# DRAFT
# Introduction to the Consolidated Emissions Reporting Schema (CERS)

June 11, 2008

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# DRAFT
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## 1.0 Goals and Objectives

In March 2008, several offices within EPA, encouraged by stakeholders involved in programs associated with air emissions reporting, initiated the development of the Consolidated Emissions Reporting Schema (CERS). The objective of this effort was to develop a common air emissions reporting schema that could be used for sharing and reporting air pollution emissions data in the U.S. In particular, the schema is designed to support the reporting of criteria air pollutants and air toxic emissions, as well as greenhouse gases. The resulting benefits include greater efficiencies for States and industry reporters submitting to multiple programs, clearer and consistent requirements across these programs, and the capability to utilize agency infrastructure, including the Exchange Network, to share these data among network participants.

### 1.1 Data Flows Supported by the Schema

EPA has designed the schema to support the transfer or reporting of data to and from a variety of users. Each of the following known data flows are currently being tested and will be explored for this purpose in pilot or prototype projects. The viability of the CERS for other data flows, such as the mandatory reporting of greenhouse gases (GHGs) to EPA, will be examined when the content and scope of the data flow have been defined in proposed regulations. Please note that the schema focuses on submission or exchange of data. It does not explicitly support *publication* of the data from a data repository in such a way as to facilitate public consumption or understanding of the data.

#### 1.1.1 National Emissions Inventory

The CERS will be used to support the submission of criteria pollutant emissions, air toxic emissions, and greenhouse gases from stationary, mobile, and other air pollution sources by State, Local, and Tribal agencies to OAQPS beginning with the 2008 National Emissions Inventory (NEI) year. This CERS replaces the Emissions Inventory System (EIS) schema published as a draft for comment in January 2008. The NEI-EIS Implementation Plan (NEIP) will be revised to reflect the CERS format and released in October 2008.

#### 1.1.2 Corporate Entities Reporting Voluntary GHGs

The CERS will be used by corporations or other organizations participating in The Climate Registry (TCR) to batch report GHG emissions from facilities and related activities. This functionality will be available in 2009.

#### 1.1.3 Facility Reporting to State and Tribal Agencies

The CERS may also be used by State or Tribal agencies as the format in which to receive batch emissions reports. It will be used by facilities on Air Force bases to meet their reporting requirements for the State in which the base is located. The California Air Resources Board

(CARB) is evaluating the use of the CERS for batch reporting of GHGs under their mandatory program (AB-32) beginning in 2009.

### 1.1.4 Data Sharing between State/Tribal and Non-EPA Air Pollution or Climate Information Systems (RPOs, TCR, State Inventories)

The CERS will be used to exchange data between agencies or other organizations collecting related emissions data on behalf of State consortiums, such as CARB and TCR, State/Tribal agencies, and the Western Climate Initiative (WCI).

### 1.1.5 Data Sharing between EPA and State Emissions Trading Programs

Beginning in 2009, the CERS will be used to provide data from the Clean Air Markets Division (CAMD) database to State emissions trading programs using Part 75 emissions data for compliance purposes, including the Regional Greenhouse Gas Initiative (RGGI) trading platform and the New York Acid Deposition Allowance Tracking System (NADATS).

**Terminology for Understanding the CERS**

**Component:** A group of XML elements, also known as a complex type. Components may be nested. All components are comprised of XML simple types or other complex types.

**Data Element:** The smallest discrete unit of information that can be reported and still have meaning between systems. Examples of data elements are identifiers, State codes and stack height measure.

**Data Flow:** The processing rules that govern the exchange of data from one source to another.

**XML:** An eXtensible Markup Language used for creating 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

## 1.2 Primary Reporting Structures of the CERS

The CERS is intended to support many different data flows and therefore is comprised of a series of components which may be used for one program and not for others. There are three primary structures that define components for reporting data in the CERS. These are facility-based reporting, location-based reporting, and event-based reporting. Within these three primary structures there are many shared components and data elements.

For domain diagram for these three primary reporting structures, see section 2: *Draft Consolidated Emissions Reporting Schema (CERS) Domain Diagrams* for further information on

the schema model. For details on the complex types and data elements please see Appendix A: *Draft Consolidated Emissions Reporting Schema.*

### 1.2.1 Facility Site Reporting

Facility reporting assumes that emissions of any type (criteria air pollutants, toxic air pollutants, and greenhouse gases) would be associated with and reported for units and activities at a discrete site. Most data flows include facility reporting, as this is the most frequently used reporting method.

For the reporting of facility information, the CERS supports facility information and identifiers, corporate ownership, responsible persons, geographic information, and information about units, release points, air pollution controls, and applicable regulations. Facilities have either processes or activities that produce air pollution. These are linked directly to the emissions values and supporting information for a specified time period.

### 1.2.2 Location Reporting

Location reporting allows a reporter to aggregate and report emissions for a specific type of activity or process for a given geographic area.

The CERS supports geographic boundary identification (including country, State, Tribal, county, census block and tract or geospatial area), as well as areas that are excluded from that location. Emissions occur during a specific time period from activities that occur at that location. Control reduction approaches may be reported for these processes and operating details indicate the seasonal variations. Supplemental parameters allow the reporting of additional input data used to calculate emissions.

Location reporting is the primary method by which State, Local and Tribal agencies will report "nonpoint" and mobile emissions for the NEI.

### 1.2.3 Event Reporting

Event reporting allows the reporting of emissions that are caused by sporadic or unplanned activities, such as a forest fire or agricultural and prescribed burns. An event is defined by its geographic or spatial characteristics and the timeframe in which it occurs.

An event may occur over multiple days and may spread to adjoining geographic locations. The CERS provides for the reporting of either geographic coordinates or geospatial information. An event may be comprised of several smaller events which may merge into one larger complex event. This often is the case when multiple discrete fires become a larger fire.

Event reporting will be used by State, Local and Tribal agencies to report events to the NEI.

## 1.3 Ongoing Implementation Issues

### 1.3.1 Governance

As an initiator of the development effort resulting in the CERS, the U.S. EPA, Office of Air Quality Planning and Standards (OAQPS) is serving as the governance organization for the CERS. OAQPS is responsible for the development of a detailed schema management plan for the CERS. As part of the governance effort, OAQPS will establish and support:

- Compliance with U.S. EPA review procedures associated with information technology initiatives (such as XML schema requirements and the Exchange Network);
- Development of a general guidance document to assist programs in developing rules and procedures for using the schema in the context of their specific data flow and program needs. This document will include examples of data flow scenarios;
- A process to evaluate and respond to requests for modifications to the CERS;
- A process to define those reporting code tables which should be shared across all data flows and to evaluate and respond to requests for additions to the shared reporting code tables;
- Establish and execute a communications plan (including a webpage) to provide a centralized source of information about the schema and its content and uses; and
- Advise programs on the effective or optimum use of the CERS.

EPA's goals for governance include ensuring adherence to data and relevant information technology standards, conforming to best practices, and promoting the use of the schema for air programs within the U.S.

### 1.3.2 Program Responsibilities for Usage Guidance

The CERS is designed with a minimum level of business rules and requirements embedded in the schema itself. This approach allows each program using the schema to tailor the use of the schema to its own requirements. It is expected that the "rules" for accepting and receiving data will vary within data flows. It is the responsibility of each program to develop, implement, and distribute its own reporting requirements to potential reporters or organizations sharing data.

The guidance for each program will include the following elements:

- **Program-specific Reporting Codes.** These reporting codes will be defined by each program to support their specific business rules, implementing specific reporting protocols or regulations. It is possible that a program could define its own set of reporting codes for this purpose. It is also possible that a program could limit the set of shared reporting code tables. However, each program cannot add new reporting codes to the shared reporting code tables; this will be done through the process established by

EPA. To encourage consistency, EPA may provide a repository for program-specific reporting codes which could be adopted or reused for other systems or data flows.

- **Allowable Components and Data Elements.** Each data flow will use specific components and data elements. It is expected, for example, that most GHG-related data flows will not use the Event components or Location components that support specific requirements relating to the National Emissions Inventory. A program may reject data from specific data elements, if these data are not appropriate to its data flow.

- **Quality Assurance Rules.** Each program using the CERS will develop and implement quality assurance rules defining acceptable data for its use.

- **Quality Assurance Process.** To enforce these rules, each program is responsible for implementing its own quality assurance process, including error codes and messages, data quality categories, feedback mechanisms and correction policies. It is expected that the QA approach will vary considerably based on the type of data flow and related requirements.

- **Identifiers.** The schema contains specific components for reporting or sharing identifiers used by one system submitting or sharing data with another. This capability assumes that programs using the CERS establish rules defining what identifiers are expected. For example, an entity reporter to TCR could be required to provide the TCR facility and activity identifiers; a State reporter to the EIS could be required to provide either the State identifier (with appropriate system code) or the EIS identifier.

### 1.4 Next Steps

The release of the CERS is on an immediate and fast track. With this time objective in mind, the CERS workgroup has identified the following tasks, deliverables, and schedule.

- **Comments and Review on June 2008 Draft CERS.** OAQPS is requesting comments on the June 2008 CERS from all interested parties and stakeholders. Please submit these comments through email by July 30, 2008 to Martin Husk at Husk.Martin@epamail.epa.gov.

- **EPA Technical Reviews.** The CERS will begin technical review with the Network Technical Group (NTG) in August 2008.

- **Final CERS.** The final CERS is expected to be posted to the Exchange Network Repository and the Exchange Network Registry by October 2008. This date is subject to the CERS and the supporting flow documentation being approved for acceptable use on the Exchange Network.

- **General Guidance.** OAQPS will publish draft general guidance on the use of the CERS by October 2008. The general guidance will be developed and reviewed by the CERS workgroup, including representatives of the States, non-EPA GHG programs such as TCR, and EPA offices using the schema.

- **Schema Management Plan.** Following the release of the final CERS, OAQPS will develop a draft and final schema management plan to document the processes to amend and manage the schema and general guidance.

- **CERS Communication Plan.** Following the release of the final CERS, OAQPS will develop a draft communication plan to ensure effective use of the schema.

- **Other Implementation Efforts.** In addition to the CERS workgroup and OAQPS governance efforts above, OAQPS will be working simultaneously to develop EIS specific reporting instructions based on the CERS. The reporting instructions will be published in October 2008 as the final 2008 NEIP. By the end of 2008, TCR intends to publish guidance and initiate a pilot program to use the CERS for two data flows: one from entity or facility reporters to submit emissions reports and one between CARB's mandatory GHG reporting platform and TCR.

  Figure 1 summarizes these key dates and deliverables.

**Figure 1**
**Key CERS Schedule Dates**

| Task or Deliverable | Dates |
|---|---|
| CERS Open for Comment | June 13, 2008 - July 30, 2008 |
| NTG Technical Review | August - October 2008 |
| Final CERS | October 2008 |
| NEIP Guidance | October 2008 |
| CERS Management Plan | 1st Quarter, 2009 |
| CERS Communication Plan | 1st Quarter, 2009 |
| TCR Guidance | December 2008 |

## 2.0 Introduction to the Domain Diagrams

This document introduces the CERS domain model by using a set of domain view diagrams representing the three primary reporting structures in the CERS. These diagrams show the relationships among the major complex types (or components) in the schema.

Figures 3 through 5 each represent a view of the three primary reporting structures in the CERS; facility-based reporting, location-based reporting, and event-based reporting. Each view shows a series of complex types shown as boxes and their relationship to other components using directional lines. The number of occurrences possible for a relationship is shown next to each relationship line as a multiplicity indicator.

Figure 2 demonstrates how to read the varying types of relationships in the domain model.

**Figure 2**
**Domain Model Multiplicity**

| Indicator | Explanation |
|---|---|
| 0..1 | The relationship may exist, but only once. |
| 1 | The relationship must exist, and can only exist once. |
| 0..* | The relationship does not have to exist, but can exist more than once. |
| 1..* | The relationship must exist, and can exist more than once. |

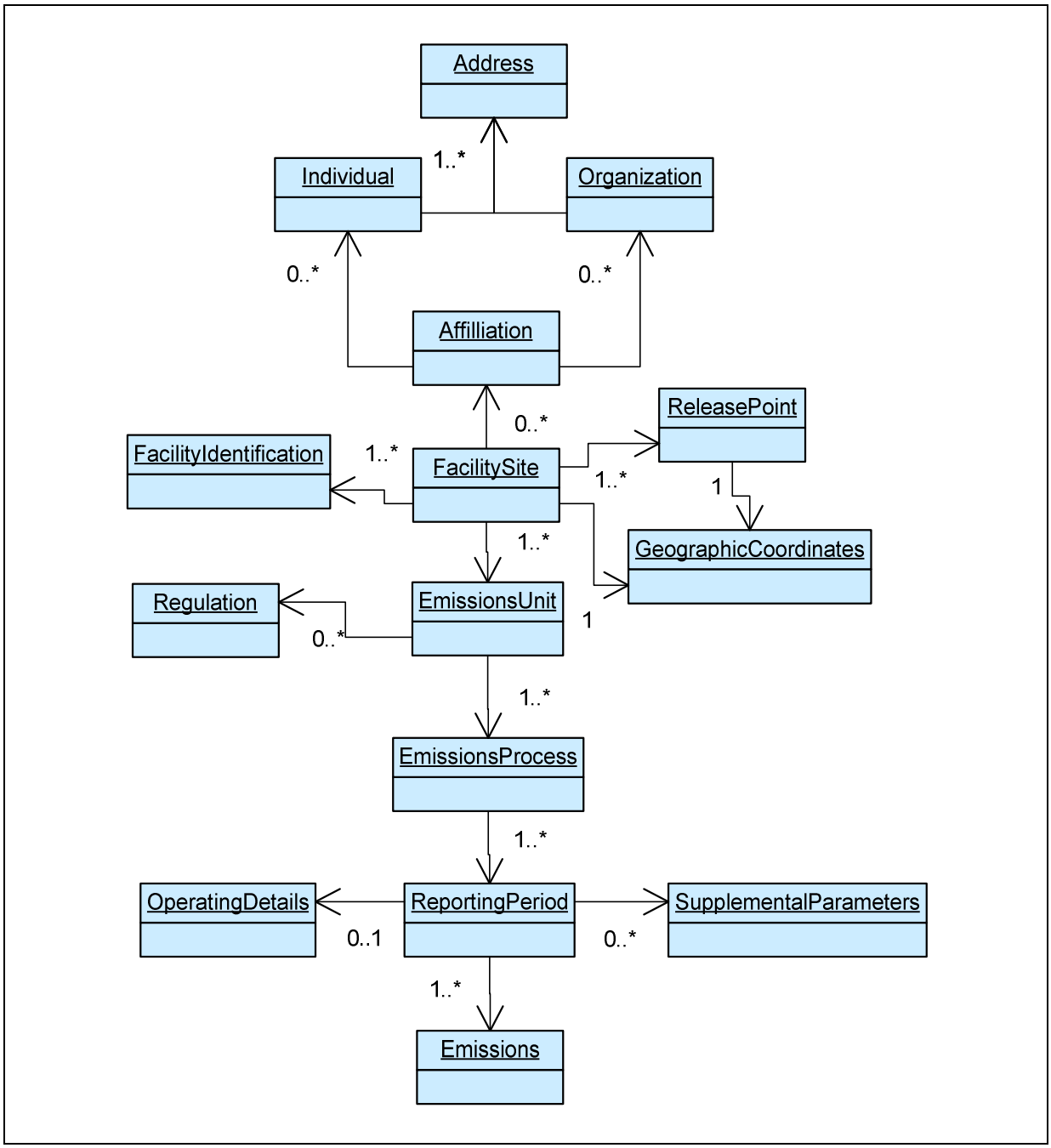
## 2.1 The Domain Models

### 2.1.1 Facility Site Primary Structure

For the reporting of facility information, the CERS supports facility information and identifiers, corporate ownership, responsible persons, geographic information, and information about units, release points, air pollution controls, and applicable regulations. Facilities have either processes or activities that produce air pollution. These are linked directly to the emissions values and supporting information for a specified time period.

Figure 3 shows some of the principle complex types used in reporting facility inventory and emissions.

**Figure 3**
**Facility Site Primary Structure**




### 2.1.2 Location Primary Structure

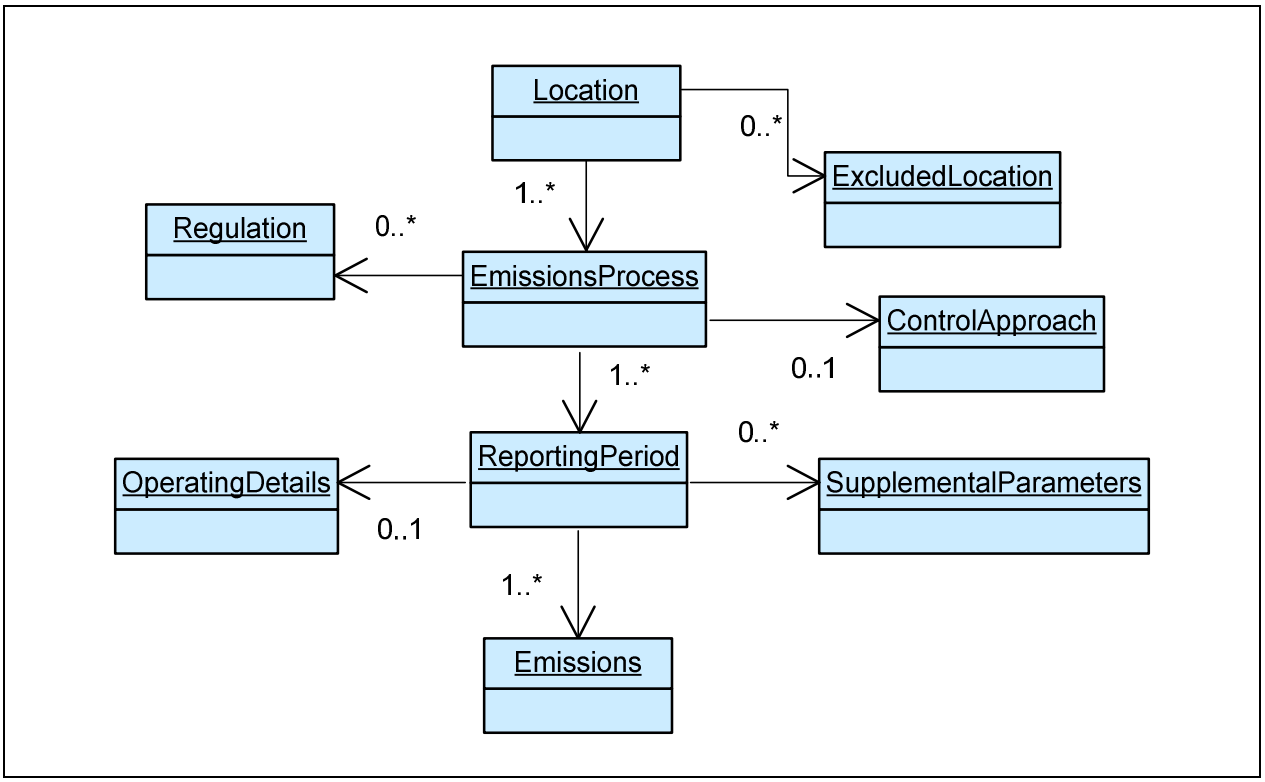
Location reporting allows a reporter to aggregate and report emissions for a specific type of activity or process for a given geographic area.

The CERS supports geographic boundary identification (including country, State, Tribal, county, census block and track, or geospatial area), as well as areas that are excluded from that

location. Emissions occur during a specific time period from activities that occur at that location. Control reduction approaches may be reported for these processes and operating details indicate the seasonal variations. Supplemental parameters allow the reporting of additional input data used to calculate emissions.

Figure 4 shows the typical complex types used to report emissions for a location.

**Figure 4**
**Location Primary Structure**

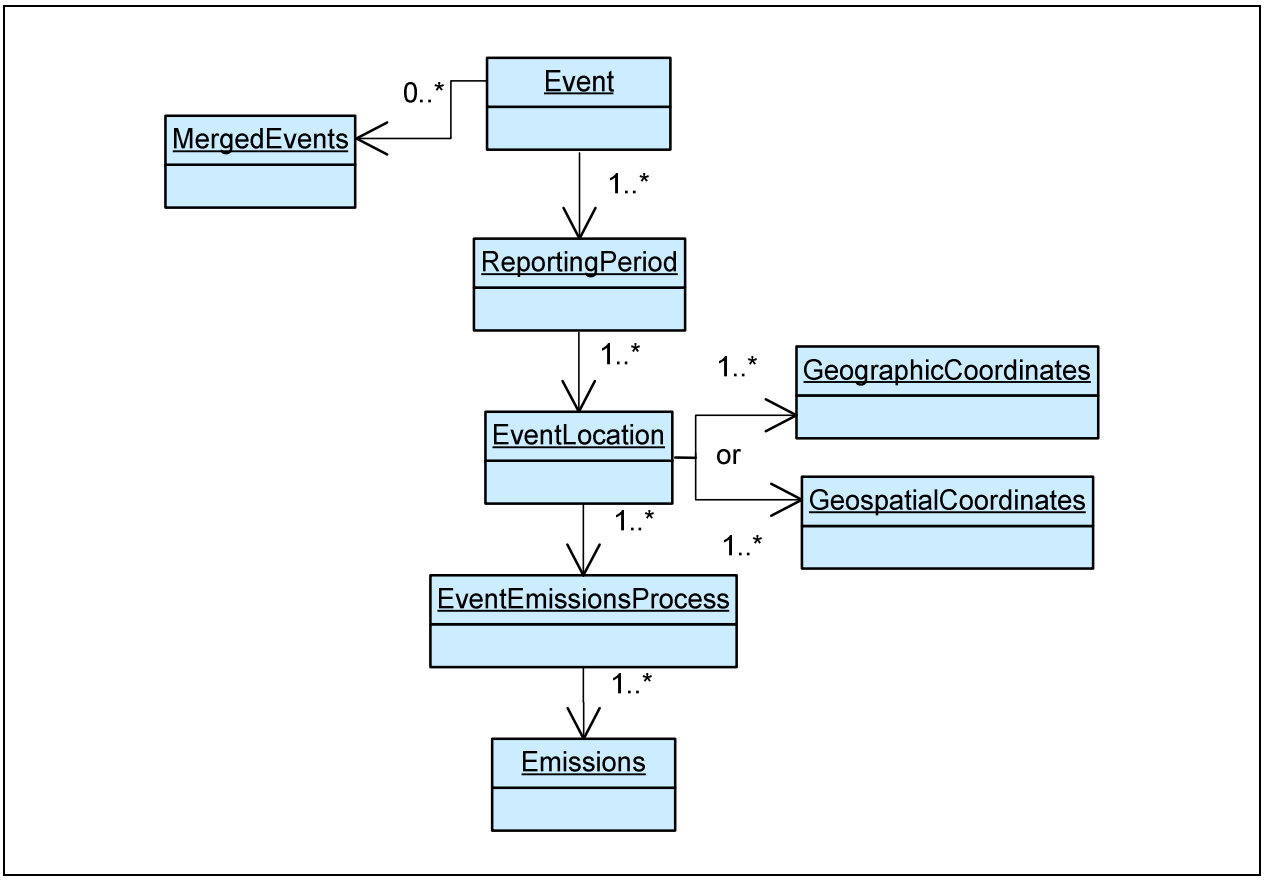



### 2.1.3 Event Primary Structure

Event reporting allows the reporting of emissions that are caused by sporadic or unplanned activities, such as a forest fire or agricultural and prescribed burns. An event is defined by its geographic or spatial characteristics and the timeframe in which it occurs.

Figure 5 shows the components used to report emissions using the Event components.

**Figure 5**
**Event Primary Structure**




## 2.2 Additional Information on the CERS

The domain models demonstrate the association between the complex types, which resemble a relational model, similar to how a database model is represented. While the CERS is a hierarchical structure, it is possible to see a partial representation of the relational aspects of the domain model in the schema complex types.

For detailed information on the definition of the complex types and the data elements, see the Appendix A: *Draft Consolidated Reporting Schema, June 11, 2008* for further information.

# Appendix A

# DRAFT
# Consolidated Emissions Reporting Schema

June 11, 2008

**Exchange Header**

| XML Tag Name | Required | Type | Definition |
|---|---|---|---|
| Author | Yes | xsd:string | First and last name of the individual that generated the XML document. Used for reference only. |
| Organization | Yes | xsd:string | Name of the company, environmental agency, or individual generating the XML document. Used for reference only. |
| Title | Yes | xsd:string | Type of submission. Provides reference to the data flow. |
| CreationTime | Yes | xsd:datetime | Date and time when the document was generated. Must be in valid xsd:datetime format. |
| Comment | No | xsd:string | Comment on the contents of submission file. |
| DataService | No | xsd:string | Not used. |
| ContactInfo | Yes | xsd:string | Name, mailing address, city, state, zip code, telephone number, and address of person who may be contacted with questions regarding the submission. |
| Notification | No | xsd:string | The location where return messages are sent in instances of invoking a service. Currently not used by EIS. |
| Sensitivity | No | xsd:string | Level of document sensitivity. Not used by EIS. |
| Property | No | xsd:string | Name value pairings used to describe specific properties of the document. Currently not used by EIS. |

**Root Elements**

| XML Tag Name | Type | Definition |
|---|---|---|
| **Root** | *complex* | Identification information regarding the submission file. |
| **UserIdentifier** | xsd:string | Unique identifier of a user record. This identifier is assigned by the receiving system and is unique for each user. Permissions for updating data are granted based on the user identification. |
| **ProgramSystemCode** | xsd:string | The code that represents the information management system which has responsibility for the data in a linked or interrelated information management system. |
| **EmissionsYear** | xsd:string | The year of the submitted emissions. |
| Model | xsd:string | The name of the model or the conversion tool used for generating the emissions data. |
| ModelVersion | xsd:string | The version of the model or conversion tool. |
| EmissionsCreationDate | xsd:string | Date that the data being submitted were created, or the date when the model generating the data was run. |
| SubmittalComment | xsd:string | Any comments regarding the file submission. |
| ***FacilitySite*** | complex | Information on the facility site. |
| ***Location*** | *complex* | Information on the location of an emissions source. |
| ***Event*** | *complex* | Information about the event identification, fire name, reporting land manager, the classification of the fire, and the duration of the overall event. |
| ***QualityFinding*** | *complex* | The quality or verification findings for a facility site, emissions unit activity, or a reporting period for which emissions have been reported. |

**Facility Site Complex Type**

| XML Tag Name | Type | Definition |
|---|---|---|
| **FacilitySite** | *complex* | Information on the facility site, including the facility category code, company name, NAICS code, and operating status. |
| NAICSCode | xsd:string | North American Industry Classification System code assigned to facility site based on economic profile. |
| FacilityCategoryCode | xsd:string | Code that identifies the Clean Air Act Stationary Source designation. Examples include major, minor, and synthetic minor. |
| FacilitySiteName | xsd:string | The name assigned to the facility site by the reporter. |
| FacilitySiteDescription | xsd:string | Supplemental text that describes the facility site. |
| FacilitySiteStatusCode | xsd:string | Code that identifies the operating status of the facility site. |
| FacilitySiteStatusCodeYear | xsd:string | The year in which the operating status became applicable. |
| SectorTypeCode | xsd:string | The associated primary sector for a facility site. Examples include: General Stationary Combustion, Energy Production, Cement Production, Waste Water Treatment, etc. |
| FacilitySiteComment | xsd:string | Any comments regarding the facility site. |
| ***FacilityIdentification*** | *complex* | Identifiers by which the facility site is known or has been known, and the system associated with the identifier. |
| ***AlternativeFacilityName*** | *complex* | Identifies any alternative names by which the facility site is known or has been known. |
| ***EmissionsUnit*** | *complex* | Identifies an activity, stationary article, process equipment, machine, or other device from which air pollutants emanate or are emitted either directly or indirectly into the environment at the facility site. |
| ***ReleasePoint*** | *complex* | Identifies the point at which emissions are released into the environment, via a stack or fugitive release. |
| ***QualityIdentification*** | complex | Identifies the quality or verification findings for a facility site, emissions unit activity, or reporting period for which emissions have been reported. |
| ***Affiliation*** | *complex* | Identifies the relationship between the facility site, a quality finding, or an individual and an organization. |
| ***Address*** | *complex* | The place or name of the location where a facility site or organization is located or an individual may be reached. |
| ***GeographicCoordinates*** | *complex* | Identifies the geographic location of the facility site, emission release point, or event. |
| ***AttachedFile*** | *complex* | References a file attached to the schema. |

| | | |
|---|---|---|
| **FacilityIdentification** | *complex* | Identifiers by which the facility site is known or has been known, and the system associated with the identifier. |
| **FacilityIdentifier** | xsd:string | An identifier by which the facility site is referred to by a system. |
| **ProgramSystemCode** | xsd:string | The code that represents the information management system which has responsibility for the data in a linked or interrelated information management system. |
| **StateAndCountyFIPSCode** | xsd:string | The list is from FIPS Counties codes used for the identification of the Counties and County equivalents of the United States. |
| **TribalCode** | xsd:string | The code that represents the American Indian Tribe or Alaskan Native entity. |
| **StateAndCountryFIPSCode** | xsd:string | The code that represents a State and Country for States in Mexico and Provinces in Canada. |
| **EffectiveDate** | xsd:string | The date on which the identifier became effective. |
| **EndDate** | xsd:string | The date on which the identifier is no longer applicable. |

| | | |
|---|---|---|
| **AlternativeFacilityName** | *complex* | Identifies any alternative names by which the facility site is known or has been known. |
| **AlternativeName** | xsd:string | An alternative, historic, or program-specific name for the facility site. |
| **ProgramSystemCode** | xsd:string | The code that represents the information management system which has responsibility for the data in a linked or interrelated information management system. |
| **AlternativeNameTypeText** | xsd:string | The type of alternative, historical, or program-specific name for the facility site (e.g., primary, legal, historical, local). |
| **EffectiveDate** | xsd:string | The date on which the corresponding alternative name was first known or used in the context of the data or system. |

**Facility Site Complex Type**

| XML Tag Name | Type | Definition |
|---|---|---|
| **EmissionsUnit** | *complex* | Identifies an activity, stationary article, process equipment, machine, or other device from which air pollutants emanate or are emitted either directly or indirectly into the environment at the facility site. |
| Scope | xsd:string | The code that identifies the scope of emissions data that are reported. Examples include Scope 1 - Stationary Combustion, Scope 1 - Mobile Combustion, Scope 2 - Purchased Electricity, and Scope 3 - Indirect. |
| UnitDescription | xsd:string | Text description of the emissions unit. |
| UnitTypeCode | xsd:string | Code that identifies the type of emissions unit activity. |
| DesignCapacity | xsd:string | The measure of the size of the unit based on the maximum continuous throughput capacity of the unit. |
| DesignCapacityUnitofMeasureCode | xsd:string | Unit of measure for the design capacity of the emissions unit. |
| UnitStatusCode | xsd:string | Code that identifies the operating status of the emissions unit. |
| UnitStatusCodeYear | xsd:string | The year in which the unit activity status became applicable. |
| UnitOperationDate | xsd:string | The date on which unit activity became operational. |
| EmissionsUnitComment | xsd:string | Any comments regarding the emissions unit activity. |
| ***QualityIdentification*** | complex | Identifies the quality or verification findings for a facility site, emissions unit activity, or reporting period for which emissions have been reported. |
| ***UnitIdentification*** | complex | Identifiers by which the emissions unit activity is known or has been known. |
| ***Regulation*** | *complex* | Identifies regulatory programs that are applicable to an emissions unit activity or process. |
| ***ControlApproach*** | *complex* | Identifies the overall control system or approach, including capture effectiveness, where applied at an emissions unit activity or process to reduce the amount of pollutants released into the environment. |
| ***EmissionsProcess*** | *complex* | Identifies the specific operational activities that produce emissions either directly or indirectly. |

| | | |
|---|---|---|
| **UnitIdentification** | *complex* | Identifiers by which the emissions unit is known or has been known. |
| **UnitIdentifier** | xsd:string | An identifier by which the emissions unit activity is known or has been known. |
| **ProgramSystemCode** | xsd:string | The code that represents the information management system which has responsibility for the data in a linked or interrelated information management system. |
| **EffectiveDate** | xsd:string | The date on which the identifier was first used. |
| **EndDate** | xsd:string | The date on which the identifier was last used. |

| | | |
|---|---|---|
| **ReleasePoint** | *complex* | Identifies the point at which emissions are released into the environment, via a stack or fugitive release. |
| ReleasePointTypeCode | xsd:string | Code that identifies the type of release point. |
| ReleasePointDescription | xsd:string | Text description of release point. |
| ReleasePointStackHeightMeasure | xsd:string | The height of the stack (measured in feet) from the ground. |
| ReleasePointStackDiameterMeasure | xsd:string | The internal diameter of the stack (measured in feet) at the release height. |
| ReleasePointExitGasVelocityMeasure | xsd:string | The velocity of an exit gas stream. |
| ReleasePointExitGasVelocityUnitofMeasureCode | xsd:string | The unit of measure for the velocity of an exit gas stream value. |
| ReleasePointExitGasFlowRateMeasure | xsd:string | The value of the stack gas flow rate. |
| ReleasePointExitGasFlowRateUnitofMeasureCode | xsd:string | The unit of measure for the stack gas flow rate value. |
| ReleasePointExitGasTemperatureMeasure | xsd:string | The temperature of an exit gas stream (measured in degrees Fahrenheit). |
| ReleasePointFenceLineDistanceMeasure | xsd:string | The measure of the horizontal distance to the nearest fence line of a property within which the release point is located (measured in feet). |
| ReleasePointFugitiveHeightMeasure | xsd:string | The release height (measured in feet) above terrain of fugitive emissions. |
| ReleasePointFugitiveWidthMeasure | xsd:string | The width (measured in feet) of the fugitive release in the East-West direction as if the angle is zero degrees. |
| ReleasePointFugitiveLengthMeasure | xsd:string | The length (measured in feet) of the fugitive release in the North-South direction as if the angle is zero degrees. |
| ReleasePointFugitiveAngleMeasure | xsd:string | The orientation angle for the area in degrees from North, measured positive in the clockwise direction. |
| ReleasePointComment | xsd:string | Any comments regarding the release point. |
| ***ReleasePointIdentification*** | *complex* | Identifiers by which the emissions release point is known or has been known. |
| ***ReleasePointTest*** | *complex* | Results of tests performed at the release point. |
| ***GeographicCoordinates*** | *complex* | Identifies geographic coordinate data for the facility site, emission release point, or event. |

| Facility Site Complex Type | | |
|---|---|---|
| **XML Tag Name** | **Type** | **Definition** |
| **ReleasePointIdentification** | *complex* | Identifiers by which the release point is known or has been known. |
| **ReleasePointIdentifier** | xsd:string | An identifier by which the release point is known or has been known. |
| **ProgramSystemCode** | xsd:string | The code that represents the information management system which has responsibility for the data in a linked or interrelated information management system. |
| **EffectiveDate** | xsd:string | The date on which the identification was first used. |
| **EndDate** | xsd:string | The date on which the identifier was last used. |

| | | |
|---|---|---|
| **ReleasePointTest** | | Results of test performed at the release point. |
| ReleasePointPlumeHeightMeasure | xsd:string | The height of the plume rise from the release point above sea level. Measured in meters. |
| PercentOxygenContent | xsd:string | The percent of oxygen content present in the stack test. |
| PercentMoistureContent | xsd:string | The percent of moisture content present in the stack test. |
| ReleasePointTestDate | xsd:string | Date in which stack test was taken. |

**Location Complex Type**

| XML Tag Name | Type | Definition |
|---|---|---|
| **Location** | *complex* | Information on the location of an emissions source. |
| **StateAndCountyFIPSCode** | xsd:string | The list is from FIPS Counties codes used for the identification of the Counties and County equivalents of the United States. |
| **TribalCode** | xsd:string | The code that represents the American Indian Tribe or Alaskan Native entity. |
| **StateAndCountryFIPSCode** | xsd:string | The code that represents a state and country for States in Mexico and Provinces in Canada. |
| **CensusBlockIdentifier** | xsd:string | The identifier that represents the post 1990 census block, which is the smallest geographic entity recognized by the census. |
| **CensusTractIdentifier** | xsd:string | The identifier that represents the post 1990 census tract, which is ideally a neighborhood within a city. |
| **ShapeIdentifier** | xsd:string | The shape file identifier issued by EPA for a predefined geospatial shape. |
| LocationComment | xsd:string | Any comments regarding the location. |
| ***ExcludedLocationParameter*** | *complex* | Identifies the excluded locations from the primary reporting location by identifying one or more tribal codes, census block identifiers, census track identifiers, or shape identifiers as parameters. |
| ***EmissionsProcess*** | *complex* | Identifies the specific operational activities that produce emissions either directly or indirectly. |

| | | |
|---|---|---|
| **ExcludedLocationParameter** | *complex* | Identifies the excluded locations from the primary reporting location by identifying one or more tribal codes, census block identifiers, census track identifiers, or shape identifiers as parameters. |
| **LocationTypeCode** | xsd:string | Identifies the type of code or identifier that is being excluded. |
| **LocationParameter** | xsd:string | The code value or the identifier for the location type code. |
| LocationComment | xsd:string | Any comments regarding the excluded location. |

## Event

| XML Tag Name | Type | Definition |
|---|---|---|
| **Event** | *complex* | Identifies the event, reporting land manager, management methods, and data sources. |
| **EventIdentifier** | xsd:string | An identifier provided by the land or event manager that identifies an event. This identifier is unique for each event. |
| ProgramSystemCode | xsd:string | An acronym or abbreviation for the system that contain the data about the event. |
| EventName | xsd:string | The name of the event. |
| LandManager | xsd:string | Identifies the Federal, State, Private, Municipal, County, Tribal agency or land owner that is managing the fire or responding to event. |
| LocationDescription | xsd:string | Description of the location of the event. |
| EventClassificationCode | xsd:string | Code that identifies the classification of the fire. |
| EventSizeSourceCode | xsd:string | The code that identifies the method used to determine the size of the event. |
| ContainmentDate | xsd:string | The date on which the event was contained. |
| RecurrenceIndicatorCode | xsd:string | Indicates whether a prescribed or agricultural fire has occurred previously at this location (Y/N). |
| RecurrenceYear | xsd:string | The most recent year in which the fire recurred in this location. |
| GroundBasedDataSourceCode | xsd:string | Indicates whether ground-based data were included and if so, identifies their source. |
| RemoteSensingDataSourceCode | xsd:string | Indicates whether remotely-sensed data were included and if so, identifies their source. |
| FuelConsumptionAndEmissionsModelCode | xsd:string | The model(s) used to calculate fuel consumption and emissions estimates. |
| FuelTypeModelCode | xsd:string | The fuel model used to characterize available fuel beds (e.g., FCCS or NFDRS). |
| FuelSelectionCode | xsd:string | The method used (on-site survey vs. GIS overlay) to select the appropriate fuel beds (e.g., red spruce, chaparral, sawgrass, or logging slash). |
| IgnitionMethodCode | xsd:string | The method used to ignite the fire (i.e., DAID, helitorch, or driptorch). |
| IgnitionLocationCode | xsd:string | The location and distribution of the ignition points within the burn area (e.g., center or multiple). |
| IgnitionOrientationCode | xsd:string | The technique used to direct the orientation of the fire's movement with respect to the wind (i.e., backing, strip-heading, or flanking). |
| EventComment | xsd:string | Any comments regarding the event. |
| ***AttachedFile*** | *attachment* | References an attached file to the schema. |
| ***MergedEvents*** | *complex* | Identifies discrete fires that merged into the current complex fire event. |
| ***EventReportingPeriod*** | *complex* | The time period for which emissions are reported. |

| **MergedEvents** | *complex* | Identifies discrete events that merged into the current complex event. |
|---|---|---|
| **EventIdentifier** | xsd:string | The identifier for the event. This must be unique for each event, and is assigned by the land or event manager. |
| **ProgramSystemCode** | xsd:string | An acronym or abbreviation for the system that contain the data about the event. |
| **DateMerged** | xsd:string | The first data that the discrete event is reported with the complex event. |
| MergedEventsComment | xsd:string | Any comments regarding the merged event. |

| **EventReportingPeriod** | *complex* | The time period for which emissions are reported. |
|---|---|---|
| EventBeginDate | xsd:string | The first day for which emissions are reported for the reporting period. |
| EventEndDate | xsd:string | The last day for which emissions are reported for the reporting period. |
| EventStageCode | xsd:string | Identifies whether emissions reported are due to flaming, smoldering, or both. |
| BeginHour | xsd:string | The hour of the day in which the event began. The hour is reported as a value between 00 and 23 inclusive, representing the hours of the day in 24 increments. |
| EndHour | xsd:string | The hour of the day in which the event ended. The hour is reported as a value between 00 and 23 inclusive, representing the hours of the day in 24 increments. |
| EventReportingPeriodComment | xsd:string | Any comments regarding the event reporting period. |
| ***EventLocation*** | *complex* | Identifies the location where the event occurred. |

| **EventLocation** | complex | Identifies the location where the event occurred. |
|---|---|---|
| **CountyCode** | xsd:string | Identifies the County in which the event is located for the event date. |
| **StateCode** | xsd:string | Identifies the State in which the event is located for the event date. |
| **TribalCode** | xsd:string | Identifies the Tribal land in which the event is located for the event date. |
| **StateAndCountryFIPSCode** | xsd:string | The code that represents a State and Country for States in Mexico and Provinces in Canada. |
| ***GeographicCoordinates*** | *complex* | Describes geographic location of event using latitude/longitude coordinates. |
| ***GeospatialParameters*** | *complex* | Describes geospatial location of event using shape file information. |
| ***EventEmissionsProcess*** | *complex* | Describes the fuels, fuel conditions, combustion characteristics, and activity that produce emissions. |

| **GeospatialParameters** | *complex* | Describes geospatial location of event using shape file information. |
|---|---|---|
| **ShapeFileIdentifier** | xsd:string | An identifier provided by the reporting agency that identifies the geospatial shape file for the reported emissions. |
| AreaWithinShape | xsd:string | Total area that is contained within the event shape for the reporting period. |
| AreaWithinShapeUnitofMeasureCode | xsd:string | Code that identifies the unit of measure for the area within the shape file. |
| PercentofAreaProducingEmissions | xsd:string | The percent of the area within the shape or perimeter that was affected by the event (e.g., area actually blackened by a fire). |
| GeospatialParametersComment | xsd:string | Any comments regarding the geospatial parameters. |

| Event | | |
|---|---|---|
| **XML Tag Name** | **Type** | **Definition** |
| **EventEmissionsProcess** | *complex* | Describes the fuels, fuel conditions, combustion characteristics, and activity that produce emissions. |
| SourceClassificationCode | xsd:string | EPA Source Classification Code that identifies an emissions process. |
| FuelConfigurationCode | xsd:string | The predominant configuration of the fuel burned (i.e., pile, windrow, broadcast or natural). |
| FuelLoading | xsd:string | Fuel per acre available to consume. |
| FuelLoadingUnitofMeasureCode | xsd:string | Code that identifies the numerator of the unit of measure for the fuel loading. |
| AmountofFuelConsumed | xsd:string | For a given day, the amount of fuel consumed in the defined geographic area. |
| AmountofFuelConsumedUnitofMeasureCode | xsd:string | Code that identifies the unit of measure for the amount of fuel consumed. |
| PercentTenHourFuelMoisture | xsd:string | The ten-hour fuel moisture for the location, on the particular day the fire or smoldering occurred, in percent. |
| PercentOneThousandHourFuelMoisture | xsd:string | The one-thousand-hour fuel moisture for the location, on the particular day the fire or smoldering occurred, in percent. |
| PercentLiveFuelMoisture | xsd:string | The amount of water expressed as the percent of oven dry weight of living plant matter. |
| PercentDuffFuelMoisture | xsd:string | The amount of water expressed as the percent of the oven dry weight of any cured or dead plant part. This may include dead plant matter still attached to living plants. |
| HeatRelease | xsd:string | The amount of effective thermal energy (measured in million BTUs) available to provide buoyant plume rise. |
| HeatReleaseUnitofMeasureCode | xsd:string | Code that identifies the unit of measure for heat release. |
| EmissionReductionTechniqueCode | xsd:string | Code identifying the method used for reducing emissions from prescribed fires, agricultural fires, Native American Fires and Wildland Use fires emissions. |
| EventEmissionsProcessComment | xsd:string | Any comments regarding the event emissions process. |
| ***Emissions*** | *complex* | Identifies all pollutants being reported for the process and reporting period. |

| Shared Components | | |
|---|---|---|
| **XML Tag Name** | **Type** | **Definition** |
| **QualityFinding** | | The quality findings applicable to a facility site, emissions unit activity, or a reporting period for which emissions have been reported. |
| **QualityIdentifier** | | An identifier for the quality finding. |
| **ProgramSystemCode** | xsd:string | The code that represents the information management system which has responsibility for the data in a linked or interrelated information management system. |
| VerificationType | xsd:string | Identifies the type of verification, such as entity inventory or emissions reduction project. |
| QualityTypeCode | xsd:string | The nature of the verification report issued. Examples include: adverse or qualified. |
| Exceptions | xsd:string | Any exceptions that the verifier has reported. |
| QualityStatusCode | xsd:string | The quality or verification status of the facility site, emissions unit or emissions. Examples include: verified or unverified. |
| LevelofAssuranceCode | xsd:string | The degree of assurance the intended user required in the verification findings. Examples include: reasonable and |
| QualityStandardsSource | xsd:string | The source of the standard such as ISO 14064-3, TCR GVP, CCAR GVP, etc. |
| QualityDeterminationDate | xsd:string | Date on which status was determined. |
| ***Affiliation*** | *complex* | Identifies the relationship between the facility site, a quality finding, or an individual and an organization. |
| ***AttachedFile*** | complex | References a file attached to the schema. |

| **QualityIdentification** | | Identifies the quality findings applicable to a facility site, emissions unit activity, or a reporting period for which emissions have been reported. |
|---|---|---|
| **QualityIdentifier** | xsd:string | An identifier for the quality finding. |
| **ProgramSystemCode** | xsd:string | The code that represents the information management system which has responsibility for the data in a linked or interrelated information management system. |

| **Affiliation** | *complex* | Identifies the relationship between the facility site, a quality finding, or an individual and an organization. |
|---|---|---|
| **AffiliationTypeCode** | *xsd:string* | Identifies the function that an organization or individual serves, or the relationship between an individual or organization and the facility site. Examples include: Internal Reviewer, Lead Verifier, Verifying Body. |
| **AffiliationStartDate** | xsd:string | The date on which the affiliation between the organization or individual and the facility, project, or action began. |
| **AffiliationEndDate** | xsd:string | The date on which the affiliation between the organization or individual and the facility, project, or action ended. |
| ***Organization*** | *complex* | The organization which directs, is responsible for, or has authority over the activities and operations of the facility site. |
| ***Individual*** | *complex* | Information representing the person who can be contacted concerning the data submitted or the facility site. |

**Shared Components**

| XML Tag Name | Type | Definition |
|---|---|---|
| **Organization** | *complex* | The organization which directs, is responsible for, or has authority over the activities and operations of the facility site. |
| OrganizationName | xsd:string | Name of the organization. |
| PercentOwnership | xsd:string | Contains information on the percentage of ownership an organization has for a facility site. |
| ConsolidationMethodology | xsd:string | Consolidation methodology for an organization, including: operation control, financial control, operation control and equity share, financial control and equity share, equity share. |
| ***OrganizationIdentification*** | *complex* | A designator used to uniquely identify a business |
| ***Address*** | *complex* | The location where a facility site or organization is located or an individual may be reached. |
| ***Communication*** | *complex* | The means by which an individual or organization can be sent messages. |
| ***AttachedFile*** | complex | References a file attached to the schema. |

| OrganizationIdentification | *complex* | A designator used to uniquely identify a business |
|---|---|---|
| **OrganizationIdentifier** | xsd:string | An identifier by which an organization is referred to in another system. |
| **ProgramSystemCode** | xsd:string | The code that represents the information management system which has responsibility for the data in a linked or interrelated information management system. |
| **EffectiveDate** | xsd:string | The date on which the identifier became effective. |
| **EndDate** | xsd:string | The date on which the identifier is no longer applicable. |

| Individual | *complex* | Information representing the person who can be contacted concerning the data submitted or the facility site. |
|---|---|---|
| IndividualTitle | *xsd:string* | The title held by a person in an organization. |
| NamePrefixText | | The text that precedes an individual's name. |
| FirstName | xsd:string | The given name of an individual. |
| MiddleName | xsd:string | The middle name or initial of an individual. |
| LastName | xsd:string | The surname of an individual. |
| NameSuffixText | xsd:string | the text that follows an individuals name. |
| ***IndividualIdentification*** | *complex* | Identifies alternative identifiers by which an individual is known or has been known, and the system associated with the identifier. |
| ***Address*** | *complex* | Identifies the standard address used to send mail to an individual. |
| ***Communication*** | *complex* | The means by which an individual or organization can be sent messages. |

| Shared Components | | |
|---|---|---|
| **XML Tag Name** | **Type** | **Definition** |
| **IndividualIdentification** | *complex* | Identifies alternative identifiers by which an individual is known or has been known, and the system associated with the identifier. |
| **IndividualIdentifier** | xsd:string | An alternative identifier by which an individual is referred to in another system. |
| **ProgramSystemCode** | xsd:string | The code that represents the agency's information management system which has responsibility for the data in a linked or interrelated information management system. |
| **EffectiveDate** | xsd:string | The date on which the identifier became effective. |
| **EndDate** | xsd:string | The date on which the identifier is no longer applicable. |

| | | |
|---|---|---|
| **Address** | *complex* | The location where a facility site or organization is located or an individual may be reached. |
| MailingAddressText | *xsd:string* | The exact address where mail is intended to be delivered, including street address, rural route, and P.O. Box. |
| SupplementalAddressText | xsd:string | The text that provides additional information to facilitate the delivery of mail. |
| MailingAddressCityName | xsd:string | The name of the city or town. |
| MailingAddressStateCode | xsd:string | The alphabetic codes that represent the name of the principal administrative subdivision of the United States, Canada, or Mexico. |
| MailingAddressPostalCode | xsd:string | The combination of the five-digit Zone Improvement Plan (ZIP) code and the four-digit extension code (if available) that represents the geographic segment that is a sub-unit of the ZIP Code, assigned by the U.S. Postal Service to a geographic location. |
| MailingAddressCountryCode | xsd:string | A code designator used to identify a primary geopolitical unit of the world. |
| LocationAddressText | xsd:string | The physical location of a facility site or organization. |
| SupplementalLocationText | xsd:string | The text that provides additional information about a place, including a building name with its secondary unit and number, an industrial park name, an installation name, or descriptive text where no formal address is available. |
| LocalityName | xsd:string | The name of the city, town, village, or other locality. |
| LocationAddressStateCode | | The alphabetic codes that represent the name of the principal administrative subdivision of the United States, Canada, or Mexico. |
| LocationAddressPostalCode | xsd:string | The combination of the five-digit Zone Improvement Plan (ZIP) code and the four-digit extension code (if available) that represents the geographic segment that is a sub-unit of the ZIP Code, assigned by the U.S. Postal Service to a geographic location. |
| LocationAddressCountryCode | xsd:string | A code designator used to identify a primary geopolitical unit of the world. |
| AddressComment | xsd:string | Any comments regarding the address information. |

| Shared Components | | |
|---|---|---|
| **XML Tag Name** | **Type** | **Definition** |
| ***Communication*** | | The means by which an individual or organization can be sent messages. |
| TelephoneNumberText | xsd:string | The number that identifies a particular telephone connection. This includes the prefix for international standards. |
| TelephoneNumberType | xsd:string | The type of telephone connection. Examples include Fax, Home, Mobile, Office, etc. |
| TelephoneNumberExtension | xsd:string | The number assigned within an organization to an individual telephone that extends the external telephone number. |
| ElectronicAddress | xsd:string | A location within a system of worldwide electronic communication where a computer user can access information or receive electronic mail. |
| ElectronicAddressType | xsd:string | A resource address, usually consisting of the access protocol, the domain name, and optionally, the path to a file or location. |

| | | |
|---|---|---|
| **GeographicCoordinates** | *complex* | Identifies the geographic location of the facility site, emission release point, or event. |
| **LatitudeMeasure** | xsd:string | The measure of the angular distance on a meridian north or south of the equator. |
| **LongitudeMeasure** | xsd:string | The measure of the angular distance on a meridian east or west of the prime meridian. |
| SourceMapScaleNumber | xsd:string | The number that represents the proportional distance on the ground for one unit of measure on the map or photo. |
| HorizontalAccuracyMeasure | xsd:string | The horizontal measure, in meters, of the relative accuracy of the latitude and longitude coordinates. |
| HorizontalCollectionMethodCode | xsd:string | The code that identifies the method used to determine the latitude and longitude coordinates for a point on the earth. |
| HorizontalReferenceDatumCode | xsd:string | The code that represents the reference datum used in determining latitude and longitude coordinates. |
| GeographicReferencePointCode | xsd:string | The code that represents the place for which geographic coordinates were established. |
| DataCollectionDate | xsd:string | The calendar date when data were collected. |
| GeographicComment | xsd:string | The text that provides additional information about the geographic coordinates. |
| VerticalMeasure | xsd:string | The measure of elevation (i.e., the altitude), above or below a reference datum. |
| VerticalCollectionMethodCode | xsd:string | The code that identifies the method used to collect the vertical measure (i.e., the altitude) of a reference point. |
| VerticalReferenceDatumCode | xsd:string | The code that represents the reference datum used to determine the vertical measure (i.e., the altitude). |
| VerificationMethodCode | xsd:string | The code that represents the process used to verify the latitude and longitude coordinates. |
| CoordinateDataSourceCode | xsd:string | The code that represents the party responsible for providing the latitude and longitude coordinates. |
| GeometricTypeCode | xsd:string | The code that represents the geometric entity represented by one point or a sequence of latitude and longitude points. |
| AreaWithinPerimeter | xsd:string | Total area that is contained within the event perimeter for the reporting period. |
| AreaWithinPerimeterUnitofMeasureCode | xsd:string | Code that identifies the unit of measure for the area within the event perimeter. |
| PercentofAreaProducingEmissions | xsd:string | The percent of the area within the shape or perimeter that was affected by the event (e.g., area actually blackened by a fire). |

**Shared Components**

| XML Tag Name | Type | Definition |
|---|---|---|
| **Regulation** | *complex* | Identifies regulatory programs that are applicable to an emissions unit activity or process. |
| RegulatoryCode | xsd:string | The code that describes the regulation applicable to the emissions unit activity or process. |
| EffectiveDate | xsd:string | The date on which the regulation became effective. |
| EndDate | xsd:string | The date on which the regulation no longer applied. |
| AgencyCodeText | xsd:string | Text describing the non-federal regulation applicable to the emissions unit or process. |
| RegulationComment | xsd:string | Comments regarding the regulation. |

| | | |
|---|---|---|
| **ControlApproach** | *complex* | Identifies the overall control system or approach, including capture effectiveness, where applied at an emissions unit activity or process to reduce the amount of pollutants released into the environment. |
| ControlApproachDescription | xsd:string | Description of the overall control system or approach applied to an emissions unit or process. |
| PercentControlApproachCaptureEfficiency | xsd:string | An estimate of that portion of an affected emission stream that is collected and routed to the control measures when the capture or collection system is operating as designed, reported as a percent. |
| PercentControlApproachEffectiveness | xsd:string | An estimate of the portion of the reporting period's activity for which the overall control system or approach (including both capture and control measures) were operating as designed (regardless of whether the control measure is due to rule or voluntary). |
| PercentControlApproachPenetration | xsd:string | An estimate of the percent value of the nonpoint activity throughput that is affected by a rule or voluntary approach for the given location. (Nonpoint only.) |
| FirstInventoryYear | xsd:string | The inventory year for which the controls were implemented. (Point only.) |
| LastInventoryYear | xsd:string | The last inventory year for which the controls were active. (Point only.) |
| ControlApproachComment | xsd:string | Comments regarding the control approach. |
| ***ControlMeasure*** | *complex* | Identifies the specific control devices or practices that are applied to an emission stream after capture and routing. |
| ***ControlPollutant*** | *complex* | Identifies the pollutants reduced by the control measures and their reduction amounts. |

| | | |
|---|---|---|
| **ControlMeasure** | *complex* | Identifies the specific control devices or practices that are applied to an emission stream after capture and routing. |
| **ControlMeasureCode** | xsd:string | Code that identifies the piece of equipment or practice that is used to reduce one or more pollutants. |

| | | |
|---|---|---|
| **ControlPollutant** | *complex* | Identifies the pollutants reduced by the control measures and their reduction amounts. |
| **PollutantCode** | xsd:string | The code for the pollutant which is controlled by the control measure. |
| PercentControlMeasuresReductionEfficiency | xsd:string | The percent reduction achieved for the pollutant when all control measures are operating as designed. |

**Shared Components**

| XML Tag Name | Type | Definition |
|---|---|---|
| **AttachedFile** | *complex* | References an attached file to the schema. |
| AttachmentFileName | xsd:string | The text describing the descriptive name used to represent the file, including file extension. |
| AttachmentFileDescription | xsd:string | Description of file. |
| AttachmentFileContentTypeCode | xsd:string | A code describing the content type of a file. |
| **EmissionsProcess** | *complex* | Identifies the specific operational activities that produce emissions either directly or indirectly. |
| SourceClassificationCode | xsd:string | EPA Source Classification Code that identifies an emissions process. |
| EmissionsTypeCode | xsd:string | Defines the type of emissions produced by Onroad and Nonroad sources. Used for Mobile sources only. Examples include exhaust, evaporative and tire wear. |
| ProcessTypeCode | xsd:string | Defines the type of emissions produced by GHG processes. Examples included for a Scope 1 Stationary Combustion might be oil, gas, coal. |
| EmissionsProcessDescription | xsd:string | A text description of the emissions process. |
| LastEmissionsYear | xsd:string | The last year in which emissions occurred for this process. |
| EmissionsProcessComment | xsd:string | Any comments regarding the emissions process. |
| **EmissionsProcessIdentification** | complex | A designator used to uniquely identify an emissions process. |
| ***Regulation*** | *complex* | Identifies regulatory programs that are applicable to an emissions unit or process. |
| ***ControlApproach*** | *complex* | Identifies the overall control system or approach, including capture effectiveness, and penetration parameters, where applied at an emissions unit or process to reduce the amount of pollutants released into the environment. |
| ***ReportingPeriod*** | *complex* | Identifies the reporting period for which emissions and related activity data are submitted. |
| ***ReleasePointApportionment*** | *complex* | The percent of emissions for an emissions process that are vented through the emission release point. |
| **EmissionsProcessIdentification** | *complex* | A designator used to uniquely identify an emissions process. |
| **EmissionsProcessIdentifier** | xsd:string | An identifier by which the emissions process is referred to by a system. |
| **ProgramSystemCode** | xsd:string | The code that represents the information management system which has responsibility for the data in a linked or interrelated information management system. |
| **EffectiveDate** | xsd:string | The date on which the identifier became effective. |
| **EndDate** | xsd:string | The date on which the identifier is no longer applicable. |
| **ReleasePointApportionment** | | The percent of emissions for an emissions process that are vented through the emissions release point. |
| AveragePercentEmissions | xsd:string | The average annual percent of an emissions process that is vented through a release point. |
| ReleasePointApportionmentComment | xsd:string | Comment regarding the average apportionment of emissions vented through a release point. |
| LastEmissionsYear | xsd:string | The year in which the apportionment was last effective. |
| ***ReleasePointIdentification*** | *complex* | Identifiers by which the release point is known or has been known. |

| Shared Components | | |
|---|---|---|
| **XML Tag Name** | **Type** | **Definition** |
| **ReportingPeriod** | *complex* | Identifies the reporting period for which emissions and related activity data are submitted. |
| **ReportingPeriodTypeCode** | xsd:string | The time period type for which emissions are reported. |
| **EmissionOperatingTypeCode** | xsd:string | Code identifying the operating state for the emissions being reported. |
| **StartDate** | xsd:string | The date on which the reporting period began. Applies to the reporting of episodic or event emissions only. |
| **EndDate** | xsd:string | The date on which the reporting period ended. Applies to the reporting of episodic or event emissions only. |
| CalculationParameterTypeCode | xsd:string | Code indicating whether the material measured is an input to the process, an output of the process or a static count (not a throughput). |
| CalculationParameterValue | xsd:string | Activity or throughput of the process for a given time period. |
| CalculationParameterUnitofMeasure | xsd:string | Code for the unit of measure for calculation parameter value. |
| CalculationMaterialCode | xsd:string | Code for material or fuel processed. |
| CalculationDataYear | xsd:string | The actual year represented by the data if it is different from the emissions year. |
| CalculationDataSource | xsd:string | The source of the data used. |
| ReportingPeriodComment | xsd:string | Any comments regarding the reporting period. |
| **QualityIdentification** | complex | The verification findings applicable to a facility site, emissions unit activity, or a reporting period for which emissions have been reported. |
| ***OperatingDetails*** | *complex* | Identifies the typical operating schedule for the process during the reporting period. |
| ***SupplementalParameter*** | *complex* | Identifies additional emissions calculation input parameters beyond the general parameters that are used for calculating emissions. |
| ***Emissions*** | *complex* | Identifies all pollutants being reported for the process and reporting period. |

| **OperatingDetails** | *complex* | Identifies the typical operating schedule for the process during the reporting period. |
|---|---|---|
| ActualHoursPerPeriod | xsd:string | Actual number of hours the process is active or operating during for the reporting period. |
| AverageDaysPerWeek | xsd:string | The average number of days per week that the emissions process is active within the reporting period. |
| AverageHoursPerDay | xsd:string | The average number of hours per day that the emissions process is active within the reporting period. |
| AverageWeeksPerPeriod | xsd:string | The average number of weeks that the emissions process is active within the reporting period. |
| PercentWinterActivity | xsd:string | The percentage of the annual activity that occurred during the Winter months (December, January, February). |
| PercentSpringActivity | xsd:string | The percentage of the annual activity that occurred during the Spring months (March, April, May). |
| PercentSummerActivity | xsd:string | The percentage of the annual activity that occurred during the Summer months (June, July, August). |
| PercentFallActivity | xsd:string | The percentage of the annual activity that occurred during the Fall months (September, October, November). |

**Shared Components**

| XML Tag Name | Type | Definition |
|---|---|---|
| **SupplementalParameter** | *complex* | Identifies additional emissions calculation input parameters that are used for calculating emissions. |
| SupplementalParameterType | xsd:string | Name of the parameter that describes the type of activity, throughput or input used in the calculation. |
| SupplementalParameterValue | xsd:string | The value of the parameter. |
| SupplementalParameterUnitofMeasureCode | xsd:string | The unit of measure for the parameter. |
| SupplementalParameterDataYear | xsd:string | The year represented by the supplemental data if it is different from the emissions year. |
| SupplementalParameterDataSource | xsd:string | The source of the supplemental parameter data used. |
| SupplementalParameterComment | xsd:string | Any comments regarding the parameter. |

| | | |
|---|---|---|
| **Emissions** | *complex* | Identifies all pollutants being reported for the process and reporting period. |
| **PollutantCode** | xsd:string | Code identifying the pollutant for which emissions are reported. |
| TotalEmissions | xsd:string | Total calculated or estimated amount of the pollutant. |
| EmissionsUnitofMeasureCode | xsd:string | Unit of measure for reported emissions. |
| EmissionFactor | xsd:string | The emission factor used for the emissions value if a calculated value was provided. |
| EmissionFactorNumeratorUnitofMeasureCode | xsd:string | The numerator for the unit of measure of the reported emission factor. |
| EmissionFactorDenominatorUnitofMeasureCode | xsd:string | The denominator for the unit of measure of the reported emission factor. |
| EmissionFactorFormulaCode | xsd:string | Code that identifies the emission factor formula used to calculate emissions. |
| EmissionFactorText | xsd:string | Explanation for emission factor. |
| EmissionsCalculationMethodCode | xsd:string | Code that defines the method used to calculate emissions. |
| CalculationMethodAccuracyAssessmentCode | xsd:string | The accuracy assessment of an emission. Examples Include: Tier A, Tier B, Tier C, CARB, Part 75, etc. |
| EmissionsDeMinimisStatus | xsd:string | Status indicating if emissions are *de minimis*. |
| EmissionsComment | xsd:string | Any comments regarding the emissions, method of calculation, or emission factor. |
| ***CO2Equivalent*** | complex | The $CO_2$ equivalent conversion of the pollutant. |

| | | |
|---|---|---|
| **CO2Equivalent** | *complex* | Each pollutant can have a $CO_2$ equivalent. |
| CO2e | xsd:string | The total $CO_2$ equivalent emissions. |
| CO2eUnitofMeasureCode | xsd:string | The unit of measure for the $CO_2$ equivalent emissions. |
| CO2ConversionFactor | xsd:string | Global warming potential (GWP) used to calculate $CO_2e$. |
| CO2ConversionFactorSource | xsd:string | The source of reference for the GWP value. |