Appendix C:

Greenhouse Gas Reporting Program: Recordkeeping Requirements

June 2019

Greenhouse Gas Reporting Program:
Recordkeeping Requirements (as of August 21, 2018)

Subpart	Recordkeeping Requirement
A –General Provisions (§98.36(c))	*Recordkeeping.* An owner or operator that is required to report GHGs under this part must keep records as specified in this paragraph (g). Except as otherwise provided in this paragraph, retain all required records for at least 3 years from the date of submission of the annual GHG report for the reporting year in which the record was generated. The records shall be kept in an electronic or hard-copy format (as appropriate) and recorded in a form that is suitable for expeditious inspection and review. If the owner or operator of a facility is required under §98.5(b) to use verification software specified by the Administrator, then all records required for the facility under this part must be retained for at least 5 years from the date of submission of the annual GHG report for the reporting year in which the record was generated, starting with records for reporting year 2010. Upon request by the Administrator, the records required under this section must be made available to EPA. Records may be retained off site if the records are readily available for expeditious inspection and review. For records that are electronically generated or maintained, the equipment or software necessary to read the records shall be made available, or, if requested by EPA, electronic records shall be converted to paper documents. You must retain the following records, in addition to those records prescribed in each applicable subpart of this part: (1) A list of all units, operations, processes, and activities for which GHG emission were calculated. (2) The data used to calculate the GHG emissions for each unit, operation, process, and activity, categorized by fuel or material type. These data include but are not limited to the following information in this paragraph (g)(2): (i) The GHG emissions calculations and methods used. For data required by §98.5(b) to be entered into verification software specified in §98.5(b), maintain the entered data in the format generated by the verification software according to §98.5(b). (ii) Analytical results for the development of site-specific emissions factors. (iii) The results of all required analyses for high heat value, carbon content, and other required fuel or feedstock parameters. (iv) Any facility operating data or process information used for the GHG emission calculations. (3) The annual GHG reports. (4) Missing data computations. For each missing data event, also retain a record of the cause of the event and the corrective actions taken to restore malfunctioning monitoring equipment. (5) A written GHG Monitoring Plan. (i) At a minimum, the GHG Monitoring Plan shall include the elements listed in this paragraph (g)(5)(i). (A) Identification of positions of responsibility (i.e., job titles) for collection of the

	emissions data. (B) Explanation of the processes and methods used to collect the necessary data for the GHG calculations. (C) Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems, flow meters, and other instrumentation used to provide data for the GHGs reported under this part. (ii) The GHG Monitoring Plan may rely on references to existing corporate documents (e.g., standard operating procedures, quality assurance programs under appendix F to 40 CFR part 60 or appendix B to 40 CFR part 75, and other documents) provided that the elements required by paragraph (g)(5)(i) of this section are easily recognizable. (iii) The owner or operator shall revise the GHG Monitoring Plan as needed to reflect changes in production processes, monitoring instrumentation, and quality assurance procedures; or to improve procedures for the maintenance and repair of monitoring systems to reduce the frequency of monitoring equipment downtime. (iv) Upon request by the Administrator, the owner or operator shall make all information that is collected in conformance with the GHG Monitoring Plan available for review during an audit. Electronic storage of the information in the plan is permissible, provided that the information can be made available in hard copy upon request during an audit. (6) The results of all required certification and quality assurance tests of continuous monitoring systems, fuel flow meters, and other instrumentation used to provide data for the GHGs reported under this part. (7) Maintenance records for all continuous monitoring systems, flow meters, and other instrumentation used to provide data for the GHGs reported under this part.
C – General Stationary Combustion (§98.37)	In addition to the requirements of §98.3(g), you must retain: (a) The applicable records specified in §§98.34(f), 98.35(b), and 98.36(e). (b) *Verification software records.* For each stationary fuel combustion source that elects to use the verification software specified in §98.5(b) rather than report data specified in paragraphs (b)(9)(iii), (c)(2)(ix), (e)(2)(i), (e)(2)(ii)(A), (e)(2)(ii)(C), (e)(2)(ii)(D), (e)(2)(iv)(A), (e)(2)(iv)(C), (e)(2)(iv)(F), and (e)(2)(ix)(D) through (F) of this section, you must keep a record of the file generated by the verification software for the applicable data specified in paragraphs (b)(1) through (36) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (b)(1) through (36) of this section. (1) Mass of each solid fuel combusted (tons/year) (Equation C-1 of §98.33). (2) Volume of each liquid fuel combusted (gallons/year) (Equation C-1). (3) Volume of each gaseous fuel combusted (scf/year) (Equation C-1). (4) Annual natural gas usage (therms/year) (Equation C-1a of §98.33).

	(5) Annual natural gas usage (mmBtu/year) (Equation C-1b of §98.33). (6) Mass of each solid fuel combusted (tons/year) (Equation C-2a of §98.33). (7) Volume of each liquid fuel combusted (gallons/year) (Equation C-2a). (8) Volume of each gaseous fuel combusted (scf/year) (Equation C-2a). (9) Measured high heat value of each solid fuel, for month (which may be the arithmetic average of multiple determinations), or, if applicable, an appropriate substitute data value (mmBtu per ton) (Equation C-2b of §98.33). (10) Measured high heat value of each liquid fuel, for month (which may be the arithmetic average of multiple determinations), or, if applicable, an appropriate substitute data value (mmBtu per gallons) (Equation C-2b). (11) Measured high heat value of each gaseous fuel, for month (which may be the arithmetic average of multiple determinations), or, if applicable, an appropriate substitute data value (mmBtu per scf) (Equation C-2b). (12) Mass of each solid fuel combusted during month (tons) (Equation C-2b). (13) Volume of each liquid fuel combusted during month (gallons) (Equation C-2b). (14) Volume of each gaseous fuel combusted during month (scf) (Equation C-2b). (15) Total mass of steam generated by municipal solid waste or each solid fuel combustion during the reporting year (pounds steam) (Equation C-2c of §98.33). (16) Ratio of the boiler's maximum rated heat input capacity to its design rated steam output capacity (MMBtu/pounds steam) (Equation C-2c). (17) Annual mass of each solid fuel combusted (short tons/year) (Equation C-3 of §98.33). (18) Annual average carbon content of each solid fuel (percent by weight, expressed as a decimal fraction) (Equation C-3). (19) Annual volume of each liquid fuel combusted (gallons/year) (Equation C-4 of §98.33). (20) Annual average carbon content of each liquid fuel (kg C per gallon of fuel) (Equation C-4). (21) Annual volume of each gaseous fuel combusted (scf/year) (Equation C-5 of §98.33). (22) Annual average carbon content of each gaseous fuel (kg C per kg of fuel) (Equation C-5).

	(23) Annual average molecular weight of each gaseous fuel (kg/kg-mole) (Equation C-5). (24) Molar volume conversion factor at standard conditions, as defined in §98.6 (scf per kg-mole) (Equation C-5). (25) Identify for each fuel if you will use the default high heat value from Table C-1 of this subpart, or actual high heat value data (Equation C-8 of §98.33). (26) High heat value of each solid fuel (mmBtu/tons) (Equation C-8). (27) High heat value of each liquid fuel (mmBtu/gallon) (Equation C-8). (28) High heat value of each gaseous fuel (mmBtu/scf) (Equation C-8). (29) Cumulative annual heat input from combustion of each fuel (mmBtu) (Equation C-10 of §98.33). (30) Total quantity of each solid fossil fuel combusted in the reporting year, as defined in §98.6 (pounds) (Equation C-13 of §98.33). (31) Total quantity of each liquid fossil fuel combusted in the reporting year, as defined in §98.6 (gallons) (Equation C-13). (32) Total quantity of each gaseous fossil fuel combusted in the reporting year, as defined in §98.6 (scf) (Equation C-13). (33) High heat value of the each solid fossil fuel (Btu/lb) (Equation C-13). (34) High heat value of the each liquid fossil fuel (Btu/gallons) (Equation C-13). (35) High heat value of the each gaseous fossil fuel (Btu/scf) (Equation C-13). (36) Fuel-specific carbon based F-factor per fuel (scf CO_2/mmBtu) (Equation C-13). (37) Moisture content used to calculate the wood and wood residuals wet basis HHV (percent), if applicable (Equations C-1 and C-8 of this subpart). [79 FR 63783, Oct. 24, 2014, as amended at 81 FR 89252, Dec. 9, 2016]
D – Electricity Generation (§98.47)	You shall comply with the recordkeeping requirements of §§98.3(g) and 98.37. Records retained under §75.57(h) of this chapter for missing data events satisfy the recordkeeping requirements of §98.3(g)(4) for those same events. [75 FR 79155, Dec. 17, 2010]
E – Adipic Acid Production (§98.57)	In addition to the information required by §98.3(g), you must retain the records specified in paragraphs (a) through (i) of this section at the facility level: (a) Annual adipic acid production capacity (tons). (b) Records of significant changes to process.

	(c) Number of facility and unit operating hours in calendar year. (d) Documentation of how accounting procedures were used to estimate production rate. (e) Documentation of how process knowledge was used to estimate abatement technology destruction efficiency. (f) Performance test reports. (g) Measurements, records and calculations used to determine reported parameters. (h) Documentation of the procedures used to ensure the accuracy of the measurements of all reported parameters, including but not limited to, calibration of weighing equipment, flow meters, and other measurement devices. The estimated accuracy of measurements made with these devices must also be recorded, and the technical basis for these estimates must be provided. (i) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (i)(1) through (3) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (i)(1) through (3) of this section. (1) Annual adipic acid production from each adipic acid production unit (tons) (Equations E-2, E-3a, E-3b, E-3c, and E-3d of §98.53). (2) Production rate per test run during the performance test for each production unit test run (tons adipic acid produced/hr) (Equation E-1 of §98.53). (3) Annual adipic acid production per N_2O abatement technology during which N_2O abatement technology was used (tons adipic acid produced) (Equation E-2). [74 FR 56374, Oct. 30, 2009, as amended at 75 FR 66461, Oct. 28, 2010; 79 FR 63784, Oct. 24, 2014]
F – Aluminum Production (§98.67)	In addition to the information required by §98.3(g), you must retain the following records: (a) Monthly aluminum production in metric tons. (b) Type of smelter technology used. (c) The following PFC-specific information on a monthly basis: (1) Perfluoromethane and perfluoroethane emissions from anode effects in prebake and Søderberg electolysis cells. (2) Anode effect minutes per cell-day (AE-mins/cell-day), anode effect frequency (AE/cell-day), anode effect duration (minutes). (Or anode effect overvoltage factor ((kg CF_4/metric ton Al)/(mV/cell day)), potline overvoltage (mV/cell day), current efficiency (%).)) (3) Smelter-specific slope coefficients and the last date when the smelter-specific-slope coefficients were measured. (d) Method used to measure the frequency and duration of anode effects (or to measure anode effect overvoltage and current efficiency).

	(e) The following CO_2-specific information for prebake cells: (1) Annual anode consumption. (2) Annual CO_2 emissions from the smelter. (f) The following CO_2-specific information for Søderberg cells: (1) Annual paste consumption. (2) Annual CO_2 emissions from the smelter. (g) Smelter-specific inputs to the CO_2 process equations (e.g., levels of sulfur and ash) that were used in the calculation, on an annual basis. (h) Exact data elements required will vary depending on smelter technology (e.g., point-feed prebake or Søderberg) and process control technology (e.g., Pechiney or other). (i) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (i)(1) through (30) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (i)(1) through (30) of this section. (1) Slope coefficient per potline per month (kg CF_4/metric ton Al)/(AE-Mins/cell-day)) (Equation F-2 of §98.63). (2) Anode effect minutes per cell-day per potline per month (AE-Mins/cell-day) (Equation F-2). (3) Anode effect frequency per potline per month (AE/cell-day) (Equation F-2). (4) Anode effect duration per potline per month (minutes) (Equation F-2). (5) Metal production of aluminum per potline per month (metric tons) (Equation F-2). (6) Overvoltage emission factor per potline per month (kg CF4/metric ton Al) (Equation F-3 of §98.63). (7) Metal production of aluminum per potline per month (metric tons) (Equation F-3). (8) Weight fraction of C_2F6/CF_4 per potline per month (kg C_2F_6/kg CF_4) (Equation F-4 of §98.63). (9) Net annual prebaked anode consumption (metric tons C/metric tons Al) (Equation F-5 of §98.63). (10) Annual metal production of aluminum (metric tons) (Equation F-5). (11) Sulfur content in baked anode (weight percent) (Equation F-5). (12) Ash content in baked anode (weight percent) (Equation F-5). (13) Annual paste consumption (metric ton/metric ton Al) (Equation F-6 of §98.63).

	(14) Annual metal production of aluminum (metric tons) (Equation F-6). (15) Annual emissions of cyclohexane soluble matter (kg/metric ton Al) (Equation F-6). (16) Binder content of paste (weight percent) (Equation F-6). (17) Sulfur content of pitch (weight percent) (Equation F-6). (18) Ash content of pitch (weight percent) (Equation F-6). (19) Hydrogen content of pitch (weight percent) (Equation F-6). (20) Sulfur content in calcined coke (weight percent) (Equation F-6). (21) Ash content in calcined coke (weight percent) (Equation F-6). (22) Carbon in skimmed dust from Søderberg cells (metric ton C/metric ton Al) (Equation F-6). (23) Initial weight of green anodes (metric tons) (Equation F-7 of §98.63). (24) Annual hydrogen content in green anodes (metric tons) (Equation F-7). (25) Annual baked anode production (metric tons) (Equation F-7). (26) Annual waste tar collected (metric tons) (Equation F-7). (27) Annual packing coke consumption (metric tons/metric ton baked anode) (Equation F-8 of §98.63). (28) Annual baked anode production (metric tons) (Equation F-8). (29) Sulfur content in packing coke (weight percent) (Equation F-8). (30) Ash content in packing coke (weight percent) (Equation F-8). [74 FR 56374, Oct. 30, 2009, as amended at 79 FR 63784, Oct. 24, 2014]
G– Ammonia Manufacturing (§98.77)	In addition to the records required by §98.3(g), you must retain the following records specified in paragraphs (a) through (c) of this section for each ammonia manufacturing unit. (a) If a CEMS is used to measure emissions, retain records of all feedstock purchases in addition to the requirements in §98.37 for the Tier 4 Calculation Methodology. (b) If a CEMS is not used to measure process CO_2 emissions, you must also retain the records specified in paragraphs (b)(1) through (b)(2) of this section: (1) Records of all analyses and calculations conducted for reported data as listed in §98.76(b). (2) Monthly records of carbon content of feedstock from supplier and/or all analyses conducted of carbon content. (c) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (c)(1) through (7) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (c)(1)

	through (7) of this section. (1) Volume of each gaseous feedstock used in month (scf of feedstock) (in Equation G-1 of §98.73). (2) Carbon content of each gaseous feedstock, for month (kg C per kg of feedstock) (in Equation G-1). (3) Molecular weight of each gaseous feedstock per ammonia manufacturing unit with gaseous feedstock (kg/kg-mole) (Equation G-1). (4) Volume of each liquid feedstock used in month (gallons of feedstock) (Equation G-2 of §98.73). (5) Carbon content of each liquid feedstock, for month (kg C per gallon of feedstock) (Equation G-2). (6) Mass of each solid feedstock used in month (kg of feedstock) (Equation G-3 of §98.73). (7) Carbon content of each solid feedstock, for month (kg C per kg of feedstock) (Equation G-3). [74 FR 56374, Oct. 30, 2009, as amended at 79 FR 63785, Oct. 24, 2014]
H– Cement Production (§98.87)	(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. (c) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (c)(1) through (17) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (c)(1) through (17) of this section. (1) Identify per kiln per month if clinker is measured directly, or is calculated from raw feed (Equation H-2 of §98.83 and the method in §98.84(d)). (2) Quantity of raw kiln feed in month from kiln (tons) (Equation H-2 and the method in §98.84(d)). (3) Kiln-specific factor per kiln per month (ton clinker per ton raw feed) (Equation H-2 and the method in §98.84(d)). (4) Quantity of clinker produced in month from kiln (tons) (Equation H-2 and the method in §98.84(d)). (5) Cement kiln dust (CKD) not recycled to the kiln in quarter from kiln (tons) (Equation H-2

	and the method in §98.84(d)). (6) Monthly total CaO content of clinker per kiln (weight fraction) (Equation H-3 of §98.83). (7) Monthly non-calcined CaO content of clinker per kiln (weight fraction) (Equation H-3). (8) Monthly total MgO content of clinker per kiln (weight fraction) (Equation H-3). (9) Monthly non-calcined MgO content of clinker per kiln (weight fraction) (Equation H-3). (10) Quarterly total CaO content of cement kiln dust not recycled to each kiln (weight fraction) (Equation H-4 of §98.83). (11) Quarterly non-calcined CaO content of cement kiln dust not recycled to each kiln (weight fraction) (Equation H-4). (12) Quarterly total MgO content of cement kiln dust not recycled to each kiln (weight fraction) (Equation H-4). (13) Quarterly non-calcined MgO content of cement kiln dust not recycled to each kiln (weight fraction) (Equation H-4). (14) The amount of each raw material consumed annually per kiln (tons/yr (dry basis)) (Equation H-5 of §98.83). (15) The amount of each raw kiln feed consumed annually per kiln (tons/yr (dry basis)) (Equation H-5). (16) Organic carbon content of each raw material per kiln, as determined in §98.84(c). Default value is 0.002 weight fraction (Equation H-5). (17) Organic carbon content of combined raw kiln feed per kiln, as determined in §98.84(c). Default value is 0.002 weight fraction (Equation H-5). [75 FR 66461, Oct. 28, 2010, as amended at 79 FR 63785, Oct. 24, 2014]
I—Electronics Manufacturing (§98.97)	In addition to the information required by §98.3(g), you must retain the following records: (a) All data used and copies of calculations made as part of estimating gas consumption and emissions, including all spreadsheets. (b) [Reserved] (c) Documentation for the fab-specific engineering model used to apportion fluorinated GHG and N_2O consumption. This documentation must be part of your site GHG Monitoring Plan as required under §98.3(g)(5). At a minimum, you must retain the following: (1) A clear, detailed description of the fab-specific model, including how it was developed; the quantifiable metric used in the model; all sources of information, equations, and formulas, each with clear definitions of terms and variables; all apportioning factors used to apportion fluorinated GHG and N_2O; and a clear record of any changes made to the model while it was used to apportion fluorinated GHG and N_2O consumption across process sub-types, process types, tools with and without abatement systems, stack systems, and/or fabs. (2) Sample calculations used for developing the gas apportioning factors (f_{ij}) for the two fluorinated

	GHGs used at your facility in the largest quantities, on a mass basis, during the reporting year. (3) If you develop apportioning factors through the use of direct measurement according to §98.94(c)(3), calculations and data used to develop each gas apportioning factor. (4) Calculations and data used to determine and document that the fab was operating at representative operating levels, as defined in §98.98, during the apportioning model verification specified in §98.94(c). (d) For all abatement systems through which fluorinated GHGs or N_2O flow at your facility, and for which you are reporting controlled emissions, the following in paragraphs (d)(1) to (9) of this section: (1) Records of the information in paragraphs (d)(1)(i) though (iv) of this section: (i) Documentation to certify that each abatement system or group of abatement systems is installed, maintained, and operated in accordance with the site maintenance plan for abatement systems that is specified in paragraph (d)(9) of this section. (ii) Documentation from the abatement system supplier describing the abatement system's designed purpose and emission control capabilities for fluorinated GHG and N_2O for which the systems or group of systems is certified to abate, where available. (iii) If you use default destruction or removal efficiency values in your emissions calculations under §98.93(a), (b), and/or (i), certification that the abatement systems for which emissions are being reported were specifically designed for fluorinated GHG and N_2O abatement, as required under §98.94(f)(3), and certification that the site maintenance plan includes manufacturer's recommendations and specifications for installation, operation, and maintenance for all applicable abatement systems. (iv) Certification that you have included and accounted for all abatement systems and any respective downtime in your emissions calculations under §98.93(i)(3), as required under §98.94(f)(3). (2) Abatement system calibration and maintenance records. (3) Where the default destruction or removal efficiency value is used, documentation from the abatement system supplier describing the equipment's designed purpose and emission control capabilities for fluorinated GHG and N_2O. (4) Where properly measured site-specific destruction or removal efficiencies are used to report emissions, the information in paragraphs (d)(4)(i) though (vi) of this section: (i) Dated certification by the technician who made the measurement that the destruction or removal efficiency is calculated in accordance with methods in EPA 430-R-10-003 (incorporated by reference, see §98.7) and, if applicable Appendix A of this subpart, or an alternative method approved by the Administrator as specified in §98.94(k), complete documentation of the results of any initial and subsequent tests, the final report as specified in EPA 430-R-10-003 (incorporated by reference, see §98.7) and, if applicable, the records and documentation specified in Appendix A of this subpart including the information required in paragraph (b)(7) of Appendix A of this subpart, or a final report as specified in an alternative method approved by the Administrator as specified in §98.94(k). (ii) The average destruction or removal efficiency of the abatement systems operating during the reporting year for each process type and gas combination. (iii) A description of the calculation used to determine the average destruction or removal efficiency for each process type and gas combination, including all inputs to the calculation. (iv) The records of destruction or removal efficiency measurements for abatement systems for all tests

	that have been used to determine the site-specific destruction or removal efficiencies currently being used. (v) A description of the method used for randomly selecting abatement systems for testing. (vi) The total number of systems for which destruction or removal efficiency was properly measured for each process type and gas combination for the reporting year. (5) In addition to the inventory specified in §98.96(p), the information in paragraphs (d)(5)(i) through (iii) of this section: (i) The number of abatement systems of each manufacturer, and model numbers, and the manufacturer's claimed fluorinated GHG and N_2O destruction or removal efficiency, if any. (ii) Records of destruction or removal efficiency measurements over the in-use life of each abatement system. (iii) A description of the tool, with the process type or sub-type, for which the abatement system treats exhaust. (6) Records of all inputs and results of calculations made accounting for the uptime of abatement systems used during the reporting year, in accordance with Equations I-15 or I-23 of this subpart, as applicable. The inputs should include an indication of whether each value for destruction or removal efficiency is a default value or a measured site-specific value. (7) Records of all inputs and results of calculations made to determine the average weighted fraction of each gas destroyed or removed in the abatement systems for each stack system using Equations I-24A and I-24B of this subpart, if applicable. The inputs should include an indication of whether each value for destruction or removal efficiency is a default value or a measured site-specific value. (8) Records of all inputs and the results of the calculation of the facility-wide emission destruction or removal efficiency factor calculated according to Equations I-26, I-27, and I-28 of this subpart. (9) A site maintenance plan for abatement systems, which must be maintained on-site at the facility as part of the facility's GHG Monitoring Plan as described in §98.3(g)(5), and be developed and implemented according to paragraphs (d)(9)(i) through (iii) of this section. (i) The site maintenance plan for abatement systems must be based on the abatement system manufacturer's recommendations and specifications for installation, operation, and maintenance if you use default destruction and removal efficiency values in your emissions calculations under §98.93(a), (b), and/or (i). If the manufacturer's recommendations and specifications for installation, operation, and maintenance are not available, you cannot use default destruction and removal efficiency values in your emissions calculations under §98.93(a), (b), and/or (i). If you use an average of properly measured destruction or removal efficiencies determined in accordance with the procedures in §98.94(f)(4)(i) through (vi), the site maintenance plan for abatement systems must be based on the abatement system manufacturer's recommendations and specifications for installation, operation, and maintenance, where available. If you deviate from the manufacturer's recommendations and specifications, you must include documentation that demonstrates how the deviations do not negatively affect the performance or destruction or removal efficiency of the abatement systems. (ii) The site maintenance plan for abatement systems must include a defined preventative maintenance process and checklist. (iii) The site maintenance plan for abatement systems must include a corrective action process that you must follow whenever an abatement system is found to be not operating properly.

	(e) Purchase records for gas purchased. (f) Invoices for gas purchases and sales. (g) Documents and records used to monitor and calculate abatement system uptime. (h) GHG Monitoring Plans, as described in §98.3(g)(5), must be completed by April 1, 2011. You must update your GHG Monitoring Plan to comply with §98.94(c) consistent with the requirements in §98.3(g)(5)(iii). (i) Retain the following records for each fab for which you elect to calculate fab-level emissions of fluorinated GHG using the procedures specified in §98.93(i)(3) or (4). (1) Document all stack systems with emissions of fluorinated GHG that are less than 10,000 metric tons of CO_2e per year and all stack systems with emissions of 10,000 metric tons CO_2e per year or more. Include the data and calculation used to develop the preliminary estimate of emissions for each stack system. (2) For each stack system, identify the method used to calculate annual emissions; either §98.93(i)(3) or (4). (3) The identity and total annual consumption of each gas identified as an intermittent low use fluorinated GHG as specified in §98.93(i)(4)(i) and defined in §98.98. (4) The emissions test data and reports (see §98.94(j)(4)) and the calculations used to determine the fab-specific emission factor, including the actual fab-specific emission factor, the average hourly emission rate of each fluorinated GHG from the stack system during the test and the stack system activity rate during the test. The report must also contain any changes in the stack system configuration during or between tests in a reporting year. (5) The fab-specific emission factor and the calculations and data used to determine the fab-specific emission factor for each fluorinated GHG and by-product, as calculated using Equations I-19 and I-20 of §98.93(i)(3). (6) Calculations and data used to determine annual emissions of each fluorinated GHG for each fab. (7) Calculations and data used to determine and document that the fab was operating at representative operating levels, as defined in §98.98, during the stack testing period. (8) A copy of the certification that no significant changes in stack system flow configuration occurred between tests conducted for any particular fab in a reporting year, as required by §98.94(j)(1)(iv) and any calculations and data supporting the certification. (9) The number of tools vented to each stack system in the fab. (j) If you report the approximate percentage of total GHG emissions from research and development activities under §98.96(x), documentation for the determination of the percentage of total emissions of each fluorinated GHG and/or N_2O attributable to research and development activities, as defined in §98.6. (k) Annual gas consumption for each fluorinated GHG and N_2O as calculated in Equation I-11 of this subpart, including where your fab used less than 50 kg of a particular fluorinated GHG or N_2O used at your facility for which you have not calculated emissions using Equations I-6, I-7, I-8, I-9, I-10, I-21, or I-22 of this subpart, the chemical name of the GHG used, the annual consumption of the gas, and a brief

	description of its use. (l) All inputs used to calculate gas consumption in Equation I-11 of this subpart, for each fluorinated GHG and N_2O used. (m) Annual amount of each fluorinated GHG consumed for process sub-type, process type, stack system, or fab, as appropriate, and the annual amount of N_2O consumed for the aggregate of all chemical vapor deposition processes and for the aggregate of all other electronics manufacturing production processes, as calculated using Equation I-13 of this subpart. (n) Disbursements for each fluorinated GHG and N_2O during the reporting year, as calculated using Equation I-12 of this subpart and all inputs used to calculate disbursements for each fluorinated GHG and N_2O used in Equation I-12 of this subpart, including all fab-wide gas-specific heel factors used for each fluorinated GHG and N_2O. If your fab used less than 50 kg of a particular fluorinated GHG during the reporting year, fab-wide gas-specific heel factors do not need to be reported for those gases. (o) Fraction of each fluorinated GHG or N_2O fed into a process sub-type, process type, stack system, or fab that is fed into tools connected to abatement systems. (p) Fraction of each fluorinated GHG or N_2O destroyed or removed in abatement systems connected to process tools where process sub-type, process type j is used, or to process tools vented to stack system j or fab f. (q) All inputs and results of calculations made accounting for the uptime of abatement systems used during the reporting year, or during an emissions sampling period, in accordance with Equations I-15 and/or I-23 of this subpart, as applicable. (r) For fluorinated heat transfer fluid emissions, inputs to the fluorinated heat transfer fluid mass balance equation, Equation I-16 of this subpart, for each fluorinated heat transfer fluid used. (s) Where missing data procedures were used to estimate inputs into the fluorinated heat transfer fluid mass balance equation under §98.95(b), the estimates of those data. [75 FR 74818, Dec. 1, 2010, as amended at 78 FR 68218, Nov. 13, 2013; 81 FR 9255, Dec. 9, 2016]
Subpart K – Ferroalloy Production (§98.117)	In addition to the records required by §98.3(g), you must retain the records specified in paragraphs (a) through (e) of this section for each EAF, as applicable. (a) If a CEMS is used to measure CO_2 emissions according to the requirements in §98.113(a), then you must retain under this subpart the records required for the Tier 4 Calculation Methodology in §98.37 and the information specified in paragraphs (a)(1) through (a)(3) of this section. (1) Monthly EAF production quantity for each ferroalloy product (tons). (2) Number of EAF operating hours each month. (3) Number of EAF operating hours in a calendar year. (b) If the carbon mass balance procedure is used to determine CO_2 emissions according to the requirements in §98.113(b)(2), then you must retain records for the information specified in paragraphs (b)(1) through (b)(5) of this section. (1) Monthly EAF production quantity for each ferroalloy product (tons).

	(2) Number of EAF operating hours each month. (3) Number of EAF operating hours in a calendar year. (4) Monthly material quantity consumed, used, or produced for each material included for the calculations of annual process CO_2 emissions (tons). (5) Average carbon content determined and records of the supplier provided information or analyses used for the determination for each material included for the calculations of annual process CO_2 emissions. (c) You must keep records that include a detailed explanation of how company records of measurements are used to estimate the carbon input and output to each EAF, including documentation of specific input or output materials excluded from Equation K-1 of this subpart that contribute less than 1 percent of the total carbon into or out of the process. You also must document the procedures used to ensure the accuracy of the measurements of materials fed, charged, or placed in an EAF including, but not limited to, calibration of weighing equipment and other measurement devices. The estimated accuracy of measurements made with these devices must also be recorded, and the technical basis for these estimates must be provided. (d) If you are required to calculate CH_4 emissions for the EAF as specified in §98.113(d), you must maintain records of the total amount of each alloy product produced for the specified reporting period, and the appropriate alloy-product specific emission factor used to calculate the CH_4 emissions. (e) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (e)(1) through (13) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (e)(1) through (13) of this section. (1) Carbon content in reducing agent (percent by weight, expressed as a decimal fraction) (Equation K-1 of §98.113). (2) Annual mass of reducing agent fed, charged, or otherwise introduced into the EAF (tons) (Equation K-1). (3) Carbon content of carbon electrode (percent by weight, expressed as a decimal fraction) (Equation K-1). (4) Annual mass of carbon electrode consumed in the EAF (tons) (Equation K-1). (5) Carbon content in ore (percent by weight, expressed as a decimal fraction) (Equation K-1). (6) Annual mass of ore charged to the EAF (tons) (Equation K-1). (7) Carbon content in flux material (percent by weight, expressed as a decimal fraction) (Equation K-1). (8) Annual mass of flux material fed, charged, or otherwise introduced into the EAF to facilitate slag formation (tons) (Equation K-1). (9) Carbon content in alloy product (percent by weight, expressed as a decimal fraction) (Equation K-1). (10) Annual mass of alloy product produced/tapped in the EAF (tons) (Equation K-1). (11) Carbon content in non-product outgoing material (percent by weight, expressed as a decimal

	fraction) (Equation K-1). (12) Annual mass of non-product outgoing material removed from EAF (tons) (Equation K-1). (13) CH_4 emission factor selected from Table K-1 of this subpart for each product (kg of CH_4 emissions/metric ton of alloy product) (Equation K-3 of §98.113). [74 FR 56374, Oct. 30, 2009, as amended at 79 FR 63785, Oct. 24, 2014]
Subpart L – Fluorinated Gas Production (§98.127)	In addition to the records required by §98.3(g), you must retain the dated records specified in paragraphs (a) through (l) of this section, as applicable. (a) *Process information records.* (1) Identify all products and processes subject to this subpart. Include the unit identification as appropriate, the generic process identification reported for the process under §98.126(a)(2)(i) through (iii), and the product with which the process is associated. (2) Monthly and annual records, as applicable, of all analyses and calculations conducted as required under §98.123, including the data monitored under §98.124, and all information reported as required under §98.126. (3) Identify all fluorinated GHGs with emissions of 1,000 metric tons CO_2e or more from production and transformation processes, summed across the facility as a whole, and identify all fluorinated GHGs with total emissions less than 1,000 metric tons CO_2e from production and transformation processes, summed across the facility as a whole. (4) Calculations used to determine the total GWP-weighted emissions of fluorinated GHGs by fluorinated GHG group for each process, in metric tons CO_2e. (b) *Scoping speciation.* Retain records documenting the information collected under §98.124(a). (c) *Mass balance method.* Retain the following records for each process for which the mass balance method was used to estimate emissions in reporting years 2011, 2012, 2013, or 2014. If you used an element other than fluorine in the mass balance equation pursuant to the former §98.123(b)(3) as included in paragraph 1 of Appendix A of this subpart for the former mass balance method, substitute that element for fluorine in the recordkeeping requirements of this paragraph. (1) The data and calculations used to estimate the absolute and relative errors associated with use of the mass-balance approach. (2) The data and calculations used to estimate the mass of fluorine emitted from the process. (3) The data and calculations used to determine the fractions of the mass emitted consisting of each reactant (FER_d), product (FEP), and by-product (FEB_k), including the preliminary calculations in the former §98.123(b)(8)(i). (d) *Emission factor and emission calculation factor method.* Retain the following records for each process for which the emission factor or emission calculation factor method was used to estimate emissions. (1) Identify all continuous process vents with emissions of fluorinated GHGs that are less than 10,000 metric tons CO_2e per year and all continuous process vents with emissions of 10,000 metric tons CO_2e per year or more. Include the data and calculation used to develop the preliminary estimate of emissions for each process vent. (2) Identify all batch process vents.

	(3) For each vent, identify the method used to develop the factor (i.e., emission factor by emissions test or emission calculation factor). (4) The emissions test data and reports (see §98.124(c)(5)) and the calculations used to determine the process-vent-specific emission factor, including the actual process-vent-specific emission factor, the average hourly emission rate of each fluorinated GHG from the process vent during the test and the process feed rate, process production rate, or other process activity rate during the test. (5) The process-vent-specific emission calculation factor and the calculations used to determine the process-vent-specific emission calculation factor. (6) The annual process production quantity or other process activity information in the appropriate units, along with the dates and time period during which the process was operating and dates and time periods the process vents are vented to the destruction device. As an alternative to date and time periods when process vents are vented to the destruction device, a facility may track dates and time periods that process vents by-pass the destruction device. (7) Calculations used to determine annual emissions of each fluorinated GHG for each process and the total fluorinated GHG emissions for all processes, i.e., total for facility. (e) *Destruction efficiency testing.* A fluorinated GHG production facility that destroys fluorinated GHGs and reflects this destruction in §98.123 must retain the emissions performance testing reports (including revised reports) for each destruction device. The emissions performance testing report must contain all information and data used to derive the destruction efficiency for each fluorinated GHG whose destruction the facility reflects in §98.123, as well as the key process and device conditions during the test. This information includes the following: (1) Destruction efficiency (DE) determined for each fluorinated GHG whose destruction the facility reflects in §98.123, in accordance with §98.124(g)(1)(i) through (iv). (2) Chemical identity of the fluorinated GHG(s) used in the performance test conducted to determine destruction efficiency, including surrogates, and information on why the surrogate is sufficient to demonstrate destruction efficiency for each fluorinated GHG, consistent with requirements in §98.124(g)(1)(i) through (iv), vented to the destruction device. (3) Mass flow rate of the stream containing the fluorinated GHG(s) or surrogate into the device during the test. (4) Concentration (mass fraction) of each fluorinated GHG or surrogate in the stream flowing into the device during the test. (5) Concentration (mass fraction) of each fluorinated GHG or surrogate at the outlet of the destruction device during the test. (6) Mass flow rate at the outlet of the destruction device during the test. (7) Test methods and analytical methods used to determine the mass flow rates and fluorinated GHG (or surrogate) concentrations of the streams flowing into and out of the destruction device during the test. (8) Destruction device conditions that are normally monitored for device control, such as temperature, total mass flow rates into the device, and CO or O_2 levels. (9) Name of all applicable Federal or State regulations that may apply to the destruction process.

	(f) *Equipment leak records.* If you are subject to §98.123(d) of this subpart, you must maintain information on the number of each type of equipment; the service of each piece of equipment (gas, light liquid, heavy liquid); the concentration of each fluorinated GHG in the stream; each piece of equipment excluded from monitoring requirement; the time period each piece of equipment was in service, and the emission calculations for each fluorinated GHG for all processes. Depending on which equipment leak monitoring approach you follow, you must maintain information for equipment on the associated screening data concentrations for greater than or equal to 10,000 ppmv and associated screening data concentrations for less than 10,000 ppmv; associated actual screening data concentrations; and associated screening data and leak rate data (i.e., bagging) used to develop a unit-specific correlation. If you developed and follow a site-specific leak detection approach, provide the records for monitoring events and the emissions estimation calculations, as appropriate, consistent with the approach for equipment leak emission estimation in your GHG Monitoring Plan. (g) *Container heel records.* If you vent residual fluorinated GHGs from containers, maintain the following records of the measurements and calculations used to estimate emissions of residual fluorinated GHGs from containers. (i) If you measure the contents of each container, maintain records of these measurements and the calculations used to estimate emissions of each fluorinated GHG from each container size and type. (ii) If you develop and apply container heel factors to estimate emissions, maintain records of the measurements and calculations used to develop the heel factor for each fluorinated GHG and each container size and type and of the number of containers of each fluorinated GHG and of each container size and type returned to your facility. (h) *Missing data records.* Where missing data have been estimated pursuant to §98.125, you must record the reason the data were missing, the length of time the data were missing, the method used to estimate the missing data, and the estimates of those data. (i) *All facilities.* Dated records documenting the initial and periodic calibration of all analytical equipment used to determine the concentration of fluorinated GHGs, including but not limited to gas chromatographs, gas chromatography-mass spectrometry (GC/MS), gas chromatograph-electron capture detector (GC/ECD), fourier transform infrared (FTIR), and nuclear magnetic resonance (NMR) devices, and all mass measurement equipment such as weigh scales, flowmeters, and volumetric and density measures used to measure the quantities reported under this subpart, including the industry standards or manufacturer directions used for calibration pursuant to §98.124(e), (f), (g), (m), and (n). (j) GHG Monitoring Plans, as described in §98.3(g)(5), must be completed by April 1, 2011. (k) For fluorinated GHGs whose GWPs are not listed in Table A-1 to subpart A of this part, maintain records of the GWPs used to calculate facility-wide CO_2e emissions under §98.127(j). Where you used your best estimate of the GWP, maintain records of the data and analysis used to develop that GWP, including the data elements at §98.123(c)(1)(vi)(A)(*1*)through (*3*). If you have used QSARs to estimate the GWP, include information documenting the level of accuracy of the QSAR-derived GWP, including information on how the structure of the "target" fluorinated GHG is similar to the structures of the fluorinated GHGs used to model the radiative forcing and/or reaction rate of the "target" fluorinated GHG, the quality and quantity of the measurements of the radiative forcings and/or reaction rates of the fluorinated GHGs used to model these parameters for the "target" fluorinated GHG, any estimated uncertainties of the modeled forcings and/or reaction rates, and descriptions and results of any efforts to validate the QSAR model(s). (l) *Verification software records.* For reporting year 2015 and thereafter, you must enter into verification software specified in §98.5(b) the data specified in paragraphs (l)(1) through (15) of this section. The data specified in paragraphs (l)(1) through (11) must be entered for each process and each process vent, as applicable. The data specified in paragraphs (l)(1) through (15) must be entered for each fluorinated GHG, as applicable. You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (l)(1) through (15) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (l)(1)

	through (15) of this section. (1) The identity of the process vent (*e.g.*, name or number assigned by the facility). (2) The equation used to estimate emissions from the process vent (Equations L-21, L-22, L-26, or L-27). (3) The type of process activity used to estimate emissions from the process vent (*e.g.*, product of process or reactant consumed by process) (Activity, $Activity_{C,}$ or $Activity_{U}$) (Equations L-21, L-22, L-26, L-27, L-35). (4) The quantities of the process activity used to estimate controlled and uncontrolled emissions, respectively, for the process vent, Activity, $Activity_{U,}$ or $Activity_{C}$, (*e.g.* kg product) (Equations L-21, L-22, L-26, L-27, L-35). (5) The site-specific, process-vent-specific emission factor, $EF_{PV-C,}$ for the process vent, measured after the destruction device (kg fluorinated GHG emitted per kg activity) (Equation L-21). (6) The site-specific, process-vent-specific emission calculation factor, $ECF_{PV-U,}$ for the process vent, for periods not vented to destruction device (kg fluorinated GHG emitted per kg activity) (Equations L-21, L-35). (7) The site-specific, process-vent-specific emission factor(s), $EF_{PV-U,}$ for the process vent, measured before the destruction device (kg fluorinated GHG emitted per kg activity) (Equations L-22, L-35). (8) The site-specific, process-vent-specific emission calculation factor for the process vent, ECF_{PV} (kg fluorinated GHG emitted per kg of activity) (Equations L-26, L-27, L-35). (9) Destruction efficiency, DE, of each destruction device for each fluorinated GHG whose destruction the facility reflects in §98.123, in accordance with §98.124(g)(1)(i) through (iv) (weight fraction) (Equations L-22, L-27, L-31). (10) Emissions of each fluorinated GHG for equipment pieces for the process, E_{ELf} (metric ton/yr) (98.123(d)(3)). (11) The mass of the fluorinated GHG previously produced and fed into the destruction device, RE_{D}, (metric tons) (Equation L-31). (12) If applicable, the heel factor, h_{fj}, calculated for each container size and type (decimal fraction) (Equation L-34). (13) If applicable, the number of containers of size and type j returned to the fluorinated gas production facility, N_{fj}, (Equation L-34). (14) If applicable, the full capacity of containers of size and type j containing fluorinated GHG f, F_{fj}, (metric tons) (Equation L-34). (15) For fluorinated GHGs that do not have a chemical-specific GWP on Table A-1 of subpart A of this part, the fluorinated GHG group of which the fluorinated GHG is a member, as applicable (to permit look-up of global warming potential, GWP_{f}, or GWP_{i}, for that fluorinated GHG in Table A-1 of subpart A of this part (Equation A-1 of subpart A of this part, Equation L-35)). [75 FR 74831, Dec. 1, 2010, as amended at 77 FR 51490, Aug. 24, 2012; 79 FR 73788, Dec. 11, 2014]
Subpart N – Glass	In addition to the information required by §98.3(g), you must retain the records listed in

Production (§98.147)	paragraphs (a) through (d) of this section. (a) If a CEMS is used to measure emissions, then you must retain the records required under §98.37 for the Tier 4 Calculation Methodology and the following information specified in paragraphs (a)(1) and (a)(2) of this section: (1) Monthly glass production rate for each continuous glass melting furnace (tons). (2) Monthly amount of each carbonate-based raw material charged to each continuous glass melting furnace (tons). (b) If process CO_2 emissions are calculated according to the procedures specified in §98.143(b), you must retain the records in paragraphs (b)(1) through (b)(5) of this section. (1) Monthly glass production rate for each continuous glass melting furnace (metric tons). (2) Monthly amount of each carbonate-based raw material charged to each continuous glass melting furnace (metric tons). (3) Data on carbonate-based mineral mass fractions provided by the raw material supplier for all raw materials consumed annually and included in calculating process emissions in Equation N-1 of this subpart, if applicable. (4) Results of all tests, if applicable, used to verify the carbonate-based mineral mass fraction for each carbonate-based raw material charged to a continuous glass melting furnace, including the data specified in paragraphs (b)(4)(i) through (v) of this section. (i) Date of test. (ii) Method(s), and any variations of the methods, used in the analyses. (iii) Mass fraction of each sample analyzed. (iv) Relevant calibration data for the instrument(s) used in the analyses. (v) Name and address of laboratory that conducted the tests. (5) The decimal fraction of calcination achieved for each carbonate-based raw material, if a value other than 1.0 is used to calculate process mass emissions of CO_2. (c) All other documentation used to support the reported GHG emissions. (d) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (d)(1) through (3) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (d)(1) through (3) of this section. (1) Annual average decimal mass fraction of carbonate-based mineral in each carbonate-based raw material for each continuous glass melting furnace (specify the default value, if used, or the value determined according to §98.144) (percentage, expressed as a decimal) (Equation N-1 of §98.143). (2) Annual amount of each carbonate-based raw material charged to each continuous glass melting furnace (tons) (Equation N-1 of this subpart). (3) Decimal fraction of calcination achieved for each carbonate-based raw material for each

	continuous glass melting furnace (specify the default value, if used, or the value determined according to §98.144) (percentage, expressed as a decimal) (Equation N-1 of this subpart). [74 FR 56374, Oct. 30, 2009, as amended at 78 FR 71954, Nov. 29, 2013; 79 FR 63786, Oct. 24, 2014; 81 FR 89257, Dec. 9, 2016]
Subpart O – HCFC-22 Production and HFC-23 Destruction (§98.157)	(a) In addition to the data required by §98.3(g), HCFC-22 production facilities shall retain the following records: (1) The data used to estimate HFC-23 emissions. (2) Records documenting the initial and periodic calibration of the gas chromatographs, weigh scales, volumetric and density measurements, and flowmeters used to measure the quantities reported under this rule, including the industry standards or manufacturer directions used for calibration pursuant to §98.154(p) and (q). (b) In addition to the data required by §98.3(g), the HFC-23 destruction facilities shall retain the following records: (1) Records documenting their one-time and annual reports in §98.156(b) through (e). (2) Records documenting the initial and periodic calibration of the gas chromatographs, weigh scales, volumetric and density measurements, and flowmeters used to measure the quantities reported under this subpart, including the industry standard practice or manufacturer directions used for calibration pursuant to §98.154(p) and (q). (c) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (c)(1) through (16) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (c)(1) through (16) of this section. (1) Factor to account for the loss of HCFC-22 upstream of the measurement over the period, determined pursuant to §98.154(e) (Equation O-3 of §98.153). (2) Mass of HCFC-22 that is measured coming out of the production process over the period. A period can be one year (kg) (Equation O-3). (3) Mass of used HCFC-22 that is added to the production process upstream of the output measurement over the period. A period can be one year (kg) (Equation O-3). (4) Mass of HFC-23 generated annually per HCFC-22 production process (metric tons) (Equation O-4 of §98.153). (5) Mass of HFC-23 sent off site for sale annually per HCFC-22 production process (metric tons) (Equation O-4). (6) Mass of HFC-23 sent off site for destruction annually per HCFC-22 production process (metric tons) (Equation O-4). (7) Mass of HFC-23 destroyed on site per HCFC-22 production process (metric tons) (Equation O-4). (8) HFC-23 in storage at end of year per HCFC-22 production process (metric tons) (Equation O-4). (9) HFC-23 in storage at beginning of year per HCFC-22 production process (metric tons)

	(Equation O-4). (10) Mass of HFC-23 fed into each destruction device annually per HCFC-22 production process (metric tons) (Equation O-9 of §98.153 and the calculation method in either §98.154(l)(1) or (2)). (11) Identify if each destruction efficiency for each HCFC-22 production process is entered directly, or is calculated using §98.154(l)(1), or is calculated using §98.154(l)(2) (Equation O-9 and the calculation method in either §98.154(l)(1) or (2)). (12) Destruction efficiency of each destruction device for each HCFC-22 production process (decimal fraction) (Equation O-9 and the calculation method in either §98.154(l)(1) or (2)). (13) Volumetric flow rate at the inlet of each destruction device for each HCFC-22 production process from previous test (kg/hr) (Equation O-9 and the calculation method in either §98.154(l)(1) or (2)). (14) Volumetric flow rate at the inlet of destruction device during test for each HCFC-22 production process (kg/hr) (Equation O-9 and the calculation method in either §98.154(l)(1) or (2)). (15) Concentration of HFC-23 at the inlet of destruction device for each HCFC-22 production process from previous test (weight fraction) (Equation O-9 and the calculation method in either §98.154(l)(1) or (2)). (16) Concentration of HFC-23 at the inlet of destruction device for each HCFC-22 production process during test (weight fraction) (Equation O-9 and the calculation method in either §98.154(l)(1) or (2)). [74 FR 56374, Oct. 30, 2009, as amended at 75 FR 66463, Oct. 28, 2010; 79 FR 63786, Oct. 24, 2014]
Subpart P – Hydrogen Production (§98.167)	In addition to the information required by §98.3(g), you must retain the records specified in paragraphs (a) through (e) of this section for each hydrogen production facility. (a) If a CEMS is used to measure CO_2 emissions, then 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 you must retain records of all analyses and calculations conducted as listed in §§98.166(b), (c), and (d). (c) For units using the calculation methodologies described in §98.163(b), the records required under §98.3(g) must include both the company records and a detailed explanation of how company records are used to estimate the following: (1) Fuel and feedstock consumption, when solid fuel and feedstock is combusted and a CEMS is not used to measure GHG emissions. (2) Fossil fuel consumption, when, pursuant to §98.33(e), the owner or operator of a unit that uses CEMS to quantify CO_2 emissions and that combusts both fossil and biogenic fuels separately reports the biogenic portion of the total annual CO_2 emissions. (3) Sorbent usage, if the methodology in §98.33(d) is used to calculate CO_2 emissions from sorbent. (d) The owner or operator must document the procedures used to ensure the accuracy of the estimates of fuel and feedstock usage and sorbent usage (as applicable) in §98.163(b), including, but not limited to, calibration of weighing equipment, fuel and feedstock flow meters, and other measurement devices. The estimated accuracy of measurements made with these devices must also be recorded, and

	the technical basis for these estimates must be provided. (e) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (e)(1) through (12) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (e)(1) through (12) of this section. (1) Indicate whether the monthly consumption of each gaseous fuel or feedstock is measured as mass or volume (Equation P-1 of §98.163). (2) Monthly volume of the gaseous fuel or feedstock (scf at standard conditions of 68 °F and atmospheric pressure) (Equation P-1). (3) Monthly mass of the gaseous fuel or feedstock (kg of fuel or feedstock) (Equation P-1). (4) Average monthly carbon content of the gaseous fuel or feedstock (kg C per kg of fuel or feedstock) (Equation P-1). (5) Average monthly molecular weight of the gaseous fuel or feedstock (kg/kg-mole) (Equation P-1). (6) Indicate whether the monthly consumption of each liquid fuel or feedstock is measured as mass or volume (Equation P-2 of §98.163). (7) Monthly volume of the liquid fuel or feedstock (gallons of fuel or feedstock) (Equation P-2). (8) Monthly mass of the liquid fuel or feedstock (kg of fuel or feedstock) (Equation P-2). (9) Average monthly carbon content of the liquid fuel or feedstock (kg C per gallon of fuel or feedstock) (Equation P-2). (10) Average monthly carbon content of the liquid fuel or feedstock (kg C per kg of fuel or feedstock) (Equation P-2). (11) Monthly mass of solid fuel or feedstock (kg of fuel and feedstock) (Equation P-3 of §98.163). (12) Average monthly carbon content of the solid fuel or feedstock (kg C per kg of fuel and feedstock) (Equation P-3). [74 FR 56374, Oct. 30, 2009, as amended at 78 FR 71956, Nov. 29, 2013; 79 FR 63787, Oct. 24, 2014]
Subpart Q – Iron and Steel Production (§98.177)	In addition to the records required by §98.3(g), you must retain the records specified in paragraphs (a) through (f) of this section, as applicable. Facilities that use CEMS to measure emissions must also retain records of the verification data required for the Tier 4 Calculating Methodology in §98.36(e). (a) Records of all analyses and calculations conducted, including all information reported as required under §98.176. (b) When the carbon mass balance method is used to estimate emissions for a process, the monthly mass of each process input and output that are used to determine the annual mass, except that no determination of the mass of steel output from decarburization vessels is required. (c) Production capacity (in metric tons per year) for the production of taconite pellets, coke,

	sinter, iron, and raw steel. (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. (e) Facilities must keep records that include a detailed explanation of how company records or measurements are used to determine all sources of carbon input and output and the metric tons of coal charged to the coke ovens (e.g., weigh belts, a combination of measuring volume and bulk density). You also must document the procedures used to ensure the accuracy of the measurements of fuel usage including, but not limited to, calibration of weighing equipment, fuel flow meters, coal usage including, but not limited to, calibration of weighing equipment and other measurement devices. The estimated accuracy of measurements made with these devices must also be recorded, and the technical basis for these estimates must be provided. (f) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (f)(1) through (9) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (f)(1) through (9) of this section. (1) The data in paragraphs (f)(1)(i) through (xxv) of this section for each applicable taconite indurating furnace for which the carbon mass balance method of reporting is used. (i) Annual mass of each solid fuel (metric tons) (Equation Q-1 of §98.173). (ii) Carbon content of each solid fuel, from the fuel analysis (expressed as a decimal fraction) (Equation Q-1). (iii) Annual volume of each gaseous fuel (scf) (Equation Q-1). (iv) Average carbon content of each gaseous fuel, from the fuel analysis results (kg C per kg of fuel) (Equation Q-1). (v) Molecular weight of each gaseous fuel (kg/kg-mole) (Equation Q-1). (vi) Annual volume of each liquid fuel (gallons) (Equation Q-1). (vii) Carbon content of each liquid fuel, from the fuel analysis results (kg C per gallon of fuel) (Equation Q-1). (viii) Annual mass of the greenball (taconite) pellets fed to the furnace (metric tons) (Equation Q-1). (ix) Carbon content of the greenball (taconite) pellets, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-1). (x) Annual mass of fired pellets produced by the furnace (metric tons) (Equation Q-1). (xi) Carbon content of the fired pellets, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-1). (xii) Annual mass of air pollution control residue collected (metric tons) (Equation Q-1). (xiii) Carbon content of the air pollution control residue, from the carbon analysis results

	(expressed as a decimal fraction) (Equation Q-1). (xiv) Annual mass of each other solid input containing carbon fed to each furnace (metric tons) (Equation Q-1). (xv) Carbon content of each other solid input containing carbon fed to each furnace (expressed as a decimal fraction) (Equation Q-1). (xvi) Annual mass of each other solid output containing carbon produced by each furnace (metric tons) (Equation Q-1). (xvii) Carbon content of each other solid output containing carbon (expressed as a decimal fraction) (Equation Q-1). (xviii) Annual mass of each other gaseous input containing carbon fed to each furnace (metric tons) (Equation Q-1). (xix) Carbon content of each other gaseous input containing carbon fed to each furnace (expressed as a decimal fraction) (Equation Q-1). (xx) Annual mass of each other gaseous output containing carbon produced by each furnace (metric tons) (Equation Q-1). (xxi) Carbon content of each other gaseous output containing carbon produced by each furnace (expressed as a decimal fraction) (Equation Q-1). (xxii) Annual mass of each other liquid input containing carbon fed to each furnace (metric tons) (Equation Q-1). (xxiii) Carbon content of each other liquid input containing carbon fed to each furnace (expressed as a decimal fraction) (Equation Q-1). (xxiv) Annual mass of each other liquid output containing carbon produced by each furnace (metric tons) (Equation Q-1). (xxv) Carbon content of each other liquid output containing carbon produced by each furnace (expressed as a decimal fraction) (Equation Q-1). (2) The data in paragraphs (f)(2)(i) through (xxvi) of this section for each applicable basic oxygen process furnace for which the carbon mass balance method of reporting is used. (i) Annual mass of molten iron charged to the furnace (metric tons) (Equation Q-2 of §98.173). (ii) Carbon content of the molten iron charged to the furnace, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-2). (iii) Annual mass of ferrous scrap charged to the furnace (metric tons) (Equation Q-2). (iv) Carbon content of the ferrous scrap charged to the furnace, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-2). (v) Annual mass of the flux materials (e.g., limestone, dolomite) charged to the furnace (metric tons) (Equation Q-2).

	(vi) Carbon content of the flux materials charged to the furnace, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-2). (vii) Annual mass of the carbonaceous materials (e.g., coal, coke) charged to the furnace (metric tons) (Equation Q-2). (viii) Carbon content of the carbonaceous materials charged to the furnace, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-2). (ix) Annual mass of molten raw steel produced by the furnace (metric tons) (Equation Q-2). (x) Carbon content of the steel produced by the furnace, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-2). (xi) Annual mass of slag produced by the furnace (metric tons) (Equation Q-2). (xii) Carbon content of the slag produced by the furnace, from the carbon analysis (expressed as a decimal fraction) (Equation Q-2). (xiii) Annual mass of air pollution control residue collected for the furnace (metric tons) (Equation Q-2). (xiv) Carbon content of the air pollution control residue collected for the furnace, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-2). (xv) Annual mass of each other solid input containing carbon fed to each furnace (metric tons) (Equation Q-2). (xvi) Carbon content of each other solid input containing carbon fed to each furnace (expressed as a decimal fraction) (Equation Q-2). (xvii) Annual mass of each other solid output containing carbon produced by each furnace (metric tons) (Equation Q-2). (xviii) Carbon content of each other solid output containing carbon (expressed as a decimal fraction) (Equation Q-2). (xix) Annual mass of each other gaseous input containing carbon fed to each furnace (metric tons) (Equation Q-2). (xx) Carbon content of each other gaseous input containing carbon fed to each furnace (expressed as a decimal fraction) (Equation Q-2). (xxi) Annual mass of each other gaseous output containing carbon produced by each furnace (metric tons) (Equation Q-2). (xxii) Carbon content of each other gaseous output containing carbon produced by each furnace (expressed as a decimal fraction) (Equation Q-2). (xxiii) Annual mass of each other liquid input containing carbon fed to each furnace (metric tons) (Equation Q-2). (xxiv) Carbon content of each other liquid input containing carbon fed to each furnace (expressed

	as a decimal fraction) (Equation Q-2). (xxv) Annual mass of each other liquid output containing carbon produced by each furnace (metric tons) (Equation Q-2). (xxvi) Carbon content of each other liquid output containing carbon produced by each furnace (expressed as a decimal fraction) (Equation Q-2). (3) The data in paragraphs (f)(3)(i) through (xviii) of this section for each applicable non-recovery coke oven battery for which the carbon mass balance method of reporting is used. (i) Annual mass of coal charged to the battery (metric tons) (Equation Q-3 of §98.173). (ii) Carbon content of the coal, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-3). (iii) Annual mass of coke produced by the battery (metric tons) (Equation Q-3). (iv) Carbon content of the coke, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-3). (v) Annual mass of air pollution control residue collected (metric tons) (Equation Q-3). (vi) Carbon content of the air pollution control residue, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-3). (vii) Annual mass of each other solid input containing carbon fed to each battery (metric tons) (Equation Q-3). (viii) Carbon content of each other solid input containing carbon fed to each battery (expressed as a decimal fraction) (Equation Q-3). (ix) Annual mass of each other solid output containing carbon produced by each battery (metric tons) (Equation Q-3). (x) Carbon content of each other solid output containing carbon (expressed as a decimal fraction) (Equation Q-3). (xi) Annual mass of each other gaseous input containing carbon fed to each battery (metric tons) (Equation Q-3). (xii) Carbon content of each other gaseous input containing carbon fed to each battery (expressed as a decimal fraction) (Equation Q-3). (xiii) Annual mass of each other gaseous output containing carbon produced by each battery (metric tons) (Equation Q-3). (xiv) Carbon content of each other gaseous output containing carbon produced by each battery (expressed as a decimal fraction) (Equation Q-3). (xv) Annual mass of each other liquid input containing carbon fed to each battery (metric tons) (Equation Q-3). (xvi) Carbon content of each other liquid input containing carbon fed to each battery (expressed

	as a decimal fraction) (Equation Q-3). (xvii) Annual mass of each other liquid output containing carbon produced by each battery (metric tons) (Equation Q-3). (xviii) Carbon content of each other liquid output containing carbon produced by each battery (expressed as a decimal fraction) (Equation Q-3). (4) The data in paragraphs (f)(4)(i) through (xxi) of this section for each applicable sinter process for which the carbon mass balance method of reporting is used. (i) Annual volume of the gaseous fuel (scf) (Equation Q-4 of §98.173). (ii) Carbon content of the gaseous fuel, from the fuel analysis results (kg C per kg of fuel) (Equation Q-4). (iii) Molecular weight of the gaseous fuel (kg/kg-mole) (Equation Q-4). (iv) Annual mass of sinter feed material (metric tons) (Equation Q-4). (v) Carbon content of the mixed sinter feed materials that form the bed entering the sintering machine, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-4). (vi) Annual mass of sinter produced (metric tons) (Equation Q-4). (vii) Carbon content of the sinter pellets, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-4). (viii) Annual mass of air pollution control residue collected (metric tons) (Equation Q-4). (ix) Carbon content of the air pollution control residue, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-4). (x) Annual mass of each other solid input containing carbon fed to each sinter process (metric tons) (Equation Q-4). (xi) Carbon content of each other solid input containing carbon fed to each sinter process (expressed as a decimal fraction) (Equation Q-4). (xii) Annual mass of each other solid output containing carbon produced by each sinter process (metric tons) (Equation Q-4). (xiii) Carbon content of each other solid output containing carbon (expressed as a decimal fraction) (Equation Q-4). (xiv) Annual mass of each other gaseous input containing carbon fed to each sinter process (metric tons) (Equation Q-4). (xv) Carbon content of each other gaseous input containing carbon fed to each sinter process (expressed as a decimal fraction) (Equation Q-4). (xvi) Annual mass of each other gaseous output containing carbon produced by each sinter process (metric tons) (Equation Q-4).

	(xvii) Carbon content of each other gaseous output containing carbon produced by each sinter process (expressed as a decimal fraction) (Equation Q-4). (xviii) Annual mass of each other liquid input containing carbon fed to each sinter process (metric tons) (Equation Q-4). (xix) Carbon content of each other liquid input containing carbon fed to each sinter process (expressed as a decimal fraction) (Equation Q-4). (xx) Annual mass of each other liquid output containing carbon produced by each sinter process (metric tons) (Equation Q-4). (xxi) Carbon content of each other liquid output containing carbon produced by each sinter process (expressed as a decimal fraction) (Equation Q-4). (5) The data in paragraphs (f)(5)(i) through (xxxi) of this section for each applicable electric arc furnace for which the carbon mass balance method of reporting is used. (i) Annual mass of direct reduced iron (if any) charged to the furnace (metric tons) (Equation Q-5 of §98.173). (ii) Carbon content of the direct reduced iron, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-5) (iii) Annual mass of ferrous scrap charged to the furnace (metric tons) (Equation Q-5). (iv) Carbon content of the ferrous scrap, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-5). (v) Annual mass of flux materials (e.g., limestone, dolomite) charged to the furnace (metric tons) (EquationQ-5). (vi) Carbon content of the flux materials, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-5). (vii) Annual mass of carbon electrode consumed (metric tons) (Equation Q-5). (viii) Carbon content of the carbon electrode, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-5). (ix) Annual mass of carbonaceous materials (e.g., coal, coke) charged to the furnace (metric tons) (Equation Q-5). (x) Carbon content of the carbonaceous materials, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-5). (xi) Annual mass of molten raw steel produced by the furnace (metric tons) (Equation Q-5). (xii) Carbon content of the steel, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-5). (xiii) Annual volume of the gaseous fuel (scf at 60F and 1 atm) (Equation Q-5). (xiv) Average carbon content of the gaseous fuel, from the fuel analysis results (kg C per kg of

	fuel) (Equation Q-5). (xv) Molecular weight of the gaseous fuel (kg/kg-mole) (Equation Q-5). (xvi) Annual mass of slag produced by the furnace (metric tons) (Equation Q-5). (xvii) Carbon content of the slag, from the carbon analysis (expressed as a decimal fraction) (Equation Q-5). (xviii) Annual mass of air pollution control residue collected (metric tons) (Equation Q-5). (xix) Carbon content of the air pollution control residue, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-5). (xx) Annual mass of each other solid input containing carbon fed to each furnace (metric tons) (Equation Q-5). (xxi) Carbon content of each other solid input containing carbon fed to each furnace (expressed as a decimal fraction) (Equation Q-5). (xxii) Annual mass of each other solid output containing carbon produced by each furnace (metric tons) (Equation Q-5). (xxiii) Carbon content of each other solid output containing carbon (expressed as a decimal fraction) (Equation Q-5). (xxiv) Annual mass of each other gaseous input containing carbon fed to each furnace (metric tons) (Equation Q-5). (xxv) Carbon content of each other gaseous input containing carbon fed to each furnace (expressed as a decimal fraction) (Equation Q-5). (xxvi) Annual mass of each other gaseous output containing carbon produced by each furnace (metric tons) (Equation Q-5). (xxvii) Carbon content of each other gaseous output containing carbon produced by each furnace (expressed as a decimal fraction) (Equation Q-5). (xxviii) Annual mass of each other liquid input containing carbon fed to each furnace (metric tons) (Equation Q-5). (xxix) Carbon content of each other liquid input containing carbon fed to each furnace (expressed as a decimal fraction) (Equation Q-5). (xxx) Annual mass of each other liquid output containing carbon produced by each furnace (metric tons) (Equation Q-5). (xxxi) Carbon content of each other liquid output containing carbon produced by each furnace (expressed as a decimal fraction) (Equation Q-5). (6) The data in paragraphs (f)(6)(i) through (xvii) of this section for each applicable decarburization vessel for which the carbon mass balance method of reporting is used.

	(i) Annual mass of molten steel charged to the vessel (metric tons) (Equation Q-6 of §98.173). (ii) Carbon content of the molten steel before decarburization, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-6). (iii) Carbon content of the molten steel after decarburization, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-6). (iv) Annual mass of air pollution control residue collected (metric tons) (Equation Q-6). (v) Carbon content of the air pollution control residue, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-6). (vi) Annual mass of each other solid input containing carbon fed to each decarburization vessel (metric tons) (Equation Q-6). (vii) Carbon content of each other solid input containing carbon fed to each decarburization vessel (expressed as a decimal fraction) (Equation Q-6). (viii) Annual mass of each other solid output containing carbon produced by each decarburization vessel (metric tons) (Equation Q-6). (ix) Carbon content of each other solid output containing carbon (expressed as a decimal fraction) (Equation Q-6). (x) Annual mass of each other gaseous input containing carbon fed to each decarburization vessel (metric tons) (Equation Q-6). (xi) Carbon content of each other gaseous input containing carbon fed to each decarburization vessel (expressed as a decimal fraction) (Equation Q-6). (xii) Annual mass of each other gaseous output containing carbon produced by each decarburization vessel (metric tons) (Equation Q-6). (xiii) Carbon content of each other gaseous output containing carbon produced by each decarburization vessel (expressed as a decimal fraction) (Equation Q-6). (xiv) Annual mass of each other liquid input containing carbon fed to each decarburization vessel (metric tons) (Equation Q-6). (xv) Carbon content of each other liquid input containing carbon fed to each decarburization vessel (expressed as a decimal fraction) (Equation Q-6). (xvi) Annual mass of each other liquid output containing carbon produced by each decarburization vessel (metric tons) (Equation Q-6). (xvii) Carbon content of each other liquid output containing carbon produced by each decarburization vessel (expressed as a decimal fraction) (Equation Q-6). (7) The data in paragraphs (f)(7)(i) through (xxvii) of this section for each applicable direct reduction furnace for which the carbon mass balance method of reporting is used. (i) Annual volume of the gaseous fuel (scf at 68F and 1 atm) (Equation Q-7 of §98.173).

	(ii) Average carbon content of the gaseous fuel, from the fuel analysis results (kg C per kg of fuel) (Equation Q-7). (iii) Molecular weight of the gaseous fuel (kg/kg-mole) (Equation Q-7). (iv) Annual mass of iron ore or iron pellets fed to the furnace (metric tons) (Equation Q-7). (v) Carbon content of the iron ore or iron pellets, from the carbon analysis (expressed as a decimal fraction) (Equation Q-7). (vi) Annual mass of carbonaceous materials (e.g., coal, coke) charged to the furnace (metric tons) (Equation Q-7). (vii) Carbon content of the carbonaceous materials, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-7). (viii) Annual mass of each other material charged to the furnace (metric tons) (Equation Q-7). (ix) Average carbon content of each other material charged to the furnace, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-7). (x) Annual mass of iron produced (metric tons) (Equation Q-7). (xi) Carbon content of the iron produced, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-7). (xii) Annual mass of non-metallic materials produced by the furnace (metric tons) (Equation Q-7). (xiii) Carbon content of the non-metallic materials produced, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-7). (xiv) Annual mass of air pollution control residue collected (metric tons) (Equation Q-7). (xv) Carbon content of the air pollution control residue collected, from the carbon analysis results (expressed as a decimal fraction) (Equation Q-7). (xvi) Annual mass of each other solid input containing carbon fed to each furnace (metric tons) (Equation Q-7). (xvii) Carbon content of each other solid input containing carbon fed to each furnace (expressed as a decimal fraction) (Equation Q-7). (xviii) Annual mass of each other solid output containing carbon produced by each furnace (metric tons) (Equation Q-7). (xix) Carbon content of each other solid output containing carbon (expressed as a decimal fraction) (Equation Q-7). (xx) Annual mass of each other gaseous input containing carbon fed to each furnace (metric tons) (Equation Q-7). (xxi) Carbon content of each other gaseous input containing carbon fed to each furnace

	(expressed as a decimal fraction) (Equation Q-7). (xxii) Annual mass of each other gaseous output containing carbon produced by each furnace (metric tons) (Equation Q-7). (xxiii) Carbon content of each other gaseous output containing carbon produced by each furnace (expressed as a decimal fraction) (Equation Q-7). (xxiv) Annual mass of each other liquid input containing carbon fed to each furnace (metric tons) (Equation Q-7). (xxv) Carbon content of each other liquid input containing carbon fed to each furnace (expressed as a decimal fraction) (Equation Q-7). (xxvi) Annual mass of each other liquid output containing carbon produced by each furnace (metric tons) (Equation Q-7). (xxvii) Carbon content of each other liquid output containing carbon produced by each furnace (expressed as a decimal fraction) (Equation Q-7). (8) The data in paragraphs (f)(8)(i) and (ii) of this section for each process unit for which the site-specific emission factor method was used. (i) Average hourly feed or production rate, as applicable, during the test (metric tons/hour) (as used in §98.173(b)(2)(iii)). (ii) Annual total feed or production, as applicable (metric tons) (as used in §98.173(b)(2)(iv)). (9) Total coal charged to the coke ovens for each process (metric tons/year)(as used in §98.173(c)). [74 FR 56374, Oct. 30, 2009, as amended at 75 FR 66464, Oct. 28, 2010; 78 FR 71958, Nov. 29, 2013; 79 FR 63788, Oct. 24, 2014]
Subpart R – Lead Production (§98.187)	In addition to the records required by §98.3(g), you must retain the records of the information specified in paragraphs (a) through (d) of this section, as applicable to the smelting furnaces at your facility. (a) If a CEMS is used to measure combined process and combustion CO_2 emissions according to the requirements in §98.183(a) or (b)(1), then you must retain the records required for the Tier 4 Calculation Methodology in §98.37 and the information specified in paragraphs (a)(1) through (a)(3) of this section. (1) Monthly smelting furnace production quantity for each lead product (tons). (2) Number of smelting furnace operating hours each month. (3) Number of smelting furnace operating hours in calendar year. (b) If the carbon mass balance procedure is used to determine process CO_2 emissions according to the requirements in §98.183(b)(2)(i) and (b)(2)(ii), then you must retain under this subpart the records specified in paragraphs (b)(1) through (b)(5) of this section. (1) Monthly smelting furnace production quantity for each lead product (tons).

	(2) Number of smelting furnace operating hours each month. (3) Number of smelting furnace operating hours in calendar year. (4) Monthly material quantity consumed, used, or produced for each material included for the calculations of annual process CO_2 emissions using Equation R-1 of this subpart (tons). (5) Average carbon content determined and records of the supplier provided information or analyses used for the determination for each material included for the calculations of annual process CO_2 emissions using Equation R-1 of this subpart. (c) You must keep records that include a detailed explanation of how company records of measurements are used to estimate the carbon input to each smelting furnace, including documentation of any materials excluded from Equation R-1 of this subpart that contribute less than 1 percent of the total carbon into or out of the process. You also must document the procedures used to ensure the accuracy of the measurements of materials fed, charged, or placed in an smelting furnace including, but not limited to, calibration of weighing equipment and other measurement devices. The estimated accuracy of measurements made with these devices must also be recorded, and the technical basis for these estimates must be provided. (d) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (d)(1) through (10) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (d)(1) through (10) of this section. (1) Annual mass of lead ore charged to each smelting furnace (tons) (Equation R-1 of §98.183). (2) Carbon content of the lead ore per furnace, from the carbon analysis results (percent by weight, expressed as a decimal fraction) (Equation R-1). (3) Annual mass of lead scrap charged to each smelting furnace (tons) (Equation R-1). (4) Carbon content of the lead scrap per furnace, from the carbon analysis (percent by weight, expressed as a decimal fraction) (Equation R-1). (5) Annual mass of flux materials (e.g., limestone, dolomite) charged to each smelting furnace (tons) (Equation R-1). (6) Carbon content of the flux materials per furnace, from the carbon analysis (percent by weight, expressed as a decimal fraction) (Equation R-1). (7) Annual mass of carbonaceous materials (e.g., coal, coke) charged to each smelting furnace (tons) (Equation R-1). (8) Carbon content of the carbonaceous materials per furnace, from the carbon analysis (percent by weight, expressed as a decimal fraction) (Equation R-1). (9) Annual mass of each other material containing carbon, other than fuel, fed, charged, or otherwise introduced into the smelting furnace (tons) (Equation R-1). (10) Carbon content of each other material, from the carbon analysis results per furnace (percent by weight, expressed as a decimal fraction) (Equation R-1). [74 FR 56374, Oct. 30, 2009, as amended at 79 FR 63792, Oct. 24, 2014]
Subpart S – Lime	In addition to the records required by §98.3(g), you must retain the records specified in paragraphs (a)

Production (§98.197)	through (c) of this section. (a) Annual operating hours in calendar year. (b) Records of all analyses (e.g. chemical composition of lime products, by type) and calculations conducted. (c) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (c)(1) through (9) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (c)(1) through (9) of this section. (1) Monthly calcium oxide content for each lime type, determined according to §98.194(c) (metric tons CaO/metric ton lime) (Equation S-1 of §98.193). (2) Monthly magnesium oxide content for each lime type, determined according to §98.194(c) (metric tons MgO/metric ton lime) (Equation S-1). (3) Monthly calcium oxide content for each calcined lime byproduct or waste type sold (metric tons CaO/metric ton lime) (Equation S-2 of §98.193). (4) Monthly magnesium oxide content for each calcined lime byproduct or waste type sold (metric tons MgO/metric ton lime) (Equation S-2). (5) Calcium oxide content for each calcined lime byproduct or waste type that is not sold (metric tons CaO/metric ton lime) (Equation S-3 of §98.193). (6) Magnesium oxide content for each calcined lime byproduct or waste type that is not sold (metric tons MgO/metric ton lime) (Equation S-3). (7) Annual weight or mass of calcined byproducts or wastes for lime type that is not sold (tons) (Equation S-3). (8) Monthly weight or mass of each lime type produced (tons) (Equation S-4 of §98.193). (9) Monthly weight or mass of each calcined byproducts or wastes sold (tons) (Equation S-4). [74 FR 56374, Oct. 30, 2009, as amended at 79 FR 63792, Oct. 24, 2014]
Subpart T – Magnesium Production (§98.207)	In addition to the records specified in §98.3(g), you must retain the following information at the facility level: (a) Check-out and weigh-in sheets and procedures for gas cylinders. (b) Accuracy certifications and calibration records for scales including the method or manufacturer's specification used for calibration. (c) Residual gas amounts (heel) in cylinders sent back to suppliers. (d) Records, including invoices, for gas purchases, sales, and disbursements for all GHGs.
Subpart U – Miscellaneous Uses of Carbonate (§98.217)	In addition to the records required by §98.3(g), you must retain the records specified in paragraphs (a) through (e) of this section: (a) Monthly carbonate consumption (by carbonate type in tons). (b) You must document the procedures used to ensure the accuracy of the monthly measurements of

	carbonate consumption, carbonate input or carbonate output including, but not limited to, calibration of weighing equipment and other measurement devices. (c) Records of all analyses conducted to meet the requirements of this rule. (d) Records of all calculations conducted. (e) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (e)(1) through (4) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (e)(1) through (4) of this section. (1) Fraction calcination achieved for each particular carbonate type. As an alternative to measuring the calcination fraction, a value of 1.0 can be used (decimal fraction) (Equation U-1 of §98.213). (2) Annual mass of each carbonate type consumed (tons) (Equation U-1). (3) Annual mass of each input carbonate type (tons) (Equation U-2 of §98.213). (4) Annual mass of each output carbonate type (tons) (Equation U-2). [74 FR 56374, Oct. 30, 2009, as amended at 79 FR 63793, Oct. 24, 2014]
Subpart V – Nitric Acid Production (§98.227)	In addition to the information required by §98.3(g), you must retain the records specified in paragraphs (a) through (h) of this section for each nitric acid production facility: (a) Records of significant changes to process. (b) Documentation of how process knowledge was used to estimate abatement technology destruction efficiency (if applicable). (c) Performance test reports. (d) Number of operating hours in the calendar year for each nitric acid train (hours). (e) Annual nitric acid permitted production capacity (tons). (f) Measurements, records, and calculations used to determine reported parameters. (g) Documentation of the procedures used to ensure the accuracy of the measurements of all reported parameters, including but not limited to, calibration of weighing equipment, flow meters, and other measurement devices. The estimated accuracy of measurements made with these devices must also be recorded, and the technical basis for these estimates must be provided. (h) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (h)(1) through (10) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (h)(1) through (10) of this section. (1) Annual nitric acid produced from each nitric acid train (tons nitric acid produced, 100% acid basis). (2) Indicate which equation was used to calculate emissions for each nitric acid train. (3) N_2O concentration per test run during the performance test (ppm N_2O) (Equation V-1 of §98.223).

	(4) Volumetric flow rate of effluent gas per test run during the performance test (dscf/hr) (Equation V-1). (5) Production rate per test run during the performance test (tons nitric acid produced per hour, 100 percent acid basis) (Equation V-1). (6) Annual nitric acid production from each nitric acid train during which each N_2O abatement technology was operational (tons nitric acid produced, 100 percent acid basis) (Equation V-2 of §98.223). (7) Destruction efficiency of N_2O abatement technology that is used on each nitric acid train (decimal fraction of N_2O removed from vent stream) (Equation V-3a of §98.223). (8) Destruction efficiency of each N_2O abatement technology that is used on each nitric acid train (decimal fraction of N_2O removed from vent stream) (Equation V-3b of §98.223). (9) Destruction efficiency of each N_2O abatement technology that is used on each nitric acid train (decimal fraction of N_2O removed from vent stream) (Equation V-3c of §98.223). (10) Fraction control factor of each N_2O abatement technology that is used on each nitric acid train (decimal fraction of total emissions from nitric acid train "t" that are sent to abatement technology "n") (Equation V-3c). [74 FR 56374, Oct. 30, 2009, as amended at 79 FR 63793, Oct. 24, 2014]
Subpart W – Petroleum and Natural Gas Systems (§98.237)	Monitoring Plans, as described in §98.3(g)(5), must be completed by April 1, 2011. In addition to the information required by §98.3(g), you must retain the following records: (a) Dates on which measurements were conducted. (b) Results of all emissions detected and measurements. (c) Calibration reports for detection and measurement instruments used. (d) Inputs and outputs of calculations or emissions computer model runs used for engineering estimation of emissions. (e) The records required under §98.3(g)(2)(i) shall include an explanation of how company records, engineering estimation, or best available information are used to calculate each applicable parameter under this subpart. (f) For each time a missing data procedure was used, keep a record listing the emission source type, a description of the circumstance that resulted in the need to use missing data procedures, the missing data provisions in §98.235 that apply, the calculation or analysis used to develop the substitute value, and the substitute value. [75 FR 74488, Nov. 30, 2010, as amended at 76 FR 80590, Dec. 23, 2011; 79 FR 70424, Nov. 25, 2014]
Subpart X – Petrochemical Production (§98.247)	In addition to the recordkeeping requirements in §98.3(g), you must retain the records specified in paragraphs (a) through (d) of this section, as applicable. (a) If you comply with the CEMS measurement methodology in §98.243(b), then you must retain under this subpart the records required for the Tier 4 Calculation Methodology in §98.37, records of the procedures used to develop estimates of the fraction of total emissions attributable to petrochemical processing and combustion of petrochemical process off-gas as required in §98.246(b), and records of

	any annual average HHV calculations. (b) If you comply with the mass balance methodology in §98.243(c), then you must retain records of the information listed in paragraphs (b)(1) through (4) of this section. (1) Results of feedstock or product composition determinations conducted in accordance with §98.243(c)(4). (2) Start and end times for time periods when off-specification product is produced, if you comply with the alternative methodology in §98.243(c)(4) for determining carbon content of product. (3) As part of the monitoring plan required under §98.3(g)(5), record the estimated accuracy of measurement devices and the technical basis for these estimates. (4) The dates and results (*e.g.*, percent calibration error) of the calibrations of each measurement device. (c) If you comply with the combustion methodology in §98.243(d), then you must retain under this subpart the records required for the applicable Tier Calculation Methodologies in §98.37. If you comply with §98.243(d)(2), you must also keep records of the annual average flow calculations. (d) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (d)(1) through (30) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (d)(1) through (30) of this section. (1) Indicate whether the feedstock is measured as mass or volume (Equation X-1 of §98.243). (2) Indicate whether you used the alternative to sampling and analysis specified in §98.243(c)(4) (Equation X-1). (3) Volume of gaseous feedstock introduced per month (scf) (Equation X-1). (4) Mass of gaseous feedstock introduced per month (kg) (Equation X-1). (5) Average carbon content of the gaseous feedstock per month (kg C per kg of feedstock) (Equation X-1). (6) Molecular weight of gaseous feedstock per month (kg per kg-mole) (Equation X-1). (7) Indicate whether the gaseous product is measured as mass or volume (Equation X-1). (8) Volume of gaseous product produced per month (scf) (Equation X-1). (9) Mass of gaseous product produced per month (kg) (Equation X-1). (10) Average carbon content of gaseous product (including streams containing CO_2 recovered for sale or use in another process) per month (kg C per kg of product) (Equation X-1). (11) Molecular weight of gaseous product per month (kg per kg-mole) (Equation X-1). (12) Molar volume conversion factor of product (scf per kg-mole) (Equation X-1).

	(13) Indicate whether feedstock is measured as mass or volume (Equation X-2 of §98.243). (14) Indicate whether you used the alternative to sampling and analysis specified in §98.243(c)(4) (Equation X-2). (15) Volume of liquid feedstock introduced per month (gallons) (Equation X-2). (16) Mass of liquid feedstock introduced per month (kg) (Equation X-2). (17) Average carbon content of liquid feedstock per month (kg C per gallon) (Equation X-2). (18) Average carbon content of liquid feedstock per month (kg C per kg of feedstock) (Equation X-2). (19) Indicate whether product is measured as mass or volume per month (Equation X-2). (20) Volume of liquid product produced per month (gallons) (Equation X-2). (21) Mass of liquid product produced per month (kg) (Equation X-2). (22) Average carbon content of liquid product per month, including organic liquid wastes (kg C per gallon) (Equation X-2). (23) Average carbon content of liquid product, including organic liquid wastes (kg C per kg of product) (Equation X-2). (24) Indicate whether you used the alternative to sampling and analysis specified in §98.243(c)(4) (Equation X-3 of §98.243). (25) Mass of solid feedstock introduced per month (kg) (Equation X-3). (26) Average carbon content of solid feedstock per month (kg C per kg of feedstock) (Equation X-3). (27) Mass of solid product produced per month (kg) (Equation X-3). (28) Average carbon content of solid product per month (kg C per kg of product) (Equation X-3). (29) Records required in §98.257(b)(1) through (8) of this section for each flare that burns ethylene process off-gas. (30) Records required in §98.37 for each stationary fuel combustion unit (or group of stationary sources with a common pipe) that burns ethylene process off-gas, except flares. [74 FR 56374, Oct. 30, 2009, as amended at 75 FR 79160, Dec. 17, 2010; 78 FR 71962, Nov. 29, 2013; 79 FR 63794, Oct. 24, 2014; 81 FR 89261, Dec. 9, 2016]
Subpart Y – Petroleum Refineries (§98.257)	Link to an amendment published at 81 FR 89263, Dec. 9, 2016. In addition to the records required by §98.3(g), you must retain the records specified in paragraphs (a) and (b) of this section. (a) The records of all parameters monitored under §98.255. If you comply with the combustion methodology in §98.252(a), then you must retain under this subpart the records required for the Tier 3 and/or Tier 4 Calculation Methodologies in §98.37 and you must keep records of the annual average

	flow calculations. (b) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (b)(1) through (67) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (b)(1) through (67) of this section. (1) Volume of flare gas combusted during measurement period (scf) (Equation Y-1b of §98.253). (2) Mole percent CO_2 concentration in the flare gas stream during the measurement period (mole percent) (Equation Y-1b). (3) Mole percent concentration of compound “x” in the flare gas stream during the measurement period (mole percent) (Equation Y-1b). (4) Carbon mole number of compound “x” in the flare gas stream during the measurement period (mole carbon atoms per mole compound) (Equation Y-1b). (5) Molar volume conversion factor (scf per kg-mole) (Equation Y-1b). (6) Annual volume of flare gas combusted for each flare during normal operations from company records (million (MM) standard cubic feet per year, MMscf/year) (Equation Y-3 of §98.253). (7) Higher heating value for fuel gas or flare gas for each flare from company records (British thermal units per scf, Btu/scf = MMBtu/MMscf) (Equation Y-3). (8) Volume of flare gas combusted during indexed start-up, shutdown, or malfunction event from engineering calculations (scf) (Equation Y-3). (9) Average molecular weight of the flare gas, from the analysis results or engineering calculations for the event (kg/kg-mole) (Equation Y-3). (10) Molar volume conversion factor (scf per kg-mole) (Equation Y-3). (11) Average carbon content of the flare gas, from analysis results or engineering calculations for the event (kg C per kg flare gas) (Equation Y-3). (12) Weight fraction of carbon in the flare gas prior to combustion in each flare that is contributed by methane from measurement values or engineering calculations (kg C in methane in flare gas/kg C in flare gas) (Equation Y-4 of §98.253). (13) Annual throughput of unit from company records for each catalytic cracking unit or fluid coking unit (barrels/year) (Equation Y-8 of §98.253). (14) Coke burn-off factor from engineering calculations (default for catalytic cracking units = 7.3; default for fluid coking units = 11) (kg coke per barrel of feed) (Equation Y-8). (15) Carbon content of coke based on measurement or engineering estimate (kg C per kg coke) (Equation Y-8). (16) Value of unit-specific CH_4 emission factor, including the units of measure, for each catalytic cracking unit, traditional fluid coking unit, catalytic reforming unit, and coke calcining unit (calculation method in §98.253(c)(4)).

	(17) Annual activity data (e.g., input or product rate), including the units of measure, in units of measure consistent with the emission factor, for each catalytic cracking unit, traditional fluid coking unit, catalytic reforming unit, and coke calcining unit (calculation method in §98.253(c)(4)). (18) Value of unit-specific N_2O emission factor, including the units of measure, for each catalytic cracking unit, traditional fluid coking unit, catalytic reforming unit, and coke calcining unit (calculation method in §98.253(c)(5)). (19) Annual activity data (e.g., input or product rate), including the units of measure, in units of measure consistent with the emission factor, for each catalytic cracking unit, traditional fluid coking unit, catalytic reforming unit, and coke calcining unit (calculation method in §98.253(c)(5)). (20) Carbon content of coke based on measurement or engineering estimate (default = 0.94) (kg C per kg coke) (Equation Y-11 of §98.253). (21) Volumetric flow rate of sour gas (including sour water stripper gas) feed sent off site for sulfur recovery in the year (scf/year) (Equation Y-12 of §98.253). (22) Mole fraction of carbon in the sour gas feed sent off site for sulfur recovery (kg-mole C/kg-mole gas) (Equation Y-12). (23) Molar volume conversion factor for sour gas sent off site (scf per kg-mole) (Equation Y-12). (24) Volumetric flow rate of sour gas (including sour water stripper gas) fed to the onsite sulfur recovery plant (scf/year) (Equation Y-12). (25) Mole fraction of carbon in the sour gas fed to the onsite sulfur recovery plant (kg-mole C/kg-mole gas) (Equation Y-12). (26) Molar volume conversion factor for onsite sulfur recovery plant (scf per kg-mole) (Equation Y-12). (27) Annual mass of green coke fed to the coke calcining unit from facility records (metric tons/year) (Equation Y-13 of §98.253). (28) Annual mass of marketable petroleum coke produced by the coke calcining unit from facility records (metric tons/year) (Equation Y-13). (29) Annual mass of petroleum coke dust removed from the process through the dust collection system of the coke calcining unit from facility records. For coke calcining units that recycle the collected dust, the mass of coke dust removed from the process is the mass of coke dust collected less the mass of coke dust recycled to the process (metric tons/year) (Equation Y-13). (30) Average mass fraction carbon content of green coke from facility measurement data (metric tons C per metric ton green coke) (Equation Y-13). (31) Average mass fraction carbon content of marketable petroleum coke produced by the coke calcining unit from facility measurement data (metric tons C per metric ton petroleum coke (Equation Y-13). (32) Quantity of asphalt blown for each asphalt blowing unit (million barrels per year (MMbbl/year)) (Equation Y-14 of §98.253). (33) Emission factor for CO_2 from uncontrolled asphalt blowing from facility-specific test data

	for each asphalt blowing unit (metric tons CO_2/MMbbl asphalt blown) (Equation Y-14). (34) Emission factor for CH_4 from uncontrolled asphalt blowing from facility-specific test data for each asphalt blowing unit (metric tons CH_4/MMbbl asphalt blown) (Equation Y-15 of §98.253). (35) Quantity of asphalt blown (million barrels/year (MMbbl/year)) (Equation Y-16a of §98.253). (36) Carbon emission factor from asphalt blowing from facility-specific test data (metric tons C/MMbbl asphalt blown) (Equation Y-16a). (37) Quantity of asphalt blown for each asphalt blowing unit (million barrels per year (MMbbl/year)) (Equation Y-16b of §98.253). (38) Emission factor for CO_2 from uncontrolled asphalt blowing from facility-specific test data for each asphalt blowing unit (metric tons CO_2/MMbbl asphalt blown) (Equation Y-16b). (39) Carbon emission factor from asphalt blowing from facility-specific test data for each asphalt blowing unit (metric tons C/MMbbl asphalt blown) (Equation Y-16b). (40) Emission factor for CH_4 from uncontrolled asphalt blowing from facility-specific test data for each asphalt blowing unit (metric tons CH_4/MMbbl asphalt blown) (Equation Y-17 of §98.253). (41) Cumulative number of vessel openings for all delayed coking unit vessels of the same dimensions during the year (Equation Y-18 of §98.253). (42) Height of coking unit vessel for each set of coke drums or vessels of the same size (feet) (Equation Y-18). (43) Gauge pressure of the coking vessel when opened to the atmosphere prior to coke cutting or, if the alternative method provided in §98.253(i)(2) is used, gauge pressure of the coking vessel when depressurization gases are first routed to the atmosphere for each set of coke drums or vessels of the same size (pounds per square inch gauge (psig)) (Equation Y-18). (44) Volumetric void fraction of coking vessel prior to steaming for each set of coke drums or vessels of the same size (cf gas/cf of vessel) (Equation Y-18). (45) Diameter of coking unit vessel for each set of coke drums or vessels of the same size (feet) (Equation Y-18). (46) Molar volume conversion factor for each set of coke drums or vessels of the same size (scf per kg-mole) (Equation Y-18). (47) Average volumetric flow rate of process gas during the event from measurement data, process knowledge, or engineering estimates for each set of coke drums or vessels of the same size (scf per hour) (Equation Y-19 of §98.253). (48) Mole fraction of methane in process vent during the event from measurement data, process knowledge, or engineering estimates for each set of coke drums or vessels of the same size (kg-mole CH_4/kg-mole gas) (Equation Y-19). (49) Venting time for the event for each set of coke drums or vessels of the same size (hours) (Equation Y-19). (50) Molar volume conversion factor for each set of coke drums or vessels of the same size (scf

	per kg-mole) (Equation Y-19). (51) Quantity of crude oil plus the quantity of intermediate products received from off site that are processed at the facility (MMbbl/year) (Equation Y-20 of §98.253). (52) Molar volume conversion factor (scf per kg-mole) (Equation Y-20). (53) Methane emission factor for uncontrolled blown systems (scf CH_4/MMbbl) (Equation Y-20). (54) Quantity of crude oil plus the quantity of intermediate products received from off site that are processed at the facility (MMbbl/year) (Equation Y-22 of §98.253). (55) Quantity of unstabilized crude oil received at the facility (MMbbl/year) (Equation Y-23 of §98.253). (56) Pressure differential from the previous storage pressure to atmospheric pressure (psi) (Equation Y-23). (57) Average mole fraction of CH_4 in vent gas from the unstabilized crude oil storage tanks from facility measurements (kg-mole CH_4/kg-mole gas) (Equation Y-23). (58) Molar volume conversion factor (scf per kg-mole) (Equation Y-23). (59) Specify whether the calculated or default loading factor L specified in §98.253(n) is entered, for each liquid loaded to each (methods specified in §98.253(n)). (60) Saturation factor specified in §98.253(n), for each liquid loaded to each vessel (methods specified in §98.253(n)). (61) True vapor pressure of liquid loaded, for each liquid loaded to each vessel (psia) (methods specified in §98.253(n)). (62) Molecular weight of vapors (lb per lb-mole), for each liquid loaded to each vessel (methods specified in §98.253(n)). (63) Temperature of bulk liquid loaded, for each liquid loaded to each vessel (°R, degrees Rankine) (methods specified in §98.253(n)). (64) Total loading loss (without efficiency correction), for each liquid loaded to each vessel (pounds per 1000 gallons loaded) (methods specified in §98.253(n)). (65) Overall emission control system reduction efficiency, including the vapor collection system efficiency and the vapor recovery or destruction efficiency (enter zero if no emission controls), for each liquid loaded to each vessel (percent) (methods specified §98.253(n)). (66) Vapor phase concentration of methane in liquid loaded, for each liquid loaded to each vessel (percent by volume) (methods specified in §98.253(n)). (67) Quantity of material loaded, for each liquid loaded to each vessel (thousand gallon per year) (methods specified in §98.253(n)). [79 FR 63796, Oct. 24, 2014]
Subpart Z –	In addition to the records required by §98.3(g), you must retain the records specified in

Phosphoric Acid Production (§98.267)	paragraphs (a) through (d) of this section for each wet-process phosphoric acid production facility. (a) Monthly mass of phosphate rock consumed by origin (tons). (b) Records of all phosphate rock purchases and/or deliveries (if vertically integrated with a mine). (c) Documentation of the procedures used to ensure the accuracy of monthly phosphate rock consumption by origin. (d) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (d)(1) through (4) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (d)(1) through (4) of this section. (1) Inorganic carbon content of a grab sample batch of phosphate rock by origin obtained during month by wet-process phosphoric acid process line, from the carbon analysis results (percent by weight, expressed as a decimal fraction) (Equation Z-1a of §98.263). (2) Mass of phosphate rock by origin consumed in month by wet-process phosphoric acid process line (tons) (Equation Z-1a). (3) Carbon dioxide content of a grab sample batch of phosphate rock by origin obtained during month by wet-process phosphoric acid process line (percent by weight, expressed as a decimal fraction) (Equation Z-1b of §98.263). (4) Mass of phosphate rock by origin consumed in month by wet-process phosphoric acid process line (tons) (Equation Z-1b). [74 FR 56374, Oct. 30, 2009, as amended at 79 FR 63797, Oct. 24, 2014]
Subpart AA – Pulp and Paper Manufacturing (§98.277)	In addition to the information required by §98.3(g), you must retain the records in paragraphs (a) through (g) of this section. (a) GHG emission estimates (including separate estimates of biogenic CO_2) for each emissions source listed under §98.270(b). (b) Annual analyses of spent pulping liquor HHV for each chemical recovery furnace at kraft and soda facilities. (c) Annual analyses of spent pulping liquor carbon content for each chemical recovery combustion unit at a sulfite or semichemical pulp facility. (d) Annual quantity of spent liquor solids combusted in each chemical recovery furnace and chemical recovery combustion unit, and the basis for detemining the annual quantity of the spent liquor solids combusted (whether based on T650 om-05 Solids Content of Black Liquor, TAPPI (incorporated by reference, *see* §98.7) or an online measurement system). If an online measurement system is used, you must retain records of the calculations used to determine the annual quantity of spent liquor solids combusted from the continuous measurements. (e) Annual steam purchases. (f) Annual quantities of makeup chemicals used. (g) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (g)(1) through (27) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (g)(1)

	through (27) of this section. (1) Mass of the solid fuel combusted (tons/year) (Equation C-1 of §98.33). (2) Volume of the liquid fuel combusted (gallons/year) (Equation C-1). (3) Volume of the gaseous fuel combusted (scf/year) (Equation C-1). (4) Annual natural gas usage (therms/year) (Equation C-1a of §98.33). (5) Annual natural gas usage (mmBtu/year) (Equation C-1b of §98.33). (6) Mass of the solid fuel combusted (tons/year) (Equation C-2a of §98.33). (7) Volume of the liquid fuel combusted (gallons/year) (Equation C-2a). (8) Volume of the gaseous fuel combusted (scf/year) (Equation C-2a). (9) Annual mass of the solid fuel combusted (short tons/year) (Equation C-3 of §98.33). (10) Annual average carbon content of the solid fuel (percent by weight, expressed as a decimal fraction) (Equation C-3). (11) Annual volume of the liquid fuel combusted (gallons/year) (Equation C-4 of §98.33). (12) Annual average carbon content of the liquid fuel (kg C per gallon of fuel) (Equation C-4). (13) Annual volume of the gaseous fuel combusted (scf/year) (Equation C-5 of §98.33). (14) Annual average carbon content of the gaseous fuel (kg C per kg of fuel) (Equation C-5). (15) Annual average molecular weight of the gaseous fuel (kg/kg-mole) (Equation C-5). (16) Molar volume conversion factor at standard conditions, as defined in §98.6 (scf per kg-mole) (Equation C-5). (17) Identify if you will use the default high heat value from Table C-1 of subpart C of this part, or actual HHV data (Equation C-8 of §98.33). (18) High heat value of the fuel (mmBTU/tons) (Equation C-8). (19) High heat value of the fuel (mmBTU/gallons) (Equation C-8). (20) High heat value of the fuel (mmBTU/scf) (Equation C-8). (21) Mass of spent liquor solids combusted from each chemical recovery furnace located at a kraft or soda facility, in short tons in year, determined according to §98.274(b) (tons/year) (Equation AA-1 of §98.273). (22) Annual high heat value of the spent liquor solids from each chemical recovery furnace located at a kraft or soda facility determined according to §98.274(b) (mmBtu per kilogram) (Equation AA-1).

	(23) Annual high heat value of the spent liquor solids from each chemical recovery combustion unit located at a sulfite or stand-alone semichemical facility, determined according to §98.274(b) (mmBtu per kilogram) (Equation AA-1). (24) Mass of the spent liquor solids combusted in short tons per year determined according to §98.274(b) (tons/year) (Equation AA-2 of §98.273). (25) Annual carbon content of the spent liquor solids, determined according to §98.274(b) (percent by weight, expressed as a decimal fraction (e.g., 95% = 0.95)) (Equation AA-2). (26) Make-up quantity of $CaCO_3$ used for the reporting year (metric tons/year) (Equation AA-3 of §98.273). (27) Make-up quantity of Na_2CO_3 used for the reporting year metric tons/year) (Equation AA-3). [74 FR 56374, Oct. 30, 2009, as amended at 79 FR 63798, Oct. 24, 2014]
Subpart BB – Silicon Carbide Production (§98.287)	In addition to the records required by §98.3(g), you must retain the records specified in paragraphs (a) through (c) of this section for each silicon carbide production facility. (a) If a CEMS is used to measure CO_2 emissions, you must retain under this subpart the records required for the Tier 4 Calculation Methodology in §98.37 and the information listed in this paragraph (a): (1) Records of all petroleum coke purchases. (2) Annual operating hours. (b) If a CEMS is not used to measure emissions, you must retain records for the information listed in this paragraph (b): (1) Records of all analyses and calculations conducted for reported data listed in §98.286(b). (2) Records of all petroleum coke purchases. (3) Annual operating hours. (c) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (c)(1) and (2) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (c)(1) and (2) of this section. (1) Carbon content factor for petroleum coke consumed in month from the supplier or as measured by the applicable method (percent by weight expressed as a decimal fraction) (Equation BB-1 of §98.283). (2) Petroleum coke consumption in month (tons) (Equation BB-2 of §98.283). [74 FR 56374, Oct. 30, 2009, as amended at 79 FR 63798, Oct. 24, 2014]
Subpart CC – Soda Ash Manufacturing (§98.297)	In addition to the records required by §98.3(g), you must retain the records specified in paragraphs (a) through (c) of this section for each soda ash manufacturing line. (a) If a CEMS is used to measure CO_2 emissions, then you must retain under this subpart the records required for the Tier 4 Calculation Methodology specified in subpart C of this part and the

	information listed in this paragraph (a): (1) Monthly production of soda ash (tons) (2) Monthly consumption of trona or liquid alkaline feedstock (tons) (3) Annual operating hours (hours). (b) If a CEMS is not used to measure emissions, then you must retain records for the information listed in this paragraph (b): (1) Records of all analyses and calculations conducted for determining all reported data as listed in §98.296(b). (2) If using Equation CC-1 or CC-2 of this subpart, weekly inorganic carbon content factor of trona or soda ash, depending on method chosen, as measured by the applicable method in §98.294(b) (percent by weight expressed as a decimal fraction). (3) Annual operating hours for each manufacturing line used to produce soda ash (hours). (4) You must document the procedures used to ensure the accuracy of the monthly trona consumption or soda ash production measurements including, but not limited to, calibration of weighing equipment and other measurement devices. The estimated accuracy of measurements made with these devices must also be recorded, and the technical basis for these estimates must be provided. (5) If you produce soda ash using the liquid alkaline feedstock process and use the site-specific emission factor method to estimate emissions (§98.293(b)(3)) then you must also retain the following relevant information: (i) Records of performance test results. (ii) You must document the procedures used to ensure the accuracy of the annual average vent flow measurements including, but not limited to, calibration of flow rate meters and other measurement devices. The estimated accuracy of measurements made with these devices must also be recorded, and the technical basis for these estimates must be provided. (c) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (c)(1) through (4) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (c)(1) through (4) of this section (1) Inorganic carbon content in trona input, from the carbon analysis results for month (percent by weight, expressed as a decimal fraction) (Equation CC-1 of §98.293). (2) Mass of trona input in month (tons) (Equation CC-1). (3) Inorganic carbon content in soda ash output, from the carbon analysis results for month (percent by weight, expressed as a decimal fraction) (Equation CC-2 of §98.293). (4) Mass of soda ash output in month (tons) (Equation CC-2). [74 FR 56374, Oct. 30, 2009, as amended at 79 FR 63798, Oct. 24, 2014]
Subpart DD-Electrical Transmission and	In addition to the information required by §98.3(g), you must retain records of the information reported and listed in §98.306.

Distribution Equipment Use (§98.307)	
Subpart EE – Titanium Dioxide Production (§98.317)	In addition to the records required by §98.3(g), you must retain the records specified in paragraphs (a) through (c) of this section for each titanium dioxide production facility. (a) If a CEMS is used to measure CO_2 emissions, then you must retain under this subpart required for the Tier 4 Calculation Methodology in §98.37 and the information listed in this paragraph (a): (1) Records of all calcined petroleum coke purchases. (2) Annual operating hours for each titanium dioxide process line. (b) If a CEMS is not used to measure CO_2 emissions, then you must retain records for the information listed in this paraghraph: (1) Records of all calcined petroleum coke purchases (tons). (2) Records of all analyses and calculations conducted for all reported data as listed in §98.316(b). (3) Sampling analysis results for carbon content of consumed calcined petroleum coke (percent by weight expressed as a decimal fraction). (4) Sampling analysis results for the carbon content of carbon containing waste (percent by weight expressed as a decimal fraction), if applicable. (5) Monthly production of carbon-containing waste (tons). (6) You must document the procedures used to ensure the accuracy of the monthly petroleum coke consumption and quantity of carbon-containing waste measurement including, but not limited to, calibration of weighing equipment and other measurement devices. The estimated accuracy of measurements made with these devices must also be recorded, and the technical basis for these estimates must be provided. (7) Annual operating hours for each titanium dioxide process line (hours). (c) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (c)(1) and (2) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (c)(1) and (2) of this section. (1) Carbon content factor for petroleum coke consumed in month from the supplier or as measured by the applicable method incorporated by reference in §98.7 according to §98.314(c) (percent by weight, expressed as a decimal fraction) (Equation EE-2 of §98.313). (2) Calcined petroleum coke consumption for process line in month (tons) (Equation EE-2). [74 FR 56374, Oct. 30, 2009, as amended at 79 FR 63799, Oct. 24, 2014]
Subpart FF – Underground Coal Mines (§98.327)	In addition to the information required by §98.3(g), you must retain the following records: (a) Calibration records for all monitoring equipment, including the method or manufacturer's specification used for calibration.

	(b) Records of gas sales. (c) Logbooks of parameter measurements. (d) Laboratory analyses of samples.
Subpart GG – Zinc Production (§98.337)	In addition to the records required by §98.3(g), you must retain the records specified in paragraphs (a) through (c) of this section for each zinc production facility. (a) If a CEMS is used to measure emissions, then you must retain under this subpart the records required for the Tier 4 Calculation Methodology in §98.37 and the information listed in this paragraph (a): (1) Monthly facility production quantity for each zinc product (tons). (2) Annual operating hours for all Waelz kilns and electrothermic furnaces used in zinc production. (b) If a CEMS is not used to measure emissions, you must also retain the records specified in paragraphs (b)(1) through (b)(7) of this section. (1) Records of all analyses and calculations conducted for data reported as listed in §98.336(b). (2) Annual operating hours for Waelz kilns and electrothermic furnaces used in zinc production. (3) Monthly production quantity for each zinc product (tons). (4) Monthly mass of zinc bearing materials, flux materials (e.g., limestone, dolomite), and carbonaceous materials (e.g., coal, coke) charged to the kiln or furnace (tons). (5) Sampling and analysis records for carbon content of zinc bearing materials, flux materials (e.g., limestone, dolomite), carbonaceous materials (e.g., coal, coke), charged to the kiln or furnace (percent by weight, expressed as a decimal fraction). (6) Monthly mass of carbon electrode consumed in for each electrothermic furnace (tons). (7) Sampling and analysis records for carbon content of electrode materials. (8) You must keep records that include a detailed explanation of how company records of measurements are used to estimate the carbon input to each Waelz kiln or electrothermic furnace, as applicable to your facility, including documentation of any materials excluded from Equation GG-1 of this subpart that contribute less than 1 percent of the total carbon inputs to the process. You also must document the procedures used to ensure the accuracy of the measurements of materials fed, charged, or placed in an affected unit including, but not limited to, calibration of weighing equipment and other measurement devices. The estimated accuracy of measurements made with these devices must also be recorded, and the technical basis for these estimates must be provided. (c) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (c)(1) through (9) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (c)(1) through (9) of this section. (1) Annual mass of zinc bearing material charged to kiln or furnace (tons) (Equation GG-1 of §98.333). (2) Carbon content of the zinc bearing material, from the annual carbon analysis for kiln or

	furnace (percent by weight, expressed as a decimal fraction) (Equation GG-1). (3) Annual mass of flux materials (e.g., limestone, dolomite) charged to each kiln or furnace (tons) (Equation GG-1). (4) Carbon content of the flux materials charged to each kiln or furnace, from the annual carbon analysis (percent by weight, expressed as a decimal fraction) (Equation GG-1). (5) Annual mass of carbon electrode consumed in each furnace (tons) (Equation GG-1). (6) Carbon content of the carbon electrode consumed in each furnace, from the annual carbon analysis (percent by weight, expressed as a decimal fraction) (Equation GG-1). (7) Annual mass of carbonaceous materials (e.g., coal, coke) charged to each kiln or furnace (tons) (Equation GG-1). (8) Carbon content of the carbonaceous materials charged to each kiln or furnace, from the annual carbon analysis (percent by weight, expressed as a decimal fraction) (Equation GG-1). (9) Identify whether each unit is a Waelz kiln or an electrothermic furnace. [74 FR 56374, Oct. 30, 2009, as amended at 79 FR 63799, Oct. 24, 2014]
Subpart HH – Municipal Solid Waste Landfills (§98.347)	In addition to the information required by §98.3(g), you must retain the calibration records for all monitoring equipment, including the method or manufacturer's specification used for calibration. 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. [74 FR 56374, Oct. 30, 2009, as amended at 75 FR 66473, Oct. 28, 2010]
Subpart II – Industrial Wastewater Management (§98.357)	In addition to the information required by §98.3(g), you must retain the calibration records for all monitoring equipment, including the method or manufacturer's specification used for calibration.
Subpart JJ – Manure Management (§98.367)	In addition to the information required by §98.3(g), you must retain the calibration records for all monitoring equipment, including the method or manufacturer's specification used for calibration.
Subpart LL – Suppliers of Coal-Based Liquid Fuels (§98.387)	Suppliers of coal-based liquid fuels must retain records according to the requirements in §98.397 as if they applied to the appropriate coal-to-liquid product supplier (*e.g.*, retaining copies of all reports submitted to EPA under §98.386 and records to support information contained in those reports). Any records for petroleum products that are required to be retained in §98.397 are also required for coal-to-liquid products. [81 FR 89268, Dec. 9, 2016]
Subpart MM – Suppliers of Petroleum Products (§98.397)	(a) All reporters shall retain copies of all reports submitted to EPA under §98.396. In addition, all reporters shall maintain sufficient records to support information contained in those reports, including but not limited to information on the characteristics of their feedstocks and products. (b) Reporters shall maintain records to support quantities that are reported under this subpart, including records documenting any estimations of missing data and the number of calendar days in the reporting year for which substitute data procedures were followed. For all reported quantities of petroleum products, natural gas liquids, and biomass, 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. (c) Reporters shall retain laboratory reports, calculations and worksheets used to estimate the CO_2 emissions of the quantities of petroleum products, natural gas liquids, biomass, and feedstocks reported

	under this subpart. (d) Reporters shall maintain laboratory reports, calculations and worksheets used in the measurement of density and carbon share for any petroleum product or natural gas liquid for which CO_2 emissions were calculated using Calculation Method 2. (e) Estimates of missing data shall be documented and records maintained showing the calculations. (f) Reporters described in this subpart shall also retain all records described in §98.3(g). [74 FR 56374, Oct. 30, 2009, as amended at 75 FR 66478, Oct. 28, 2010; 78 FR 71974, Nov. 29, 2013]
Subpart NN – Suppliers of Natural Gas and Natural Gas Liquids (§98.407)	In addition to the information required by §98.3(g), the reporter shall retain the following records: (a) Records of all meter readings and documentation to support volumes of natural gas and NGLs that are reported under this part. (b) Records documenting any estimates of missing metered data and showing the calculations of the values used for the missing data. (c) Calculations and worksheets used to estimate CO_2 emissions for the volumes reported under this part. (d) Records related to the large end-users identified in §98.406(b)(7). (e) Records relating to measured Btu content or carbon content showing specific industry standards used to develop reporter-specific higher heating values and emission factors. (f) Records of such audits as required by Sarbanes Oxley regulations on the accuracy of measurements of volumes of natural gas and NGLs delivered to customers or on behalf of customers. [74 FR 56374, Oct. 30, 2009, as amended at 75 FR 66479, Oct. 28, 2010]
Subpart OO – Suppliers of Industrial Greenhouse Gases (§98.417)	(a) In addition to the data required by §98.3(g), the fluorinated GHG or fluorinated HTF production facility shall retain the following records: (1) Dated records of the data used to estimate the data reported under §98.416. (2) Records documenting the initial and periodic calibration of the analytical equipment (including but not limited to GC, IR, FTIR, or NMR), weigh scales, flowmeters, and volumetric and density measures used to measure the quantities reported under this subpart, including the manufacturer directions or industry standards used for calibration pursuant to §98.414(m) and (o). (3) Dated records of the total mass in metric tons of each reactant fed into the fluorinated GHG, fluorinated HTF, or nitrous oxide production process, by process. (4) Dated records of the total mass in metric tons of the reactants, by-products, and other wastes permanently removed from the fluorinated GHG, fluorinated HTF, or nitrous oxide production process, by process. (b) In addition to the data required by paragraph (a) of this section, any facility that destroys fluorinated GHGs or fluorinated HTFs shall keep records of test reports and other information documenting the facility's one-time destruction efficiency report in §98.416(b). (c) In addition to the data required by §98.3(g), the bulk importer shall retain the following

	records substantiating each of the imports that they report: (1) A copy of the bill of lading for the import. (2) The invoice for the import. (3) The U.S. Customs entry form. (d) In addition to the data required by §98.3(g), the bulk exporter shall retain the following records substantiating each of the exports that they report: (1) A copy of the bill of lading for the export and (2) The invoice for the export. (e) Every person who imports a container with a heel that is not reported under §98.416(c) shall keep records of the amount brought into the United States that document that the residual amount in each shipment is less than 10 percent of the volume of the container and will: (1) Remain in the container and be included in a future shipment. (2) Be recovered and transformed. (3) Be recovered and destroyed. (4) Be recovered and included in a future shipment. (f) Isolated intermediates that are produced and transformed at the same facility are exempt from the recordkeeping requirements of this section. (g) Low-concentration constituents are exempt from the recordkeeping requirements of this section. [74 FR 56374, Oct. 30, 2009, as amended at 75 FR 79168, Dec. 17, 2010; 76 FR 73905, Nov. 29, 2011; 81 FR 89273, Dec. 9, 2016]
Subpart PP – Suppliers of Carbon Dioxide (§98.427)	In addition to the records required by §98.3(g) of subpart A of this part, you must retain the records specified in paragraphs (a) through (c) of this section, as applicable. (a) The owner or operator of a facility containing production process units must retain quarterly records of captured or transferred CO_2 streams and composition. (b) The owner or operator of a CO_2 production well facility must maintain quarterly records of the mass flow or volumetric flow of the extracted or transferred CO_2 stream and concentration and density if volumetric flow meters are used. (c) Importers or exporters of CO_2 must retain annual records of the mass flow, volumetric flow, and mass of CO_2 imported or exported. (d) Facilities subject to §98.426(h) must retain records of CO_2 in metric tons that is transferred to each subpart RR facility. [74 FR 56374, Oct. 30, 2009, as amended at 80 FR 64660, Oct. 23, 2015]
Subpart QQ – Importers and	(a) In addition to the data required by §98.3(g), importers of fluorinated GHGs in pre-charged equipment and closed-cell foams must retain the following records substantiating each of the imports

Exporters of Fluorinated Greenhouse Gases Contained in Pre-Charged Equipment or Closed-Cell Foams (§98.437)	that they report: (1) A copy of the bill of lading for the import. (2) The invoice for the import. (3) The U.S. Customs entry form. (4) Ports of entry through which the pre-charged equipment or closed-cell foams passed. (5) Countries from which the pre-charged equipment or closed-cell foams were imported. (6) For importers that report the mass of fluorinated GHGs within closed-cell foams on a CO_2e basis, correspondence or other documents that show the importer was unable to obtain information on the identity and mass of fluorinated GHG within closed-cell foams from the foam manufacturer. (b) In addition to the data required by §98.3(g), exporters of fluorinated GHGs in pre-charged equipment and closed-cell foams must retain the following records substantiating each of the exports that they report: (1) A copy of the bill of lading for the export and (2) The invoice for the export. (3) Ports of exit through which the pre-charged equipment or closed-cell foams passed. (4) Countries to which the pre-charged equipment or closed-cell foams were exported. (5) For exporters that report the mass of fluorinated GHGs within closed-cell foams on a CO_2e basis, correspondence or other documents that show the exporter was unable to obtain information on the identity and mass of fluorinated GHG within closed-cell foams from the foam manufacturer. (c) For importers and exports of fluorinated GHGs inside pre-charged equipment and closed-cell foams, the GHG Monitoring Plans, as described in §98.3(g)(5), must be completed by April 1, 2011. (d) Persons who transship pre-charged equipment and closed-cell foams containing fluorinated GHGs must maintain records that indicated that the pre-charged equipment or foam originated in a foreign country and was destined for another foreign country and did not enter into commerce in the United States.
Subpart RR – Geologic Sequestration of Carbon Dioxide (§98.447)	(a) You must follow the record retention requirements specified by §98.3(g). In addition to the records required by §98.3(g), you must retain the records specified in paragraphs (a)(1) through (7) of this section, as applicable. You must retain all required records for at least 3 years. (1) Quarterly records of CO_2 received, including mass flow rate of contents of containers (mass or volumetric) at standard conditions and operating conditions, operating temperature and pressure, and concentration of these streams. (2) Quarterly records of produced CO_2, including mass flow or volumetric flow at standard conditions and operating conditions, operating temperature and pressure, and concentration of these streams. (3) Quarterly records of injected CO_2 including mass flow or volumetric flow at standard conditions and operating conditions, operating temperature and pressure, and concentration of these streams. (4) Annual records of information used to calculate the CO_2 emitted by surface leakage from

	leakage pathways. (5) Annual records of information used to calculate the CO_2 emitted from equipment leaks and vented emissions of CO_2 from equipment located on the surface between the flow meter used to measure injection quantity and the injection wellhead. (6) Annual records of information used to calculate the CO_2 emitted from equipment leaks and vented emissions of CO_2 from equipment located on the surface between the production wellhead and the flow meter used to measure production quantity. (7) Any other records as specified for retention in your EPA-approved MRV plan. (b) You must complete your monitoring plans, as described in §98.3(g)(5), by April 1 of the year you begin collecting data. [75 FR 75078, Dec. 1, 2010, as amended at 76 FR 73906, Nov. 29, 2011]
Subpart SS – Electrical Equipment Manufacture or Refurbishment (§98.457)	In addition to the information required by §98.3(g), you must retain the following records: (a) All information reported and listed in §98.456. (b) Accuracy certifications and calibration records for all scales and monitoring equipment, including the method or manufacturer's specification used for calibration. (c) Certifications of the quantity of gas, in pounds, charged into equipment at the electrical equipment manufacturer or refurbishment facility as well as the actual quantity of gas, in pounds, charged into equipment at installation. (d) Check-out and weigh-in sheets and procedures for cylinders. (e) Residual gas amounts, in pounds, in cylinders sent back to suppliers. (f) Invoices for gas purchases and sales. (g) GHG Monitoring Plans, as described in §98.3(g)(5), must be completed by April 1, 2011.
Subpart TT—Industrial Waste Landfills (§98.467)	(a) The calibration records for all monitoring equipment, including the method or manufacturer's specification used for calibration, and all measurement data used for the purposes of §98.460(c)(2)(xii) or (xiii) or used to determine waste stream-specific DOC_X values for use in Equation TT-1 of §98.463. (b) *Verification software records.* You must keep a record of the file generated by the verification software specified in §98.5(b) for the applicable data specified in paragraphs (b)(1) and (2) of this section. Retention of this file satisfies the recordkeeping requirement for the data in paragraphs (b)(1) and (2) of this section. (1) Quantity of each product produced or feedstock entering the process or facility per waste stream per year, from measurement data and/or other company records. You must use the same basis for all years in the calculation (i.e., based on production or based on quantity of feedstock) (metric tons) (Equation TT-2 of §98.463). (2) [Reserved] [79 FR 63799, Oct. 24, 2014]
Subpart UU – Injection of Carbon Dioxide (§98.477)	(a) You must follow the record retention requirements specified by §98.3(g). In addition to the records required by §98.3(g), you must retain quarterly records of CO_2 received, including mass flow rate or contents of containers (mass or volumetric) at standard conditions and operating conditions, operating temperature and pressure, and concentration of these streams. You must retain all required

	records for at least 3 years. (b) You must complete your monitoring plans, as described in §98.3(g)(5), by April 1 of the year you begin collecting data.

Note: Many facilities that would be affected by the rule emit GHGs from multiple sources. The facility must assess every source category that could potentially apply to each when determining if a threshold has been exceeded. If the threshold is exceeded for any source category, the facility must report and keep records from emissions from all source categories, including those source categories that do not exceed the applicable threshold.