Appendix A-1. Reporting Thresholds and Reporting Requirements

Subpart	Reporting Threshold	Reporting and Verification
E—Adipic Acid Production (§98.50)	All In	(1) Annual process N2O emissions from adipic acid production (metric tons). (2) Annual adipic acid production (tons). (3) Annual adipic acid production during which N2O abatement technology is operating (tons). (4) Annual process N2O emissions from adipic acid production facility that is sold or transferred off-site (metric tons). (5) Number of abatement technologies (if applicable). (6) Types of abatement technology or technologies used (if applicable). (7) Abatement technology destruction efficiency for each abatement technology (percent destruction). (8) Abatement utilization factor for each abatement technology (fraction of annual production that abatement technology is operating). (9) Number of times in the reporting year that missing data procedures were followed to measure adipic acid production (months). **If a performance test and site-specific emissions factors were used:** (1) Emission factor (lb N2O/ton adipic acid). (2) Test method used for performance test. (3) Production rate per test run during performance test (tons/hr). (4) N2O concentration per test run during performance test (ppm N2O). (5) Volumetric flow rate per test run during performance test (dscf/hr). (6) Number of test runs. (7) Number of times in the reporting year that a performance test had to be repeated (number). **If approval was requested for an alternative method of calculating N2O emissions**: (1) Name of alternative method. (2) Description of alternative method. (3) Request date. (4) Approval date.
H—Cement Production (§98.80)	All In	**If a CEMS is used to measure CO2 emissions:** All relevant information required under 40 CFR 98.37(e)(2)(vi) for the Tier 4 Calculation Methodology plus: (1) Monthly clinker production from each kiln at the facility. (2) Monthly cement production from each kiln at the facility. (3) Number of kilns and number of operating kilns. **If a CEMS is not used to measure CO2 emissions**: (1) Kiln identification number. (2) Monthly clinker production from each kiln. (3) Monthly cement production from each kiln. (4) Number of kilns and number of operating kilns. (5) Quarterly quantity of CKD not recycled to the kiln for each kiln at the facility. (6) Monthly fraction of total CaO, total MgO, non-calcined CaO and non-calcined MgO in clinker for each kiln (as wt-fractions). (7) Method used to determine non-calcined CaO and non-calcined MgO in clinker. (8) Quarterly fraction of total CaO, total MgO, non-calcined CaO and non-calcined MgO in CKD not recycled to the kiln for each kiln (as wt-fractions). (9) Method used to determine non-calcined CaO and non-calcined MgO in CKD. (10) Monthly kiln-specific clinker CO2 emission factors for each kiln (metric tons CO2/metric ton clinker produced). (11) Quarterly kiln-specific CKD CO2 emission factors for each kiln (metric tons CO2/metric ton CKD produced). (12) Annual organic carbon content of raw kiln feed or annual organic carbon content of each raw material (wt-fraction, dry basis). (13) Annual consumption of raw kiln feed or annual consumption of each raw material (dry basis). (14) Number of times missing data procedures were used to determine: (i) Clinker production (number of months); (ii) Carbonate contents of clinker (number of months); (iii) Non-calcined content of clinker (number of months); (iv) CKD not recycled to kiln (number of quarters); (v) Non-calcined content of CKD (number of quarters); (vi) Organic carbon contents of raw materials (number of times); and (vii) Raw material consumption (number of months). (15) Method used to determine the monthly clinker production from each kiln reported under (b)(2) of this section, including monthly kiln-specific clinker factors, if used.

Subpart	Reporting Threshold	Reporting and Verification
K—Ferroalloy Production (§98.110)	25,000 metric tons C02e/year	**All**: (1) Total pounds of synthetic fertilizer produced through and total nitrogen contained in that fertilizer. (2) Annual production for each ferroalloy product identified in §98.110, from each EAF (tons). (3) Total number of EAFs at facility used for production of ferroalloy products. **If a CEMS is used to measure CO2 emissions:** All relevant information required under 40 CFR 98.36 for the Tier 4 Calculation Methodology plus: (1) Annual process CO2 emissions (in metric tons) from each EAF used for the production of any ferroalloy product identified in §98.110. (2) Annual process CH4 emissions (in metric tons) from each EAF used for the production of any ferroalloy listed in Table K-1 of subpart K (metric tons). (3) Identification each EAF. **If a CEMS is not used to measure CO2 process emissions**,: (1) Annual process CO2 emissions (in metric tons) from each EAF used for the production of any ferroalloy product identified in §98.110. (2) Annual process CH4 emissions (in metric tons) from each EAF used for the production of any ferroalloy listed in Table K-1 of this subpart (metric tons). (3) Identification number of each EAF. (4) Annual material quantity for each material included for the calculation of annual process CO2 emissions for each EAF. (5) Annual average of the carbon content determinations for each material included for the calculation of annual process CO2 emissions for each EAF (percent by weight, expressed as a decimal fraction). (6) The method used for the determination of carbon content for each material reported in paragraph (e)(5) of this section (e.g., supplier provided information, analyses of representative samples you collected). (7) For missing data procedures: How monthly mass of carbon-containing inputs and outputs with missing data was determined and the number of months the missing data procedures were used.
N—Glass Production (§98.140)	25,000 metric tons C02e/year	**If a CEMS is used to measure CO2 emissions:** All relevant information required under 40 CFR 98.36 for the Tier 4 Calculation Methodology plus: (1) Annual quantity of each carbonate-based raw material charged to each continuous glass melting furnace and for all furnaces combined (tons). (2) Annual quantity of glass produced by each glass melting furnace and by all furnaces combined (tons). **If a CEMS is not used** to determine CO2 emissions from continuous glass melting furnaces, and process CO2 emissions are calculated according to the procedures specified in §98.143(b): (1) Annual process emissions of CO2 (metric tons) for each continuous glass melting furnace and for all furnaces combined. (2) Annual quantity of each carbonate-based raw material charged (tons) to each continuous glass melting furnace and for all furnaces combined. (3) Annual quantity of glass produced (tons) from each continuous glass melting furnace and from all furnaces combined. (4) Carbonate-based mineral mass fraction (percentage, expressed as a decimal) for each carbonate-based raw material charged to a continuous glass melting furnace. (5) Results of all tests used to verify the carbonate-based mineral mass fraction for each carbonate-based raw material charged to a continuous glass melting furnace, including (i) Date of test; (ii) Test method(s) and any variations used in the analyses; and (iii) Mass fraction of each sample analyzed; (6) The fraction of calcination achieved (percentage, expressed as a decimal) for each carbonate-based raw material, if a value other than 1.0 is used to calculate process mass emissions of CO2. (7) Method used to determine fraction of calcination (8) Total number of continuous glass melting furnaces. (9) The number of times in the reporting year that missing data procedures were followed to measure monthly quantities of carbonate-based raw materials or mass fraction of the carbonate-based minerals for any continuous glass melting furnace (months).

Subpart	Reporting Threshold	Reporting and Verification
O—HCFC-22 Production and HFC-23 Destruction (§98.150)	HCFC-22: All In HFC-23 destruction processes that are not collocated with HCFC-22 production and that destroy more than 2.14 metric tons HFC-23 per year: All In	**Production facilities** At the facility level: (1) Annual mass of HCFC-22 produced in metric tons. (2) Annual Loss Factor used to account for the loss of HCFC– 22 upstream of the measurement. (3) Annual mass of reactants fed into the process in metric tons of reactant. (4) The mass (in metric tons) of materials other than HCFC-22 and HFC-23 (i.e., unreacted reactants, HCl and other by-products) that occur in more than trace concentrations and that are permanently removed from the process. (5) The method for tracking startups, shutdowns, and malfunctions and HFC-23 generation/emissions during these events. (6) The names and addresses of facilities to which any HFC-23 was sent for destruction, and the quantities of HFC-23 (metric tons) sent to each. (7) Annual mass of the HFC-23 generated in metric tons. (8) Annual mass of any HFC-23 sent off site for sale in metric tons. (9) Annual mass of any HFC-23 sent off site for destruction in metric tons. (10) Annual masses of HFC-23 in storage at the beginning and end of the year, in metric tons. (11) Annual mass of HFC-23 emitted in metric tons. (12) Annual mass of HFC-23 emitted from equipment leaks in metric tons. (13) Annual mass of HFC-23 emitted from process vents in metric tons.
		HFC-23 destruction facilities (1) Annual mass of HFC-23 fed into the destruction device. (2) Annual mass of HFC-23 destroyed. (3) Annual mass of HFC-23 emitted from the destruction device. Plus the concentration (mass fraction) of HFC-23 measured at the outlet of the destruction device during of the facility's annual HFC-23 concentration measurements at the outlet of the device. Plus the following information, if facilities calculate the emission rate and DE of the destruction device under §98.154(l)(2) (1) The flow rate of HFC-23 being fed into the destruction device in kg/hr. (2) The concentration (mass fraction) of HFC-23 at the outlet of the destruction device. (3) The flow rate at the outlet of the destruction device in kg/hr. (4) Emission rate (in kg/hr) calculated from (d)(2) and (d)(3) of this section. (5) Destruction efficiency (DE) calculated from paragraphs (d)(1) and (d)(4) of this section. Plus a one-time report by March 31, 2011 or within 60 days of commencing HFC-23 destruction, including the following information: (1) The destruction unit's destruction efficiency (DE). (2) The methods used to determine the unit's destruction efficiency. (3) The methods used to record the mass of HFC-23 destroyed. (4) The name of other relevant federal or state regulations that may apply to the destruction process. (5) If any changes are made that affect HFC-23 destruction efficiency or the methods used to record volume destroyed, then these changes must be reflected in a revision to this report. The revised report must be submitted to EPA within 60 days of the change.

Subpart	Reporting Threshold	Reporting and Verification
P—Hydrogen Production (§98.160)	25,000 metric tons C02e/year	**If a CEMS is used to measure CO2 emissions:** All relevant information required under 40 CFR 98.36 for the Tier 4 Calculation Methodology plus: (1) Unit identification number and annual CO2 emissions. (2) Annual quantity of hydrogen produced (metric tons) for each process unit and for all units combined. (3) Annual quantity of ammonia produced (metric tons), if applicable (metric tons) for each process unit and for all units combined.
		If a CEMS is not used to measure CO2 emissions: (1) Unit identification number and annual CO2 emissions. (2) Monthly consumption of each fuel and feedstock used for hydrogen production and its type (scf of gaseous fuels and feedstocks, gallons of liquid fuels and feedstocks, kg of solid fuels and feedstocks). (3) Annual quantity of hydrogen produced (metric tons). (4) Annual quantity of ammonia produced, if applicable (metric tons). (5) Monthly analyses of carbon content for each fuel and feedstock used in hydrogen production (kg carbon /kg of gaseous and solid fuels and feedstocks, (kg carbon per gallon of liquid fuels and feedstocks). (6) Monthly analyses of the molecular weight of gaseous fuels and feedstocks (kg/kg-mole) used, if any.
		All: (1) Quantity of CO2 collected and transferred off site in either gas, liquid, or solid forms, following the requirements of subpart PP of this part. (2) Annual quantity of carbon other than CO2 collected and transferred off site in either gas, liquid, or solid forms (kg carbon).
Q—Iron & Steel Production (§98.170)	25,000 metric tons C02e/year	**Each coke pushing operation; taconite indurating furnace; basic oxygen furnace; non-recovery coke oven battery; sinter process; EAF; decarburization vessel; direct reduction furnace, and flare burning coke oven gas or blast furnace gas::** (1) Unit identification number and annual CO2 emissions (in metric tons) . (2) Annual production quantity (in metric tons) for taconite pellets, coke, sinter, iron, and raw steel. **(3) The annual amount of coal charged to the coke ovens (in metric tons).**
		If a CEMS is used to measure CO2 emissions: All relevant information required under 40 CFR 98.36 for the Tier 4 Calculation Methodology
		If a CEMS is not used to measure CO2 emissions: An indication for each of whether for each process whether the emissions were determined using the carbon mass balance method in §98.173(b)(1) or the site-specific emission factor method in §98.173(b)(2).
		If the carbon mass balance method is used to determine CO2 emissions: (1) The carbon content of each process input and output used to determine CO2 emissions. (2) Whether the carbon content was determined from information from the supplier or by laboratory analysis, and if by laboratory analysis, the test method used. (3) The annual volume of each type of gaseous fuel (reported separately for each type in standard cubic feet), the annual volume of each type of liquid fuel (reported separately for each type in gallons), and the annual mass (in metric tons) of each other process inputs and outputs used to determine CO2 emissions. (4) The molecular weight of gaseous fuels. (5) For the missing data procedures in §98.175(b): How the monthly mass for each process input or output with missing data was determined and the number of months the missing data procedures were used.
		If the site-specific emission factor method is used to determine CO2 emissions: (1) The measured average hourly CO2 emission rate during the test(in metric tons per hour). (2) The average hourly feed or production rate (as applicable) during the test (in metric tons per hour). (3) The site-specific emission factor (in metric tons of CO2 per metric ton of feed or production, as applicable). (4) The annual feed or production rate (as applicable) used to estimate annual CO2 emissions (in metric tons).
		For flares burning coke oven gas or blast furnace gas: All relevant information specified in §98.256(e) of subpart Y (Petroleum Refineries) of this part.

Subpart	Reporting Threshold	Reporting and Verification
S—Lime Manufacturing (§98.190)	All In	**If a CEMS is used to measure CO2 emissions:** All relevant information required under 40 CFR 98.37(e)(2)(vi) for the Tier 4 Calculation Methodology plus: (1) Method used to determine the quantity of lime that is produced and sold. (2) Method used to determine the quantity of calcined lime byproduct/waste sold. (3) Beginning and end of year inventories for each lime product that is produced, by type. (4) Beginning and end of year inventories for calcined lime byproducts/wastes sold, by type. (5) Annual amount of calcined lime byproduct/waste sold, by type (tons). (6) Annual amount of lime product sold, by type (tons). (7) Annual amount of calcined lime byproduct/waste that is not sold, by type (tons). (8) Annual amount of lime product not sold, by type (tons). **If a CEMS is not used to measure CO2 emissions**: (1) Annual CO2 process emissions from all kilns combined (metric tons). (2) Monthly emission factors for each lime type produced. (3) Monthly emission factors for each calcined byproduct/waste by lime type that is sold. (4) Standard method used (ASTM or NLA testing method) to determine chemical compositions of each lime type produced and each calcined lime byproduct/waste type. (5) Monthly results of chemical composition analysis of each type of lime product produced and calcined byproduct/waste sold. (6) Annual results of chemical composition analysis of each type of lime byproduct/waste that is not sold. (7) Method used to determine the quantity of lime produced and/or lime sold. (8) Monthly amount of lime product sold, by type (tons). (9) Method used to determine the quantity of calcined lime byproduct/waste sold. (10) Monthly amount of calcined lime byproduct/waste sold, by type (tons). (11) Annual amount of calcined lime byproduct/waste that is not sold, by type (tons). (12) Monthly weight or mass of each lime type produced (tons). (13) Beginning and end of year inventories for each lime product that is produced. (14) Beginning and end of year inventories for calcined lime byproducts/wastes sold. (15) Annual lime production capacity (tons) per facility. (16) Number of times in the reporting year that missing data procedures were followed to measure lime production (months) or the chemical composition of lime products sold (months). (17) Indicate whether CO2 was used on-site (i.e. for use in a purification process). If CO2 was used on-site, provide: (i) The annual amount of CO2 captured for use in the on-site process; and (ii) The method used to determine the amount of CO2 captured.

Subpart	Reporting Threshold	Reporting and Verification
V—Nitric Acid Production (§98.220)	All In	All (1) Train identification number. (2) Annual process N2O emissions from each nitric acid train (metric tons). (3) Annual nitric acid production from each nitric acid train (tons, 100 percent acid basis). (4) Annual nitric acid production from each nitric acid train during which N2O abatement technology is operating (ton acid produced, 100 percent acid basis) (5) Annual nitric acid production from the nitric acid facility (tons, 100 percent acid basis). (6) Number of nitric acid trains. (7) Number of different N_2O abatement technologies per nitric acid train "t". (8) Abatement technologies used (if applicable). (9) Abatement technology destruction efficiency for each abatement technology (percent destruction). (10) Abatement utilization factor for each abatement technology (fraction of annual production that abatement technology is operating). (11) Type of nitric acid process used for each nitric acid train (single pressure or dual pressure). (12) Number of times in the reporting year that missing data procedures were followed to measure nitric acid production (months). (13) If a performance test was conducted and site-specific emissions factor was calculated according to §98.223(a)(1): (i) Emission factor calculated for each nitric acid train (lb N2O/ ton nitric acid, 100 percent acid basis); (ii) Test method used for performance test; (iii) Production rate per test run during performance test (tons nitric acid produced/hr, 100 percent acid basis); (iv) N2O concentration per test run during performance test (ppm N2O); (v) Volumetric flow rate per test run during performance test (dscf/hr); (vi) Number of test runs during performance test; (vii) Number of times in the reporting year that a performance test had to be repeated (number). (14) If approval was requested for an alternative method of determining N2O emissions under §98.223(a)(2),: (i) Name of alternative method; (ii) Description of alternative method; (iii) Request date; and (iv) Approval date. (15) Total pounds of synthetic fertilizer produced through and total nitrogen contained in that fertilizer.
Z—Phosphoric Acid Production (§98.260)	All In	**All:** (1) Annual phosphoric acid production by origin (as listed in Table Z-1 to subpart Z) of the phosphate rock (tons). (2) Annual phosphoric acid permitted production capacity (tons). (3) Annual arithmetic average percent inorganic carbon in phosphate rock from monthly records (percent by weight, expressed as a decimal fraction). (4) Annual phosphate rock consumption from monthly measurement records by origin (as listed in Table Z-1 to subpart Z) from monthly measurement records (tons). **If a CEMS is used to measure CO2 emissions:** All relevant information required under 40 CFR 98.37(e)(2)(vi) for the Tier 4 Calculation Methodology plus: (1) The identification number of each wet-process phosphoric acid process line. (2) The annual CO2 emissions from each wet-process phosphoric acid process line (metric tons) and the relevant information required under 40 CFR 98.36 (e)(2)(vi) for the Tier 4 Calculation Methodology. **If a CEMS is not used to measure CO2 emissions:** (1) Identification number of each wet-process phosphoric acid process line. (2) Annual CO2 emissions from each wet-process phosphoric acid process line (metric tons) as calculated by Eq. Z-1 of subpart Z. (3) Annual phosphoric acid permitted production capacity for each wet-process phosphoric acid process line (metric tons). (4) Method used to estimate any missing values of inorganic carbon content of phosphate rock for each wet-process phosphoric acid process line. (5) Monthly inorganic carbon content of phosphate rock for each wet-process phosphoric acid process line (percent by weight, expressed as a decimal fraction). (6) Monthly mass of phosphate rock consumed by origin, (as listed in Table Z-1 to subpart Z) in production for each wet-process phosphoric acid process line (tons). (7) Number of wet-process phosphoric acid process lines. (8) Number of times missing data procedures were used to estimate phosphate rock consumption (months) and inorganic carbon contents of the phosphate rock (months). (9) Annual process CO_2 emissions from phosphoric acid production facility (metric tons).

Subpart	Reporting Threshold	Reporting and Verification
CC—Soda Ash Manufacturing (§98.290)	All in	**If a CEMS is used to measure CO2 emissions:** All relevant information required under 40 CFR 98.37(e)(2)(vi) for the Tier 4 Calculation Methodology plus: (1) Annual consumption of trona or liquid alkaline feedstock for each manufacturing line (tons). (2) Annual production of soda ash for each manufacturing line (tons). (3) Annual production capacity of soda ash for each manufacturing line (tons). (4) Identification number of each manufacturing line. **If a CEMS is not used to measure CO2 emissions**: (1) Annual process CO2 emissions from each soda ash manufacturing line (metric tons). (2) Annual process CO2 emissions from each soda ash manufacturing line (metric tons). (3) Annual production of soda ash for each manufacturing line (tons). (4) Annual production capacity of soda ash for each manufacturing line (tons). (5) Monthly consumption of trona or liquid alkaline feedstock for each manufacturing line (tons). (6) Monthly production of soda ash (tons). (7) Inorganic carbon content factor of trona or soda ash (depending on use of Eq. CC-1 or CC-2) as measured by the applicable method in 98.294(b) or (c) for each month (percent by weight expressed as a decimal fraction). (8) Whether CO2 emissions for each manufacturing line were calculated using a trona input method as described in Equation CC-1, a soda ash output method as described in Equation CC-2, or a site-specific emission factor method as described in Equations CC-3 through CC-5. (9) Number of manufacturing lines located used to produce soda ash. (10) For soda ash produced using the liquid alkaline feedstock process, if the site-specific emission factor method is used to estimate emissions, report the following information for each manufacturing line or stack: (i) Stack gas volumetric flow rate during performance test (dscfm); (ii) Hourly CO2 concentration during performance test (percent CO2); (iii) CO2 emission factor (metric tons CO2/metric tons of process vent flow from mine water stripper/evaporator); (iv) CO2 mass emission rate during performance test (metric tons/hour); (v) Average process vent flow from mine water stripper/evaporater during performance test (pounds/hour); (vi) Annual process vent flow rate from mine stripper/evaporator (thousand pounds/hour); and (vii) Annual operating hours for each manufacturing line used to produce soda ash using liquid alkaline feedstock (hours). (11) Number of times missing data procedures were used and for which of the following parameters: (i) Trona or soda ash (number of months); (ii) Inorganic carbon contents of trona or soda ash (weeks); and (iii) Process vent flow rate from mine water stripper/evaporator (number of months)
EE—Titanium Dioxide Production (§98.310)	All In	**If a CEMS is used to measure CO2 emissions:** All relevant information required under 40 CFR 98.37(e)(2)(vi) for the Tier 4 Calculation Methodology plus: (1) Identification number of each process line. (2) Annual consumption of calcined petroleum coke (tons). (3) Annual production of titanium dioxide (tons). (4) Annual production capacity of titanium dioxide (tones). (5) Annual production of carbon-containing waste (tons), if applicable. **If a CEMS is not used to measure CO2 emissions:** (1) Identification number of each process line. (2) Annual CO2 emissions from each chloride process line (metric tons/year). (3) Annual consumption of calcined petroleum coke for each process line (tons). (4) Annual production of titanium dioxide for each process line (tons). (5) Annual production capacity of titanium dioxide for each process line (tons). (6) Calcined petroleum coke consumption for each process line for each month (tons). (7) Annual production of carbon-containing waste for each process line (tons), if applicable. (8) Monthly production of titanium dioxide for each process line (tons). (9) Monthly carbon content factor of petroleum coke (percent by weight expressed as a decimal fraction). (10) Whether monthly carbon content of the petroleum coke is based on reports from the supplier or through self measurement using applicable ASTM Standard Test Methods. (11) Carbon content for carbon-containing waste for each process line (percent by weight expressed as a decimal fraction). (12) If carbon content of petroleum coke is based on self measurement, the ASTM Standard Test Methods used. (13) Sampling analysis results of carbon content of petroleum coke as determined for QA/QC of supplier data under 98.314(d) (percent by weight expressed as a decimal fraction). (14) Number of separate chloride process lines located at the facility. (15) The number of times in the reporting year that missing data procedures were followed to measure the carbon contents of petroleum coke (number of months); petroleum coke consumption (number of months); carbon-containing waste generated (number of months); and carbon contents of the carbon-containing waste (number of times during year).

Subpart	Reporting Threshold	Reporting and Verification
GG—Zinc Production (§98.330)	25,000 metric tons C02e/year	**If a CEMS is used to measure CO2 emissions:** All relevant information required under 40 CFR 98.36 for the Tier 4 Calculation Methodology plus: (1) Annual zinc product production capacity (tons). (2) Annual production quantity for each zinc product (tons). (3) Annual facility production quantity for each zinc product (tons). (4) Number of Waelz kilns at each facility used for zinc production. (5) Number of electrothermic furnaces at each facility used for zinc production. **If a CEMS is not used to measure CO2 emissions:** (1) Identification number and annual process CO2 emissions from each individual Waelz kiln or electrothermic furnace (metric tons). (2) Annual zinc product production capacity (tons). (3) Annual production quantity for each zinc product (tons). (4) Number of Waelz kilns at each facility used for zinc production. (5) Number of electrothermic furnaces at each facility used for zinc production. (6) Annual mass of each carbon-containing input material charged to each kiln or furnace (including zinc bearing material, flux materials (e.g., limestone, dolomite), carbon electrode, and other carbonaceous materials (e.g., coal, coke) (tons). (7) Carbon content of each carbon-containing input material charged to each kiln or furnace (including zinc bearing material, flux materials, and other carbonaceous materials) from the annual carbon analysis or from information provided by the material supplier for each kiln or furnace (percent by weight, expressed as a decimal fraction). (8) Whether carbon content of each carbon-containing input material charged to each kiln or furnace is based on reports from the supplier or through self measurement using applicable ASTM Standard Test Method. (9) If carbon content of each carbon-containing input material charged to each kiln or furnace is based on self measurement, the ASTM Standard Test Method used. (10) Carbon content of the carbon electrode used in each furnace from the annual carbon analysis or from information provided by the material supplier (percent by weight, expressed as a decimal fraction). (11) Whether carbon content of the carbon electrode used in each furnace is based on reports from the supplier or through self measurement using applicable ASTM Standard Test Method. (12) If carbon content of carbon electrode used in each furnace is based on self measurement, the ASTM Standard Test Method used. (13) For the missing data procedures in §98.335(b): How the monthly mass of carbon-containing materials with missing data was determined and the number of months the missing data procedures were used.

Subpart	Reporting Threshold	Reporting and Verification
HH—Landfills (§98.340)	25,000 metric tons C02e/year	(1) A classification of the landfill as "open" (actively received waste in the reporting year) or "closed" (no longer receiving waste), the year in which the landfill first started accepting waste for disposal, the last year the landfill accepted waste (for open landfills, enter the estimated year of landfill closure), the capacity (in metric tons) of the landfill, an indication of whether leachate recirculation is used during the reporting year and its typical frequency of use over the past 10 years (e.g., used several times a year for the past 10 years, used at least once a year for the past 10 years, used occasionally but not every year over the past 10 years, not used), an indication as to whether scales are present at the landfill, and the waste disposal quantity for each year of landfilling required to be included when using Equation HH-1 of this subpart (in metric tons, wet weight). (2) Method for estimating reporting year and historical waste disposal quantities, reason for its selection, and the range of years it is applied. For years when waste quantity data are determined using the methods in §98.343(a)(3), report separately the quantity of waste determined using the methods in §98.343(a)(3)(i) and the quantity of waste determined using the methods in §98.343(a)(3)(ii). For historical waste disposal quantities that were not determined using the methods in §98.343(a)(3), provide the population served by the landfill for each year the Equation HH-2 of this subpart is applied, if applicable, or, for open landfills using Equation HH-3 of this subpart, provide the value of landfill capacity (LFC) used in the calculation. (3) Waste composition for each year of landfilling, if available, in percentage categorized as (a) Municipal. (b) Biosolids or biological sludges; (c) Other, or more refined categories, such as those for which k rates are available in Table HH-1 of this subpart, and the method or basis for estimating waste composition. (4) For each waste type used to calculate CH4 generation using Equation HH-1 of subpart H: (i) Degradable organic carbon (DOC), methane correction factor (MCF), and fraction of DOC dissimilated (DOC_F) values used and (ii) Decay rate (k) value used. (5) Fraction of CH4 in landfill gas (F) and an indication of whether the fraction of CH4 was determined based on measured values or the default value. (6) The surface area of the landfill containing waste (in square meters), identification of the type of cover material used (as either organic cover, clay cover, sand cover, or other soil mixtures). If multiple cover types are used, the surface area associated with each cover type. (7) The modeled annual methane generation rate for the reporting year (metric tons CH4) calculated using Equation HH-1 of subpart HH. (8) For landfills without gas collection systems, the annual methane emissions (i.e., the methane generation, adjusted for oxidation, calculated using Equation HH-5 of subpart HH), reported in metric tons CH4 and an indication of whether passive vents and/or passive flares (vents or flares that are not considered part of the gas collection system as defined in §98.6) are present at this landfill. For landfills with gas collection systems: (1) Total volumetric flow of landfill gas collected for destruction for the reporting year (cubic feet at 520°R or 60°F and 1 atm). (2) Annual average CH4 concentration of landfill gas collected for destruction (percent by volume). (3) Monthly average temperature and pressure for each month at which flow is measured for landfill gas collected for destruction, or statement that temperature and/or pressure is incorporated into internal calculations run by the monitoring equipment. (4) An indication as to whether flow was measured on a wet or dry basis, an indication as to whether CH_4 concntration was measured on a wet or dry basis, and if required for Equation HH-4, monthly average moisture content for each month at which flow is measured for landfill gas collected for destruction . (5) An indication of whether destruction occurs at the landfill facility or off-site. If destruction occurs at the landfill facility: An indication of whether a back-up destruction device is present at the landfill, the annual operating hours for the primary destruction device, the annual operating hours for the back-up destruction device (if present), and the destruction efficiency used (percent). (6) Annual quantity of recovered CH4 (metric tons CH4) calculated using Equation HH-4 of subpart HH. (7) A description of the gas collection system (manufacture, capacity, number of number of wells, etc.), the surface area (square meters) and estimated waste depth (meters) for each area specified in Table HH-3 of subpart HH, the estimated gas collection system efficiency for landfills with this gas collection system, and the annual operating hours of the gas collection system, and an indication of whether passive vents and/or passive flares (vents or flares that are not considered part of the gas collection system as defined in §98.6) are present at the landfill.. (8) Methane generation corrected for oxidation calculated using Equation HH-5 of subpart HH, reported in metric tons CH4; (9) Methane generation (GCH4) value used as an input to HH-6. Specify whether the value is modeled (GCH4 from HH-1) or measured (R from Eq. HH-4) (10) Methane generation corrected for oxidation calculated using Equation HH-7 of subpart HH, reported in metric tons CH4. (11) Methane emissions calculated using Equation HH-6 of subpart HH, reported in metric tons CH4; and (12) Methane emissions calculated using Equation HH-8 of subpart HH, reported in metric tons CH4.

Subpart	Reporting Threshold	Reporting and Verification
LL—Suppliers of Coal-based Liquid Fuels (§98.380)	Producers of coal-to-liquid products: All in Importers & Exporters: 25,000 metric tons C02e/year	**Producers (for each coal-to-liquid facility):** (1) For each product listed in table MM-1 that enters the coal-to-liquid facility to be further processed or otherwise used on site: The annual quantity in metric tons or barrels by each quantity measurement standard method or other industry standard practice used. For natural gas liquids, quantity must reflect the individual components of the product. (2) For each product listed in table MM-1 that enters the coal-to-liquid facility to be further processed or otherwise used on site: The annual quantity in metric tons or barrels. For natural gas liquids, quantity must reflect the individual components of the product. (3) For each feedstock reported in (2) that was produced by blending a fossil fuel-based product with a biomass-based product: The percent of the volume reported in (2) that is fossil fuel-based. (4) Each standard method or other industry standard practice used to measure each quantity reported in (1). (5) For each product (leaving the coal-to-liquid facility) listed in table MM-1: The annual quantity in metric tons or barrels by each quantity measurement standard method or other industry standard practice used. For natural gas liquids, quantity must reflect the individual components of the product. Those products that enter the facility, but are not reported in (1), shall not be reported under this paragraph. (6) For each product (leaving the coal-to-liquid facility) listed in table MM-1: The annual quantity in metric tons or barrels. For natural gas liquids, quantity must reflect the individual components of the product. Those products that enter the facility, but are not reported in (2), shall not be reported under this paragraph. (7) For each product reported in (6) that was produced by blending a fossil fuel-based product with a biomass-based product: The percent of the volume reported in (6) that is fossil fuel-based. (8) Each standard method or other industry standard practice used to measure each quantity reported in (5). (9) For every feedstock reported in (2) for which Calculation Method 2 was used to determine an emissions factor: (i) The number of samples collected according to §98.394(c); (ii) The sampling standard method used; (iii) The carbon share test results in percent mass; (iv) The standard method used to test carbon share; and (v) The calculated CO2 emissions factor in metric tons. (10) For every non-solid feedstock reported in (2) for which Calculation Method 2 was used to determine an emissions factor: (i) The density test results in metric tons per barrel and (ii) The standard method used to test density. (11) For every product reported in (6) for which Calculation Method 2 was used to determine an emissions factor: (i) The number of samples collected according to §98.394(c); (ii) The sampling standard method used; (iii) The carbon share test results in percent mass; (iv) The standard method used to test carbon share; and (v) The calculated CO2 emissions factor in metric tons. (12) For every non-solid product reported in (6) for which Calculation Method 2 was used to determine an emissions factor: (i) The density test results in metric tons per barrel and (ii) The standard method used to test density; (13) For each specific type of biomass that enters the coal-to-liquid facility to be co-processed with fossil fuel-based feedstock to produce a product reported in (6): The annual quantity in metric tons or barrels by each quantity measurement standard method or other industry standard practice used. (14) For each specific type of biomass that enters the coal-to-liquid facility to be co-processed with fossil fuel-based feedstock to produce a product reported in (6): The annual quantity in metric tons or barrels. (15) Each standard method or other industry standard practice used to measure each quantity reported in (12). (16) The CO2 emissions in metric tons that would result from the complete combustion or oxidation of each feedstock reported in (2), calculated according to §98.393(b) or (h). (17) The CO2 emissions in metric tons that would result from the complete combustion or oxidation of each product (leaving the coal-to-liquid facility) reported in (6), calculated according to §98.393(a) or (h). (18) The CO2 emissions in metric tons that would result from the complete combustion or oxidation of each type of biomass feedstock co-processed with fossil fuel-based feedstocks reported in (12), calculated according to §98.393(c). (19) The total sum of CO2 emissions that would result from the complete combustion or oxidation of all products, calculated according to §98.393(d). (20) The total quantity of bulk NGLs in metric tons or barrels received for processing during the reporting year.
		Importers: (1) For each product listed in table MM-1 of subpart M: The annual quantity in metric tons or barrels by each quantity measurement standard method or other industry standard practice used. For natural gas liquids, quantity must reflect the individual components of the product. (2) For each product listed in table MM-1 of subpart M: The annual quantity in metric tons or barrels. For natural gas liquids, quantity must reflect the individual components of the product as listed in table MM-1. (3) For each product reported in (2) that was produced by blending a fossil fuel-based product with a biomass-based product: The percent of the volume reported in (2) that is fossil fuel-based. (4) Each standard method or other industry standard practice used to measure each quantity reported in (1). (5) For each product reported in (2) for which Calculation Method 2 used was used to determine an emissions factor: (i) The number of samples collected according to §98.394(c); (ii) The sampling standard method used; (iii) The carbon share test results in percent mass; (iv) The standard method used to test carbon share; and (v) The calculated CO2 emissions factor in metric tons. (6) For each non-solid product reported in (2) for which Calculation Method 2 was used to determine an emissions factor: (i) The density test results in metric tons per barrel and (ii) The standard method used to test density. (7) The CO2 emissions in metric tons that would result from the complete combustion or oxidation of each imported product reported in (2), calculated according to §98.393(a). (8) The total sum of CO2 emissions that would result from the complete combustion or oxidation of all imported products.

Subpart	Reporting Threshold	Reporting and Verification
LL—Suppliers of Coal-based Liquid Fuels (§98.380) (continued)	Producers of coal-to-liquid products: All in Importers & Exporters: 25,000 metric tons C02e/year	**Exporters:** (1) For each product listed in table MM-1: The annual quantity in metric tons or barrels by each quantity measurement standard method or other industry standard practice used. For natural gas liquids, quantity must reflect the individual components of the product. (2) For each product listed in table MM-1: The annual quantity in metric tons or barrels. For natural gas liquids, quantity must reflect the individual components of the product. (3) For each product reported in (2) that was produced by blending a fossil fuel-based product with a biomass-based product: The percent of the volume reported in (2) that is fossil fuel-based. (4) Each standard method or other industry standard practice used to measure each quantity reported in (1). (5) For each product reported in (2) for which Calculation Method 2 was used to determine an emissions factor: (i) The number of samples collected according to §98.394(c); (ii) The sampling standard method used; (iii) The carbon share test results in percent mass; (iv) The standard method used to test carbon share; and (v) The calculated CO2 emissions factor in metric tons. (6) For each non-solid product reported in (2) for which Calculation Method 2 used was used to determine an emissions factor: (i) The density test results in metric tons per barrel and (ii) The standard method used to test density; (7) The CO2 emissions in metric tons that would result from the complete combustion or oxidation of each exported product reported in (2), calculated according to §98.393(a). (8) Total sum of CO2 emissions that would result from the complete combustion or oxidation of all exported products, calculated according to §98.393(e).

Subpart	Reporting Threshold	Reporting and Verification
MM—Suppliers of Petroleum Products (§98.390)	Refiners: All in Importers & Exporters: 25,000 metric tons C02e/year	**Refiners:** (1) For each petroleum product or natural gas liquid listed in table MM-1 that enters the refinery as a feedstock to be further refined or otherwise used on site: The annual quantity in metric tons or barrels by each quantity measurement standard method or other industry standard practice used. For natural gas liquids, quantity must reflect the individual components of the product. (2) For each petroleum product or natural gas liquid listed in table MM-1 that enters the refinery to be further refined or otherwise used on site: The annual quantity in metric tons or barrels. For natural gas liquids, quantity must reflect the individual components of the product. (3) For each feedstock reported in (2) that was produced by blending a petroleum-based product with a biomass-based product: The percent of the volume reported in (2) that is petroleum-based (excluding any denaturant that may be present in any ethanol product). (4) Each standard method or other industry standard practice used to measure each quantity reported in (1). (5) For each petroleum product and natural gas liquid (ex refinery gate) listed in table MM-1: The annual quantity in metric tons or barrels by each quantity measurement standard method or other industry standard practice used. For natural gas liquids, quantity must reflect the individual components of the product. Petroleum products and natural gas liquids that enter the refinery, but are not reported in (1), shall not be reported under this paragraph. (6) For each petroleum product and natural gas liquid (ex refinery gate) listed in table MM-1 of subpart MM: The annual quantity in metric tons or barrels. For natural gas liquids, quantity must reflect the individual components of the product. Petroleum products and natural gas liquids that enter the refinery, but are not reported in (2), shall not be reported under this paragraph. (7) For each product reported in (6) that was produced by blending a petroleum-based product with a biomass-based product: The percent of the volume reported in (6) that is petroleum-based (excluding any denaturant that may be present in any ethanol product). (8) Each standard method or other industry standard practice used to measure each quantity reported in (5). (9) For every feedstock reported in (2) for which Calculation Method 2 was used to determine an emissions factor: (i) The number of samples collected; (ii) The sampling standard method used; (iii) The carbon share test results in percent mass; (iv) The standard method used to test carbon share; and (v) The calculated CO2 emissions factor in metric tons. (10) For every non-solid feedstock reported in (2) for which Calculation Method 2 was used to determine an emissions factor: (i) The carbon share test results in percent mass and (ii) The standard method used to test density/ (11) For every petroleum product and natural gas liquid reported in (6) for which Calculation Method 2 was used to determine an emissions factor: (i) The number of samples collected; (ii) The sampling standard method used; (iii) The density test results in metric tons per barrel; (iv) The standard method used to test carbon share; and (v) The calculated CO2 emissions factor in metric tons CO2 per barrel or per metric ton of product. (12) For every non-solid petroleum product and natural gas liquid reported in paragraph (a)(6) for which Calculation Method 2 was used to determine an emissions factor: (i) The density test results in metric tons per barrel and (ii) The standard method used to test density. (13) For each specific type of biomass that enters the refinery to be co-processed with petroleum feedstocks to produce a petroleum product reported in (6): The annual quantity in metric tons or barrels by each quantity measurement standard method or other industry standard practice used. (14) For each specific type of biomass that enters the refinery to be co-processed with petroleum feedstocks to produce a petroleum product reported in (6): The annual quantity in metric tons or barrels. (15) Each standard method or other industry standard practice used to measure each quantity reported (13). (16) The CO2 emissions in metric tons that would result from the complete combustion or oxidation of each petroleum product and natural gas liquid (ex refinery gate) reported in (6). (17) The CO2 emissions in metric tons that would result from the complete combustion or oxidation of each feedstock reported in (2). (18) The CO2 emissions in metric tons that would result from the complete combustion or oxidation of each type of biomass feedstock co-processed with petroleum feedstocks reported in (12). (19) The sum of CO2 emissions that would result from the complete combustion or oxidation of all products. (20) All of the following information for all crude oil feedstocks used at the refinery: (i) Batch volume in barrels; (ii) Weighted average API gravity of the batch at the point of entry at the refinery; (iii) Weighted average sulfur content of the batch at the point of entry at the refinery; and (iv) Country of origin of the batch, if known. (21) The quantity of bulk NGLs in metric tons or barrels received for processing during the reporting year.

Subpart	Reporting Threshold	Reporting and Verification
MM—Suppliers of Petroleum Products (§98.390) (continued)	25,000 metric tons C02e/year	**Importers:** (1) For each petroleum product and natural gas liquid listed in table MM-1: The annual quantity in metric tons or barrels by each quantity measurement standard method or other industry standard practice used. For natural gas liquids, quantity must reflect the individual components of the product. (2) For each petroleum product and natural gas liquid listed in table MM-1: The annual quantity in metric tons or barrels. For natural gas liquids, quantity must reflect the individual components of the product as listed in table MM-1 of subpart MM. (3) For each product reported in (2) that was produced by blending a petroleum-based product with a biomass-based product: The percent of the volume reported in (2) that is petroleum-based (excluding any denaturant that may be present in any ethanol product). (4) Each standard method or other industry standard practice used to measure each quantity reported in (1). (5) For each product reported in (2) for which Calculation Method 2 used was used to determine an emissions factor:: (i) The number of samples collected according to §98.394(c); (ii) The sampling standard method used; (iii) The carbon share test results in percent mass; (iv) The standard method used to test carbon share; and (v) The calculated CO2 emissions factor in metric tons CO2 per barrel or per metric ton of product. (6) For each non-solid product reported in (2) for which Calculation Method 2 was used to determine an emissions factor: (i) The density test results in metric tons per barrel and (ii) The standard method used to test density. (7) The CO2 emissions in metric tons that would result from the complete combustion or oxidation of each imported petroleum product and natural gas liquid reported in (2), calculated according to §98.393(a). (8) The sum of CO2 emissions that would result from the complete combustion or oxidation of all imported products, calculated according to §98.393(e).
		Exporters: (1) For each petroleum product and natural gas liquid listed in table MM-1 of subpart MM: The annual quantity in metric tons or barrels by quantity measurement standard method or other industry standard practice used. For natural gas liquids, quantity must reflect the individual components of the product. (2) For each petroleum product and natural gas liquid listed in table MM-1 of subpart MM: The annual quantity in metric tons or barrels. For natural gas liquids, quantity must reflect the individual components of the product. (3) For each product reported in (2) that was produced by blending a petroleum-based product with a biomass-based product: The percent of the volume reported in (2) that is petroleum based (excluding any denaturant that may be present in any ethanol product). (4) Each standard method or other industry standard practice used to measure each quantity reported in (1). (5) For each product reported in (2) for which Calculation Method 2 was used to determine an emissions factor: (i) The number of samples collected according to §98.394(c); (ii) The sampling standard method used; (iii) The carbon share test results in percentmass; (iv) The standard method used to test carbon share; and (v) The calculated CO2 emissions factor in metric tons CO2 per barrel or per metric ton of product. (6) For each non-solid product reported in (2) for which Calculation Method 2 used was used to determine an emissions factor: (i) The density test results in metric tons per barrel and (ii) The standard method used to test density. (7) The CO2 emissions in metric tons that would result from the complete combustion or oxidation of each exported petroleum product and natural gas liquid reported in (2), calculated according to §98.393(a). (8) The sum of CO2 emissions that would result from the complete combustion or oxidation of all exported products, calculated according to §98.393(e).
		Report the following information for each blended product and non-crude feedstock, if emissions are calculated according to §98.393(i): (1) Volume or mass of each blending component. (2) The CO_2 emissions in metric tons that would result from the complete combustion or oxidation of each blended non-crude feedstock or product, using Equation MM-12 or Equation MM-13 of this section. (3) For a product that enters the refinery to be further refined or otherwise used on site that is a blended non-crude feedstock, refiners must meet the reporting requirements of paragraphs (1) and (2) for Importers by reflecting the individual components of the blended non-crude feedstock. (3) For a product that is produced, imported, or exported that is a blended product, refiners, importers, and exporters must meet the reporting requirements of paragraphs (5) and (6) for Importers and (1) and (2) for Exporters , (1), and (2) of this section, as applicable, by reflecting the individual components of the blended product.

Subpart	Reporting Threshold	Reporting and Verification
NN—Suppliers of Natural Gas and Natural Gas Liquids (§98.400)	All In	**NGL fractionator:** (1) Annual quantity (in barrels) of each NGL product supplied to downstream facilities in the following categories: ethane, propane, normal butane, isobutane, and pentanes plus. (2) Annual quantity (in barrels) of each NGL product received from other NGL fractionators in the following categories: ethane, propane, normal butane, isobutane, and pentanes plus. (3) Annual volumes in Mscf of natural gas received for processing. (4) Annual quantity (in barrels) of y-grade, bulk NGLs received from others for fractionation. (5) Annual quantity (in barrels) of propane that the NGL fractionator odorizes at the facility and delivers to others. (6) Annual CO2 emissions (in metric tons) that would result from the complete combustion or oxidation of the volumes in (1) and (2). (7) Annual CO2 mass emissions (metric tons) that would result from the combustion or oxidation of fractionated NGLs supplied less the quantity received by other fractionators, calculated in accordance with §98.403(c)(2). (8) The specific industry standard used to measure the quantities reported in (1). (9) If the NGL fractionator developed reporter-specific EFs or HHVs, report the following for each product type: (i) The specific industry standard(s) used to develop reporter-specific higher heating value(s) and/or emission factor(s), pursuant to §98.404 (b)(2) and (c)(3); (ii) The developed HHV(s); and (iii) The developed EF(s).
		Local distribution companies: (1) Annual volume in Mscf of natural gas received by the LDC at its city gate stations for redelivery on the LDC's distribution system, including for use by the LDC. (2) Annual volume in Mscf of natural gas placed into storage. (3) Annual volume in Mscf of vaporized liquefied natural gas (LNG) produced at on-system vaporization facilities for delivery on the distribution system that is not accounted for in (1). (4) Annual volume in Mscf of natural gas withdrawn from on-system storage (that is not delivered to the city gate) for delivery to on the distribution system. (5) Annual volume in Mscf of natural gas delivered directly to LDC systems from producers or natural gas processing plants from local production. (6) Annual volume in Mscf of natural gas delivered to downstream gas transmission pipelines and other local distribution companies. (7) Annual volume in Mscf of natural gas delivered by LDC to each meter registering supply equal to or greater than 460,000 Mcsf during the calendar year. (8) Annual CO2 mass emissions (metric tons) associated with the volumes in (1) - (7) and calculated in accordance with §98.403. (9) Annual CO2 emissions (metric tons) that would result from the complete combustion or oxidation of the annual supply of natural gas to end-users registering less than 460,000 Mcsf, calculated in accordance with §98.403(b)(4). (10) The specific industry standard used to develop the volume reported in (1). (11) If the LDC developed reporter-specific EFs or HHVs: (i) The specific industry standard(s) used to develop reporter-specific higher heating value(s) and/or emission factor(s), pursuant to §98.404 (b)(2) and (c)(3); (ii) The developed HHV(s); and (iii) The developed EF(s). (12) The customer name, address, and meter number of each meter reading used to report in (7). If known, the EIA identification number of each LDC customer. (13) The annual volume in Mscf of natural gas delivered by the local distribution company to each of the following end-use categories: (i) Residential consumers; (ii) Commercial consumers; (iii) Industrial consumers; and (iv) Electricity generating facilities.
		All: Each reporter must report the number of days in the reporting year that substitute data procedures were used for the following purpose: (i) To measure quantity; (ii) To develop HHV(s); and (iii) To develop EF(s).

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 exceed for any source category, the facility must report emissions from all source categories, including those source categories that do not exceed the applicable threshold.