Greenhouse Gas Reporting Program

XML Reporting Instructions
for Subpart S –
Lime Manufacturing

United States Environmental Protection Agency
Climate Change Division
Washington, DC

September 27, 2011

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.

Note: Subpart S requires affected facilities to report greenhouse gas (GHG) emissions from all lime kilns combined. If all lime kilns meet the conditions specified in §98.33(b)(4)(ii) or (b)(4)(iii), you must calculate and report under this subpart the combined process and combustion CO_2 emissions by operating and maintaining a Continuous Emissions Monitoring System (CEMS) to measure CO_2 emissions using the e-GGRT webforms and cannot report using the XML schema. The XML schema can only be used by facilities reporting emissions not calculated using CEMS.

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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 includes 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 is available for download at the GHGRP web site here: http://www.epa.gov/climatechange/emissions/e-ggrt_xml.html. The zip file contains:

- **GHG_Final.xsd and Included Files**
- **SchemaChanges.xlsx**

This document provides a step-by-step description of how to report data for Subpart S Lime Manufacturing and overall total Subpart S greenhouse gas data using the XML schema for a facility reporting emissions not calculated using CEMS. 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.
- **Data elements for calculated and measured values are not displayed in the schema diagrams.** The parent elements for calculated and measured values are displayed in the schema diagrams in this document, but the specific data elements to be reported are not 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
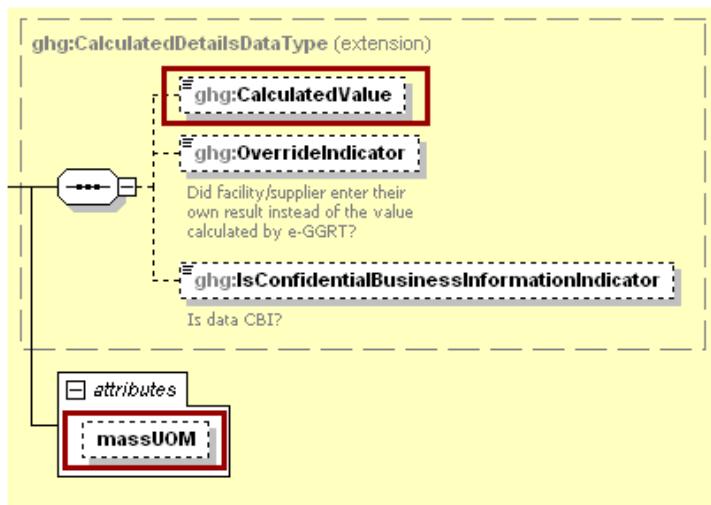
Figure 2
Sample Measured Value Schema Diagram
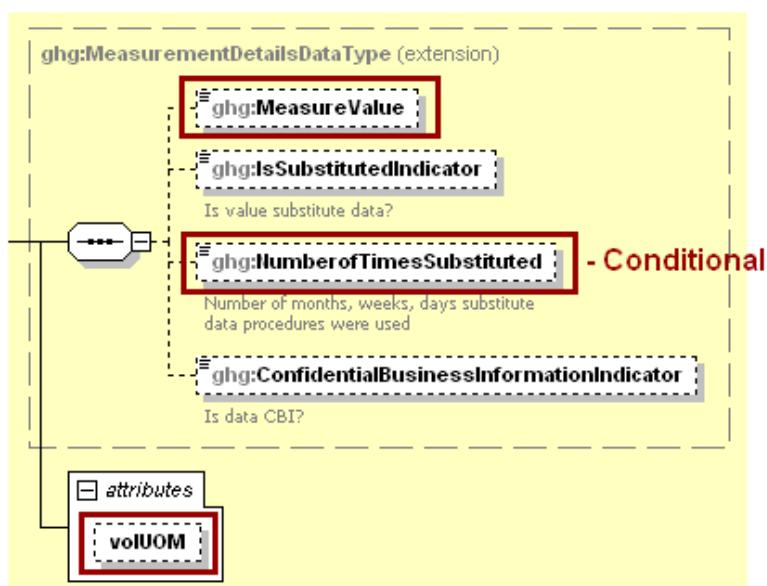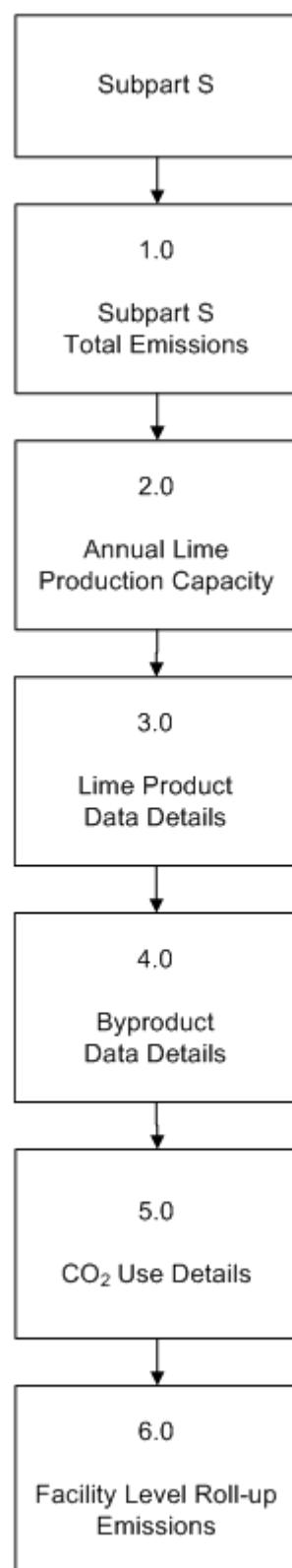
Figure 3
Subpart S Reporting Diagram

Note: Subpart S requires affected facilities to report greenhouse gas (GHG) emissions from all lime kilns combined. If all lime kilns meet the conditions specified in §98.33(b)(4)(ii) or (b)(4)(iii), you must calculate and report under this subpart the combined process and combustion CO_2 emissions by operating and maintaining a Continuous Emissions Monitoring System (CEMS) to measure CO_2 emissions using the e-GGRT webforms and cannot report using the XML schema. The XML schema can only be used by facilities reporting emissions not calculated using CEMS.

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

    1.0 Subpart S Total Emissions: includes the total greenhouse gas emissions required to be reported for Subpart S.

    2.0 Annual Lime Production Capacity: includes details for the annual lime production capacity for the entire facility.

    3.0 Lime Product Data Details: includes information on lime products produced.

    4.0 Byproduct Data Details: includes information about the calcined lime byproducts/waste produced.

    5.0 CO_2 Use Details: includes information for onsite CO_2 usage.

    6.0 Facility Level Roll-up Emissions: includes information on how to report total emissions for CO_2e (excluding biogenic CO_2) from Subpart S at the facility level.
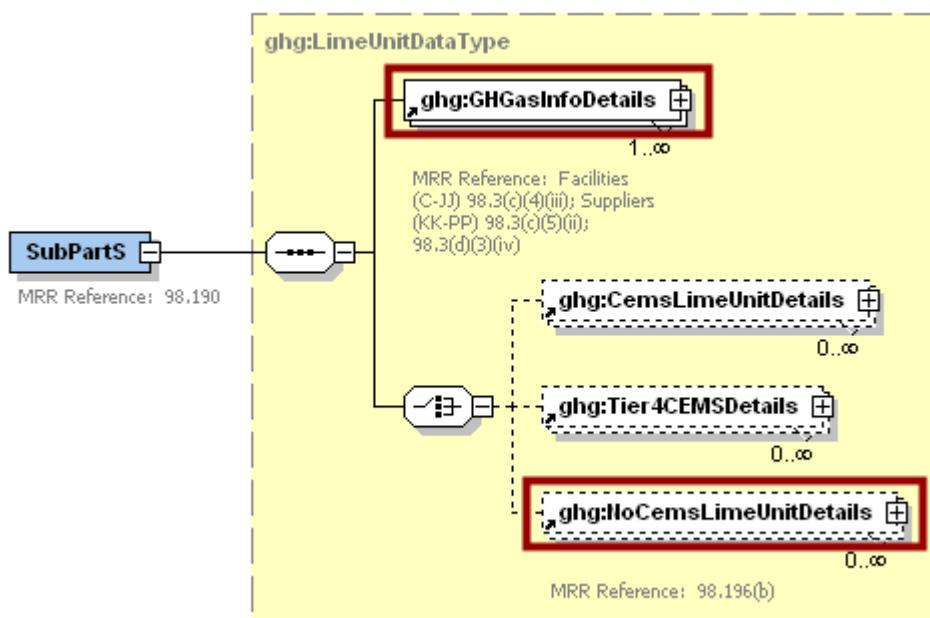
The following terminology is used throughout this document:

- 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_2e and CO_2 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.

2) CH_4 emissions data expressed in metric tons should be rounded to two decimal places.

3) N_2O emissions data expressed in metric tons should be rounded to three decimal places.

4) Emissions data for all greenhouse gases other than CO_2, N_2O, and CH_4 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.
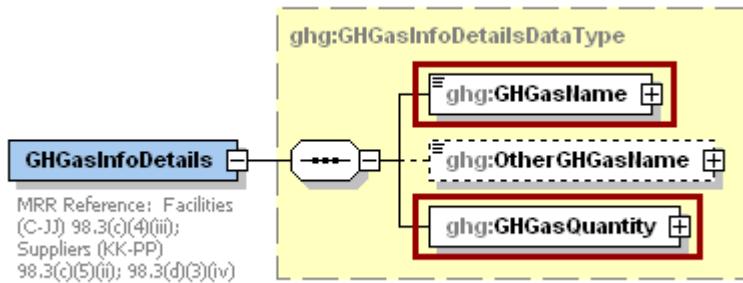
Figure 4
Subpart S Schema Diagram

1.0 Subpart S 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 S, expressed in metric tons.

Figure 5
Greenhouse Gas Information Details Schema Diagram

For Subpart S, report annual CO_2 process emissions from all kilns (the output of Equation S-4) in metric tons rounded to one decimal place for the total emissions for carbon dioxide (excluding biogenic CO_2) [98.196(b)(1)]. For greenhouse gas quantity, report the calculated value and mass unit of measure (metric tons) only.

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: Carbon Dioxide
GHGasQuantity	A collection of data elements that quantify the annual emissions from this facility category. Report the calculated value only using the guideline above.
GHGasQuantity.massUOM	Metric Tons

Figure 6
Sample XML Excerpt for Greenhouse Gas Information Details

```
<ghg:SubPartS>
        <ghg:GHGasInfoDetails>
                <ghg:GHGasName>Carbon Dioxide</ghg:GHGasName>
                <ghg:GHGasQuantity massUOM="Metric Tons">
                        <ghg:CalculatedValue>11111.0</ghg:CalculatedValue>
                </ghg:GHGasQuantity>
        </ghg:GHGasInfoDetails>
```
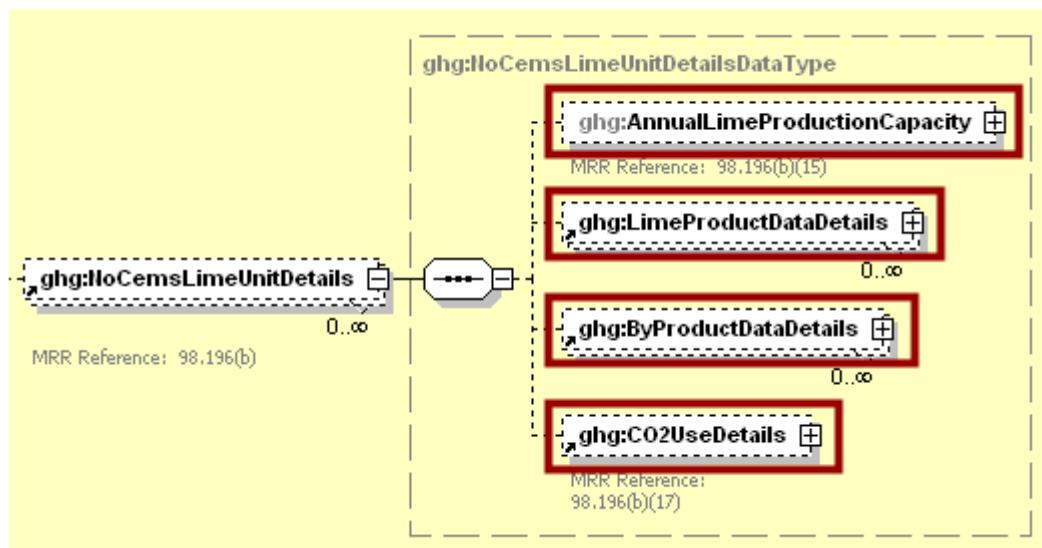
Note: The code excerpt above is presented here to demonstrate the concept of reporting greenhouse gas emissions data.

2.0 Annual Lime Production Capacity

Subpart S requires that data for facilities reporting emissions not calculated using CEMS be reported at a facility level.

Figure 7
Lime Manufacturing Details Schema Diagram

Subpart S requires the facility to provide the annual lime production capacity for the entire facility in short tons [98.196(b)(15)].

Figure 8
Annual Lime Production Capacity Schema Diagram
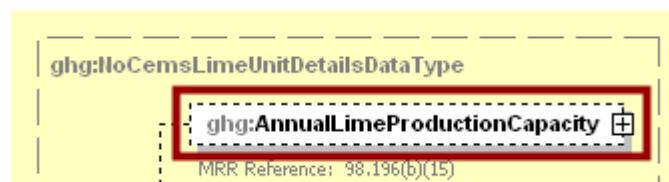
Table 2
Annual Lime Production Capacity XML Data Elements

Data Element Name	Description
NoCemsLimeUnitDetails	A collection of data elements containing details about lime units in which emissions are not calculated using CEMS.
AnnualLimeProductionCapacity	A collection of data elements containing details about the annual lime production capacity for the entire facility. Report the measured value, the number of months that missing data procedures were followed during the reporting year and the mass unit of measure only.
AnnualLimeProductionCapacity.massUOM	Short Tons

Figure 9
Sample XML Excerpt for Annual Lime Production Capacity

```
<ghg:NoCemsLimeUnitDetails>
        <ghg:AnnualLimeProductionCapacity massUOM="Short Tons">
                <ghg:MeasureValue>22222</ghg:MeasureValue>
        </ghg:AnnualLimeProductionCapacity>
```

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

3.0 Lime Product Data Details

Subpart S requires a facility to uniquely identify each lime product produced during the reporting year and to provide inventory and monthly information for each product.

Figure 10
Lime Product Data Details Schema Diagram
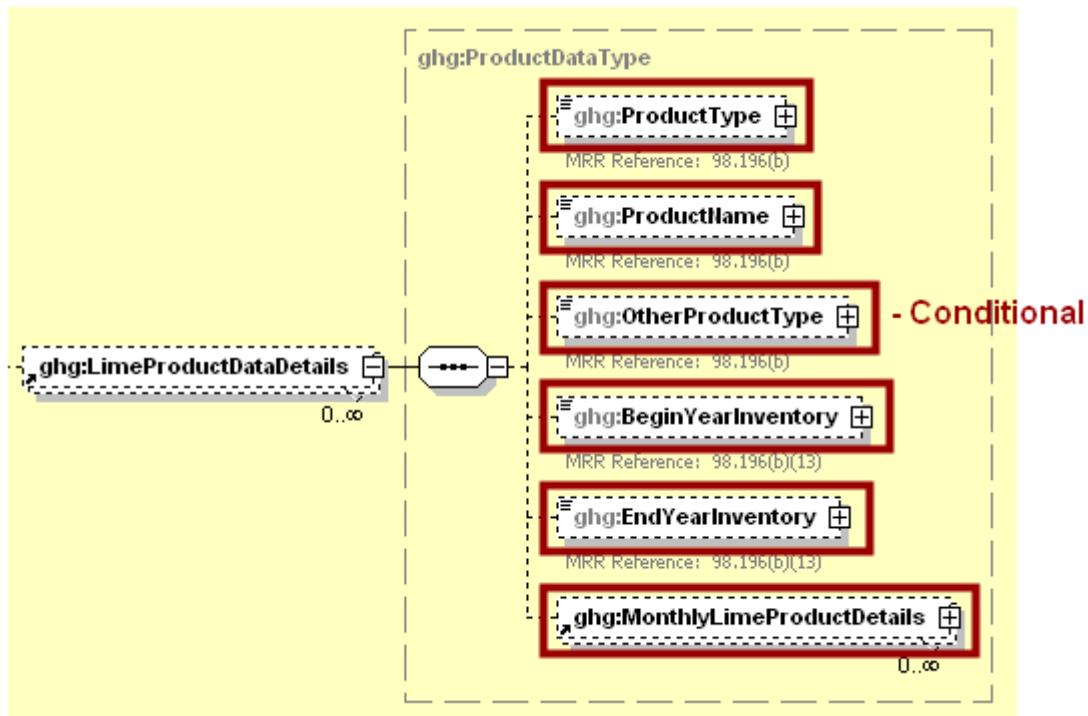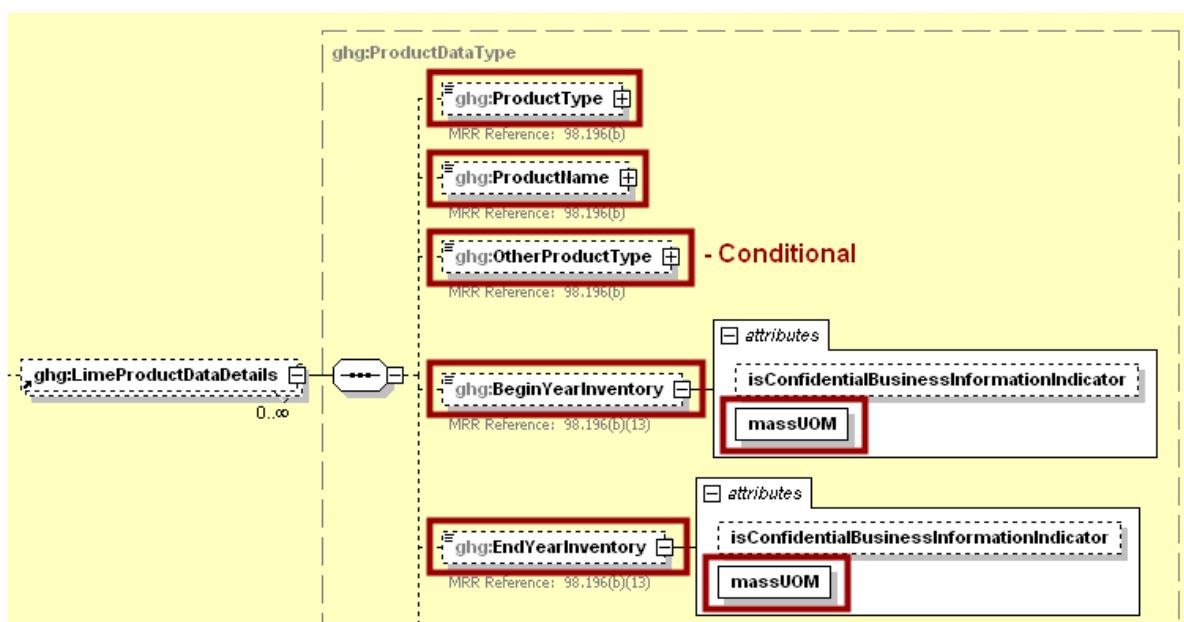
Figure 11
Lime Product Identification and Inventory Details Schema Diagram

For each lime product produced during the reporting year, provide the following information:

- The type of lime product produced from the following list [98.196(b)]:
  - High calcium lime
  - Dolomitic lime
  - Magnesian lime
  - Hydraulic lime
  - Other
- Name of the lime product produced.
- Beginning of year inventory in short tons [98.196(a)(3)].
- End of year inventory in short tons [98.196(a)(3)].

Table 3
Lime Product Identification and Inventory Details XML Data Elements
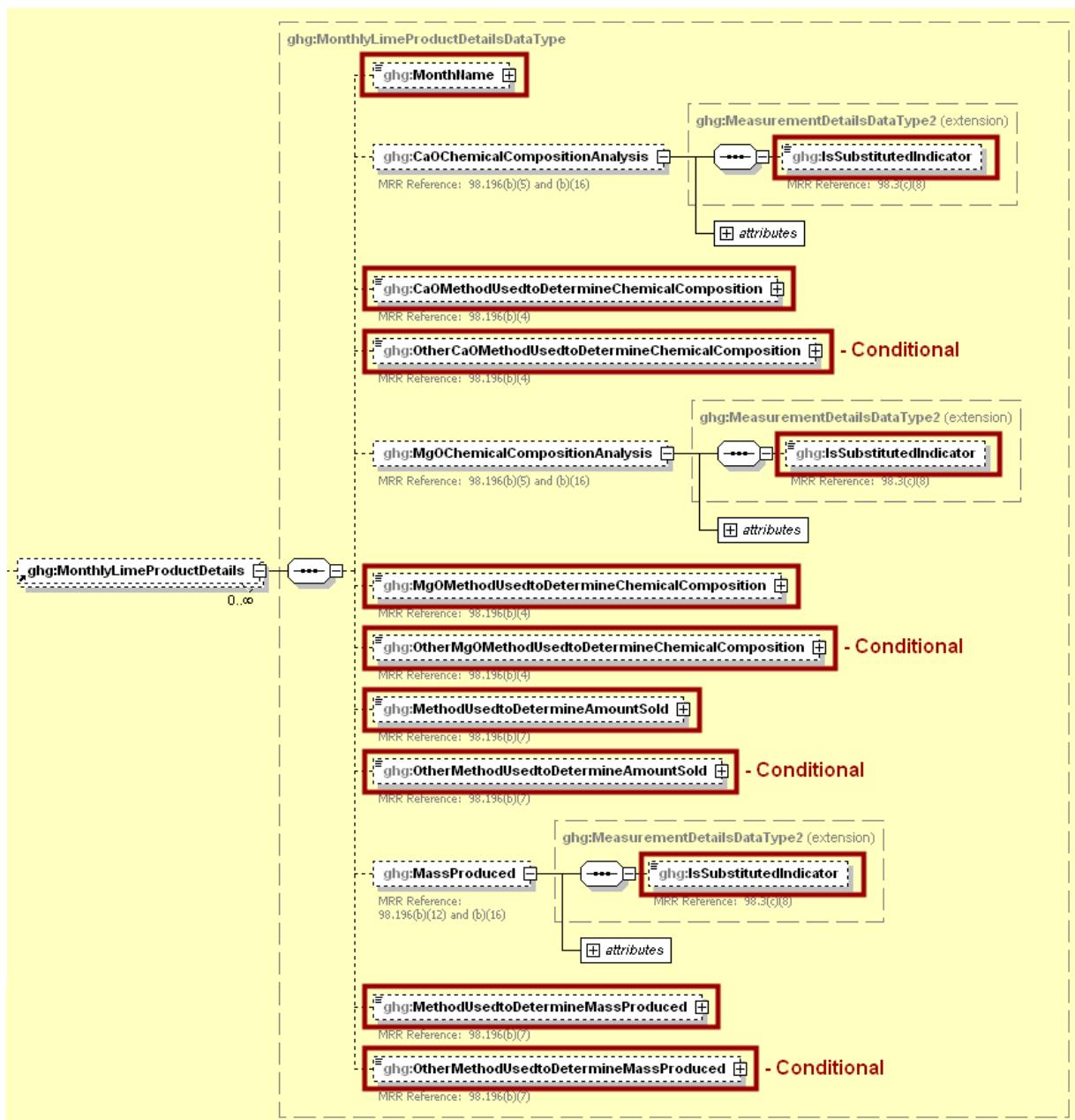
Data Element Name	Description
LimeProductDataDetails	A collection of data elements containing details about the lime products produced during the reporting year. Report each product separately.
ProductType	Type of lime product produced during the reporting year. See list of allowable values: High calcium lime Dolomitic lime Magnesian lime Hydraulic lime Other If the type of product you are reporting does not appear in the list, then report "Other" for this data element and provide a description of it using the "OtherProductType" data element.
ProductName	Name of the specified lime product produced.
OtherProductType	Type of lime product produced if "Other" is reported for ProductType.
BeginYearInventory	The beginning of year inventory for the specified lime product that was produced in short tons.
BeginYearInventory.massUOM	Short Tons
EndYearInventory	The end of year inventory for the specified lime product that was produced in short tons.
EndYearInventory.massUOM	Short Tons

Figure 12
Sample XML Excerpt for Lime Product Identification and Inventory Details

```
<ghg:LimeProductDataDetails>
        <ghg:ProductType>High calcium lime</ghg:ProductType>
        <ghg:ProductName>High Calcium Lime 1</ghg:ProductName>
        <ghg:BeginYearInventory massUOM="Short Tons">5555</ghg:BeginYearInventory>
        <ghg:EndYearInventory massUOM="Short Tons">2222</ghg:EndYearInventory>
```

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

Figure 13
Monthly Lime Product Details Schema Diagram

For each lime product produced during the reporting year, and for each month, the facility is required to provide the following information:

- Month name.
- An indication if a missing data procedure contained in §98.195(b) was followed to determine the monthly calcium oxide content [98.196(b)(16)and 98.3(c)(8)].
- The standard method (ASTM or NLA testing method) used to determine the calcium oxide content [98.196(b)(4)].
- An indication if a missing data procedure contained in §98.195(b) was followed to determine the monthly magnesium oxide content [98.196(b)(16)and 98.3(c)(8)].
- The standard method (ASTM or NLA testing method) used to determine the magnesium oxide content [98.196(b)(4)].
- The method used to determine the quantity of lime product sold [98.196(b)(7)].
- An indication if the monthly quantity of lime product produced is based on one or more substitute data values calculated per the procedures described in §98.195(a). [98.196(b)(16)and 98.3(c)(8)].
- The method used to determine the quantity of lime product produced [98.196(b)(7)].

Table 4
Monthly Lime Product Details XML Data Elements

Data Element Name	Description
MonthlyLimeProductDetails	A collection of data elements containing details about monthly quantities of lime products produced.
MonthName	Month name. See list of allowable values: Janaury February March April May June July August September October November December
CaOChemicalCompositionAnalysis	Indicate (Y/N) if the monthly quantity of calcium oxide produced is based on one or more substitute data values calculated per the procedures described in §98.195(a).

Data Element Name	Description
CaOMethodUsedtoDetermineChemicalComposition	The standard method (ASTM or NLA testing method) used to determine the calcium oxide content. See list of allowable values: ASTM C25-06 NLA Protocol method Did not operate Other If "NLA Protocol method" is reported, further specification is required in OtherCaOMethodUsedtoDetermineChemicalComposition. "Other" should only be used if BAMM procedures were applied. "BAMM" can be noted here, but should be specified further in Subpart A.
OtherCaOMethodUsedtoDetermineChemicalComposition	If "NLA Protocol method" is reported for CaOMethodUsedtoDetermineChemicalComposition, specify the method.
MgOChemicalCompositionAnalysis	Indicate (Y/N) if the monthly quantity of magnesium oxide produced is based on one or more substitute data values calculated per the procedures described in §98.195(a).
MgOMethodUsedtoDetermineChemicalComposition	The standard method (ASTM or NLA testing method) used to determine the magnesium oxide content. See list of allowable values: ASTM C25-06 NLA Protocol method Did not operate Other If "NLA Protocol method" is reported, further specification is required in OtherMgOMethodUsedtoDetermineChemicalComposition. "Other" should only be used if BAMM procedures were applied. "BAMM" can be noted here, but should be specified further in Subpart A.
OtherMgOMethodUsedtoDetermineChemicalComposition	If "NLA Protocol method" is reported for MgOMethodUsedtoDetermineChemicalComposition, specify the method.

Data Element Name	Description
MethodUsedtoDetermineAmountSold	The method used to determine the quantity (mass) of lime that is sold. See list of allowable values: Weigh feeders Rail scales Truck scales Barge measurements Did not operate Other If the method used does not appear in the list, then report "Other" for this data element and provide a description of it using OtherMethodUsedtoDetermineAmountSold.
OtherMethodUsedtoDetermineAmountSold	The method used to determine the quantity (mass) of lime that is sold if "Other" is reported for MethodUsedtoDetermineAmountSold.
MassProduced	Indicate (Y/N) if the annual quantity of lime product sold is based on one or more substitute data values calculated per the procedures described in §98.195(a).
MethodUsedtoDetermineMassProduced	The method used to determine the quantity (mass) of lime that is produced. See list of allowable values: Weigh feeders Rail scales Truck scales Barge measurements Did not operate Other If the method used does not appear in the list, then report "Other" for this data element and provide a description of it using OtherMethodUsedtoDetermineMassProduced.
OtherMethodUsedtoDetermineMassProduced	Method used to determine the quantity (mass) of lime that is produced if "Other" is reported for MethodUsedtoDetermineMassProduced.

Figure 14
Sample XML Excerpt for Monthly Lime Product Details

```
<ghg:MonthlyLimeProductDetails>
        <ghg:MonthName>January</ghg:MonthName>
        <ghg:CaOChemicalCompositionAnalysis>
                <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
        </ghg:CaOChemicalCompositionAnalysis>
        <ghg:CaOMethodUsedtoDetermineChemicalComposition>ASTM C25-
06</ghg:CaOMethodUsedtoDetermineChemicalComposition>
        <ghg:MgOChemicalCompositionAnalysis>
                <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
        </ghg:MgOChemicalCompositionAnalysis>
        <ghg:MgOMethodUsedtoDetermineChemicalComposition>NLA Protocol
method</ghg:MgOMethodUsedtoDetermineChemicalComposition>
        <ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>Method
B</ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>
        <ghg:MethodUsedtoDetermineAmountSold>Rail
scales</ghg:MethodUsedtoDetermineAmountSold>
        <ghg:MassProduced>
                <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
        </ghg:MassProduced>
        <ghg:MethodUsedtoDetermineMassProduced>Weigh
feeders</ghg:MethodUsedtoDetermineMassProduced>
</ghg:MonthlyLimeProductDetails>
<ghg:MonthlyLimeProductDetails>
        <ghg:MonthName>February</ghg:MonthName>
        <ghg:CaOChemicalCompositionAnalysis>
                <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
        </ghg:CaOChemicalCompositionAnalysis>
        <ghg:CaOMethodUsedtoDetermineChemicalComposition>ASTM C25-
06</ghg:CaOMethodUsedtoDetermineChemicalComposition>
        <ghg:MgOChemicalCompositionAnalysis>
                <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
        </ghg:MgOChemicalCompositionAnalysis>
        <ghg:MgOMethodUsedtoDetermineChemicalComposition>NLA Protocol
method</ghg:MgOMethodUsedtoDetermineChemicalComposition>
        <ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>Method
B</ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>
        <ghg:MethodUsedtoDetermineAmountSold>Rail
scales</ghg:MethodUsedtoDetermineAmountSold>
        <ghg:MassProduced>
                <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
        </ghg:MassProduced>
        <ghg:MethodUsedtoDetermineMassProduced>Weigh
feeders</ghg:MethodUsedtoDetermineMassProduced>
</ghg:MonthlyLimeProductDetails>
<ghg:MonthlyLimeProductDetails>
        <ghg:MonthName>March</ghg:MonthName>
        <ghg:CaOChemicalCompositionAnalysis>
                <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
        </ghg:CaOChemicalCompositionAnalysis>
        <ghg:CaOMethodUsedtoDetermineChemicalComposition>ASTM C25-
06</ghg:CaOMethodUsedtoDetermineChemicalComposition>
        <ghg:MgOChemicalCompositionAnalysis>
                <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
        </ghg:MgOChemicalCompositionAnalysis>
        <ghg:MgOMethodUsedtoDetermineChemicalComposition>NLA Protocol
method</ghg:MgOMethodUsedtoDetermineChemicalComposition>
        <ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>Method
B</ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>
        <ghg:MethodUsedtoDetermineAmountSold>Rail
scales</ghg:MethodUsedtoDetermineAmountSold>
        <ghg:MassProduced>
                <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
        </ghg:MassProduced>
        <ghg:MethodUsedtoDetermineMassProduced>Weigh
feeders</ghg:MethodUsedtoDetermineMassProduced>
</ghg:MonthlyLimeProductDetails>
```

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

4.0 Byproduct Data Details

Subpart S requires a facility to uniquely identify each type of calcined lime byproduct or calcined lime waste generated during the reporting year and to provide further information for each byproduct sold and each byproduct not sold.

Figure 15
Byproduct or Waste Data Details Schema Diagram

The facility is required to provide each type of calcined lime byproduct or calcined lime waste generated during the reporting year [98.196(b)] and whether the byproduct or waste was sold.

Table 5
Byproduct or Waste Identification Details XML Data Elements
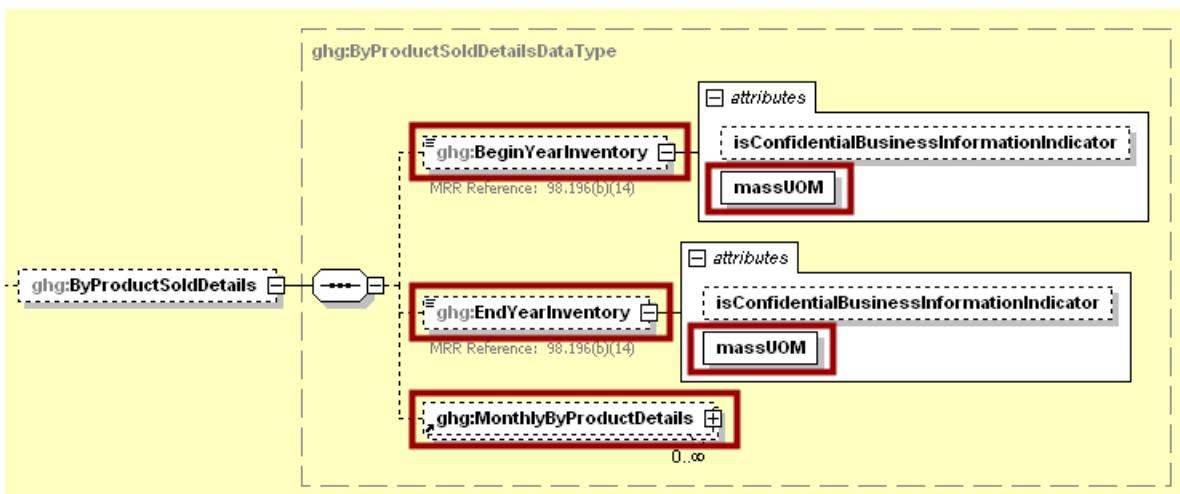
Data Element Name	Description
ByProductDataDetails	A collection of data elements containing details about the calcined lime byproducts/waste produced by the facility. Report each byproduct and waste separately.
ByProductName	Name of each calcined lime byproduct or calcined lime waste generated.
isByProductSoldIndicator	Indicate (Y/N) if the specified calcined lime byproduct or calcined lime waste is sold.

Figure 16
Sample XML Excerpt for Byproduct or Waste Identification Details

```
<ghg:ByProductDataDetails>
    <ghg:ByProductName>Waste 1</ghg:ByProductName>
    <ghg:isByProductSoldIndicator>Y</ghg:isByProductSoldIndicator>
```

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

Figure 17
Byproduct or Waste Sold Details Schema Diagram

For each calcined lime byproduct or calcined lime waste sold during the reporting year, provide the following information:

- The beginning of year inventory in short tons [98.196(b)(14)].
- The end of year inventory in short tons [98.196(b)(14)].

Table 6
Byproduct or Waste Sold Details XML Data Elements
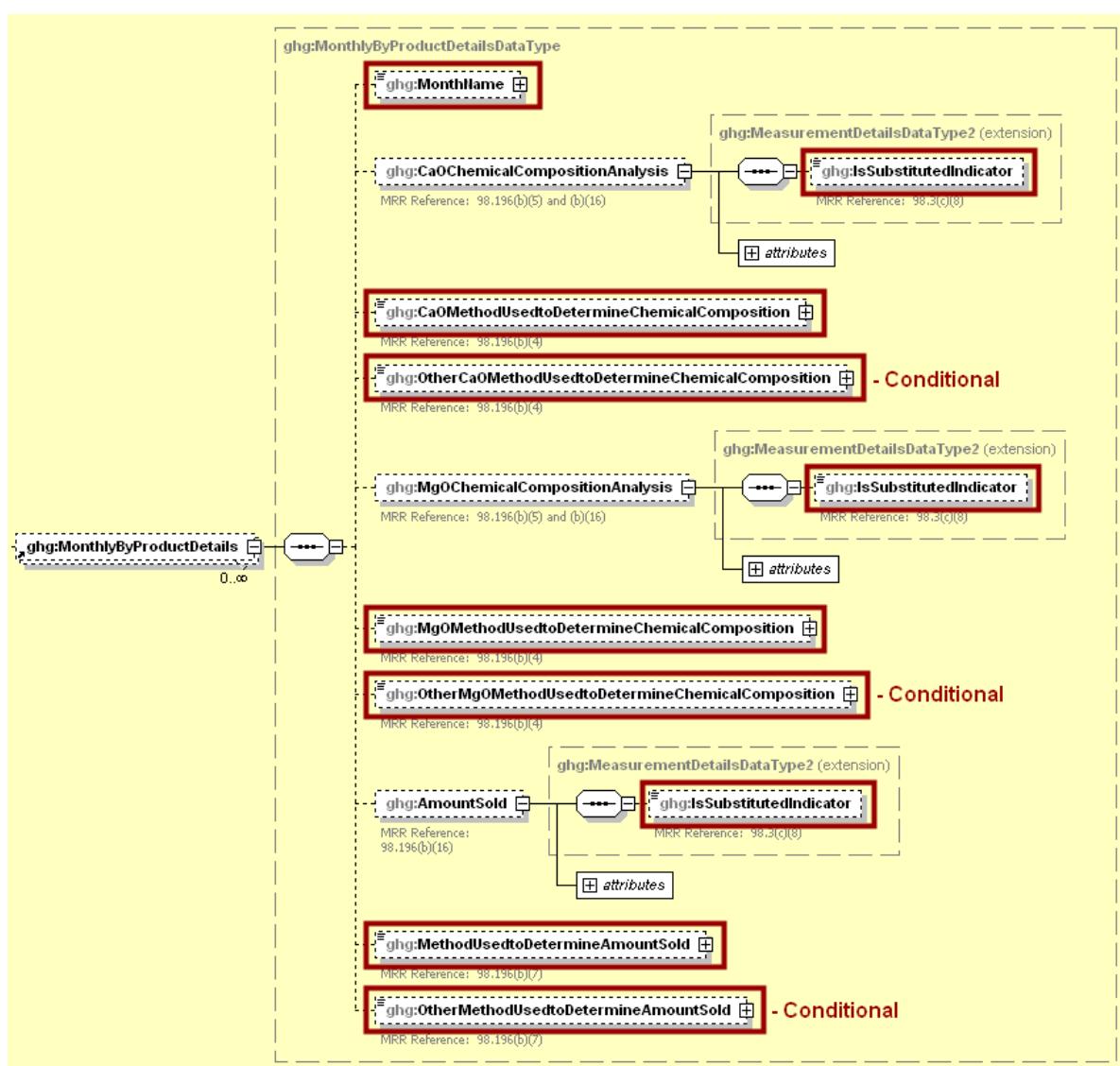
Data Element Name	Description
ByProductSoldDetails	A collection of data elements containing details about calcined lime byproducts/waste that were sold.
BeginYearInventory	The beginning of year inventory for the specified calcined lime byproduct/waste that was generated.
BeginYearInventory.massUOM	Short Tons
EndYearInventory	The end of year inventory for the specified calcined lime byproduct/waste that was generated.
EndYearInventory.massUOM	Short Tons

Figure 18
Sample XML Excerpt for Byproduct or Waste Sold Details

```
<ghg:ByProductSoldDetails>
        <ghg:BeginYearInventory massUOM="Short
        Tons">500</ghg:BeginYearInventory>
        <ghg:EndYearInventory massUOM="Short
        Tons">50000</ghg:EndYearInventory>
```

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

Figure 19
Monthly Byproduct or Waste Sold Details Schema Diagram

For each calcined lime byproduct or calcined lime waste generated during the reporting year that was sold during the reporting year, and for each month, the following information is required:

- Month name.
- An indication if a missing data procedure contained in §98.195(b) was followed to determine the monthly calcium oxide content [98.196(b)(16)and 98.3(c)(8)].
- The standard method (ASTM or NLA testing method) used to determine the calcium oxide content [98.196(b)(4)].
- An indication if a missing data procedure contained in §98.195(b) was followed to determine the monthly magnesium oxide content [98.196(b)(16)and 98.3(c)(8)].
- The standard method (ASTM or NLA testing method) used to determine the magnesium oxide content [98.196(b)(4)].
- An indication if a missing data procedure contained in §98.195(b) was followed to determine the monthly amount sold [98.3(c)(8)].
- The method used to determine the quantity sold [98.196(b)(7)].

Table 7
Monthly Byproduct or Waste Sold Details XML Data Elements

Data Element Name	Description
MonthlyByProductDetails	A collection of data elements containing details about monthly quantities of calcined lime byproducts/waste produced.
MonthName	Month name. See list of allowable values: January February March April May June July August September October November December
CaOChemicalCompositionAnalysis	Indicate (Y/N) if a missing data procedure contained in §98.195(b) was followed to determine the monthly calcium oxide content

Data Element Name	Description
CaOMethodUsedtoDetermineChemicalComposition	The standard method (ASTM or NLA testing method) used to determine the calcium oxide content. See list of allowable values: ASTM C25-06 NLA Protocol method Did not operate Other If "NLA Protocol method" is reported, further specification is required in OtherCaOMethodUsedtoDetermineChemicalComposition. "Other" should only be used if BAMM procedures were applied. "BAMM" can be noted here, but should be specified further in Subpart A.
OtherCaOMethodUsedtoDetermineChemicalComposition	If "NLA Protocol method" is reported for CaOMethodUsedtoDetermineChemicalComposition, specify the method.
MgOChemicalCompositionAnalysis	Indicate (Y/N) if a missing data procedure contained in §98.195(b) was followed to determine the monthly magnesium oxide content.
MgOMethodUsedtoDetermineChemicalComposition	The standard method (ASTM or NLA testing method) used to determine the magnesium oxide content. See list of allowable values: ASTM C25-06 NLA Protocol method Did not operate Other If "NLA Protocol method" is reported, further specification is required in OtherMgOMethodUsedtoDetermineChemicalComposition. "Other" should only be used if BAMM procedures were applied. "BAMM" can be noted here, but should be specified further in Subpart A.
OtherMgOMethodUsedtoDetermineChemicalComposition	If "NLA Protocol method" is reported for MgOMethodUsedtoDetermineChemicalComposition, specify the method.
AmountSold	Indicate (Y/N) if the monthly quantity of calcined lime byproduct/waste sold is based on one or more substitute data values calculated per the procedures described in §98.195(a).
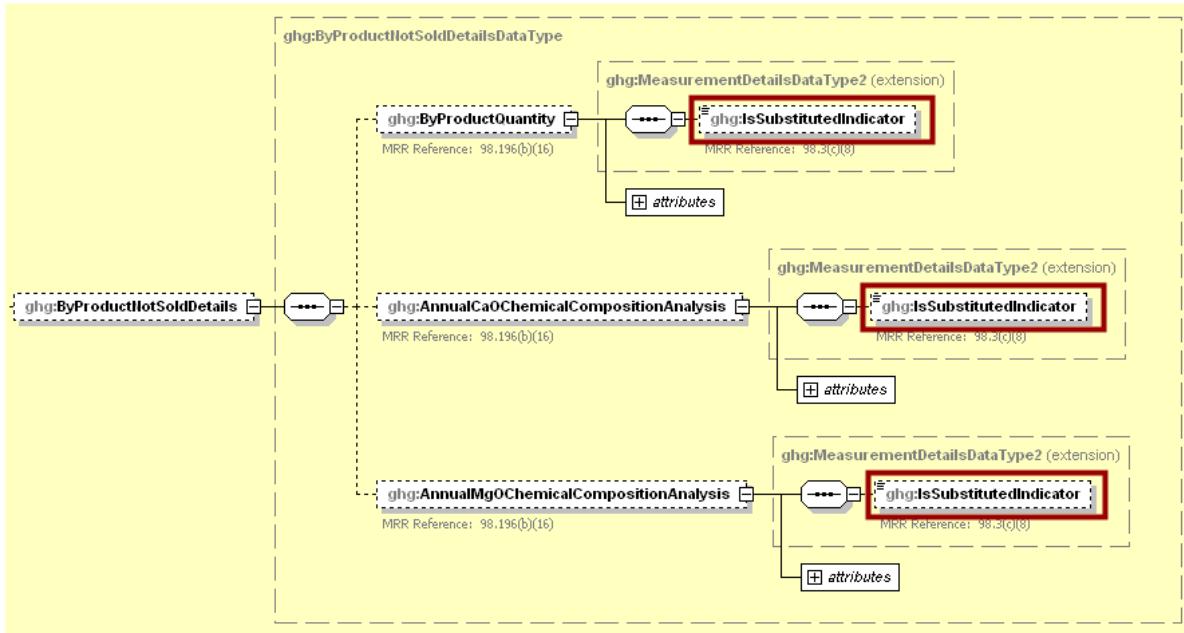
Data Element Name	Description
MethodUsedtoDetermineAmountSold	The method used to determine the monthly quantity (mass) of calcined lime byproduct/waste that is sold. See list of allowable values: Weigh feeders Rail scales Truck scales Barge measurements Did not operate Other If the method used does not appear in the list, then report "Other" for this data element and provide a description of it using the "OtherMethodUsedtoDetermineAmountSold" data element.
OtherMethodUsedtoDetermineAmountSold	The method used to determine the monthly quantity (mass) of calcined lime byproduct/waste that is sold if "Other" is reported for MethodUsedtoDetermineAmountSold.

Figure 20
Sample XML Excerpt for Monthly Byproduct or Waste Sold Details

```xml
<ghg:MonthlyByProductDetails>
        <ghg:MonthName>January</ghg:MonthName>
        <ghg:CaOChemicalCompositionAnalysis>
                <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
        </ghg:CaOChemicalCompositionAnalysis>
        <ghg:CaOMethodUsedtoDetermineChemicalComposition>ASTM C25-06</ghg:CaOMethodUsedtoDetermineChemicalComposition>
        <ghg:MgOChemicalCompositionAnalysis>
                <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
        </ghg:MgOChemicalCompositionAnalysis>
        <ghg:MgOMethodUsedtoDetermineChemicalComposition>ASTM C25-06</ghg:MgOMethodUsedtoDetermineChemicalComposition>
        <ghg:AmountSold>
                <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
        </ghg:AmountSold>
        <ghg:MethodUsedtoDetermineAmountSold>Truck scales</ghg:MethodUsedtoDetermineAmountSold>
</ghg:MonthlyByProductDetails>
<ghg:MonthlyByProductDetails>
        <ghg:MonthName>February</ghg:MonthName>
        <ghg:CaOChemicalCompositionAnalysis>
                <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
        </ghg:CaOChemicalCompositionAnalysis>
        <ghg:CaOMethodUsedtoDetermineChemicalComposition>ASTM C25-06</ghg:CaOMethodUsedtoDetermineChemicalComposition>
        <ghg:MgOChemicalCompositionAnalysis>
                <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
        </ghg:MgOChemicalCompositionAnalysis>
        <ghg:MgOMethodUsedtoDetermineChemicalComposition>ASTM C25-06</ghg:MgOMethodUsedtoDetermineChemicalComposition>
        <ghg:AmountSold>
                <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
        </ghg:AmountSold>
        <ghg:MethodUsedtoDetermineAmountSold>Truck scales</ghg:MethodUsedtoDetermineAmountSold>
</ghg:MonthlyByProductDetails>
<ghg:MonthlyByProductDetails>
        <ghg:MonthName>March</ghg:MonthName>
        <ghg:CaOChemicalCompositionAnalysis>
                <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
        </ghg:CaOChemicalCompositionAnalysis>
        <ghg:CaOMethodUsedtoDetermineChemicalComposition>ASTM C25-06</ghg:CaOMethodUsedtoDetermineChemicalComposition>
        <ghg:MgOChemicalCompositionAnalysis>
                <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
        </ghg:MgOChemicalCompositionAnalysis>
        <ghg:MgOMethodUsedtoDetermineChemicalComposition>ASTM C25-06</ghg:MgOMethodUsedtoDetermineChemicalComposition>
        <ghg:AmountSold>
                <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
        </ghg:AmountSold>
        <ghg:MethodUsedtoDetermineAmountSold>Truck scales</ghg:MethodUsedtoDetermineAmountSold>
</ghg:MonthlyByProductDetails>
```

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

Figure 21
Byproduct or Waste Not Sold Details Schema Diagram

For each calcined lime byproduct or calcined lime waste generated during the reporting year that was not sold during the reporting year, the following information is required:

- An indication if the annual quantity of calcined lime byproduct or calcined lime waste not sold is based on one or more substitute data values calculated per the procedures described in §98.195(a) [98.196(b)(16) and 98.3(c)(8)].
- An indication if a missing data procedure contained in §98.195(b) was followed to determine the annual calcium oxide content [98.196(b)(16) and 98.3(c)(8)].
- An indication if a missing data procedure contained in §98.195(b) was followed to determine the annual magnesium oxide content [98.196(b)(16) and 98.3(c)(8)].

Table 8
Byproduct or Waste Not Sold Details XML Data Elements

Data Element Name	Description
ByProductNotSoldDetails	A collection of data elements containing details about calcined lime byproducts/waste that were not sold.
ByProductQuantity	Indicate (Y/N) if the annual quantity of calcined lime byproduct or calcined lime waste not sold is based on one or more substitute data values calculated per the procedures described in §98.195(a).
AnnualCaOChemicalCompositionAnalysis	Indicate (Y/N) if a missing data procedure contained in §98.195(b) was followed to determine the annual calcium oxide content.
AnnualMgOChemicalCompositionAnalysis	Indicate (Y/N) if a missing data procedure contained in §98.195(b) was followed to determine the annual magnesium oxide content.
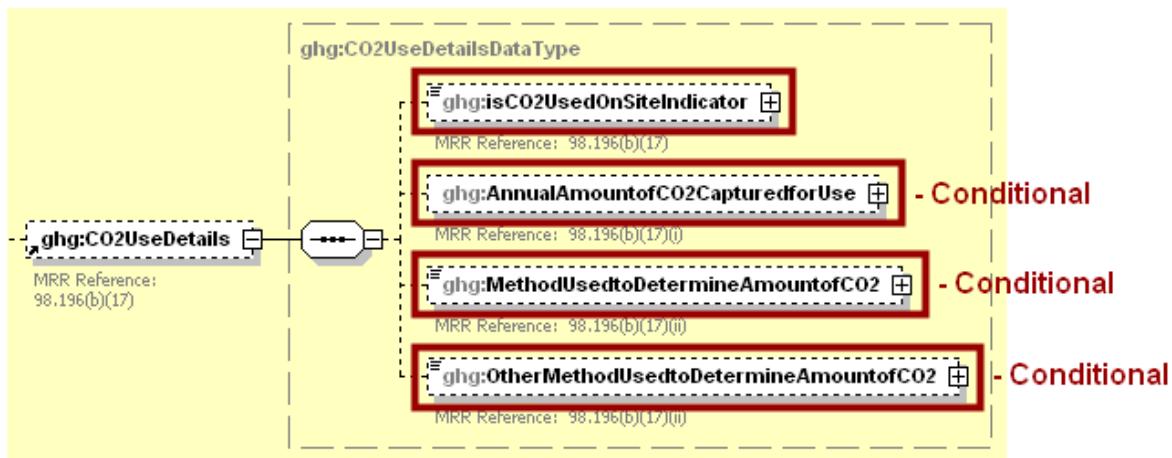
Figure 22
Sample XML Excerpt for Byproduct or Waste Not Sold Details

```xml
<ghg:ByProductNotSoldDetails>
        <ghg:ByProductQuantity>
                <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
        </ghg:ByProductQuantity>
        <ghg:AnnualCaOChemicalCompositionAnalysis>
                <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
        </ghg:AnnualCaOChemicalCompositionAnalysis>
        <ghg:AnnualMgOChemicalCompositionAnalysis>
                <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
        </ghg:AnnualMgOChemicalCompositionAnalysis>
</ghg:ByProductNotSoldDetails>
</ghg:ByProductDataDetails>
```

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

5.0 CO₂ Use Details

Figure 23
CO₂ Use Details Schema Diagram

The facility is required to provide an indication of whether CO₂ was used on-site during the reporting year [98.196(b)(17)].

If CO₂ was used on-site during the reporting year, the following information must also be provided:

- The annual quantity of CO₂ captured for use on-site in metric tons [98.196(b)(17)(i)].
- The method used to determine the amount of CO₂ used on-site [98.196(b)(17)(ii)].

Table 9
CO₂ Use Details XML Data Elements

Data Element Name	Description
CO2UseDetails	A collection of data elements containing details about CO₂ usage.
isCO2UsedOnSiteIndicator	An indication (Y/N) of whether CO₂ was used on-site.
AnnualAmountofCO2CapturedforUse	A collection of data elements containing information on the annual quantity of CO₂ captured for use on-site. Required if CO₂ was used on-site. Report the measured value and mass unit of measure only.
AnnualAmountofCO2CapturedforUse.massUOM	Metric Tons

Data Element Name	Description
MethodUsedtoDetermineAmountofCO2	The method used to determine the amount of CO_2 used on-site. Required if CO_2 was used on-site. See list of allowable values: Sales record Other method If the method you are reporting does not appear in the list, then report "Other method" for this data element and provide a description of it using the "OtherMethodUsedtoDetermineAmountofCO2" data element.
OtherMethodUsedtoDetermineAmountofCO2	Method used to determine the amount of CO_2 used on-site if "Other method" is reported for MethodUsedtoDetermineAmountofCO2.

Figure 24
Sample XML Excerpt for CO$_2$ Use Details

```
<ghg:CO2UseDetails>
        <ghg:isCO2UsedOnSiteIndicator>Y</ghg:isCO2UsedOnSiteIndicator>
        <ghg:AnnualAmountofCO2CapturedforUse massUOM="Metric Tons">
                <ghg:MeasureValue>333</ghg:MeasureValue>
        </ghg:AnnualAmountofCO2CapturedforUse>
        <ghg:MethodUsedtoDetermineAmountofCO2>Other
        method</ghg:MethodUsedtoDetermineAmountofCO2>
        <ghg:OtherMethodUsedtoDetermineAmountofCO2>Method
        A</ghg:OtherMethodUsedtoDetermineAmountofCO2>
    </ghg:CO2UseDetails>
  </ghg:NoCemsLimeUnitDetails>
</ghg:SubPartS>
```

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
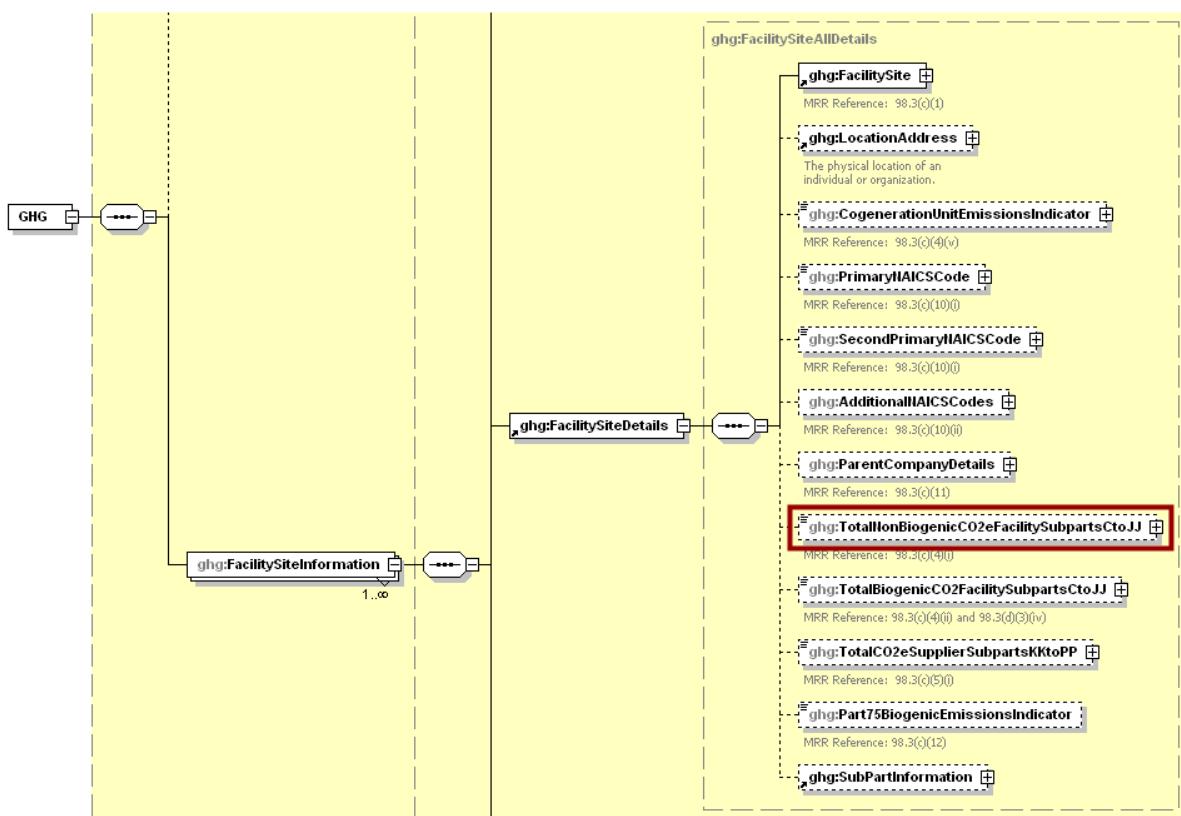
Each facility must report the following facility-level emission totals:
- Total CO_2 equivalent (CO_2e) emissions (excluding biogenic CO_2) aggregated across all direct emitter source categories (subparts C-HH) associated with the facility.
- Total biogenic CO_2 emissions aggregated across all direct emitter source categories (subparts C-HH) associated with the facility.

Each supplier must report the following supplier totals:
- Total CO_2e 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 25
Facility Level Roll-up Emissions Schema Diagram

For Subpart S, add the annual CO_2 process emissions from all kilns (the output of Equation S-4) in metric tons rounded to one decimal place to the total emissions for CO_2e (excluding biogenic CO_2).

Table 10
Facility Level Roll-up Emissions XML Data Elements

Data Element Name	Description
TotalNonBiogenicCO2eFacilitySubpartsCtoJJ	Add the total CO_2e value for Subpart S in metric tons to the total CO_2e emissions (excluding biogenic CO_2) aggregated across all source category subparts associated with the facility according to the guideline above.
TotalNonBiogenicCO2eFacilitySubpartsCtoJJ.massUOM	Metric Tons

Figure 26
Sample XML Excerpt for Facility Level Roll-up Emissions

```
<ghg:TotalNonBiogenicCO2eFacilitySubpartsCtoJJ massUOM="Metric
Tons">11111.0</ghg:TotalNonBiogenicCO2eFacilitySubpartsCtoJJ>
<ghg:TotalBiogenicCO2FacilitySubpartsCtoJJ massUOM="Metric
Tons">0</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
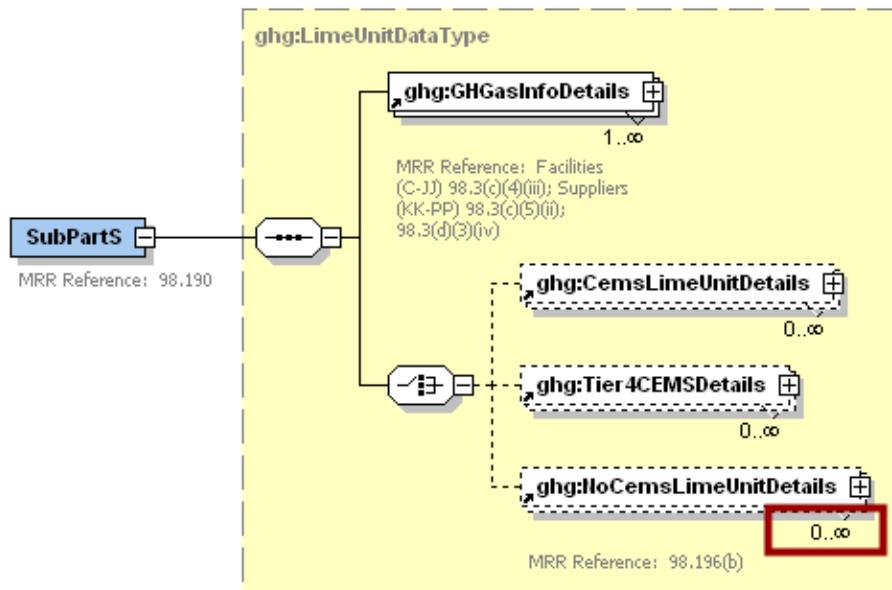
Legend for Tables

Blue = parent element
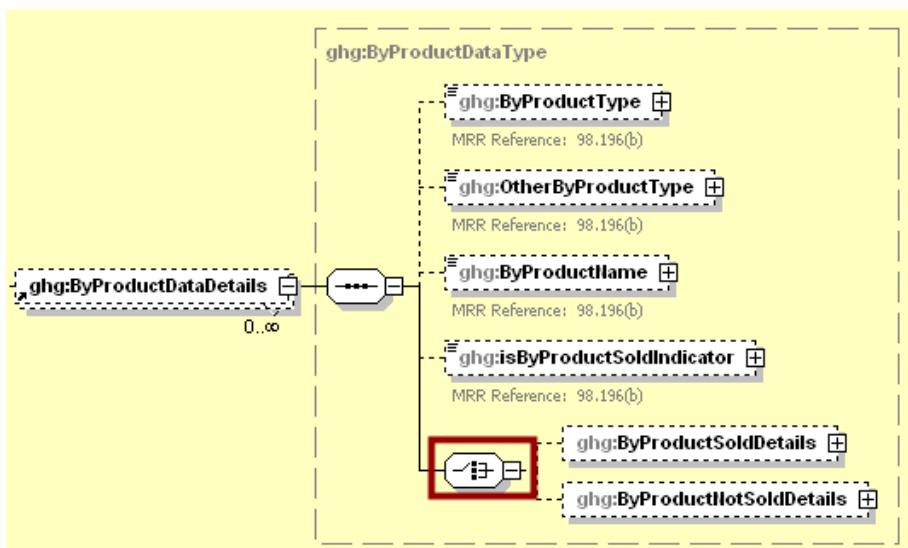
Legend for XML Schema

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 S
(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>523060</ghg:FacilitySiteIdentifier>
                <ghg:FacilitySiteName>Test Facility S</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:PrimaryNAICSCode>327410</ghg:PrimaryNAICSCode>
            <ghg:ParentCompanyDetails>
                <ghg:ParentCompany>
                    <ghg:ParentCompanyLegalName>Test</ghg:ParentCompanyLegalName>
                    <ghg:StreetAddress>1 Main St.</ghg:StreetAddress>
                    <ghg:City>Charlottesville</ghg:City>
                    <ghg:State>VA</ghg:State>
                    <ghg:Zip>22911</ghg:Zip>
                    <ghg:PercentOwnershipInterest>100</ghg:PercentOwnershipInterest>
                </ghg:ParentCompany>
            </ghg:ParentCompanyDetails>
            <ghg:TotalNonBiogenicCO2eFacilitySubpartsCtoJJ massUOM="Metric
Tons">11111.0</ghg:TotalNonBiogenicCO2eFacilitySubpartsCtoJJ>
            <ghg:TotalBiogenicCO2FacilitySubpartsCtoJJ massUOM="Metric
Tons">0</ghg:TotalBiogenicCO2FacilitySubpartsCtoJJ>
            <ghg:TotalCO2eSupplierSubpartsKKtoPP massUOM="Metric Tons">0</ghg:TotalCO2eSupplierSubpartsKKtoPP>
            <ghg:Part75BiogenicEmissionsIndicator>Biogenic carbon dioxide emissions from Part 75 methods excluded from
annual GHG emissions</ghg:Part75BiogenicEmissionsIndicator>
            <ghg:SubPartInformation>
                <ghg:SubPartS>
                    <ghg:GHGasInfoDetails>
                        <ghg:GHGasName>Carbon Dioxide</ghg:GHGasName>
                        <ghg:GHGasQuantity massUOM="Metric Tons">
                            <ghg:CalculatedValue>11111.0</ghg:CalculatedValue>
                        </ghg:GHGasQuantity>
                    </ghg:GHGasInfoDetails>
                    <ghg:NoCemsLimeUnitDetails>
                        <ghg:AnnualLimeProductionCapacity massUOM="Short Tons">
                            <ghg:MeasureValue>22222</ghg:MeasureValue>
                        </ghg:AnnualLimeProductionCapacity>
                        <ghg:LimeProductDataDetails>
                            <ghg:ProductType>High calcium lime</ghg:ProductType>
                            <ghg:ProductName>High Calcium Lime 1</ghg:ProductName>
                            <ghg:BeginYearInventory massUOM="Short Tons">5555</ghg:BeginYearInventory>
                            <ghg:EndYearInventory massUOM="Short Tons">2222</ghg:EndYearInventory>
                            <ghg:MonthlyLimeProductDetails>
                                <ghg:MonthName>January</ghg:MonthName>
                                <ghg:CaOChemicalCompositionAnalysis>
                                    <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
                                </ghg:CaOChemicalCompositionAnalysis>
                                <ghg:CaOMethodUsedtoDetermineChemicalComposition>ASTM C25-
06</ghg:CaOMethodUsedtoDetermineChemicalComposition>
                                <ghg:MgOChemicalCompositionAnalysis>
                                    <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
                                </ghg:MgOChemicalCompositionAnalysis>
                                <ghg:MgOMethodUsedtoDetermineChemicalComposition>NLA Protocol
method</ghg:MgOMethodUsedtoDetermineChemicalComposition>
                                <ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>Method
B</ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>
                                <ghg:MethodUsedtoDetermineAmountSold>Rail
scales</ghg:MethodUsedtoDetermineAmountSold>
                                <ghg:MassProduced>
```

```
                                        <ghg:IsSubstitutedIndicator>Y</ghg:IsSubstitutedIndicator>
                                </ghg:MassProduced>
                                <ghg:MethodUsedtoDetermineMassProduced>Weigh
                                feeders</ghg:MethodUsedtoDetermineMassProduced>
                        </ghg:MonthlyLimeProductDetails>
                        <ghg:MonthlyLimeProductDetails>
                                <ghg:MonthName>February</ghg:MonthName>
                                <ghg:CaOChemicalCompositionAnalysis>
                                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                                </ghg:CaOChemicalCompositionAnalysis>
                                <ghg:CaOMethodUsedtoDetermineChemicalComposition>ASTM C25-
                                06</ghg:CaOMethodUsedtoDetermineChemicalComposition>
                                <ghg:MgOChemicalCompositionAnalysis>
                                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                                </ghg:MgOChemicalCompositionAnalysis>
                                <ghg:MgOMethodUsedtoDetermineChemicalComposition>NLA Protocol
                                method</ghg:MgOMethodUsedtoDetermineChemicalComposition>
                                <ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>Method
                                B</ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>
                                <ghg:MethodUsedtoDetermineAmountSold>Rail
                                scales</ghg:MethodUsedtoDetermineAmountSold>
                                <ghg:MassProduced>
                                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                                </ghg:MassProduced>
                                <ghg:MethodUsedtoDetermineMassProduced>Weigh
                                feeders</ghg:MethodUsedtoDetermineMassProduced>
                        </ghg:MonthlyLimeProductDetails>
                        <ghg:MonthlyLimeProductDetails>
                                <ghg:MonthName>March</ghg:MonthName>
                                <ghg:CaOChemicalCompositionAnalysis>
                                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                                </ghg:CaOChemicalCompositionAnalysis>
                                <ghg:CaOMethodUsedtoDetermineChemicalComposition>ASTM C25-
                                06</ghg:CaOMethodUsedtoDetermineChemicalComposition>
                                <ghg:MgOChemicalCompositionAnalysis>
                                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                                </ghg:MgOChemicalCompositionAnalysis>
                                <ghg:MgOMethodUsedtoDetermineChemicalComposition>NLA Protocol
                                method</ghg:MgOMethodUsedtoDetermineChemicalComposition>
                                <ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>Method
                                B</ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>
                                <ghg:MethodUsedtoDetermineAmountSold>Rail
                                scales</ghg:MethodUsedtoDetermineAmountSold>
                                <ghg:MassProduced>
                                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                                </ghg:MassProduced>
                                <ghg:MethodUsedtoDetermineMassProduced>Weigh
                                feeders</ghg:MethodUsedtoDetermineMassProduced>
                        </ghg:MonthlyLimeProductDetails>
                        <ghg:MonthlyLimeProductDetails>
                                <ghg:MonthName>April</ghg:MonthName>
                                <ghg:CaOChemicalCompositionAnalysis>
                                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                                </ghg:CaOChemicalCompositionAnalysis>
                                <ghg:CaOMethodUsedtoDetermineChemicalComposition>ASTM C25-
                                06</ghg:CaOMethodUsedtoDetermineChemicalComposition>
                                <ghg:MgOChemicalCompositionAnalysis>
                                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                                </ghg:MgOChemicalCompositionAnalysis>
                                <ghg:MgOMethodUsedtoDetermineChemicalComposition>NLA Protocol
                                method</ghg:MgOMethodUsedtoDetermineChemicalComposition>
                                <ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>Method
                                B</ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>
                                <ghg:MethodUsedtoDetermineAmountSold>Rail
                                scales</ghg:MethodUsedtoDetermineAmountSold>
                                <ghg:MassProduced>
                                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                                </ghg:MassProduced>
                                <ghg:MethodUsedtoDetermineMassProduced>Weigh
                                feeders</ghg:MethodUsedtoDetermineMassProduced>
                        </ghg:MonthlyLimeProductDetails>
                        <ghg:MonthlyLimeProductDetails>
                                <ghg:MonthName>May</ghg:MonthName>
                                <ghg:CaOChemicalCompositionAnalysis>
                                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                                </ghg:CaOChemicalCompositionAnalysis>
                                <ghg:CaOMethodUsedtoDetermineChemicalComposition>ASTM C25-
                                06</ghg:CaOMethodUsedtoDetermineChemicalComposition>
                                <ghg:MgOChemicalCompositionAnalysis>
                                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                                </ghg:MgOChemicalCompositionAnalysis>
```

```
                <ghg:MgOMethodUsedtoDetermineChemicalComposition>NLA Protocol
                method</ghg:MgOMethodUsedtoDetermineChemicalComposition>
                <ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>Method
                B</ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>
                <ghg:MethodUsedtoDetermineAmountSold>Rail
                scales</ghg:MethodUsedtoDetermineAmountSold>
                <ghg:MassProduced>
                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                </ghg:MassProduced>
                <ghg:MethodUsedtoDetermineMassProduced>Weigh
                feeders</ghg:MethodUsedtoDetermineMassProduced>
        </ghg:MonthlyLimeProductDetails>
        <ghg:MonthlyLimeProductDetails>
                <ghg:MonthName>June</ghg:MonthName>
                <ghg:CaOChemicalCompositionAnalysis>
                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                </ghg:CaOChemicalCompositionAnalysis>
                <ghg:CaOMethodUsedtoDetermineChemicalComposition>ASTM C25-
                06</ghg:CaOMethodUsedtoDetermineChemicalComposition>
                <ghg:MgOChemicalCompositionAnalysis>
                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                </ghg:MgOChemicalCompositionAnalysis>
                <ghg:MgOMethodUsedtoDetermineChemicalComposition>NLA Protocol
                method</ghg:MgOMethodUsedtoDetermineChemicalComposition>
                <ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>Method
                B</ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>
                <ghg:MethodUsedtoDetermineAmountSold>Rail
                scales</ghg:MethodUsedtoDetermineAmountSold>
                <ghg:MassProduced>
                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                </ghg:MassProduced>
                <ghg:MethodUsedtoDetermineMassProduced>Weigh
                feeders</ghg:MethodUsedtoDetermineMassProduced>
        </ghg:MonthlyLimeProductDetails>
        <ghg:MonthlyLimeProductDetails>
                <ghg:MonthName>July</ghg:MonthName>
                <ghg:CaOChemicalCompositionAnalysis>
                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                </ghg:CaOChemicalCompositionAnalysis>
                <ghg:CaOMethodUsedtoDetermineChemicalComposition>ASTM C25-
                06</ghg:CaOMethodUsedtoDetermineChemicalComposition>
                <ghg:MgOChemicalCompositionAnalysis>
                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                </ghg:MgOChemicalCompositionAnalysis>
                <ghg:MgOMethodUsedtoDetermineChemicalComposition>NLA Protocol
                method</ghg:MgOMethodUsedtoDetermineChemicalComposition>
                <ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>Method
                B</ghg:OtherMgOMethodUsedtoDetermineChemicalComposition>
                <ghg:MethodUsedtoDetermineAmountSold>Rail
                scales</ghg:MethodUsedtoDetermineAmountSold>
                <ghg:MassProduced>
                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                </ghg:MassProduced>
                <ghg:MethodUsedtoDetermineMassProduced>Weigh
                feeders</ghg:MethodUsedtoDetermineMassProduced>
        </ghg:MonthlyLimeProductDetails>
        <ghg:MonthlyLimeProductDetails>
                <ghg:MonthName>August</ghg:MonthName>
                <ghg:CaOChemicalCompositionAnalysis>
                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                </ghg:CaOChemicalCompositionAnalysis>
                <ghg:CaOMethodUsedtoDetermineChemicalComposition>ASTM C25-
                06</ghg:CaOMethodUsedtoDetermineChemicalComposition>
                <ghg:MgOChemicalCompositionAnalysis>
                        <ghg:IsSubstitutedIndicator>N</ghg:IsSubstitutedIndicator>
                </ghg:MgOChemicalCompositionAnalysis>
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