g., sampling inorganic carbon content) to determine carbon content in addition to using analytic methods to directly measure CO_2 emissions. Therefore, EPA is maintaining this flexibility by retaining the previous equation and adding a new one that can be used with the AFPC Manual.

M. Subpart CC—Soda Ash Manufacturing

1. Summary of Final Amendments and Major Changes Since Proposal

We are amending the data reporting requirements in 40 CFR 98.296(b)(3) to clarify that the annual soda ash production is reported for each line, and to make the reporting requirements consistent with the calculation requirements in 40 CFR 98.293(b)(1) through (b)(3). The units in 40 CFR 98.296(a)(1) and 40 CFR 98.296(b)(6) are corrected from metric tons to short tons for consistency with other similar data reporting requirements. This change is also consistent with how facilities collect these data.

We are also amending 40 CFR 98.296(b)(10) to clarify that the information in that paragraph is reported for each manufacturing line or stack, when using a site specific emission factor, and to clarify that the elements required by 40 CFR 98.296(b)(10)(i), (ii), and (iv) are for the periods during the performance test. We are also deleting 40 CFR 98.296(b)(11)(iv), (v), and (vi) because those paragraphs describe missing data procedures for elements during the site-specific emission factor performance test which are not allowed to be missing per 40 CFR 98.296(c).

2. Summary of Comments and Responses

EPA did not receive any comments on the proposed amendments to subpart CC and is finalizing the amendments to this subpart as proposed.

N. Subpart EE—Titanium Dioxide Production

1. Summary of Final Amendments and Major Changes Since Proposal

We are amending the monitoring and QA/QC reporting requirements in 40 CFR 98.314(e) to clarify that the quantity of carbon-containing waste generated from each titanium dioxide production line is determined on a monthly basis, consistent with the calculation procedures in 40 CFR 98.313(b)(3). In addition, we are amending the data reporting requirements under 40 CFR 98.316(b)(9) to be consistent with the calculation and monitoring alternative requirements of 40 CFR 98.313(b)(2) and 40 CFR 98.314(c) by removing the restriction that the carbon content factor for petroleum coke can only be from the supplier. We are also amending the data reporting requirements under 40 CFR 98.316(b)(11) to clarify that they apply to each process line, consistent with the calculation and monitoring alternative requirements of 40 CFR 98.313(b)(3) and 40 CFR 98.314(f).

2. Summary of Comments and Responses

EPA did not receive any comments on the proposed amendments to subpart EE and is finalizing the amendments to this subpart as proposed.

O. Subpart GG—Zinc Production

1. Summary of Final Amendments and Major Changes Since Proposal

We are amending the definitions of the terms for $(\mathrm{Electrode})_k$ and $(C_{\mathrm{Electrode}})_k$ in Equation GG–1 of subpart GG to remove the references to kilns because electrodes are only used in electrothermic furnaces and are not used in Waelz kilns. We are also amending 40 CFR 98.336(a) to correct a cross reference to subpart C, and to amend 40 CFR 98.336(b)(1) to clarify that identification numbers need to be reported for both Waelz kilns and electrothermic furnaces.

We are amending the data reporting requirements in 40 CFR 98.336(b)(7) and (10) to clarify that the carbon content of each input to a kiln or furnace should be reported as a calculation parameter regardless of whether the data are collected from the supplier or by self measurement. In 40 CFR 98.336, paragraphs (b)(8) and (11) already require facilities to report whether carbon contents were determined through self measurement or based on reports from the supplier.

2. Summary of Comments and Responses

EPA did not receive any comments on the proposed amendments to subpart GG and is finalizing the amendments to this subpart as proposed.

P. Subpart HH—Municipal Solid Waste Landfills

1. Summary of Final Amendments and Major Changes Since Proposal

We are making numerous clarifying amendments and technical corrections to subpart HH to address questions EPA has received about the rule's requirements and to correct known errors. Amendments to the rule are also being made to address some of the more significant questions that were the result of the level of detail provided in the 2009 final rule.

Source Category Definition. We are amending 40 CFR 98.340(b) to read, "This source category does not include Resource Conservation and Recovery Act (RCRA) Subtitle C or Toxic Substances Control Act (TSCA) hazardous waste landfills, construction and demolition waste landfills, or industrial waste landfills." We are adding definitions within 40 CFR 98.348 for the terms "construction and demolition waste landfills" and "industrial waste landfills."

Equation HH–1. We are making the following technical amendments to Equation HH–1 in 40 CFR 98.343:

- Replace the term L_0 (CH_4 generating potential) with the terms, "$MCF \times DOC \times DOC_F \times F \times 16/12$," (where MCF is the CH_4 correction factor; DOC is the degradable organic content; DOC_F is the fraction of DOC dissimilated; and F is the fraction by volume of CH_4 in landfill gas) and remove the definition of the term L_0 from the definitions for Equation HH–1 of subpart HH.
- Revise the definition of "S" to read, "Start year of calculation. Use the year 1960 or the opening year of the landfill, whichever is more recent."
- Revise the definition of Wx to include "measurement data" as follows: "Quantity of waste disposed of in the landfill in year x from measurement data, tipping fee receipts, or other company records (metric tons, as received (wet weight)."
- Revise the definition of "MCF" to read "Methane correction factor (fraction). Use the default value of 1 unless there is active aeration of waste within the landfill during the reporting year. If there is active aeration of waste within the landfill during the reporting year, either use the default value of 1 or select an alternative value no less than 0.5 based on site-specific aeration parameters."
- Revise the definition of "DOC_f" to read, "Fraction of DOC dissimilated (fraction). Use the default value of 0.5."
- Revise the definition of "F" as follows: "Fraction by volume of CH_4 in landfill gas from measurement data on a dry basis, if available (fraction); default is 0.5."
- Revise the definition of "k" to read, "Rate constant from Table HH–1 to subpart HH (yr-1). Select the most applicable k value for the majority of the past 10 years (or operating life, whichever is shorter)."

We are also amending 40 CFR 98.343(a)(2) to replace "use the bulk waste parameter values for k and L_0 in Table HH–1 to subpart HH" with "use the bulk waste parameter values for k and DOC in Table HH–1 to subpart HH.".

Measuring Waste Quantity. We are amending 40 CFR 98.343(a) by adding a new paragraph (a)(3) to provide the necessary detail and clarification on the requirements for measuring the quantity of waste disposed in the landfill beginning with the first reporting year, and re-designating the existing 40 CFR 98.343(a)(3) as (a)(4). The amended waste measurement requirements for the reporting years require the use of scales when scales are in-place for all vehicles or containers delivering waste, except passenger vehicles and light duty pick-up trucks or waste loads that cannot be measured using the scales due to physical limitations (load cannot physically access or fit on the scale) and/or operational limitations of the scale (load exceeds the limits or sensitivity range of the scale).

When scales are present at the MSW landfill, they must be used, (except for passenger vehicles and light duty pick-up trucks or waste loads that cannot be measured using scales due to physical and/or operational limitations). Two options for the use of scales are included in the amendments. One option is to directly weigh each vehicle/container load as it enters the landfill and weigh each vehicle/container after the waste has been off-loaded, and calculate the mass of waste disposed as the difference in the two measurements. The second option requires the landfill owner or operator to determine tare weights (empty vehicle weights) for representative vehicle types. In this option, the landfill owner or operator must weigh the incoming vehicles and containers and calculate the mass of waste disposed based on the difference of the incoming vehicle weight and the tare weight of that vehicle type.

When scales are not in place, the working capacity or the mass of waste per type of vehicle or container must be determined. These measurements may include determining the volumetric capacity of representative containers and the average density of the waste as received. Wheel-load scales or portable axle-load scales may be used for these density determinations or measures of the mass of waste received by type of load. The landfill owner or operator must record the number and type of vehicles that haul waste to the landfill and use the working capacity of the containers to calculate the quantity of waste landfilled.

In addition to redesignating paragraph (a)(3) of 40 CFR 98.343 to (a)(4), we are amending that paragraph and the sub-paragraphs to clarify that measurement data can be used for historical years when the data are available. We are clarifying that the "Historical waste disposal quantities should only be determined once, as part of the first annual report, and the same values should be used for all subsequent annual reports, supplemented by the next year's data on new waste disposal." We are also amending 40 CFR 98.343(a)(4)(i) to read, "Assume all prior year's waste disposal quantities are the same as the waste quantity in the first year for which waste quantities are available." We are amending 40 CFR 98.343(a)(4)(iii) by revising the phrase, "i.e., from first accepting waste * * *" with "i.e., from the first year accepting waste * * *"

In related amendments, we are also amending 40 CFR 98.344(a) to state that "Mass measurement equipment used to determine the quantity of waste landfilled on or after January 1, 2010 must meet the requirements for weighing equipment as described in "Specifications, Tolerances, and Other Technical Requirements For Weighing and Measuring Devices," NIST Handbook 44 (2009) (incorporated by reference, *see* 40 CFR 98.7)." We are also amending 40 CFR 98.346(a) to require reporting of " * * an indication of whether scales are present at the landfill," and to amend 40 CFR 98.346(b) to require reporting of the waste quantities that were determined using scales according to the requirements in 40 CFR 98.343(a)(3)(i) and the waste quantities determined using vehicle counts and load capacities. We are also amending 40 CFR 98.347 to specifically require that records be maintained of all measurements used to determine vehicle tare weights or working capacities.

Equations HH–2, HH–3, and HH–4. We are making the following technical amendments to Equation HH–2 in 40 CFR 98.343:

- Replace the term “WGR_X” with “WDR_X” and remove the term “%SWDS.”
- Replace the definition of the term “WGR_X” with “WDR_X = Average per capita waste disposal rate for year x from Table HH–2 to this subpart (metric tons per capita per year, wet basis; tons/cap/yr).”
- Delete the definition of the term “%SWDS.”
- Delete the word “of” from the definition of “POP_X.”

We are making the following technical amendments to Equation HH–3 in 40 CFR 98.343:

- Replace the term “WDR_X” with “W_X.”
- Replace the definition of the term “WDR_X” with “W_X” = quantity of waste place in the landfill in year x (metric tons/wet basis).”
- Replace the definition of LFC with “Landfill capacity or, for operating landfills, capacity of the landfill used (or the total quantity of waste-in-place) at the end of the year prior to the year when waste disposal data are available from design drawings or engineering estimates (metric tons).”

We are making the following technical amendments to Equation HH–4 and the related 40 CFR 98.343(b):

- Amend Equation HH–4 of subpart HH and the terms in that equation to allow for daily averages (365 or 366 per year) from a continuous CH_4 monitoring system, or from weekly sampling (with 52 measurement periods).
- Amend the definitions of the terms $(T)_n$ and $(P)_n$ in Equation HH–4 to allow for averaging of measurements.
- In 40 CFR 98.343(b)(2), delete “* * * at least weekly * * *”
- In 40 CFR 98.343(b)(2)(ii), (iii)(A), and (iii)(B), replace “no less than weekly” with “at least once each calendar week; if only one measurement is made each calendar week, there must be at least three days between measurements.”
- In 40 CFR 98.343(c), replace “Calculate * * *” with “For all landfills, calculate * * *”

Moisture Content Measurement. In addition to the other amendments to Equation HH–4 of subpart HH discussed above, we revised the definition of $(V)_n$ to be the cumulative volume for the measurement period (rather than the volumetric flow rate), eliminated the 1,440 conversion factor for minutes per day, and revised the reference to “day” in the definition of equation terms with “measurement period.” We are also amending Equation HH–4 to replace the moisture correction term, $[1 - (f_{H_2O})_n]$, with a moisture correction factor, K_{MC}. K_{MC} is defined as “Moisture correction term for the measurement period, volumetric basis,” for three different measurement scenarios:

$K_{MC} = 1$ if $(V)_n$ and $(C)_n$ are both measured on a dry basis or if both are measured on a wet basis.

$KMC = 1 - (f_{H_2O})_n$ if $(V)_n$ is measured on a wet basis and $(C)_n$ is measured on a dry basis.

$KMC = 1/[1 - (f_{H_2On}]$ if $(V)_n$ is measured on a dry basis and $(C)_n$ is measured on a wet basis.

We are similarly amending 40 CFR 98.343(b)(2)(iii)(B) to indicate that moisture content is needed “[i]f the CH_4 concentration is determined on a dry basis and flow is determined on a wet basis or CH_4 concentration is determined on a wet basis and flow is determined on a dry basis, * * *”.

We are amending 40 CFR 98.344(d) and (e) to include reference to moisture content monitors. Specifically, we are amending 40 CFR 98.344(d) to read: “All temperature, pressure, and if necessary, moisture content monitors must be calibrated using the procedures and frequencies specified by the manufacturer.” We are also amending the first sentence in 40 CFR 98.343(d) to read, “The owner or operator shall document the procedures used to ensure the accuracy of the estimates of disposal quantities and, if applicable, gas flow rate, gas composition, temperature, pressure, and moisture content measurements.” We are amending 40 CFR 98.346(i)(3) to require reporting of both temperature and pressure (not just temperature) and to amend 40 CFR 98.346(i)(4) to require reporting of the moisture content measurements.

“*Active*” *and* “*Passive*” *Gas Collection Systems.* We are amending the definition of “gas collection system” in 40 CFR 98.6 as described in Section II.B of this preamble and we are adding a reporting requirement in 40 CFR 98.346(h) and (i)(7) for reporters to provide “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 40 CFR 98.6) are present at this landfill.”

Other Technical Corrections. We are making other technical corrections for subpart HH to correct typographical errors, to correct equations, and to provide minor clarifications.

We are making the following technical corrections to 40 CFR 98.344(b):

- Delete the word “install.”
- In 40 CFR 98.344(b)(6)(ii), add “at the routine sampling location.”
- Revise 40 CFR 98.344(b)(6)(ii)(A) to read “Take a minimum of three grab samples of the landfill gas with a minimum of 20 minutes between samples and determine the methane composition of the landfill gas using one of the methods specified in paragraphs (b)(1) through (b)(5) of this section.”
- In 40 CFR 98.344(b)(6)(iii), delete “that is collected and routed to a destruction device (before and treatment equipment).”
- In 40 CFR 98.344(b)(6)(ii)(B), add “for use in Equation HH–4 of this subpart” to the definition of the term CH_4 as follows “Methane concentration in the landfill gas (volume %) for use in Equation HH–4 of this subpart.”

In 40 CFR 98.344(c), we are revising the language to read, “Each gas flow meter shall be recalibrated either biennially (every 2 years) or at the minimum frequency specified by the manufacturer. Except as provided in 40 CFR 98.343(b)(2)(i), each gas flow meter must be capable of correcting for the temperature and pressure and, if necessary, moisture content.” We are making the following technical corrections to 40 CFR 98.346:

- Revise the language in 40 CFR 98.346(a) regarding leachate recirculation to read “an indication of whether leachate recirculation is used during the reporting year and its typical frequency of use over the past 10 years (*e.g.,* used several times a year for the past 10 years, used at least once a year for the past 10 years, used occasionally but not every year over the past 10 years, not used).”
- Revise 40 CFR 98.346(c) to read “Waste composition for each year required for Equation HH–1 of this subpart, in percentage by weight, for each waste category listed in Table HH–1 to this subpart that is used in Equation HH–1 of this subpart to calculate the annual modeled CH_4 generation.”
- In 40 CFR 98.346(d)(1), replace the term, “Degradable organic carbon (DOC) value used in the calculations,” with “Degradable organic carbon (DOC), methane correction factor (MCF), and fraction of DOC dissimilated (DOC_F) values used in the calculations.”
- In 40 CFR 98.346(d)(1) add “If an MCF value other than the default of 1 is used, provide an indication of whether active aeration of the waste in the landfill was conducted during the reporting year, a description of the aeration system, including aeration blower capacity, the fraction of the landfill containing waste affected by the aeration, the total number of hours during the year the aeration blower was operated, and other factors used as a basis for the selected MCF value.”
- Revise 40 CFR 98.346(f) to read, “The surface area of the landfill containing waste (in square meters), identification of the type of cover material used (as either organic cover, clay cover, sand cover, or other soil mixtures). If multiple cover types are used, the surface area associated with each cover type.”
- Add “for the reporting year” to 40 CFR 98.346(i)(1) as follows: “Total volumetric

flow of landfill gas collected for destruction for the reporting year (cubic feet at 520°R or 60°F and 1 atm).”

- Add “Annual average” to 40 CFR 98.346(i)(2)as follows: “Annual average CH_4 concentration of landfill gas collected for destruction (percent by volume).”
- In 40 CFR 98.346(i)(7), replace the parenthetical “(manufacture, capacity, number of wells, etc.)” with “(manufacturer, capacity, and number of wells).”

We are also adding the following definitions within 40 CFR 98.348 of subpart HH: “destruction device”; “solid waste”; and “working capacity.”

We are amending Table HH–1 to subpart HH to delete the default value for L_o, to provide additional DOC and k-values including those for inerts, *e.g.,* glass, plastics, metal, concrete, and to provide additional DOC and k-values to provide additional options for categorizing waste when applying Equation HH–1 in 40 CFR 98.343(a). We are also amending Table HH–1 to subpart HH to provide a more reasoned approach for determining the decay rate constant, k, when only a small quantity of leachate is recirculated and/or when leachate recirculation is used rarely (not every year). The leachate recirculation rate will be calculated as the total volume of leachate recirculated during the year divided by the area of the portion of the landfill containing waste. No direct measurement of volume of leachate recirculated is required; engineering estimates may be used. This leachate recirculation rate (in inches/year) is added to the precipitation rate and the sum used to determine what decay rate constant is appropriate. Alternatively, landfills that use leachate recirculation can elect to use the higher k value rather than calculating the recirculated leachate rate. The footnotes for Table HH–1 to subpart HH have been revised accordingly.

We are amending Table HH–2 to subpart HH to provide directly the waste disposal factors rather than the waste generation rates and percent disposed of in solid waste disposal sites (% to SWDS) and correcting an error in the waste generation rates included in Table HH–2 to subpart HH from 1989 to 2006. We are also adding waste disposal rates for 2007, 2008, and 2009.

We are amending Table HH–3 to subpart HH to delete the references to the average depth of waste within an area (H2, H3, H4, and H5). We are also amending Table HH–3 to subpart HH to clarify what is considered a “final soil cover.” The description for A5 is revised to read, “Area with a final soil cover of 3 feet or thicker of clay and/or geomembrane cover system and active gas collection.” The description for A4 is revised to read, “Area with an intermediate soil cover, or a final soil cover not meeting the criteria for A5 below, and active gas collection.”

Major changes since proposal are identified in the following list. The rationale for these and any other significant changes can be found in this preamble or the Response to Comments: Technical Corrections, Clarifying and Other Amendments (see EPA–HQ–OAR–2010–0109).

- Deleted the word “dedicated” from the phrase “dedicated construction and demolition waste landfill” in 40 CFR 98.340(b) and replaced the proposed definition of “dedicated construction and demolition waste landfill” with a definition of “construction and demolition waste landfill” taken from 40 CFR part 257.2.
- Revised the definition of MCF term in Equation HH–1 to allow landfills with active aeration to select an MCF value less than 1, but no lower than 0.5 and added reporting requirements to 40 CFR 98.346(d)(1) for facilities using an MCF value other than 1.
- Revised Table HH–1 to subpart HH to include DOC and k values for additional waste categories to provide an additional option for characterizing waste materials when applying Equation HH–1 of subpart HH.
- Revised the footnotes to Table HH–1 to subpart HH to allow the use of the greater k value in a given range when recirculation is used without the need to calculate the recirculated leachate quantity in inches per year.
- Revised 40 CFR 98.343(a)(3) to account for those loads that cannot be measured using scales due to their physical and/or operational limitations.

2. Summary of Comments and Responses

This section contains a brief summary of major comments and responses. Several comments were received on this subpart. Responses to additional significant comments received can be found in Response to Comments: Technical Corrections, Clarifying and Other Amendments (*see* EPA–HQ–OAR–2010–0109).

Comment: Several commenters stated that the new definition of “dedicated construction and demolition (C&D) waste landfills” is problematic and inappropriate because it is inconsistent with the C&D landfill definition already long-established in 40 CFR 257.2, “Criteria for the Classification of Solid Waste Disposal Facilities and Practices,” it represents a significant material change to the subpart HH applicability requirements, and it changes the data collection requirements for landfills retroactively. The RCRA Subtitle D definition 40 CFR 257.2 is:

> “Construction and demolition (C&D) landfill means a solid waste disposal facility subject to the requirements of subparts A or B of this part that receives construction and demolition waste and does not receive hazardous waste (defined in § 261.3 of this chapter) or industrial solid waste (defined in § 258.2 of this chapter). Only a C&D landfill that meets the requirements of subpart B of this part may receive conditionally exempt small quantity generator waste (defined in § 261.5 of this chapter). A C&D landfill typically receives any one or more of the following types of solid wastes: Roadwork material, excavated material, demolition waste, construction/renovation waste, and site clearance waste.”

According to the commenters, a dedicated C&D landfill, as defined in the proposal, rarely exists and most states allow C&D landfills to accept yard waste and other forms of household trash, pointing to the use of the word “typically” with regard to the types of wastes received, and suggesting that site clearance waste includes yard waste among other materials. The commenters urged EPA to delete the new C&D landfill definition in 40 CFR 98.348 and replace it with the definition found in 40 CFR 257.2. On the other hand, one commenter expressed concern with excluding “dedicated C&D waste landfills” even with the proposed definition and requested EPA to quantify the methane emissions from these C&D landfills.

Response: We generally agree with commenters that the RCRA Subtitle D definition in 40 CFR 257.2 is appropriate and should be used in preference to the proposed definition of “dedicated C&D waste landfills.” However, we are concerned with some of the assertions made by the commenters that a “C&D waste landfill” could accept some yard wastes and possibly other household wastes. Yard waste and household solid wastes are clearly included in the definition of “municipal solid waste or MSW” in 40 CFR 98.6. The definition of “MSW landfill” in 40 CFR 98.6 “means an entire disposal facility * * * where household waste is placed in or on land.” It is our interpretation and intent that any landfill in which household wastes, including household yard wastes or other MSW materials, are placed is a MSW landfill and is subject to the reporting requirements of subpart HH. As we did not change or alter the definition of MSW or MSW landfill, we do not agree with commenters that interpret the RCRA Subtitle D definition of C&D landfills in 40 CFR 257.2 to somehow supersede the definitions and intent of subpart HH. Furthermore, the definition of MSW landfill (MSWLF) unit in 40 CFR 257.2 specifies that “a C&D waste landfill that receives residential lead-based paint waste and does not receive any other household waste is not a MSWLF unit.” The converse of the statement clearly suggests that a C&D waste landfill that receives any household waste other than residential lead-based paint waste is a MSWLF unit. Thus, while we are revising the definition of C&D landfill to more closely follow the definition at 40 CFR 257.2, we do not agree that we materially altered the rule by providing a definition of dedicated C&D waste landfill and strongly object to the supposition that landfills that receive even small quantities of household wastes (other than residential lead-based paint wastes) are anything other than MSW landfills. Therefore, to clarify our intent, we have revised slightly the language adapted from the RCRA definition to specifically state that a C&D waste landfill does not receive MSW. We also deleted the sentence regarding conditionally exempt waste as superfluous to the requirements of this definition in subpart HH. The final definition reads “*Construction and demolition (C&D) waste landfill* means a solid waste disposal facility subject to the requirements of subparts A or B of part 257 of this chapter that receives construction and demolition waste and does not receive hazardous waste (defined in 40 CFR 261.3 of this chapter) or industrial solid waste (defined in 40 CFR 258.2 of this chapter) or municipal solid waste (defined in 40 CFR 98.6) other than residential lead-based paint waste. A C&D waste landfill typically receives any one or more of the following types of solid wastes: roadwork material, excavated material, demolition waste, construction/renovation waste, and site clearance waste.”

While we have adopted, for the most part, the RCRA subtitle D definition for C&D waste landfills, we maintain that the inclusion of a definition of C&D waste landfills is not a material change in the rule because it does not alter the definition of MSW landfill or the applicability of the rule to MSW landfills. As the final definition of C&D waste landfills expressly includes site clearance wastes, which could include trees and other materials that have significant organic content, we agree that additional evaluation is needed to assess the methane generation potential of C&D waste landfills. Consequently, we are taking this comment under advisement; we will determine whether or not reporting requirements should be proposed for C&D waste landfills at a future time based on the results of the additional evaluations of C&D waste materials and their methane generation potential.

Comment: Several commenters expressed support for the amended definition of “gas collection systems or landfill gas collection systems,” intended to clarify that passive vents/flares are not considered part of a landfill gas collection system for purposes of subpart HH. However, these commenters opposed the proposed reporting requirement to provide an indication of whether passive vents and/or passive flares that are not considered part of the gas collection system as defined in 40 CFR 98.6 are present at the landfill. The commenters argued that this represents a new data element that would require significant additional burden to contact landfill engineers to collect this new information. The commenters recommended that EPA finalize this data element, but delay its collection to January 1, 2011, and delay its reporting to March 31, 2012 and thereafter. On the other hand, one commenter expressed concerned that EPA’s decision to exempt “passive” gas collection systems from flow meter reporting may inadvertently exempt substantial emissions sources. The commenter noted that the number of landfills with passive vent controls is uncertain and argued that the cumulative emissions from these passive collection systems could be significant. The commenter requested EPA include any data on this point in the record for the final rulemaking and include passive gas collection systems fully in the rule if warranted.

Response: The monitoring requirements for gas collection systems within the final rule were developed considering forced ventilation systems and those monitoring requirements are inappropriate for passive gas collection systems. However, we agree with the commenter who suggested that EPA must obtain more data on the prevalence of these systems in order to properly understand and account for the impact these systems may have on the GHG emissions from MSW landfills. We find that “an indication” (essentially answering a yes/no question to indicate whether or not a passive gas collection system is present) is not a significant additional reporting burden. As this reporting requirement requires no monitoring or other activities that might be considered a retroactive requirement, we conclude that this reporting requirement is appropriate and necessary for the 2010 reporting year.

Comment: A few commenters indicated that the requirement to use a methane correction factor (MCF) of 1 will overestimate methane generation from landfills that are actively aerated and recommended that facilities be allowed to use alternative MCF values based on site-specific conditions (*e.g.,* the use of in-situ aeration).

Response: To the extent some MSW landfills actively aerate the waste within the landfill, we agree that alternative MCF values should be allowed for actively aerated landfills. Supplying air to the waste within the landfill will reduce the fraction of carbon that is degraded anaerobically, which is represented by the MCF value. However, additional reporting requirements are needed to verify the MCF value selected. These include the basis of the alternative value, such as an indication of whether active aeration is used, a description of the aeration system, including aeration blower capacity, the fraction of the landfill containing waste affected by the aeration, the total number of hours during the year the aeration blower was operated, and other factors used as a basis for the selected MCF value. Based on other comments received (*e.g.,* comments described above on reporting of the presence of passive gas collection systems), the inclusion of these additional reporting requirements would likely be objectionable. However, we have conditioned these additional reporting requirements to be applicable only for facilities electing not to use an MCF value of 1. As the reporting requirements for facilities that use an MCF value of 1 have not changed, and because all facilities can choose to use the default value of 1 (including the relatively few landfills that use active aeration), we find that we have not significantly altered the reporting requirements of the final rule. Facilities electing to use an MCF other than 1 must have active aeration and must provide information regarding the aeration system to justify the lower MCF value.

Comment: One commenter noted that the new defaults for inert wastes in Table HH–1 to subpart HH are designated for use only by those landfills capable of segregating and measuring the waste they accept by composition using EPA’s prescribed waste categories, which include: food waste, garden, paper, wood and straw, textiles, diapers, sewage sludge and, now, inerts. According to commenters, U.S. MSW landfills do not use these categories to categorize waste receipts, and few if any MSW landfills will be able to adjust for large quantities of inerts that may be disposed of at a specific landfill. The commenter noted that the MSW landfill sector in the U.S.

typically records waste type receipts using the broad categories of MSW bulk waste, construction and demolition (C&D) bulk waste, inert waste, sewage sludge, and yard and garden waste. The commenter recommended that the inert defaults be included in Table HH–1 to subpart HH for the "Bulk Waste Option" to allow landfills to take large shipments of bulk inert wastes into account in their landfill gas generation models.

Response: The bulk DOC and k values were determined based on monitored landfill gas generation rates and the total quantity of waste disposed (annual average waste acceptance rates). We reviewed the C&D waste acceptance policies of these landfills, as C&D waste can largely be comprised of inert materials, and determined that each landfill accepted C&D wastes. While we do not have a breakdown of the relative quantities of different categories of wastes in these landfills, we maintain that the default "bulk waste" DOC and k values are representative of typical or average MSW landfill operations in the U.S. However, we also acknowledge that there is significant variability in the methane generation rates (per ton of waste disposed) at individual landfills. We provided the waste composition option to account for this variability, but this option needs a default value for inert materials in order to be more comprehensive and therefore reflective of waste composition at U.S. landfills. With regard to the bulk waste option, which is applicable when a landfill cannot breakdown their waste quantities at all, it is not appropriate to allow the use of inert default parameters, because values provided for this option already consider that there will be some amount of inerts in the overall waste quantity. Therefore, this option remains as it appeared in the October 2009 Final rule. However, we consider it reasonable to provide an alternative bulk MSW option that allows landfills to characterize their waste quantities into categories that the MSW landfill industry more typically monitors and records. We reviewed available MSW waste characterization data to develop default bulk MSW model parameters excluding inerts and C&D wastes, and determined that an appropriate DOC value for this waste category is 0.31 with a k value similar to that for bulk waste. Therefore, we have included in the final rule an additional option for characterizing waste materials. In this "bulk MSW" option, there are three waste categories: bulk MSW excluding inerts and C&D wastes; inert wastes; and C&D wastes. This new option provides a means for individual landfills to better estimate the methane generation rates to account for significant quantities of inert materials or C&D wastes without needing to classify the wastes into the detailed categories of the waste composition option. For more information on the bulk MSW option, please see "Modified Bulk MSW Option" in docket EPA–HQ–OAR–2010–0109.

Given these amendments to Table HH–1 to subpart HH, we are also revising the reporting requirements in 40 CFR 98.346(c) to clarify that the waste compositions should be reported only for the waste categories in Table HH–1 to subpart HH that are used in the calculation of methane generation using Equation HH–1 of subpart H. This amendment is needed to avoid confusion with the "municipal" category currently listed in 40 CFR 98.346(c) and the bulk waste and bulk MSW categories.

Comment: A few commenters indicated that the amendment to the Table HH–1 to subpart HH regarding leachate recirculation imposes substantial new data collection requirements that would require significant operational changes to implement. According to the commenters, most landfills that recirculate leachate do not measure and track the volume that is recirculated during each event and would not be able to provide these data for the 2010 calendar year. Furthermore, the commenter suggested that landfills would incur significant expense to install appropriate leachate measurement devices and ancillary equipment for a nominal impact on landfill GHG emissions calculation accuracy.

Response: We proposed the modifications to Table HH–1 to subpart HH to address questions that arose concerning the use of the highest k value in the range when leachate recirculation was used sporadically or only in limited amounts. We did not specify any monitoring requirements for the quantity of leachate recirculated; we anticipated that most landfills would use company records or engineering estimates to determine the quantity of leachate recirculated. We have revised the first footnote to Table HH–1 to subpart HH to clarify this point. Additionally, we have revised the footnotes to allow facilities to use the highest k value in the range when leachate recirculation is used. As such, the final amendments are effectively equivalent to those proposed, but give reporters some flexibility to use high-range default k values if leachate recirculation is used, but leachate recirculation rates are unknown or otherwise not estimated. The use of the higher k values may overestimate methane generation, but it will not result in any additional monitoring or reporting burden for reporters. Further, not all landfills use leachate recirculation and we expect that some of the landfills that do use leachate recirculation will have records that document the amount of leachate that is recirculated. Therefore, we expect that only a small subset of landfills would default to the higher k-value when a lower k-value might be more appropriate and that there will not be a significant bias in overall emissions from landfills.

Comment: Several commenters discussed the amendments in 40 CFR 98.343(a)(3) requiring landfills to use scales when scales are in-place for all vehicles or containers delivering waste, except passenger vehicles and light-duty pick-up truck. The commenters stated that this requirement is problematic because it is not possible to physically weigh all loads entering the landfill because their weight may exceed the scales' capability or the dimensions of the waste may not allow the waste load to pass through the physical constraints of the scale and scale-house. Some commenters noted that state and local requirements may require accounting of certain waste types on a volumetric basis despite the landfill having scales. The commenters suggested that having to maintain two sets of records in order to comply with all established regulatory requirements is an unnecessary burden and contrary to acceptable accounting practices. One commenter suggested that the clarification to require all waste loads to be weighed via a scale to be a substantial material change because the final MMR could be interpreted to allow tipping fee receipts or company years for 2010 and beyond and not just direct measurement. The commenters generally recommended that 40 CFR 98.343(a)(3) be revised so that waste loads can be measured by using either methodologies as appropriate for the waste type disposed even though scales are present at the landfill. Some of the commenters suggested EPA allow facilities to estimate the weight/volume of the delivered waste material using methods and factors allowed or required by state or local agencies or other methods documented in the relevant facility's GHG Monitoring Plan.

Response: We originally intended that scales be installed and direct mass measurements be used for the year 2010 and beyond; the allowance of tipping fee receipts or other company records was intended for years prior to the first emissions reporting year. While states and local jurisdictions may require measurement by volume, Equation HH–1 of subpart HH, which is the foundation for determining methane generation from the landfill, requires the waste quantity in units of mass. Section 98.343(a)(2) of subpart HH specifically requires these waste quantities [in units of mass] to be determined daily, and 40 CFR 98.344(a) states that "[t]he quantity of waste landfilled must be determined using mass measurement equipment * * *" EPA answered numerous questions regarding this requirement and communicated the above interpretation to the industry in webinars and other outreach materials. Consequently, we do not consider the proposed amendments in 40 CFR 98.343(a)(3) to be a substantial material change in the requirements of the rule published on October 30, 2009. However, we recognize that some reporters did not believe that the rule language was explicit with respect to these requirements. Additionally, we reconsidered our original position that scales must be installed. The proposed amendments addressed both of these issues.

We had not considered that there would be physical limitations to accessing the scale. We also anticipated that the scales would cover the range of sizes and weights received at the site. As we no longer require the installation of permanent scales at a facility, we certainly do not intend to require facilities to have to replace existing scales to accommodate unusually sized or heavy loads. As such, we conclude that it is reasonable to allow facilities to use the methods in 40 CFR 98.343(a)(3)(ii) for certain waste loads even though scales are present at the facility. However, because the mass of waste is a critical input to Equation HH–1 and we desire accurate measurements of this waste, the methods outlined in 40 CFR 98.343(a)(3)(ii) are limited to waste loads that cannot be measured using the scales due to physical and operational limitations of the scale. Physical limitations refers to the shape or size of the load so that it cannot access the scale or does not fit on the scale. Operational limitations refers to the weight of the load exceeding the limits or sensitivity range of the scale. Operational limitations are not intended to consider waiting times to access the scale. For all other types of waste loads (other than passenger vehicles or light duty trucks), the direct mass measurement methods in 40 CFR 98.343(a)(3)(i) must be used.

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

1. Summary of Final Amendments and Major Changes Since Proposal

First, we are amending 40 CFR 98.386(a)(5) and (6) to clarify that fossil-fuel products that enter the facility will not be reported when exiting the facility if they are not further refined or otherwise used on site (e.g. products stored in a tank). It was not EPA's intent that such products be reported.

Second, we are amending 40 CFR 98.386(a)(3), (a)(7), (b)(3), and (c)(3) to harmonize the reporting requirements with the amendments in 40 CFR 98.393 of today's rule to account for denaturant in ethanol. Third, we are replacing a comma with the words "that were" in 40 CFR 98.386(a)(16) and (a)(17) and adding a paragraph at 40 CFR 98.386(d) to harmonize the reporting requirements with the amendment in 40 CFR 98.393(i) of today's rule to provide an optional method for calculating GHG emissions from blended feedstock and products. Since subpart LL reporters follow subpart MM methodologies for calculating GHG emissions, these amendments are necessary to ensure complete reporting of subpart LL data.

2. Summary of Comments and Responses

EPA did not receive any comments on the proposed amendments to subpart LL and is finalizing the amendments to this subpart as proposed.

R. Subpart MM—Suppliers of Petroleum Products

1. Summary of Final Amendments and Major Changes Since Proposal

We are adding a definition of "batch" in 40 CFR 98.398 to clarify the crude oil reporting requirements in 40 CFR 98.396(a)(20) and to minimize administrative burden. Under this final rule, a batch of crude oil means either a volume that enters a refinery or a component of such volume (*e.g.,* the volumes of different crude streams that are blended together and then delivered to a refinery). The batch volume is dependent upon what a refiner knows about the crude oil it receives and is the first appropriate tier in the following list:

(1) Up to an annual volume of a type of crude oil identified by an EIA crude stream code,[6] if the EIA crude stream code is known.

(2) Up to an annual volume of a type of crude oil identified by a generic name for the crude stream and an appropriate EIA two-letter country or state and production area code[7] if the generic name and EIA two-letter code are known but no appropriate EIA crude stream code exists.

(3) Up to a calendar month volume from a single known foreign country of origin if the crude stream name is unknown.

(4) Up to a calendar month volume from the United States if the crude stream name and production area are unknown.

(5) Up to a calendar month volume if the country of origin is unknown.

For example, if refiners know the EIA crude stream code of a volume of crude oil that they receive, they must report the API gravity and sulfur content of up to an annual volume of this type of crude oil. If refiners only know the country of origin of a volume of foreign crude oil (but not the crude stream name), they must report the API gravity and sulfur content of up to a calendar month volume from that country.

For data collection in 2010 only, a refiner that knows the information that we require them to report under a specific tier of the batch definition, but does not have the necessary data collection and management in place to readily report this information, can use the next most appropriate tier of the batch definition for reporting batch information in 40 CFR 98.396(a)(20).

With this definition of "batch", we are requiring refiners to report on crude oil volumes in 40 CFR 98.396(a)(20) using the best data they are collecting as part of normal business practices. For example, refiners must use data on the American Petroleum Institute (API) gravity and sulfur content of crude oil that they, or a third party, currently collect as part of normal business practices, including data refiners use to report monthly weighted average API gravity and sulfur content to EIA. As another example, refiners must use data that they currently collect on the EIA crude stream code or country of origin for the components of a blended crude oil.

---

[6] The *EIA crude stream code* is the numeric code used to identify the type of domestic crude oil in Form EIA–182 (Domestic Crude Oil First Purchase Report) and the alpha numeric code used to identify the type of foreign crude oil in Form EIA–856 (Monthly Foreign Crude Oil Acquisition Report).

[7] *EIA country code* means the two-letter code identifying the country associated with the alpha numeric crude stream codes used to identify the type of foreign crude oil in Form EIA–856 and is traditionally found in Appendix A of the form. The *EIA state and production area code* is the two-letter code used to identify the source of domestic crude oil in Form EIA–182 is traditionally found in Appendix A of the instructions.

We are making harmonizing amendments to 40 CFR 98.396(a)(20) to allow refiners to report the country of origin, EIA crude stream code and name, or the generic name of the crude stream and associated production area code for a given batch as appropriate, if known.

To better align the API gravity and sulfur content reporting requirements with normal business practices, we are also amending the recordkeeping requirements in 40 CFR 98.397 so that refiners will no longer be required to maintain laboratory reports, calculations and worksheets used in the measurement of API gravity and sulfur content of crude oil. Instead, refiners must maintain sufficient records to support the information they report to EPA (as required by 40 CFR 98.397(a) and (b)).

We are also amending 40 CFR 98.394(d) and 40 CFR 98.396(a)(20) to clarify that we are seeking the weighted average API gravity and sulfur content from representative samples of each batch.

To ensure that refiners can report readily available data in 40 CFR 98.386(a)(20) on the volume and associated characteristics of components of a blended crude oil, we are amending the requirements for determining quantity of crude oil in 40 CFR 98.394(a)(1) so that they only apply to volumes of crude oil that refiners measure on site (e.g., the total volume rather than the components of such volume). Refiners may now use an industry standard practice to determine volumes of crude oil that are not measured on site, even if an appropriate standard method published by a consensus-based standards organization exists, as specified in a new paragraph, 40 CFR 98.394(a)(3). We are also amending the recordkeeping requirements associated with quantity determination in 40 CFR 98.397(b) so that refiners will not be required to maintain metering and gauging records for quantities of crude oil that they do not measure on site, including the date of initial calibration and frequency of recalibration for associated measurement equipment. We are also amending 98.394(d) to give refiners the option of following an industry standard practice to measure API gravity and sulfur content of crude oil.

We are amending the definition of Product_i (annual volume of product "i" produced, imported, or exported) in Equation MM–1 in 40 CFR 98.393(a)(1) and (2) to make it clear that GHG emissions should not be calculated for products leaving the refinery if those products had entered the refinery but were not further refined or otherwise used on site (*e.g.,* products stored in a tank). As a harmonizing change, we are amending 40 CFR 98.396(a)(5) and (6) to clarify that these products are not reported.

We are amending the procedure in 40 CFR 98.393(f)(1) for calculating emission factors for solid products when using Calculation Method 1. The amendments will clarify that reporters should multiply the default carbon share factor in column B of Table MM–1 to subpart MM by 44/12 (the ratio of the molecular weight of CO_2 to the atomic weight of carbon) to convert the amount of carbon in the product to CO_2. Due to an oversight, 44/12 was not included in the original formula. This amendment is necessary because otherwise reporters would calculate the emissions of carbon instead of carbon dioxide.

We are amending Equation MM–9 in 40 CFR 98.393(h)(2) to correct a typographical error. The correct emission factor (EF) term in the equation is EF_j not EF_i.

We are adding an optional method for reporters in 40 CFR 98.393(i) to calculate CO_2 emissions that would result from the complete oxidation or combustion of a blended product or blended non-crude feedstock. The procedures in the existing rule require reporters to calculate CO_2 emissions for blended products either by selecting the default emission factor for the product listed in Table MM–1 to subpart MM that resembles most closely the blended product (Calculation Method 1) or by sampling and testing the blended product (Calculation Method 2). If a reporter applies the former method, the CO_2 emissions calculation for the blended product will likely reflect the CO_2 content of only one blend component. In such a case, the CO_2 from the blended product will not be as accurately accounted for in Equation MM–4 of subpart MM. The optional method we are adding allows reporters to account for the CO_2 emissions of a blended product or blended non-crude feedstock in the summary calculation of total facility CO_2 by calculating the emissions of the blend's individual components using appropriate default factors listed in Table MM–1 to subpart MM. This increases flexibility for facilities that receive and supply blends. This also improves accuracy of the summary calculation of total refinery CO_2 because it ensures that the same quantities and emission factors are used for blend components coming in to the refinery as for blended products going out.

The optional method is not available for a product that is biomass-based because such biomass-based products are subject to paragraph (h) of 40 CFR 98.393.

To align the existing regulatory text with the optional method for blends, we are amending paragraphs (a)(1) and (b)(1) of 40 CFR 98.393 and paragraphs (a)(16) and (a)(17) of 40 CFR 98.396. We are also adding paragraph (d) of 40 CFR 98.396 to create new data reporting requirements for blends.

We are amending the calculation procedures in 40 CFR 98.393(h) for blended biomass-based fuels. Part 98 (as finalized in 70 CFR 56260, October 30, 2009) directed refineries that supply a petroleum product that was produced by blending a petroleum-based product with denatured ethanol to report emissions from the denaturant leaving the refinery but not the denaturant in the ethanol that enters the refinery as a feedstock. This resulted in over-reporting of GHG emissions across subpart MM reporters because the blending refinery accounted for the CO_2 from denaturant in its GHG emissions calculation even though the original refinery that produced the denaturant ex-refinery gate already accounted for the CO_2 in its GHG emission calculation. To address the over-reporting for refineries using Calculation Method 1 for petroleum products or non-crude petroleum feedstocks that contain denatured ethanol, we are amending Equations MM–8 and MM–9 of subpart MM to exclude denaturant from the term "%vol", respectively.

To address this over-reporting for refineries using Calculation Method 2 for petroleum products that were produced by blending a petroleum-based product with denatured ethanol on site, we are adding a new Equation MM–10a of subpart MM. Equation MM–10a requires refineries to sample the petroleum-based products prior to blending them with denatured ethanol and use the resulting emissions factor and the volume of the petroleum-based product to calculate emissions for the ultimate petroleum products that leave the refinery. This new equation is necessary and Equation MM–10 is incorrect for such situations because the term for the biomass default emission factor in Equation MM–10 is applied to the whole volume of biomass received for blending (which for ethanol includes denaturant), even though the default factor for ethanol does not account for denaturant. We are splitting 40 CFR 98.393(h)(3) into paragraphs (i) and (ii) so that Equation MM–10 remains in (i) for petroleum products blended with biomass other than denatured ethanol while Equation MM–10a appears in (ii) for petroleum products blended with denatured ethanol. We are amending Equation MM–10 to exclude denaturant from the term "%vol."

Together, these amendments ensure that the denaturant present in ethanol is not accounted for in the calculation of CO_2 that would result from the complete combustion or oxidation of the biomass-blended product or feedstock. We have concluded that these amendments simplify reporting for reporters while maintaining the level of data quality and accuracy required by EPA for subpart MM because we would expect any denaturant in ethanol that enters the refinery in a feedstock to leave the refinery in a product and therefore the CO_2 emissions from the denaturant would be a net of zero.

We cannot identify a situation, nor did any commenters, in which a refinery would want to use Calculation Method 2 for a non-crude feedstock that contains denatured ethanol or an importer or exporter would want to use Calculation Method 2 for products containing denatured ethanol. Therefore, we are splitting 40 CFR 98.393(h)(4) into paragraphs (i) and (ii) so that Equation MM–11 of subpart MM remains in (i) for non-crude feedstocks blended with biomass other than denatured ethanol while directions to use Calculation Method 1 appear in (ii) for non-crude feedstocks blended with denatured ethanol by refineries. We are also adding directions in 40 CFR 98.393(h)(3)(ii) for importers and exporters of petroleum products blended with denatured ethanol to use Calculation Method 1. We are amending Equation MM–11 to exclude denaturant from the term "%vol."

We are amending 40 CFR 98.396(a)(3), (a)(7), (b)(3), and (c)(3) to align the reporting requirements with the amendments to account for denaturant in ethanol.

Major changes since the proposal are identified in the following list. The rationale for these and any other significant changes can be found in Response to Comments: Technical Corrections, Clarifying and Other Amendments (see EPA–HQ–OAR–2010–0109).

- We expanded on the proposed definition of "batch" to require refiners to report up to an annual volume of a type of crude oil identified by an EIA crude stream code (or the generic crude stream name and production area code if no appropriate EIA crude stream code exists) if refiners know this information. If refiners do not know this information, refiners must report according to the proposed definition of batch (*e.g.,* up to a calendar month volume from a single country of origin or, if refiners do not know the country of origin, up to a total calendar month volume).
- We clarified that "batch" can mean either the volume that enters a refinery or the components of such volume. We amended 40 CFR 98.394(a) to allow refiners to use industry standard practices to determine crude oil volumes that they do not measure on site, rather than standard methods published by a consensus-based standard, if desired. We also amended the recordkeeping requirements associated with quantity determination in 40 CFR 98.397(b) so that refiners are not required to maintain metering and gauging records for quantities of crude oil that they do not measure on site.
- We amended 40 CFR 98.394(d) to allow refiners to use industry standard practices to measure API gravity and sulfur content of crude oil, rather than standard methods published by a consensus-based standards organization, if desired.
- For reporting year 2010 only, we are providing reporters some flexibility in defining a batch of crude oil. A refiner that knows the information under a specific tier of the batch definition, but does not have the necessary data collection and management in place to readily report this information, can use the next most appropriate tier of the batch definition for reporting batch information in 40 CFR 98.396(a)(20).
- As a harmonizing amendment with the final definition of crude oil (as discussed in Section II.B, Subpart A—General Provisions, of this preamble), we added a reporting requirements for refineries in 40 CFR 98.396(a). Refiners are now required to report on the volume of crude oil that they inject into a crude supply or reservoir under a new paragraph (22).

2. Summary of Comments and Responses

This section contains a brief summary of major comments and responses. Several comments were received on this subpart. Responses to additional significant comments received can be found in Response to Comments: Technical Corrections, Clarifying and Other Amendments (see EPA–HQ–OAR–2010–0109).

Comment: We received three comments related to our proposed amendments regarding the treatment of denatured ethanol. Two comments supported the proposed change. The third commented that reporting of gasoline-ethanol blends (*i.e.,* a petroleum product that contains denatured ethanol and is a blended biomass-based fuel) was burdensome and suggested that only the petroleum portion of these blends should be reported. That commenter stated that the blending of ethanol with gasoline should not be considered "to be further refined or otherwise used on site" (40 CFR 98.396(a)(1)) and that therefore, ethanol should not have to be reported.

Response: We are finalizing our proposed amendments related to denaturant in ethanol in today's rule.

When finalizing subpart MM, (74 FR 56260, October 30, 2009), EPA concluded that reporting the total volume of gasoline-ethanol blends ex refinery gate as well as the percentage of that volume that is petroleum-based is not unnecessarily burdensome to reporters. The changes to 40 CFR Part 98.396(a) that would be necessary to remove biomass reporting as suggested by the commenter are outside the scope of the specific amendments proposed for public comment in the **Federal Register** notice of June 15, 2010. The proposed changes to 40 CFR 98.396(a) only addressed how the denaturant in ethanol should be treated, and EPA did not seek comment on removing reporting on biomass entirely.

As a result of the comments we received, we have concluded that there has been confusion regarding how ethanol should be reported when it leaves the facility. When ethanol leaves a facility covered by subpart MM, it is generally being blended with finished gasoline as it is being loaded into a truck. We are clarifying here that EPA considers the ethanol and the gasoline to be leaving the facility separately if they are leaving through different "spigots" and being blended in the truck. Under these circumstances, there is no gasoline-ethanol blend on site at the facility. The gasoline is the petroleum product that must be reported as leaving the facility. The denatured ethanol is not part of a petroleum product leaving the facility and, as a result of the technical correction being made in this rule for how to treat the denaturant in ethanol, need not be reported as entering or leaving the facility under these circumstances.

The phrase "to be further refined or otherwise used on site" only applies to petroleum products, including blended biomass-based fuels, and natural gas liquids. EPA has clarified through guidance that a petroleum product or natural gas liquid that stays in the same container or vessel while on site and that is not blended with any other product is not "otherwise used on site" and that blending is considered "otherwise used on site". If refiners blend ethanol with a petroleum product on site—for example, a refiner blends gasoline and ethanol on site and stores the blend in a tank before it leaves the facility—then the total volume of the ethanol-gasoline blend as well as the percentage of that volume that is petroleum-based must be reported when the blend leaves the facility. The volume of ethanol entering the facility need not be reported.

Comment: In the proposal, we sought comment on defining a "batch" to help clarify crude oil reporting requirements in 40 CFR 98.396(a)(20) and reduce administrative burden, while continuing to collect adequate crude oil data to support the purposes of subpart MM.

We received several comments on our proposed definition of batch and potential alternatives. One commenter supported defining a batch as the annual volume of a type of crude oil characterized by an EIA crude stream code (rather than monthly volumes) if EPA maintains the requirement to report API gravity, sulfur content, and country of origin of crude oil. One commenter expressed support for the proposed definition of batch but cautioned that it would limit refiners to report the country of origin as "unknown" when the crude oil batch is a blend of crude oil from several known countries. The commenter therefore advised EPA to allow refiners to report on the components in a crude oil blend and to amend the quantity determination requirements so that refiners can use information obtained from normal business practices on blend component volumes. The commenter further opined that, similar to the problem of reporting a single country of origin, refiners receiving a crude oil blend would be unable to report a single EIA crude stream code. Therefore the commenter recommended that EPA include annual crude volumes by EIA crude stream codes in the definition of batch only if it is presented as one of multiple options. Two commenters advocated that EPA limit the definition of batch to the annual volume of each EIA crude stream code category and remove the requirement to report API gravity, sulfur content, and country of origin for every batch. One commenter expressed concern about limiting the definition of batch to the annual volume of each EIA crude stream code category if it means losing data on API gravity. That commenter urged EPA to require refiners to report the sample data they already collect for EIA reporting. The commenter also asked that EPA define "batch" in a way that captures the differences in crude oil originating from the same country since different crude streams from the same country can have different API gravity and sulfur contents.

Response: In today's rule we are finalizing a definition of "batch" that builds on our proposed definition by adding two additional features. First, we are requiring refiners to define a batch as up to an annual volume of a type of crude oil identified by an EIA crude stream code (or a generic crude stream name and production area code) if refiners know this information. Second, we are defining batch as either the total volume of crude oil that enters a refinery or the components of such volume so that refiners will be able to report representative data they currently collect on all three crude parameters—(1) API gravity, (2) sulfur content, and (3) country of origin or crude stream name and production area—for the components in a blended crude volume instead of having to report the third parameter as unknown. These amendments were generally supported by commenters and we concluded that they would result in better data and be less burdensome than the proposed definition.

With regard to comments on defining a batch as a monthly versus annual volume of crude, we determined that API gravity and sulfur content of specific crude streams do not vary enough to warrant requiring batch to be defined as only up to a monthly volume. On the other hand, API gravity and sulfur content can vary significantly between different crude streams coming from the same country of origin (or multiple countries of origin). Therefore, we determined that monthly reporting outlined in the proposed definition of "batch" would be necessary in those cases where refiners only know the country of origin of their crude volume (rather than the crude stream name and production area) or when they do not know the country of origin. We did not conclude that reporting batches more frequently than a monthly basis would be necessary in any situation.

We considered eliminating the requirement that refiners report API gravity and sulfur content if they report the EIA crude stream code associated with the batch, but we determined that there were too many EIA crude stream codes without corresponding API gravity and sulfur content values and that even when present these values, while illustrative, were based on limited information and would not always be representative of the characteristics of the crude oil used at a refinery. Furthermore, refiners already collect data on the API gravity and sulfur content of their crude oil in order to report this information to EIA on a monthly basis, and it is our understanding, based on an industry comment, that refiners also track this information to determine how well the physical characteristics of the crude oil align with the processing capability of their refineries.

Comment: In the proposal, we sought comment on other technical amendments (besides defining "batch") that would help clarify crude oil reporting requirements in 40 CFR 98.396(a)(20) and reduce administrative burden. In particular, we sought comment on ways to better align the provisions related to crude oil reporting with normal business practices.

We received two comments with input on ways to better align the monitoring and QA/QC provisions related to crude oil reporting with normal business practices. According to the two commenters, it is normal business practice for refiners to maintain data on crude batch volumes and other parameters required in 40 CFR 98.396(a)(20). They described a number of different sources they use to identify the sulfur content and API gravity of crude oil batches (including components of blended crude oil volumes) such as grab samples, contract laboratory records, crude assay reports, invoices, and pipeline receipt tickets. They explained that the data contained in these sources are often collected outside of the refinery under normal business practices, which may be inconsistent with the current requirements in the rule to use standard methods to measure these data (resulting in the need to collect the data again inside the refinery). In addition, one of the two commenters explained that they maintain data on the components of blended crude volumes but they may not be able to determine the volume of the components of blended crude according to the quantity determination requirements in 40 CFR 98.394(a)(1) since the components arrive at the refinery already blended. Therefore, they will be forced to report the total volume of the blended crude oil and the country of origin (or EIA crude stream code) as "unknown" even though they know information about the volume components.

We also received two comments in support of the proposed elimination of recordkeeping requirements in 40 CFR 98.397 related to the measurement of API gravity and sulfur content of crude oil because it would support the use of data collected in normal business records. We received one comment that objected to EPA's deletion of specific recordkeeping requirements for API gravity and sulfur content measurements on the basis that these records were important verification tools.

Response: In response to comments, we are retaining our proposed amendment to eliminate the recordkeeping requirements in 40 CFR

98.397 related to the measurement of API gravity and sulfur content of crude oil. We are also making several additional amendments to improve the flexibility of the QA/QC and recordkeeping requirements in the rule to facilitate the reporting of similar and, in many cases, better quality data on API gravity, sulfur content, and geographic origin of crude oil batches while reducing administrative burden. We are amending 40 CFR 98.394(d) to allow refiners to use industry standard practices to determine the API gravity and sulfur content of crude oil. We are amending the quantity determination monitoring and QA/QC requirements in 40 CFR 98.394(a) so that refiners can use industry standard practices to determine the volume of components of a blended crude batch (which are never directly measured on site at a refinery). Therefore, refiners will be able to report representative data they currently collect on all three crude parameters—(1) API gravity, (2) sulfur content, and (3) country of origin or crude stream name and production area—of the components in a blended crude volume instead of having to report the third parameter as unknown. We are also making a harmonizing amendment to 40 CFR 98.397(b) to eliminate the requirement that refiners maintain metering and gauging records for crude oil batch volumes that they do not measure on site. Together, these amendments will allow refiners to report crude characteristics contained in crude assay reports, third party laboratory reports, or pipeline receipt tickets if the characteristics are representative of the crude oil used at the refinery and it is an industry standard practice to use these sources. We have determined that these amendments will still ensure that the data refiners report is adequately representative of the crude oil they receive at the refinery and that the records they keep will be sufficient to support EPA verification of the data. We made this determination in light of the fact that crude oil data is not used to calculate the CO_2 emissions reported under subpart MM.

Comment: We sought comment on our proposed timeline of implementing the technical amendments to subpart MM for the 2010 reporting year and whether this timeline was appropriate considering the nature of the proposed changes and/or the way in which data have been collected thus far in 2010. We received one comment indicating that defining “batch” in a manner that would require monthly reporting of crude oil volumes may necessitate modifications to current refinery sampling and monitoring practices and that refiners may not be able to provide this information by the March 31, 2011 reporting deadline for 2010 data.

Response: While data collection methods may vary by refinery, we have determined that refiners currently collect data as part of normal business practices on the API gravity and sulfur content for at least one of the five tiers described in the definition of “batch” in today’s rule and should therefore be able to meet the crude oil reporting requirements in 40 CFR 98.396(a)(20) in a timely manner. However, since we did not include a definition of “batch” in the final rule (74 FR 56260), refiners may not have established data collection and management systems in 2010 to link the information they collect on API gravity, sulfur content, and volumes of crude batches to an EIA crude stream code or generic crude stream name and production area code (*i.e.,* tiers 1 and 2 of the “batch” definition). Likewise, refiners may not have had adequate time to link data they collect on API gravity and sulfur content from crude coming from a single country of origin to “up to a calendar month volume” (*i.e.,* tiers 3 and 4 of the “batch” definition). We are therefore providing refiners the flexibility to report at a lower tier for reporting year 2010 if they do not have appropriate data collection and management systems in place to readily report the information in the higher tier.

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

1. Summary of Final Amendments and Major Changes Since Proposal

We are amending the definition of the term “$Fuel_h$” in Equation NN–1 of subpart NN to clarify that the abbreviation “Mscf” refers to “thousand standard cubic feet” in order to avoid confusion on if this abbreviation means “million standard cubic feet”. We are also adding the subscript “h” to the terms for Fuel and HHV in Equation NN–1.

We are amending the definition of the term “EF” in Equation NN–7 of subpart NN to clarify that the emission factor is for each natural gas liquid (NGL) product “g” and to add the subscript “g” to the term “EF.”

We are amending Equation NN–8 of subpart NN to correct the term for “Annual CO_2 mass emissions that would result from the combustion or oxidation of fractionated NGLs received from other fractionators” from “CO_{2j}” to “CO_{2m}”. We are also amending Equation NN–8 to remove the summation signs that were unnecessary from this equation for clarification purposes. We are also amending the definition of the term CO_{2i} to clarify that this term includes NGLs delivered to customers or, on behalf of, customers, recognizing that some customers may not receive the NGLs directly.

We are amending 40 CFR 98.406(a)(6) to correct two cross references. The incorrect references referred the reader to 40 CFR 98.406(b)(1) and (b)(2), when they were supposed to refer to 40 CFR 98.406(a)(1) and (a)(2). Similarly, we are amending an incorrect reference in 40 CFR 98.407(d) to refer the reader to 40 CFR 98.406(b)(7) instead of 40 CFR 98.406(b)(6).

We are amending 40 CFR 98.406(a)(9) to correct the abbreviation of NGL (from LNG) and to specify that reporting under that paragraph is for each product type.

We are amending 40 CFR 98.407(a) to remove the word “daily” because daily meter readings are not specifically required under this subpart.

Finally, we are updating the high heat values (HHVs) and default CO_2 emission factors in Tables NN–1 and NN–2 to subpart NN to be consistent with the emission factors in Tables C–1 to subpart C and MM–1 to subpart MM.

2. Summary of Comments and Responses

There were no major comments received on the proposed amendments to this section. A few comments seeking minor technical clarification or correction were received on this subpart. Responses to these comments can be found in Response to Comments: Technical Corrections, Clarifying and Other Amendments document (*see* EPA–HQ–OAR–2010–0109).

III. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

This action is not a “significant regulatory action” under the terms of Executive Order 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under the executive order.

B. Paperwork Reduction Act

This action does not impose any new information collection burden. These amendments do not make any substantive changes to the reporting requirements in any of the subparts for which amendments are being made. In many cases, the amendments to the reporting requirements reduce the reporting burden by making the reporting requirements conform more closely to current industry practices. However, the Office of Management and Budget (OMB) has previously approved the information collection requirements contained in the regulations promulgated on October 30, 2009, under 40 CFR Part 98 under the provisions of the *Paperwork Reduction Act,* 44 U.S.C. 3501 *et seq.* and has assigned OMB control number 2060–0629. Burden is defined at 5 CFR 1320.3(b). 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 EPA's regulations in 40 CFR are listed in 40 CFR part 9.

Further information on EPA's assessment on the impact on burden can be found in the Technical Corrections and Amendments Cost Memo (EPA–HQ–OAR–2010–0109).

C. Regulatory Flexibility Act (RFA)

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

For purposes of assessing the impacts of these amendments on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of these rule amendments on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. The rule amendments will not impose any new requirement on small entities that are not currently required by Part 98 promulgated on October 30, 2009 (*i.e.,* calculating and reporting annual GHG emissions).

EPA took several steps to reduce the impact on small entities. For example, EPA determined appropriate thresholds that reduced the number of small businesses reporting. In addition, EPA did not require facilities to install CEMS if they did not already have them. Facilities without CEMS can calculate emissions using readily available data or data that are less expensive to collect such as process data or material consumption data. For some source categories, EPA developed tiered methods that are simpler and less burdensome. Also, EPA required annual instead of more frequent reporting. Finally, EPA continues to conduct significant outreach on the mandatory GHG reporting rule and maintains an "open door" policy for stakeholders to help inform EPA's understanding of key issues for the industries.

D. Unfunded Mandates Reform Act (UMRA)

This action contains no Federal mandates under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531–1538 for State, local, or tribal governments or the private sector. The action imposes no enforceable duty on any State, local or tribal governments or the private sector. In addition, EPA determined that the rule amendments contain no regulatory requirements that might significantly or uniquely affect small governments because the amendments will not impose any new requirements that are not currently required by Part 98 promulgated on October 30, 2009 (*i.e.,* calculating and reporting annual GHG emissions), and the rule amendments will not unfairly apply to small governments. Therefore, this action is not subject to the requirements of CAA section 203 of the UMRA.

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, as specified in Executive Order 13132. However, for a more detailed discussion about how these rule amendments will relate to existing State programs, please see Section II of the proposal preamble for the Mandatory GHG Reporting Rule (74 FR 16457–16461, April 10, 2009).

These amendments apply directly to facilities that supply fuel that when used emit greenhouse gases or facilities that directly emit greenhouses gases. They do not apply to governmental entities unless the government entity owns a facility that directly emits greenhouse gases above threshold levels (such as a landfill), so relatively few government facilities will be affected. This regulation also does not limit the power of States or localities to collect GHG data and/or regulate GHG emissions. Thus, Executive Order 13132 does not apply to this action.

Although section 6 of Executive Order 13132 does not apply to this action, EPA did consult with State and local officials or representatives of State and local governments in developing Part 98. A summary of EPA's consultations with State and local governments is provided in Section VIII.E of the preamble to Part 98 (74 FR 56260, October 30, 2009).

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

This action does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). The rule amendments will not result in any changes to the requirements of Part 98. Thus, Executive Order 13175 does not apply to this action.

Although Executive Order 13175 does not apply to this action, EPA sought opportunities to provide information to Tribal governments and representatives during the development of the rules promulgated on October 30, 2009. A summary of the EPA's consultations with Tribal officials is provided Sections VIII.E and VIII.F of the preamble to the 2009 Final Mandatory GHG Reporting Rule (74 FR 56260, October 30, 2009).

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

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

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

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

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104–113 (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.,* materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This rulemaking involves the use of one new voluntary consensus standard from ASTM. Specifically, EPA will allow facilities in the glass industry to use 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 in addition to the methods incorporated by reference in Part 98. This additional voluntary consensus standard will provide an alternative method that owners or operators in the glass industry can use to monitor GHG emissions. No new test methods were developed for this action.

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

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

EPA has determined that Part 98 does not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it does not affect the level of protection provided to human health or the environment because it is a rule addressing information collection and reporting procedures.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.,* as added by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the U.S. prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a "major rule" as defined by 5 U.S.C. 804(2). This rule will be effective on November 29, 2010.

List of Subjects

40 CFR Part 86

Environmental protection, Administrative practice and procedure, Air pollution control, Reporting and recordkeeping requirements, Motor vehicle pollution.

40 CFR Part 98

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

Dated: October 7, 2010.

Lisa P. Jackson,

Administrator.

■ For the reasons set out in the preamble, title 40, Chapter I, of the Code of Federal Regulations is amended as follows:

PART 86—[AMENDED]

■ 1. The authority citation for part 86 continues to read as follows:

Authority: 42 U.S.C. 7401–7671q.

■ 2. Section 86.1844–01 is amended by adding paragraph (j) to read as follows:

§ 86.1844–01 Information requirements: Application for certification and submittal of information upon request.

* * * * *

(j) For complete heavy-duty vehicles only, measure CO_2, N_2O, and CH_4 as described in this paragraph (j) with each certification test on an emission data vehicle. Do not apply deterioration factors to the results. Use the analytical equipment and procedures specified in 40 CFR part 1065 as needed to measure N_2O and CH_4. Report these values in your application for certification. The requirements of this paragraph (j) apply starting with model year 2011 for CO_2 and 2012 for CH_4. The requirements of this paragraph (j) related to N_2O emissions apply for test groups that depend on NO_X after-treatment to meet emission standards starting with model year 2013. Businesses that are defined as a small business by the Small Business Administration size standards in 13 CFR 121.201 may omit measurement of N_2O and CH_4; other manufacturers may provide appropriate data and/or information and omit measurement of N_2O and CH_4 as described in 40 CFR 1065.5. Use the same measurement methods as for your other results to report a single value for CO_2, N_2O, and CH_4. Round the final values as follows:

(1) Round CO_2 to the nearest 1 g/mi.

(2) Round N_2O to the nearest 0.001 g/mi.

(3) Round CH_4 to the nearest 0.001 g/mi.

PART 98—[AMENDED]

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

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

Subpart A—[Amended]

■ 4. Section 98.6 is amended by:

■ a. Removing the definition of "Argon-oxygen decarburization (AOD) vessel."

■ b. Adding a definition for "Decarburization vessel."

■ c. Revising the definitions of "Carbonate-based mineral," "Carbonate-based mineral mass fraction," "Carbonate-based raw material," "Crude oil," "Gas collection system or landfill gas collection system," "Mscf," and "Non-crude feedstocks."

The addition and revisions read as follows:

§ 98.6 Definitions.

* * * * *

Carbonate-based mineral means any of the following minerals used in the manufacture of glass: Calcium carbonate ($CaCO_3$), calcium magnesium carbonate ($CaMg(CO_3)_2$), sodium carbonate (Na_2CO_3), barium carbonate ($BaCO_3$), potassium carbonate (K_2CO_3), lithium carbonate (Li_2CO_3), and strontium carbonate ($SrCO_3$).

Carbonate-based mineral mass fraction means the following: For limestone, the mass fraction of calcium carbonate ($CaCO_3$) in the limestone; for dolomite, the mass fraction of calcium magnesium carbonate ($CaMg(CO_3)_2$) in the dolomite; for soda ash, the mass fraction of sodium carbonate (Na_2CO_3) in the soda ash; for barium carbonate, the mass fraction of barium carbonate ($BaCO_3$) in the barium carbonate; for potassium carbonate, the mass fraction of potassium carbonate (K_2CO_3) in the potassium carbonate; for lithium carbonate, the mass fraction of lithium carbonate (Li_2CO_3); and for strontium carbonate, the mass fraction of strontium carbonate ($SrCO_3$).

Carbonate-based raw material means any of the following materials used in the manufacture of glass: Limestone, dolomite, soda ash, barium carbonate, potassium carbonate, lithium carbonate, and strontium carbonate.

* * * * *

Crude oil means a mixture of hydrocarbons that exists in liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. (1) Depending upon the characteristics of the crude stream, it may also include any of the following:

(i) Small amounts of hydrocarbons that exist in gaseous phase in natural underground reservoirs but are liquid at atmospheric conditions (temperature and pressure) after being recovered from oil well (casing-head) gas in lease separators and are subsequently commingled with the crude stream without being separately measured. Lease condensate recovered as a liquid from natural gas wells in lease or field separation facilities and later mixed into the crude stream is also included.

(ii) Small amounts of non-hydrocarbons, such as sulfur and various metals.

(iii) Drip gases, and liquid hydrocarbons produced from tar sands, oil sands, gilsonite, and oil shale.

(iv) Petroleum products that are received or produced at a refinery and subsequently injected into a crude supply or reservoir by the same refinery owner or operator.

(2) Liquids produced at natural gas processing plants are excluded. Crude oil is refined to produce a wide array of petroleum products, including heating oils; gasoline, diesel and jet fuels; lubricants; asphalt; ethane, propane, and butane; and many other products used for their energy or chemical content.

* * * * *

Decarburization vessel means any vessel used to further refine molten steel with the primary intent of reducing the carbon content of the steel, including but not limited to vessels used for argon-oxygen decarburization and vacuum oxygen decarburization.

* * * * *

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 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 to the surface of the landfill where an opening or pipe (vent) is installed to allow for natural gas flow.

* * * * *

Mscf means thousand standard cubic feet.

* * * * *

Non-crude feedstocks means any petroleum product or natural gas liquid that enters the refinery to be further refined or otherwise used on site.

* * * * *

5. Section 98.7 is amended by removing and reserving paragraph (a), and adding paragraph (e)(45).

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

* * * * *

(e) * * *

(45) 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, IBR approved for § 98.144(b).

* * * * *

Subpart E—[Amended]

■ 6. Section 98.53 is revised to read as follows:

§ 98.53 Calculating GHG emissions.

(a) You must determine annual N_2O emissions from adipic acid production according to paragraphs (a)(1) or (2) of this section.

(1) Use a site-specific emission factor and production data according to paragraphs (b) through (i) of this section.

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

(i) You must submit the request within 45 days following promulgation of this subpart or within the first 30 days of each subsequent reporting year.

(ii) 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 paragraphs (b) through (h) of this section.

(b) You must conduct an annual performance test according to paragraphs (b)(1) through (3) of this section.

(1) You must conduct the test on the vent stream from the nitric acid oxidation step of the process, referred to as the test point, according to the methods specified in § 98.54(b) through (f). If multiple adipic acid production units exhaust to a common abatement technology and/or emission point, you must sample each process in the ducts before the emissions are combined, sample each process when only one process is operating, or sample the combined emissions when multiple processes are operating and base the site-specific emission factor on the combined production rate of the multiple adipic acid production units.

(2) You must conduct the performance test under normal process operating conditions.

(3) You must measure the adipic acid production rate during the test and calculate the production rate for the test period in metric tons per hour.

(c) Using the results of the performance test in paragraph (b) of this section, you must calculate an emission factor for each adipic acid unit according to Equation E–1 of this section:

$$EF_{N2O,z} = \frac{\sum_{1}^{n} \frac{C_{N2O} * 1.14 \times 10^{-7} * Q}{P}}{n} \qquad \text{(Eq. E-1)}$$

Where:

$EF_{N_2O,z}$ = Average facility-specific N_2O emission factor for each adipic acid production unit “z” (lb N_2O/ton adipic acid produced).

C_{N_2O} = N_2O concentration per test run during the performance test (ppm N_2O).

1.14×10^{-7} = Conversion factor (lb/dscf-ppm N_2O).

Q = Volumetric flow rate of effluent gas per test run during the performance test (dscf/hr).
P = Production rate per test run during the performance test (tons adipic acid produced/hr).
n = Number of test runs.

(d) If any N_2O abatement technology "N" is located after your test point, you must determine the destruction efficiency according to paragraphs (d)(1), (2), or (3) of this section.

(1) Use the manufacturer's specified destruction efficiency.

(2) Estimate the destruction efficiency through process knowledge. Examples of information that could constitute process knowledge include calculations based on material balances, process stoichiometry, or previous test results provided the results are still relevant to the current vent stream conditions. You must document how process knowledge was used to determine the destruction efficiency.

(3) Calculate the destruction efficiency by conducting an additional performance test on the vent stream following the N_2O abatement technology.

(e) If any N_2O abatement technology "N" is located after your test point, you must determine the annual amount of adipic acid produced while N_2O abatement technology "N" is operating according to § 98.54(f). Then you must calculate the abatement factor for N_2O abatement technology "N" according to Equation E–2 of this section.

$$AF_N = \frac{P_{a,N}}{P_z} \qquad \text{(Eq. E-2)}$$

Where:

AF_N = Abatement utilization factor of N_2O abatement technology "N" (fraction of annual production that abatement technology is operating).
$P_{z,N}$ = Annual adipic acid production during which N_2O abatement technology "N" was used on unit "z" (ton adipic acid produced).
P_z = Total annual adipic acid production from unit "z" (ton acid produced).

(f) You must determine the annual amount of adipic acid produced according to § 98.54(f).

(g) You must calculate N_2O emissions according to paragraph (g)(1), (2), (3), or (4) of this section for each adipic acid production unit.

(1) If one N_2O abatement technology "N" is located after your test point, you must use the emissions factor (determined in Equation E–1 of this section), the destruction efficiency (determined in paragraph (d) of this section), the annual adipic acid production (determined in paragraph (f) of this section), and the abatement utilization factor (determined in paragraph (e) of this section), according to Equation E–3a of this section:

$$E_{a,z} = \frac{EF_{N20,z} * P_z}{2205} * \left(1 - \left(DF * AF\right)\right) \qquad \text{(Eq. E-3a)}$$

Where:

$E_{a,z}$ = Annual N_2O mass emissions from adipic acid production unit "z" according to this Equation E–3a (metric tons).
EF_{N_2Oz} = N_2O emissions factor for unit "z" (lb N_2O/ton adipic acid produced).
P_z = Annual adipic acid produced from unit "z" (tons).
DF = Destruction efficiency of N_2O abatement technology "N" (percent of N_2O removed from vent stream).
AF = Abatement utilization factor of N_2O abatement technology "N" (percent of time that the abatement technology is operating).
2205 = Conversion factor (lb/metric ton).

(2) If multiple N_2O abatement technologies are located in series after your test point, you must use the emissions factor (determined in Equation E–1 of this section), the destruction efficiency (determined in paragraph (d) of this section), the annual adipic acid production (determined in paragraph (f) of this section), and the abatement utilization factor (determined in paragraph (e) of this section), according to Equation E–3b of this section:

$$E_{b,z} = \frac{EF_{N20,z} * P_z}{2205} * \left(1 - \left(DF_1 * AF_1\right)\right) * \left(1 - \left(DF_2 * AF_2\right)\right) * \ldots * \left(1 - \left(DF_N * AF_N\right)\right) \qquad \text{(Eq. E-3b)}$$

Where:

$E_{b,z}$ = Annual N_2O mass emissions from adipic acid production unit "z" according to this Equation E–3b (metric tons).
$EF_{N_2O,z}$ = N_2O emissions factor for unit "z" (lb N_2O/ton adipic acid produced).
P_z = Annual adipic acid produced from unit "z" (tons).
DF_1 = Destruction efficiency of N_2O abatement technology 1 (percent of N_2O removed from vent stream).
AF_1 = Abatement utilization factor of N_2O abatement technology 1 (percent of time that abatement technology 1 is operating).
DF_2 = Destruction efficiency of N_2O abatement technology 2 (percent of N_2O removed from vent stream).
AF_2 = Abatement utilization factor of N_2O abatement technology 2 (percent of time that abatement technology 2 is operating).
DF_N = Destruction efficiency of N_2O abatement technology N (percent of N_2O removed from vent stream).
AF_N = Abatement utilization factor of N_2O abatement technology N (percent of time that abatement technology N is operating).
2205 = Conversion factor (lb/metric ton).
N = Number of different N_2O abatement technologies.

(3) If multiple N_2O abatement technologies are located in parallel after your test point, you must use the emissions factor (determined in Equation E–1 of this section), the destruction efficiency (determined in paragraph (d) of this section), the annual adipic acid production (determined in paragraph (f) of this section), and the abatement utilization factor (determined in paragraph (e) of this section), according to Equation E–3c of this section:

$$E_{c,z} = \frac{EF_{N20,z} * P_z}{2205} * \sum_{1}^{N}\left(\left(1 - \left(DF_N * AF_N\right)\right) * FC_N\right) \qquad \text{(Eq. E-3c)}$$

Where:

$E_{c,z}$ = Annual N_2O mass emissions from adipic acid production unit "z" according to this Equation E–3c (metric tons).
$EF_{N_2O,z}$ = N_2O emissions factor for unit "z" (lb N_2O/ton adipic acid produced).
P_z = Annual adipic acid produced from unit "z" (tons).
DF_N = Destruction efficiency of N_2O abatement technology "N" (percent of N_2O removed from vent stream).
AF_N = Abatement utilization factor of N_2O abatement technology "N" (percent of time that the abatement technology is operating).
FC_N = Fraction control factor of N_2O abatement technology "N" (percent of total emissions from unit "z" that are sent to abatement technology "N").
2205 = Conversion factor (lb/metric ton).
N = Number of different N_2O abatement technologies with a fraction control factor.

(4) If no N_2O abatement technologies are located after your test point, you must use the emissions factor (determined using Equation E–1 of this section) and the annual adipic acid production (determined in paragraph (f) of this section) according to Equation E–3d of this section for each adipic acid production unit.

$$E_{d,z} = \frac{EF_{N20} * P_z}{2205} \qquad \text{(Eq. E-3d)}$$

Where:

$E_{d,z}$ = Annual N_2O mass emissions from adipic acid production for unit "z" according to this Equation E–3d (metric tons).
EF_{N_2O} = N_2O emissions factor for unit "z" (lb N_2O/ton adipic acid produced).
P_Z = Annual adipic acid produced from unit "z" (tons).
2205 = Conversion factor (lb/metric ton).

(h) You must determine the emissions for the facility by summing the unit level emissions according to Equation E–4 of this section.

$$N_2O = \sum_{z=1}^{M} E_{a,z} + E_{b,z} + E_{c,z} + E_{d,z} \qquad \text{(Eq. E-4)}$$

Where:

$E_{a,z}$ = Annual N_2O mass emissions from adipic acid production unit "z" according to Equation E–3a of this section (metric tons).
$E_{b,z}$ = Annual N_2O mass emissions from adipic acid production unit "z" according to Equation E–3b of this section (metric tons).
$E_{c,z}$ = Annual N_2O mass emissions from adipic acid production unit "z" according to Equation E–3c of this section (metric tons).
$E_{d,z}$ = Annual N_2O mass emissions from adipic acid production unit "z" according to Equation E–3d of this section (metric tons).
M = Total number of adipic acid production units.

(i) You must determine the amount of process N_2O emissions that is sold or transferred off site (if applicable). You can determine the amount using existing process flow meters and N_2O analyzers.

■ 7. Section 98.54 is amended by:
■ a. Revising paragraph (a) introductory text.
■ b. Adding second and third sentences to the end of paragraph (a)(1).
■ c. Revising paragraph (a)(3).
■ d. Revising paragraph (c) introductory text.
■ e. Revising the first sentence of paragraph (d) introductory text.
■ f. Revising paragraphs (e) and (f).

The revisions and additions read as follows:

§ 98.54 Monitoring and QA/QC requirements.

(a) You must conduct a new performance test and calculate a new emissions factor for each adipic acid production unit according to the frequency specified in paragraphs (a)(1) through (3) of this section.

(1) * * * The test must be conducted at a point during production that is representative of the average emissions rate from your process. You must document the methods used to determine the representative point.

* * * * *

(3) If you requested Administrator approval for an alternative method of determining N_2O emissions under § 98.53(a)(2), you must conduct the performance test if your request has not been approved by the Administrator within 150 days of the end of the reporting year in which it was submitted.

* * * * *

(c) You must determine the adipic acid production rate during the performance test according to paragraph (c)(1) or (c)(2) of this section.

* * * * *

(d) You must determine the volumetric flow rate during the performance test in conjunction with the applicable EPA methods in 40 CFR part 60, appendices A–1 through A–4. * * *

* * * * *

(e) You must determine the monthly amount of adipic acid produced. You must also determine the monthly amount of adipic acid produced during which N_2O abatement technology, located after the test point, is operating. These monthly amounts are determined according to the methods in paragraphs (c)(1) or (2) of this section.

(f) You must determine the annual amount of adipic acid produced. You must also determine the annual amount of adipic acid produced during which N_2O abatement technology located after the test point is operating. These are determined by summing the respective monthly adipic acid production quantities determined in paragraph (e) of this section.

■ 8. Section 98.56 is amended by:
■ a. Revising the introductory text.
■ b. Revising paragraph (c).
■ c. Revising paragraph (j) introductory text.
■ d. Revising paragraph (j)(1).
■ e. Revising paragraph (k) introductory text.
■ f. Adding paragraph (l).

The revisions and addition read as follows:

§ 98.56 Data reporting requirements.

In addition to the information required by § 98.3(c), each annual report must contain the information specified in paragraphs (a) through (l) of this section at the facility level.

* * * * *

(c) Annual adipic acid production during which N_2O abatement technology (located after the test point) is operating (tons).

* * * * *

(j) If you conducted a performance test and calculated a site-specific emissions factor according to § 98.53(a)(1), each annual report must also contain the information specified in paragraphs (j)(1) through (7) of this section for each adipic acid production unit.

(1) Emission factor (lb N_2O/ton adipic acid).

* * * * *

(k) If you requested Administrator approval for an alternative method of determining N_2O emissions under § 98.53(a)(2), each annual report must also contain the information specified in paragraphs (k)(1) through (4) of this section for each adipic acid production facility.

* * * * *

(l) Fraction control factor for each abatement technology (percent of total emissions from the production unit that are sent to the abatement technology) if equation E–3c is used.

■ 9. Section 98.57 is amended by revising paragraphs (c) and (f) to read as follows:

§ 98.57 Records that must be retained.

* * * * *

(c) Number of facility and unit operating hours in calendar year.

* * * * *

(f) Performance test reports.

* * * * *

Subpart H—[Amended]

■ 10. Section 98.83 is amended by revising the introductory text of paragraph (d)(3); and by revising the definitions of "rm", "TOCrm", and "M" in Equation H–5 of paragraph (d)(3) to read as follows:

§ 98.83 Calculating GHG emissions.

* * * * *

(d) * * *

(3) *CO_2 emissions from raw materials.* Calculate CO_2 emissions from raw materials using Equation H–5 of this section:

* * * * *

rm = The amount of raw material i consumed annually, tons/yr (dry basis) or the amount of raw kiln feed consumed annually, tons/yr (dry basis).

* * * * *

TOCrm = Organic carbon content of raw material i or organic carbon content of combined raw kiln feed (dry basis), as determined in § 98.84(c) or using a default factor of 0.2 percent of total raw material weight.

M = Number of raw materials or 1 if calculating emissions based on combined raw kiln feed.

* * * * *

■ 11. Section 98.84 is amended by revising paragraphs (b) through (f) to read as follows:

§ 98.84 Monitoring and QA/QC requirements.

* * * * *

(b) You must determine the weight fraction of total CaO and total MgO in clinker from each kiln using ASTM C114–09 Standard Test Methods for Chemical Analysis of Hydraulic Cement (incorporated by reference, see § 98.7). The monitoring must be conducted monthly for each kiln from a monthly clinker sample drawn from bulk clinker storage if storage is dedicated to the specific kiln, or from a monthly arithmetic average of daily clinker samples drawn from the clinker conveying systems exiting each kiln.

(c) The total organic carbon content (dry basis) of raw materials must be determined annually using ASTM C114–09 Standard Test Methods for Chemical Analysis of Hydraulic Cement (incorporated by reference, see § 98.7) or a similar industry standard practice or method approved for total organic carbon determination in raw mineral materials. The analysis must be conducted either on sample material drawn from bulk raw kiln feed storage or on sample material drawn from bulk raw material storage for each category of raw material (i.e., limestone, sand, shale, iron oxide, and alumina). Facilities that opt to use the default total organic carbon factor provided in § 98.83(d)(3), are not required to monitor for TOC.

(d) The quantity of clinker produced monthly by each kiln must be determined by direct weight measurement of clinker using the same plant techniques used for accounting purposes, such as reconciling weigh hopper or belt weigh feeder measurements against inventory measurements. As an alternative, facilities may also determine clinker production by direct measurement of raw kiln feed and application of a kiln-specific feed-to-clinker factor. Facilities that opt to use a feed-to-clinker factor must verify the accuracy of this factor on a monthly basis.

(e) The quantity of CKD not recycled to the kiln generated by each kiln must be determined quarterly using the same plant techniques used for accounting purposes, such as direct weight measurement using weigh hoppers, truck weigh scales, or belt weigh feeders.

(f) The annual quantity of raw kiln feed or annual quantity of each category of raw materials consumed by the facility (e.g., limestone, sand, shale, iron oxide, and alumina) must be determined monthly by direct weight measurement using the same plant instruments used for accounting purposes, such as weigh hoppers, truck weigh scales, or belt weigh feeders.

* * * * *

■ 12. Section 98.86 is amended by:

■ a. Revising paragraph (b)(3).

■ b. Revising paragraph (b)(4).

■ c. Revising paragraph (b)(12).

■ d. Revising paragraph (b)(13).

■ e. Adding paragraph (b)(15).

The revisions and addition read as follows:

§ 98.86 Data reporting requirements.

* * * * *

(b) * * *

(3) Annual cement production at the facility.

(4) Number of kilns and number of operating kilns.

* * * * *

(12) Annual organic carbon content of raw kiln feed or annual organic carbon content of each raw material (wt-fraction, dry basis).

(13) Annual consumption of raw kiln feed or annual consumption of each raw material (dry basis).

* * * * *

(15) Method used to determine the monthly clinker production from each kiln reported under (b)(2) of this section, including monthly kiln-specific clinker factors, if used.

13. Section 98.87 is revised to read as follows:

§ 98.87 Records that must be retained.

(a) If a CEMS is used to measure CO_2 emissions, then in addition to the records required by § 98.3(g), you must retain under this subpart the records required for the Tier 4 Calculation Methodology in § 98.37.

(b) If a CEMS is not used to measure CO_2 emissions, then in addition to the records required by § 98.3(g), you must retain the records specified in this paragraph (b) for each portland cement manufacturing facility.

(1) Documentation of monthly calculated kiln-specific clinker CO_2 emission factor.

(2) Documentation of quarterly calculated kiln-specific CKD CO_2 emission factor.

(3) Measurements, records and calculations used to determine reported parameters.

Subpart K—[Amended]

■ 14. Section 98.112 is amended by revising paragraph (a) to read as follows:

§ 98.112 GHGs to report.

* * * * *

(a) Process CO_2 emissions from each electric arc furnace (EAF) used for the production of any ferroalloy listed in § 98.110, and process CH_4 emissions from each EAF that is used for the production of any ferroalloy listed in Table K–1 to subpart K.

* * * * *

■ 15. Section 98.113 is amended by revising the introductory text to read as follows:

§ 98.113 Calculating GHG emissions.

You must calculate and report the annual process CO_2 emissions from each

EAF not subject to paragraph (c) of this section using the procedures in either paragraph (a) or (b) of this section. For each EAF also subject to annual process CH_4 emissions reporting, you must also calculate and report the annual process CH_4 emissions from the EAF using the procedures in paragraph (d) of this section.

* * * * *

■ 16. Section 98.116 is amended by:

■ a. Revising paragraph (b).

■ b. Revising paragraph (c).

■ c. Revising paragraph (d) introductory text.

■ d. Revising paragraph (d)(1).

■ e. Revising paragraph (e)(1).

The revisions read as follows:

§ 98.116 Data reporting requirements.

* * * * *

(b) Annual production for each ferroalloy product identified in § 98.110, from each EAF (tons).

(c) Total number of EAFs at facility used for production of ferroalloy products.

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

(1) Annual process CO_2 emissions (in metric tons) from each EAF used for the production of any ferroalloy product identified in § 98.110.

* * * * *

(e) * * *

(1) Annual process CO_2 emissions (in metric tons) from each EAF used for the production of any ferroalloy identified in § 98.110 (metric tons).

* * * * *

Subpart N—[Amended]

■ 17. Section 98.144 is amended by revising paragraph (b) to read as follows:

§ 98.144 Monitoring and QA/QC requirements.

* * * * *

(b) 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 ASTM D3682–01 (Reapproved 2006) Standard Test Method for Major and Minor Elements in Combustion Residues from Coal Utilization Processes (incorporated by reference, see § 98.7) 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 (incorporated by reference, see § 98.7).

* * * * *

■ 18. Section 98.146 is amended by:

■ a. Revising paragraph (a) introductory text.

■ b. Revising paragraph (a)(2).

■ c. Revising paragraph (b)(7).

■ d. Revising paragraph (b)(9).

The revisions read as follows:

§ 98.146 Data reporting requirements.

* * * * *

(a) If a CEMS is used to measure CO_2 emissions, then you must report under this subpart the relevant information required under § 98.36 for the Tier 4 Calculation Methodology and the following information specified in paragraphs (a)(1) and (2) of this section:

* * * * *

(2) Annual quantity of glass produced by each glass melting furnace and by all furnaces combined (tons).

(b) * * *

(7) Method used to determine fraction of calcination.

* * * * *

(9) The number of times in the reporting year that missing data procedures were followed to measure monthly quantities of carbonate-based raw materials or mass fraction of the carbonate-based minerals for any continuous glass melting furnace (months).

■ 19. In the Table to Subpart N of Part 98, Table N–1 to subpart N is amended by adding entries for "Barium carbonate," "Potassium carbonate," "Lithium carbonate," and "Strontium carbonate" to the end of the table to read as follows:

Table to Subpart N of Part 98

TABLE N–1 TO SUBPART N—CO_2 EMISSION FACTORS FOR CARBONATE-BASED RAW MATERIALS

Carbonate-based raw material—mineral	CO_2 emission factor [a]
* * * * * *	*
Barium carbonate—$BaCO_3$	0.223
Potassium carbonate—K_2CO_3	0.318
Lithium carbonate (Li_2CO_3)	0.596
Strontium carbonate ($SrCO_3$)	0.298

[a] Emission factors in units of metric tons of CO_2 emitted per metric ton of carbonate-based raw material charged to the furnace.

Subpart O—[Amended]

■ 20. Section 98.154 is amended by:

■ a. Revising the first and second sentences of paragraph (k).

■ b. Revising the second sentence of paragraph (l) introductory text.

■ c. Revising paragraph (o).

The revisions read as follows:

§ 98.154 Monitoring and QA/QC requirements.

* * * * *

(k) The mass of HFC–23 emitted from process vents shall be estimated at least monthly by incorporating the results of the most recent emissions test into Equation O–7 of this subpart. HCFC–22 production facilities that use a destruction device connected to the HCFC–22 production equipment shall conduct emissions tests at process vents at least once every five years or after significant changes to the process. * * *

(l) * * * HFC–23 destruction facilities shall conduct annual measurements of HFC–23 concentrations at the outlet of the destruction device in accordance with EPA Method 18 at 40 CFR part 60, appendix A–6. * * *

* * * * *

(o) In their estimates of the mass of HFC–23 destroyed, HFC–23 destruction facilities 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 destruction device manufacturer specifications.

* * * * *

■ 21. Section 98.156 is amended by:

■ a. Revising paragraph (b)(1).

■ b. Revising paragraph (b)(3).

■ c. Revising paragraph (c).

■ d. Revising paragraph (d).

■ e. Revising paragraph (e) introductory text.

The revisions read as follows:

§ 98.156 Data reporting requirements.

* * * * *

(b) * * *

(1) Annual mass of HFC–23 fed into the destruction device.

* * * * *

(3) Annual mass of HFC–23 emitted from the destruction device.

(c) Each HFC–23 destruction facility shall report the concentration (mass fraction) of HFC–23 measured at the outlet of the destruction device during the facility's annual HFC–23 concentration measurements at the outlet of the device.

(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 revised destruction efficiency calculated under § 98.154(l) and the values used to calculate it, specifying whether § 98.154(l)(1) or § 98.154(l)(2) has been used for the calculation. Specifically, the facility shall report the following:

(1) Flow rate of HFC–23 being fed into the destruction device in kg/hr.

(2) Concentration (mass fraction) of HFC–23 at the outlet of the destruction device.

(3) Flow rate at the outlet of the destruction device in kg/hr.

(4) Emission rate (in kg/hr) calculated from paragraphs (d)(2) and (d)(3) of this section.

(5) Destruction efficiency (DE) calculated from paragraphs (d)(1) and (d)(4) of this section.

(e) By March 31, 2011 or within 60 days of commencing HFC–23 destruction, HFC–23 destruction facilities shall submit a one-time report including the following information for each destruction process:

* * * * *

■ 22. Section 98.157 is amended by revising paragraph (b)(1) to read as follows:

§ 98.157 Records that must be retained.

* * * * *

(b) * * *

(1) Records documenting their one-time and annual reports in § 98.156(b) through (e).

* * * * *

Subpart P—[Amended]

■ 23. Section 98.160 is amended by revising paragraph (c) to read as follows:

§ 98.160 Definition of the source category.

* * * * *

(c) This source category includes merchant hydrogen production facilities located within another facility if they are not owned by, or under the direct control of, the other facility's owner and operator.

■ 24. Section 98.162 is amended by revising paragraph (a) and removing and reserving paragraph (b).

The revision reads as follows:

§ 98.162 GHGs to report.

* * * * *

(a) CO_2 emissions from each hydrogen production process unit.

* * * * *

■ 25. Section 98.163 is amended by:

■ a. Revising the introductory text.

■ b. Revising paragraph (a).

■ c. Revising paragraph (b) introductory text.

■ d. In paragraph (b)(1), revising the introductory text and revising the definition of "CO_2" in Equation P–1.

■ e. Revising paragraphs (b)(2) introductory text and (b)(3) introductory text.

The revisions read as follows:

§ 98.163 Calculating GHG emissions.

You must calculate and report the annual CO_2 emissions from each hydrogen production process unit using the procedures specified in either paragraph (a) or (b) of this section.

(a) *Continuous Emissions Monitoring Systems (CEMS).* Calculate and report under this subpart the CO_2 emissions by operating and maintaining CEMS according to the Tier 4 Calculation Methodology specified in § 98.33(a)(4) and all associated requirements for Tier 4 in subpart C of this part (General Stationary Fuel Combustion Sources).

(b) *Fuel and feedstock material balance approach.* Calculate and report CO_2 emissions as the sum of the annual emissions associated with each fuel and feedstock used for hydrogen production by following paragraphs (b)(1) through (b)(3) of this section.

(1) *Gaseous fuel and feedstock.* You must calculate the annual CO_2 emissions from each gaseous fuel and feedstock according to Equation P–1 of this section:

* * * * *

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

* * * * *

(2) *Liquid fuel and feedstock.* You must calculate the annual CO_2 emissions from each liquid fuel and feedstock according to Equation P–2 of this section:

* * * * *

(3) *Solid fuel and feedstock.* You must calculate the annual CO_2 emissions from each solid fuel and feedstock according to Equation P–3 of this section:

* * * * *

■ 26. Section 98.166 is amended by revising the introductory text and paragraphs (a)(1), (b)(1), and (c) to read as follows:

§ 98.166 Data reporting requirements.

In addition to the information required by § 98.3(c), each annual report must contain the information specified in paragraphs (a) or (b) of this section, as appropriate, and paragraphs (c) and (d) of this section:

(a) * * *

(1) Unit identification number and annual CO_2 emissions.

* * * * *

(b) * * *

(1) Unit identification number and annual CO_2 emissions.

* * * * *

(c) Quantity of CO_2 collected and transferred off site in either gas, liquid, or solid forms, following the requirements of subpart PP of this part.

* * * * *

Subpart Q—[Amended]

■ 27. Section 98.172 is amended by revising paragraphs (b) and (c) to read as follows:

§ 98.172 GHGs to report.

* * * * *

(b) You must report CO_2 emissions from flares that burn blast furnace gas or coke oven gas according to the procedures in § 98.253(b)(1) of subpart Y (Petroleum Refineries) of this part. When using the alternatives set forth in § 98.253(b)(1)(ii)(B) and § 98.253(b)(1)(iii)(C), you must use the default CO_2 emission factors for coke oven gas and blast furnace gas from Table C–1 to subpart C in Equations Y–2 and Y–3 of subpart Y. You must report CH_4 and N_2O emissions from flares according to the requirements in § 98.33(c)(2) using the emission factors for coke oven gas and blast furnace gas in Table C–2 to subpart C of this part.

(c) You must report process CO_2 emissions from each taconite indurating furnace; basic oxygen furnace; non-recovery coke oven battery combustion stack; coke pushing process; sinter process; EAF; decarburization vessel; and direct reduction furnace by following the procedures in this subpart.

■ 28. Section 98.173 is amended by:

■ a. Revising the first sentence of the introductory text.

■ b. In paragraph (b)(1)(vi), revising the introductory text and the definition of "CO_2" in Equation Q–6 of subpart Q.

■ c. Revising the first sentence of paragraph (d).

The revisions read as follows:

§ 98.173 Calculating GHG emissions.

You must calculate and report the annual process CO_2 emissions from each taconite indurating furnace, basic oxygen furnace, non-recovery coke oven battery, sinter process, EAF, decarburization vessel, and direct reduction furnace using the procedures in either paragraph (a) or (b) of this section. * * *

* * * * *

(b) * * *

(1) * * *

(vi) For decarburization vessels, estimate CO_2 emissions using Equation Q–6 of this section.

* * * * *

CO_2 = Annual CO_2 mass emissions from the decarburization vessel (metric tons).

* * * * *

(d) If GHG emissions from a taconite indurating furnace, basic oxygen furnace, non-recovery coke oven battery, sinter process, EAF, decarburization vessel, or direct reduction furnace are vented through the same stack as any combustion unit or process equipment that reports CO_2 emissions using a CEMS that complies with the Tier 4 Calculation Methodology in subpart C of this part (General Stationary Fuel Combustion Sources), then the calculation methodology in paragraph (b) of this section shall not be used to calculate process emissions. * * *

■ 29. Section 98.174 is amended by revising the first sentence of paragraph (c)(2) and revising paragraph (c)(7) to read as follows:

§ 98.174 Monitoring and QA/QC requirements.

* * * * *

(c) * * *

(2) For the furnace exhaust from basic oxygen furnaces, EAFs, decarburization vessels, and direct reduction furnaces, sample the furnace exhaust for at least three complete production cycles that start when the furnace is being charged and end after steel or iron and slag have been tapped. * * *

* * * * *

(7) If your EAF and decarburization vessel exhaust to a common emission control device and stack, you must sample each process in the ducts before the emissions are combined, sample each process when only one process is operating, or sample the combined emissions when both processes are operating and base the site-specific emission factor on the steel production rate of the EAF.

* * * * *

■ 30. Section 98.175 is amended by revising the introductory text to read as follows:

§ 98.175 Procedures for estimating missing data.

A complete record of all measured parameters used in the GHG emissions calculations in § 98.173 is required. Therefore, whenever a quality-assured value of a required parameter is unavailable, a substitute data value for the missing parameter shall be used in the calculations as specified in the paragraphs (a) and (b) of this section. You must follow the missing data procedures in § 98.255(b) of subpart Y (Petroleum Refineries) of this part for flares burning coke oven gas or blast furnace gas. You must document and keep records of the procedures used for all such estimates.

* * * * *

■ 31. Section 98.176 is amended by:

■ a. Revising the introductory text.

■ b. Revising paragraph (c).

■ c. Revising paragraph (e)(3).

■ d. Adding paragraphs (g) and (h).

The revisions and additions read as follows:

§ 98.176 Data reporting requirements.

In addition to the information required by § 98.3(c), each annual report must contain the information required in paragraphs (a) through (h) of this section for each coke pushing operation; taconite indurating furnace; basic oxygen furnace; non-recovery coke oven battery; sinter process; EAF; decarburization vessel; direct reduction furnace; and flare burning coke oven gas or blast furnace gas. For reporting year 2010, the information required in paragraphs (a) through (h) of this section is not required for decarburization vessels that are not argon-oxygen decarburization vessels. For reporting year 2011 and each subsequent reporting year, the information in paragraphs (a) through (h) of this section must be reported for all decarburization vessels.

* * * * *

(c) 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.

* * * * *

(e) * * *

(3) The annual volume of each type of gaseous fuel (reported separately for each type in standard cubic feet), the annual volume of each type of liquid fuel (reported separately for each type in gallons), and the annual mass (in metric tons) of each other process inputs and outputs used to determine CO_2 emissions.

* * * * *

(g) The annual amount of coal charged to the coke ovens (in metric tons).

(h) For flares burning coke oven gas or blast furnace gas, the information specified in § 98.256(e) of subpart Y (Petroleum Refineries) of this part.

■ 32. Section 98.177 is amended by revising paragraph (d) to read as follows:

§ 98.177 Records that must be retained.

* * * * *

(d) Annual operating hours for each taconite indurating furnace, basic oxygen furnace, non-recovery coke oven battery, sinter process, electric arc furnace, decarburization vessel, and direct reduction furnace.

* * * * *

Subpart S—[Amended]

■ 33. Section 98.190 is amended by revising paragraph (a) to read as follows:

§ 98.190 Definition of the source category.

(a) Lime manufacturing plants (LMPs) engage in the manufacture of a lime product (e.g., calcium oxide, high-calcium quicklime, calcium hydroxide, hydrated lime, dolomitic quicklime, dolomitic hydrate, or other lime products) by calcination of limestone, dolomite, shells or other calcareous substances as defined in 40 CFR 63.7081(a)(1).

* * * * *

■ 34. Section 98.193 is amended by:

■ a. In paragraph (b)(2)(i), revising the second sentence of the introductory text and the definition of "2000/2205" in Equation S–1.

■ b. In paragraph (b)(2)(ii), revising the introductory text and the definitions of "$EF_{LKD,i,n}$", "$CaO_{LKD,i,n}$", "$MgO_{LKD,i,n}$", and "2000/2205" in Equation S–2.

■ c. In paragraph (b)(2)(iii), revising the introductory text and the definitions of

“$E_{waste,i}$”, “$CaO_{waste,i}$”, “$MgO_{waste,i}$”, “$M_{waste,i}$”, and “2000/2205” in Equation S–3.

■ d. In Paragraph (b)(2)(iv), revising the definitions of “$EF_{LIME,i,n}$”, “$M_{LIME,i,n}$”, “$EF_{LKD,i,n}$”, “$M_{LKD,i,n}$”, “$E_{waste,i}$”, “t”, “b”, and “z” in Equation S–4.

The revisions read as follows:

§ 98.193 Calculating GHG emissions.

* * * * *

(b) * * *

(2) * * *

(i) * * * Calcium oxide and magnesium oxide content must be analyzed monthly for each lime product type that is produced:

* * * * *

2000/2205 = Conversion factor for tons to metric tons.

(ii) You must calculate a monthly emission factor for each type of calcined byproduct/waste sold (including lime kiln dust) using Equation S–2 of this section:

* * * * *

$EF_{LKD,i,n}$ = Emission factor for calcined lime byproduct/waste type i sold, for month n (metric tons CO_2/ton lime byproduct).

* * * * *

$CaO_{LKD,i,n}$ = Calcium oxide content for calcined lime byproduct/waste type i sold, for month n (metric tons CaO/metric ton lime).
$MgO_{LKD,i,n}$ = Magnesium oxide content for calcined lime byproduct/waste type i sold, for month n (metric tons MgO/metric ton lime).
2000/2205 = Conversion factor for tons to metric tons.

(iii) You must calculate the annual CO_2 emissions from each type of calcined byproduct/waste that is not sold (including lime kiln dust and scrubber sludge) using Equation S–3 of this section:

* * * * *

$E_{waste,i}$ = Annual CO_2 emissions for calcined lime byproduct/waste type i that is not sold (metric tons CO_2).

* * * * *

$CaO_{waste,i}$ = Calcium oxide content for calcined lime byproduct/waste type i that is not sold (metric tons CaO/metric ton lime).
$MgO_{waste,i}$ = Magnesium oxide content for calcined lime byproduct/waste type i that is not sold (metric tons MgO/metric ton lime).
$M_{waste,i}$ = Annual weight or mass of calcined byproducts/wastes for lime type i that is not sold (tons).
2000/2205 = Conversion factor for tons to metric tons.

(iv) * * *

$EF_{LIME,i,n}$ = Emission factor for lime type i produced, in calendar month n (metric tons CO_2/ton lime) from Equation S–1 of this section.
$M_{LIME,i,n}$ = Weight or mass of lime type i produced in calendar month n (tons).
$EF_{LKD,i,n}$ = Emission factor of calcined byproducts/wastes sold for lime type i in calendar month n, (metric tons CO_2/ton byproduct/waste) from Equation S–2 of this section.
$M_{LKD,i,n}$ = Monthly weight or mass of calcined byproducts/waste sold (such as lime kiln dust, LKD) for lime type i in calendar month n (tons).
$E_{waste,i}$ = Annual CO_2 emissions for calcined lime byproduct/waste type i that is not sold (metric tons CO_2) from Equation S–3 of this section.
t = Number of lime types produced
b = Number of calcined byproducts/wastes that are sold
z = Number of calcined byproducts/wastes that are not sold

* * * * *

■ 35. Section 98.194 is amended by:

■ a. Revising the first sentence of paragraph (a).

■ b. Revising paragraph (c) introductory text.

■ c. Revising paragraph (d).

The revisions read as follows:

§ 98.194 Monitoring and QA/QC requirements.

(a) You must determine the total quantity of each type of lime product that is produced and each calcined byproduct/waste (such as lime kiln dust) that is sold. * * *

* * * * *

(c) You must determine the chemical composition (percent total CaO and percent total MgO) of each type of lime product that is produced and each type of calcined byproduct/waste sold according to paragraph (c)(1) or (2) of this section. You must determine the chemical composition of each type of lime product that is produced and each type of calcined byproduct/waste sold on a monthly basis. You must determine the chemical composition for each type of calcined byproduct/waste that is not sold on an annual basis.

* * * * *

(d) You must use the analysis of calcium oxide and magnesium oxide content of each lime product that is produced and that is collected during the same month as the production data in monthly calculations.

* * * * *

■ 36. Section 98.195 is amended by revising the first sentence of the introductory text and paragraph (a) to read as follows:

§ 98.195 Procedures for estimating missing data.

For the procedure in § 98.193(b)(1), a complete record of all measured parameters used in the GHG emissions calculations is required (e.g., oxide content, quantity of lime products, etc.). * * *

(a) For each missing value of the quantity of lime produced (by lime type), and quantity of calcined byproduct/waste produced and sold, the substitute data value shall be the best available estimate based on all available process data or data used for accounting purposes.

* * * * *

■ 37. Section 98.196 is revised to read as follows:

§ 98.196 Data reporting requirements.

In addition to the information required by § 98.3(c), each annual report must contain the information specified in paragraphs (a) or (b) of this section, as applicable.

(a) If a CEMS is used to measure CO_2 emissions, then you must report under this subpart the relevant information required by § 98.36 and the information listed in paragraphs (a)(1) through (8) of this section.

(1) Method used to determine the quantity of lime that is produced and sold.

(2) Method used to determine the quantity of calcined lime byproduct/waste sold.

(3) Beginning and end of year inventories for each lime product that is produced, by type.

(4) Beginning and end of year inventories for calcined lime byproducts/wastes sold, by type.

(5) Annual amount of calcined lime byproduct/waste sold, by type (tons).

(6) Annual amount of lime product sold, by type (tons).

(7) Annual amount of calcined lime byproduct/waste that is not sold, by type (tons).

(8) Annual amount of lime product not sold, by type (tons).

(b) If a CEMS is not used to measure CO_2 emissions, then you must report the information listed in paragraphs (b)(1) through (17) of this section.

(1) Annual CO_2 process emissions from all kilns combined (metric tons).

(2) Monthly emission factors for each lime type produced.

(3) Monthly emission factors for each calcined byproduct/waste by lime type that is sold.

(4) Standard method used (ASTM or NLA testing method) to determine chemical compositions of each lime type produced and each calcined lime byproduct/waste type.

(5) Monthly results of chemical composition analysis of each type of lime product produced and calcined byproduct/waste sold.

(6) Annual results of chemical composition analysis of each type of lime byproduct/waste that is not sold.

(7) Method used to determine the quantity of lime produced and/or lime sold.

(8) Monthly amount of lime product sold, by type (tons).

(9) Method used to determine the quantity of calcined lime byproduct/waste sold.

(10) Monthly amount of calcined lime byproduct/waste sold, by type (tons).

(11) Annual amount of calcined lime byproduct/waste that is not sold, by type (tons).

(12) Monthly weight or mass of each lime type produced (tons).

(13) Beginning and end of year inventories for each lime product that is produced.

(14) Beginning and end of year inventories for calcined lime byproducts/wastes sold.

(15) Annual lime production capacity (tons) per facility.

(16) Number of times in the reporting year that missing data procedures were followed to measure lime production (months) or the chemical composition of lime products sold (months).

(17) Indicate whether CO_2 was used on-site (i.e. for use in a purification process). If CO_2 was used on-site, provide the information in paragraphs (b)(17)(i) and (ii) of this section.

(i) The annual amount of CO_2 captured for use in the on-site process.

(ii) The method used to determine the amount of CO_2 captured.

Subpart V—[Amended]

■ 38. Section 98.223 is amended by:
■ a. Revising paragraphs (a)(1) and (a)(2)(ii).
■ b. Revising paragraph (b) introductory text.
■ c. Revising paragraphs (b)(1) and (b)(2).
■ d. Revising paragraph (c).
■ e. Revising paragraph (d) introductory text.
■ f. Revising paragraph (e).
■ g. Removing and reserving paragraph (f).
■ h. Revising paragraph (g).
■ i. Adding paragraph (i).

The revisions and addition read as follows:

§ 98.223 Calculating GHG emissions.

(a) * * *

(1) Use a site-specific emission factor and production data according to paragraphs (b) through (i) of this section.

(2) * * *

(ii) 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.

(b) You must conduct an annual performance test for each nitric acid train according to paragraphs (b)(1) through (3) of this section.

(1) You must conduct the performance test at the absorber tail gas vent, referred to as the test point, for each nitric acid train according to § 98.224(b) through (f). If multiple nitric acid production units exhaust to a common abatement technology and/or emission point, you must sample each process in the ducts before the emissions are combined, sample each process when only one process is operating, or sample the combined emissions when multiple processes are operating and base the site-specific emission factor on the combined production rate of the multiple nitric acid production units.

(2) You must conduct the performance test under normal process operating conditions.

* * * * *

(c) Using the results of the performance test in paragraph (b) of this section, you must calculate an average site-specific emission factor for each nitric acid train "t" according to Equation V–1 of this section:

$$EF_{N2Ot} = \frac{\sum_{1}^{n} \frac{C_{N2O} * 1.14 \times 10^{-7} * Q}{P}}{n} \qquad \text{(Eq. V-1)}$$

Where:

EF_{N_2Ot} = Average site-specific N_2O emissions factor for nitric acid train "t" (lb N_2O/ton nitric acid produced, 100 percent acid basis).
C_{N2O} = N_2O concentration for each test run during the performance test (ppm N_2O).
1.14×10^{-7} = Conversion factor (lb/dscf-ppm N_2O).
Q = Volumetric flow rate of effluent gas for each test run during the performance test (dscf/hr).
P = Production rate for each test run during the performance test (tons nitric acid produced per hour, 100 percent acid basis).
n = Number of test runs.

(d) If nitric acid train "t" exhausts to any N_2O abatement technology "N" after the test point, you must determine the destruction efficiency for each N_2O abatement technology "N" according to paragraphs (d)(1), (d)(2), or (d)(3) of this section.

* * * * *

(e) If nitric acid train "t" exhausts to any N_2O abatement technology "N" after the test point, you must determine the annual amount of nitric acid produced on train "t" while N_2O abatement technology "N" is operating according to § 98.224(f). Then you must calculate the abatement utilization factor for each N_2O abatement technology "N" for each nitric acid train "t" according to Equation V–2 of this section.

$$AF_{t,N} = \frac{P_{t,N}}{P_t} \qquad \text{(Eq. V-2)}$$

Where:

$AF_{t,N}$ = Abatement utilization factor of N_2O abatement technology "N" at nitric acid train "t" (fraction of annual production that abatement technology is operating).
P_t = Total annual nitric acid production from nitric acid train "t" (ton acid produced, 100 percent acid basis).
$P_{a,t,N}$ = Annual nitric acid production from nitric acid train "t" during which N_2O abatement technology "N" was operational (ton acid produced, 100 percent acid basis).

* * * * *

(g) You must calculate N_2O emissions for each nitric acid train "t" according to paragraph (g)(1), (g)(2), (g)(3), or (g)(4) of this section.

(1) If nitric acid train "t" exhausts to one N_2O abatement technology "N" after the test point, you must use the emissions factor (determined in Equation V–1 of this section), the destruction efficiency (determined in paragraph (d) of this section), the annual nitric acid production (determined in paragraph (i) of this section), and the abatement utilization factor (determined in paragraph (e) of this section) according to Equation V–3a of this section:

$$E_{N2Ot} = \frac{EF_{N20t} * P_t}{2205} * \left(1 - \left(DF * AF\right)\right) \qquad \text{(Eq. V-3a)}$$

Where:

E_{N_2Ot} = Annual N_2O mass emissions from nitric acid production unit “t” according to this Equation V–3a (metric tons).

EF_{N_2Ot} = Average site-specific N_2O emissions factor for nitric acid train ”t” (lb N_2O/ton acid produced, 100 percent acid basis).

P_t = Annual nitric acid production from the train “t” (ton acid produced, 100 percent acid basis).

DF = Destruction efficiency of N_2O abatement technology N that is used on nitric acid train “t” (percent of N_2O removed from vent stream).

AF = Abatement utilization factor of N_2O abatement technology “N” for nitric acid train “t” (percent of time that the abatement technology is operating).

2205 = Conversion factor (lb/metric ton).

(2) If multiple N_2O abatement technologies are located in series after your test point, you must use the emissions factor (determined in Equation V–1 of this section), the destruction efficiency (determined in paragraph (d) of this section), the annual nitric acid production (determined in paragraph (f) of this section), and the abatement utilization factor (determined in paragraph (e) of this section), according to Equation V–3b of this section:

$$E_{N2Ot} = \frac{EF_{N20,t} * P_t}{2205} * \left(1 - \left(DF_1 * AF_1\right)\right) * \left(1 - \left(DF_2 * AF_2\right)\right) * \ldots * \left(1 - \left(DF_N * AF_N\right)\right) \qquad \text{(Eq. V-3b)}$$

Where:

E_{N_2Ot} = Annual N_2O mass emissions from nitric acid production unit “t” according to this Equation V–3b (metric tons).

$EF_{N_2O,t}$ = N_2O emissions factor for unit “t” (lb N_2O/ton nitric acid produced).

P_t = Annual nitric acid produced from unit “t” (ton acid produced, 100 percent acid basis).

DF_1 = Destruction efficiency of N_2O abatement technology 1 (percent of N_2O removed from vent stream).

AF_1 = Abatement utilization factor of N_2O abatement technology 1 (percent of time that abatement technology 1 is operating).

DF_2 = Destruction efficiency of N_2O abatement technology 2 (percent of N_2O removed from vent stream).

AF_2 = Abatement utilization factor of N_2O abatement technology 2 (percent of time that abatement technology 2 is operating).

DF_N = Destruction efficiency of N_2O abatement technology N (percent of N_2O removed from vent stream).

AF_N = Abatement utilization factor of N_2O abatement technology N (percent of time that abatement technology N is operating).

2205 = Conversion factor (lb/metric ton).

N = Number of different N_2O abatement technologies.

(3) If multiple N_2O abatement technologies are located in parallel after your test point, you must use the emissions factor (determined in Equation V–1 of this section), the destruction efficiency (determined in paragraph (d) of this section), the annual nitric acid production (determined in paragraph (f) of this section), and the abatement utilization factor (determined in paragraph (e) of this section), according to Equation V–3c of this section:

$$E_{N2Ot} = \frac{EF_{N20,t} * P_t}{2205} * \sum_{1}^{N} \left(\left(1 - \left(DF_N * AF_N\right)\right) * FC_N \right) \qquad \text{(Eq. V-3c)}$$

Where:

E_{N_2Ot} = Annual N_2O mass emissions from nitric acid production unit “t” according to this Equation V–3c (metric tons).

$EF_{N_2O,t}$ = N_2O emissions factor for unit “t” (lb N_2O/ton nitric acid produced).

P_t = Annual nitric acid produced from unit “t” (ton acid produced, 100 percent acid basis).

DF_N = Destruction efficiency of N_2O abatement technology “N” (percent of N_2O removed from vent stream).

AF_N = Abatement utilization factor of N_2O abatement technology “N” (percent of time that abatement technology “N” is operating).

FC_N = Fraction control factor of N_2O abatement technology “N” (percent of total emissions from unit “t” that are sent to abatement technology “N”).

2205 = Conversion factor (lb/metric ton).

N = Number of different N_2O abatement technologies with a fraction control factor.

(4) If nitric acid train “t” does not exhaust to any N_2O abatement technology after the test point, you must use the emissions factor (determined in Equation V–1 of this section), and the annual nitric acid production (determined in paragraph (i) of this section) according to Equation V–3b of this section:

$$E_{N_2Ot} = \frac{EF_{N20t} * P_t}{2205} \qquad \text{(Eq. V-3d)}$$

Where:

E_{N_2Ot} = Annual N_2O mass emissions from nitric acid production unit “t” according to this Equation V–3d (metric tons).

EF_{N_2Ot} = Average site-specific N_2O emissions factor for nitric acid train ”t” (lb N_2O/ton acid produced, 100 percent acid basis).

P_t = Annual nitric acid production from nitric acid train “t” (ton acid produced, 100 percent acid basis).

2205 = Conversion factor (lb/metric ton).

* * * * *

(i) You must determine the total annual amount of nitric acid produced on nitric acid train “t” for each nitric acid train (tons acid produced, 100 percent acid basis), according to § 98.224(f).

■ 39. Section 98.224 is amended by:

■ a. Revising paragraph (a).

■ b. Revising the first sentence in paragraph (d) introductory text.

■ c. Revising paragraphs (e) and (f).

The revisions read as follows:

§ 98.224 Monitoring and QA/QC requirements.

(a) You must conduct a new performance test according to a test plan as specified in paragraphs (a)(1) through (3) of this section.

(1) Conduct the performance test annually. The test should be conducted at a point during the campaign which is representative of the average emissions rate from the nitric acid campaigns. Facilities must document the methods used to determine the representative

point of the campaign when the performance test is conducted.

(2) Conduct the performance test when your nitric acid production process is changed, specifically when abatement equipment is installed.

(3) If you requested Administrator approval for an alternative method of determining N_2O emissions under § 98.223(a)(2), you must conduct the performance test if your request has not been approved by the Administrator within 150 days of the end of the reporting year in which it was submitted.

* * * * *

(d) You must determine the volumetric flow rate during the performance test in conjunction with the applicable EPA methods in 40 CFR part 60, appendices A–1 through A–4. * * *

* * * * *

(e) You must determine the total monthly amount of nitric acid produced. You must also determine the monthly amount of nitric acid produced while N_2O abatement technology (located after the test point) is operating from each nitric acid train. These monthly amounts are determined according to the methods in paragraphs (c)(1) or (2) of this section.

(f) You must determine the annual amount of nitric acid produced. You must also determine the annual amount of nitric acid produced while N_2O abatement technology (located after the test point) is operating for each train. These annual amounts are determined by summing the respective monthly nitric acid quantities determined in paragraph (e) of this section.

■ 40. Section 98.226 is amended by:
■ a. Revising the introductory text.
■ b. Revising paragraph (g).
■ c. Revising paragraph (m) introductory text.
■ d. Revising paragraph (n) introductory text.
■ e. Adding paragraph (p).

The revisions and addition read as follows:

§ 98.226 Data reporting requirements.

In addition to the information required by § 98.3(c), each annual report must contain the information specified in paragraphs (a) through (p) of this section.

* * * * *

(g) Number of different N_2O abatement technologies per nitric acid train "t".

* * * * *

(m) If you conducted a performance test and calculated a site-specific emissions factor according to § 98.223(a)(1), each annual report must also contain the information specified in paragraphs (m)(1) through (7) of this section.

* * * * *

(n) If you requested Administrator approval for an alternative method of determining N_2O emissions under § 98.223(a)(2), each annual report must also contain the information specified in paragraphs (n)(1) through (4) of this section.

* * * * *

(p) Fraction control factor for each abatement technology (percent of total emissions from the production unit that are sent to the abatement technology) if equation V–3c is used.

Subpart Z—[Amended]

■ 41. Section 98.263 is amended by revising paragraph (b)(1) to read as follows:

§ 98.263 Calculating GHG emissions.

* * * * *

(b) * * *

(1) Calculate the annual CO_2 mass emissions from each wet-process phosphoric acid process line using the methods in paragraphs (b)(1)(i) or (ii) of this section, as applicable.

(i) If your process measurement provides the inorganic carbon content of phosphate rock as an output, calculate and report the process CO_2 emissions from each wet-process phosphoric acid process line using Equation Z–1a of this section:

$$E_m = \sum_{i=1}^{b} \sum_{n=1}^{z} \left(IC_{n,i} * P_{n,i} \right) * \frac{2000}{2205} * \frac{44}{12} \qquad \text{(Eq. Z-1a)}$$

Where:

E_m = Annual CO_2 mass emissions from a wet-process phosphoric acid process line m according to this Equation Z–1a (metric tons).

$IC_{n,i}$ = Inorganic carbon content of a grab sample batch of phosphate rock by origin i obtained during month n, from the carbon analysis results (percent by weight, expressed as a decimal fraction).

$P_{n,i}$ = Mass of phosphate rock by origin i consumed in month n by wet-process phosphoric acid process line m (tons).

z = Number of months during which the process line m operates.

b = Number of different types of phosphate rock in month, by origin. If the grab sample is a composite sample of rock from more than one origin, b = 1.

2000/2205 = Conversion factor to convert tons to metric tons.

44/12 = Ratio of molecular weights, CO_2 to carbon.

(ii) If your process measurement provides the CO_2 emissions directly as an output, calculate and report the process CO_2 emissions from each wet-process phosphoric acid process line using Equation Z–1b of this section:

$$E_m = \sum_{i=1}^{b} \sum_{n=1}^{z} \left(CO_{2_{n,i}} * P_{n,i} \right) * \frac{2000}{2205} \qquad \text{(Eq. Z-1b)}$$

Where:

E_m = Annual CO_2 mass emissions from a wet-process phosphoric acid process line m according to this Equation Z–1b (metric tons).

$CO_{2n,i}$ = Carbon dioxide emissions of a grab sample batch of phosphate rock by origin i obtained during month n (percent by weight, expressed as a decimal fraction).

$P_{n,i}$ = Mass of phosphate rock by origin i consumed in month n by wet-process phosphoric acid process line m (tons).

z = Number of months during which the process line m operates.

b = Number of different types of phosphate rock in month, by origin. If the grab sample is a composite sample of rock from more than one origin, b=1.

2000/2205 = Conversion factor to convert tons to metric tons.

* * * * *

■ 42. Section 98.264 is amended by revising paragraphs (a) and (b) to read as follows:

§ 98.264 Monitoring and QA/QC requirements.

(a) You must obtain a monthly grab sample of phosphate rock directly from the rock being fed to the process line before it enters the mill using one of the following methods. You may conduct the representative bulk sampling using a method published by a consensus standards organization, or you may use industry consensus standard practice methods, including but not limited to the Phosphate Mining States Methods Used and Adopted by the Association of Fertilizer and Phosphate Chemists (AFPC) (P.O. Box 1645, Bartow, Florida 33831, (863) 534–9755, *http://afpc.net, paul.mcafee@mosaicco.com*). If phosphate rock is obtained from more than one origin in a month, you must obtain a sample from each origin of rock or obtain a composite representative sample.

(b) You must determine the carbon dioxide or inorganic carbon content of each monthly grab sample of phosphate rock (consumed in the production of phosphoric acid). You may use a method published by a consensus standards organization, or you may use industry consensus standard practice methods, including but not limited to the Phosphate Mining States Methods Used and Adopted by AFPC (P.O. Box 1645, Bartow, Florida 33831, (863) 534–9755, *http://afpc.net, paul.mcafee@mosaicco.com*).

* * * * *

■ 43. Section 98.265 is amended by revising the first and second sentences of paragraph (a) to read as follows:

§ 98.265 Procedures for estimating missing data.

* * * * *

(a) For each missing value of the inorganic carbon content of phosphate rock or carbon dioxide (by origin), you must use the appropriate default factor provided in Table Z–1 this subpart. Alternatively, you must determine a substitute data value by calculating the arithmetic average of the quality-assured values of inorganic carbon contents of phosphate rock of origin i from samples immediately preceding and immediately following the missing data incident. * * *

* * * * *

■ 44. Section 98.266 is amended by:

■ a. Revising the introductory text.

■ b. Revising paragraph (c).

■ c. Revising paragraph (f) introductory text.

■ d. Revising paragraph (f)(2).

■ e. Revising paragraph (f)(4).

■ f. Revising paragraph (f)(5).

■ g. Adding paragraph (f)(9).

The revisions and addition read as follows:

§ 98.266 Data reporting requirements.

In addition to the information required by § 98.3(c), each annual report must contain the information specified in paragraphs (a) through (f) of this section.

* * * * *

(c) Annual arithmetic average percent inorganic carbon or carbon dioxide in phosphate rock from monthly records (percent by weight, expressed as a decimal fraction).

* * * * *

(f) If you do not use a CEMS to measure emissions, then you must report the information in paragraphs (f)(1) through (9) of this section.

* * * * *

(2) Annual CO_2 emissions from each wet-process phosphoric acid process line (metric tons) as calculated by either Equation Z–1a or Equation Z–1b of this subpart.

* * * * *

(4) Method used to estimate any missing values of inorganic carbon content or carbon dioxide content of phosphate rock for each wet-process phosphoric acid process line.

(5) Monthly inorganic carbon content of phosphate rock for each wet-process phosphoric acid process line for which Equation Z–1a is used (percent by weight, expressed as a decimal fraction), or CO_2 (percent by weight, expressed as a decimal fraction) for which Equation Z–1b is used.

* * * * *

(9) Annual process CO_2 emissions from phosphoric acid production facility (metric tons).

Subpart CC—[Amended]

■ 45. Section 98.294 is amended by revising the third sentence of paragraph (a)(1) to read as follows:

§ 98.294 Monitoring and QA/QC requirements.

* * * * *

(a) * * *

(1) * * * The modified method referred to above adjusts the regular ASTM method to express the results in terms of trona.* * *

* * * * *

■ 46. Section 98.296 is amended by:

■ a. Revising paragraph (a)(1).

■ b. Revising paragraph (b)(3).

■ c. Revising paragraph (b)(6).

■ d. Revising paragraph (b)(10).

■ e. Removing paragraphs (b)(11)(iv) through (vi).

The revisions read as follows:

§ 98.296 Data reporting requirements.

* * * * *

(a) * * *

(1) Annual consumption of trona or liquid alkaline feedstock for each manufacturing line (tons).

* * * * *

(b) * * *

(3) Annual production of soda ash for each manufacturing line (tons).

* * * * *

(6) Monthly production of soda ash for each manufacturing line (tons).

* * * * *

(10) If you produce soda ash using the liquid alkaline feedstock process and use the site-specific emission factor method (§ 98.293(b)(3)) to estimate emissions then you must report the following relevant information for each manufacturing line or stack:

(i) Stack gas volumetric flow rate during performance test (dscfm).

(ii) Hourly CO_2 concentration during performance test (percent CO_2).

(iii) CO_2 emission factor (metric tons CO_2/metric tons of process vent flow from mine water stripper/evaporator).

(iv) CO_2 mass emission rate during performance test (metric tons/hour).

* * * * *

Subpart EE—[Amended]

■ 47. Section 98.314 is amended by revising paragraph (e) to read as follows:

§ 98.314 Monitoring and QA/QC requirements.

* * * * *

(e) You must determine the quantity of carbon-containing waste generated from each titanium dioxide production line on a monthly basis using plant instruments used for accounting purposes including direct measurement weighing the carbon-containing waste not used during the process (by belt scales or a similar device) or through the use of sales records.

* * * * *

■ 48. Section 98.316 is amended by revising paragraphs (b)(9) and (b)(11) to read as follows:

§ 98.316 Data reporting requirements.

* * * * *

(b) * * *

(9) Monthly carbon content factor of petroleum coke (percent by weight expressed as a decimal fraction).

* * * * *

(11) Carbon content for carbon-containing waste for each process line (percent by weight expressed as a decimal fraction).

* * * * *

Subpart GG—[Amended]

■ 49. Section 98.333 is amended by revising the definitions of "(Electrode)$_k$" and "($C_{Electrode}$)$_k$" in Equation GG–1 of paragraph (b)(1) to read as follows:

§ 98.333 Calculating GHG emissions.

* * * * *

(b) * * *

(1) * * * * *

(Electrode)$_k$ = Annual mass of carbon electrode consumed in furnace "k" (tons).

($C_{Electrode}$)$_k$ = Carbon content of the carbon electrode consumed in furnace "k", from the annual carbon analysis (percent by weight, expressed as a decimal fraction).

* * * * *

■ 50. Section 98.336 is amended by revising paragraph (a) introductory text; and by revising paragraphs (b)(1), (b)(7), and (b)(10) to read as follows:

§ 98.336 Data reporting requirements.

* * * * *

(a) If a CEMS is used to measure CO_2 emissions, then you must report under this subpart the relevant information required for the Tier 4 Calculation Methodology in § 98.36 and the information listed in this paragraph (a):

* * * * *

(b) * * *

(1) Identification number and annual process CO_2 emissions from each individual Waelz kiln or electrothermic furnace (metric tons).

* * * * *

(7) Carbon content of each carbon-containing input material charged to each kiln or furnace (including zinc bearing material, flux materials, and other carbonaceous materials) from the annual carbon analysis or from information provided by the material supplier for each kiln or furnace (percent by weight, expressed as a decimal fraction).

* * * * *

(10) Carbon content of the carbon electrode used in each furnace from the annual carbon analysis or from information provided by the material supplier (percent by weight, expressed as a decimal fraction).

* * * * *

Subpart HH—[Amended]

■ 51. Section 98.340 is amended by revising paragraph (b) to read as follows:

§ 98.340 Definition of the source category.

* * * * *

(b) This source category does not include Resource Conservation and Recovery Act (RCRA) Subtitle C or Toxic Substances Control Act (TSCA) hazardous waste landfills, construction and demolition waste landfills, or industrial waste landfills.

* * * * *

■ 52. Section 98.343 is amended by:

■ a. In paragraph (a)(1), revising Equation HH–1 and the definitions of "x," "S," "W_x," "MCF," "DOC_F," "F," and "k" in Equation HH–1; and removing the definition of "L_0" in Equation HH–1.

■ b. Revising the last sentence of paragraph (a)(2).

■ c. Redesignating paragraph (a)(3) as (a)(4) and revising new paragraph (a)(4).

■ d. Adding a new paragraph (a)(3).

■ e. Revising paragraph (b)(1), and revising paragraph (b)(2) introductory text.

■ f. Revising paragraphs (b)(2)(ii), (b)(2)(iii)(A), and (b)(2)(iii)(B).

■ g. Revising paragraph (c) introductory text.

The revisions and additions read as follows:

§ 98.343 Calculating GHG emissions.

(a) * * *

(1) * * *

$$G_{CH4} = \sum_{x=S}^{T-1} \left\{ W_x \times MCF \times DOC \times DOC_F \times F \times \frac{16}{12} \times \left(e^{-k(T-x-1)} - e^{-k(T-x)} \right) \right\} \qquad \text{(Eq. HH-1)}$$

* * * * *

x = Year in which waste was disposed.

S = Start year of calculation. Use the year 1960 or the opening year of the landfill, whichever is more recent.

* * * * *

W_x = Quantity of waste disposed in the landfill in year × from measurement data, tipping fee receipts, or other company records (metric tons, as received (wet weight)).

MCF = Methane correction factor (fraction). Use the default value of 1 unless there is active aeration of waste within the landfill during the reporting year. If there is active aeration of waste within the landfill during the reporting year, use either the default value of 1 or select an alternative value no less than 0.5 based on site-specific aeration parameters.

* * * * *

DOC_F = Fraction of DOC dissimilated (fraction). Use the default value of 0.5.

F = Fraction by volume of CH_4 in landfill gas from measurement data on a dry basis, if available (fraction); default is 0.5.

k = Rate constant from Table HH–1 to this subpart (yr^{-1}). Select the most applicable k value for the majority of the past 10 years (or operating life, whichever is shorter).

(2) * * * For years when waste composition data are not available, use the bulk waste parameter values for k and DOC in Table HH–1 to this subpart for the total quantity of waste disposed in those years.

(3) Beginning in the first emissions reporting year and for each year thereafter, if scales are in place, you must determine the annual quantity of waste (in metric tons as received, i.e., wet weight) disposed of in the landfill using paragraph (a)(3)(i) of this section for all containers and for all vehicles used to haul waste to the landfill, except for passenger cars, light duty pickup trucks, or waste loads that cannot be measured using the scales due to physical limitations (load cannot physically access or fit on the scale) and/or operational limitations of the scale (load exceeding the limits or sensitivity range of the scale). If scales are not in place, you must use paragraph (a)(3)(ii) of this section to determine the annual quantity of waste disposed. For waste hauled to the landfill in passenger cars or light duty pickup trucks, you may use either paragraph (a)(3)(i) or paragraph (a)(3)(ii) of this section to determine the annual quantity of waste disposed. For loads that cannot be measured using the scales due to physical and/or operational limitations of the scale, you must use paragraph (a)(3)(ii) of this section or similar engineering calculations to determine the annual quantity of waste disposed. The approach used to determine the annual quantity of waste disposed of must be documented in the monitoring plan.

(i) Use direct mass measurements of each individual load received at the landfill using either of the following methods:

(A) Weigh using mass scales each vehicle or container used to haul waste as it enters the landfill or disposal area; weigh using mass scales each vehicle or container after it has off-loaded the waste; determine the quantity of waste received from the individual load as the difference in the two mass measurements; and determine the annual quantity of waste received as the sum of all waste loads received during the year. Alternatively, you may determine annual quantity of waste by summing the weights of all vehicles and containers entering the landfill and subtracting from it the sum of all the weights of vehicles and containers after they have off-loaded the waste in the landfill.

(B) Weigh using mass scales each vehicle or container used to haul waste as it enters the landfill or disposal area; determine a representative tare weight by vehicle or container type by weighing no less than 5 of each type of vehicle or container after it has off-loaded the waste; determine the quantity of waste received from the individual load as the difference between the measured weight in and the tare weight determined for that container/vehicle type; and determine the annual quantity of waste received as the sum of all waste loads received during the year.

(ii) Determine the working capacity in units of mass for each type of container or vehicle used to haul waste to the landfill (*e.g.,* using volumetric capacity and waste density measurements; direct measurement of a selected number of passenger vehicles and light duty pick-up trucks; or similar methods); record the number of loads received at the landfill by vehicle/container type; calculate the annual mass per vehicle/container type as the mass product of the number of loads of that vehicle/container multiplied by its working capacity; and calculate the annual quantity of waste received as the sum of the annual mass per vehicle/container type across all of the vehicle/container types used to haul waste to the landfill.

(4) For years prior to the first emissions reporting year, use methods in paragraph (a)(3) of this section when waste disposal quantity data are readily available. When waste disposal quantity data are not readily available, W_x shall be estimated using one of the applicable methods in paragraphs (a)(4)(i) through (a)(4)(iii) of this section. You must determine which method is most applicable to the conditions and disposal history of your facility. Historical waste disposal quantities should only be determined once, as part of the first annual report, and the same values should be used for all subsequent annual reports, supplemented by the next year's data on new waste disposal.

(i) Assume all prior years waste disposal quantities are the same as the waste quantity in the first year for which waste quantities are available.

(ii) Use the estimated population served by the landfill in each year, the values for national average per capita waste disposal rates found in Table HH–2 to this subpart, and calculate the waste quantity landfilled using Equation HH–2 of this section.

$$W_x = POP_x \times WDR_x \qquad \text{(Eq. HH-2)}$$

Where:

W_x = Quantity of waste placed in the landfill in year x (metric tons, wet basis).

POP_x = Population served by the landfill in year x from city population, census data, or other estimates (capita).

WDR_x = Average per capita waste disposal rate for year x from Table HH–2 to this subpart (metric tons per capita per year, wet basis; tons/cap/yr).

(iii) Use a constant average waste disposal quantity calculated using Equation HH–3 of this section for each year the landfill was in operation (i.e., from the first year accepting waste until the last year for which waste disposal data is unavailable, inclusive).

$$W_x = \frac{LFC}{(YrData - YrOpen + 1)} \qquad \text{(Eq. HH-3)}$$

Where:

W_x = Quantity of waste placed in the landfill in year x (metric tons, wet basis).

LFC = Landfill capacity or, for operating landfills, capacity of the landfill used (or the total quantity of waste-in-place) at the end of the year prior to the year when waste disposal data are available from design drawings or engineering estimates (metric tons).

YrData = Year in which the landfill last received waste or, for operating landfills, the year prior to the first reporting year when waste disposal data is first available from company records, or best available data.

YrOpen = Year in which the landfill first received waste from company records or best available data. If no data are available for estimating YrOpen for a closed landfill, use 30 years as the default operating life of the landfill.

(b) * * *

(1) If you continuously monitor the flow rate, CH_4 concentration, temperature, pressure, and, if necessary, moisture content of the landfill gas that is collected and routed to a destruction device (before any treatment equipment) using a monitoring meter specifically for CH_4 gas, as specified in § 98.344, you must use this monitoring system and calculate the quantity of CH_4 recovered for destruction using Equation HH–4 of this section. A fully integrated system that directly reports CH_4 content requires no other calculation than summing the results of all monitoring periods for a given year.

$$R = \sum_{n=1}^{N}\left((V)_n \times (K_{MC})_n \times \frac{(C)_n}{100\%} \times 0.0423 \times \frac{520^{o}R}{(T)_n} \times \frac{(P)_n}{1\ \text{atm}} \times \frac{0.454}{1{,}000}\right) \qquad \text{(Eq. HH-4)}$$

Where:

R = Annual quantity of recovered CH_4 (metric tons CH_4).

N = Total number of measurement periods in a year. Use daily averaging periods for a continuous monitoring system and N = 365 (or N = 366 for leap years). For weekly sampling, as provided in paragraph (b)(2) of this section, use N=52.

n = Index for measurement period.

$(V)_n$ = Cumulative volumetric flow for the measurement period in actual cubic feet (acf). If the flow rate meter automatically corrects for temperature and pressure, replace "520°R/$(T)_n \times (P)_n$/1 atm" with "1".

$(K_{MC})_n$ = Moisture correction term for the measurement period, volumetric basis, as follows: $(K_{MC})_n$ = 1 when $(V)_n$ and $(C)_n$ are both measured on a dry basis or if both are measured on a wet basis; $(K_{MC})_n$ = $[1-(f_{H_2O})_n]$ when $(V)_n$ is measured on a wet basis and $(C)_n$ is measured on a dry basis; and $(K_{MC})_n = 1/[1-(f_{H2O})_n]$ when $(V)_n$ is measured on a dry basis and $(C)_n$ is measured on a wet basis.

$(f_{H_2O})_n$ = Average moisture content of landfill gas during the measurement period, volumetric basis (cubic feet water per cubic feet landfill gas)

$(C_{CH4})_n$ = Average CH_4 concentration of landfill gas for the measurement period (volume %).

0.0423 = Density of CH_4 lb/cfm at 520°R or 60 degrees Fahrenheit and 1 atm.

$(T)_n$ = Average temperature at which flow is measured for the measurement period (°R).

$(P)_n$ = Average pressure at which flow is measured for the measurement period (atm).

0.454/1,000 = Conversion factor (metric ton/lb).

(2) If you do not continuously monitor according to paragraph (b)(1) of this section, you must determine the flow rate, CH_4 concentration, temperature, pressure, and moisture content of the landfill gas that is collected and routed to a destruction device (before any treatment equipment) according to the requirements in paragraphs (b)(2)(i) through (b)(2)(iii) of this section and

calculate the quantity of CH_4 recovered for destruction using Equation HH–4 of this section.

* * * * *

(ii) Determine the CH_4 concentration in the landfill gas that is collected and routed to a destruction device (before any treatment equipment) in a location near or representative of the location of the gas flow meter at least once each calendar week; if only one measurement is made each calendar week, there must be at least three days between measurements.

(iii) * * *

(A) Determine the temperature and pressure in the landfill gas that is collected and routed to a destruction device (before any treatment equipment) in a location near or representative of the location of the gas flow meter at least once each calendar week; if only one measurement is made each calendar week, there must be at least three days between measurements.

(B) If the CH_4 concentration is determined on a dry basis and flow is determined on a wet basis or CH_4 concentration is determined on a wet basis and flow is determined on a dry basis, and the flow meter does not automatically correct for moisture content, determine the moisture content in the landfill gas that is collected and routed to a destruction device (before any treatment equipment) in a location near or representative of the location of the gas flow meter at least once each calendar week; if only one measurement is made each calendar week, there must be at least three days between measurements.

(c) For all landfills, calculate CH_4 generation (adjusted for oxidation in cover materials) and actual CH_4 emissions (taking into account any CH_4 recovery, and oxidation in cover materials) according to the applicable methods in paragraphs (c)(1) through (c)(3) of this section.

* * * * *

■ 53. Section 98.344 is amended by:
■ a. Revising paragraph (a).
■ b. Revising the first sentence of paragraph (b) introductory text.
■ c. Revising paragraphs (b)(6)(ii) introductory text, (b)(6)(ii)(A), and (b)(6)(ii)(B).
■ d. Revising the definition of "C_{CH4}" in Equation HH–9 of paragraph (b)(6)(iii).
■ e. Revising the second and third sentences of paragraph (c) introductory text.
■ f. Revising paragraph (d).
■ g. Revising the first sentence of paragraph (e).

The revisions read as follows:

§ 98.344 Monitoring and QA/QC requirements.

(a) Mass measurement equipment used to determine the quantity of waste landfilled on or after January 1, 2010 must meet the requirements for weighing equipment as described in "Specifications, Tolerances, and Other Technical Requirements For Weighing and Measuring Devices" NIST Handbook 44 (2009) (incorporated by reference, see § 98.7).

(b) For landfills with gas collection systems, operate, maintain, and calibrate a gas composition monitor capable of measuring the concentration of CH_4 in the recovered landfill gas using one of the methods specified in paragraphs (b)(1) through (b)(6) of this section or as specified by the manufacturer. * * *

* * * * *

(6) * * *

(ii) Determine a non-methane organic carbon correction factor at the routine sampling location no less frequently than once a reporting year following the requirements in paragraphs (b)(6)(ii)(A) through (b)(6)(ii)(C) of this section.

(A) Take a minimum of three grab samples of the landfill gas with a minimum of 20 minutes between samples and determine the methane composition of the landfill gas using one of the methods specified in paragraphs (b)(1) through (b)(5) of this section.

(B) As soon as practical after each grab sample is collected and prior to the collection of a subsequent grab sample, determine the total gaseous organic concentration of the landfill gas using either Method 25A or 25B at 40 CFR part 60, appendix A–7 as specified in paragraph (b)(6)(i) of this section.

* * * * *

(iii) * * *

C_{CH4} = Methane concentration in the landfill gas (volume %) for use in Equation HH–4 of this subpart.

* * * * *

(c) * * * Each gas flow meter shall be recalibrated either biennially (every 2 years) or at the minimum frequency specified by the manufacturer. Except as provided in § 98.343(b)(2)(i), each gas flow meter must be capable of correcting for the temperature and pressure and, if necessary, moisture content.

* * * * *

(d) All temperature, pressure, and if necessary, moisture content monitors must be calibrated using the procedures and frequencies specified by the manufacturer.

(e) The owner or operator shall document the procedures used to ensure the accuracy of the estimates of disposal quantities and, if applicable, gas flow rate, gas composition, temperature, pressure, and moisture content measurements. * * *

■ 54. Section 98.346 is amended by:
■ a. Revising paragraph (a).
■ b. Revising paragraph (b).
■ c. Revising paragraph (c).
■ d. Revising paragraph (d)(1).
■ e. Revising paragraph (f).
■ f. Revising paragraph (h).
■ g. Revising paragraph (i)(1)
■ h. Revising paragraph (i)(2)
■ i. Revising paragraph (i)(3)
■ j. Revising paragraph (i)(4)
■ k. Revising paragraph (i)(5)
■ l. Revising paragraph (i)(7).

The revisions read as follows:

§ 98.346 Data reporting requirements.

* * * * *

(a) A classification of the landfill as "open" (actively received waste in the reporting year) or "closed" (no longer receiving waste), the year in which the landfill first started accepting waste for disposal, the last year the landfill accepted waste (for open landfills, enter the estimated year of landfill closure), the capacity (in metric tons) of the landfill, an indication of whether leachate recirculation is used during the reporting year and its typical frequency of use over the past 10 years (e.g., used several times a year for the past 10 years, used at least once a year for the past 10 years, used occasionally but not every year over the past 10 years, not used), an indication as to whether scales are present at the landfill, and the waste disposal quantity for each year of landfilling required to be included when using Equation HH–1 of this subpart (in metric tons, wet weight).

(b) Method for estimating reporting year and historical waste disposal quantities, reason for its selection, and the range of years it is applied. For years when waste quantity data are determined using the methods in § 98.343(a)(3), report separately the quantity of waste determined using the methods in § 98.343(a)(3)(i) and the quantity of waste determined using the methods in § 98.343(a)(3)(ii). For historical waste disposal quantities that were not determined using the methods in § 98.343(a)(3), provide the population served by the landfill for each year the Equation HH–2 of this subpart is applied, if applicable, or, for open landfills using Equation HH–3 of this subpart, provide the value of landfill capacity (LFC) used in the calculation.

(c) Waste composition for each year required for Equation HH–1 of this subpart, in percentage by weight, for each waste category listed in Table HH–1 to this subpart that is used in Equation

HH–1 of this subpart to calculate the annual modeled CH_4 generation.

(d) * * *

(1) Degradable organic carbon (DOC), methane correction factor (MCF), and fraction of DOC dissimilated (DOC_F) values used in the calculations. If an MCF value other than the default of 1 is used, provide an indication of whether active aeration of the waste in the landfill was conducted during the reporting year, a description of the aeration system, including aeration blower capacity, the fraction of the landfill containing waste affected by the aeration, the total number of hours during the year the aeration blower was operated, and other factors used as a basis for the selected MCF value.

* * * * *

(f) The surface area of the landfill containing waste (in square meters), identification of the type of cover material used (as either organic cover, clay cover, sand cover, or other soil mixtures). If multiple cover types are used, the surface area associated with each cover type.

* * * * *

(h) For landfills without gas collection systems, the annual methane emissions (i.e., the methane generation, adjusted for oxidation, calculated using Equation HH–5 of this subpart), reported in metric tons CH_4, 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 this landfill.

(i) * * *

(1) Total volumetric flow of landfill gas collected for destruction for the reporting year (cubic feet at 520 °R or 60 degrees Fahrenheit and 1 atm).

(2) Annual average CH_4 concentration of landfill gas collected for destruction (percent by volume).

(3) Monthly average temperature and pressure for each month at which flow is measured for landfill gas collected for destruction, or statement that temperature and/or pressure is incorporated into internal calculations run by the monitoring equipment.

(4) An indication as to whether flow was measured on a wet or dry basis, an indication as to whether CH_4 concentration was measured on a wet or dry basis, and if required for Equation HH–4 of this subpart, monthly average moisture content for each month at which flow is measured for landfill gas collected for destruction.

(5) An indication of whether destruction occurs at the landfill facility or off-site. If destruction occurs at the landfill facility, also report an indication of whether a back-up destruction device is present at the landfill, the annual operating hours for the primary destruction device, the annual operating hours for the back-up destruction device (if present), and the destruction efficiency used (percent).

* * * * *

(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, the annual operating hours of the 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.

* * * * *

■ 55. Section 98.347 is amended by adding a second sentence to read as follows:

§ 98.347 Records that must be retained.

* * * You must retain records of all measurements made to determine tare weights and working capacities by vehicle/container type if these are used to determine the annual waste quantities.

■ 56. Section 98.348 is revised to read as follows:

§ 98.348 Definitions.

Except as specified in this section, all terms used in this subpart have the same meaning given in the Clean Air Act and subpart A of this part.

Construction and demolition (C&D) waste landfill means a solid waste disposal facility subject to the requirements of part 257, subparts A or B of this chapter that receives construction and demolition waste and does not receive hazardous waste (defined in § 261.3 of this chapter) or industrial solid waste (defined in § 258.2 of this chapter) or municipal solid waste (as defined in § 98.6) other than residential lead-based paint waste. A C&D waste landfill typically receives any one or more of the following types of solid wastes: Roadwork material, excavated material, demolition waste, construction/renovation waste, and site clearance waste.

Destruction device means a flare, thermal oxidizer, boiler, turbine, internal combustion engine, or any other combustion unit used to destroy or oxidize methane contained in landfill gas.

Industrial waste landfill means any landfill other than a municipal solid waste landfill, a RCRA Subtitle C hazardous waste landfill, or a TSCA hazardous waste landfill, in which industrial solid waste, such a RCRA Subtitle D wastes (nonhazardous industrial solid waste, defined in § 257.2 of this chapter), commercial solid wastes, or conditionally exempt small quantity generator wastes, is placed. An industrial waste landfill includes all disposal areas at the facility.

Solid waste has the meaning established by the Administrator pursuant to the Solid Waste Disposal Act (42 U.S.C.A. 6901 *et seq.*).

Working capacity means the maximum volume or mass of waste that is actually placed in the landfill from an individual or representative type of container (such as a tank, truck, or roll-off bin) used to convey wastes to the landfill, taking into account that the container may not be able to be 100 percent filled and/or 100 percent emptied for each load.

■ 57. Table HH–1 to subpart HH is revised to read as follows:

TABLE HH–1 TO SUBPART HH OF PART 98—EMISSIONS FACTORS, OXIDATION FACTORS AND METHODS

Factor	Default value	Units
DOC and k values—Bulk waste option		
DOC (bulk waste)	0.20	Weight fraction, wet basis.
k (precipitation plus recirculated leachate [a] <20 inches/year)	0.02	yr^{-1}
k (precipitation plus recirculated leachate [a] 20–40 inches/year)	0.038	yr^{-1}
k (precipitation plus recirculated leachate [a] >40 inches/year)	0.057	yr^{-1}

TABLE HH–1 TO SUBPART HH OF PART 98—EMISSIONS FACTORS, OXIDATION FACTORS AND METHODS—Continued

Factor	Default value	Units
DOC and k values—Modified bulk MSW option		
DOC (bulk MSW, excluding inerts and C&D waste)	0.31	Weight fraction, wet basis.
DOC (inerts, e.g., glass, plastics, metal, concrete)	0.00	Weight fraction, wet basis.
DOC (C&D waste)	0.08	Weight fraction, wet basis.
k (bulk MSW, excluding inerts and C&D waste)	0.02 to 0.057[b]	yr^{-1}
k (inerts, e.g., glass, plastics, metal, concrete)	0.00	yr^{-1}
k (C&D waste)	0.02 to 0.04[b]	yr^{-1}
DOC and k values—Waste composition option		
DOC (food waste)	0.15	Weight fraction, wet basis.
DOC (garden)	0.2	Weight fraction, wet basis.
DOC (paper)	0.4	Weight fraction, wet basis.
DOC (wood and straw)	0.43	Weight fraction, wet basis.
DOC (textiles)	0.24	Weight fraction, wet basis.
DOC (diapers)	0.24	Weight fraction, wet basis.
DOC (sewage sludge)	0.05	Weight fraction, wet basis.
DOC (inerts, e.g., glass, plastics, metal, cement)	0.00	Weight fraction, wet basis.
k (food waste)	0.06 to 0.185[c]	yr^{-1}
k (garden)	0.05 to 0.10[c]	yr^{-1}
k (paper)	0.04 to 0.06[c]	yr^{-1}
k (wood and straw)	0.02 to 0.03[c]	yr^{-1}
k (textiles)	0.04 to 0.06[c]	yr^{-1}
k (diapers)	0.05 to 0.10[c]	yr^{-1}
k (sewage sludge)	0.06 to 0.185[c]	yr^{-1}
k (inerts e.g., glass, plastics, metal, concrete)	0.00	yr^{-1}
Other parameters—All MSW landfills		
MCF	1.	
DOC_F	0.5.	
F	0.5.	
OX	0.1.	
DE	0.99.	

[a] Recirculated leachate (in inches/year) is the total volume of leachate recirculated from company records or engineering estimates divided by the area of the portion of the landfill containing waste with appropriate unit conversions. Alternatively, landfills that use leachate recirculation can elect to use the k value of 0.057 rather than calculating the recirculated leachate rate.

[b] Use the lesser value when precipitation plus recirculated leachate is less than 20 inches/year. Use the greater value when precipitation plus recirculated leachate is greater than 40 inches/year. Use the average of the range of values when precipitation plus recirculated leachate is 20 to 40 inches/year (inclusive). Alternatively, landfills that use leachate recirculation can elect to use the greater value rather than calculating the recirculated leachate rate.

[c] Use the lesser value when the potential evapotranspiration rate exceeds the mean annual precipitation rate plus recirculated leachate. Use the greater value when the potential evapotranspiration rate does not exceed the mean annual precipitation rate plus recirculated leachate. Alternatively, landfills that use leachate recirculation can elect to use the greater value rather than assessing the potential evapotranspiration rate or recirculated leachate rate.

■ 58. Table HH–2 to subpart HH is amended by:

■ a. Removing the third column "% to SWDS."

■ b. Removing the entries for "1950" through "1959."

■ c. Revising the entries for "1989" through "2006."

■ d. Adding entries for "2007" through "2009."

TABLE HH–2 TO SUBPART HH OF PART 98—U.S. PER CAPITA WASTE DISPOSAL RATES

Year	Waste per capita ton/cap/yr
* * *	*
1989	0.83
1990	0.82
1991	0.76
1992	0.74
1993	0.76
1994	0.75
1995	0.70
1996	0.68
1997	0.69
1998	0.75
1999	0.75
2000	0.80
2001	0.91
2002	1.02
2003	1.02
2004	1.01
2005	0.98
2006	0.95
2007	0.95
2008	0.95
2009	0.95

■ 59. Table HH–3 to subpart HH–3 is amended by revising the entries for "A2: Area without active gas collection, regardless of cover type H2: Average depth of waste in area A2," "A3: Area with daily soil cover and active gas collection H3: Average depth of waste in area A3," "A4: Area with an intermediate soil cover and active gas collection H4: Average depth of waste in area A4," and "A5: Area with a final soil and geomembrane cover system and active gas collection H5: Average depth of waste in area A5" to read as follows:

TABLE HH–3 TO SUBPART HH OF PART 98—LANDFILL GAS COLLECTION EFFICIENCIES

Description	Landfill gas collection efficiency
* * * * * *	*
A2: Area without active gas collection, regardless of cover type	CE2: 0%.
A3: Area with daily soil cover and active gas collection	CE3: 60%.
A4: Area with an intermediate soil cover, or a final soil cover not meeting the criteria for A5 below, and active gas collection	CE4: 75%.
A5: Area with a final soil cover of 3 feet or thicker of clay and/or geomembrane cover system and active gas collection	CE5: 95%.
* * * * * *	*

Subpart LL—[Amended]

■ 60. Section 98.386 is amended by:
■ a. Revising paragraph (a)(3).
■ b. Adding a third sentence to the end of paragraph (a)(5).
■ c. Adding a third sentence to the end of paragraph (a)(6).
■ d. Revising paragraph (a)(7).
■ e. Revising paragraphs (a)(16) and (a)(17).
■ f. Revising paragraphs (b)(3) and (c)(3).
■ g. Adding paragraph (d).

The revisions and additions read as follows:

§ 98.386 Data reporting requirements.

* * * * *

(a) * * *

(3) For each feedstock reported in paragraph (a)(2) of this section that was produced by blending a fossil fuel-based product with a biomass-based product, report the percent of the volume reported in paragraph (a)(2) of this section that is fossil fuel-based (excluding any denaturant that may be present in any ethanol product).

* * * * *

(5) * * * Those products that enter the facility, but are not reported in (a)(1), shall not be reported under this paragraph.

(6) * * * Those products that enter the facility, but are not reported in (a)(2), shall not be reported under this paragraph.

(7) For each product reported in paragraph (a)(6) of this section that was produced by blending a fossil fuel-based product with a biomass-based product, report the percent of the volume reported in paragraph (a)(6) of this section that is fossil fuel-based (excluding any denaturant that may be present in any ethanol product).

* * * * *

(16) The CO_2 emissions in metric tons that would result from the complete combustion or oxidation of each feedstock reported in paragraph (a)(2) of this section that were calculated according to § 98.393(b) or (h).

(17) The CO_2 emissions in metric tons that would result from the complete combustion or oxidation of each product (leaving the coal-to-liquid facility) reported in paragraph (a)(6) of this section that were calculated according to § 98.393(a) or (h).

* * * * *

(b) * * *

(3) For each product reported in paragraph (b)(2) of this section that was produced by blending a fossil fuel-based product with a biomass-based product, report the percent of the volume reported in paragraph (b)(2) of this section that is fossil fuel-based (excluding any denaturant that may be present in any ethanol product).

* * * * *

(c) * * *

(3) For each product reported in paragraph (c)(2) of this section that was produced by blending a fossil fuel-based product with a biomass-based product, report the percent of the volume reported in paragraph (c)(2) of this section that is fossil fuel-based (excluding any denaturant that may be present in any ethanol product).

* * * * *

(d) *Blended feedstock and products.* (1) Producers, exporters, and importers must report the following information for each blended product and feedstock where emissions were calculated according to § 98.393(i):

(i) Volume or mass of each blending component.

(ii) The CO_2 emissions in metric tons that would result from the complete combustion or oxidation of each blended feedstock or product, using Equation MM–12 or Equation MM–13 of § 98.393.

(iii) Whether it is a blended feedstock or a blended product.

(2) For a product that enters the facility to be further refined or otherwise used on site that is a blended feedstock, producers must meet the reporting requirements of paragraphs (a)(1) and (a)(2) of this section by reflecting the individual components of the blended feedstock.

(3) For a product that is produced, imported, or exported that is a blended product, producers, importers, and exporters must meet the reporting requirements of paragraphs (a)(5), (a)(6), (b)(1), (b)(2), (c)(1), and (c)(2) of this section, as applicable, by reflecting the individual components of the blended product.

Subpart MM—[Amended]

■ 61. Section 98.393 is amended by:
■ a. In paragraph (a)(1), revising the only sentence and the definition of "Product$_i$" in Equation MM–1.
■ b. Revising the definition of "Product$_i$" in Equation MM–2 of paragraph (a)(2).
■ c. Revising the only sentence of paragraph (b)(1) and the first sentence in paragraph (f)(1).
■ d. Revising the definition of "%Vol$_i$" in Equation MM–8 in paragraph (h)(1).
■ e. Revising Equation MM–9 and the definition of "%Vol$_j$" in paragraph (h)(2).
■ f. Revising paragraphs (h)(3) and (h)(4).
■ g. Adding paragraph (i).

The revisions and additions read as follows:

§ 98.393 Calculating GHG emissions.

(a) * * *

(1) Except as provided in paragraphs (h) and (i) of this section, any refiner, importer, or exporter shall calculate CO_2 emissions from each individual petroleum product and natural gas liquid using Equation MM–1 of this section.

* * * * *

Product$_i$ = Annual volume of product "i" produced, imported, or exported by the reporting party (barrels). For refiners, this volume only includes products ex refinery gate, and excludes products that entered the refinery but are not reported under § 98.396(a)(1). For natural gas liquids, volumes shall reflect the individual components of the product as listed in Table MM–1 to subpart MM.

* * * * *

(2) * * *

Product$_i$ = Annual mass of product "i" produced, imported, or exported by the reporting party (metric tons). For refiners, this mass only includes products ex refinery gate, and excludes products that entered the refinery but are not reported under § 98.396(a)(1).

* * * * *

(b) * * *

(1) Except as provided in paragraphs (h) and (i) of this section, any refiner shall calculate CO_2 emissions from each non-crude feedstock using Equation MM–2 of this section.

* * * * *

(f) * * *

(1) *Calculation Method 1.* To determine the emission factor (i.e., EF$_i$ in Equation MM–1) for solid products, multiply the default carbon share factor (i.e., percent carbon by mass) in column B of Table MM–1 to this subpart for the appropriate product by 44/12. * * *

* * * * *

(h) * * *

(1) * * *

%Vol$_i$ = Percent volume of product "i" that is petroleum-based, not including any denaturant that may be present in any ethanol product, expressed as a fraction (e.g., 75% would be expressed as 0.75 in the above equation).

(2) * * *

$$CO_{2j} = Feedstock_j * EF_j * \%Vol_j \qquad \text{(Eq. MM-9)}$$

* * * * *

%Vol$_j$ = Percent volume of feedstock "j" that is petroleum-based, not including any denaturant that may be present in any ethanol product, expressed as a fraction (e.g., 75% would be expressed as 0.75 in the above equation).

(3) Calculation Method 2 procedures for products.

(i) A reporter using Calculation Method 2 of this subpart to determine the emission factor of a petroleum product that does not contain denatured ethanol must calculate the CO_2 emissions associated with that product using Equation MM–10 of this section in place of Equation MM–1 of this section.

$$CO_{2i} = \left(Product_i * EF_i\right) - \left(Product_i * EF_m * \%Vol_m\right) \qquad \text{(Eq. MM-10)}$$

Where:

CO_{2i} = Annual CO_2 emissions that would result from the complete combustion or oxidation of each product "i" (metric tons).

Product$_i$ = Annual volume of each petroleum product "i" produced, imported, or exported by the reporting party (barrels). For refiners, this volume only includes products ex refinery gate.

EF$_i$ = Product-specific CO_2 emission factor (metric tons CO_2 per barrel).

EF$_m$ = Default CO_2 emission factor from Table MM–2 to subpart MM that most closely represents the component of product "i" that is biomass-based.

%Vol$_m$ = Percent volume of petroleum product "i" that is biomass-based, expressed as a fraction (e.g., 75% would be expressed as 0.75 in the above equation).

(ii) In the event that a petroleum product contains denatured ethanol, importers and exporters must follow Calculation Method 1 procedures in paragraph (h)(1) of this section; and refineries must sample the petroleum portion of the blended biomass-based fuel prior to blending and calculate CO_2 emissions using Equation MM–10a of this section.

$$CO_{2i} = Product_p * EF_i \qquad \text{(Eq. MM-10a)}$$

Where:

CO_{2i} = Annual CO_2 emissions that would result from the complete combustion or oxidation of each biomass-blended fuel "i" (metric tons).

Product$_p$ = Annual volume of the petroleum-based portion of each biomass blended fuel "i" produced by the refiner (barrels).

EF$_i$ = Petroleum product-specific CO_2 emission factor (metric tons CO_2 per barrel).

(4) Calculation Method 2 procedures for non-crude feedstocks.

(i) A refiner using Calculation Method 2 of this subpart to determine the emission factor of a non-crude petroleum feedstock that does not contain denatured ethanol must calculate the CO_2 emissions associated with that feedstock using Equation MM–11 of this section in place of Equation MM–2 of this section.

$$CO_{2j} = \left(Feedstock_j * EF_j\right) - \left(Feedstock_j * EF_m * \%Vol_m\right) \qquad \text{(Eq. MM-11)}$$

Where:

CO_{2j} = Annual CO_2 emissions that would result from the complete combustion or oxidation of each non-crude feedstock "j" (metric tons).

Feedstock$_j$ = Annual volume of each petroleum product "j" that enters the refinery to be further refined or otherwise used on site (barrels).

EF$_j$ = Feedstock-specific CO_2 emission factor (metric tons CO_2 per barrel).

EF$_m$ = Default CO_2 emission factor from Table MM–2 to subpart MM that most closely represents the component of petroleum product "j" that is biomass-based.

%Vol$_m$ = Percent volume of non-crude feedstock "j" that is biomass-based, expressed as a fraction (e.g., 75% would be expressed as 0.75 in the above equation).

(ii) In the event that a non-crude feedstock contains denatured ethanol, refiners must follow Calculation Method 1 procedures in paragraph (h)(2) of this section.

(i) Optional procedures for blended products that do not contain biomass.

(1) In the event that a reporter produces, imports, or exports a blended product that does not include biomass, the reporter may calculate emissions for the blended product according to the method in paragraph (i)(2) of this section. In the event that a refiner receives a blended non-crude feedstock that does not include biomass, the refiner may calculate emission for the blended non-crude feedstock according

to the method in paragraph (i)(3) of this section. The procedures in this section may be used only if all of the following criteria are met:

(i) The reporter knows the relative proportion of each component of the blend (i.e., the mass or volume percentage).

(ii) Each component of blended product "i" or blended non-crude feedstock "j" meets the strict definition of a product listed in Table MM–1 to subpart MM.

(iii) The blended product or non-crude feedstock is not comprised entirely of natural gas liquids.

(iv) The reporter uses Calculation Method 1.

(v) Solid components are blended only with other solid components.

(2) The reporter must calculate emissions for the blended product using Equation MM–12 of this section in place of Equation MM–1 of this section.

$$CO_{2i} = \sum \left[Blending\ Component_{i\ldots n} * EF_{i\ldots n} \right] \qquad \text{(Eq. MM-12)}$$

Where:

CO_{2i} = Annual CO_2 emissions that would result from the complete combustion or oxidation of a blended product "i" (metric tons).

Blending $Component_{i \ldots n}$ = Annual volume or mass of each blending component that is blended (barrels or metric tons).

$EF_{i \ldots n}$ = CO_2 emission factors specific to each blending component (metric tons CO_2 per barrel or per metric ton of product).

n = Number of blending components blended into blended product "i".

(3) For refineries, the reporter must calculate emissions for the blended non-crude feedstock using Equation MM–13 of this section in place of Equation MM–2 of this section.

$$CO_{2i} = \sum \left[Blending\ Component_{i\ldots n} * EF_{i\ldots n} \right] \qquad \text{(Eq. MM-13)}$$

Where:

CO_{2j} = Annual CO_2 emissions that would result from the complete combustion or oxidation of a blended non-crude feedstock "j" (metric tons).

Blending $Component_{i \ldots n}$ = Annual volume or mass of each blending component that is blended (barrels or metric tons).

$EF_{i \ldots n}$ = CO_2 emission factors specific to each blending component (metric tons CO_2 per barrel or per metric ton of product).

n = Number of blending components blended into blended non-crude feedstock "j".

(4) For refineries, if a blending component "k" used in paragraph (i)(2) of this section enters the refinery before blending as non-crude feedstock:

(i) The emissions that would result from the complete combustion or oxidation of non-crude feedstock "k" must still be calculated separately using Equation MM–2 of this section and applied in Equation MM–4 of this section.

(ii) The quantity of blending component "k" applied in Equation MM–12 of this section and the quantity of non-crude feedstock "k" applied in Equation MM–2 of this section must be determined using the same method or practice.

■ 62. Section 98.394 is amended by:
■ a. Revising paragraph (a)(1) introductory text.
■ b. Adding paragraph (a)(3).
■ c. Revising paragraphs (d)(1) through (d)(4).

The revisions and additions read as follows:

§ 98.394 Monitoring and QA/QC requirements.

(a) * * *

(1) The quantity of petroleum products, natural gas liquids, and biomass, as well as the quantity of crude oil measured on site at a refinery, shall be determined as follows:

* * * * *

(3) The quantity of crude oil not measured on site at a refinery shall be determined according to one of the following methods. You may use an appropriate standard method published by a consensus-based standards organization or you may use an industry standard practice.

* * * * *

(d) * * *

(1) A representative sample or multiple representative samples of each batch of crude oil shall be taken according to one of the following methods. You may use an appropriate standard method published by a consensus-based standards organization or you may use an industry standard practice.

(2) Samples shall be handled according to one of the following methods. You may use an appropriate standard method published by a consensus-based standards organization or you may use an industry standard practice.

(3) API gravity shall be measured according to one of the following methods. You may use an appropriate standard method published by a consensus-based standards organization or you may use an industry standard practice. The weighted average API gravity for each batch shall be calculated by multiplying the volume associated with each representative sample by the API gravity, adding these values for all the samples, and then dividing that total value by the volume of the batch.

(4) Sulfur content shall be measured according to one of the following methods. You may use an appropriate standard method published by a consensus-based standards organization or you may use an industry standard practice. The weighted average sulfur content for each batch shall be calculated by multiplying the volume associated with each representative sample by the sulfur content, adding these values for all the samples, and then dividing that total value by the volume of the batch.

* * * * *

■ 63. Section 98.396 is amended by:
■ a. Revising paragraph (a)(3).
■ b. Amending paragraphs (a)(5) and (a)(6) by adding a third sentence.
■ c. Revising paragraphs (a)(7), (a)(16), and (a)(17), (a)(20)(ii), (a)(20)(iii), and (a)(20)(iv).
■ d. Adding paragraphs (a)(20)(v), (a)(20)(vi), (a)(22), and (a)(23).
■ e. Revising paragraphs (b)(3) and (c)(3).
■ f. Adding paragraph (d).

§ 98.396 Data reporting requirements.

* * * * *

(a) * * *

(3) For each feedstock reported in paragraph (a)(2) of this section that was produced by blending a petroleum-based product with a biomass-based product, report the percent of the volume reported in paragraph (a)(2) of this section that is petroleum-based

(excluding any denaturant that may be present in any ethanol product).

* * * * *

(5) * * * Petroleum products and natural gas liquids that enter the refinery, but are not reported in (a)(1), shall not be reported under this paragraph.

(6) * * * Petroleum products and natural gas liquids that enter the refinery, but are not reported in (a)(2), shall not be reported under this paragraph.

(7) For each product reported in paragraph (a)(6) of this section that was produced by blending a petroleum-based product with a biomass-based product, report the percent of the volume reported in paragraph (a)(6) of this section that is petroleum-based (excluding any denaturant that may be present in any ethanol product).

* * * * *

(16) The CO_2 emissions in metric tons that would result from the complete combustion or oxidation of each petroleum product and natural gas liquid (ex refinery gate) reported in paragraph (a)(6) of this section that were calculated according to § 98.393(a) or (h).

(17) The CO_2 emissions in metric tons that would result from the complete combustion or oxidation of each feedstock reported in paragraph (a)(2) of this section that were calculated according to § 98.393(b) or (h).

* * * * *

(20) * * *

(ii) Weighted average API gravity representing the batch at the point of entry at the refinery.

(iii) Weighted average sulfur content representing the batch at the point of entry at the refinery.

(iv) Country of origin, of the batch, if known and data in paragraphs (a)(20)(v) and (a)(20)(vi) of this section are unknown.

(v) EIA crude stream code and crude stream name of the batch, if known.

(vi) Generic name for the crude stream and the appropriate EIA two-letter country or state and production area code of the batch, if known and no appropriate EIA crude stream code exists.

* * * * *

(22) Volume of crude oil in barrels that you injected into a crude oil supply or reservoir. A volume of crude oil that entered the refinery, but was not reported in paragraphs (a)(2) or (a)(20), shall not be reported under this paragraph.

(23) *Special provisions for 2010.* For reporting year 2010 only, a refiner that knows the information under a specific tier of the batch definition in 40 CFR 98.398, but does not have the necessary data collection and management in place to readily report this information, can use the next most appropriate tier of the batch definition for reporting batch information under paragraph 98.396(a)(20).

(b) * * *

(3) For each product reported in paragraph (b)(2) of this section that was produced by blending a petroleum-based product with a biomass-based product, report the percent of the volume reported in paragraph (b)(2) of this section that is petroleum-based (excluding any denaturant that may be present in any ethanol product).

* * * * *

(c) * * *

(3) For each product reported in paragraph (c)(2) of this section that was produced by blending a petroleum-based product with a biomass-based product, report the percent of the volume reported in paragraph (c)(2) of this section that is petroleum based (excluding any denaturant that may be present in any ethanol product).

* * * * *

(d) *Blended non-crude feedstock and products.* (1) Refineries, exporters, and importers must report the following information for each blended product and non-crude feedstock where emissions were calculated according to § 98.393(i):

(i) Volume or mass of each blending component.

(ii) The CO_2 emissions in metric tons that would result from the complete combustion or oxidation of each blended non-crude feedstock or product, using Equation MM–12 or Equation MM–13 of this section.

(iii) Whether it is a blended non-crude feedstock or a blended product.

(2) For a product that enters the refinery to be further refined or otherwise used on site that is a blended non-crude feedstock, refiners must meet the reporting requirements of paragraphs (a)(1) and (a)(2) of this section by reflecting the individual components of the blended non-crude feedstock.

(3) For a product that is produced, imported, or exported that is a blended product, refiners, importers, and exporters must meet the reporting requirements of paragraphs (a)(5), (a)(6), (b)(1), (b)(2), (c)(1), and (c)(2) of this section, as applicable, by reflecting the individual components of the blended product.

■ 64. Section 98.397 is amended by:

a. Revising the second sentence of paragraph (b).

b. Removing paragraph (e).

c. Redesignating paragraphs (f) and (g) as (e) and (f), respectively.

The amended text reads as follows:

§ 98.397 Records that must be retained.

* * * * *

(b) * * * For all reported quantities of petroleum products, natural gas liquids, and biomass, as well as crude oil quantities measured on site at a refinery, reporters shall maintain metering, gauging, and other records normally maintained in the course of business to document product and feedstock flows including the date of initial calibration and the frequency of recalibration for the measurement equipment used.

* * * * *

■ 65. Section 98.398 is revised to read as follows:

§ 98.398 Definitions.

Except as specified in this section, all terms used in this subpart have the same meaning given in the Clean Air Act and subpart A of this part.

Batch means either a volume of crude oil that enters a refinery or the components of such volume (e.g., the volumes of different crude streams that are blended together and then delivered to a refinery). The batch volume is the first appropriate tier in the following list:

(1) Up to an annual volume of a type of crude oil identified by an EIA crude stream code, if the EIA crude stream code is known.

(2) Up to an annual volume of a type of crude oil identified by a generic name for the crude stream and an appropriate EIA two-letter country or state and production area code, if the generic name and EIA two-letter code are known but no appropriate EIA crude stream code exists.

(3) Up to a calendar month of crude oil volume from a single known foreign country of origin if the crude stream name is unknown.

(4) Up to a calendar month of crude oil volume from the United States if the crude stream name and production area are unknown.

(5) Up to a calendar month of crude oil volume if the country of origin is unknown.

Subpart NN—[Amended]

■ 66. Section 98.403 is amended by:

■ a. Revising the definitions of “Fuel_h” and “HHV_h” in Equation NN–1 of paragraph (a)(1).

■ b. Revising the definition of “Fuel_h” in Equation NN–2 of paragraph (a)(2).

■ c. Revising the definition of “Fuel_1” in Equation NN–5 of paragraph (b)(3).

■ d. Revising the definition of "EF_g" in Equation NN–7 of paragraph (c)(1).

■ e. In paragraph (c)(2), revising Equation NN–8 and the definition of "CO_{2i}" in Equation NN–8.

The revisions read as follows:

§ 98.403 Calculating GHG emissions.

(a) * * *

(1) * * *

$Fuel_h$ = Total annual volume of product "h" supplied (volume per year, in thousand standard cubic feet (Mscf) for natural gas and bbl for NGLs).

HHV_h = Higher heating value of product "h" supplied (MMBtu/Mscf or MMBtu/bbl).

* * * * *

(2) * * *

$Fuel_h$ = Total annual volume of product "h" supplied (bbl or Mscf per year)

* * * * *

(b) * * *

(3) * * *

$Fuel_1$ = Total annual volume of natural gas received by the LDC at the city gate and stored on-system or liquefied and stored in the reporting year (Mscf per year).

* * * * *

(c) * * *

(1) * * *

EF_g = Fuel-specific CO_2 emission factor of NGL product "g" (MT CO_2/bbl).

(2) * * *

$$CO_2 = CO_{2i} - CO_{2m} \qquad \text{(Eq. NN-8)}$$

* * * * *

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 (a)(2) of this section (metric tons).

* * * * *

■ 67. Section 98.406 is amended by revising paragraphs (a)(6) and (a)(9) introductory text to read as follows:

§ 98.406 Data reporting requirements.

(a) * * *

(6) Annual CO_2 emissions (metric tons) that would result from the complete combustion or oxidation of the quantities in paragraphs (a)(1) and (a)(2) of this section, calculated in accordance with § 98.403(a) and (c)(1).

* * * * *

(9) If the NGL fractionator developed reporter-specific EFs or HHVs, report the following for each product type:

* * * * *

■ 68. Section 98.407 is amended by revising paragraphs (a) and (d) to read as follows:

§ 98.407 Records that must be retained.

* * * * *

(a) Records of all meter readings and documentation to support volumes of natural gas and NGLs that are reported under this part.

* * * * *

(d) Records related to the large end-users identified in § 98.406(b)(7).

* * * * *

■ 69. Tables NN–1 and NN–2 to Subpart NN are revised to read as follows:

TABLE NN–1 TO SUBPART NN OF PART 98—DEFAULT FACTORS FOR CALCULATION METHODOLOGY 1 OF THIS SUBPART

Fuel	Default high heating value factor	Default CO_2 emission factor (kg CO_2/MMBtu)
Natural Gas	1.028 MMBtu/Mscf	53.02
Propane	3.822 MMBtu/bbl	61.46
Normal butane	4.242 MMBtu/bbl	65.15
Ethane	4.032 MMBtu/bbl	62.64
Isobutane	4.074 MMBtu/bbl	64.91
Pentanes plus	4.620 MMBtu/bbl	70.02

TABLE NN–2 TO SUBPART NN OF PART 98—LOOKUP DEFAULT VALUES FOR CALCULATION METHODOLOGY 2 OF THIS SUBPART

Fuel	Unit	Default CO_2 emission value (MT CO_2/Unit)
Natural Gas	Mscf	0.055
Propane	Barrel	0.235
Normal butane	Barrel	0.276
Ethane	Barrel	0.253
Isobutane	Barrel	0.266
Pentanes plus	Barrel	0.324

[FR Doc. 2010–26506 Filed 10–27–10; 8:45 am]

BILLING CODE 6560–50–P