# Greenhouse Gas Reporting Program

# XML Reporting Instructions
# for Subpart V –
# Nitric Acid Production

United States Environmental Protection Agency
Climate Change Division
Washington, DC

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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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# **Table of Contents**

**List of Tables**

# List of Figures

# List of XML Excerpts

## I.    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 XML schema defines expected data elements and attributes, allowable data formats for each data element, and the hierarchical structure and sequence in which data elements must appear in the XML file. 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 data element (GHG) and complex and simple data 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 data element is the base of the XML schema.

The schema's structure can be thought of as a family tree. 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.

The XML upload method may be used for reporting a facility or supplier's annual greenhouse gas (GHG) data; however, the following actions can only be performed using the e-GGRT web forms:

- User, facility and supplier registration
- Certificate of Representation and Notice of Delegation signing
- Facility representative and agent changes
- Facility and supplier address changes
- Notice of intent to not submit an annual GHG report

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

An XML submission must 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 Element Definitions table.

The e-GGRT XML Reporting Schema is available for download at the e-GGRT help website: http://www.ccdsupport.com/confluence/display/help/XML+Reporting+Instructions. The zip file contains:

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

**Table 1**
**Reporting Numbers**

| Number Format | Description |
|---|---|
| Rounding | <ul><li>$CO_2e$ 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.</li><li>$CH_4$ emissions data expressed in metric tons should be rounded to two decimal places.</li><li>$N_2O$ emissions data expressed in metric tons should be rounded to three decimal places.</li><li>Emissions data for all GHGs 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.).</li><li>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.</li><li>In the case of aggregation/roll-ups, those calculations should be performed on the rounded values.</li></ul> |
| Percentages | If a value must be reported as a percentage, then the number should be within the range of 0 to 100 (percent), e.g. 85.5% should be reported as 85.5. |
| Fractions | If a value must be reported as a decimal fraction, then the number should be within the range of 0 and 1, e.g., 1/4 should be reported as 0.25. Leading zeroes are optional. |

**Key XML Terms**

- 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. The schema also defines the set of rules to which the XML document must conform in order to be considered "valid".

- XML file: A file containing data organized into a structured document using XML markup.

- Data Element: An XML data element is used for storing and classifying data in an XML file. Opening and closing tags represent the start and end of a data element. An opening tag looks like <elementName>, while a closing tag has a slash that is placed before the element's name </elementName>. The following example shows how to report the facility's identification

number: <FacilitySiteIdentifier>23222</FacilitySiteIdentifier>. The information shaded in blue represents the data element's value.

If a data element does not contain a value, then a single empty tag name may be used. An empty tag has a slash placed after the element's name <FacilitySiteIdentifier/>. **Note:** If you do not intend to report a value for a particular data element, then it is recommended that you do not include the data element in the XML file.

- **Attribute:** An XML attribute contains additional information about a specific data element. An attribute for a data element is placed within the opening tag. The syntax for including an attribute in an element is <elementName attributeName="value">. For example, <TotalCH4CombustionEmissionsmassUOM="Metric Tons">.

- **Root/Parent/Child Element:** The schema's structure can be thought of as a family tree. At the top of the tree is some early ancestor and at the bottom of the tree are the latest children. With a tree structure you can see which children belong to which parents and many other relationships.

XML data elements are sometimes referenced in terms of how they relate to each other, e.g., parent-child relationships, within the schema's tree structure, also known are hierarchy. The top of the XML tree is considered the root – it is the parent to all data elements within the schema. In the example below, "GHG_Unit_Details" is the root, and just like in many other family trees, there is more than one item with the same name (e.g., "Unit_ID"). The easiest way to distinguish these items is by referencing them in terms of their parent-child relationships, e.g., NoCEMS /Unit_ID vs. CEMS/Unit_ID.

**Figure 1**
**Example of an XML Tree**
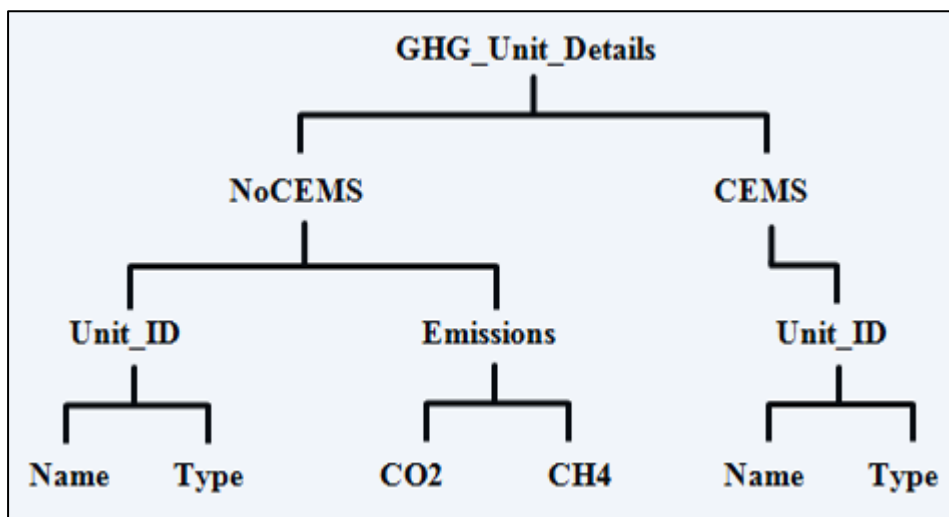
This document provides a step-by-step description of how to report emissions data using the XML schema.  Please note the following:

- **Non-applicable data elements should not be included in the facility's XML file.**  The schema contains many data elements, some of which may not be applicable to XML reporters in general or to a particular situation. If a data element is not referenced in the instructions (definition tables), then **do not** report or include it in the facility's XML file.

- **Data elements must be reported in a specific order.**  The figures and tables in this document depict the specific sequence in which data elements must be arranged in the facility's XML file in order to produce a well-formed XML report.

- **Enumerations are case sensitive.**  Many data elements have a defined set of allowable values, also known as enumerations.  Values for enumerations must be entered exactly as they are defined within the schema (including punctuation marks) in order to be accepted by schema validation.  See the definition tables for a complete list of enumerations.

- **Schema diagrams depict the hierarchy (or tree structure).**  The primary purpose of the schema diagrams is to indicate the sequence in which data elements must appear within the facility's XML file and to identify the data elements that are required (must be reported) and conditionally required (see last bullet).  Required data elements are boxed in red and conditionally required data elements are noted.

- **Definition tables provide details for required and conditionally required data elements.**  The tables are designed to provide unique instructions for reporting a given data element, including the list of enumerations and required units of measure, if defined.  As noted above, there are some data elements in the schema that are not applicable to XML reporters or to a particular situation. For example, the "OverrideIndicator" data element is used solely by e-GGRT to indicate that the web form reporter chose to override the system's calculated value with their own.  These non-applicable data elements **are not** included in the definition tables.  If a data element is not referenced in a definition table, then **do not** report or include it in the facility's XML file.

- **Commonly used data types are not depicted in the schema diagrams nor listed separately in the definition tables.**  The schema diagrams display almost every data element in the schema except those that are associated with the three most commonly occurring data types:

    o   Calculated Details
    o   Measurement Details
    o   Unit Identification Details

  Once defined, these data types (static collection of data elements) are then associated as children to every data element in the schema containing a measured or calculated value or unit details.  These child data elements do not appear in the diagrams and are not listed on separate rows in the definition tables in order reduce their redundancy.  They are however, referenced in the tables in the description of their parent data element.  See Figures 2-4 and Tables 2-4.

- **Some data elements are conditionally required.**  Data elements which are conditionally required are noted in the schema diagrams and the data element definitions tables.  If your facility meets the condition specified for the data element, then the data element is required and you must report it in the facility's XML file.  If your facility does not meet the condition specified for the data element, then **do not** include the data element in the facility's XML file.  If a parent element is not required, then **do not** include any of its child data elements in the facility's XML file.

**Figure 2**
**Calculated Details Data Type Schema Diagram**
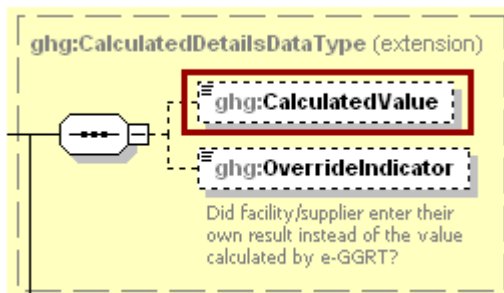


**Note:** Data elements boxed in red are required.

**Table 2**
**Calculated Details Data Element Definitions**

| Data Element Name | Description |
|---|---|
| **CalculatedDetailsDataType** | |
| CalculatedValue | Calculated value (decimal). |
| OverrideIndicator | **Note:** Do not include this data element in the facility's XML file because it only applies to web form reporters. It is a flag set by e-GGRT to indicate that the system-calculated value was overridden with the web form reporter's value. |

**Figure 3**
**Measurement Details Data Type Schema Diagram**
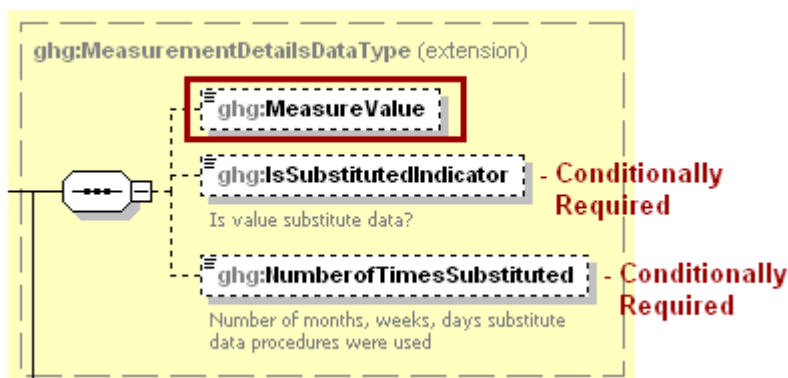


**Note:** Data elements boxed in red are required. Please see page 4 of this document for more information on conditionally required elements.

**Table 3**
**Measurement Details Data Element Definitions**

| Data Element Name | Description |
|---|---|
| **MeasurementDetailsDataType** | |
| MeasureValue | Measured value (decimal). |
| IsSubstitutedIndicator | An indication (Y/N) that the measure value contains substituted data.<br><br>**Note:** Do not include this data element in your XML file unless noted in the instructions for the particular measured value. |
| NumberofTimesSubstituted | The number (integer) of days, months, weeks or hours in the reporting year that missing data procedures were followed.<br><br>**Note:** Do not include this data element in your XML file unless noted in the instructions for the particular measured value. |

**Figure 4**
**Unit Identification Details Data Type Schema Diagram**
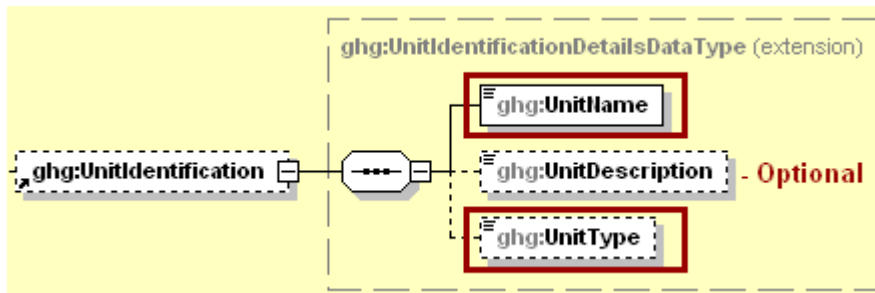


**Note:** Data elements boxed in red are required.

**Table 4**
**Unit Identification Details Data Element Definitions**

| Data Element Name | Description |
|---|---|
| **UnitIdentificationDetails** | |
| UnitName | A unique name (ID) for each unit so that the data for different units can be recorded, maintained and retrieved clearly. |
| UnitDescription | Optional brief description of the unit. |
| UnitType | The type of unit. The list of allowable values varies. For more information, see the instructions for the specific unit process to be reported. For example, if reporting Flare Gas details, the unit type would be "Flare". |

The XML symbol "1..∞" shown in Figure 5 means that the parent element is "unbounded" so that multiple instances of the parent element can be reported. XML Excerpt 1 shows an example of reporting multiple instances of a parent element.

**Figure 5**
**"Unbounded" Symbol in Schema Diagram**
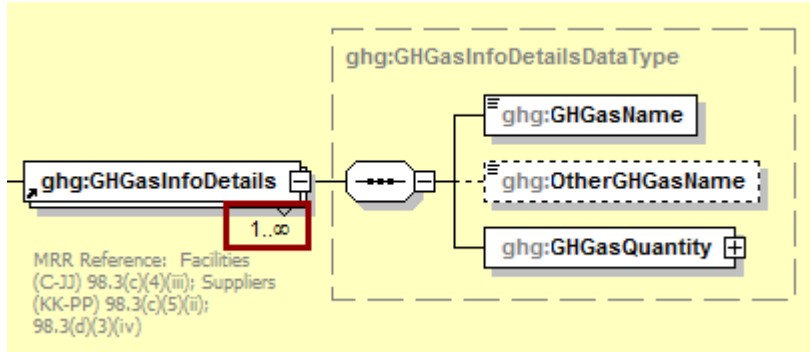


**XML Excerpt 1**
**Example for "Unbounded" Parent Element**

```
<ghg:GHGasInfoDetails>
        <ghg:GHGasName>Carbon Dioxide </ghg:GHGasName>
        <ghg:GHGasQuantity massUOM="Metric Tons">
                <ghg:CalculatedValue>384781.2</ghg:CalculatedValue>
        </ghg:GHGasQuantity></ghg:GHGasInfoDetails>
<ghg:GHGasInfoDetails>
<ghg:GHGasInfoDetails>
        <ghg:GHGasName>Methane</ghg:GHGasName>
        <ghg:GHGasQuantity massUOM="Metric Tons">
                <ghg:CalculatedValue>4004.12</ghg:CalculatedValue>
        </ghg:GHGasQuantity></ghg:GHGasInfoDetails>
<ghg:GHGasInfoDetails>
```

The XML symbol for a logical "Or" shown in Figure 6 means that **only one** of the data elements following the symbol can be reported for the current instance of the parent element.

**Figure 6**
**Logical "Or" Symbol in Schema Diagram**
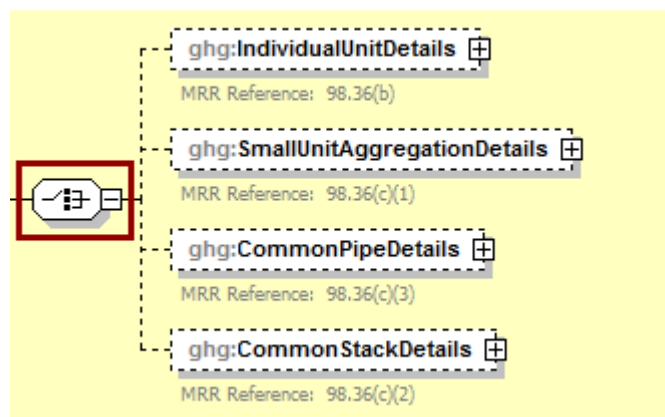
## II.    Summary of Changes

The following modifications were applied to the GHG XML schema in relation to Subpart V (GHG_SubPartV_v2.0.xsd).

**Table 5**
**Summary of Changes to the Schema for Subpart V**

| No. | Change Description |
|---|---|
| 1 | The unit of measure attribute (massUOM) for data element "ProductionAnnualNitricAcid" was removed.<br><br>(XPath = SubPartV/NitricAcidTrainUnit/ProductionAnnualNitricAcid) |
| 2 | Changed name of data element "SiteSpecificDetails" to "NitricAcidSiteSpecificDetails", restructured child data elements "NumberRepeatPerformanceTest" and "TestMethod", added new parent element "NitricAcidSiteSpecificPerformanceTestDetails" and added new data element "TestID".<br><br>(XPaths = SubPartV/NitricAcidTrainUnit/NitricAcidSiteSpecificDetails, SubPartV/NitricAcidTrainUnit/NitricAcidSiteSpecificDetails/NitricAcidSiteSpecificPerformanceTestDetails, SubPartV/NitricAcidTrainUnit/NitricAcidSiteSpecificDetails/NitricAcidSiteSpecificPerformanceTestDetails/TestID, SubPartV/NitricAcidTrainUnit/NitricAcidSiteSpecificDetails/NitricAcidSiteSpecificPerformanceTestDetails/TestMethod, SubPartV/NitricAcidTrainUnit/NitricAcidSiteSpecificDetails/NumberRepeatPerformanceTest) |

Document Changes:

3-15-2012 – Modified some of the emissions values within the XML excerpts to emphasize the rounding rules.  Added "ParentCompanyDetails" to sample XML document.

## III. Subpart V Overview

This document provides a step-by-step description of how to report data for Subpart V Nitric Acid Production and overall total Subpart V emissions for a facility using the XML schema.

**Figure 7**
**Subpart V Reporting Diagram**
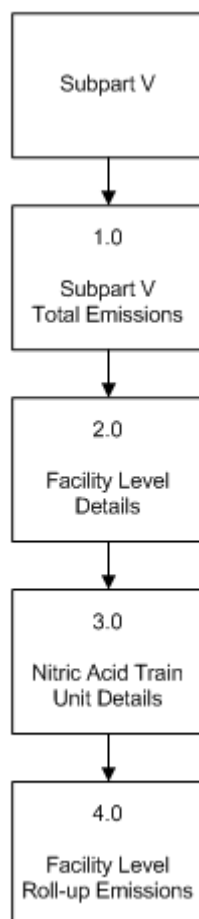


The XML schema includes the following areas for reporting for Subpart V, as displayed in the reporting diagram:

1.0 Subpart V Total Emissions: includes the total emissions of greenhouse gases required to be reported.

2.0 Facility Level Details: includes information on the annual nitric acid production and the number of nitric acid trains.

3.0 Nitric Acid Train Unit Details: includes information on the annual $N_2O$ emissions, nitric acid process type, abatement technology details, and $N_2O$ calculation method details for each nitric acid train unit.

4.0 Facility Level Roll-up Emissions: includes information on how to report total emissions for $CO_2e$ (excluding biogenic $CO_2$).

If your facility is subject to reporting under Subpart V (Nitric Acid Production), EPA recommends that you also consider the following source categories in your facility applicability determination: Subpart C (General Stationary Fuel Combustion) and Subpart E (Adipic Acid Production). These source categories are only provided as suggestions - additional Subparts may be relevant for a given facility/supplier and not all listed Subparts are relevant for all facilities/suppliers.

**Figure 8**
**Subpart V Schema Diagram**
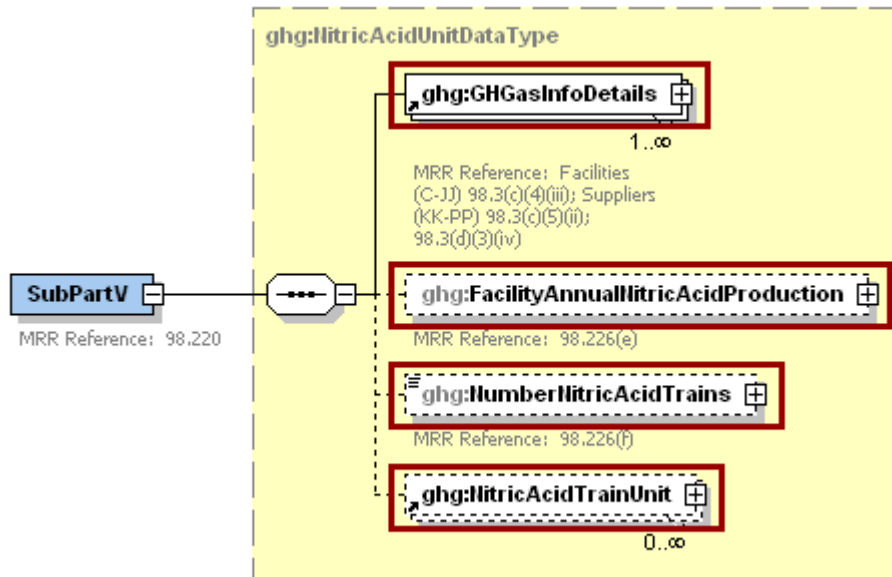


**Note:** Data elements boxed in red are required.

## 1.0   Subpart V 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 40 CFR 98 Mandatory Reporting of Greenhouse Gases reported under Subpart V, expressed in metric tons.

**Figure 9**
**Greenhouse Gas Information Details Schema Diagram**
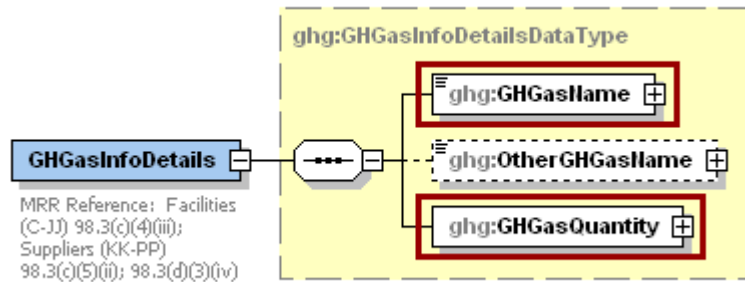


**Note:** Data elements boxed in red are required.

For Subpart V, report the total annual nitrous oxide (N$_2$O) mass emissions from all nitric acid trains in metric tons.

**Note:**  You must follow the rounding rules found in Table 1.

**Table 6**
**Greenhouse Gas Information Details Data Element Definitions**

| Data Element Name | Description |
|---|---|
| **GHGasInfoDetails** | **Parent Element:**  A collection of data elements containing the total annual emissions of each greenhouse gas (GHG) listed in Table A-1 of 40 CFR 98 Mandatory Reporting of Greenhouse Gases reported under this Subpart, expressed in metric tons. |
| GHGasName | Specify the name of the GHG:  Nitrous Oxide |
| GHGasQuantity | A collection of data elements that quantify the annual emissions from this facility category.  Report the value in the child data element **CalculatedValue**.  Set the units of measure to "Metric Tons" in the attribute **massUOM**. |

**XML Excerpt 2**
**Example for Greenhouse Gas Information Details**

```
<ghg:SubPartV>
    <ghg:GHGasInfoDetails>
        <ghg:GHGasName>Nitrous Oxide</ghg:GHGasName>
        <ghg:GHGasQuantity massUOM="Metric Tons">
            <ghg:CalculatedValue>1333.332</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   Facility Level Details

Subpart V requires that the facility report the following:

- The facility's total annual nitric acid production in short tons [98.226(e)].
- The total number of nitric acid trains [98.226(f)].

**Figure 10**
**Facility Level Details Schema Diagram**
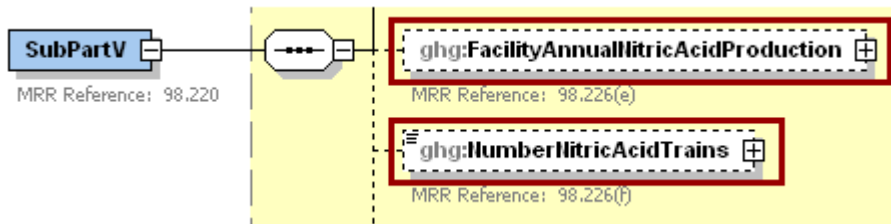


**Note:** Data elements boxed in red are required.

**Table 7**
**Facility Level Details Data Element Definitions**

| Data Element Name | Description |
| --- | --- |
| FacilityAnnualNitricAcidProduction | A collection of data elements with information on the annual nitric acid production from the nitric acid facility (short tons, 100 percent acid basis).  Report the value in the child data element **MeasureValue**.  Set the units of measure to "Short Tons" in the attribute **massUOM**. |
| NumberNitricAcidTrains | The total number of nitric acid trains. |

**XML Excerpt 3**
**Example for Facility Level Details**

```
<ghg:FacilityAnnualNitricAcidProduction massUOM="Short Tons">
  <ghg:MeasureValue>55555.67789</ghg:MeasureValue>
</ghg:FacilityAnnualNitricAcidProduction>
<ghg:NumberNitricAcidTrains>2</ghg:NumberNitricAcidTrains>
```

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

## 3.0   Nitric Acid Train Unit Details

**Figure 11**
**Nitric Acid Train Unit Details Schema Diagram**
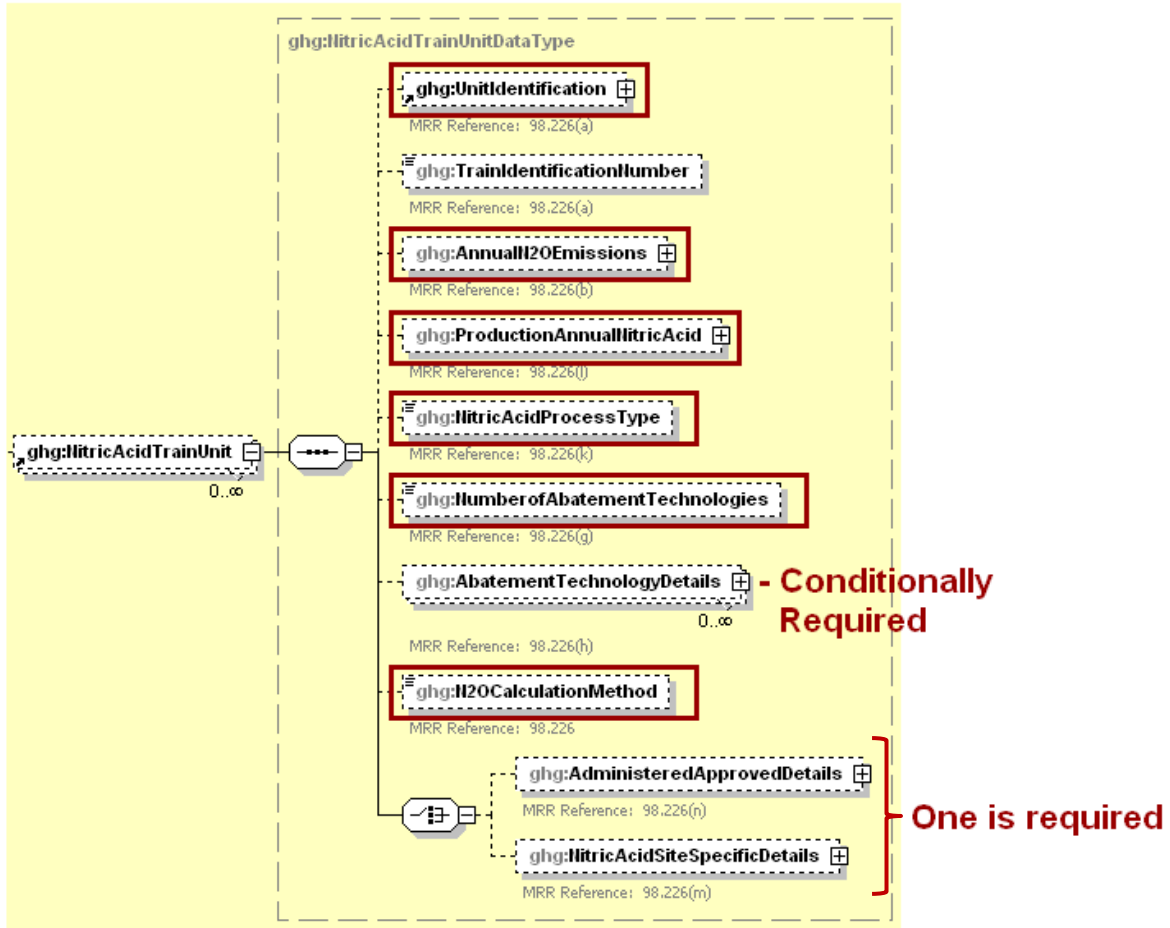


**Note:** Data elements boxed in red are required. Please see page 4 of this document
for more information on conditionally required elements.

**Figure 12**
**Abatement Technology Details Schema Diagram**
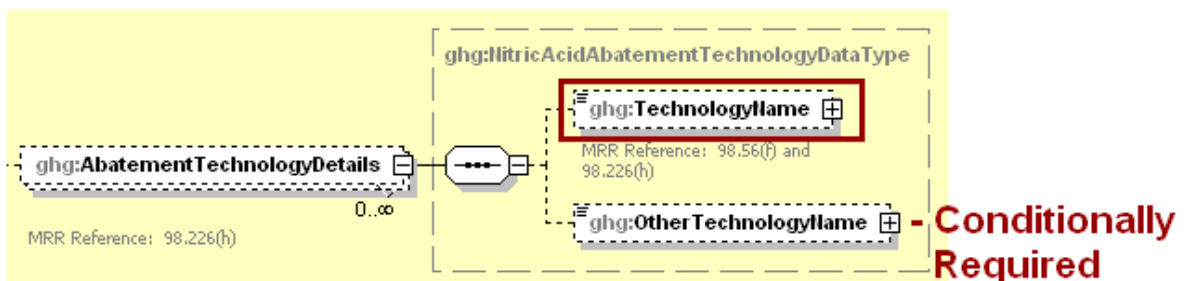


**Note:** Data elements boxed in red are required. Please see page 4 of this document
for more information on conditionally required elements.

For each nitric acid train, the facility must provide the following:

- A unique identifier for each nitric acid train, an optional description and the unit type: "Nitric acid train" [98.226(a)].
- The total annual $N_2O$ emissions [98.226(b)].
- The number of months a missing data procedure was used to determine a monthly quantity of nitric acid production used in the determination of the annual nitric acid production quantity [98.226(l)].
- The type of nitric acid process used by the train from the following list [98.226(k)]:
  - low pressure (<100 kilopascal)
  - medium pressure (400-800 kilopascal)
  - high pressure (800-1400 kilopascal)
  - dual pressure
- The total number of different abatement technologies used [98.226(g)].
- **Conditionally Required:** For each nitric acid train which exhausts to an $N_2O$ abatement technology after the test point, each abatement technology type used from the following list [98.226(h)]:
  - nonselective catalytic reduction (NSCR)
  - other
- An indication if $N_2O$ emissions were estimated using an Administrator-approved alternative method or site-specific emission factor method.

**Table 8**
**Nitric Acid Train Unit Details Data Element Definitions**

| Data Element Name | Description |
|---|---|
| **NitricAcidTrainUnit** | **Parent Element:** A collection of data elements containing details about each nitric acid train unit. |
| UnitIdentification | A collection of data elements containing the identity of the each nitric acid train unit. Report a unique unit name (ID) in the child data element **UnitName**, an optional brief description in the child data element **UnitDescription** and the type of unit in the child data element **UnitType**: "Nitric acid train" |
| AnnualN2OEmissions | A collection of data elements containing information on the annual process $N_2O$ emissions from the specified nitric acid train. Report the value in the child data element **MeasureValue**. Set the units of measure to "Metric Tons" in the attribute **massUOM**. |
| ProductionAnnualNitricAcid | Report the number of months in the reporting year that missing data procedures were followed to measure nitric acid production for the specified nitric acid train in the child data element **NumberofTimesSubstituted**. |

| Data Element Name | Description |
|---|---|
| NitricAcidProcessType | The type of nitric acid process used by the specified nitric acid train. See list of allowable values:<br><br>low pressure (&lt;100 kilopascal)<br>medium pressure (400-800 kilopascal)<br>high pressure (800-1400 kilopascal)<br>dual pressure |
| NumberofAbatementTechnologies | The number of different $N_2O$ abatement technologies used for the specified nitric acid train. |
| **AbatementTechnologyDetails** | **Parent Element (Conditionally Required):** A collection of data elements containing details about each abatement technology used for the specified nitric acid train, if applicable. |
| TechnologyName | The name of an abatement technology type used for the specified nitric acid train. See list of allowable values:<br><br>nonselective catalytic reduction (NSCR)<br>other<br><br>**Note:** Do not report values "selective catalytic reduction (SCR)" and "extended absorption" . They remain in the schema; however, these are not default options for 2011 going forward (nor in resubmittals for 2010). |
| OtherTechnologyName | **Conditionally Required:** The name of the abatement technology type used for the specified nitric acid train if "other" is reported for TechnologyName. |
| N2OCalculationMethod | The type of method used by the facility to calculate $N_2O$ emissions for the specified nitric acid train. See list of allowable values:<br><br>Administrator approved alternative method<br>Site-specific emission factor method |

## XML Excerpt 4
## Example for Nitric Acid Train Unit Details

```
<ghg:NitricAcidTrainUnit>
      <ghg:UnitIdentification>
        <ghg:UnitName>001</ghg:UnitName>
        <ghg:UnitDescription>Admin-Approved-001</ghg:UnitDescription>
        <ghg:UnitType>Nitric acid train</ghg:UnitType>
      </ghg:UnitIdentification>
      <ghg:AnnualN2OEmissions massUOM="Metric Tons">
        <ghg:MeasureValue>444.444</ghg:MeasureValue>
      </ghg:AnnualN2OEmissions>
      <ghg:ProductionAnnualNitricAcid>
        <ghg:NumberofTimesSubstituted>3</ghg:NumberofTimesSubstituted>
      </ghg:ProductionAnnualNitricAcid>
      <ghg:NitricAcidProcessType>low pressure (&lt;100 kilopascal)</ghg:NitricAcidProcessType>
      <ghg:NumberofAbatementTechnologies>2</ghg:NumberofAbatementTechnologies>
      <ghg:AbatementTechnologyDetails>
        <ghg:TechnologyName>nonselective catalytic reduction (NSCR)</ghg:TechnologyName>
      </ghg:AbatementTechnologyDetails>
      <ghg:N2OCalculationMethod>Administrator approved alternative method</ghg:N2OCalculationMethod>
```

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

**Figure 13**
**Administrator-Approved Alternative Method Details Schema Diagram**
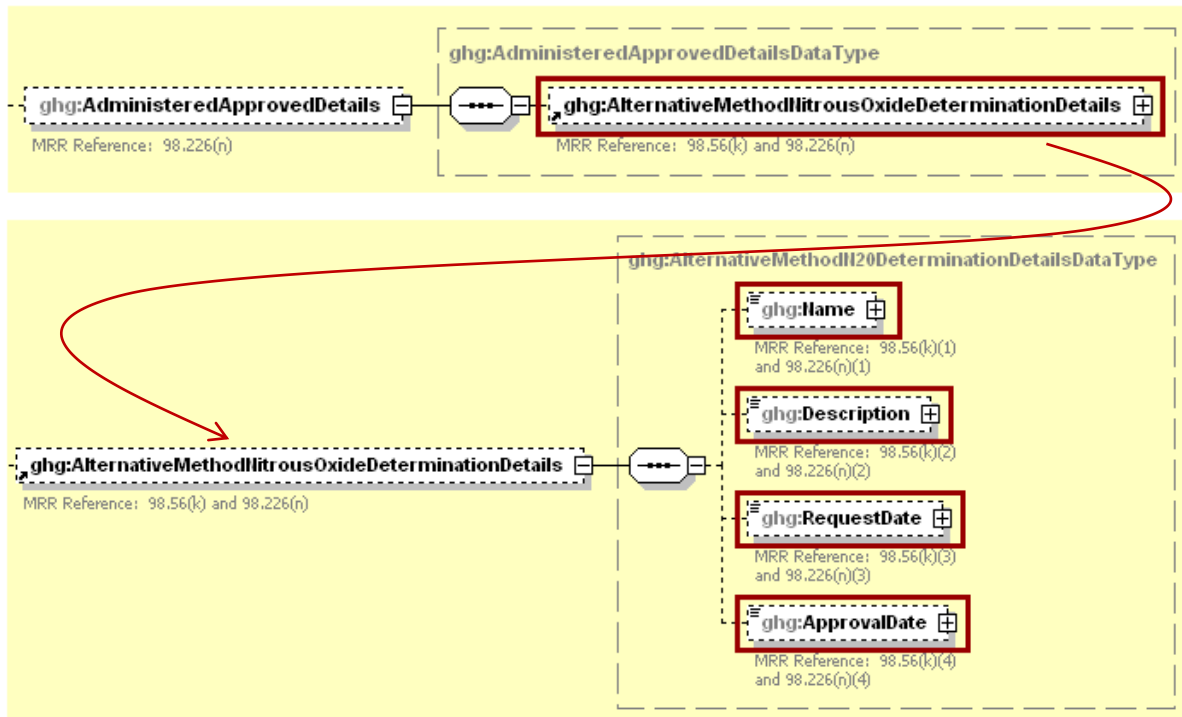


**Note:** Data elements boxed in red are required.

**Conditionally Required:** For each nitric acid train for which N$_2$O emissions were estimated using an Administrator-approved alternative method, provide the following:

- The name of the alternate method [98.226(n)(1)].
- A description of the alternate method [98.226(n)(2)].
- The request date [98.226(n)(3)].
- The approval date [98.226(n)(4)].

**Table 9**
**Administrator-Approved Alternative Method Details Data Element Definitions**

| Data Element Name | Description |
|---|---|
| **AdministeredApprovedDetails** | **Parent Element (Conditionally Required):** A collection of data elements containing details about the administrator-approved alternative method. Report if you requested Administrator approval for an alternative method of determining N$_2$O emissions under §98.223(a)(2) and reported "Administrator approved alternative method" for N2OCalculationMethod. |
| **AlternativeMethodNitrousOxideDeterminationDetails** | **Parent Element:** A collection of data elements containing details about the administrator-approved alternative method used by the facility to estimate N$_2$O emissions for the specified nitric acid train. |

| Data Element Name | Description |
|---|---|
| Name | The name of the alternate method. |
| Description | A description of the alternate method. |
| RequestDate | The date the facility requested administrator approval for the alternative method of determining $N_2O$ concentration (YYYY-MM-DD). |
| ApprovalDate | The date that the approval to use the alternate method was granted (YYYY-MM-DD). |

**XML Excerpt 5**
**Example for Administrator-Approved Alternative Method Details**

```
<ghg:AdministeredApprovedDetails>
        <ghg:AlternativeMethodNitrousOxideDeterminationDetails>
            <ghg:Name>Alternate Method A</ghg:Name>
            <ghg:Description>descriptionof Alternate Method A</ghg:Description>
            <ghg:RequestDate>2012-02-02</ghg:RequestDate>
            <ghg:ApprovalDate>2012-02-03</ghg:ApprovalDate>
        </ghg:AlternativeMethodNitrousOxideDeterminationDetails>
</ghg:AdministeredApprovedDetails>
```

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

**Figure 14**
**Site-specific Emissions Factor Details Schema Diagram**
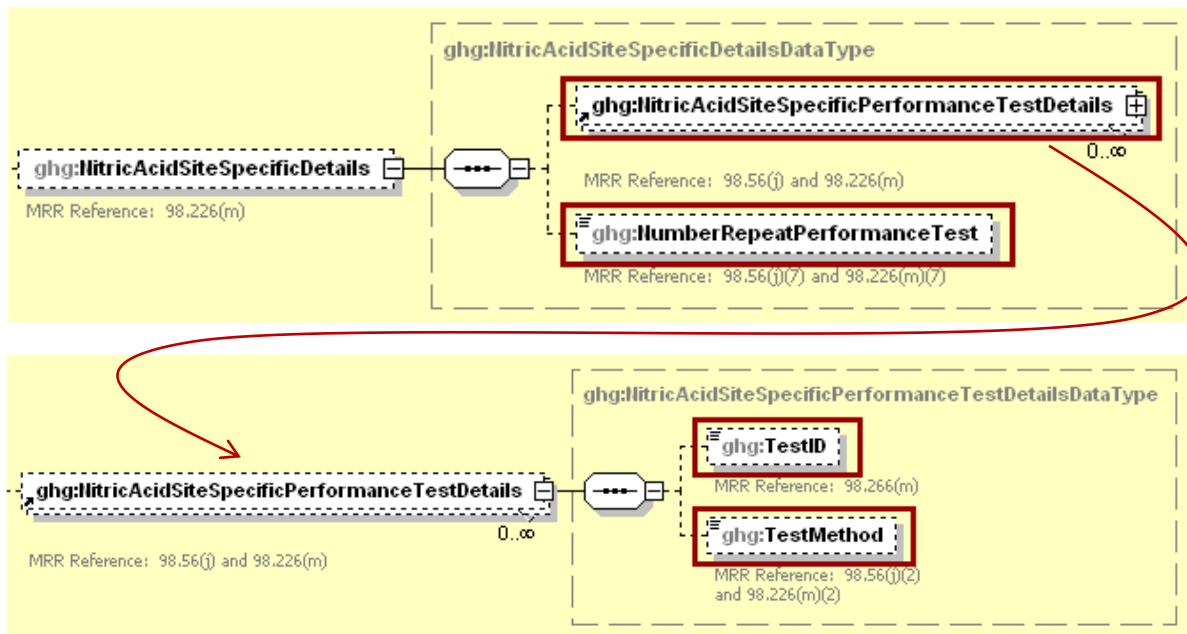


**Note:** Data elements boxed in red are required.

**Conditionally Required:** For each nitric acid train for which a performance test was conducted and a site-specific emissions factor was calculated according to §98.223(a)(1), provide the following information:

- A unique identifier/description for each performance test conducted [98.226(m)].
- The number of times in the reporting year that a performance test had to be repeated [98.226(m)(7)].
- For each performance test, provide the test method used for the performance test from the following list [98.226(m)(2)]:
  - ASTM D6348-03
  - EPA Method 320

**Table 10**
**Site-specific Emissions Factor Details Data Element Definitions**

| Data Element Name | Description |
|---|---|
| NitricAcidSiteSpecificDetails | **Parent Element (Conditionally Required):** A collection of data elements containing details about the calculation of a site-specific emissions factor. Report if you conducted a performance test and calculated a site-specific emissions factor according to §98.223(a)(1) and reported "Site-specific emission factor method" for N2OCalculationMethod. |
| NitricAcidSiteSpecificPerformanceTestDetails | **Parent Element:** A collection of data elements containing details about each performance test conducted. Report each test separately. |
| TestID | A unique identifier/description for each performance test conducted. |
| TestMethod | The specific test method used or the test identified. See list of allowable values:<br><br>ASTM D6348-03<br>EPA Method 320 |
| NumberRepeatPerformanceTest | The number of times in the reporting year that a specific performance test had to be repeated. |

**XML Excerpt 6**
**Example for Site-specific Emissions Factor Details**

```
<ghg:NitricAcidSiteSpecificDetails>
  <ghg:NitricAcidSiteSpecificPerformanceTestDetails>
    <ghg:TestID>Test 01</ghg:TestID>
    <ghg:TestMethod>ASTM D6348-03</ghg:TestMethod>
  </ghg:NitricAcidSiteSpecificPerformanceTestDetails>
  <ghg:NitricAcidSiteSpecificPerformanceTestDetails>
    <ghg:TestID>Test 02</ghg:TestID>
    <ghg:TestMethod>EPA Method 320</ghg:TestMethod>
  </ghg:NitricAcidSiteSpecificPerformanceTestDetails>
    <ghg:NumberRepeatPerformanceTest>6</ghg:NumberRepeatPerformanceTest>
  </ghg:NitricAcidSiteSpecificDetails>
</ghg:NitricAcidTrainUnit>
```

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

## 4.0   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).  **Note:**  Do not include Subpart LL and MM totals in this data element as these values are not being collected in e-GGRT.

**Figure 15**
**Facility Level Roll-up Emissions Schema Diagram**
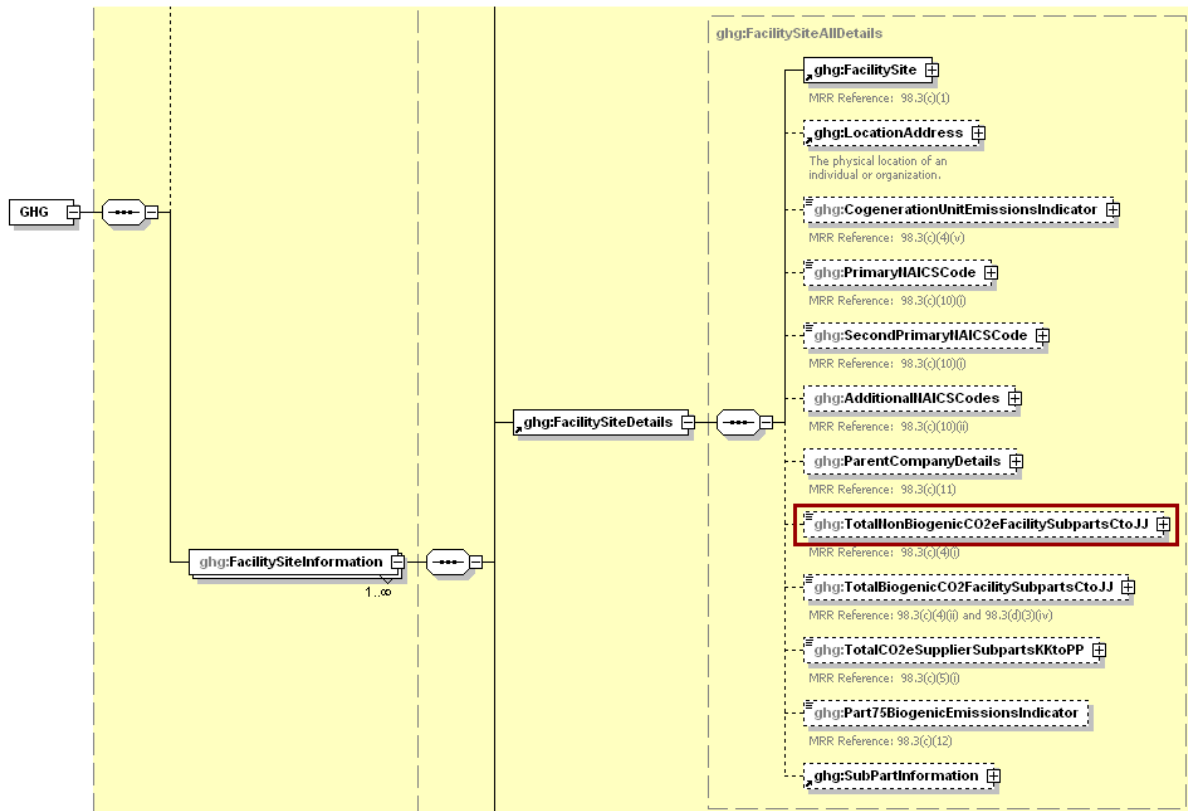


**Note:** Data elements boxed in red are required.

For Subpart V, multiply the total annual $N_2O$ mass emissions (in metric tons) by the Global Warming Potential for $N_2O$ (310) and add the resulting value to the total $CO_2$ equivalent ($CO_2e$) emissions (excluding biogenic $CO_2$) aggregated across all source categories Subparts associated with the facility

**Note:**  You must follow the rounding rules found in Table 1.

**Table 11**
**Facility Level Roll-up Emissions Data Element Definitions**

| Data Element Name | Description |
|---|---|
| TotalNonBiogenicCO2eFacilitySubpartsCtoJJ | Add the total $CO_2e$ value for Subpart V 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.  Set the units of measure to "Metric Tons" in the attribute **massUOM**. |

**XML Excerpt 7**
**Example for Facility Level Roll-up Emissions**

```
<ghg:TotalNonBiogenicCO2eFacilitySubpartsCtoJJ massUOM="Metric Tons">413332.1</ghg:TotalNonBiogenicCO2eFacilitySubpartsCtoJJ>
```

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

## IV.   Appendix A:  Sample XML Document for Subpart V

*(Note: Data values do not reflect an actual facility's emissions.  Additional sample XML files for Subpart V are posted on the e-GGRT help site.)*

```
<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>2011</ghg:ReportingYear>
           <ghg:FacilitySiteDetails>
             <ghg:FacilitySite>
               <ghg:FacilitySiteIdentifier>523937</ghg:FacilitySiteIdentifier>
               <ghg:FacilitySiteName>Test Facility 8</ghg:FacilitySiteName>
             </ghg:FacilitySite>
             <ghg:LocationAddress>
               <ghg:LocationAddressText>1 Main St.</ghg:LocationAddressText>
               <ghg:LocalityName>City</ghg:LocalityName>
               <ghg:StateIdentity>
                 <ghg:StateCode>AL</ghg:StateCode>
               </ghg:StateIdentity>
               <ghg:AddressPostalCode>22911</ghg:AddressPostalCode>
             </ghg:LocationAddress>
             <ghg:CogenerationUnitEmissionsIndicator>N</ghg:CogenerationUnitEmissionsIndicator>
             <ghg:PrimaryNAICSCode>325120</ghg:PrimaryNAICSCode>
             <ghg:ParentCompanyDetails>
                 <ghg:ParentCompany>
                       <ghg:ParentCompanyLegalName>Soda Ash Corporation</ghg:ParentCompanyLegalName>
                       <ghg:StreetAddress>108 Hillcrest Street</ghg:StreetAddress>
                       <ghg:City>Sandpoint</ghg:City>
                       <ghg:State>ID</ghg:State>
                       <ghg:Zip>83864</ghg:Zip>
                       <ghg:PercentOwnershipInterest>100.0</ghg:PercentOwnershipInterest>
                 </ghg:ParentCompany>
             </ghg:ParentCompanyDetails>
             <ghg:TotalNonBiogenicCO2eFacilitySubpartsCtoJJ massUOM="Metric Tons">413332.9</ghg:TotalNonBiogenicCO2eFacilitySubpartsCtoJJ>
             <ghg:TotalBiogenicCO2FacilitySubpartsCtoJJ massUOM="Metric Tons">0</ghg:TotalBiogenicCO2FacilitySubpartsCtoJJ>
             <ghg:TotalCO2eSupplierSubpartsKKtoPP massUOM="Metric Tons">0</ghg:TotalCO2eSupplierSubpartsKKtoPP>
             <ghg:SubPartInformation>
               <ghg:SubPartV>
                 <ghg:GHGasInfoDetails>
                       <ghg:GHGasName>Nitrous Oxide</ghg:GHGasName>
                       <ghg:GHGasQuantity massUOM="Metric Tons">
                         <ghg:CalculatedValue>1333.123</ghg:CalculatedValue>
                       </ghg:GHGasQuantity>
                 </ghg:GHGasInfoDetails>
                 <ghg:FacilityAnnualNitricAcidProduction massUOM="Short Tons">
                       <ghg:MeasureValue>55555.67867</ghg:MeasureValue>
                 </ghg:FacilityAnnualNitricAcidProduction>
```

```
<ghg:NumberNitricAcidTrains>2</ghg:NumberNitricAcidTrains>
<ghg:NitricAcidTrainUnit>
    <ghg:UnitIdentification>
        <ghg:UnitName>001</ghg:UnitName>
        <ghg:UnitDescription>Admin-Approved-001</ghg:UnitDescription>
        <ghg:UnitType>Nitric acid train</ghg:UnitType>
    </ghg:UnitIdentification>
    <ghg:AnnualN2OEmissions massUOM="Metric Tons">
        <ghg:MeasureValue>444.444</ghg:MeasureValue>
    </ghg:AnnualN2OEmissions>
    <ghg:ProductionAnnualNitricAcid>
        <ghg:NumberofTimesSubstituted>3</ghg:NumberofTimesSubstituted>
    </ghg:ProductionAnnualNitricAcid>
    <ghg:NitricAcidProcessType>low pressure (&lt;100 kilopascal)</ghg:NitricAcidProcessType>
    <ghg:NumberofAbatementTechnologies>1</ghg:NumberofAbatementTechnologies>
    <ghg:AbatementTechnologyDetails>
        <ghg:TechnologyName>nonselective catalytic reduction (NSCR)</ghg:TechnologyName>
    </ghg:AbatementTechnologyDetails>
    <ghg:N2OCalculationMethod>Administrator approved alternative method</ghg:N2OCalculationMethod>
    <ghg:AdministeredApprovedDetails>
        <ghg:AlternativeMethodNitrousOxideDeterminationDetails>
            <ghg:Name>Alternate Method A</ghg:Name>
            <ghg:Description>descriptionof Alternate Method A</ghg:Description>
            <ghg:RequestDate>2012-02-02</ghg:RequestDate>
            <ghg:ApprovalDate>2012-02-03</ghg:ApprovalDate>
        </ghg:AlternativeMethodNitrousOxideDeterminationDetails>
    </ghg:AdministeredApprovedDetails>
</ghg:NitricAcidTrainUnit>
<ghg:NitricAcidTrainUnit>
    <ghg:UnitIdentification>
        <ghg:UnitName>002</ghg:UnitName>
        <ghg:UnitDescription>Site-specific EF- 002</ghg:UnitDescription>
        <ghg:UnitType>Nitric acid train</ghg:UnitType>
    </ghg:UnitIdentification>
    <ghg:AnnualN2OEmissions massUOM="Metric Tons">
        <ghg:MeasureValue>828.888</ghg:MeasureValue>
    </ghg:AnnualN2OEmissions>
    <ghg:ProductionAnnualNitricAcid>
        <ghg:NumberofTimesSubstituted>4</ghg:NumberofTimesSubstituted>
    </ghg:ProductionAnnualNitricAcid>
    <ghg:NitricAcidProcessType>medium pressure (400-800 kilopascal)</ghg:NitricAcidProcessType>
    <ghg:NumberofAbatementTechnologies>1</ghg:NumberofAbatementTechnologies>
    <ghg:AbatementTechnologyDetails>
        <ghg:TechnologyName>other</ghg:TechnologyName>
        <ghg:OtherTechnologyName>Some other abatement technology</ghg:OtherTechnologyName>
    </ghg:AbatementTechnologyDetails>
    <ghg:N2OCalculationMethod>Site-specific emission factor method</ghg:N2OCalculationMethod>
    <ghg:NitricAcidSiteSpecificDetails>
        <ghg:NitricAcidSiteSpecificPerformanceTestDetails>
            <ghg:TestID>Test 01</ghg:TestID>
            <ghg:TestMethod>ASTM D6348-03</ghg:TestMethod>
        </ghg:NitricAcidSiteSpecificPerformanceTestDetails>
        <ghg:NitricAcidSiteSpecificPerformanceTestDetails>
```

```
                    <ghg:TestID>Test 02</ghg:TestID>
                    <ghg:TestMethod>EPA Method 320</ghg:TestMethod>
                </ghg:NitricAcidSiteSpecificPerformanceTestDetails>
                    <ghg:NumberRepeatPerformanceTest>6</ghg:NumberRepeatPerformanceTest>
                </ghg:NitricAcidSiteSpecificDetails>
            </ghg:NitricAcidTrainUnit>
          </ghg:SubPartV>
        </ghg:SubPartInformation>
      </ghg:FacilitySiteDetails>
      <ghg:CalculationMethodologyChangesDescription>none</ghg:CalculationMethodologyChangesDescription>
      <ghg:BestAvailableMonitoringMethodsUsed>n/a</ghg:BestAvailableMonitoringMethodsUsed>
      <ghg:StartDate>2011-01-01</ghg:StartDate>
      <ghg:EndDate>2011-12-31</ghg:EndDate>
      <ghg:DateTimeReportGenerated>2012-02-10T15:42:26</ghg:DateTimeReportGenerated>
    </ghg:FacilitySiteInformation>
  </ghg:GHG>
```