

# Greenhouse Gas Reporting Program

## XML Reporting Instructions for Subpart C - General Stationary Fuel Combustion Sources

United States Environmental Protection Agency  
Climate Change Division  
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*These instructions explain how to report the required data for the applicable regulations. Owners and operators of units should refer to the applicable regulations for information about what data are required to be reported.*

*EPA has finalized a rule that defers the deadline for reporting data elements used as inputs to emission equations for direct emitters. (See <http://www.epa.gov/climatechange/emissions/notices.html> for a pre-publication version of the rule). In accordance with the rule, e-GGRT is not currently collecting data used as inputs to emission equations.*



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## Introduction

The U.S. Environmental Protection Agency's (EPA's) electronic greenhouse gas reporting tool (e-GGRT) extensible markup language (XML) Reporting Schema, contains all of the data elements needed to comply with the greenhouse gas reporting program (GHGRP) beginning with the 2010 data collection year. The schema defines expected data elements and attributes, allowable data types for each element, and the hierarchy and order in which elements must appear. Similar to an architectural blueprint that describes the structural design of a house, an XML schema describes the structural design of an XML file. In some cases, it also defines which elements are optional and which are required, and the maximum number of occurrences allowed for each element.

The e-GGRT XML schema is made up of a root element, complex elements, and simple elements. A simple element is a single piece of data. A complex element is a group of simple elements which are logically grouped together. The root element is the base of the XML schema.

The elements are related to each other in parent-child relationships. The root element is the parent element of the entire schema. Complex elements are children of the root element, and complex elements can also be children of other complex elements. If a complex element is dependent on a parent complex element, the child complex element cannot be included in the XML file unless the appropriate parent complex element is also included.

The XML upload method may be used only for submitting the annual GHG report. User and facility or supplier registration, and the Certificate of Representation, must be entered on-line using e-GGRT.

All XML files submitted to e-GGRT must be well formed and will be accepted only if they conform to the correct and current version of the e-GGRT XML schema.

An XML submission can only contain GHG data for a single facility or supplier. All data for a facility or supplier must be submitted in a single file as a complete report and must include all of the relevant subparts. It is not possible to submit a subset of any portion of a facility's data to add, delete, correct, or update. The entire report must be resubmitted to make any modification at all. Each subsequent submission for the same facility replaces all of the previously submitted data.

The e-GGRT XML schema contains enumerated lists of the units of measures for some data elements and allowable values for some data elements. For rules regarding the unit of measure or allowable values for a specific data element, please refer to the appropriate Data Elements table.

The e-GGRT XML Reporting Schema v1.2 is available for download at the GHGRP web site here: [http://www.epa.gov/climatechange/emissions/e-ggert\\_xml.html](http://www.epa.gov/climatechange/emissions/e-ggert_xml.html). The v1.2 zip file contains:

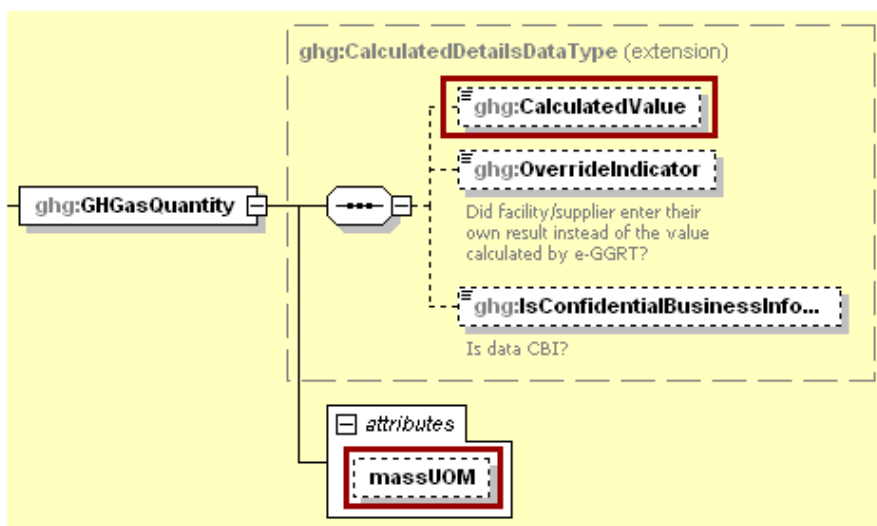
- **GHG\_Final\_v1.2.xsd and Included Files**
- **SchemaChanges.xlsx**

This topic provides a step-by-step description of how to report data for a Subpart C Stationary Fuel Combustion Sources configuration and overall total Subpart C emissions for a facility using the XML schema. Please note the following:

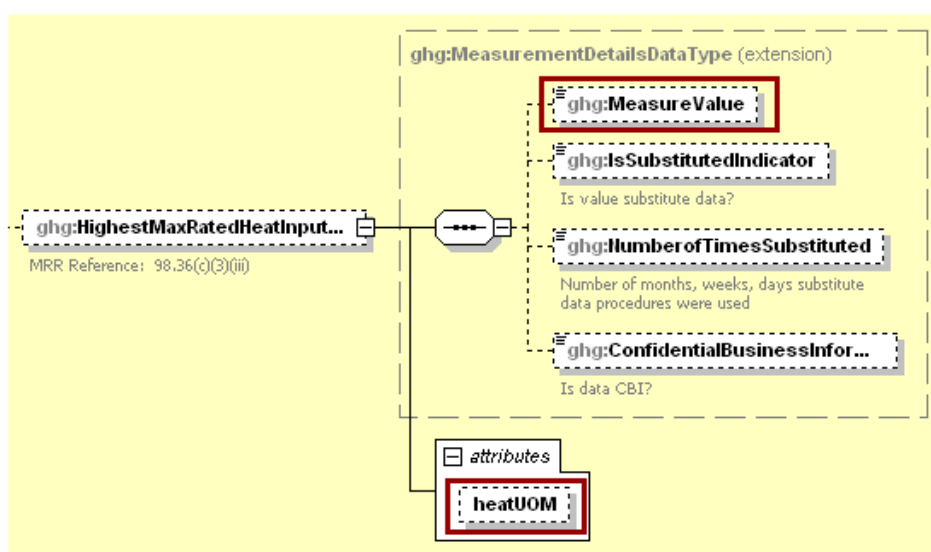
- **Not all data elements included in the schema must be reported.** Required or relevant data components and data elements are boxed in red in the schema diagrams and listed in the tables. If a data element is not listed, it does not need to be reported (e.g., deferred data elements, IsConfidentialBusinessInformationIndicator). Some data elements are conditional and only need to be reported if they are relevant to the reporting facility.

- **Enumerations are case sensitive.** Values must be entered exactly as they are displayed in order to be accepted by schema validation.
- **Data elements must be reported in a specific order.** The figures and tables in this document depict the specific order in which data elements must be reported in order to produce a well-formed XML report.
- **Not all data elements for calculated and measured values are displayed in the schema diagrams.** The parent elements for calculated and measured values are displayed in the schema diagrams in this document, but not all of the specific data elements to be reported are displayed. The descriptions in the XML data elements tables include the specific data elements to report, which are commonly the calculated or measured value and the unit of measure. For some values, the number of times substitute data procedures were used may also be required. See Figure 1 for the expanded view of a sample data element which is a calculated value and Figure 2 for the expanded view of a sample data element which is a measured value.

**Figure 1**  
**Sample Calculated Value Schema Diagram**

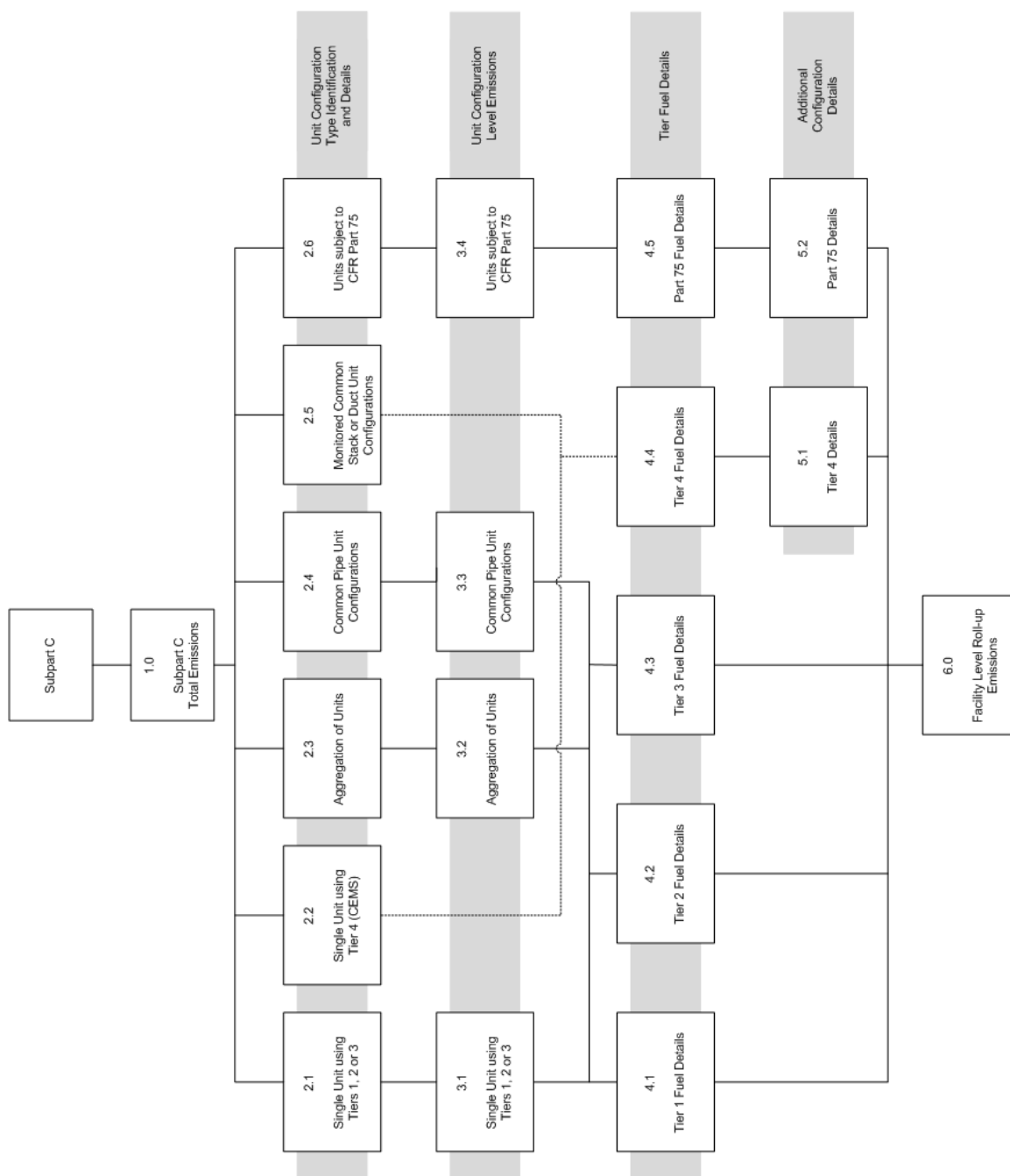


**Figure 2**  
**Sample Measured Value Schema Diagram**





**Figure 3  
Subpart C Reporting Diagram**



The XML schema includes the following areas for reporting for Subpart C, as diagramed in Figure 3 above:

- 1.0 Subpart C Total Emissions: includes the total greenhouse gas emissions required to be reported for Subpart C.
- 2.0 Configuration Identification Information: includes unit configuration type identification and details.

- 3.0 Unit Configuration Level Emissions: includes information on how to report emissions based on configuration type.
- 4.0 Tier Fuel Details: includes how to report fuel information based on the tier methodology used.
- 5.0 Additional Configuration Details: includes additional information to report for Tier 4 and Part 74 methodologies.
- 6.0 Facility Level Roll-up Emissions: includes information on how to report total emissions for CO<sub>2</sub>e (excluding biogenic CO<sub>2</sub>) and biogenic CO<sub>2</sub> from Subpart C at the facility level.

The following terminology is used throughout this document:

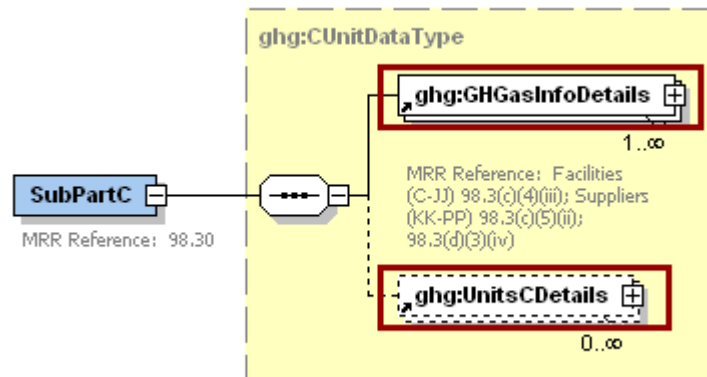
- **Namespace:** A namespace uniquely identifies a set of names such that there is no ambiguity when objects having different origins but the same names are mixed together.
- **Markup Language:** A way to combine text and extra information to show the structure and layout of a document. This information is expressed using markup, which is typically intermingled with the primary text. A commonly known markup language is HTML.
- **XML:** A markup language for documents containing structured information. The XML specification defines a standard way to add markup to documents. Its primary purpose is to facilitate the sharing of structured data across different information systems, particularly via the internet.
- **XML Schema:** An XML schema describes the structure of an XML document. An XML schema defines the set of rules to which the XML document must conform in order to be considered "valid" according to its schema. An instance of an XML schema is an XML schema document and is a file with the extension .xsd.
- **XML Document:** An XML document is a file containing data organized into a structured document using XML markup. An XML document is considered to be "well-formed" if it conforms to all XML syntax rules. An XML document is considered to be "valid" if it conforms to all the semantic rules defined by an associated XML schema. An XML document cannot be processed if it is not well-formed or valid. XML documents have the file extension .xml.
- **XML Element:** An XML element is a unit of the XML document that is expressed as tags in the form "<tagname>." XML elements must have either a start and end tag as in <ghg:GHGasInfoDetails> </ghg:GHGasInfoDetails> or a single empty tag name as in <ghg:GHGasInfoDetails/>. XML elements may be nested within one another in a structured hierarchy and sequence specified in an XML schema.
- **XML Attribute:** An XML attribute contains additional information about an XML element placed at the start tag of the XML element. XML attributes have the form attributeName = "attributeValue," as in <ghg:GHGasQuantity massUOM="Metric Tons">. XML attributes are used to report identifying information or to help e-GGRT process the data being reported within the data elements.

Rounded results from calculated values should be reported in the XML schema. Please use the following rounding rules:

- 1) CO<sub>2</sub>e and CO<sub>2</sub> emissions data expressed in metric tons should be rounded to one decimal place. This should be done regardless of the level of data collection (e.g., unit-level, facility-level). Quantities less than 0.05 metric tons would round to 0.0 and be reported as such. Quantities greater than or equal to 0.05 metric tons would round up to 0.1 and be reported as such. This rule applies when greenhouse gases other than CO<sub>2</sub> are reported in metric tons CO<sub>2</sub>e.
- 2) CH<sub>4</sub> emissions data expressed in metric tons should be rounded to two decimal places.
- 3) N<sub>2</sub>O emissions data expressed in metric tons should be rounded to three decimal places.
- 4) Emissions data for all GHGs other than CO<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub> expressed in metric tons should be rounded to the fourth digit to the right of the decimal (one tenth of a kilogram, or 1 ten

- thousandth of a metric ton). This rounding should be applied regardless of the level of data collection (unit, facility, etc.).
- 5) Other (non-emissions) quantitative data reported by the user (e.g., a monthly HHV sample result, an annual production quantity) will not need to be rounded.
  - 6) In the case of aggregation/roll-ups, those calculations should be performed on the rounded values.

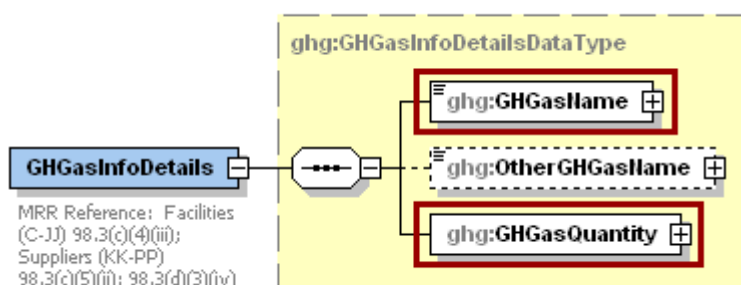
**Figure 4**  
**Subpart C Schema Diagram**



## 1.0 Subpart C Total Emissions

Greenhouse gas information details comprise a collection of data elements to report the total annual emissions of each greenhouse gas (GHG) listed in Table A-1 of the Mandatory Reporting of GHG, part 98 reported under Subpart C, expressed in metric tons.

**Figure 5**  
**Greenhouse Gas Information Details Schema Diagram**



For Subpart C, report total emissions for biogenic carbon dioxide (CO<sub>2</sub>), CO<sub>2</sub> (excluding biogenic CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). For greenhouse gas quantity, report the calculated value and mass unit of measure (Metric Tons) only according to the following guidelines:

- 1) Total CO<sub>2</sub> emissions (excluding biogenic CO<sub>2</sub>):
  - For Configuration Types 1 and 3, add the CO<sub>2</sub> emissions (include both biogenic and non-biogenic CO<sub>2</sub>) for each fuel and for each configuration in metric tons rounded to one decimal place, add the CO<sub>2</sub> emissions from sorbent use for each configuration in metric tons rounded to one decimal place, and subtract the total biogenic CO<sub>2</sub> emissions for each configuration in metric tons rounded to one decimal place.
  - For Configuration Types 2, 5 and 6, add the CO<sub>2</sub> emissions (include both biogenic and non-biogenic CO<sub>2</sub>) measured by the CEMS or applicable Part 75 methodology for each configuration in metric tons rounded to one decimal place and subtract the total biogenic CO<sub>2</sub> emissions for each configuration.
  - For Configuration Type 4, add the CO<sub>2</sub> emission (include both biogenic and non-biogenic CO<sub>2</sub>) for each fuel and for each configuration in metric tons rounded to one decimal place and subtract the total biogenic CO<sub>2</sub> emissions for each configuration in metric tons rounded to one decimal place.
- 2) Total biogenic CO<sub>2</sub> emissions:
  - Add the total annual biogenic CO<sub>2</sub> emissions for each configuration in metric tons rounded to one decimal place. This includes CO<sub>2</sub> emissions from biomass fuels, and the biogenic portion of CO<sub>2</sub> emissions from mixed biomass and fossil fuels (i.e. MSW and tires).
- 3) Total CH<sub>4</sub> emissions:
  - For Configuration Types 1 through 5, add the values reported for CH<sub>4</sub> emissions for each fuel and for each configuration in metric tons rounded to two decimal places.
  - For Configuration Type 6, divide the values reported for CH<sub>4</sub> emissions in CO<sub>2</sub>e by the Global Warming Potential for CH<sub>4</sub> (21) and add the result rounded to two decimal places.

4) Total N<sub>2</sub>O emissions:

- For Configuration Types 1 through 5, add the values reported for N<sub>2</sub>O emissions for each fuel and for each configuration in metric tons rounded to three decimal places.
- For Configuration Type 6, divide the values reported for N<sub>2</sub>O emissions in CO<sub>2</sub>e by the Global Warming Potential for N<sub>2</sub>O (310) and add the result rounded to three decimal places.

**Table 1**  
**Greenhouse Gas Information Details XML Data Elements**

Data Element Name	Description
GHGasInfoDetails	A collection of data elements containing the total annual emissions of each greenhouse gas (GHG) listed in Table A-1 of the Mandatory Reporting of GHGs, part 98 reported under this subpart, expressed in metric tons.
GHGasName	Specify the name of the GHG. See list of allowable values:  Carbon Dioxide Biogenic Carbon dioxide Methane Nitrous Oxide
GHGasQuantity	A collection of data elements that quantify the annual emissions from this source category. Report the calculated value only using the guidelines above.
GHGasQuantity.massUOM	Metric Tons

**Figure 6**  
**Sample XML Excerpt for Greenhouse Gas Information Details**

```

<ghg:SubPartC>
  <ghg:GHGasInfoDetails>
    <ghg:GHGasName>Biogenic Carbon dioxide</ghg:GHGasName>
    <ghg:GHGasQuantity massUOM="Metric Tons">
      <ghg:CalculatedValue>14700</ghg:CalculatedValue>
    </ghg:GHGasQuantity>
  </ghg:GHGasInfoDetails>
  <ghg:GHGasInfoDetails>
    <ghg:GHGasName>Methane</ghg:GHGasName>
    <ghg:GHGasQuantity massUOM="Metric Tons">
      <ghg:CalculatedValue>4065.72</ghg:CalculatedValue>
    </ghg:GHGasQuantity>
  </ghg:GHGasInfoDetails>
  <ghg:GHGasInfoDetails>
    <ghg:GHGasName>Nitrous Oxide</ghg:GHGasName>
    <ghg:GHGasQuantity massUOM="Metric Tons">
      <ghg:CalculatedValue>398.58</ghg:CalculatedValue>
    </ghg:GHGasQuantity>
  </ghg:GHGasInfoDetails>
  <ghg:GHGasInfoDetails>
    <ghg:GHGasName>Carbon Dioxide</ghg:GHGasName>
    <ghg:GHGasQuantity massUOM="Metric Tons">
      <ghg:CalculatedValue>518460</ghg:CalculatedValue>
    </ghg:GHGasQuantity>
  </ghg:GHGasInfoDetails>
</ghg:SubPartC>

```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

## 2.0 Configuration Identification Information

For stationary combustion sources required to report under Subpart C, e-GGRT requires you to identify which reporting option each unit or group of units will be using to report emissions. The different Subpart C reporting options are referred to as Configurations in e-GGRT. The individual configurations are designed to match the reporting options made available by the rule in 40 CFR 98.36. As specified in part 98, each configuration has slightly different reporting requirements. Emissions information to be reported is either aggregated at the configuration level or is to be reported for a specific fuel combusted in the configuration. A facility may have multiple configuration types and/or multiple configurations of any given type.

The unit or group configuration types are as follows:

- Configuration Type 1 - A single unit using Tiers 1, 2 or 3 to calculate emissions [98.36(b)]
- Configuration Type 2 - A single unit using Tier 4 (CEMS) to calculate emissions [98.36(b)]
- Configuration Type 3 - A group of units using the aggregation of units reporting alternative [98.36(c)(1)]
- Configuration Type 4 - A group of units using the common pipe configurations reporting alternative [98.36(c)(3)]
- Configuration Type 5 - A group of units using Tier 4 (CEMS) to calculate emissions and reporting under the monitored common stack or duct configurations reporting alternative [98.36(c)(2)]
- Configuration Type 6 – Part 75 units using the alternative CO<sub>2</sub> mass emissions calculation methods provided in 98.33(a)(5) [98.36(d)(2)]

The configuration types are described in further detail below. For more information on the different reporting options, please refer to the applicable paragraphs in 40 CFR 98.36.

### **Configuration Type 1 - Single Unit Using Tiers 1, 2 or 3 [98.36(b)]**

The single unit reporting configuration is the most basic configuration type. Any unit may be reported individually in e-GGRT. If the unit uses Tiers 1, 2 or 3 to calculate CO<sub>2</sub> emissions, it must be reported as a configuration of Type 1. If the use of Tier 4 is required or elected, Configuration Type 2 or 5 must be used.

A unit under Configuration Type 1 may combust multiple fuels, and it is possible for the different fuels to be reported using different tiers. For example, a unit that is 500 mmBtu/hr in size may be required to use Tier 3 for coal, but only Tier 2 for natural gas or fuel oil.

Facilities with numerous units should investigate if Configuration Type 3 (aggregation of units) or Type 4 (common pipe) may be used.

### **Configuration Type 2 – Single Unit Using Tier 4 [98.36(b)]**

Configuration Type 2 is the reporting option for single units that are either required or elect to use Tier 4 (CEMS). CO<sub>2</sub> emissions will be reported for all fuels combined, but CH<sub>4</sub> and N<sub>2</sub>O emissions will still need to be reported on a fuel by fuel basis.

Should a unit change methodology from Tiers 1-3 to Tier 4 during the year, the unit will need to be added as two separate configurations in e-GGRT with different configuration names.

If a single CEMS is used to monitor multiple units (multiple combustion, or one combustion and one or more process units), Configuration Type 5 should be used instead.

**Configuration Type 3 – Aggregation of Units [98.36(c)(1)]**

The *aggregation of units* option is a reporting configuration that allows multiple units to be reported as a single entity provided that certain conditions are met. If this reporting option is selected, emissions from all units grouped in this configuration will be reported as combined emissions in e-GGRT.

If a facility contains two or more units, each of which has a maximum rated heat input capacity of 250 mmBtu/hr or less, you may report these units as a single reporting configuration of Type 3 in e-GGRT, provided that only Tiers 1-3 are used and the units use the same tier for any common fuels combusted. Fuels of different types may use different tiers, as permitted. There is no limit on the number of units that may be included in this configuration provided the previous criteria are met.

While the use of Tier 3 is permitted to be used in an *aggregation of units* configuration, it is generally not required for configurations of this type as Tier 3 is only required for certain units larger than 250 mmBtu/hr. Units of that size may not be included in the *aggregation of units* configuration.

**Configuration Type 4 – Common Pipe [98.36(c)(3)]**

The *common pipe* reporting configuration is another alternative reporting option that allows for multiple units to be reported as a single group entry.

This configuration is different from the *aggregation of units* configuration in that there is no size constraint. The *common pipe* configuration may only be used if two or more stationary combustion units at a facility combust the same type of liquid or gaseous fuel and the fuel is fed to the individual units through a common supply line or pipe.

The *common pipe* configuration may only be used if the units only combust the liquid or gaseous fuel supplied by the common pipe. Units that combust fuel other than the fuel supplied by the common pipe must be accounted for under a separate configuration. For example, a unit that burns coal and natural gas may not be included in a *common pipe* configuration for units that only combust natural gas. In such a situation, you may report the units that only combust natural gas as a common pipe configuration. To calculate emissions for the common pipe, you would subtract the quantity of diverted gas (i.e. gas combusted at a coal unit) from the quantity of gas measured for the common pipe by using company records. The diverted gas would need to be accounted for in a separate configuration (unless diverted offsite or to an exempt unit).

The tier required for the common pipe configuration is based on the maximum rated heat input capacity of the largest unit served by the common pipe.

**Configuration Type 5 – Common Stack [98.36(c)(2)]**

If multiple units vent to a common stack or duct and Tier 4 is used to calculate the CO<sub>2</sub> emissions for those units, the *common stack* configuration must be used. If only a single combustion unit vents to the stack and no process units are vented to the stack, then Configuration Type 2 (single unit using Tier 4) must be used.

**Configuration Type 6 – Alternative Part 75 Reporters [98.36(d)(2)]**

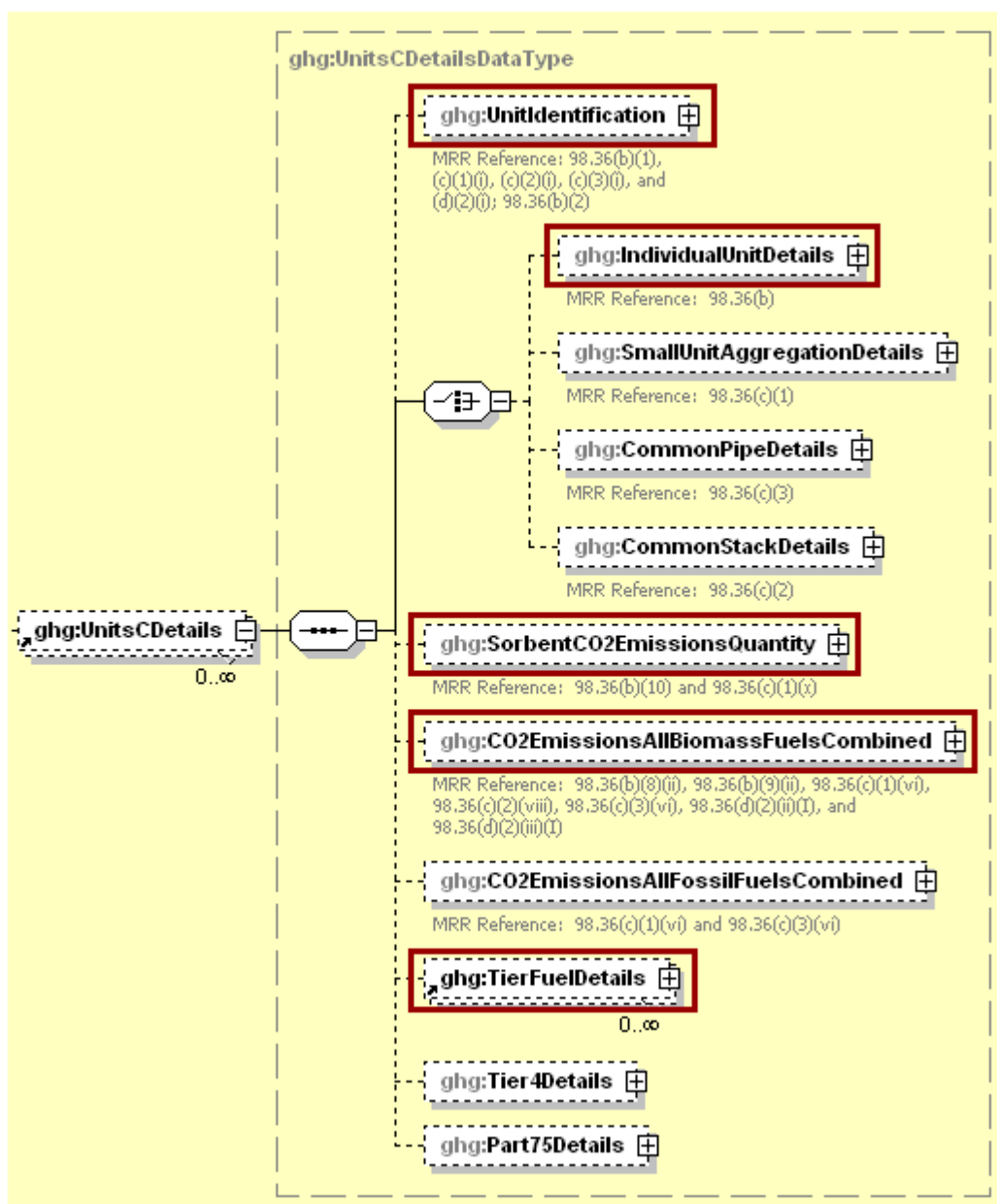
This configuration represents the alternative calculation and reporting requirements available to certain units that report heat input year-round to EPA according to part 75. Units subject to subpart D (electricity generating units that are subject to the Acid Rain Program or EGUs that are otherwise required to monitor and report to EPA CO<sub>2</sub> emissions year-round according to Part 75) would not be eligible to report under this option. Units subject to subpart D should report following the instructions for subpart D.

If this option is selected in place of using one of the four tiers, the applicable calculation methodology specified in 98.33(a)(5) must be used to calculate CO<sub>2</sub> emissions and the reporting requirements specified in 98.36(d)(2) replace the requirements specified in 98.36(a)-(b).

## 2.1 Configuration Type 1 Identification

Specific data components are required for Configuration Type 1. See the relevant components boxed in red in the figure below.

**Figure 7**  
**Units C Details for Configuration Type 1 Schema Diagram**

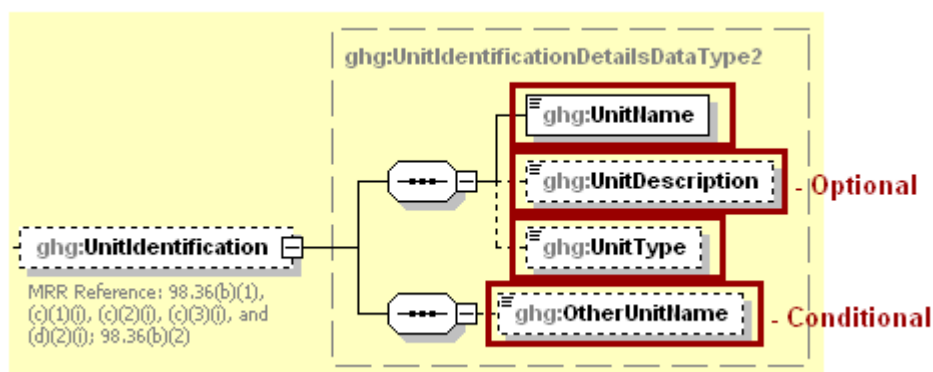


Each single unit using Tiers 1, 2 or 3 to calculate emissions must be identified separately so that emissions information can be reported for a specific unit.

If a single units switches from using Tiers 1-3 to Tier 4 during the year, a new configuration of Configuration Type 2 must be added to represent the period in which Tier 4 was used. Different unit names would need to be used for the two configurations even though the configurations are representing the same unit.



**Figure 8**  
**Configuration Type 1 Unit Identification Schema Diagram**



For configurations of **Type 1 (single unit using Tiers 1, 2, or 3)**, Subpart C requires the following identification information for each configuration:

- A unique unit name or identifier (e.g., a unit ID number) [98.36(b)(1)]
- An optional unit description or label [optional]
- A code representing the type of unit [98.36(b)(2)]

**Table 2**  
**Configuration Type 1 Unit Identification XML Data Elements**

Data Element Name	Description
UnitsCDetails	A collection of data elements containing details regarding each stationary fuel combustion unit configuration.
UnitIdentification	A collection of data elements containing the identity of each Subpart C reporting configuration.
UnitName	A user-defined identifier for this unit. Each unit or configuration must have a unique UnitName.
UnitDescription	An optional description or label.
UnitType	<p>A code representing the type of unit. See the list of allowable unit type codes below. If the unit type is not provided in the list, report "OCS (Other combustion source)" and report the unit type using the OtherUnitName element.</p> <p>PCWD (Pulverized coal, wall-fired, dry bottom)            PCWW (Pulverized coal, wall-fired, wet bottom)            PCT (Pulverized coal, tangentially-fired)            PCO (Pulverized coal, other)            CF (Cyclone Furnace)            S (Stoker Boiler)            BFB (Boiler, bubbling fluidized bed)            CFB (Boiler, circulating fluidized bed)            PFB (Boiler, pressurized fluidized bed)            OFB (Fluidized bed, other)            OB (Boiler, other)            FLR (Flare)</p>

Data Element Name	Description
	II (Incinerator, institutional) ICI (Incinerator, commercial and industrial) IGCC (Integrated gasification combined cycle) RICE (Reciprocating internal combustion engine) MWC (Municipal waste combustor) PRH (Process Heater) TODF (Thermal oxidizer, direct fired, no heat recovery) RTO (Regenerative thermal oxidizer) RCO (Regenerative catalytic oxidizer) CCCT (CC (Turbine, combined cycle)) SCCT (CT (Turbine, simple cycle combustion)) CH (Comfort heater) PD (Product or intermediate product dryer) K (Kiln) F (Furnace) C (Calcliner) O (Oven) HWH (Heater, hot water) IFCE (Direct fired industrial food cooking equipment) NGLH (Heater, natural gas line) CatH (Heater, catalytic) HMH (Heater, heat medium for heat exchange) COB (By-product recovery coke oven battery combustion stacks (§98.172)) FeFS (Subpart Q - flame suppression) FeFL (Subpart Q - ladle reheater) Q (Other Subpart Q combustion sources not otherwise listed.) HPPU (hydrogen production process units) OCS (Other combustion source)
OtherUnitName	Enter the unit type if "OCS (Other combustion source)" was entered for UnitType.

**Figure 9**  
**Sample XML Excerpt for Configuration Type 1 Unit Identification**

```

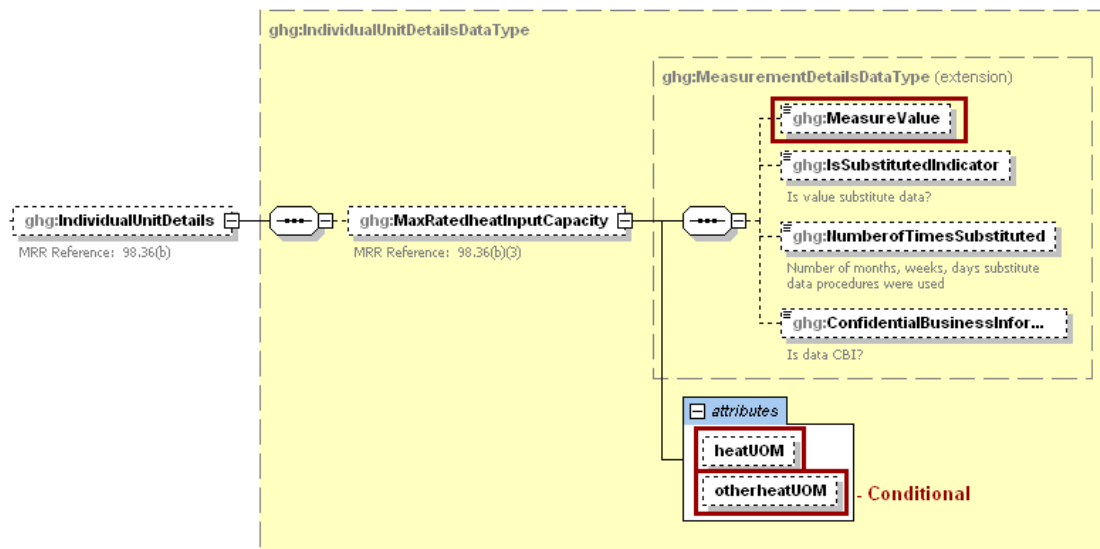
<ghg:UnitsCDetails>
  <ghg:UnitIdentification>
    <ghg:UnitName>CT 1- Tier 1</ghg:UnitName>
    <ghg:UnitDescription>Tier 1 unit</ghg:UnitDescription>
    <ghg:UnitType>OCS (Other combustion source)</ghg:UnitType>
    <ghg:OtherUnitName>Unit Type A</ghg:OtherUnitName>
  </ghg:UnitIdentification>

```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

For individual unit details, the value of the maximum rated heat input capacity of the unit must be reported.

**Figure 10  
Configuration Type 1 Individual Unit Details Schema Diagram**



Report the measured value and heat unit of measure only. For heatUOM, use mmBtu/hr for boilers, process heaters and other combustion units as appropriate. Enter "Other" if there is another relevant unit of measure for other combustion sources, and enter the unit of measure for otherheatUOM. [98.36(b)(3)]

**Table 3  
Configuration Type 1 Individual Unit Details XML Data Elements**

Data Element Name	Description
IndividualUnitDetails	A collection of data elements containing details about each individual stationary combustion unit that uses one of the four tiers and that is reporting as an individual unit under 98.36(b).
MaxRatedheatInputCapacity	Maximum rated heat input capacity of the unit. Report the measured value only.
MaxRatedheatInputCapacity.heatUOM	For boilers and process heaters, use "mmBtu/hr" only. Enter "Other" if there is another relevant unit of measure for other combustion sources.
MaxRatedheatInputCapacity.otherheatUOM	Enter the unit of measure if "Other" was entered for heatUOM.

**Figure 11  
Sample XML Excerpt for Configuration Type 1 Individual Unit Details**

```

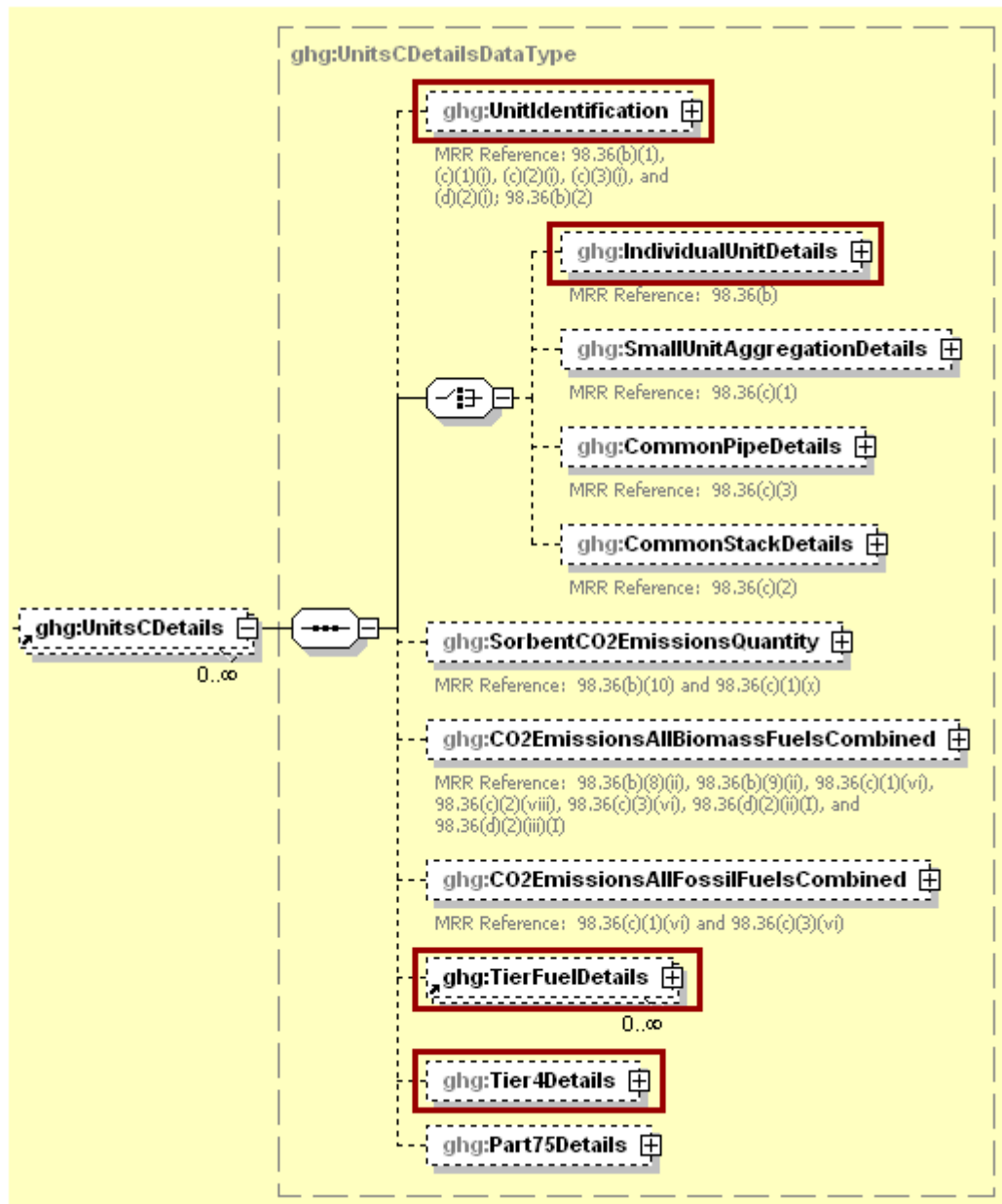
<ghg:IndividualUnitDetails>
  <ghg:MaxRatedheatInputCapacity heatUOM="Other" otherheatUOM="BTU per hour">
    <ghg:MeasureValue>1000</ghg:MeasureValue>
  </ghg:MaxRatedheatInputCapacity>
</ghg:IndividualUnitDetails>
    
```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

## 2.2 Configuration Type 2 Identification

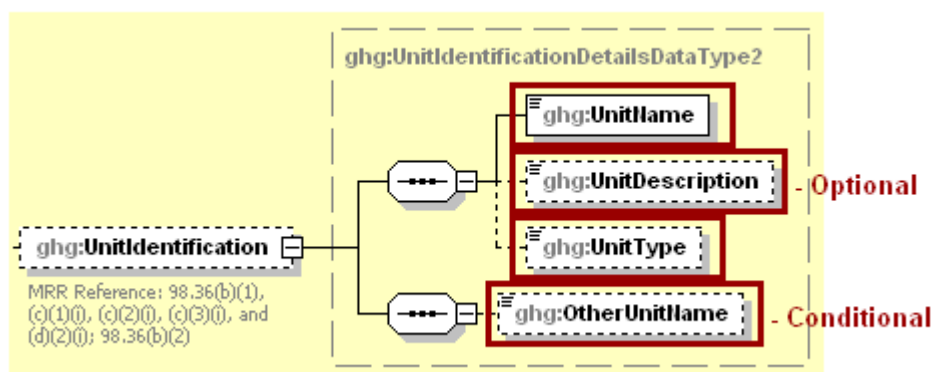
Specific data components are required for Configuration Type 2. See the relevant components boxed in red in the figure below.

**Figure 12**  
**Units C Details for Configuration Type 2 Schema Diagram**



Each single unit using Tier 4 (CEMS) to calculate emissions must be identified separately so that emissions information can be reported for a specific unit.

**Figure 13**  
**Configuration Type 2 Unit Identification Schema Diagram**



For configurations of **Type 2 (single unit using Tier 4)**, Subpart C requires the following identification information for each configuration:

- A unique unit name or identifier (e.g., a unit ID number) [98.36(b)(1)]
- An optional unit description or label [optional]
- A code representing the type of unit [98.36(b)(2)]

**Table 4**  
**Configuration Type 2 Unit Identification XML Data Elements**

Data Element Name	Description
UnitsCDetails	A collection of data elements containing details regarding each stationary fuel combustion unit configuration.
UnitIdentification	A collection of data elements containing the identity of each Subpart C reporting configuration.
UnitName	A user-defined identifier for this unit. Each unit or configuration must have a unique UnitName.
UnitDescription	An optional description or label.
UnitType	<p>A code representing the type of unit. See the list of allowable unit type codes below. If the unit type is not on the list, report "OCS (Other combustion source)" and then report the unit type using the OtherUnitName element.</p> <p>PCWD (Pulverized coal, wall-fired, dry bottom)            PCWW (Pulverized coal, wall-fired, wet bottom)            PCT (Pulverized coal, tangentially-fired)            PCO (Pulverized coal, other)            CF (Cyclone Furnace)            S (Stoker Boiler)            BFB (Boiler, bubbling fluidized bed)            CFB (Boiler, circulating fluidized bed)            PFB (Boiler, pressurized fluidized bed)            OFB (Fluidized bed, other)            OB (Boiler, other)            FLR (Flare)            II (Incinerator, institutional)</p>

Data Element Name	Description
	ICI (Incinerator, commercial and industrial) IGCC (Integrated gasification combined cycle) RICE (Reciprocating internal combustion engine) MWC (Municipal waste combustor) PRH (Process Heater) TODF (Thermal oxidizer, direct fired, no heat recovery) RTO (Regenerative thermal oxidizer) RCO (Regenerative catalytic oxidizer) CCCT (CC (Turbine, combined cycle)) SCCT (CT (Turbine, simple cycle combustion)) CH (Comfort heater) PD (Product or intermediate product dryer) K (Kiln) F (Furnace) C (Calciner) O (Oven) HWH (Heater, hot water) IFCE (Direct fired industrial food cooking equipment) NGLH (Heater, natural gas line) CatH (Heater, catalytic) HMH (Heater, heat medium for heat exchange) COB (By-product recovery coke oven battery combustion stacks (§98.172)) FeFS (Subpart Q - flame suppression) FeFL (Subpart Q - ladle reheater) Q (Other Subpart Q combustion sources not otherwise listed.) HPPU (hydrogen production process units) OCS (Other combustion source)
OtherUnitName	Enter the unit type if "OCS (Other combustion source)" was entered for UnitType.

**Figure 14**  
**Sample XML Excerpt for Configuration Type 2 Unit Identification**

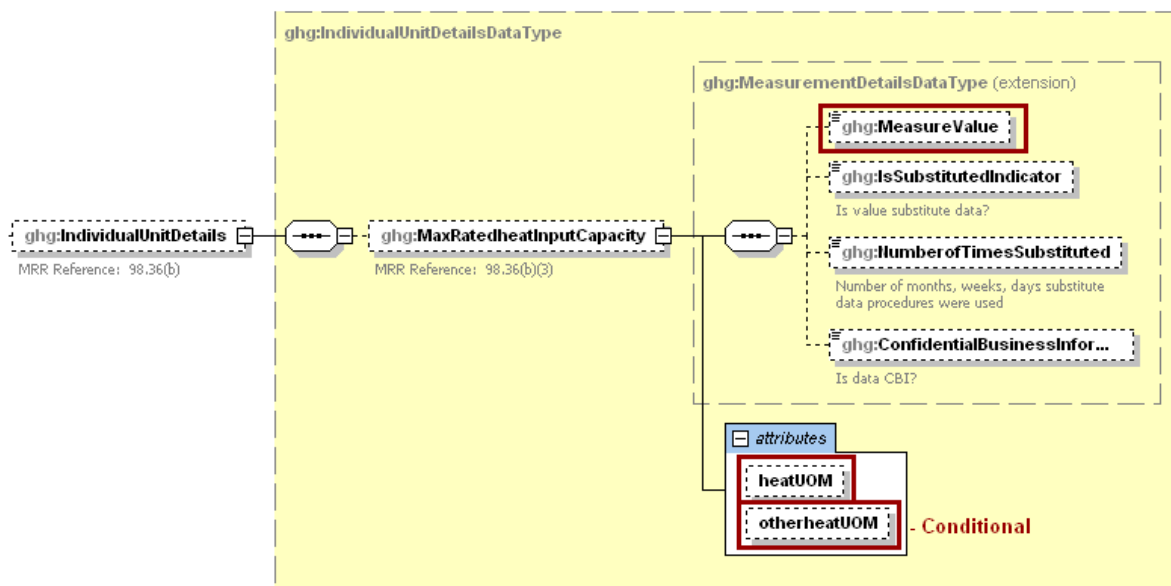
```

    <ghg:UnitsCDetails>
      <ghg:UnitIdentification>
        <ghg:UnitName>CT 2- Tier 4</ghg:UnitName>
        <ghg:UnitDescription>Tier 4 unit</ghg:UnitDescription>
        <ghg:UnitType>F (Furnace)</ghg:UnitType>
      </ghg:UnitIdentification>
    </ghg:UnitsCDetails>
  
```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

For individual unit details, the value of the maximum rated heat input capacity of the unit must be reported.

**Figure 15**  
**Configuration Type 2 Individual Unit Details Schema Diagram**



Report the measured value and heat unit of measure only. For heatUOM, use mmBtu/hr for boilers, process heaters and other combustion units as appropriate. Enter "Other" if there is another relevant unit of measure for other combustion sources, and enter the unit of measure for otherheatUOM. [98.36(b)(3)]

**Table 5**  
**Configuration Type 2 Individual Unit Details XML Data Elements**

Data Element Name	Description
IndividualUnitDetails	A collection of data elements containing details about each individual stationary combustion unit that uses one of the four tiers and that are reporting under 98.36(b).
MaxRatedheatInputCapacity	Maximum rated heat input capacity of the unit. Report the measured value only.
MaxRatedheatInputCapacity.heatUOM	For boilers and process heaters, use "mmBtu/hr" only. Enter "Other" if there is another relevant unit of measure for other combustion sources.
MaxRatedheatInputCapacity.otherheatUOM	Enter the unit of measure if "Other" was entered for heatUOM.

**Figure 16**  
**Sample XML Excerpt for Configuration Type 2 Individual Unit Details**

```

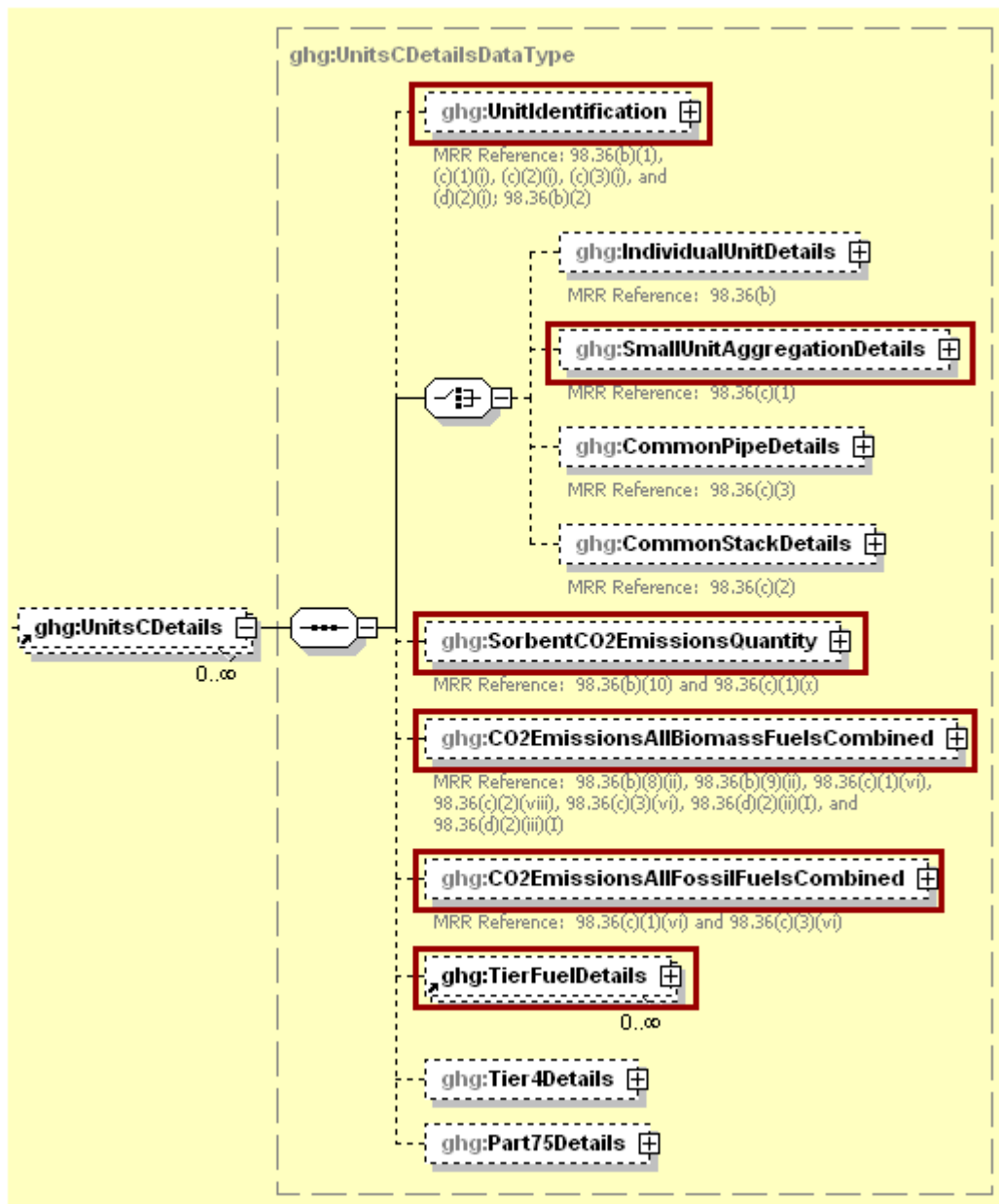
<ghg:IndividualUnitDetails>
  <ghg:MaxRatedheatInputCapacity heatUOM="mmBtu/hr">
    <ghg:MeasureValue>4000</ghg:MeasureValue>
  </ghg:MaxRatedheatInputCapacity>
</ghg:IndividualUnitDetails>
    
```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

### 2.3 Configuration Type 3 Identification

Specific data components are required for Configuration Type 3. See the relevant components boxed in red in the figure below.

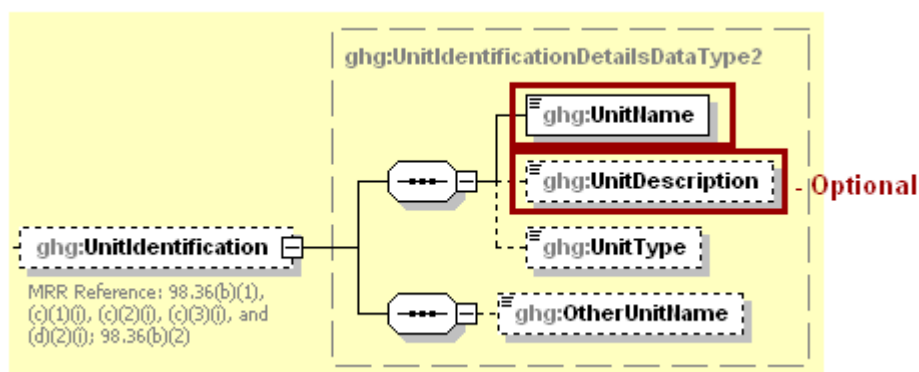
**Figure 17**  
**Units C Details for Configuration Type 3 Schema Diagram**



Each group of units using the aggregation of units reporting alternative must be identified separately so that emissions information can be reported for a specific aggregation of units.



**Figure 18**  
**Configuration Type 3 Unit Identification Schema Diagram**



For configurations of **Type 3 (aggregation of units)**, Subpart C requires the following identification information for each configuration:

- A unique name or identifier that begins with the prefix “GP” [98.36(c)(1)(i)]
- An optional description or label [optional]

**Table 6**  
**Configuration Type 3 Unit Identification XML Data Elements**

Data Element Name	Description
UnitsCDetails	A collection of data elements containing details regarding each stationary fuel combustion unit configuration.
UnitIdentification	A collection of data elements containing the identity of each Subpart C reporting configuration.
UnitName	A user-defined identifier for this configuration. Each unit or configuration must have a unique UnitName. For an aggregation of units configuration, report the group name/ID beginning with the prefix "GP".
UnitDescription	An optional description or label. For example, the scope of units included in this configuration may be reported here.

**Figure 19**  
**Sample XML Excerpt for Configuration Type 3 Unit Identification**

```

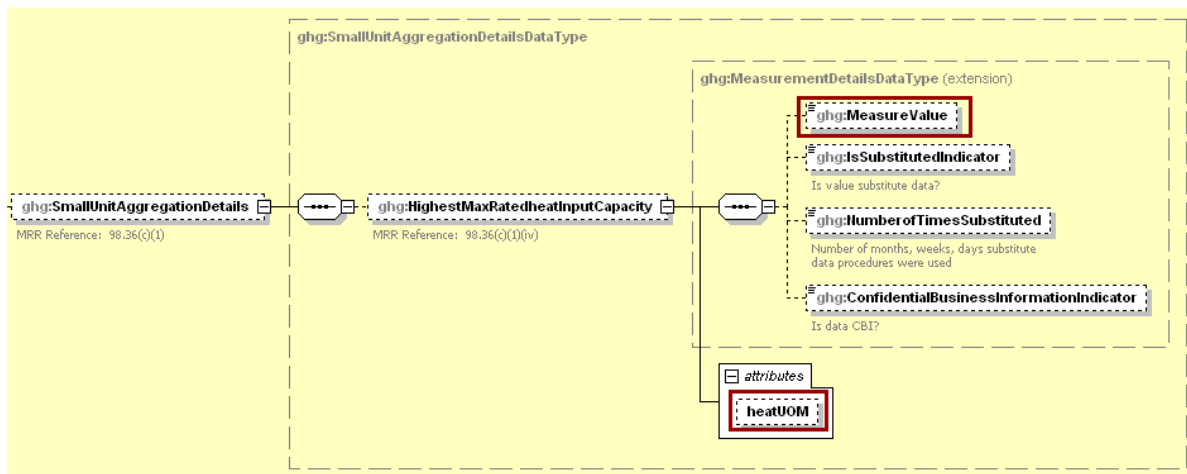
<ghg:UnitsCDetails>
  <ghg:UnitIdentification>
    <ghg:UnitName>GP-CT3- Tier 1</ghg:UnitName>
    <ghg:UnitDescription>Tier 1 units</ghg:UnitDescription>
  </ghg:UnitIdentification>

```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

For small unit aggregation details, the value of the highest maximum rated heat input capacity of any unit of the group must be reported.

**Figure 20**  
**Small Unit Aggregation Details Schema Diagram**



Report the measured value and heat unit of measure in mmBtu/hr only. [98.36(c)(1)(iv)]

**Table 7**  
**Small Unit Aggregation Details XML Data Elements**

Data Element Name	Description
SmallUnitAggregationDetails	A collection of data elements containing details about an aggregation of units reporting under 98.36(c)(1) as an aggregation of units configuration.
HighestMaxRatedheatInputCapacity	The highest maximum rated heat input capacity of any unit in the group (aggregation of units configuration). Report the measured value only.
HighestMaxRatedheatInputCapacity.heatUOM	mmBtu/hr

**Figure 21**  
**Sample XML Excerpt for Small Unit Aggregation Details**

```

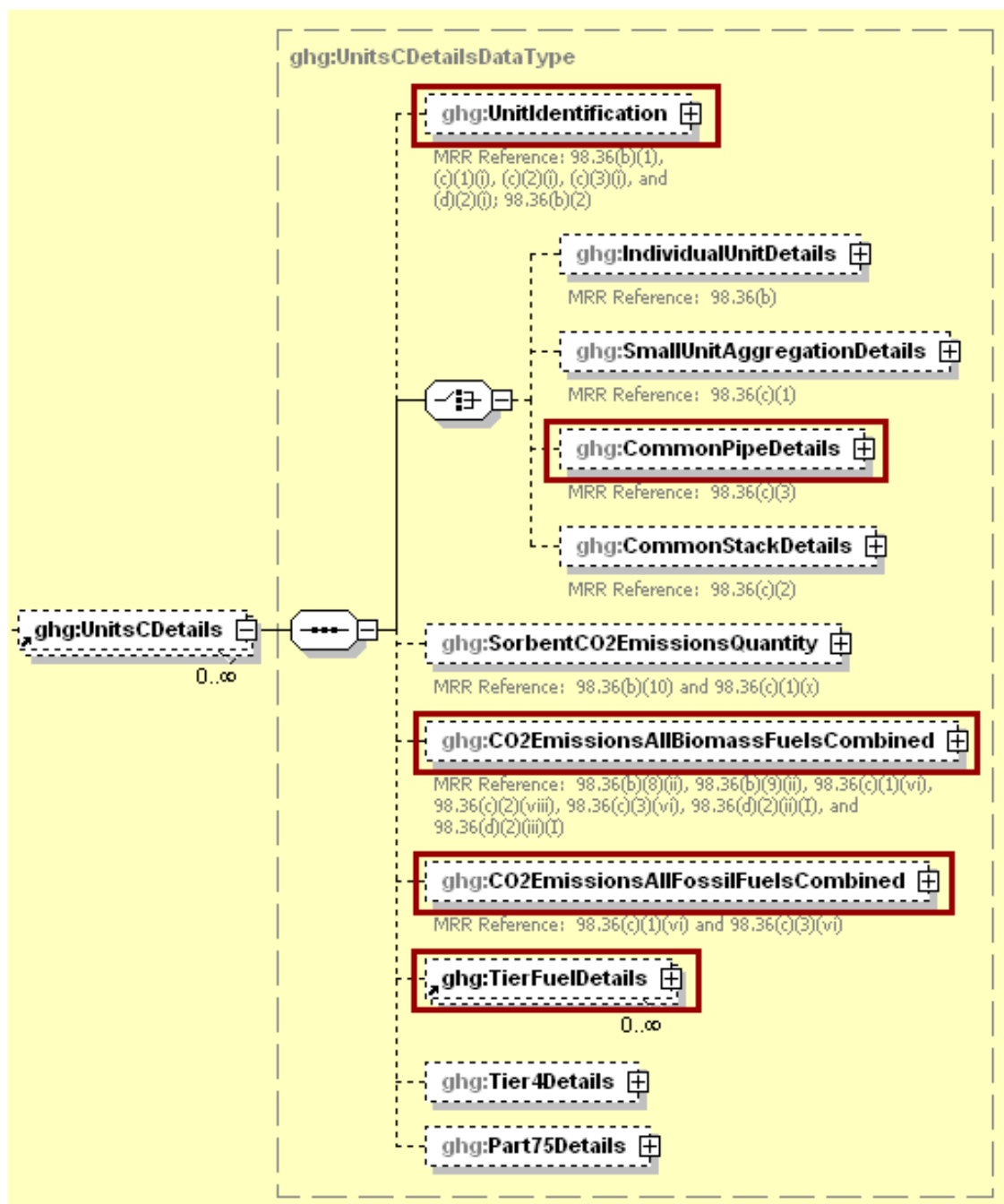
<ghg:SmallUnitAggregationDetails>
  <ghg:HighestMaxRatedheatInputCapacity heatUOM="mmBtu/hr">
    <ghg:MeasureValue>5000</ghg:MeasureValue>
  </ghg:HighestMaxRatedheatInputCapacity>
</ghg:SmallUnitAggregationDetails>
    
```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

## 2.4 Configuration Type 4 Identification

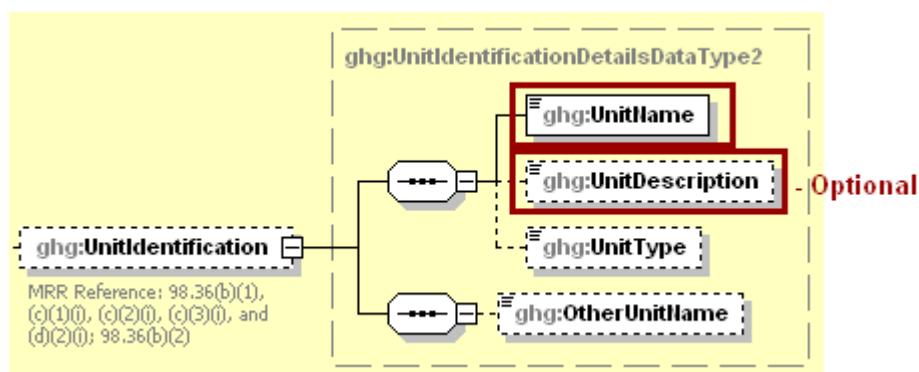
Specific data components are required for Configuration Type 4. See the relevant components boxed in red in the figure below.

**Figure 22**  
**Units C Details for Configuration Type 4 Schema Diagram**



Each group of units using the common pipe configuration reporting alternative must be identified separately so that emissions information can be reported for a specific group of units.

**Figure 23**  
**Configuration Type 4 Unit Identification Schema Diagram**



For configurations of **Type 4 (common pipe configurations)**, Subpart C requires the following identification information for each configuration:

- A unique name or identifier that begins with the prefix “CP” [98.36(c)(3)(i)]
- An optional description or label [optional]

**Table 8**  
**Configuration Type 4 Unit Identification XML Data Elements**

Data Element Name	Description
UnitsCDetails	A collection of data elements containing details regarding each stationary fuel combustion unit configuration.
UnitIdentification	A collection of data elements containing the identity of each Subpart C reporting configuration.
UnitName	A user-defined identifier for this configuration. Each configuration must have a unique UnitName. For common pipe configurations, report the common pipe name/ID beginning with the prefix "CP".
UnitDescription	An optional description or label. For example, the scope of units included in this configuration may be reported here.

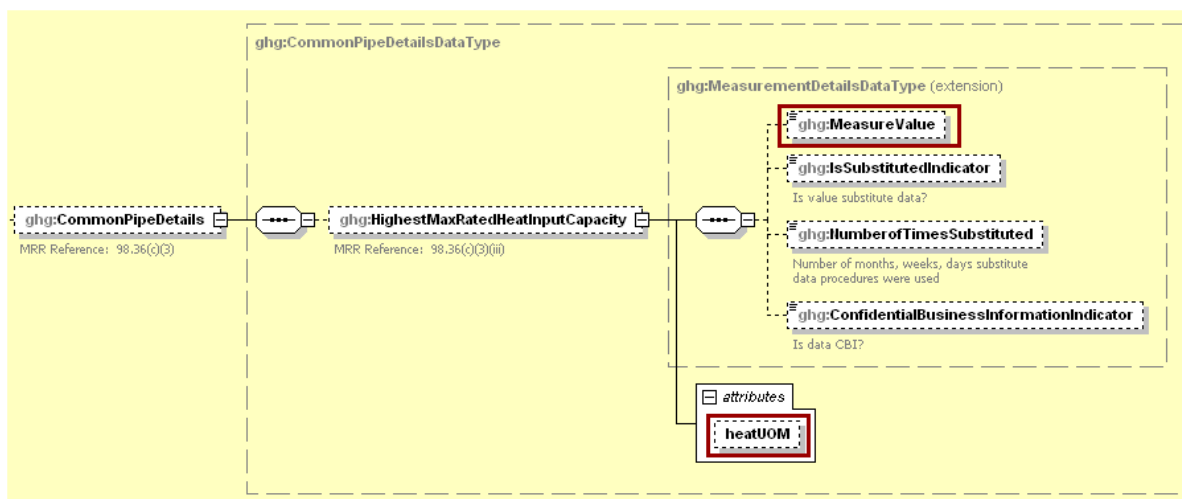
**Figure 24**  
**Sample XML Excerpt for Configuration Type 4 Unit Identification**

```
<ghg:UnitsCDetails>
  <ghg:UnitIdentification>
    <ghg:UnitName>CP-CT 4- Tier 2</ghg:UnitName>
    <ghg:UnitDescription>Tier 2 unit</ghg:UnitDescription>
  </ghg:UnitIdentification>
```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

For common pipe details, the value of the highest maximum rated heat input capacity of any unit served by the common pipe must be reported.

**Figure 25  
Common Pipe Details Schema Diagram**



Report the measured value and heat unit of measure in mmBtu/hr only. [98.36(c)(3)(iii)]

**Table 9  
Common Pipe Details XML Data Elements**

Data Element Name	Description
CommonPipeDetails	A collection of data elements containing details about units reporting under 98.36(c)(3) as a common pipe configuration.
HighestMaxRatedHeatInputCapacity	The highest maximum rated heat input capacity of any unit served by the common pipe (common pipe unit configuration). Report the measured value only.
HighestMaxRatedHeatInputCapacity.heatUOM	mmBtu/hr

**Figure 26  
Sample XML Excerpt for Common Pipe Details**

```

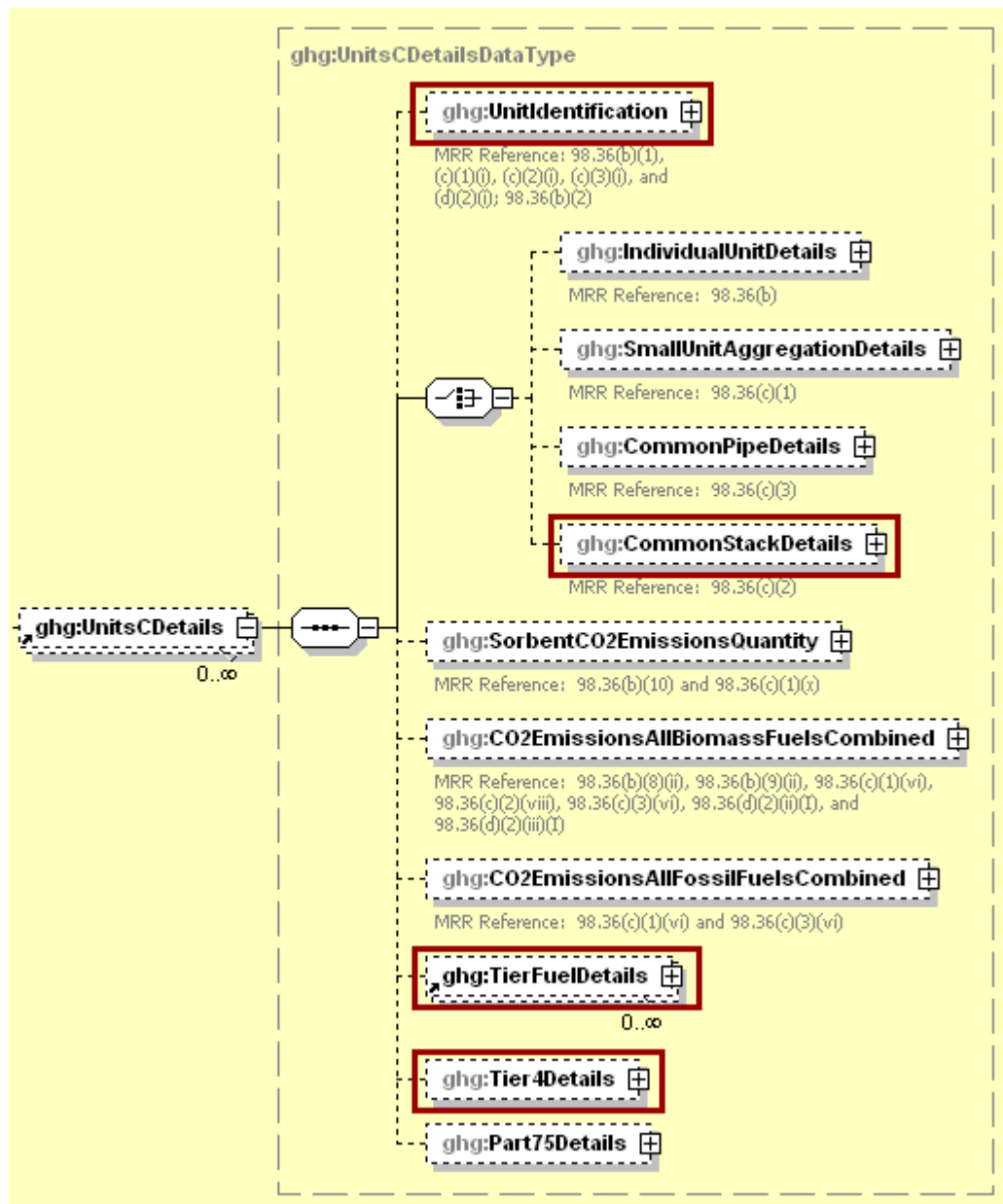
<ghg:CommonPipeDetails>
  <ghg:HighestMaxRatedHeatInputCapacity heatUOM="mmBtu/hr">
    <ghg:MeasureValue>6000</ghg:MeasureValue>
  </ghg:HighestMaxRatedHeatInputCapacity>
</ghg:CommonPipeDetails>
    
```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

## 2.5 Configuration Type 5 Identification

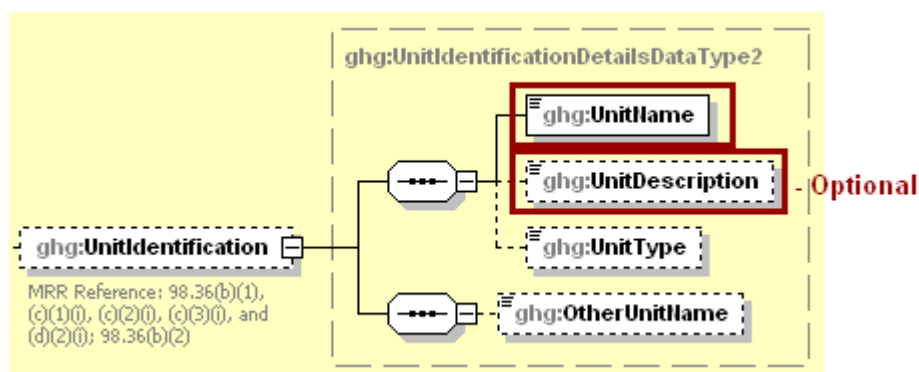
Specific data components are required for Configuration Type 5. See the relevant components boxed in red in the figure below.

**Figure 27**  
**Units C Details for Configuration Type 5 Schema Diagram**



Each group of units using Tier 4 (CEMS) to calculate emissions and reporting under the monitored common stack or duct configurations reporting alternative must be identified separately so that emissions information can be reported for a specific group of units.

**Figure 28**  
**Configuration Type 5 Unit Identification Schema Diagram**



For configurations of **Type 5 (monitored common stack or duct configurations)**, Subpart C requires the following identification information for each configuration:

- A unique name or identifier that begins with the prefix “CS” [98.36(c)(2)(i)]
- An optional description or label [optional]

**Table 10**  
**Configuration Type 5 Unit Identification XML Data Elements**

Data Element Name	Description
UnitsCDetails	A collection of data elements containing details regarding each stationary fuel combustion unit configuration.
UnitIdentification	A collection of data elements containing the identity of each Subpart C reporting configuration.
UnitName	A user-defined identifier for this configuration. Each configuration must have a unique UnitName. For common stack configurations, report the common stack name/ID beginning with the prefix "CS".
UnitDescription	An optional description or label. For example, the scope of units included in this configuration may be reported here.

**Figure 29**  
**Sample XML Excerpt for Configuration Type 5 Unit Identification**

```

<ghg:UnitsCDetails>
  <ghg:UnitIdentification>
    <ghg:UnitName>CS-CT 5- Tier 4</ghg:UnitName>
    <ghg:UnitDescription>Tier 4 unit</ghg:UnitDescription>
  </ghg:UnitIdentification>

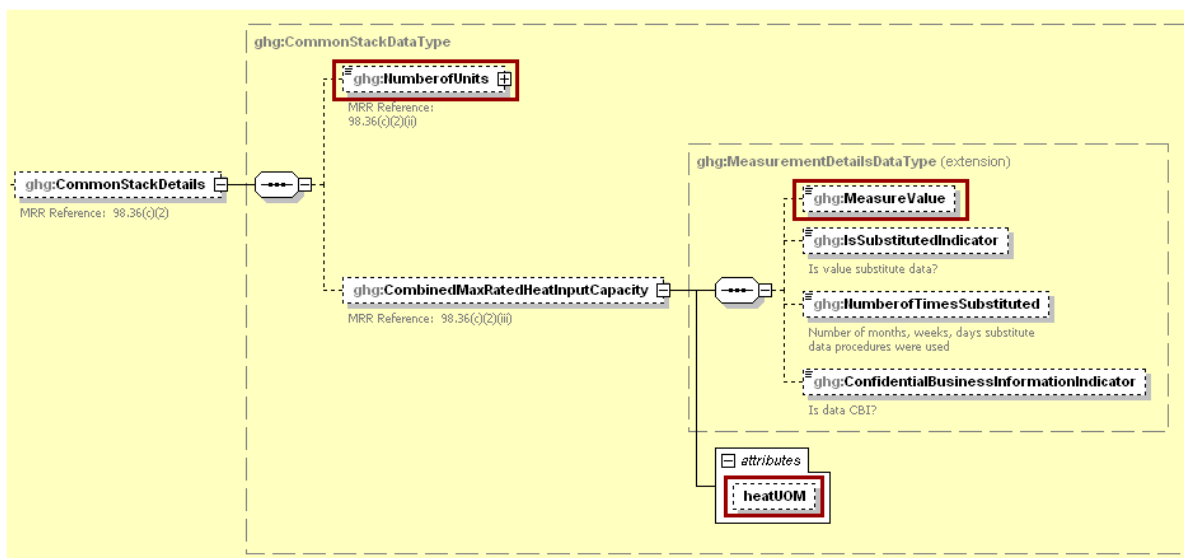
```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

For common stack details, the following information must be reported:

- The number of units sharing the common stack [98.36(c)(2)(ii)]
- The combined maximum rated heat input capacity of the units sharing the common stack in mmBtu/hr [98.36(c)(2)(iii)]

**Figure 30**  
**Common Stack Details Schema Diagram**



For the combined maximum rated heat input capacity, report the measured value and heat unit of measure in mmBtu/hr only.

**Table 11**  
**Common Stack Details XML Data Elements**

Data Element Name	Description
CommonStackDetails	A collection of data elements containing details about units reporting under 98.36(c)(2) as a common stack or duct configuration.
NumberOfUnits	Number of units sharing the common stack or duct. Report “1” when the flue gas flowing through the stack includes combustion products and/or process off-gases and all of the effluent comes from a single unit.
CombinedMaxRatedHeatInputCapacity	Combined maximum rated heat input capacity of the units sharing the common stack or duct. This data element is required only when all of the units sharing the common stack are stationary fuel combustion units (Monitored common stack or duct configuration). Report the measured value only.
CombinedMaxRatedHeatInputCapacity.heatUOM	mmBtu/hr



**Figure 31**  
**Sample XML Excerpt for Common Stack Details**

```

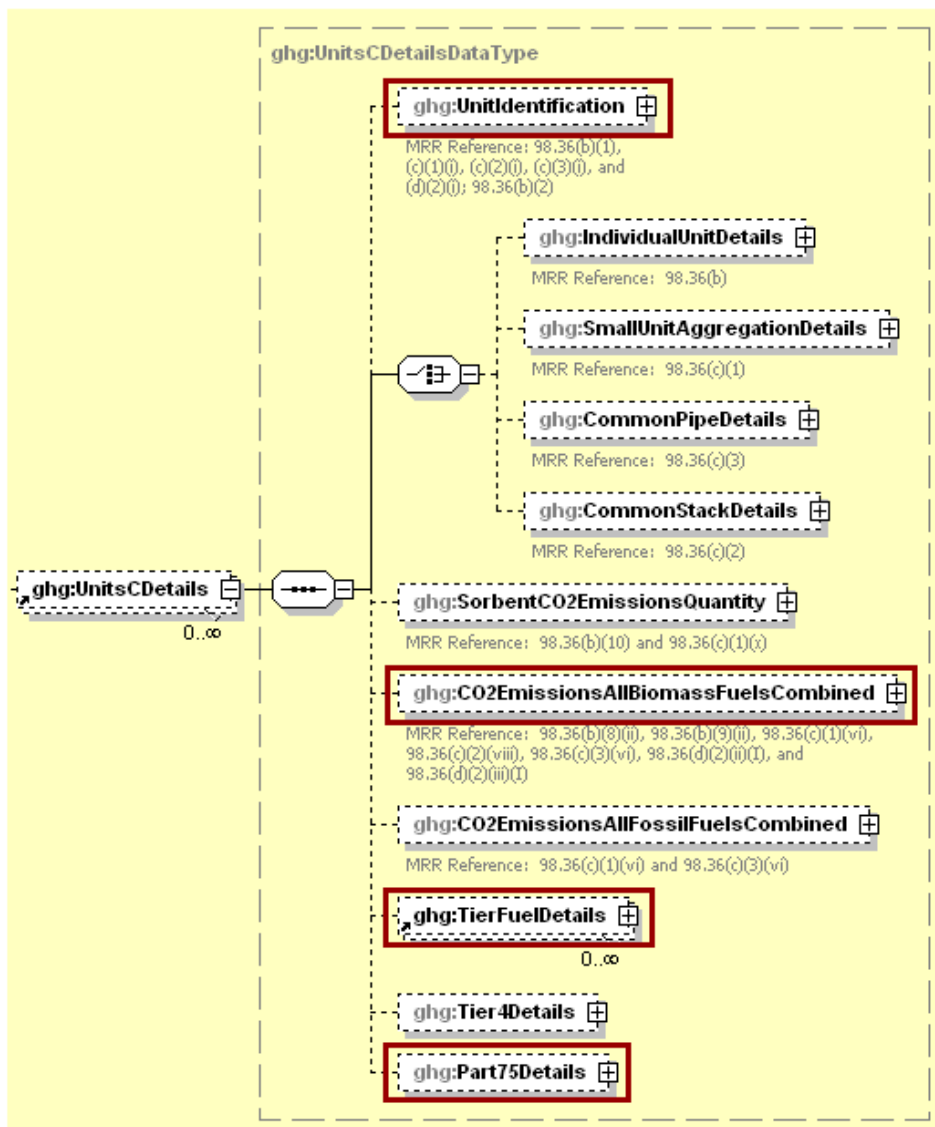
<ghg:CommonStackDetails>
  <ghg:NumberofUnits>7</ghg:NumberofUnits>
  <ghg:CombinedMaxRatedHeatInputCapacity heatUOM="mmBtu/hr">
    <ghg:MeasureValue>7000</ghg:MeasureValue>
  </ghg:CombinedMaxRatedHeatInputCapacity>
</ghg:CommonStackDetails>
    
```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

**2.6 Configuration Type 6 Identification**

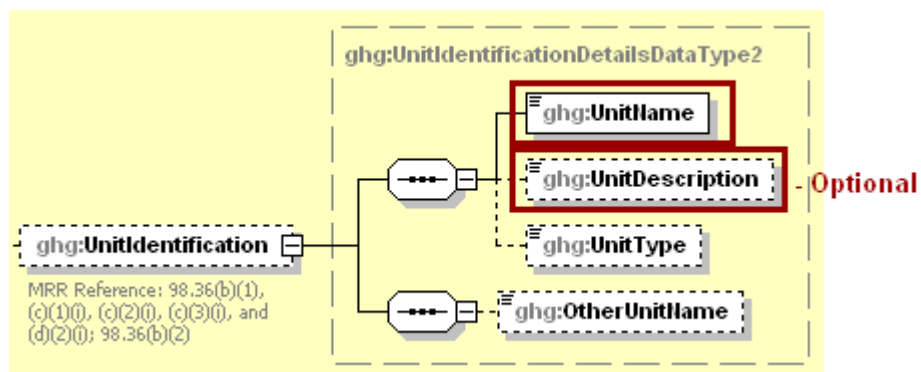
Specific data components are required for Configuration Type 6. See the relevant components boxed in red in the figure below.

**Figure 32**  
**Units C Details for Configuration Type 6 Schema Diagram**



Each unit, stack or pipe using the alternative CO<sub>2</sub> mass emissions calculation methods provided in 98.33(a)(5) must be identified separately so that emissions information can be reported for the respective unit, stack or pipe.

**Figure 33**  
**Configuration Type 6 Unit Identification Schema Diagram**



For configurations of **Type 6 (year-round Part 75 heat input reporters)**, Subpart C requires the following identification information for each configuration:

- Unit, stack, or pipe ID numbers. Use the exact same unit, common stack, common pipe, or multiple stack identification numbers that represent the monitored locations ( e.g., 1, 2, CS001, MS1A, CP001, etc. ) that are reported under 40 CFR 75.64 [98.36(d)(2)(i)]
- An optional description or label [optional]

**Table 12**  
**Configuration Type 6 Unit Identification XML Data Elements**

Data Element Name	Description
UnitsCDetails	A collection of data elements containing details regarding each stationary fuel combustion unit configuration.
UnitIdentification	A collection of data elements containing the identity of each Subpart C reporting configuration.
UnitName	For part 75 units, use exactly the same name/ID that is reported under §75.64 and that represents the monitored location.
UnitDescription	An optional description or label. For example, the scope of units included in this configuration may be reported here.

**Figure 34**  
**Sample XML Excerpt for Configuration Type 6 Unit Identification**

```

<ghg:UnitsCDetails>
  <ghg:UnitIdentification>
    <ghg:UnitName>CT 6- CEMS</ghg:UnitName>
    <ghg:UnitDescription>Part 75 unit</ghg:UnitDescription>
  </ghg:UnitIdentification>

```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

### 3.0 Configuration Level Emissions Information

This section of the Subpart C XML reporting instructions covers the requirements for reporting the total sorbent emissions, total biogenic emissions and total fossil fuel emissions at each configuration.

Configurations using either Tier 4 (Configuration Types 2 and 5) or the Part 75 methodologies specified in 98.33(a)(5) (Configuration Type 6) have additional configuration-level requirements specified in Section 5 of these instructions.

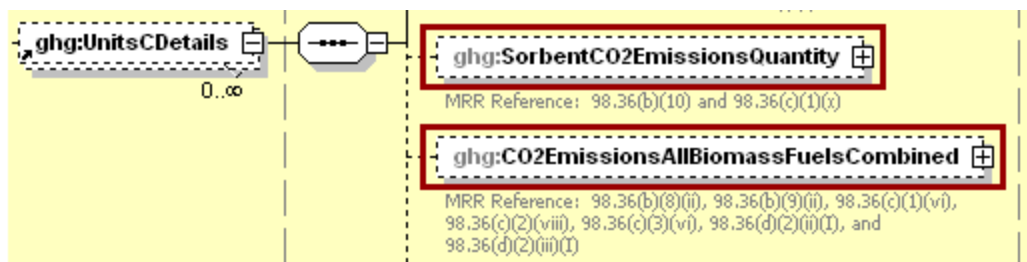
The requirements for reporting fuel-specific emissions are specified in Section 4 of these instructions. Note that the reporting of both configuration-level and fuel-specific emissions are required for all configurations types. Also, as with the identification information, each configuration has unique reporting requirements for emissions information.

### 3.1 Configuration Type 1 Configuration Level Emissions

For configurations of **Type 1 (single unit using Tiers 1, 2, or 3)**, Subpart C requires the following additional information aggregated at the configuration-level:

- The total annual CO<sub>2</sub> mass emissions from sorbent [98.36(b)(10)]
- The total annual biogenic CO<sub>2</sub> mass emissions from the combustion of biomass fuels and the biogenic fraction of CO<sub>2</sub> emissions from fuels with a mixed biogenic and fossil component [98.36(b)(8)(ii)]

**Figure 35**  
**Sorbent CO<sub>2</sub> Emissions Quantity and CO<sub>2</sub> Emissions All Biomass Fuels Combined Schema Diagram**



**Table 13**  
**Sorbent CO<sub>2</sub> Emissions Quantity and CO<sub>2</sub> Emissions All Biomass Fuels Combined XML Data Elements**

Data Element Name	Description
SorbentCO2EmissionsQuantity	The calculated annual CO <sub>2</sub> emissions (if any) from sorbent. Report the calculated value only.
SorbentCO2EmissionsQuantity.massUOM	Metric Tons

Data Element Name	Description
CO2EmissionsAllBiomassFuelsCombined	Total annual biogenic CO <sub>2</sub> mass emissions for a configuration. Report the calculated value only.
CO2EmissionsAllBiomassFuelsCombined.massUOM	Metric Tons

**Figure 36**  
**Sample XML Excerpt for Sorbent CO<sub>2</sub> Emissions Quantity and CO<sub>2</sub> Emissions All Biomass Fuels Combined**

```

<ghg:SorbentCO2EmissionsQuantity massUOM="Metric Tons">
  <ghg:CalculatedValue>10.0</ghg:CalculatedValue>
</ghg:SorbentCO2EmissionsQuantity>
<ghg:CO2EmissionsAllBiomassFuelsCombined massUOM="Metric Tons">
  <ghg:CalculatedValue>100.0</ghg:CalculatedValue>
</ghg:CO2EmissionsAllBiomassFuelsCombined>
    
```

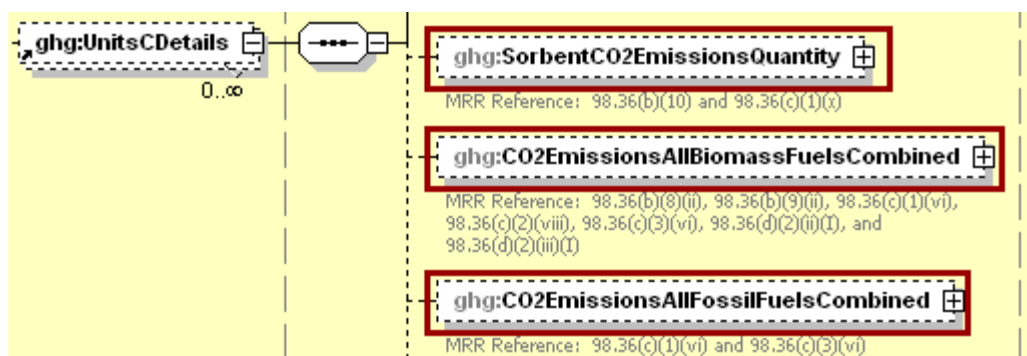
Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

### 3.2 Configuration Type 3 Configuration Level Emissions

For configurations of **Type 3 (aggregation of units)**, Subpart C requires the following additional information aggregated at the configuration-level:

- The total annual CO<sub>2</sub> mass emissions from sorbent [98.36(c)(1)(x)]
- The total annual biogenic CO<sub>2</sub> mass emissions from the combustion of biomass fuels and the biogenic fraction of CO<sub>2</sub> emissions from fuels with a mixed biogenic and fossil component [98.36(c)(1)(vi)]
- The total annual CO<sub>2</sub> mass emissions from the combustion of fossil fuels and the fossil fraction of CO<sub>2</sub> emissions from fuels with a mixed biogenic and fossil component [98.36(c)(1)(vi)]

**Figure 37**  
**Sorbent CO<sub>2</sub> Emissions Quantity, CO<sub>2</sub> Emissions All Biomass Fuels Combined and CO<sub>2</sub> Emissions All Fossil Fuels Combined Schema Diagram**



**Table 14**  
**Sorbent CO<sub>2</sub> Emissions Quantity, CO<sub>2</sub> Emissions All Biomass Fuels Combined and CO<sub>2</sub> Emissions All Fossil Fuels Combined XML Data Elements**

Data Element Name	Description
SorbentCO2EmissionsQuantity	The calculated annual CO <sub>2</sub> emissions (if any) from sorbent. Report the calculated value only.
SorbentCO2EmissionsQuantity.massUOM	Metric Tons
CO2EmissionsAllBiomassFuelsCombined	Total annual biogenic CO <sub>2</sub> mass emissions for a configuration. Report the calculated value only.
CO2EmissionsAllBiomassFuelsCombined.massUOM	Metric Tons
CO2EmissionsAllFossilFuelsCombined	The calculated annual CO <sub>2</sub> mass emissions from the combustion of all fossil fuels for a configuration. Report the calculated value only.
CO2EmissionsAllFossilFuelsCombined.massUOM	Metric Tons

**Figure 38**  
**Sample XML Excerpt for Sorbent CO<sub>2</sub> Emissions Quantity, CO<sub>2</sub> Emissions All Biomass Fuels Combined and CO<sub>2</sub> Emissions All Fossil Fuels Combined**

```

<ghg:SorbentCO2EmissionsQuantity massUOM="Metric Tons">
  <ghg:CalculatedValue>50.0</ghg:CalculatedValue>
</ghg:SorbentCO2EmissionsQuantity>
<ghg:CO2EmissionsAllBiomassFuelsCombined massUOM="Metric Tons">
  <ghg:CalculatedValue>500.0</ghg:CalculatedValue>
</ghg:CO2EmissionsAllBiomassFuelsCombined>
<ghg:CO2EmissionsAllFossilFuelsCombined massUOM="Metric Tons">
  <ghg:CalculatedValue>50000.0</ghg:CalculatedValue>
</ghg:CO2EmissionsAllFossilFuelsCombined>

```

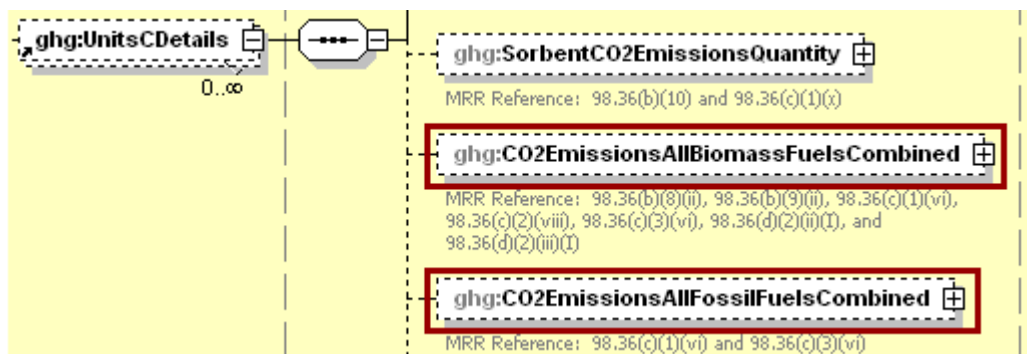
Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

### 3.3 Configuration Type 4 Configuration Level Emissions

For configurations of **Type 4 (non-CEMS group of units sharing common fuel supply pipe)**, Subpart C requires the following additional information aggregated at the configuration-level:

- The total annual biogenic CO<sub>2</sub> mass emissions from the combustion of biomass fuels and the biogenic fraction of CO<sub>2</sub> emissions from fuels with a mixed biogenic and fossil component [98.36(c)(3)(vi)]
- The total annual CO<sub>2</sub> mass emissions from the combustion of fossil fuels and the fossil fraction of CO<sub>2</sub> emissions from fuels with a mixed biogenic and fossil component [98.36(c)(3)(vi)]

**Figure 39**  
**CO<sub>2</sub> Emissions All Biomass Fuels Combined and CO<sub>2</sub> Emissions All Fossil Fuels Combined Schema Diagram**



**Table 15**  
**CO<sub>2</sub> Emissions All Biomass Fuels Combined and CO<sub>2</sub> Emissions All Fossil Fuels Combined XML Data Elements**

Data Element Name	Description
CO2EmissionsAllBiomassFuelsCombined	Total annual biogenic CO <sub>2</sub> mass emissions for a configuration. Report the calculated value only.
CO2EmissionsAllBiomassFuelsCombined.massUOM	Metric Tons
CO2EmissionsAllFossilFuelsCombined	The calculated annual CO <sub>2</sub> mass emissions from the combustion of all fossil fuels for a configuration. Report the calculated value only.
CO2EmissionsAllFossilFuelsCombined.massUOM	Metric Tons

**Figure 40**  
**Sample XML Excerpt for CO<sub>2</sub> Emissions All Biomass Fuels Combined and CO<sub>2</sub> Emissions All Fossil Fuels Combined**

```
<ghg:CO2EmissionsAllBiomassFuelsCombined massUOM="Metric Tons">
  <ghg:CalculatedValue>600.0</ghg:CalculatedValue>
</ghg:CO2EmissionsAllBiomassFuelsCombined>
<ghg:CO2EmissionsAllFossilFuelsCombined massUOM="Metric Tons">
  <ghg:CalculatedValue>60000.0</ghg:CalculatedValue>
</ghg:CO2EmissionsAllFossilFuelsCombined>
```

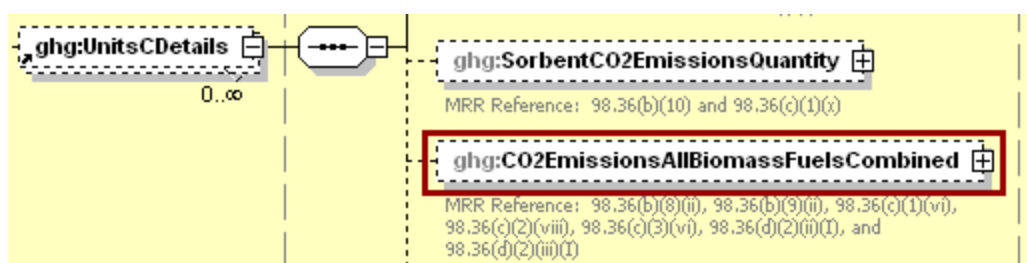
Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

### 3.4 Configuration Type 6 Configuration Level Emissions

For configurations of **Type 6 (year-round Part 75 heat input reporters)**, Subpart C requires the following additional information aggregated at the configuration-level:

- The total annual biogenic CO<sub>2</sub> mass emissions from the combustion of biomass fuels and the biogenic fraction of CO<sub>2</sub> emissions from fuels with a mixed biogenic and fossil component [98.36(d)(2)(ii)(I), 98.36(d)(2)(iii)(I)]
  - Report zero for this value if the facility elects to use the option specified in 98.3(c)(12) for the 2010 reporting year (where the facility chooses not to separately report biogenic CO<sub>2</sub> emissions from part 75 units)

**Figure 41**  
CO<sub>2</sub> Emissions All Biomass Fuels Combined Schema Diagram



**Table 16**  
CO<sub>2</sub> Emissions All Biomass Fuels Combined XML Data Elements

Data Element Name	Description
CO2EmissionsAllBiomassFuelsCombined	Total annual biogenic CO <sub>2</sub> mass emissions for a configuration. Report the calculated value only.
CO2EmissionsAllBiomassFuelsCombined.massUOM	Metric Tons

**Figure 42**  
Sample XML Excerpt for CO<sub>2</sub> Emissions All Biomass Fuels Combined

```
<ghg:CO2EmissionsAllBiomassFuelsCombined massUOM="Metric Tons">
  <ghg:CalculatedValue>1000.0</ghg:CalculatedValue>
</ghg:CO2EmissionsAllBiomassFuelsCombined>
```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

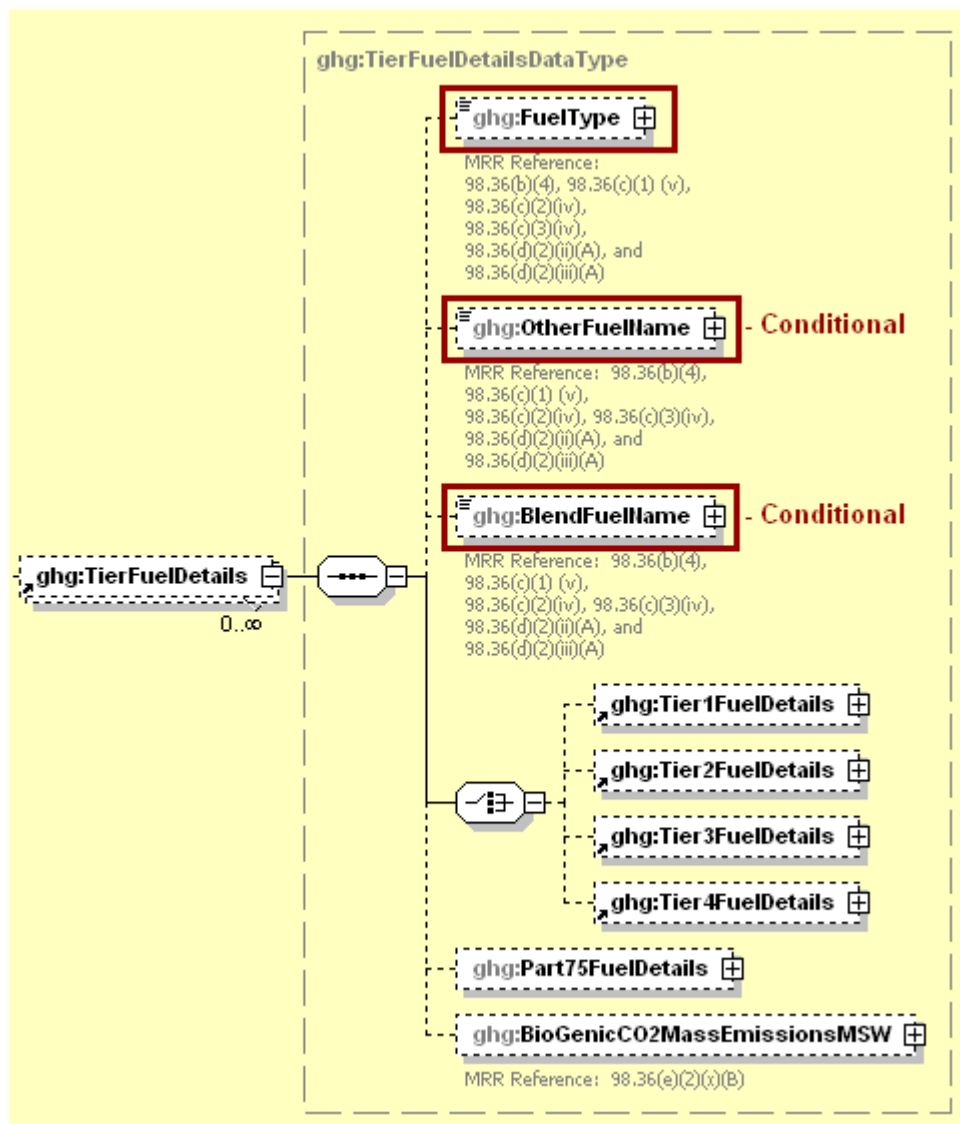
### 4.0 Fuel Level Emissions by Configuration Type

For configurations of all types, Subpart C requires you to identify the following for **each configuration**:

- The fuel types combusted during the reporting year [98.36(b)(4), 98.36(c)(1)(v), 98.36(c)(2)(iv), 98.36(c)(3)(iv), 98.36(d)(2)(ii)(A), and 98.36(d)(2)(iii)(A)]

Separately report each fuel combusted in the configuration during the report year along with the associated emissions information. The required information for each fuel will depend on which tier was used to calculate CO<sub>2</sub> emissions.

**Figure 43**  
**Tier Fuel Details Schema Diagram**





Report the fuel type. (See list of allowable fuel types.) If the fuel type does not appear in the list and the use of Tier 3 is required, then specify its name using the "OtherFuelName" element. If a blend of fuels was combusted and the fuels cannot be reported individually, report the blend name using "BlendFuelName".

The user should refer to 98.33(b) to determine which Tier is required for each fuel type at the configuration.

Note that Tiers 1-3 could only apply to Configurations of **Type 1 (single unit using Tiers 1, 2, or 3), Type 3 (aggregation of units) and Type 4 (common pipe)**. For each fuel in a configuration, the user will specify which tier is used and which equation was used for that fuel.

For Configurations of **Type 2 (single unit Using Tier 4) or Type 5 (common stack or duct)**, the user will report the applicable information for each fuel under the Tier4FuelDetails node.

For Configurations of **Type 6 (Part 75 heat input reporters)**, the user will report the applicable information for each fuel under the Part75FuelDetails node.

**Table 17**  
**Tier Fuel Details XML Data Elements**

Data Element Name	Description
TierFuelDetails	A collection of data elements containing information regarding the types of fuels combusted in the reporting configuration and broken out by CO <sub>2</sub> calculation methodology.
FuelType	<p>Specify separately each type of fuel combusted in the reporting configuration during the report year. See list of allowable fuel types below. If reporting an "other" fuel or "blended" fuel, then specify its name using one of the following data elements, "OtherFuelName" or "BlendFuelName" as appropriate.</p> <ul style="list-style-type: none"> <li>Anthracite</li> <li>Bituminous</li> <li>Subbituminous</li> <li>Lignite</li> <li>Coke</li> <li>Mixed (Commercial sector)</li> <li>Mixed (Industrial coking)</li> <li>Mixed (Industrial sector)</li> <li>Mixed (Electric Power sector)</li> <li>Mixed (Electric Power sector)</li> <li>Plastics</li> <li>Petroleum Coke</li> <li>Municipal Solid Waste</li> <li>Tires</li> <li>Wood and Wood Residuals</li> <li>Agricultural Byproducts</li> <li>Peat</li> <li>Distillate Fuel Oil No. 1</li> <li>Distillate Fuel Oil No. 2</li> <li>Distillate Fuel Oil No. 4</li> <li>Residual Fuel Oil No. 5</li> <li>Residual Fuel Oil No. 6</li> <li>Used Oil</li> <li>Kerosene</li> <li>Liquefied petroleum gases (LPG)</li> <li>Propylene</li> <li>Ethane</li> </ul>

Data Element Name	Description
	Ethanol (100%) Ethylene Isobutane Isobutylene Butane Butylene Naphtha (&lt;401 deg F) Natural Gasoline Other Oil (&gt;401 deg F) Pentanes Plus Petrochemical Feedstocks Petroleum Coke Special Naphtha Unfinished Oils Heavy Gas Oils Lubricants Motor Gasoline Aviation Gasoline Kerosene-Type Jet Fuel Asphalt and Road Oil Crude Oil Propane Ethanol Biodiesel Rendered Animal Fat Vegetable Oil Natural Gas (Weighted U.S. Average) Blast Furnace Gas Coke Oven Gas Propane Gas Fuel Gas Biogas (Captured methane) Solid Byproducts
OtherFuelName	Name of the specific fuel if not found in the list of allowable values and the use of Tier 3 is required.
BlendFuelName	Name of the specific fuel blend if the blended fuels cannot be reported individually.

**Figure 44**  
**Sample XML Excerpt for Tier Fuel Details**

```

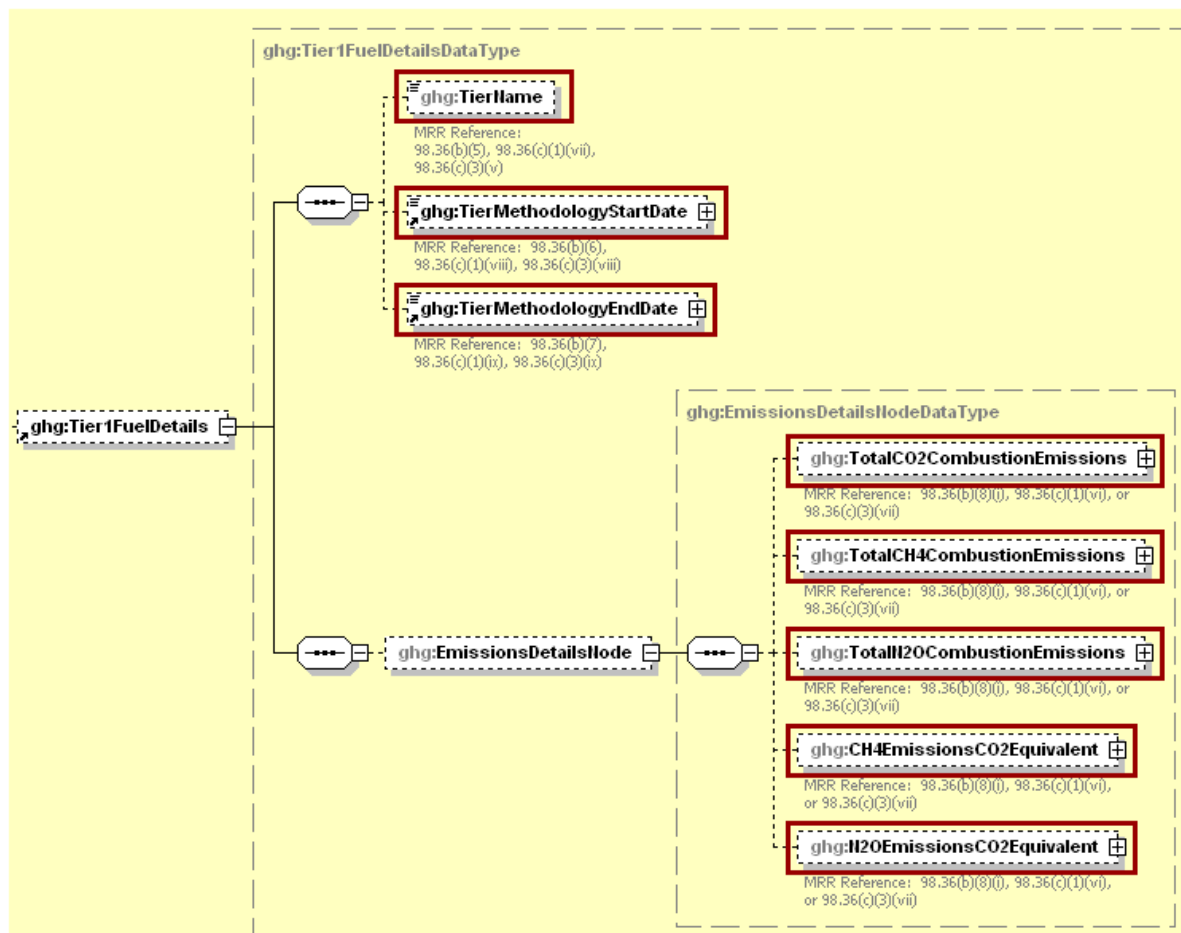
<ghg:TierFuelDetails>
  <ghg:FuelType>Natural Gas (Weighted U.S. Average)</ghg:FuelType>

```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

## 4.1 Tier 1 Fuel Details

**Figure 45**  
**Tier 1 Fuel Details Schema Diagram**



For each fuel type (including biomass fuel(s)) in a configuration that uses **Tier 1**, you will be required to specify which Tier 1 equation is used to calculate CO<sub>2</sub> emissions.

The following information is required for each fuel type combusted in the unit:

- Calculation methodology used for the emissions calculation period specified, for each fuel type [98.36(b)(5), 98.36(c)(1)(vii), 98.36(c)(3)(v)]:
  - Tier 1/Equation C-1 - Annual fuel combusted, default heating value, and default CO<sub>2</sub> emission factor
  - Tier 1/Equation C-1a - Annual natural gas usage from billing records (therms) and default CO<sub>2</sub> emission factor
  - Tier 1/Equation C-1b - Annual natural gas usage from billing records (mmBtu) and default CO<sub>2</sub> emission factor
- Calculation methodology start date and end date for each fuel type [98.36(b)(6)-(7), 98.36(c)(1)(viii)-(ix), 98.36(c)(3)(viii)-(ix)]

**Table 18**  
**Tier 1 Fuel Details XML Data Elements**

Data Element Name	Description
Tier1FuelDetails	Collection of data elements containing details about tier 1 fuel usage
TierName	The name of the Tier 1 methodology used to calculate emissions for the specified reporting configuration and specified fuel. For example, "Tier 1 (Equation C-1)". See list of allowable values:  Tier 1 (Equation C-1) Tier 1 (Equation C-1a, natural gas billing in therms) Tier 1 (Equation C-1b, natural gas billing in mmBtu)
TierMethodologyStartDate	The methodology start date for the specified fuel type.
TierMethodologyEndDate	The methodology end date for the specified fuel type.

**Figure 46**  
**Sample XML Excerpt for Tier 1 Fuel Details**

```

<ghg:Tier1FuelDetails>
  <ghg:TierName>Tier 1 (Equation C-1b, natural gas billing in mmBtu)</ghg:TierName>
  <ghg:TierMethodologyStartDate>2010-01-01</ghg:TierMethodologyStartDate>
  <ghg:TierMethodologyEndDate>2010-12-31</ghg:TierMethodologyEndDate>

```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

Once the fuel type and CO<sub>2</sub> calculation method are specified, fuel specific emission information must be reported.

For each fuel type (including biomass fuel(s)) for which you have elected to use a **Tier 1 (Equation C-1, C-1a, or C-1b)** methodology, Subpart C requires you to report the following information by fuel type:

- The total annual CO<sub>2</sub> mass emissions derived from Equation C-1, Equation C-1a, or Equation C-1b, in metric tons CO<sub>2</sub> (this value will include both non-biogenic and biogenic CO<sub>2</sub> as applicable) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual CH<sub>4</sub> mass emissions derived from Equation C-8, Equation C-8a, or Equation C-8b in metric tons CH<sub>4</sub> and in metric tons CO<sub>2</sub>e (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual N<sub>2</sub>O mass emissions derived from Equation C-8, Equation C-8a, or Equation C-8b in metric tons N<sub>2</sub>O and in metric tons CO<sub>2</sub>e (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]

**Table 19**  
**Tier 1 Emissions Details Node XML Data Elements**

Data Element Name	Description
EmissionsDetailsNode	
TotalCO2CombustionEmissions	The total annual CO <sub>2</sub> mass emissions (including biogenic and non-biogenic CO <sub>2</sub> ) for the specified fuel combusted in the reporting configuration, calculated using Equation C-1, C-1a or C-1b. Report the calculated value only.
TotalCO2CombustionEmissions.massUOM	Metric Tons
TotalCH4CombustionEmissions	The total annual CH <sub>4</sub> mass emissions for the specified fuel combusted in the reporting configuration, calculated using Equation C-8, C-8a or C-8b. Report the calculated value only.
TotalCH4CombustionEmissions.massUOM	Metric Tons
TotalN2OCombustionEmissions	The annual N <sub>2</sub> O mass emissions for the specified fuel combusted in the reporting configuration, calculated using Equation C-8, C-8a or C-8b. Report the calculated value only.
TotalN2OCombustionEmissions.massUOM	Metric Tons
CH4EmissionsCO2Equivalent	The annual CH <sub>4</sub> mass emissions for the specified fuel combusted in the reporting configuration, expressed in CO <sub>2</sub> e. Multiply the calculated value for CH <sub>4</sub> emissions by the Global Warming Potential of 21 to arrive at the CO <sub>2</sub> e of the CH <sub>4</sub> emissions. Report the calculated value only.
CH4EmissionsCO2Equivalent.massUOM	Metric Tons
N2OEmissionsCO2Equivalent	The annual N <sub>2</sub> O mass emissions for the specified fuel combusted in the reporting configuration, expressed in CO <sub>2</sub> e. Multiply the calculated value for N <sub>2</sub> O emissions by the Global Warming Potential of 310 to arrive at the CO <sub>2</sub> e of the N <sub>2</sub> O emissions. Report the calculated value only.
N2OEmissionsCO2Equivalent.massUOM	Metric Tons

**Figure 47**  
**Sample XML Excerpt for Tier 1 Emissions Details Node**

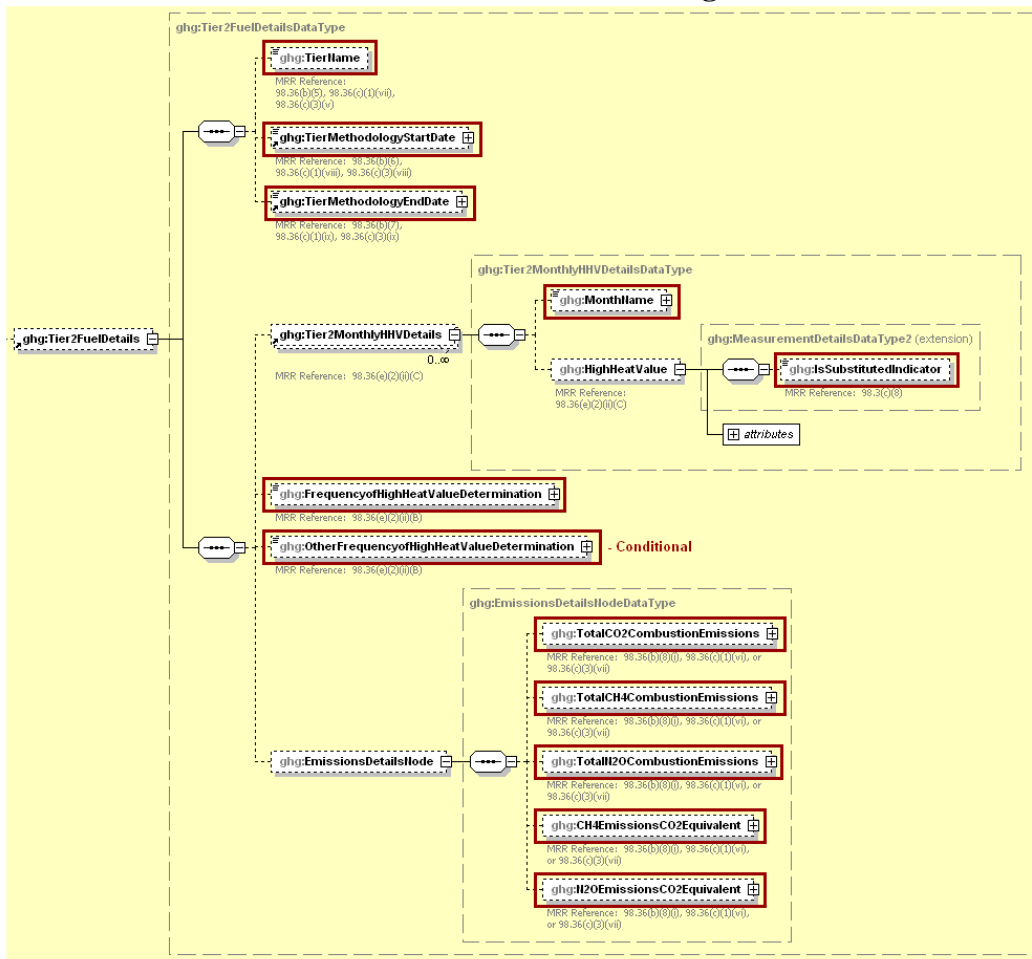
```

<ghg:EmissionsDetailsNode>
  <ghg:TotalCO2CombustionEmissions massUOM="Metric Tons">
    <ghg:CalculatedValue>1300.0</ghg:CalculatedValue>
  </ghg:TotalCO2CombustionEmissions>
  <ghg:TotalCH4CombustionEmissions massUOM="Metric Tons">
    <ghg:CalculatedValue>130.00</ghg:CalculatedValue>
  </ghg:TotalCH4CombustionEmissions>
  <ghg:TotalN2OCombustionEmissions massUOM="Metric Tons">
    <ghg:CalculatedValue>13.000</ghg:CalculatedValue>
  </ghg:TotalN2OCombustionEmissions>
  <ghg:CH4EmissionsCO2Equivalent massUOM="Metric Tons">
    <ghg:CalculatedValue>2730.00</ghg:CalculatedValue>
  >
</ghg:CH4EmissionsCO2Equivalent>
<ghg:N2OEmissionsCO2Equivalent massUOM="Metric Tons">
  <ghg:CalculatedValue>4030.000</ghg:CalculatedValue>
</ghg:N2OEmissionsCO2Equivalent>
e>
</ghg:EmissionsDetailsNode>
</ghg:Tier1FuelDetails>
</ghg:TierFuelDetails>
    
```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

**4.2 Tier 2 Fuel Details**

**Figure 48**  
**Tier 2 Fuel Details Schema Diagram**



For each fuel type (including biomass fuel(s)) in a configuration that uses **Tier 2**, you will be required to specify which Tier 2 equation is used to calculate CO<sub>2</sub> emissions.

The following information is required for each fuel type combusted in the unit:

- Calculation methodology used for the emissions calculation period specified, for each fuel type [98.36(b)(5), 98.36(c)(1)(vii), 98.36(c)(3)(v)]:
  - Tier 2/Equation C-2a - Annual fuel combusted, measured heating value, and default CO<sub>2</sub> emission factor
  - Tier 2/Equation C-2c – Steam generation, ratio of maximum rated heat input capacity to design rated steam output capacity, and default CO<sub>2</sub> emission factor (for MSW and solid fuels listed in Table C-1))
- Calculation methodology start date and end date for each fuel type [98.36(b)(6)-(7), 98.36(c)(1)(viii)-(ix), 98.36(c)(3)(viii)-(ix)]

**Table 20**  
**Tier 2 Fuel Details XML Data Elements**

Data Element Name	Description
Tier2FuelDetails	Collection of data elements containing details about tier 2 fuel usage
TierName	The name of the Tier 2 methodology used to calculate emissions for the specified reporting configuration. See list of allowable values:  Tier 2 (Equation C-2a) Tier 2 (Equation C-2c, steam generation)
TierMethodologyStartDate	The methodology start date for the specified fuel type.
TierMethodologyEndDate	The methodology end date for the specified fuel type.

**Figure 49**  
**Sample XML Excerpt for Tier 2 Fuel Details**

```

<ghg:Tier2FuelDetails>
  <ghg:TierName>Tier 2 (Equation C-2a)</ghg:TierName>
  <ghg:TierMethodologyStartDate>2010-01-
01</ghg:TierMethodologyStartDate>
  <ghg:TierMethodologyEndDate>2010-12-
31</ghg:TierMethodologyEndDate>

```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

For each fuel type (including biomass fuel(s)) for which you have elected to use the **Tier 2/Equation C-2a** methodology, Subpart C requires you to report the following information by fuel type:

- Identification of each month for which HHVs were calculated using one or more substitute data values [98.36(e)(2)(ii)(C)]
- The frequency of the HHV determinations [98.36(e)(2)(ii)(B)]
  - Hourly
  - Daily
  - Weekly
  - Monthly
  - Semiannually
  - Quarterly
  - Once per fuel lot
  - Upon addition of oil to the storage tank
  - Other (specify)

**Table 21**  
**Tier 2 Monthly HHV Details XML Data Elements**

Data Element Name	Description
Tier2MonthlyHHVDetails	
MonthName	<p>Specify the name of each month. See list of allowable values:</p> <ul style="list-style-type: none"> <li>January</li> <li>February</li> <li>March</li> <li>April</li> <li>May</li> <li>June</li> <li>July</li> <li>August</li> <li>September</li> <li>October</li> <li>November</li> <li>December</li> </ul>
HighHeatValue	<p>The monthly HHV measure value has been removed from the schema and should not reported for 2010, but for data element ghg:IsSubstitutedIndicator, you should indicate (Y/N) whether the HHV value for the specified month was calculated from one or more substitute data values.</p>
FrequencyofHighHeatValueDetermination	<p>The frequency of the HHV determinations. See list of allowable values below. If the frequency you are reporting does not appear in the list, then report "Other (specify)" and then specify the frequency in the OtherFrequencyofHighHeatValueDetermination data element.</p> <ul style="list-style-type: none"> <li>Hourly</li> <li>Daily</li> <li>Weekly</li> <li>Monthly</li> <li>Semiannually</li> <li>Quarterly</li> <li>Once per fuel lot</li> <li>Upon addition of oil to the storage tank</li> <li>Other (specify)</li> </ul>
OtherFrequencyofHighHeatValueDetermination	<p>The frequency of the HHV determinations if "Other (specify)" is reported.</p>



**Figure 50**  
**Sample XML Excerpt for Tier 2 Monthly HHV Details**

```

<ghg:Tier2MonthlyHHVDetails>
  <ghg:MonthName>January</ghg:MonthName>
  <ghg:HighHeatValue>
    <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndic
ator>
  </ghg:HighHeatValue>
</ghg:Tier2MonthlyHHVDetails>
<ghg:Tier2MonthlyHHVDetails>
  <ghg:MonthName>February</ghg:MonthName>
  <ghg:HighHeatValue>
    <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndic
ator>
  </ghg:HighHeatValue>
</ghg:Tier2MonthlyHHVDetails>
<ghg:Tier2MonthlyHHVDetails>
  <ghg:MonthName>March</ghg:MonthName>
  <ghg:HighHeatValue>
    <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndic
ator>
  </ghg:HighHeatValue>
</ghg:Tier2MonthlyHHVDetails>
<ghg:Tier2MonthlyHHVDetails>
  <ghg:MonthName>April</ghg:MonthName>
  <ghg:HighHeatValue>
    <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndic
ator>
  </ghg:HighHeatValue>
</ghg:Tier2MonthlyHHVDetails>
<ghg:Tier2MonthlyHHVDetails>
  <ghg:MonthName>May</ghg:MonthName>
  <ghg:HighHeatValue>
    <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndic
ator>
  </ghg:HighHeatValue>
</ghg:Tier2MonthlyHHVDetails>
<ghg:Tier2MonthlyHHVDetails>
  <ghg:MonthName>June</ghg:MonthName>
  <ghg:HighHeatValue>
    <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndic
ator>
  </ghg:HighHeatValue>
</ghg:Tier2MonthlyHHVDetails>
<ghg:Tier2MonthlyHHVDetails>
  <ghg:MonthName>July</ghg:MonthName>
  <ghg:HighHeatValue>
    <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndic
ator>
  </ghg:HighHeatValue>
</ghg:Tier2MonthlyHHVDetails>
<ghg:Tier2MonthlyHHVDetails>
  <ghg:MonthName>August</ghg:MonthName>
  <ghg:HighHeatValue>
    <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndic
ator>
  </ghg:HighHeatValue>
</ghg:Tier2MonthlyHHVDetails>
<ghg:Tier2MonthlyHHVDetails>
  <ghg:MonthName>September</ghg:MonthName>
  <ghg:HighHeatValue>
    <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndic
ator>
  </ghg:HighHeatValue>
</ghg:Tier2MonthlyHHVDetails>
<ghg:FrequencyofHighHeatValueDetermination>Monthly</ghg:FrequencyofH
ighHeatValueDetermination>

```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

For each fuel type (including biomass fuel(s)) for which you have elected to use the **Tier 2/Equation C-2a** methodology, Subpart C requires you to report the following information by fuel type:

- The total annual CO<sub>2</sub> mass emissions derived from Equation C-2a, in metric tons CO<sub>2</sub> (this value will include both non-biogenic and biogenic CO<sub>2</sub> as applicable) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual CH<sub>4</sub> mass emissions derived from Equation C-9a, in metric tons CH<sub>4</sub> and in metric tons CO<sub>2e</sub> (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual N<sub>2</sub>O mass emissions derived from Equation C-9a, in metric tons N<sub>2</sub>O and in metric tons CO<sub>2e</sub> (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]

For each fuel type (including biomass fuel(s)) for which you have elected to use the **Tier 2/Equation C-2c** methodology, Subpart C requires you to report the following information by fuel type:

- The total annual CO<sub>2</sub> mass emissions derived from Equation C-2c, in metric tons CO<sub>2</sub> (this value will include both non-biogenic and biogenic CO<sub>2</sub> as applicable) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual CH<sub>4</sub> mass emissions derived from Equation C-9b, in metric tons CH<sub>4</sub> and in metric tons CO<sub>2e</sub> (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual N<sub>2</sub>O mass emissions derived from Equation C-9b, in metric tons N<sub>2</sub>O and in metric tons CO<sub>2e</sub> (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]

**Table 22**  
**Tier 2 Monthly HHV Details Emissions Details Node XML Data Elements**

<b>Data Element Name</b>	<b>Description</b>
EmissionsDetailsNode	A collection of data element containing the annual CO <sub>2</sub> , CH <sub>4</sub> , and N <sub>2</sub> O mass emissions from combustion of the specific fuel type in the unit configuration. Express in metric tons of the specific gas and in metric tons of CO <sub>2e</sub> .
TotalCO2CombustionEmissions	The total annual CO <sub>2</sub> mass emissions (including biogenic and non-biogenic CO <sub>2</sub> ) for the specified fuel combusted in the reporting configuration, calculated using Equation C-2a or C-2c. Report the calculated value only.
TotalCO2CombustionEmissions.massUOM	Metric Tons
TotalCH4CombustionEmissions	The total annual CH <sub>4</sub> mass emissions for the specified fuel combusted in the reporting configuration, calculated using Equation C-9a or C-9b. Report the calculated value only.
TotalCH4CombustionEmissions.massUOM	Metric Tons
TotalN2OCombustionEmissions	The total annual N <sub>2</sub> O mass emissions for the specified fuel combusted in the reporting configuration, calculated using Equation C-9a or C-9b expressed in mass of N <sub>2</sub> O. Report the calculated only.
TotalN2OCombustionEmissions.massUOM	Metric Tons

Data Element Name	Description
CH4EmissionsCO2Equivalent	The annual CH <sub>4</sub> mass emissions for the specified fuel combusted in the reporting configuration, expressed in CO <sub>2</sub> e. Multiply the calculated value for CH <sub>4</sub> emissions by the Global Warming Potential of 21 to arrive at the CO <sub>2</sub> e of the CH <sub>4</sub> emissions. Report the calculated value only.
CH4EmissionsCO2Equivalent.massUOM	Metric Tons
N2OEmissionsCO2Equivalent	The annual N <sub>2</sub> O mass emissions for the specified fuel combusted in the reporting configuration, expressed in CO <sub>2</sub> e. Multiply the calculated value for N <sub>2</sub> O emissions by the Global Warming Potential of 310 to arrive at the CO <sub>2</sub> e of the N <sub>2</sub> O emissions. Report the calculated value only.
N2OEmissionsCO2Equivalent.massUOM	Metric Tons

**Figure 51**  
**Sample XML Excerpt for Tier 2 Monthly HHV Details Emissions Details Node**

```

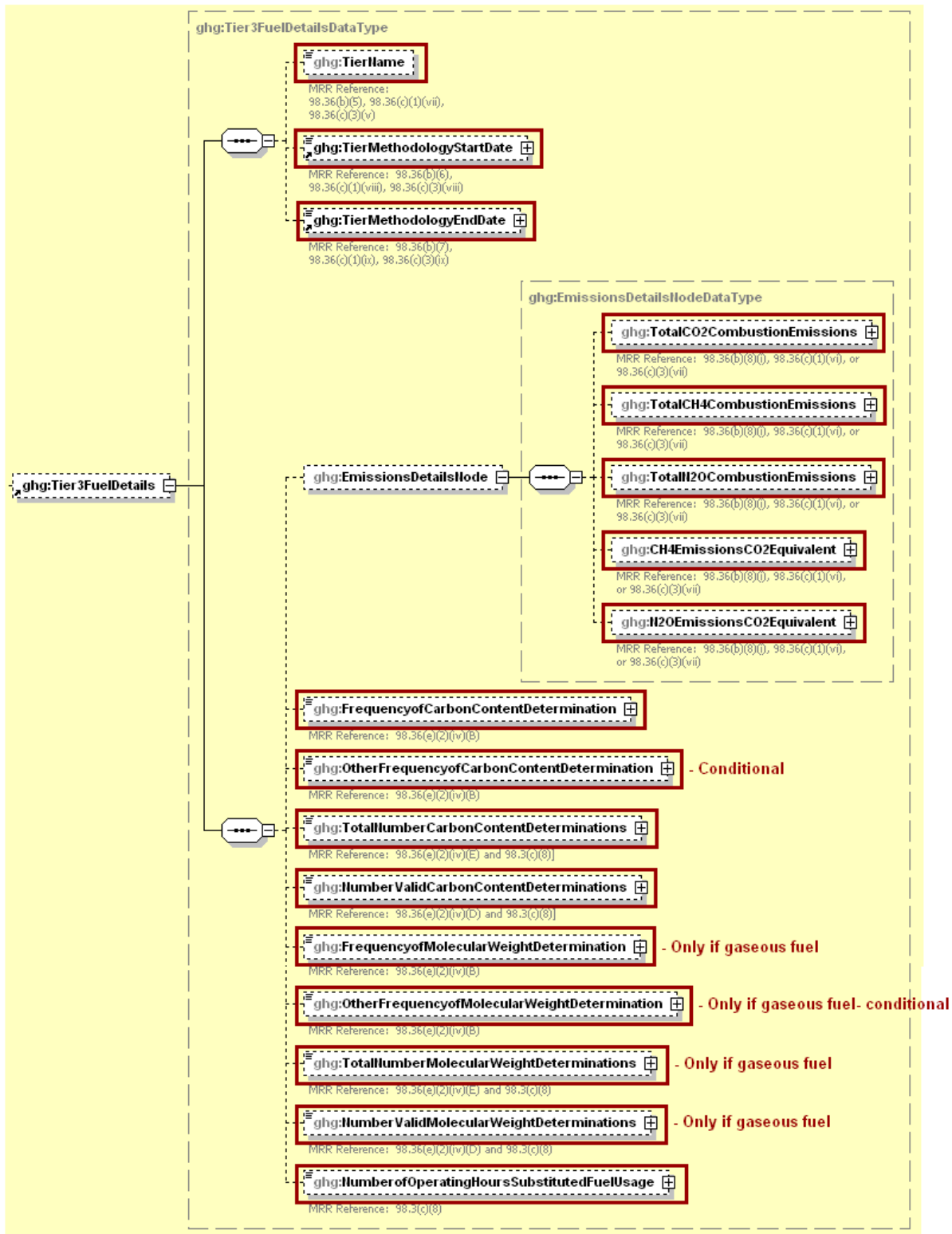
<ghg:EmissionsDetailsNode>
  <ghg:TotalCO2CombustionEmissions massUOM="Metric Tons">
    <ghg:CalculatedValue>2200.0</ghg:CalculatedValue>
  </ghg:TotalCO2CombustionEmissions>
  <ghg:TotalCH4CombustionEmissions massUOM="Metric Tons">
    <ghg:CalculatedValue>220.00</ghg:CalculatedValue>
  </ghg:TotalCH4CombustionEmissions>
  <ghg:TotalN2OCombustionEmissions massUOM="Metric Tons">
    <ghg:CalculatedValue>22.000</ghg:CalculatedValue>
  </ghg:TotalN2OCombustionEmissions>
  <ghg:CH4EmissionsCO2Equivalent massUOM="Metric Tons">
    <ghg:CalculatedValue>4620.00</ghg:CalculatedValue>
  </ghg:CH4EmissionsCO2Equivalent>
  <ghg:N2OEmissionsCO2Equivalent massUOM="Metric Tons">
    <ghg:CalculatedValue>6820.000</ghg:CalculatedValue>
  </ghg:N2OEmissionsCO2Equivalent>
</ghg:EmissionsDetailsNode>
</ghg:Tier2FuelDetails>
</ghg:UnitsCDetails>

```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

4.3 Tier 3 Fuel Details

**Figure 52**  
**Tier 3 Fuel Details Schema Diagram**



For each fuel type (including biomass fuel(s)) in a configuration that uses **Tier 3**, you will be required to specify which Tier 3 equation is used to calculate CO<sub>2</sub> emissions.

The following information is required for each fuel type combusted in the unit:

- Calculation methodology used for the emissions calculation period specified, for each fuel type [98.36(b)(5), 98.36(c)(1)(vii), 98.36(c)(3)(v)]:
  - Tier 3/Equation C-3 – Annual mass of solid fuel combusted and average carbon content of the solid fuel
  - Tier 3/Equation C-4 – Annual mass of liquid fuel combusted and average carbon content of the liquid fuel
  - Tier 3/Equation C-5 – Annual volume of gaseous fuel combusted, average carbon content of the gaseous fuel, and average molecular weight of the gaseous fuel
- Calculation methodology start date and end date, for each fuel type [98.36(b)(6)-(7), 98.36(c)(1)(viii)-(ix), 98.36(c)(3)(viii)-(ix)]

**Table 23**  
**Tier 3 Fuel Details XML Data Elements**

Data Element Name	Description
Tier3FuelDetails	Collection of data elements containing details about tier 3 fuel usage.
TierName	The name of the Tier 3 methodology used to calculate emissions for the specified unit or unit configuration. See list of allowable values:  Tier 3 (Equation C-3, solid fuel) Tier 3 (Equation C-4, liquid fuel) Tier 3 (Equation C-5, gaseous fuel)
TierMethodologyStartDate	The methodology start date for the specified fuel type.
TierMethodologyEndDate	The methodology end date for the specified fuel type.

**Figure 53**  
**Sample XML Excerpt for Tier 3 Fuel Details**

```

<ghg:Tier3FuelDetails>
  <ghg:TierName>Tier 3 (Equation C-5, gaseous fuel)</ghg:TierName>
  <ghg:TierMethodologyStartDate>2010-01-01</ghg:TierMethodologyStartDate>
  <ghg:TierMethodologyEndDate>2010-12-31</ghg:TierMethodologyEndDate>

```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

For each fuel type (including biomass fuel(s)) for which you have elected to use a **Tier 3 (Equation C-3, C-4, or C-5)** methodology, Subpart C requires you to report the following information by fuel type:

- The total annual CO<sub>2</sub> mass emissions derived from Equation C-3 for solid fuels, Equation C-4 for liquid fuels, or Equation C-5 for gaseous fuels, in metric tons CO<sub>2</sub> (this value will include both non-biogenic and biogenic CO<sub>2</sub> as applicable) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual CH<sub>4</sub> mass emissions derived from Equation C-8, in metric tons CH<sub>4</sub> and in metric tons CO<sub>2</sub>e (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The total annual N<sub>2</sub>O mass emissions derived from Equation C-8, in metric tons N<sub>2</sub>O and in metric tons CO<sub>2</sub>e (for Table C-2 fuels only) [98.36(b)(8)(i), 98.36(c)(1)(vi), 98.36(c)(3)(vii)]
- The frequency of carbon content determinations [98.36(e)(2)(iv)(B)]
  - Hourly
  - Daily
  - Weekly
  - Monthly
  - Semiannually
  - Quarterly
  - Once per fuel lot
  - Upon addition of oil to the storage tank
  - Other (specify)
- The total number of carbon content substitute data values [98.36(e)(2)(iv)(E)]
- The total number of valid carbon content determinations [98.36(e)(2)(iv)(D)]
- The total number of operating hours in the reporting year for which missing data substitution was used for fuel usage [98.3(c)(8)]

For each gaseous fuel at each configuration for which you have elected to use the **Tier 3/Equation C-5 methodology**, Subpart C also requires you to report the following additional information:

- Frequency of molecular weight determinations [98.36(e)(2)(iv)(B)]
  - Hourly
  - Daily
  - Weekly
  - Monthly
  - Semiannually
  - Quarterly
  - Other (specify)
- Total number of molecular weight substitute data values [98.36(e)(2)(iv)(E)]
- Total number of valid molecular weight determinations [98.36(e)(2)(iv)(D)]

**Table 24**  
**Tier 3 Fuel Details Emissions Details Node XML Data Elements**

Data Element Name	Description
EmissionsDetailsNode	
TotalCO2CombustionEmissions	The total annual CO <sub>2</sub> mass emissions (including biogenic and non-biogenic CO <sub>2</sub> ) for the specified fuel combusted in the reporting configuration, calculated using Equation C-3, C-4 or C-5. Report the calculated value only.
TotalCO2CombustionEmissions.massUOM	Metric Tons
TotalCH4CombustionEmissions	The total annual CH <sub>4</sub> mass emissions for the specified fuel combusted in the reporting configuration, calculated using Equation C-8. Report the calculated value only.
TotalCH4CombustionEmissions.massUOM	Metric Tons
TotalN2OCombustionEmissions	The total annual N <sub>2</sub> O mass emissions for the specified fuel combusted in the reporting configuration, calculated using Equation C-8. Report the calculated value only.
TotalN2OCombustionEmissions.massUOM	Metric Tons
CH4EmissionsCO2Equivalent	The annual CH <sub>4</sub> mass emissions for the specified fuel combusted in the reporting configuration, expressed in CO <sub>2</sub> e. Multiply the calculated value for CH <sub>4</sub> emissions by the Global Warming Potential of 21 to arrive at the CO <sub>2</sub> e of the CH <sub>4</sub> emissions. Report the calculated value only.
CH4EmissionsCO2Equivalent.massUOM	Metric Tons
N2OEmissionsCO2Equivalent	The annual N <sub>2</sub> O mass emissions for the specified fuel combusted in the reporting configuration, expressed in CO <sub>2</sub> e. Multiply the calculated value for N <sub>2</sub> O emissions by the Global Warming Potential of 310 to arrive at the CO <sub>2</sub> e of the N <sub>2</sub> O emissions. Report the calculated value only.
N2OEmissionsCO2Equivalent.massUOM	Metric Tons
FrequencyofCarbonContentDetermination	<p>The frequency of carbon content determinations for the specified fuel for the reporting year. See the list of allowable values below. If the frequency you are reporting does not appear in the list, then report "Other (specify)" and then specify the frequency in the "OtherFrequencyofCarbonContentDetermination" data element.</p> <ul style="list-style-type: none"> <li>Hourly</li> <li>Daily</li> <li>Weekly</li> <li>Monthly</li> <li>Semiannually</li> <li>Quarterly</li> <li>Once per fuel lot</li> <li>Upon addition of oil to the storage tank</li> <li>Other (specify)</li> </ul>
OtherFrequencyofCarbonContentDetermination	The frequency of the carbon content determinations if "Other (specify)" is reported.
TotalNumberCarbonContentDeterminations	The total number of substitute data values used for carbon content in the annual GHG emissions calculations.

Data Element Name	Description
NumberValidCarbonContentDeterminations	The total number of valid carbon content determinations made during the reporting year for the specified fuel type.
FrequencyofMolecularWeightDetermination	<p>For gaseous fuels only, the frequency of molecular weight determinations for the specified fuel during the reporting year. See list of allowable values below. If the frequency you are reporting does not appear in the list, then report "Other (specify)" and then specify the frequency in the "OtherFrequencyofMolecularWeightDetermination" data element.</p> <p>Hourly Daily Weekly Monthly Semiannually Quarterly Once per fuel lot Upon addition of oil to the storage tank Other (specify)</p>
OtherFrequencyofMolecularWeightDetermination	For gaseous fuels only, the frequency of the molecular weight determinations if "Other (specify)" is reported.
TotalNumberMolecularWeightDeterminations	For gaseous fuels only, the number of substitute data values used for molecular weight used in the annual GHG emissions calculations.
NumberValidMolecularWeightDeterminations	For gaseous fuels only, the total number of valid molecular weight determinations made during the reporting year for the specified fuel type.
NumberofOperatingHoursSubstitutedFuelUsage	For all fuels, the total number of operating hours in the year for which missing data substitution was used for fuel usage.
NumberofOperatingHoursSubstitutedFuelUsage.timeUOM	Hours



**Figure 54**  
**Sample XML Excerpt for Tier 3 Fuel Details Emissions Details Node**

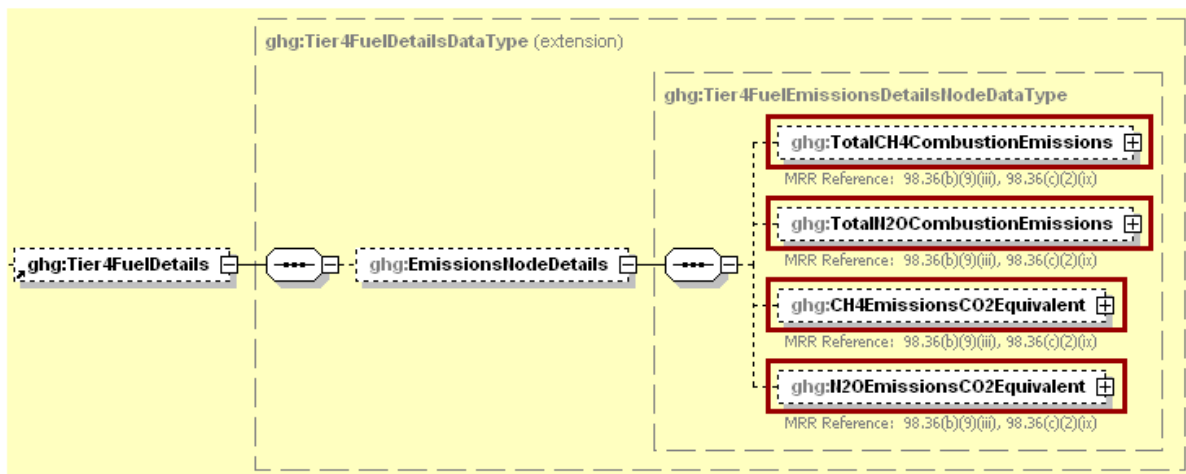
```

<ghg:TotalCO2CombustionEmissions massUOM="Metric Tons">
  <ghg:CalculatedValue>3300.0</ghg:CalculatedValue>
</ghg:TotalCO2CombustionEmissions>
<ghg:TotalCH4CombustionEmissions massUOM="Metric Tons">
  <ghg:CalculatedValue>330.00</ghg:CalculatedValue>
</ghg:TotalCH4CombustionEmissions>
<ghg:TotalN2OCombustionEmissions massUOM="Metric Tons">
  <ghg:CalculatedValue>33.000</ghg:CalculatedValue>
</ghg:TotalN2OCombustionEmissions>
<ghg:CH4EmissionsCO2Equivalent massUOM="Metric Tons">
  <ghg:CalculatedValue>6930.00</ghg:CalculatedValue>
</ghg:CH4EmissionsCO2Equivalent>
<ghg:N2OEmissionsCO2Equivalent massUOM="Metric Tons">
  <ghg:CalculatedValue>10230.000</ghg:CalculatedValue>
>
</ghg:N2OEmissionsCO2Equivalent>
</ghg:EmissionsDetailsNode>
<ghg:FrequencyofCarbonContentDetermination>Weekly</ghg:FrequencyofC
arbonContentDetermination>
<ghg:TotalNumberCarbonContentDeterminations>4</ghg:TotalNumberCarbo
nContentDeterminations>
<ghg:NumberValidCarbonContentDeterminations>48</ghg:NumberValidCarb
onContentDeterminations>
<ghg:FrequencyofMolecularWeightDetermination>Weekly</ghg:Frequencyof
MolecularWeightDetermination>
<ghg:TotalNumberMolecularWeightDeterminations>22</ghg:TotalNumberMo
lecularWeightDeterminations>
<ghg:NumberValidMolecularWeightDeterminations>30</ghg:NumberValidMo
lecularWeightDeterminations>
<ghg:NumberOfOperatingHoursSubstitutedFuelUsage
timeUOM="Hours">50</ghg:NumberOfOperatingHoursSubstitutedFuelUsage
>
</ghg:Tier3FuelDetails>
</ghg:TierFuelDetails>
  
```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

**4.4 Tier 4 Fuel Details**

**Figure 55**  
**Tier 4 Fuel Details Schema Diagram**



When a **Tier 4 (CEMS)** configuration is used, you are required to report the following information for each fuel type listed in Table C-2 (including biomass fuel(s)):

- The total annual CH<sub>4</sub> mass emissions derived from Equation C-10, in metric tons CH<sub>4</sub> and in metric tons CO<sub>2</sub>e [98.36(b)(9)(iii), 98.36(c)(2)(ix)]
- The total annual N<sub>2</sub>O mass emissions derived from Equation C-10, in metric tons N<sub>2</sub>O and in metric tons CO<sub>2</sub>e [98.36(b)(9)(iii), 98.36(c)(2)(ix)]

**Table 25**  
**Tier 4 Fuel Details XML Data Elements**

<b>Data Element Name</b>	<b>Description</b>
Tier4FuelDetails	A collection of data elements containing information for fuels that are combusted in configurations that use Tier 4.
EmissionsDetailsNode	The annual emissions by type of fuel.
TotalCH4CombustionEmissions	The total annual CH <sub>4</sub> mass emissions for the specified fuel combusted in the reporting configuration, calculated using Equation C-10. Report the calculated value only.
TotalCH4CombustionEmissions.massUOM	Metric Tons
TotalN2OCombustionEmissions	The total annual N <sub>2</sub> O mass emissions for the specified fuel combusted in the reporting configuration, calculated using Equation C-10. Report the calculated value only.
TotalN2OCombustionEmissions.massUOM	Metric Tons
CH4EmissionsCO2Equivalent	The total annual CH <sub>4</sub> mass emissions for the specified fuel combusted in the reporting configuration. Multiply the calculated value for CH <sub>4</sub> emissions by the Global Warming Potential of 21 to arrive at the CO <sub>2</sub> e of the CH <sub>4</sub> emissions. Report the calculated value only.
CH4EmissionsCO2Equivalent.massUOM	Metric Tons
N2OEmissionsCO2Equivalent	The total annual N <sub>2</sub> O mass emissions for the specified fuel combusted in the reporting configuration. Multiply the calculated value for N <sub>2</sub> O emissions by the Global Warming Potential of 310 to arrive at the CO <sub>2</sub> e of the N <sub>2</sub> O emissions. Report the calculated value only.
N2OEmissionsCO2Equivalent.massUOM	Metric Tons

**Figure 56**  
**Sample XML Excerpt for Tier 4 Fuel Details**

```

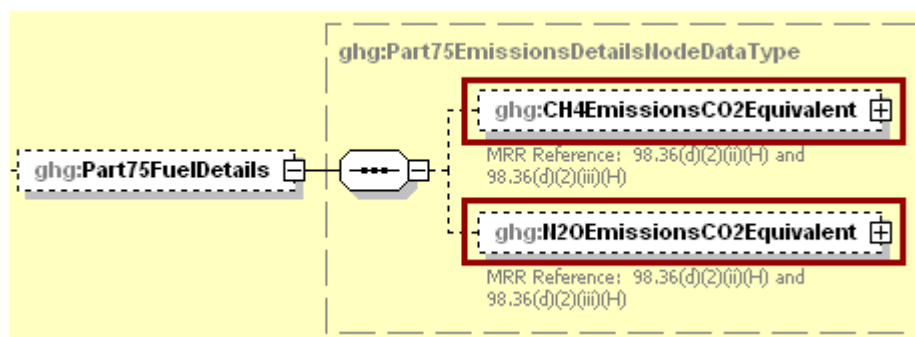
    <ghg:Tier4FuelDetails>
      <ghg:EmissionsNodeDetails>
        <ghg:TotalCH4CombustionEmissions massUOM="Metric Tons">
          <ghg:CalculatedValue>400.00</ghg:CalculatedValue>
        </ghg:TotalCH4CombustionEmissions>
        <ghg:TotalN2OCombustionEmissions massUOM="Metric Tons">
          <ghg:CalculatedValue>40.000</ghg:CalculatedValue>
        </ghg:TotalN2OCombustionEmissions>
        <ghg:CH4EmissionsCO2Equivalent massUOM="Metric Tons">
          <ghg:CalculatedValue>8400.00</ghg:CalculatedValue>
        </ghg:CH4EmissionsCO2Equivalent>
        <ghg:N2OEmissionsCO2Equivalent massUOM="Metric Tons">
          <ghg:CalculatedValue>12400.000</ghg:CalculatedValue>
        </ghg:N2OEmissionsCO2Equivalent>
      </ghg:EmissionsNodeDetails>
    </ghg:Tier4FuelDetails>
  </ghg:TierFuelDetails>

```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

#### 4.5 Part 75 Fuel Details

**Figure 57**  
**Part 75 Fuel Details Schema Diagram**



For configurations using the alternative CO<sub>2</sub> mass emissions calculation methods provided in **98.33(a)(5) (Year-round Part 75 heat input reporters)**, Subpart C requires the following information for each fuel type listed in Table C-2 (including biomass fuel(s)) except as otherwise provided in 98.33(c)(4)(ii)(D):

- The total annual CH<sub>4</sub> mass emissions derived from Equation C-10, in metric tons CO<sub>2</sub>e [98.36(d)(2)(ii)(H), 98.36(d)(2)(iii)(H)]
- The total annual N<sub>2</sub>O mass emissions derived from Equation C-10, in metric tons CO<sub>2</sub>e [98.36(d)(2)(ii)(H), 98.36(d)(2)(iii)(H)]

For each fuel, CH<sub>4</sub> and N<sub>2</sub>O emissions should be reported at the same level (i.e. monitoring location) as CO<sub>2</sub> emissions are reported.

**Table 26**  
**Part 75 Fuel Details XML Data Elements**

Data Element Name	Description
Part75FuelDetails	Collection of data elements pertaining to annual CH <sub>4</sub> and N <sub>2</sub> O emissions from certain Part 75 units that calculate CO <sub>2</sub> emissions according to 98.33(a)(5).
CH4EmissionsCO2Equivalent	The total annual CH <sub>4</sub> mass emissions for the specified fuel combusted at each monitored location, calculated using Equation C-10. Report the calculated value only.
CH4EmissionsCO2Equivalent.massUOM	Metric Tons
N2OEmissionsCO2Equivalent	The total annual N <sub>2</sub> O mass emissions for the specified fuel combusted at each monitored location, calculated using Equation C-10. Report the calculated value only.
N2OEmissionsCO2Equivalent.massUOM	Metric Tons

**Figure 58**  
**Sample XML Excerpt for Part 75 Fuel Details**

```

    <ghg:Part75FuelDetails>
      <ghg:CH4EmissionsCO2Equivalent massUOM="Metric Tons">
        <ghg:CalculatedValue>100.00</ghg:CalculatedValue>
      </ghg:CH4EmissionsCO2Equivalent>
      <ghg:N2OEmissionsCO2Equivalent massUOM="Metric Tons">
        <ghg:CalculatedValue>10.000</ghg:CalculatedValue>
      </ghg:N2OEmissionsCO2Equivalent>
    </ghg:Part75FuelDetails>
  
```

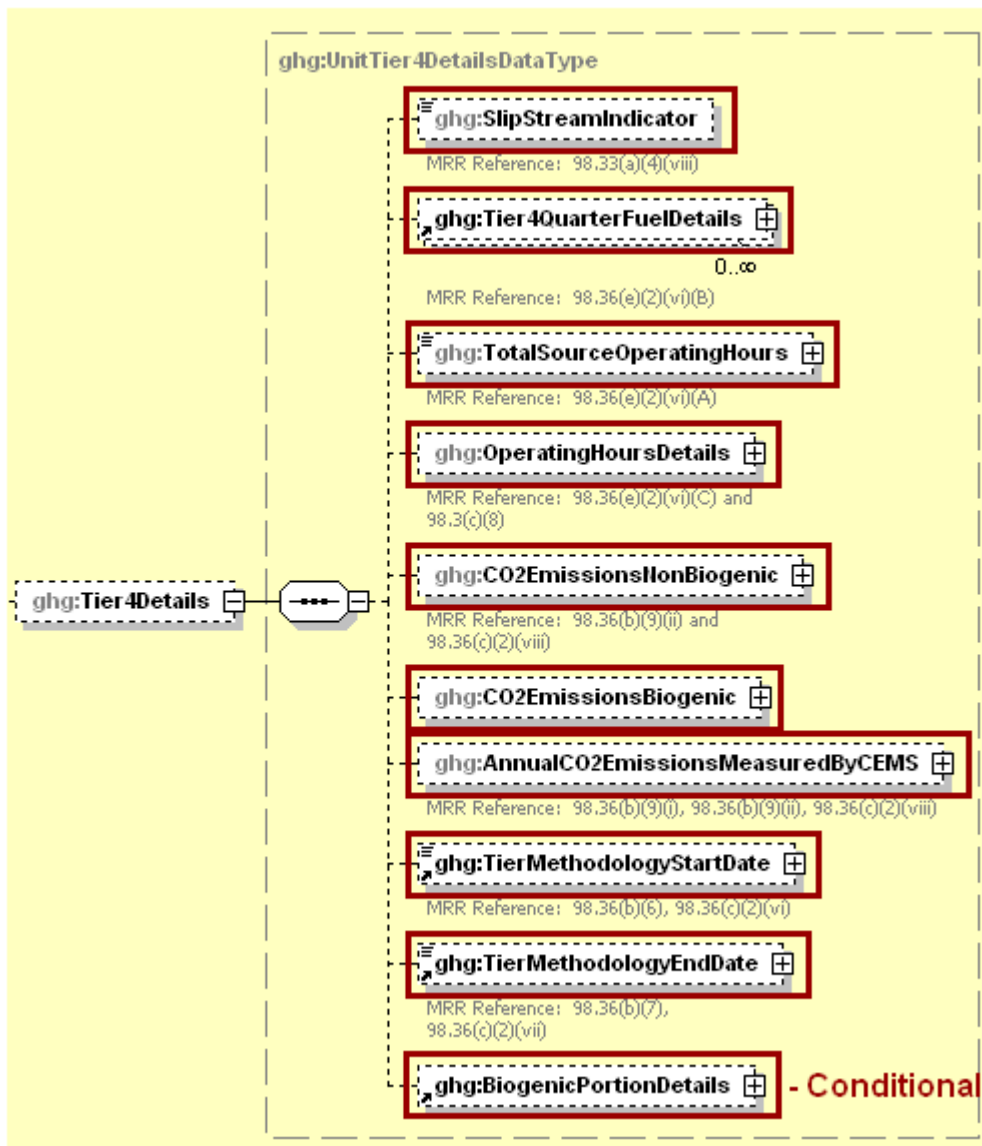
Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

## 5.0 Additional Configuration Level Emission Reporting

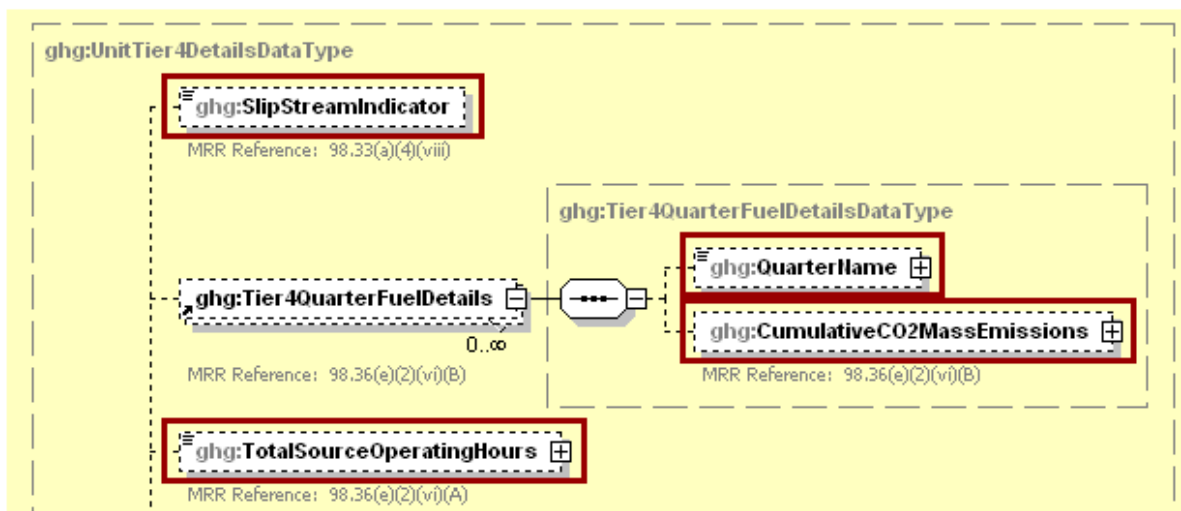
### 5.1 Tier 4 Details

For configurations of Type 2 and Type 5, Subpart C requires additional information aggregated at the configuration-level.

**Figure 59**  
**Tier 4 Details Schema Diagram**



**Figure 60**  
**Tier 4 Quarter Details Schema Diagram**



For configurations of Type 2 and Type 5, report the following information:

- Specify if emissions reported for the CEMS include emissions calculated according to 98.33(a)(4)(viii) for a slipstream that bypassed the CEMS [98.33(a)(4)(viii)]
- The cumulative CO<sub>2</sub> mass emissions for each quarter during the reporting year [98.36(e)(2)(vi)(B)]
- The total number of source operating hours in the reporting year [98.36(e)(2)(vi)(A)]

**Table 27**  
**Tier 4 Details XML Data Elements**

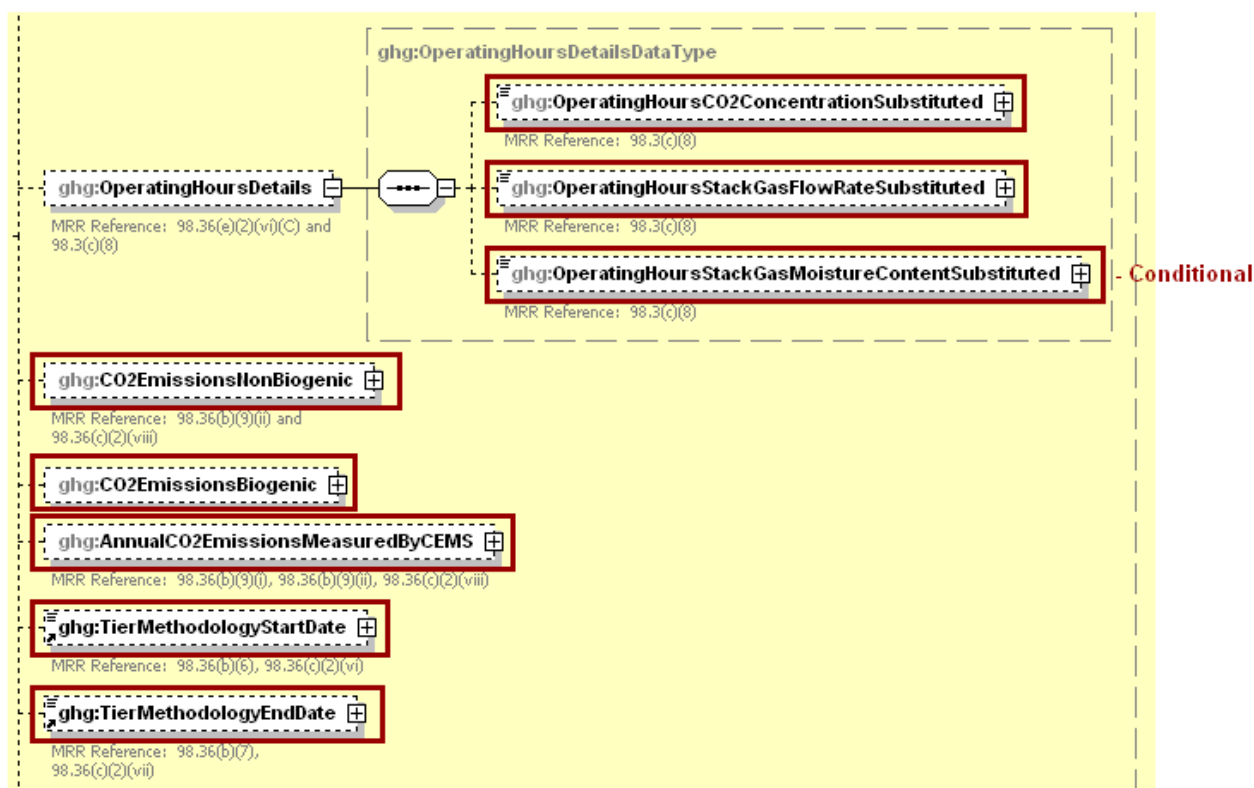
Data Element Name	Description
Tier4Details	A collection of data elements containing information regarding units that use Tier 4 only.
SlipStreamIndicator	An indication (Y/N) that the emissions reported for the CEMS include emissions calculated according to 98.33(a)(4)(viii) for a slipstream that bypassed the CEMS.
Tier4QuarterFuelDetails	
QuarterName	The name of the quarter. See list of allowable values: First Quarter Second Quarter Third Quarter Fourth Quarter
CumulativeCO2MassEmissions	The cumulative CO <sub>2</sub> mass emissions for the specified quarter of the reporting year. The cumulative value is the sum of hourly emissions for the respective quarter only (for example, for the fourth quarter, the emissions will be summed for the fourth quarter only, not from all four quarters in the year). Report the calculated value only.
CumulativeCO2MassEmissions.massUOM	Metric Tons
TotalSourceOperatingHours	The total number of source operating hours in the reporting year.

**Figure 61**  
**Sample XML Excerpt for Tier 4 Details**

```
<ghg:Tier4Details>
  <ghg:SlipStreamIndicator>Y</ghg:SlipStreamIndicator>
  <ghg:Tier4QuarterFuelDetails>
    <ghg:QuarterName>First Quarter</ghg:QuarterName>
    <ghg:CumulativeCO2MassEmissions massUOM="Metric Tons">
      <ghg:CalculatedValue>4100</ghg:CalculatedValue>
    </ghg:CumulativeCO2MassEmissions>
  </ghg:Tier4QuarterFuelDetails>
  <ghg:Tier4QuarterFuelDetails>
    <ghg:QuarterName>Second Quarter</ghg:QuarterName>
    <ghg:CumulativeCO2MassEmissions massUOM="Metric Tons">
      <ghg:CalculatedValue>4200</ghg:CalculatedValue>
    </ghg:CumulativeCO2MassEmissions>
  </ghg:Tier4QuarterFuelDetails>
  <ghg:Tier4QuarterFuelDetails>
    <ghg:QuarterName>Third Quarter</ghg:QuarterName>
    <ghg:CumulativeCO2MassEmissions massUOM="Metric Tons">
      <ghg:CalculatedValue>4300</ghg:CalculatedValue>
    </ghg:CumulativeCO2MassEmissions>
  </ghg:Tier4QuarterFuelDetails>
  <ghg:Tier4QuarterFuelDetails>
    <ghg:QuarterName>Fourth Quarter</ghg:QuarterName>
    <ghg:CumulativeCO2MassEmissions massUOM="Metric Tons">
      <ghg:CalculatedValue>4400</ghg:CalculatedValue>
    </ghg:CumulativeCO2MassEmissions>
  </ghg:Tier4QuarterFuelDetails>
  <ghg>TotalSourceOperatingHours>4000</ghg>TotalSourceOperatingHours>
```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

**Figure 62**  
**Operating Hours Details Schema Diagram**



For configurations of Type 2 and Type 5, report the following information:

- The total operating hours in which a substitute data value was used in the emissions calculations for the CO<sub>2</sub> concentration parameter [98.36(e)(2)(vi)(C), 98.3(c)(8)]
- The total operating hours in which a substitute data value was used in the emissions calculations for the stack gas flow rate parameter [98.36(e)(2)(vi)(C), 98.3(c)(8)]
- The total operating hours in which a substitute data value was used in the emissions calculations for the stack gas moisture content parameter (if moisture correction is required and a continuous moisture monitor is used) [98.36(e)(2)(vi)(C), 98.3(c)(8)]
- The total annual non-biogenic CO<sub>2</sub> mass emissions (i.e. CO<sub>2</sub> mass emissions from fossil fuels, sorbent use, and process emissions) [98.36(b)(9)(ii)]
- The total annual biogenic CO<sub>2</sub> mass emissions [98.36(b)(9)(ii)]
- The total annual CO<sub>2</sub> mass emissions measured by the CEMS (this includes both biogenic and non-biogenic CO<sub>2</sub>) [98.36(b)(9)(i)-(ii)]
- The methodology start date and end date for the configuration [98.36(b)(6)-(7)]



**Table 28**  
**Operating Hours Details XML Data Elements**

Data Element Name	Description
OperatingHoursDetails	A collection of data elements containing details about the percentage of source operating hours in which a substitute data value was in the emissions calculations.
OperatingHoursCO2ConcentrationSubstituted	The total operating hours in which a substitute data value was used in the emissions calculations for the CO <sub>2</sub> concentration parameter (if an O <sub>2</sub> monitor is used to calculate CO <sub>2</sub> concentration, report missing data for the O <sub>2</sub> monitor here).
OperatingHoursStackGasFlowRateSubstituted	The total operating hours in which a substitute data value was used in the emissions calculations for the stack gas flow rate parameter.
OperatingHoursStackGasMoistureContentSubstituted	If moisture correction is required and a continuous moisture monitor is used, the total operating hours in which a substitute data value was used in the emissions calculations for the stack gas moisture content parameter.
CO2EmissionsNonBiogenic	Total annual non-biogenic CO <sub>2</sub> mass emissions (includes fossil fuel, sorbent, process CO <sub>2</sub> emissions and fossil CO <sub>2</sub> from fuels with mixed fossil and biogenic components). Report the calculated value only.
CO2EmissionsNonBiogenic.massUOM	Metric Tons
CO2EmissionsBiogenic	Total annual biogenic CO <sub>2</sub> mass emissions from biomass fuels and the biogenic CO <sub>2</sub> from fuels with mixed fossil and biogenic components (i.e. MSW or tires). Report the calculated value only.
CO2EmissionsBiogenic.massUOM	Metric Tons
AnnualCO2EmissionsMeasuredByCEMS	The total annual CO <sub>2</sub> mass emissions measured by the CEMS (this includes both biogenic and non-biogenic CO <sub>2</sub> ). Report the calculated value only.
AnnualCO2EmissionsMeasuredByCEMS.massUOM	Metric Tons
TierMethodologyStartDate	The tier methodology start date for the specified reporting configuration.
TierMethodologyEndDate	The tier methodology end date for the specified reporting configuration.

**Figure 63**  
**Sample XML Excerpt for Operating Hours Details**

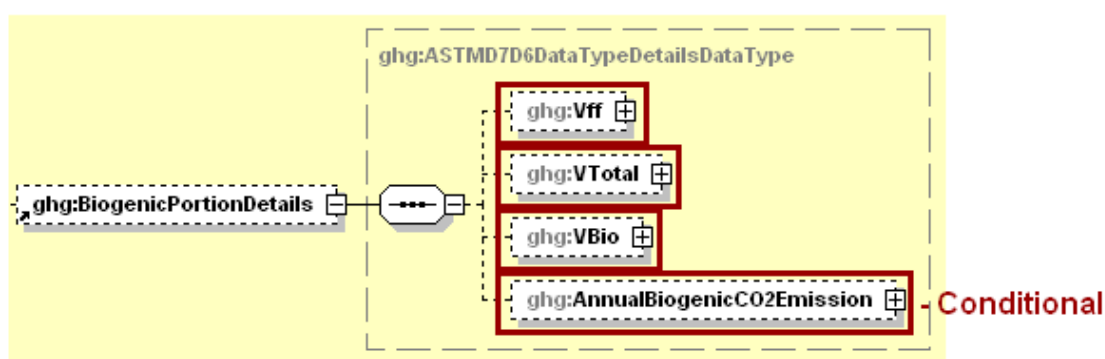
```

<ghg:OperatingHoursDetails>
  <ghg:OperatingHoursCO2ConcentrationSubstituted>400</ghg:OperatingHoursCO2ConcentrationSubstituted>
  <ghg:OperatingHoursStackGasFlowRateSubstituted>40</ghg:OperatingHoursStackGasFlowRateSubstituted>
  <ghg:OperatingHoursStackGasMoistureContentSubstituted>4</ghg:OperatingHoursStackGasMoistureContentSubstituted>
</ghg:OperatingHoursDetails>
<ghg:CO2EmissionsNonBiogenic massUOM="Metric Tons">
  <ghg:CalculatedValue>30000.0</ghg:CalculatedValue>
</ghg:CO2EmissionsNonBiogenic>
<ghg:CO2EmissionsBiogenic massUOM="Metric Tons">
  <ghg:CalculatedValue>400.0</ghg:CalculatedValue>
</ghg:CO2EmissionsBiogenic>
<ghg:AnnualCO2EmissionsMeasuredByCEMS massUOM="Metric Tons">
  <ghg:CalculatedValue>40000.0</ghg:CalculatedValue>
</ghg:AnnualCO2EmissionsMeasuredByCEMS>
<ghg:TierMethodologyStartDate>2010-01-01</ghg:TierMethodologyStartDate>
<ghg:TierMethodologyEndDate>2010-12-31</ghg:TierMethodologyEndDate>

```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

**Figure 64**  
**Biogenic Portion Details Schema Diagram**



If biogenic CO<sub>2</sub> emissions were estimated using the methodology described by Equations C-12, C-13, and C-14 (see section 98.33(e)(2)), the following addition information is also required by Subpart C for configurations of Type 2 and 5:

- The total annual volume of CO<sub>2</sub> emitted from the combustion of all fossil fuels, Vff [98.36(e)(2)(ix)(B)]
- The total annual volume of CO<sub>2</sub> emitted from the combustion of all fuels, Vtotal [98.36(e)(2)(ix)(A)]
- The total annual volume of CO<sub>2</sub> emitted from the combustion of all biomass fuels, Vbio [98.36(e)(2)(ix)(C)]
- The total annual biogenic CO<sub>2</sub> mass emissions calculated using the procedures in 98.33(e)(2) [98.36(e)(2)(ix)(G)]

Please note that the BiogenicPortionDetails parent element is not related to the ASTM biogenic fraction [98.36(e)(2)(x)(A)] reporting requirement which was deferred.

**Table 29**  
**Biogenic Portion Details XML Data Elements**

Data Element Name	Description
BiogenicPortionDetails	
Vff	The annual volume of CO <sub>2</sub> emitted from the combustion of all fossil fuels. (Equation C-13) Report the measured value only.
Vff.volUOM	scf
VTTotal	The total annual volume of CO <sub>2</sub> emitted from the combustion of all fuels. Sum of all hourly volume of CO <sub>2</sub> values (VCO <sub>2</sub> h) for the reporting year (Equation C-12). Report the measured value only.
VTTotal.volUOM	scf
VBio	The annual volume of CO <sub>2</sub> from the combustion of all biomass fuels. Subtract Vff from Vtotal (and any process emissions from a unit that is subject to another subpart of part 98).
VBio.volUOM	scf
AnnualBiogenicCO2Emission	The total annual biogenic CO <sub>2</sub> mass emissions. Applicable only if the total emissions measured by the CEMS includes biogenic emissions and those emissions were calculated according to 98.33(e)(2). Report the calculated value for biogenic CO <sub>2</sub> emissions only. This value should be the same as reported for the data element CO2EmissionsBiogenic.
AnnualBiogenicCO2Emission.massUOM	Metric Tons

**Figure 65**  
**Sample XML Excerpt for Biogenic Portion Details**

```

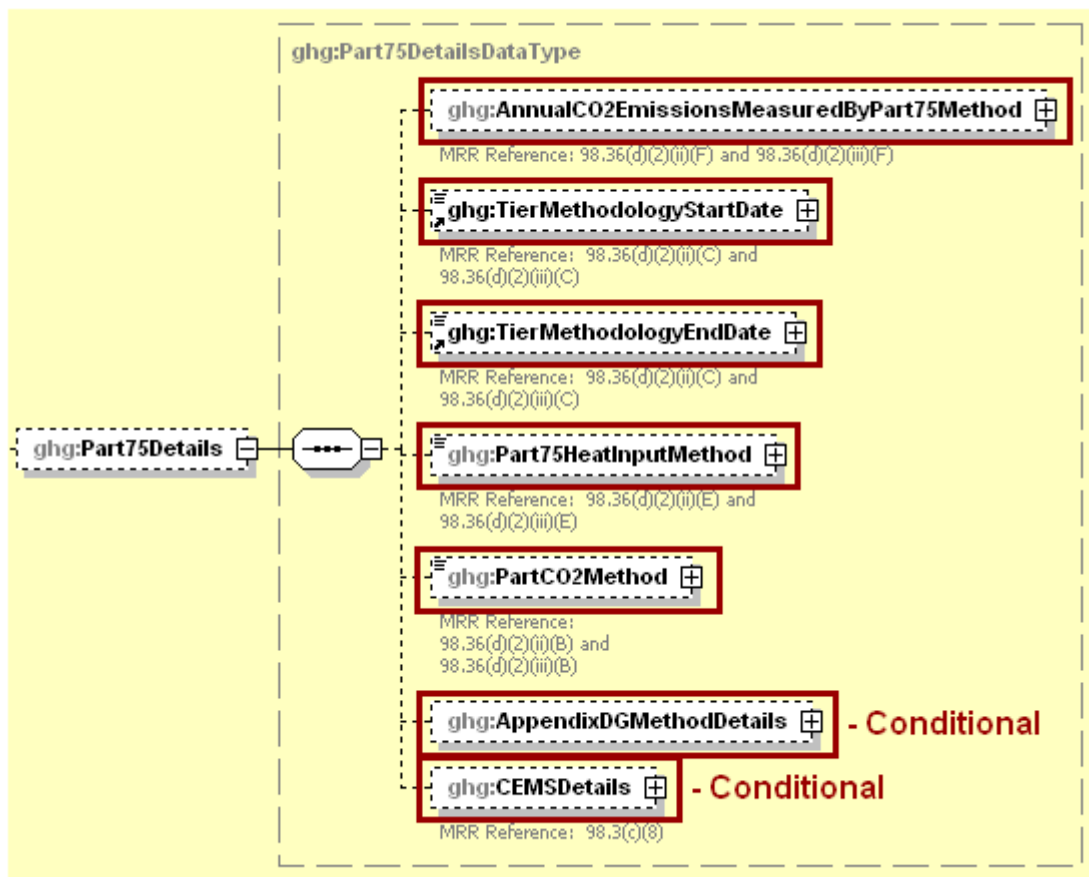
<ghg:BiogenicPortionDetails>
  <ghg:Vff volUOM="scf">
    <ghg:MeasureValue>4000</ghg:MeasureValue>
  </ghg:Vff>
  <ghg:VTTotal volUOM="scf">
    <ghg:MeasureValue>4444</ghg:MeasureValue>
  </ghg:VTTotal>
  <ghg:VBio volUOM="scf">
    <ghg:MeasureValue>444</ghg:MeasureValue>
  </ghg:VBio>
  <ghg:AnnualBiogenicCO2Emission massUOM="Metric Tons">
    <ghg:CalculatedValue>400</ghg:CalculatedValue>
  </ghg:AnnualBiogenicCO2Emission>
</ghg:BiogenicPortionDetails>

```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

## 5.2 Part 75 Details

**Figure 66**  
**Part 75 Details Schema Diagram**



For configurations of **Type 6 (year-round Part 75 heat input reporters)**, Subpart C requires the following additional information aggregated at the configuration-level:

- The total annual CO<sub>2</sub> mass emissions at the monitored location [98.36(d)(2)(ii)(F), 98.36(d)(2)(iii)(F)]
- The methodology start date and end date [98.36(d)(ii)(C)-(D), 98.36(d)(iii)(C)-(D)]
- An indication of the Part 75 heat input method used (Appendix D method, Low Mass Emissions calculation method in 40 CFR 75.19, or CEMS calculation method) [98.36(d)(2)(ii)(E), 98.36(d)(2)(iii)(E)]
- The Part 75 methodology used to calculate the CO<sub>2</sub> mass emissions (Appendix D and G calculation method, Low Mass Emissions calculation method in 40 CFR 75.19, or CEMS calculation method) [98.36(d)(2)(ii)(B), 98.36(d)(2)(iii)(B)].

**Table 30**  
**Part 75 Details XML Data Elements**

Data Element Name	Description
Part75Details	A collection of data elements containing information for certain Part 75 units that use the alternative calculation methods in 98.33(a)(5).
AnnualCO2EmissionsMeasuredByPart75Method	The total annual CO <sub>2</sub> emissions measured at the monitored location using the applicable Part 75 methodology (include both biogenic and non-biogenic CO <sub>2</sub> ). Report the calculated value only.
AnnualCO2EmissionsMeasuredByPart75Method.massUOM	Metric Tons
TierMethodologyStartDate	The methodology start date for the specified reporting configuration.
TierMethodologyEndDate	The methodology end date for the specified reporting configuration.
Part75HeatInputMethod	The method used to measure the Part 75 heat input. See list of allowable values:  Appendix D LME---40 CFR 75.19 CEMS
PartCO2Method	The Part 75 method used to calculate the CO <sub>2</sub> emissions. See list of allowable values:  Appendix D and G calculation method--- § 98.33(a)(5)(i) LME calculation method in 40 CFR 75.19--- § 98.33(a)(5)(ii) CEMS calculation method--- § 98.33(a)(5)(iii)

**Figure 67**  
**Sample XML Excerpt for Part 75 Details**

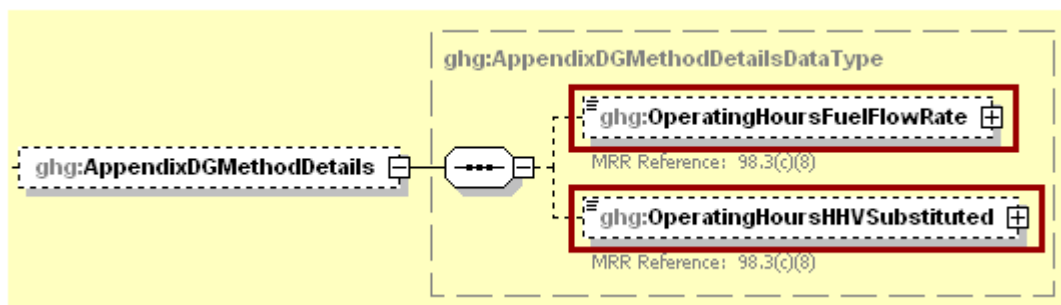
```

<ghg:Part75Details>
  <ghg:AnnualCO2EmissionsMeasuredByPart75Method massUOM="Metric Tons">
    <ghg:CalculatedValue>80000.0</ghg:CalculatedValue>
  </ghg:AnnualCO2EmissionsMeasuredByPart75Method>
  <ghg:TierMethodologyStartDate>2010-01-01</ghg:TierMethodologyStartDate>
  <ghg:TierMethodologyEndDate>2010-12-31</ghg:TierMethodologyEndDate>
  <ghg:Part75HeatInputMethod>Appendix D</ghg:Part75HeatInputMethod>
  <ghg:PartCO2Method>Appendix D and G calculation method--- §
98.33(a)(5)(i)</ghg:PartCO2Method>

```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

**Figure 68**  
**Appendix D and G Calculation Method Details Schema Diagram**



The following information is required if the Part 75 methodology used to calculate the CO<sub>2</sub> mass emissions is Appendix D and G calculation method:

- Total number of operating hours during the year that fuel flow rate data was missing [98.3(c)(8)]
- Total number of operating hours during the year that high heating value data was missing [98.3(c)(8)]

**Table 31**  
**Appendix D and G Calculation Method Details XML Data Elements**

Data Element Name	Description
AppendixDGMethodDetails	A collection of data elements containing details about each unit or stack for which the facility selects "Appendix D & G Calculation Method" as the Part 75 methodology used to determine CO <sub>2</sub> mass emissions
OperatingHoursFuelFlowRate	Total number of operating hours during the year that fuel flow rate data was missing.
OperatingHoursHHVSubstituted	Total number of operating hours during the year that high heating value data was missing.

**Figure 69**  
**Sample XML Excerpt for Appendix D and G Calculation Method Details**

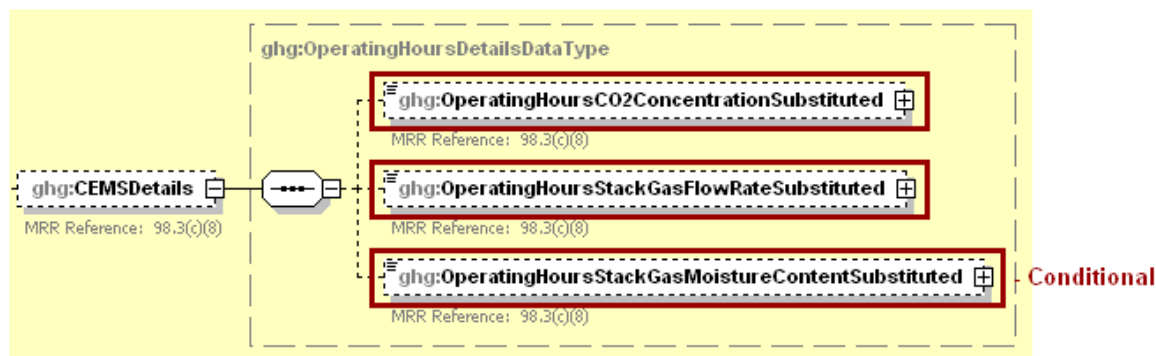
```

<ghg:AppendixDGMethodDetails>
  <ghg:OperatingHoursFuelFlowRate>80</ghg:OperatingHoursFuelFlowRate>
  <ghg:OperatingHoursHHVSubstituted>8</ghg:OperatingHoursHHVSubstituted>
</ghg:AppendixDGMethodDetails>
</ghg:Part75Details>

```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

**Figure 70**  
**CEMS Details Schema Diagram**



For configurations of **Type 6 (year-round Part 75 heat input reporters)**, Subpart C requires the following additional information aggregated at the configuration-level if the Part 75 methodology used to calculate the CO<sub>2</sub> mass emissions is CEMS calculation method:

- The total number of source operating hours in the reporting year that the CO<sub>2</sub> concentration parameter was missing (if an O<sub>2</sub> monitor is used to calculate CO<sub>2</sub> concentration, report missing data for the O<sub>2</sub> monitor here) [98.3(c)(8)]
- The total number of source operating hours in the reporting year that the stack gas flow rate parameter was missing [98.3(c)(8)]
- The total number of source operating hours in the reporting year that the moisture content parameter was missing (if a continuous monitor is in use) [98.3(c)(8)]

**Table 32**  
**CEMS Details XML Data Elements**

Data Element Name	Description
CEMSDetails	A collection of data elements pertaining to the number of hours missing data procedures were for each unit or stack in which the facility selects "CEMS" as the Part 75 methodology used to determine CO <sub>2</sub> mass emissions
OperatingHoursCO2ConcentrationSubstituted	The total operating hours in which a substitute data value was used in the emissions calculations for the CO <sub>2</sub> concentration parameter.
OperatingHoursStackGasFlowRateSubstituted	The total operating hours in which a substitute data value was used in the emissions calculations for the stack gas flow rate parameter.
OperatingHoursStackGasMoistureContentSubstituted	If moisture correction is required and a continuous moisture monitor is used, the total operating hours in which a substitute data value was used in the emissions calculations for the stack gas moisture content parameter.

**Figure 71**  
**Sample XML Excerpt for CEMS Details**

```
<ghg:CEMSDetails>
  <ghg:OperatingHoursCO2ConcentrationSubstituted>1000</ghg:OperatingHoursCO
  2ConcentrationSubstituted>
  <ghg:OperatingHoursStackGasFlowRateSubstituted>10</ghg:OperatingHoursStack
  GasFlowRateSubstituted>
  <ghg:OperatingHoursStackGasMoistureContentSubstituted>1</ghg:OperatingHour
  sStackGasMoistureContentSubstituted>
</ghg:CEMSDetails>
</ghg:Part75Details>
```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.



## 6.0 Facility Level Roll-up Emissions

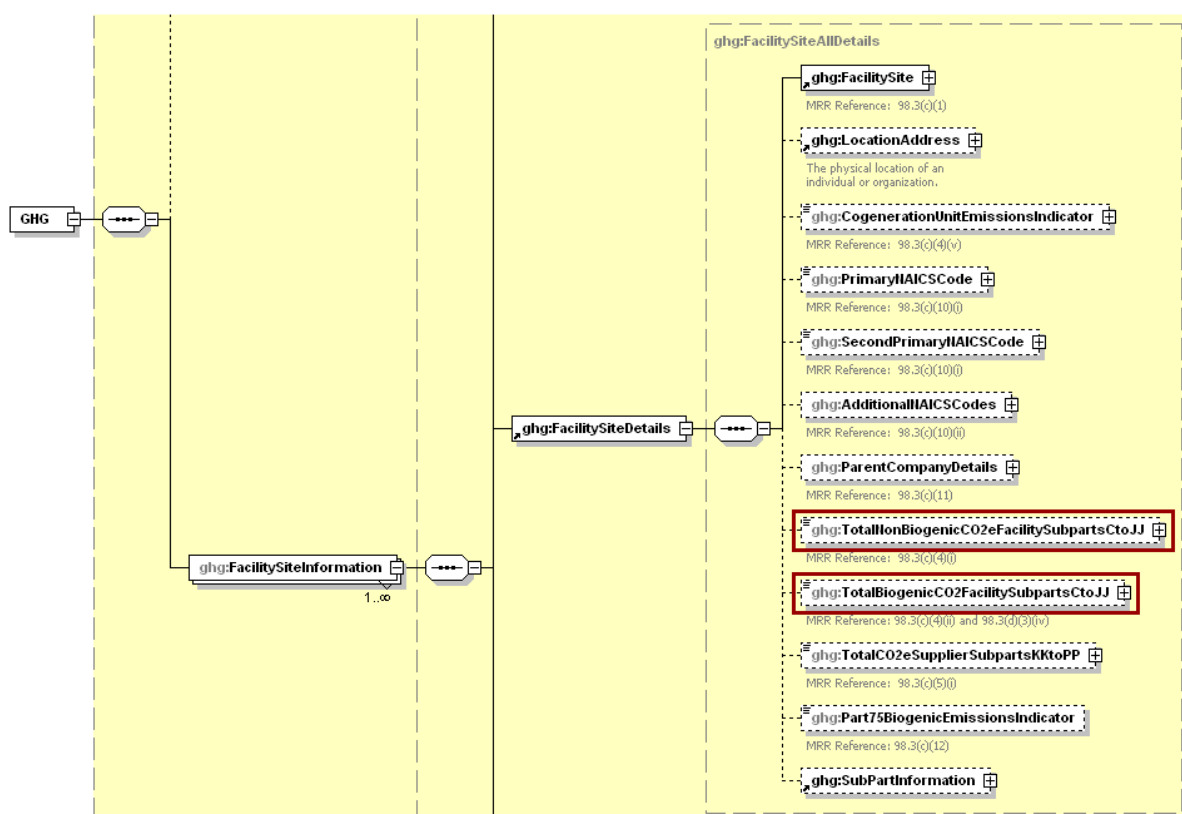
Each facility must report the following facility-level emission totals:

- Total CO<sub>2</sub> equivalent (CO<sub>2</sub>e) emissions (excluding biogenic CO<sub>2</sub>) aggregated across all direct emitter source categories (subparts C-HH) associated with the facility.
- Total biogenic CO<sub>2</sub> emissions aggregated across all direct emitter source categories (subparts C-HH) associated with the facility.

Each supplier must report the following supplier totals:

- Total CO<sub>2</sub>e associated with products supplied aggregated across subparts NN, OO and PP (as applicable). Do not include subpart LL and MM totals in this data element as these values are not being collected in e-GGRT.

**Figure 72**  
**Facility Level Roll-up Emissions Schema Diagram**



For Subpart C, report total emissions for CO<sub>2</sub>e (excluding biogenic CO<sub>2</sub>) and biogenic CO<sub>2</sub> using the following guidelines.

- 1) Add the total CO<sub>2</sub>e value for Subpart C in metric tons to the total CO<sub>2</sub>e emissions (excluding biogenic CO<sub>2</sub>) aggregated across all direct emitter source categories (subparts C-HH) associated with the facility as follows:
  - Add the value reported under Subpart C for CO<sub>2</sub> (excluding biogenic CO<sub>2</sub>).

- Multiply the value reported under Subpart C for CH<sub>4</sub> by the Global Warming Potential for CH<sub>4</sub> (21) and add the result.
  - Multiply the value reported under Subpart C for N<sub>2</sub>O by the Global Warming Potential for N<sub>2</sub>O (310) and add the result.
- 2) Add the total annual biogenic CO<sub>2</sub> mass emissions reported under Subpart C to the total biogenic CO<sub>2</sub> aggregated across all direct emitter source categories (subparts C-HH) associated with the facility.

**Table 33**  
**Facility Level Roll-up Emissions XML Data Elements**

Data Element Name	Description
TotalNonBiogenicCO2eFacilitySubpartsCtoJJ	Add the total CO <sub>2</sub> e value for Subpart C in metric tons to the total CO <sub>2</sub> e emissions (excluding biogenic CO <sub>2</sub> ) aggregated across all direct emitter source categories (subparts C-HH) associated with the facility according to the guidelines above.
TotalNonBiogenicCO2eFacilitySubpartsCtoJJ.massUOM	Metric Tons
TotalBiogenicCO2FacilitySubpartsCtoJJ	Add the total annual biogenic CO <sub>2</sub> mass emissions reported under Subpart C to the total biogenic CO <sub>2</sub> aggregated across all direct emitter source categories (subparts C-HH) associated with the facility according to the guideline above.
TotalBiogenicCO2FacilitySubpartsCtoJJ.massUOM	Metric Tons

**Figure 73**  
**Sample XML Excerpt for Facility Level Roll-up Emissions**

```

<ghg:TotalNonBiogenicCO2eFacilitySubpartsCtoJJ massUOM="Metric
Tons">727399.9</ghg:TotalNonBiogenicCO2eFacilitySubpartsCtoJJ>
<ghg:TotalBiogenicCO2FacilitySubpartsCtoJJ massUOM="Metric Tons">14700</ghg:TotalBiogenicCO2FacilitySubpartsCtoJJ>
<ghg:TotalCO2eSupplierSubpartsKKtoPP massUOM="Metric Tons">0</ghg:TotalCO2eSupplierSubpartsKKtoPP>
```

Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

## Appendix A

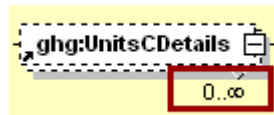
### Legend for Tables

Blue = parent element

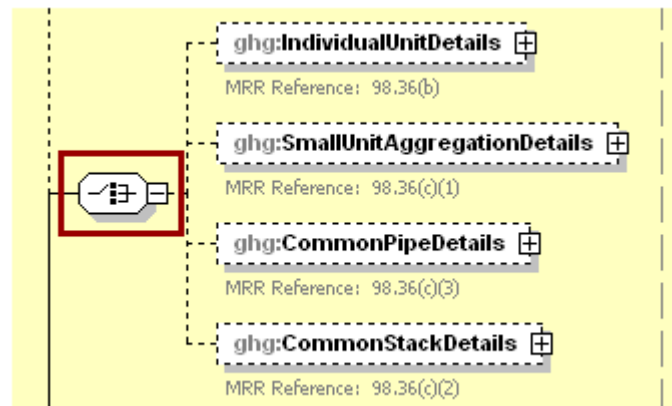
### Legend for XML Schema

Red box = relevant for reporting

The following XML symbol “0..∞” means that multiple occurrences for the parent element can be reported:



The following XML symbol for “or” means that only one of the data elements following the sign can be reported for the current instance of the parent element:



## Appendix B

### Sample XML Document for Subpart C

(Note: Data values do not reflect an actual facility's emissions. )

```

<ghg:GHG xmlns="http://www.ccdsupport.com/schema/ghg">
  <ghg:FacilitySiteInformation>
    <ghg:CertificationStatement>The designated representative or alternate designated representative must sign (i.e., agree to) this certification statement. If you are an agent and you click on "SUBMIT", you are not agreeing to the certification statement, but are submitting the certification statement on behalf of the designated representative or alternate designated representative who is agreeing to the certification statement. An agent is only authorized to make the electronic submission on behalf of the designated representative, not to sign (i.e., agree to) the certification statement.</ghg:CertificationStatement>
    <ghg:ReportingYear>2010</ghg:ReportingYear>
    <ghg:FacilitySiteDetails>
      <ghg:FacilitySite>
        <ghg:FacilitySiteIdentifier>524257</ghg:FacilitySiteIdentifier>
        <ghg:FacilitySiteName>Test Facility C</ghg:FacilitySiteName>
      </ghg:FacilitySite>
      <ghg:LocationAddress>
        <ghg:LocationAddressText>1 Main St.</ghg:LocationAddressText>
        <ghg:LocalityName>Charlottesville</ghg:LocalityName>
        <ghg:StateIdentity>
          <ghg:StateCode>VA</ghg:StateCode>
        </ghg:StateIdentity>
        <ghg:AddressPostalCode>22911</ghg:AddressPostalCode>
      </ghg:LocationAddress>
      <ghg:CogenerationUnitEmissionsIndicator>N</ghg:CogenerationUnitEmissionsIndicator>
      <ghg:PrimaryNAICSCCode>334515</ghg:PrimaryNAICSCCode>
      <ghg>TotalNonBiogenicCO2eFacilitySubpartsCtoJJ massUOM="Metric
Tons">727399.9</ghg>TotalNonBiogenicCO2eFacilitySubpartsCtoJJ>
      <ghg>TotalBiogenicCO2FacilitySubpartsCtoJJ massUOM="Metric
Tons">14700</ghg>TotalBiogenicCO2FacilitySubpartsCtoJJ>
      <ghg>TotalCO2eSupplierSubpartsKktoPP massUOM="Metric Tons">0</ghg>TotalCO2eSupplierSubpartsKktoPP>
      <ghg:SubPartInformation>
        <ghg:SubPartC>
          <ghg:GHGasInfoDetails>
            <ghg:GHGasName>Biogenic Carbon dioxide</ghg:GHGasName>
            <ghg:GHGasQuantity massUOM="Metric Tons">
              <ghg:CalculatedValue>14700</ghg:CalculatedValue>
            </ghg:GHGasQuantity>
          </ghg:GHGasInfoDetails>
          <ghg:GHGasInfoDetails>
            <ghg:GHGasName>Methane</ghg:GHGasName>
            <ghg:GHGasQuantity massUOM="Metric Tons">
              <ghg:CalculatedValue>4065.72</ghg:CalculatedValue>
            </ghg:GHGasQuantity>
          </ghg:GHGasInfoDetails>
          <ghg:GHGasInfoDetails>
            <ghg:GHGasName>Nitrous Oxide</ghg:GHGasName>
            <ghg:GHGasQuantity massUOM="Metric Tons">
              <ghg:CalculatedValue>398.58</ghg:CalculatedValue>
            </ghg:GHGasQuantity>
          </ghg:GHGasInfoDetails>
          <ghg:GHGasInfoDetails>
            <ghg:GHGasName>Carbon Dioxide</ghg:GHGasName>
            <ghg:GHGasQuantity massUOM="Metric Tons">
              <ghg:CalculatedValue>518460</ghg:CalculatedValue>
            </ghg:GHGasQuantity>
          </ghg:GHGasInfoDetails>
          <ghg:UnitsCDetails>
            <ghg:UnitIdentification>
              <ghg:UnitName>CT 1- Tier 2</ghg:UnitName>
              <ghg:UnitDescription>Tier 2 unit</ghg:UnitDescription>
              <ghg:UnitType>F (Furnace)</ghg:UnitType>
            </ghg:UnitIdentification>
            <ghg:IndividualUnitDetails>
              <ghg:MaxRatedheatInputCapacity heatUOM="mmBtu/hr">
                <ghg:MeasureValue>2000</ghg:MeasureValue>
              </ghg:MaxRatedheatInputCapacity>
            </ghg:IndividualUnitDetails>
            <ghg:SorbentCO2EmissionsQuantity massUOM="Metric Tons">
              <ghg:CalculatedValue>200.0</ghg:CalculatedValue>
            </ghg:SorbentCO2EmissionsQuantity>
            <ghg:CO2EmissionsAllBiomassFuelsCombined massUOM="Metric Tons">
              <ghg:CalculatedValue>2000.0</ghg:CalculatedValue>
            </ghg:CO2EmissionsAllBiomassFuelsCombined>
            <ghg:TierFuelDetails>
              <ghg:FuelType>Coke</ghg:FuelType>
            </ghg:TierFuelDetails>
          </ghg:UnitsCDetails>
        </ghg:SubPartC>
      </ghg:SubPartInformation>
    </ghg:FacilitySiteDetails>
  </ghg:FacilitySiteInformation>
</ghg:GHG>

```

```
<ghg:Tier2FuelDetails>
  <ghg:TierName>Tier 2 (Equation C-2a)</ghg:TierName>
  <ghg:TierMethodologyStartDate>2010-01-01</ghg:TierMethodologyStartDate>
  <ghg:TierMethodologyEndDate>2010-12-31</ghg:TierMethodologyEndDate>
  <ghg:Tier2MonthlyHHVDetails>
    <ghg:MonthName>January</ghg:MonthName>
    <ghg:HighHeatValue>
      <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
    </ghg:HighHeatValue>
  </ghg:Tier2MonthlyHHVDetails>
  <ghg:Tier2MonthlyHHVDetails>
    <ghg:MonthName>February</ghg:MonthName>
    <ghg:HighHeatValue>
      <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
    </ghg:HighHeatValue>
  </ghg:Tier2MonthlyHHVDetails>
  <ghg:Tier2MonthlyHHVDetails>
    <ghg:MonthName>March</ghg:MonthName>
    <ghg:HighHeatValue>
      <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
    </ghg:HighHeatValue>
  </ghg:Tier2MonthlyHHVDetails>
  <ghg:Tier2MonthlyHHVDetails>
    <ghg:MonthName>April</ghg:MonthName>
    <ghg:HighHeatValue>
      <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
    </ghg:HighHeatValue>
  </ghg:Tier2MonthlyHHVDetails>
  <ghg:Tier2MonthlyHHVDetails>
    <ghg:MonthName>May</ghg:MonthName>
    <ghg:HighHeatValue>
      <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
    </ghg:HighHeatValue>
  </ghg:Tier2MonthlyHHVDetails>
  <ghg:Tier2MonthlyHHVDetails>
    <ghg:MonthName>June</ghg:MonthName>
    <ghg:HighHeatValue>
      <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
    </ghg:HighHeatValue>
  </ghg:Tier2MonthlyHHVDetails>
  <ghg:Tier2MonthlyHHVDetails>
    <ghg:MonthName>July</ghg:MonthName>
    <ghg:HighHeatValue>
      <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
    </ghg:HighHeatValue>
  </ghg:Tier2MonthlyHHVDetails>
  <ghg:Tier2MonthlyHHVDetails>
    <ghg:MonthName>August</ghg:MonthName>
    <ghg:HighHeatValue>
      <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
    </ghg:HighHeatValue>
  </ghg:Tier2MonthlyHHVDetails>
  <ghg:Tier2MonthlyHHVDetails>
    <ghg:MonthName>September</ghg:MonthName>
    <ghg:HighHeatValue>
      <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
    </ghg:HighHeatValue>
  </ghg:Tier2MonthlyHHVDetails>
  <ghg:Tier2MonthlyHHVDetails>
    <ghg:MonthName>October</ghg:MonthName>
    <ghg:HighHeatValue>
      <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
    </ghg:HighHeatValue>
  </ghg:Tier2MonthlyHHVDetails>
  <ghg:Tier2MonthlyHHVDetails>
    <ghg:MonthName>November</ghg:MonthName>
    <ghg:HighHeatValue>
      <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
    </ghg:HighHeatValue>
  </ghg:Tier2MonthlyHHVDetails>
</ghg:Tier2FuelDetails>
```

```

    </ghg:Tier2MonthlyHHVDetails>
  </ghg:Tier2MonthlyHHVDetails>
    <ghg:MonthName>December</ghg:MonthName>
    <ghg:HighHeatValue>
      <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
    </ghg:HighHeatValue>
  </ghg:Tier2MonthlyHHVDetails>
<ghg:FrequencyofHighHeatValueDetermination>Monthly</ghg:FrequencyofHighHeatValueDetermination>
<ghg:EmissionsDetailsNode>
  <ghg>TotalCO2CombustionEmissions massUOM="Metric Tons">
    <ghg:CalculatedValue>2000.0</ghg:CalculatedValue>
  </ghg>TotalCO2CombustionEmissions>
  <ghg>TotalCH4CombustionEmissions massUOM="Metric Tons">
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  </ghg:Part75Details>
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