

The Emissions Collection and Monitoring Plan Project

Monitoring Plan XML Schema Version 1.0

Submitted to:

ECMPS Stakeholders

Submitted by:

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List of Figures

| | <u>Page</u> |
|---|-------------|
| Figure 1: MonitoringPlan..... | 2 |
| Figure 2: MonitoringPlan XML Elements..... | 2 |
| Figure 3: Complex Elements of the Monitoring Plan Root..... | 2 |
| Figure 4: AnalyzerRangeData..... | 3 |
| Figure 5: AnalyzerRangeData XML Elements..... | 4 |
| Figure 6: CalibrationStandardData..... | 4 |
| Figure 7: CalibrationStandardData XML Elements..... | 5 |
| Figure 8: ComponentData..... | 5 |
| Figure 9: ComponentData XML Elements..... | 6 |
| Figure 10: MonitoringDefaultData..... | 7 |
| Figure 11: MonitoringDefaultData XML Elements..... | 7 |
| Figure 12: MonitoringFormulaData..... | 8 |
| Figure 13: MonitoringFormulaData XML Elements..... | 9 |
| Figure 14: MonitoringLoadData..... | 10 |
| Figure 15: MonitoringLoadData XML Elements..... | 10 |
| Figure 16: MonitoringLocationData..... | 11 |
| Figure 17: MonitoringLocationData XML Elements..... | 12 |
| Figure 18: MonitoringLocationAttribData..... | 12 |
| Figure 19: MonitoringLocationAttribData XML Elements..... | 13 |
| Figure 20: MonitoringMethodData..... | 14 |
| Figure 21: MonitoringMethodData XML Elements..... | 14 |
| Figure 22: MonitoringPlanCommentData..... | 15 |
| Figure 23: MonitoringPlanCommentData XML Elements..... | 15 |
| Figure 24: MonitoringQualificationData..... | 15 |
| Figure 25: MonitoringQualificationData XML Elements..... | 16 |
| Figure 26: MonitoringQualLMEData..... | 16 |
| Figure 27: MonitoringQualLMEData XML Elements..... | 16 |
| Figure 28: MonitoringQualPercentData..... | 17 |
| Figure 29: MonitoringQualPercentData XML Elements..... | 17 |
| Figure 30: MonitoringSpanData..... | 19 |
| Figure 31: MonitoringSpanData XML Elements..... | 19 |
| Figure 32: MonitoringSystemData..... | 21 |
| Figure 33: MonitoringSystemData XML Elements..... | 21 |
| Figure 34: MonitoringSystemComponentData..... | 22 |
| Figure 35: MonitoringSystemComponentData XML Elements..... | 22 |
| Figure 36: MonitoringSystemFuelFlowData..... | 23 |
| Figure 37: MonitoringSystemFuelFlowData XML Elements..... | 23 |
| Figure 38: RectangularDuctWAFData..... | 24 |
| Figure 39: RectangularDuctWAFData XML Elements..... | 25 |
| Figure 40: StackPipeData..... | 26 |
| Figure 41: StackPipeData XML Elements..... | 27 |
| Figure 42: UnitData..... | 28 |
| Figure 43: UnitData XML Elements..... | 29 |

List of Figures (cont.)

| | <u>Page</u> |
|--|--------------------|
| Figure 44: UnitCapacityData | 29 |
| Figure 45: UnitCapacityData XML Elements | 29 |
| Figure 46: UnitControlData | 30 |
| Figure 47: UnitControlData XML Elements | 30 |
| Figure 48: UnitFuelData..... | 31 |
| Figure 49: UnitFuelData XML Elements..... | 31 |
| Figure 50: UnitStackConfigurationData | 32 |
| Figure 51: UnitStackConfigurationData XML Elements | 32 |
| Figure 52: Simple Types Used for Validation | 33 |

Monitoring Plan XML Schema Version 1.0

1.0 Introduction

This document is the first in a series that outlines the Extensible Mark-up Language (XML) schema and how data files must be formatted for the Emissions Collection and Monitoring Plan System (ECMPS). A schema has been developed for each data type, i.e., monitoring plan, quality assurance and certification test data, emissions data. The schema will be used for all monitoring plan data that are imported into the ECMPS Client Tool and exported from the Client Tool. The move to XML will allow users to submit only the necessary data for a given submission of data. It will also allow for more robust data validation through the XML schema.

The schema is included in a separate file. The schema may be viewed in any application that is able to display text files or an application specifically designed for viewing XML schema.

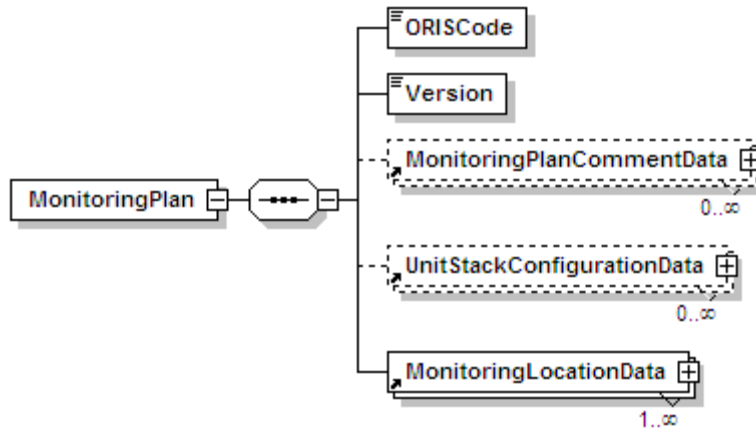
2.0 Monitoring Plan XML Schema Tables

The following tables provide information about the data elements of the Monitoring Plan XML schema. The information includes a description of the data element, the type of the element, and, where appropriate, a reference to the relevant EDR record type and column. If an exact correspondence between a single EDR record type and column and a data element could not be made, the column in the table will include the "N/A" designation. In other cases because the data have been restructured, it was not possible to make an exact match between a record type and column and a data element. In these cases, the record type and column are marked as "N/A."

Figures 1 and 2 provide information on the root element of the Monitoring Plan XML schema. Figure 3 lists all of the complex data elements and information that indicates the parent-child relationship between the major data elements. Figures 4 through 51 include information on the complex data elements in the XML schema.

Detailed information about the data types is included in Figure 52. The term "optional" is often used in the names of the various data types. The term "optional" in the name of these data validation data types only refers to the fact that the schema validation will accept a data element tag that does not include a value (an empty tag). Depending on the data being reported, these data elements might require data to be reported.

**Figure 1
MonitoringPlan**



**Figure 2
MonitoringPlan XML Elements**

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|----------|--------------|---|------------------------|
| ORISCode | ORISCodeType | EIA -- assigned identifier or Facility identifier assigned by CAMD (if EIA number is not applicable). | N/A |
| Version | VersionType | Identifies the XML schema version. | N/A |

**Figure 3
Complex Elements of the Monitoring Plan Root**

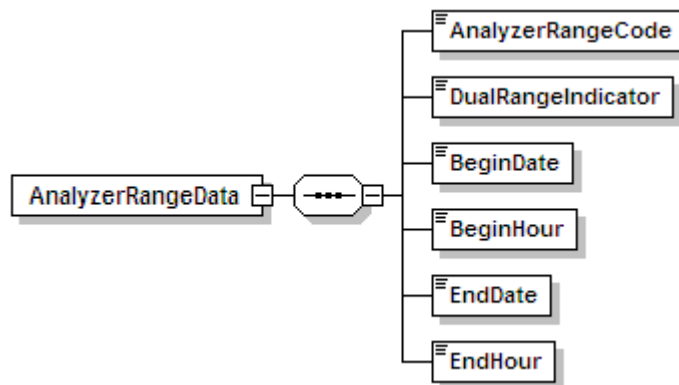
| Complex Element | Parent Element | Minimum Occurrences | Maximum Occurrences |
|------------------------------|---------------------------|---------------------|---------------------|
| AnalyzerRangeData | ComponentData | 0 | unbounded |
| CalibrationStandardData | ComponentData | 0 | unbounded |
| ComponentData | StackPipeData or UnitData | 0 | unbounded |
| MonitoringDefaultData | StackPipeData or UnitData | 0 | unbounded |
| MonitoringFormulaData | StackPipeData or UnitData | 0 | unbounded |
| MonitoringLoadData | StackPipeData or UnitData | 0 | unbounded |
| MonitoringLocationAttribData | StackPipeData or UnitData | 0 | unbounded |

(cont.)

**Figure 3
Complex Elements of the Monitoring Plan Root (cont.)**

| Complex Element | Parent Element | Minimum Occurrences | Maximum Occurrences |
|-------------------------------|-----------------------------|---------------------|---------------------|
| MonitoringLocationData | MonitoringPlan | 1 | unbounded |
| MonitoringMethodData | StackPipeData or UnitData | 0 | unbounded |
| MonitoringPlan | | 1 | 1 |
| MonitoringPlanCommentData | MonitoringPlan | 0 | unbounded |
| MonitoringQualificationData | StackPipeData or UnitData | 0 | unbounded |
| MonitoringQualLMEDData | MonitoringQualificationData | 0 | unbounded |
| MonitoringQualPercentData | MonitoringQualificationData | 0 | unbounded |
| MonitoringSpanData | StackPipeData or UnitData | 0 | unbounded |
| MonitoringSystemComponentData | MonitoringSystemData | 0 | unbounded |
| MonitoringSystemData | StackPipeData or UnitData | 0 | unbounded |
| MonitoringSystemFuelFlowData | MonitoringSystemData | 0 | unbounded |
| RectangularDuctWAFData | StackPipeData or UnitData | 0 | unbounded |
| StackPipeData | MonitoringLocationData | 0 | unbounded |
| UnitCapacityData | UnitData | 0 | unbounded |
| UnitControlData | UnitData | 0 | unbounded |
| UnitData | MonitoringLocationData | 0 | unbounded |
| UnitFuelData | UnitData | 0 | unbounded |
| UnitStackConfigurationData | MonitoringPlan | 0 | unbounded |

**Figure 4
AnalyzerRangeData**



**Figure 5
AnalyzerRangeData XML Elements**

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|--------------------|------------------------|---|-------------------------------|
| AnalyzerRangeCode | AnalyzerRangeCode Type | Code used to identify the analyzer range. | New |
| DualRangeIndicator | IndicatorType | Used to indicate whether the component is a dual-range analyzer. | New |
| BeginDate | OptionalDateType | Date in which information became effective or activity started. | 510:100 |
| BeginHour | OptionalHourType | Hour in which information became effective or activity started. | New |
| EndDate | OptionalDateType | Last date in which information was effective or date in which activity ended. | 510:108 |
| EndHour | OptionalHourType | Last hour in which information was effective or hour in which activity ended. | New |

**Figure 6
CalibrationStandardData**

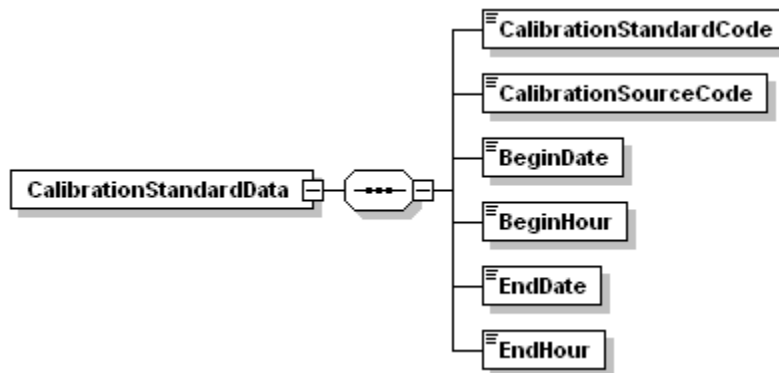


Figure 7
CalibrationStandardData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|-------------------------|-----------------------------|---|------------------------|
| CalibrationStandardCode | CalibrationStandardCodeType | Code used to identify the calibration standard. | New |
| CalibrationSourceCode | CalibrationSourceCodeType | Code used to identify the calibration source. | New |
| BeginDate | OptionalDateType | Date in which information became effective or activity started. | New |
| BeginHour | OptionalHourType | Hour in which information became effective or activity started. | New |
| EndDate | OptionalDateType | Last date in which information was effective or date in which activity ended. | New |
| EndHour | OptionalHourType | Last hour in which information was effective or hour in which activity ended. | New |

Figure 8
ComponentData

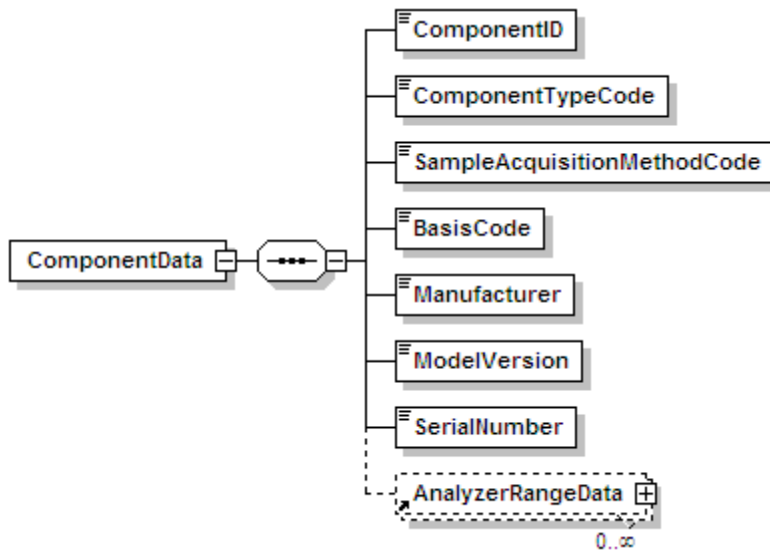


Figure 9
ComponentData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|------------------------------|----------------------------|--|-------------------------------|
| ComponentID | RequiredIdentifierType | The three digit code assigned by the source to identify the component. | 510:10 |
| ComponentTypeCode | ComponentTypeCode Type | Code used to identify the component type. | N/A |
| SampleAcquisition MethodCode | AcquisitionMethodCode Type | Code used to identify the sample acquisition method. | 510:27 |
| BasisCode | BasisCodeType | Code used to identify the moisture basis. | New |
| Manufacturer | ManufacturerType | Name of the manufacturer or developer of the component. | 510:30 |
| ModelVersion | ModelVersionType | The model of any hardware component or the version number of the software component. | 510:55 |
| SerialNumber | SerialNumberType | Serial number of the component. | 510:70 |

Figure 10
MonitoringDefaultData

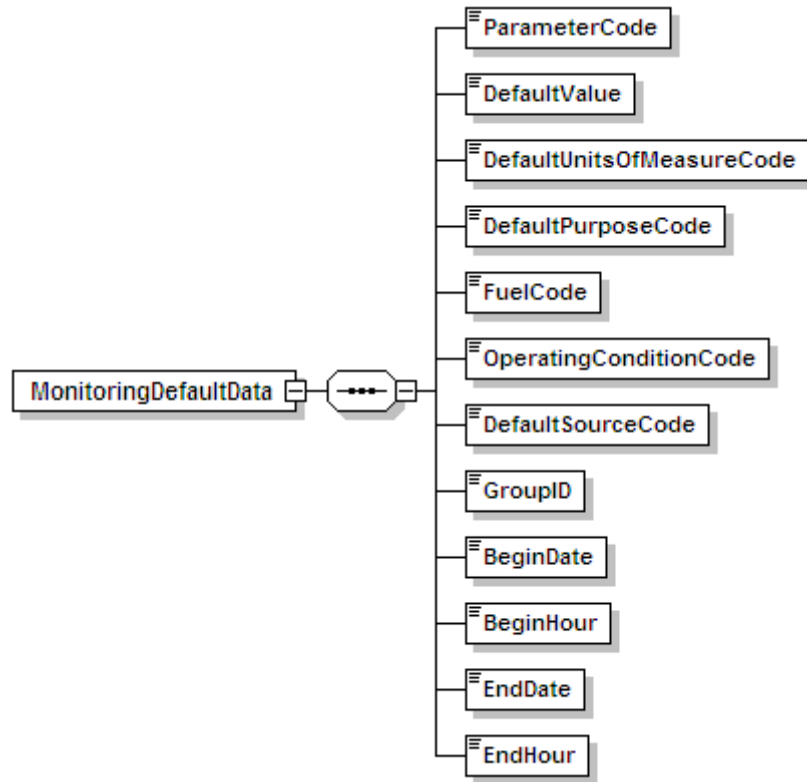


Figure 11
MonitoringDefaultData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|---------------------------|-------------------------------|---|------------------------|
| ParameterCode | DefaultParameterCodeType | Code used to identify the parameter. | 531:10 |
| DefaultValue | DefaultValueType | Value of default, maximum, minimum, or constant. | 531:14 |
| DefaultUnitsOfMeasureCode | DefaultUnitsOfMeasureCodeType | Code used to identify the hourly parameter units of measure. | N/A |
| DefaultPurposeCode | DefaultPurposeCodeType | Code used to identify the purpose or intended use of defaults, maximums, and constants. | 531:34 |
| FuelCode | FuelCodeType | Code used to identify the type of fuel. | 531:37 |
| OperatingConditionCode | OperatingConditionCodeType | Code used to identify the operating condition. | 531:40 |

(cont.)

**Figure 11
MonitoringDefaultData XML Elements (cont.)**

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|-------------------|-----------------------|---|-------------------------------|
| DefaultSourceCode | DefaultSourceCodeType | Code used to identify the source of the default value. | 531:41 |
| GroupID | GroupIDType | For a group of identical units using testing to determine default NO _x rate, this ID identifies the group. | N/A |
| BeginDate | RequiredDateType | Date on which information became effective or activity started. | 531:45 |
| BeginHour | RequiredHourType | Hour in which information became effective. | 531:53 |
| EndDate | OptionalDateType | Last date in which information was effective. This date will be null for active records. | 531:55 |
| EndHour | OptionalHourType | Last hour in which information was effective. This value will be null for active records. | 531:63 |

**Figure 12
MonitoringFormulaData**

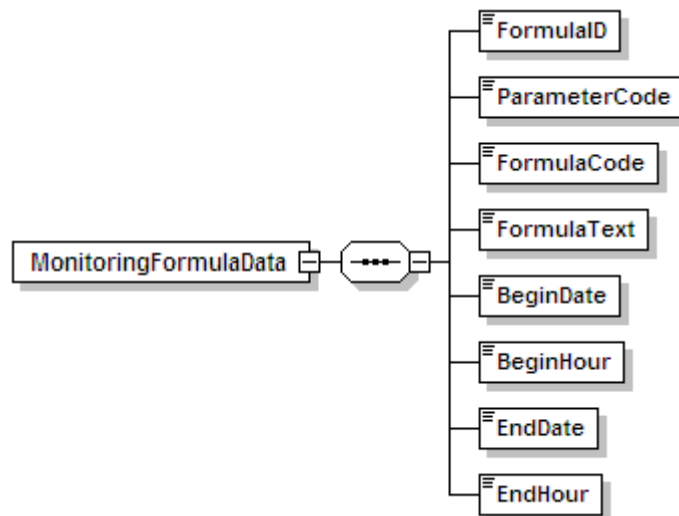


Figure 13
MonitoringFormulaData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|----------------|-------------------------------|---|-------------------------------|
| FormulaID | RequiredFormulaIdentifierType | The three character formula ID assigned by the source. | 520:11 |
| ParameterCode | FormulaParameterCodeType | Code used to identify the parameter. | 520:14 |
| FormulaCode | EquationCodeType | Code used to identify the equation as defined in Part 75. | 520:18 |
| FormulaText | FormulaTextType | The equation used to calculate the parameter. | 520:23 |
| BeginDate | OptionalDateType | Date on which information became effective or activity started. | New |
| BeginHour | OptionalHourType | Hour in which information became effective. | New |
| EndDate | OptionalDateType | Last date in which information was effective. This date will be null for active records. | New |
| EndHour | OptionalHourType | Last hour in which information was effective. This value will be null for active records. | New |

Figure 14
MonitoringLoadData

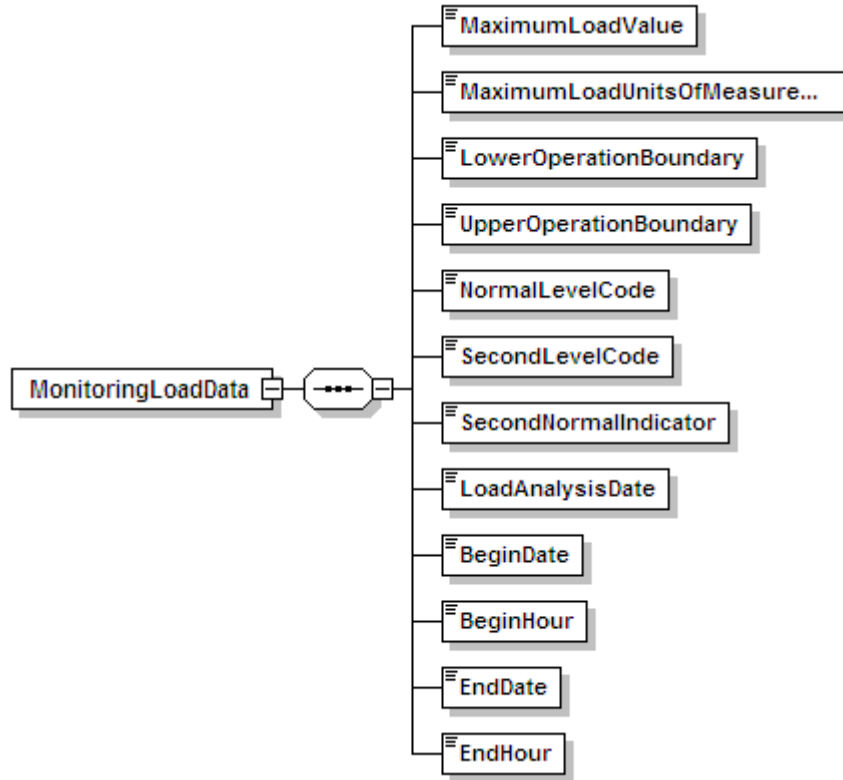


Figure 15
MonitoringLoadData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|-------------------------------|-----------------------------------|--|------------------------|
| MaximumLoadValue | MaximumLoadValueType | Maximum hourly gross load. | 535:12 |
| MaximumLoadUnitsOfMeasureCode | MaximumLoadUnitsOfMeasureCodeType | Code used to identify the units of measure for maximum load value. | 535:10 |
| LowerOperationBoundary | LowerOperationBoundaryType | Lower boundary of range of operation. | 536:16 |
| UpperOperationBoundary | UpperOperationBoundaryType | Upper boundary of range of operation. | 536:10 |
| NormalLevelCode | LevelCodeType | Code used to identify the normal load or operating level. | 536:25 |

(cont.)

Figure 15
MonitoringLoadData XML Elements (cont.)

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|-----------------------|------------------|--|-------------------------------|
| SecondLevelCode | LevelCodeType | Code used to identify the second most frequently used load or operating level. | 536:22 |
| SecondNormalIndicator | IndicatorType | Used to indicate the reporting of an additional normal load or a second operating level. | 536:26 |
| LoadAnalysisDate | OptionalDateType | The date in which load analysis was performed. This date only applies to CEM and Appendix D locations. | 536:27 |
| BeginDate | RequiredDateType | Date on which information became effective or activity started. | New |
| BeginHour | RequiredHourType | Hour in which information became effective. | New |
| EndDate | OptionalDateType | Last date in which information was effective. This date will be null for active records. | 536:35 |
| EndHour | OptionalHourType | Last hour in which information was effective. This value will be null for active records. | New |

Figure 16
MonitoringLocationData

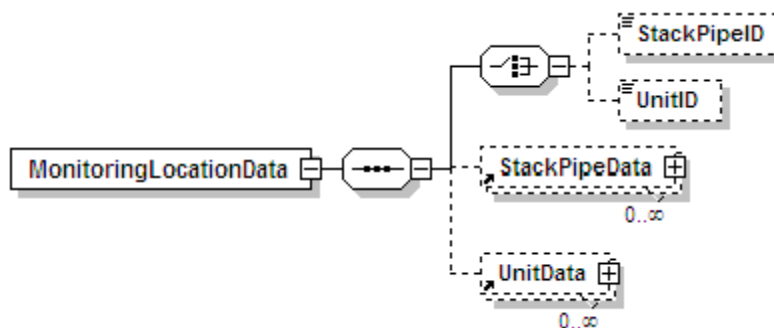


Figure 17
MonitoringLocationData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|-------------|-----------------------|---|------------------------|
| StackPipeID | RequiredStackPipeType | Three to six alphanumeric character code which is assigned by the source to identify a stack or pipe. | N/A |
| UnitID | RequiredUnitType | One to six alphanumeric character code assigned by the source to identify a unit. | N/A |

Figure 18
MonitoringLocationAttribData

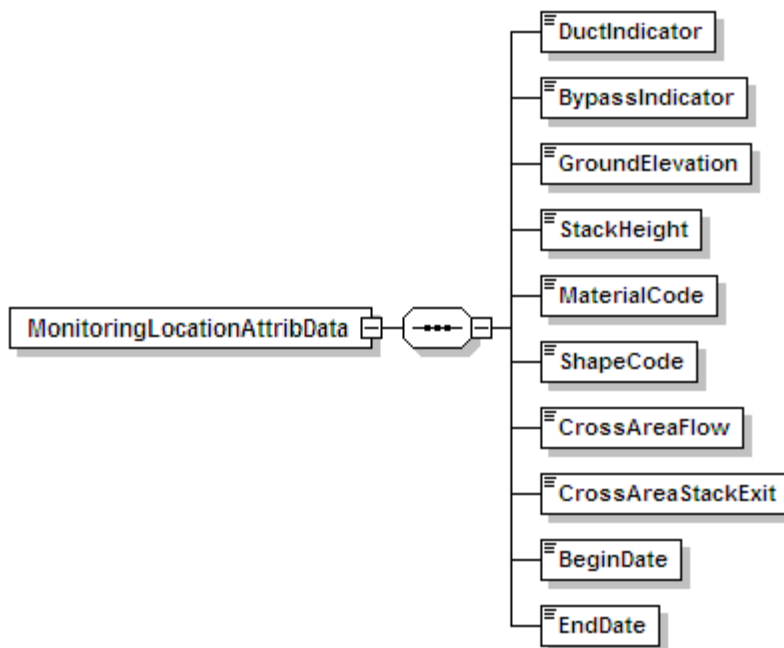


Figure 19
MonitoringLocationAttribData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|--------------------|-------------------------|---|-------------------------------|
| DuctIndicator | IndicatorType | Used to indicate that this location is a duct. | New |
| BypassIndicator | IndicatorType | Used to indicate that the stack is used for bypass. | 503:61 |
| GroundElevation | GroundElevationType | The number of feet above sea level at ground level of the stack or unit. | 503:66 |
| StackHeight | StackHeightType | The height in feet of a stack exit above ground level. | 503:62 |
| MaterialCode | MaterialCodeType | Code used to identify the material that is used in the monitoring location. | N/A |
| ShapeCode | ShapeCodeType | Code identifying the shape of a monitor location. | N/A |
| CrossAreaFlow | CrossAreaFlowType | The reported inside cross-sectional area in square feet of the stack or duct at the flow monitoring location. | 503:75 |
| CrossAreaStackExit | CrossAreaStackExit Type | The inside cross-sectional area in square feet of the stack at the exit. | 503:71 |
| BeginDate | RequiredDateType | Date on which information became effective or activity started. | New |
| EndDate | OptionalDateType | Last date in which information was effective. This date will be null for active records. | New |

Figure 20
MonitoringMethodData

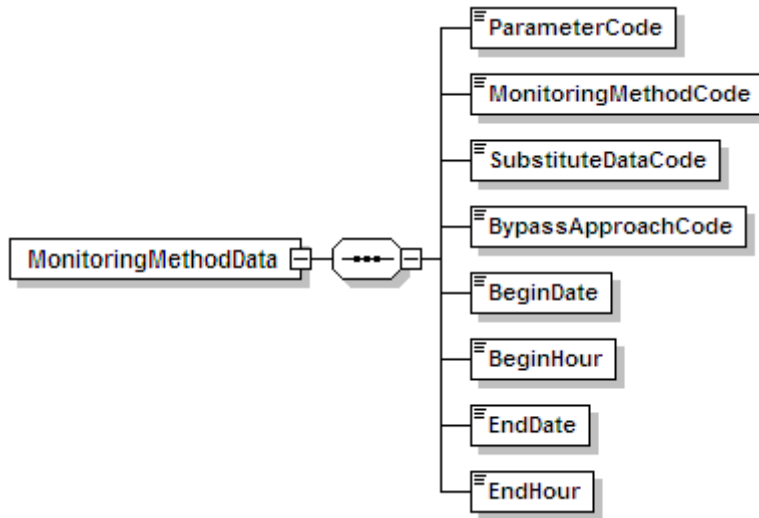


Figure 21
MonitoringMethodData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|----------------------|--------------------------|---|------------------------|
| ParameterCode | MethodParameterCode Type | Code used to identify the parameter. | 585:10 |
| MonitoringMethodCode | MethodCodeType | Code used to identify the monitoring methodology. | 585:10 |
| SubstituteDataCode | SubstituteDataCodeType | Code used to identify the substitute data approach type. | 585:28 |
| BypassApproachCode | BypassApproachCode Type | Code used to identify the value to be used for an unmonitored bypass stack. | N/A |
| BeginDate | RequiredDateType | Date on which information became effective or activity started. | 585:42 |
| BeginHour | RequiredHourType | Hour in which information became effective. | New |
| EndDate | OptionalDateType | Last date in which information was effective. This date will be null for active records. | 585:14 |
| EndHour | OptionalHourType | Last hour in which information was effective. This value will be null for active records. | New |

Figure 22
MonitoringPlanCommentData

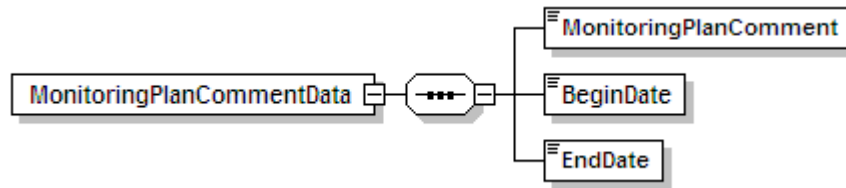


Figure 23
MonitoringPlanCommentData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|------------------------|----------------------------|--|------------------------|
| MonitoringPlan Comment | MonitoringPlan CommentType | Comment on a monitoring plan. | 910:4 |
| BeginDate | RequiredDateType | Date on which information became effective or activity started. | New |
| EndDate | OptionalDateType | Last date in which information was effective. This date will be null for active records. | New |

Figure 24
MonitoringQualificationData

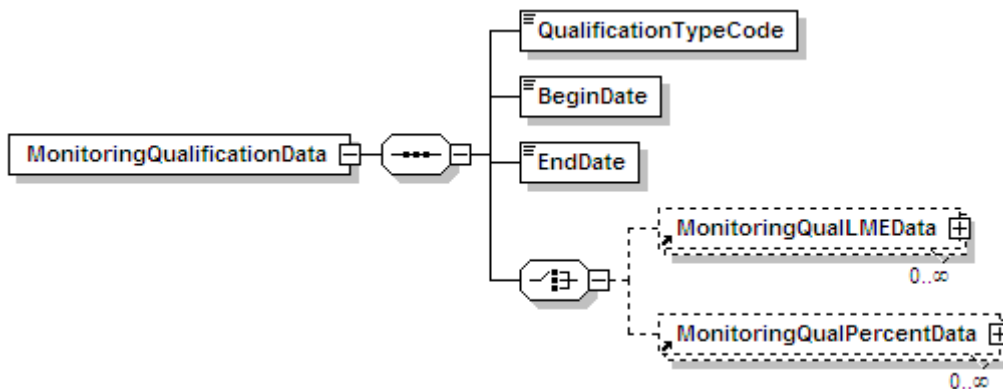


Figure 25
MonitoringQualificationData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|-----------------------|------------------|--|------------------------|
| QualificationTypeCode | QualTypeCodeType | Code used to identify the qualification type. | 507:49 |
| BeginDate | RequiredDateType | Date on which information became effective or activity started. | New |
| EndDate | OptionalDateType | Last date in which information was effective. This date will be null for active records. | N/A |

Figure 26
MonitoringQualLMEData

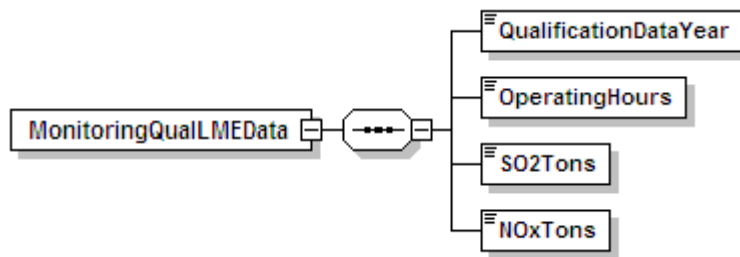


Figure 27
MonitoringQualLMEData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|-----------------------|--------------------|---|------------------------|
| QualificationDataYear | RequiredYearType | Year corresponding to the qualification data. | 645:16 |
| OperatingHours | OperatingHoursType | Annual number of operating hours used to determine qualification. | 645:36 |
| SO2Tons | SO2TonsType | Annual SO ₂ value used to determine qualification. | 645:28 |
| NOxTons | NOxTonsType | Annual NO _x emissions to determine qualification n. | 645:24 |

Figure 28
MonitoringQualPercentData

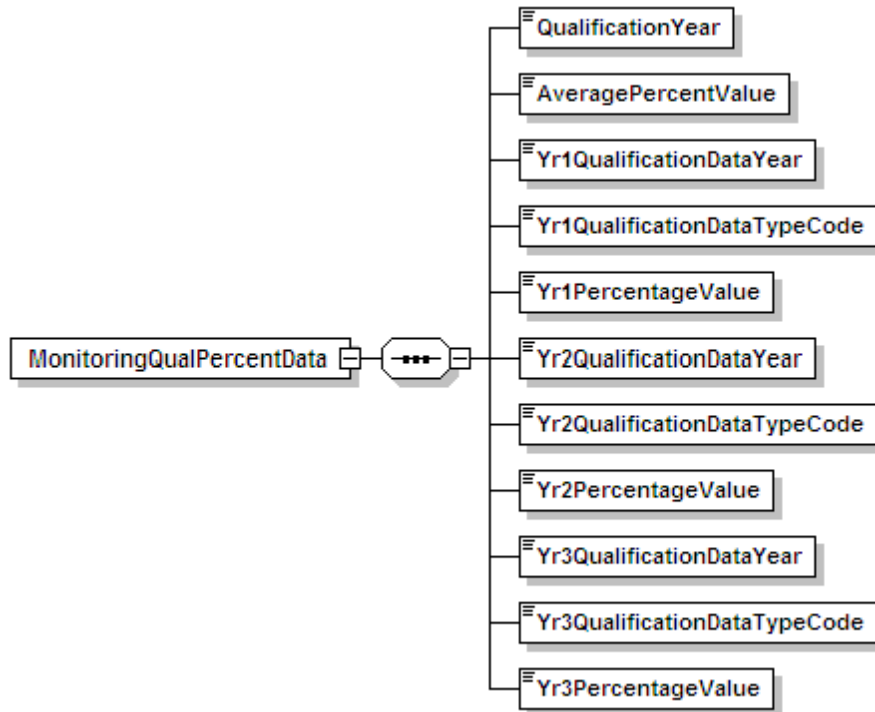


Figure 29
MonitoringQualPercentData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|------------------------------|-------------------------|---|------------------------|
| QualificationYear | RequiredYearType | Year corresponding to the qualification data. | 507:10 |
| AveragePercentValue | AveragePercentValueType | The average percent capacity or heat input usage. | 507:44 |
| Yr1QualificationDataYear | OptionalYearType | The first year corresponding to the qualification data. | 507:19 |
| Yr1QualificationDataTypeCode | QualDataTypeCodeType | Code used to indicate type of data for year one (actual or projected) used to determine peaking or gas-fired qualification. | 507:18 |
| Yr1PercentageValue | PercentageValueType | The percent capacity or heat input usage in the first year. | 507:44 |
| Yr2QualificationDataYear | OptionalYearType | The second year corresponding to the qualification data. | 507:24 |

(cont.)

Figure 29
MonitoringQualPercentData XML Elements (cont.)

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|----------------------------------|----------------------|---|-------------------------------|
| Yr2QualificationData TypeCode | QualDataTypeCodeType | Code used to indicate type of data for year two (actual or projected) used to determine peaking or gas-fired qualification. | 507:28 |
| Yr2PercentageValue | PercentageValueType | The percent capacity or heat input usage in the second year. | 507:29 |
| Yr3QualificationData Year | OptionalYearType | The third year corresponding to the qualification data. | 507:34 |
| Yr3QualificationData TypeCode | QualDataTypeCodeType | Code used to indicate type of data for year three (actual or projected) used to determine peaking or gas-fired qualification. | 507:38 |
| Yr3PercentageValue | PercentageValueType | The percent capacity or heat input usage in the third year. | 507:39 |

Figure 30
MonitoringSpanData

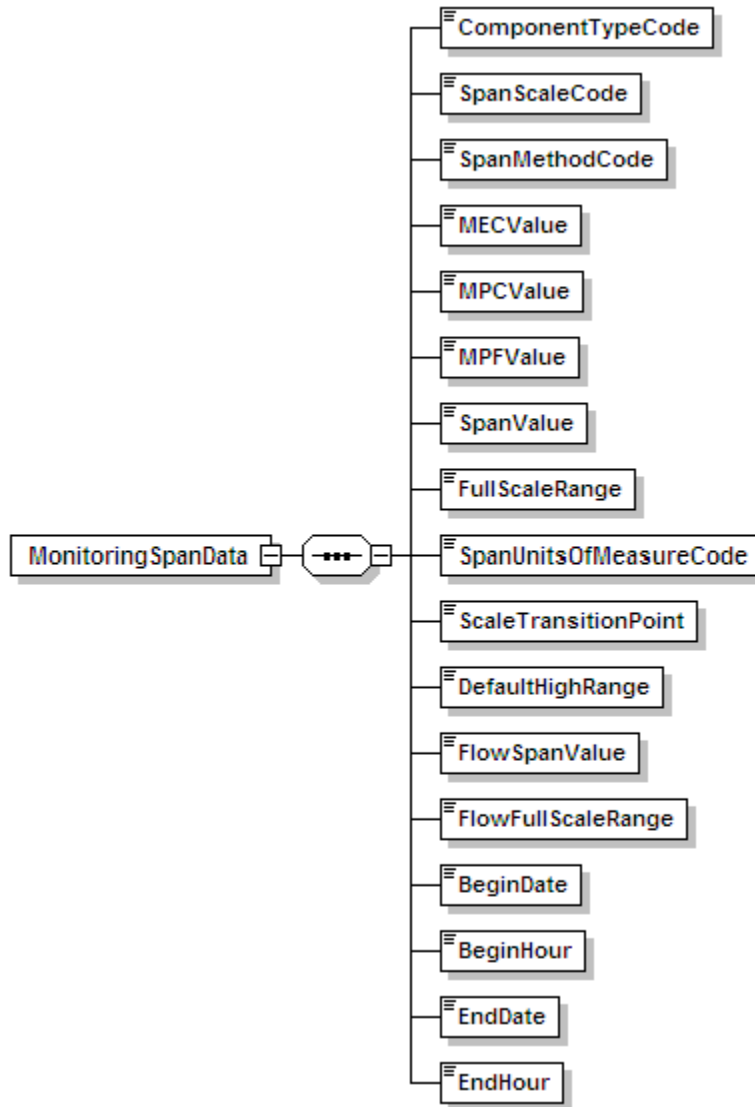


Figure 31
MonitoringSpanData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|-------------------|---------------------------|---|------------------------|
| ComponentTypeCode | SpanComponentTypeCodeType | Code used to indicate the component type. | N/A |
| SpanScaleCode | SpanScaleCodeType | Code used to identify the span scale. | 530:14 |

(cont.)

Figure 31
MonitoringSpanData XML Elements (cont.)

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|-------------------------|-----------------------------|---|-------------------------------|
| SpanMethodCode | SpanMethodCodeType | Code used to identify the method used to calculate MPC/MEC/MPF. | 530:15 |
| MECValue | MECValueType | Maximum expected concentration (MEC). | 530:17 |
| MPCValue | MPCValueType | Maximum potential concentration (MPC). | 530:17 |
| MPFValue | MPFValueType | Maximum Potential Flow (MPF). | 530:17 |
| SpanValue | SpanValueType | Span value in units of daily calibration. | 530:36 |
| FullScaleRange | FullScaleRangeType | Full scale range in units of daily calibration. | 530:49 |
| SpanUnitsOfMeasure Code | SpanUnitsOfMeasure CodeType | Code used to identify the calibration units of measure. | N/A |
| ScaleTransitionPoint | ScaleTransitionPoint Type | Maximum value determined by low-scale of a dual-range analyzer. | New |
| DefaultHighRange | DefaultHighRangeType | Default High Range value. | 530:85 |
| FlowSpanValue | FlowSpanValueType | Flow rate span value in SCFH. | 530:90 |
| FlowFullScaleRange | FlowFullScaleRange Type | Flow rate full scale value in SCFH. | 530:99 |
| BeginDate | RequiredDateType | Date on which information became effective or activity started. | 530:68 |
| BeginHour | RequiredHourType | Hour in which information became effective. | 530:74 |
| EndDate | OptionalDateType | Last date in which information was effective. This date will be null for active records. | 530:76 |
| EndHour | OptionalHourType | Last hour in which information was effective. This value will be null for active records. | 530:82 |

Figure 32
MonitoringSystemData

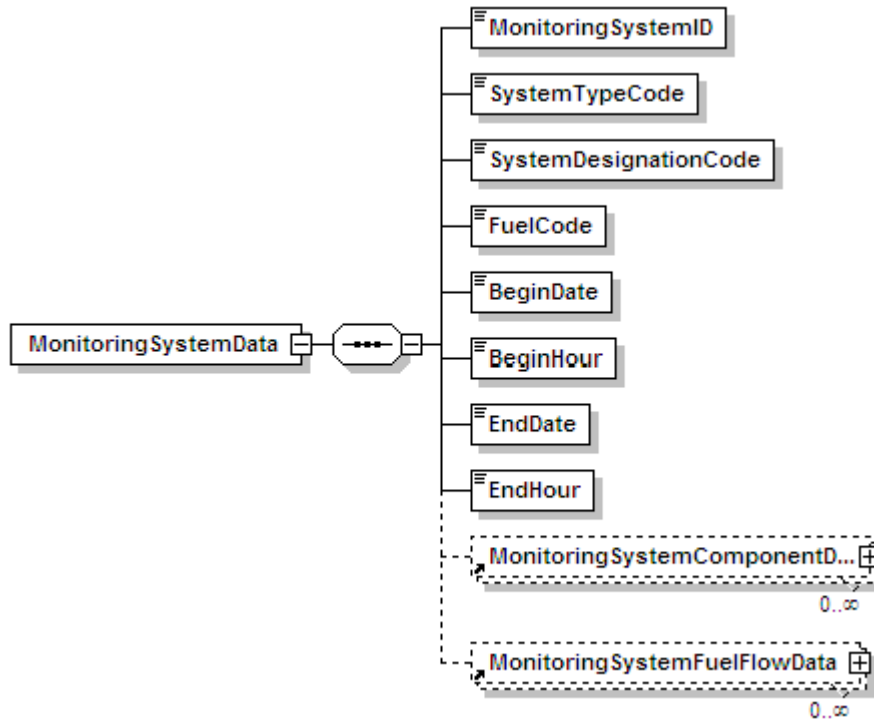


Figure 33
MonitoringSystemData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|-----------------------|----------------------------|---|------------------------|
| MonitoringSystemID | RequiredIdentifierType | The three digit code used by the source to identify the monitoring system. | 510:13 |
| SystemTypeCode | SystemTypeCodeType | Code used to identify the type (parameter) of the system. | New |
| SystemDesignationCode | SystemDesignationCode Type | Code used to indicate designation of monitoring system as primary, backup, etc. | 510:21 |
| FuelCode | SystemFuelCodeType | Code used to identify the type of fuel. | N/A |
| BeginDate | OptionalDateType | Date on which information became effective or activity started. | 510:100 |

(cont.)

Figure 33
MonitoringSystemData XML Elements (cont.)

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|-----------|------------------|---|------------------------|
| BeginHour | OptionalHourType | Hour in which information became effective or activity started. | New |
| EndDate | OptionalDateType | Last date in which information was effective. This date will be null for active records. | 510:108 |
| EndHour | OptionalHourType | Last hour in which information was effective. This value will be null for active records. | New |

Figure 34
MonitoringSystemComponentData

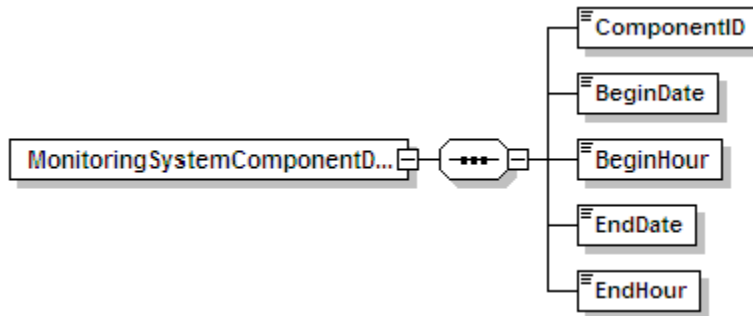


Figure 35
MonitoringSystemComponentData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|-------------|------------------------|--|------------------------|
| ComponentID | RequiredIdentifierType | The three digit code assigned by the source to identify the component. | N/A |
| BeginDate | OptionalDateType | Date on which information became effective or activity started. | New |
| BeginHour | OptionalHourType | Hour in which information became effective. | New |

(cont.)

Figure 35
MonitoringSystemComponentData XML Elements (cont.)

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|---------|------------------|---|------------------------|
| EndDate | OptionalDateType | Last date in which information was effective. This date will be null for active records. | New |
| EndHour | OptionalHourType | Last hour in which information was effective. This value will be null for active records. | New |

Figure 36
MonitoringSystemFuelFlowData

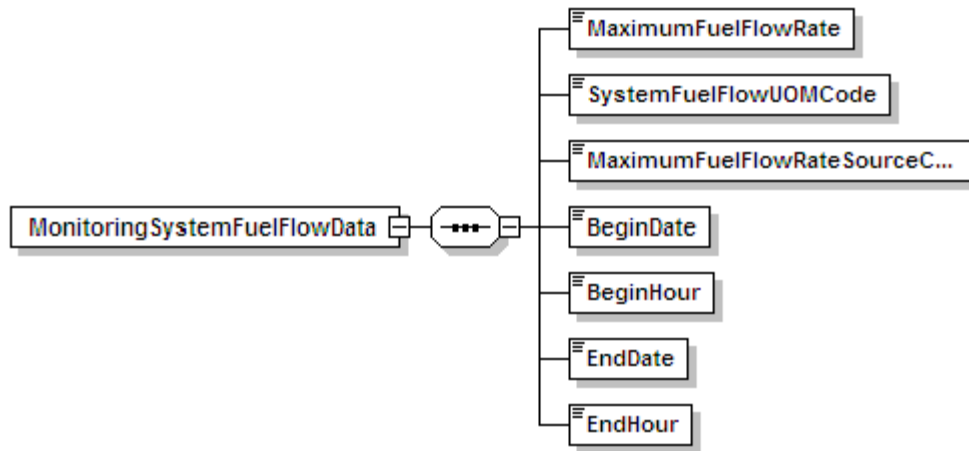


Figure 37
MonitoringSystemFuelFlowData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|--------------------------------|----------------------------|--|------------------------|
| MaximumFuelFlowRate | MaximumFuelFlowRate Type | Maximum fuel flow rate. | 540:20 |
| SystemFuelFlowUOM Code | SystemFuelFlowUOM CodeType | Code used to identify the fuel flow units of measure. | N/A |
| MaximumFuelFlowRate SourceCode | MaxRateSourceCode Type | Code used to identify the source of maximum fuel flow. | 540:35 |

(cont.)

Figure 37
MonitoringSystemFuelFlowData XML Elements (cont.)

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|-----------|------------------|---|------------------------|
| BeginDate | OptionalDateType | Date on which information became effective or activity started. | New |
| BeginHour | OptionalHourType | Hour in which information became effective. | New |
| EndDate | OptionalDateType | Last date in which information was effective. This date will be null for active records. | New |
| EndHour | OptionalHourType | Last hour in which information was effective or hour in which activity ended. This value will be null for active records. | New |

Figure 38
RectangularDuctWAFData

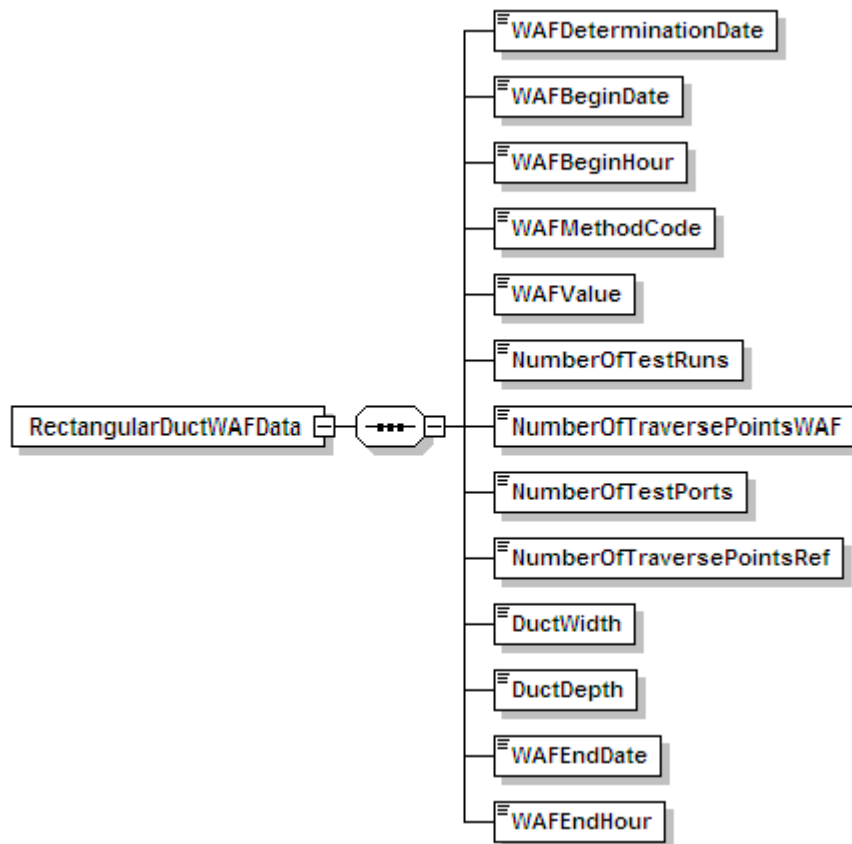


Figure 39
RectangularDuctWAFData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|----------------------------|--------------------------------|---|-------------------------------|
| WAFDeterminationDate | OptionalDateType | The date the WAF applied was determined. | 532:48 |
| WAFBeginDate | RequiredDateType | The date on which the WAF was first applied to the flow rate data. | 532:28 |
| WAFBeginHour | RequiredHourType | The hour in which the WAF was first applied to the flow rate data. | 532:36 |
| WAFMethodCode | WAFMethodCodeType | Code used to identify the WAF determination method. | 532:26 |
| WAFValue | WAFValueType | The WAF applied to the flow rate data, to four decimal places. | 532:20 |
| NumberOfTestRuns | NumberOfTestRuns Type | The number of runs in the WAF test (must be one for default WAF and at least three for a measured WAF). | 532:56 |
| NumberOfTraverse PointsWAF | NumberOfTraverse PointsWAFType | The number of Method 1 traverse points in the WAF test runs. | 532:58 |
| NumberOfTestPorts | NumberOfTestPorts Type | The number of test ports at which measurements were made during the WAF test runs. | 532:60 |
| NumberOfTraverse PointsRef | NumberOfTraverse PointsRefType | The number of Method 1 traverse points in the "reference" flow RATA test runs. | 532:62 |
| DuctWidth | DuctWidthType | The width of the rectangular duct at the test location to the nearest 0.1 ft (i.e., dimension Lx in Figure 1 of CTM-041). | 532:10 |
| DuctDepth | DuctDepthType | The depth of the rectangular duct at the test location to the nearest 0.1 ft (i.e., dimension Ly in Figure 1 of CTM-041). | 532:15 |
| WAFEndDate | OptionalDateType | The date on which the WAF was last applied to the flow rate data. | 532:38 |
| WAFEndHour | OptionalHourType | The hour in which the WAF was last applied to the flow rate data. | 532:46 |

Figure 40
StackPipeData

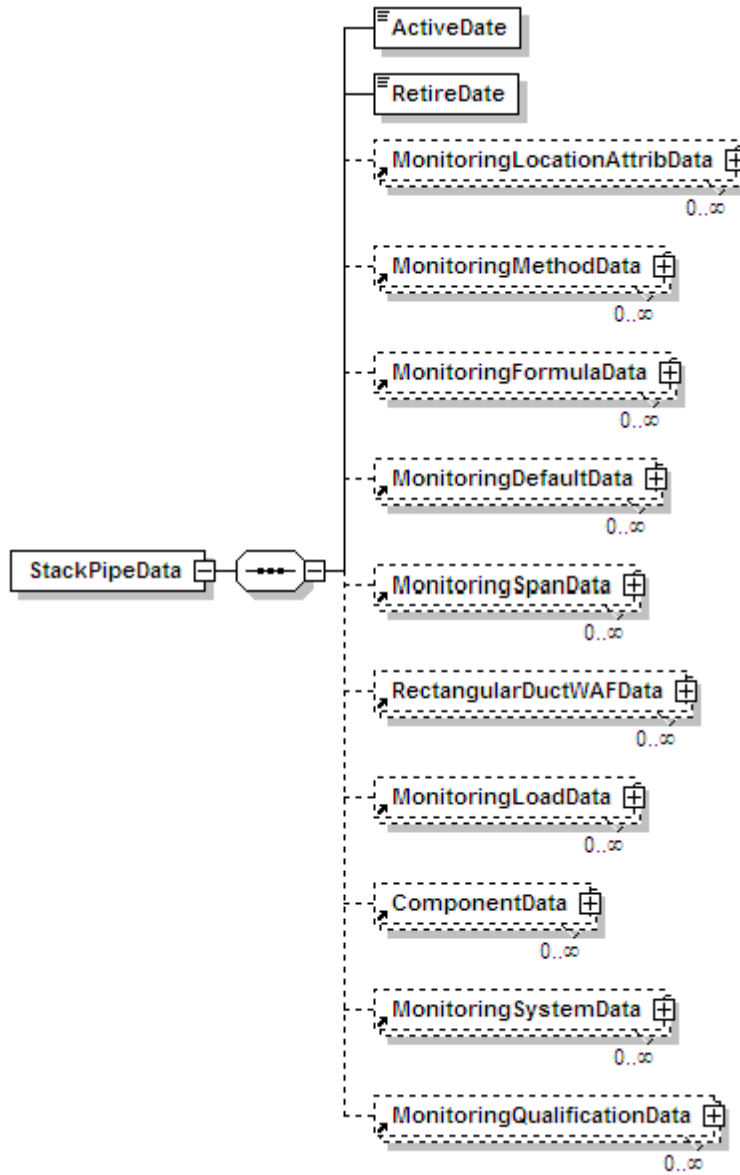
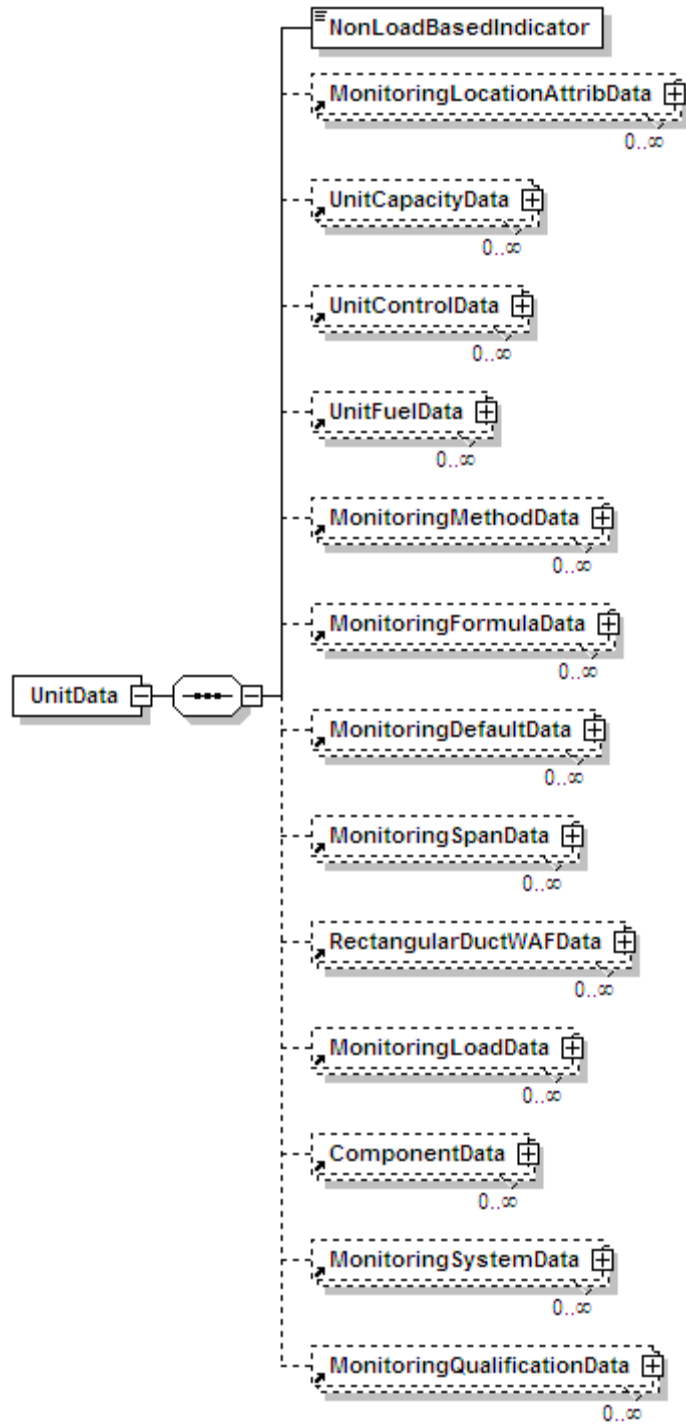


Figure 41
StackPipeData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|----------------|------------------|--|-------------------------------|
| ActiveDate | RequiredDateType | The date that emissions first went through the stack or the effective date for data reporting. | 503:49 |
| RetireDate | OptionalDateType | The actual date that the stack or pipe was last used for emissions measurement or estimation purposes. | 503:55 |

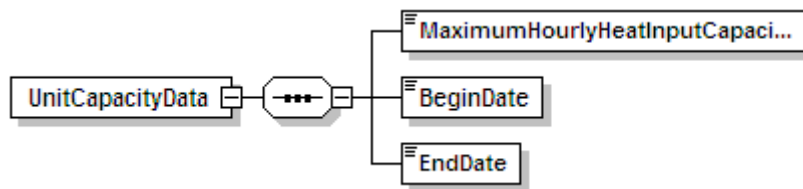
Figure 42
UnitData



**Figure 43
UnitData XML Elements**

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|-----------------------|---------------|--|------------------------|
| NonLoadBasedIndicator | IndicatorType | Used to indicate whether the unit is non-load based. | 504:53 |

**Figure 44
UnitCapacityData**



**Figure 45
UnitCapacityData XML Elements**

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|---------------------------------|-------------------------------------|---|------------------------|
| MaximumHourlyHeat InputCapacity | MaximumHourlyHeat InputCapacityType | The maximum hourly heat input (mmBtu/hr) for the unit. | 504:13 |
| BeginDate | RequiredDateType | Date in which information became effective or activity started. | New |
| EndDate | OptionalDateType | Date on which a relationship or an activity ended. | New |

Figure 46
UnitControlData

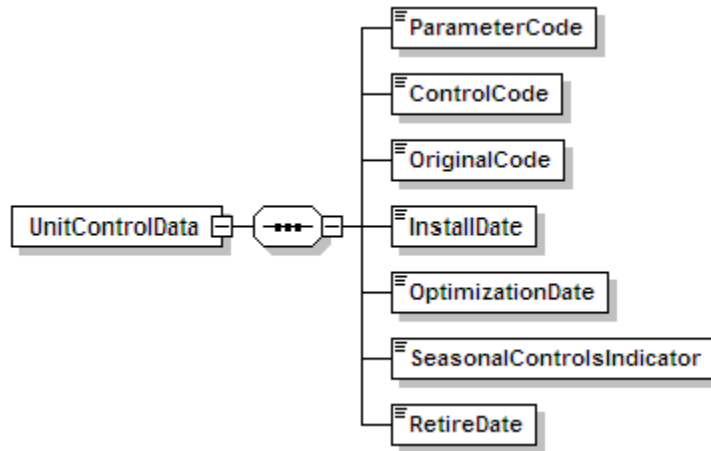


Figure 47
UnitControlData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|----------------------------|-------------------------------|--|------------------------|
| ParameterCode | UnitControlParameter CodeType | Code used to identify the continuous emissions parameter for the control. | 586:10 |
| ControlCode | ControlCodeType | Code used to identify the control type. | 586:14 |
| OriginalCode | IndicatorType | Used to indicate that the control equipment was installed and operated as part of the original unit design. | 586:21 |
| InstallDate | OptionalDateType | Date on which information became effective or activity started. | 586:22 |
| OptimizationDate | OptionalDateType | The approximate date on which optimization of control equipment was completed and the equipment made fully operational if the control equipment was not part of the original installation. | 586:30 |
| SeasonalControls Indicator | IndicatorType | Used to indicate that the NO _x control equipment is used during the ozone season. | 586:46 |
| RetireDate | OptionalDateType | Last date in which information was effective. This date will be null for active records. | 586:38 |

Figure 48
UnitFuelData

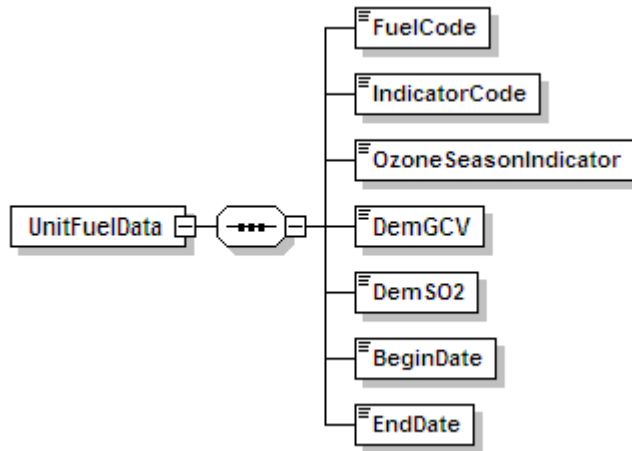
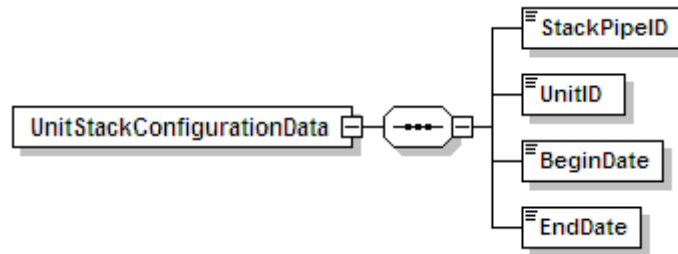


Figure 49
UnitFuelData XML Elements

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|----------------------|-------------------|--|------------------------|
| FuelCode | UnitFuelCodeType | Code used to identify the type of fuel which the unit is capable or will be capable of combusting. | 587:10 |
| IndicatorCode | IndicatorCodeType | Code used to identify the fuel usage (primary or secondary). | 586:20 |
| OzoneSeasonIndicator | IndicatorType | Used to indicate that the fuel is used during ozone season. | 587:30 |
| DemGCV | DemMethodCodeType | Demonstration method to qualify for monthly fuel sampling for GCV. | 587:31 |
| DemSO2 | DemSO2Type | Demonstration method to qualify for daily fuel sampling for percent sulfur. | 587:34 |
| BeginDate | RequiredDateType | Date in which information became effective or activity started. | 587:13 |
| EndDate | OptionalDateType | Last date in which information was effective. This date will be null for active records. | 587:21 |

**Figure 50
UnitStackConfigurationData**



**Figure 51
UnitStackConfigurationData XML Elements**

| XML Tag | Type | Definition | EDR Reference (RT:Col) |
|-------------|-----------------------|---|------------------------|
| StackPipeID | RequiredStackPipeType | Three to six alphanumeric character code which is assigned by the source to identify a stack or pipe. | N/A |
| UnitID | RequiredUnitType | One to six alphanumeric character code assigned by the source to identify a unit. | N/A |
| BeginDate | RequiredDateType | Date on which information became effective or activity started. | New |
| EndDate | OptionalDateType | Last date in which information was effective or date in which activity ended. | New |

Figure 52
Simple Types Used for Validation

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|-----------------------------|---|-------------|--------------------------|---|--------------|
| Acquisition MethodCode Type | ComponentData/Sample AcquisitionMethodCode | String | Yes | COR DIL DIN DOU DP EXT IS ISC ISP NOZ O ORF PDP T TUR U VCON VEN VTX WXT | |
| AnalyzerRange CodeType | AnalyzerRangeData/ AnalyzerRangeCode | String | No | A H L | |
| AveragePercent Value Type | MonitoringQualPercent Data/AveragePercent Value | Decimal | Yes | Total Digits = 5 Decimal Places = 1 | |
| BasisCodeType | ComponentData/Basis Code | String | Yes | B D W | |
| BypassApproach CodeType | MonitoringMethodData/ BypassApproachCode | String | Yes | BYMAX BYMAXFS NA | |
| CalibrationSource CodeType | CalibrationStandardData /CalibrationSourceCode | String | No | BBP E GMIS MBP NTRM O PRM RGM SBP SRM | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|-----------------------------|---|-------------|--------------------------|--|--------------|
| CalibrationSourceCodeType | CalibrationStandardData/CalibrationSourceCode | String | No | CYL | |
| CalibrationStandardCodeType | CalibrationStandardData/CalibrationStandardCode | String | No | BBP GMIS MBP NTRM PRM RGM SBP SRM | |
| ComponentTypeCodeType | ComponentData/ComponentTypeCode | String | No | BGFF BOFF CALR CO2 DAHS DL DP FLC FLOW GCH GFFM H2O NOX O2 OFFM OP PLC PM PRB PRES SO2 TANK TEMP | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|----------------------------|---|-------------|--------------------------|--|--------------|
| ControlCodeType | UnitControlData/Control Code | String | No | B C CM DA DL DLNB ESP FBL H2O HESP LNB LNBO LNC1 LNC2 LNC3 LNCB MO NH3 O OFA SB SCR SNCR STM WESP WL WLS WS | |
| CrossAreaFlow Type | MonitoringLocation AttribData/CrossArea Flow | Decimal | Yes | Total Digits = 4 Decimal Places = 0 | |
| CrossAreaStack ExitType | MonitoringLocation AttribData/CrossArea StackExit | Decimal | Yes | Total Digits = 4 Decimal Places = 0 | |
| DefaultHigh RangeType | MonitoringSpanData/ DefaultHighRange | Decimal | Yes | Total Digits = 5 Decimal Places = 0 | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| Simple Type Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|-------------------------------|---|-------------|--------------------------|---|--------------|
| DefaultParameterCodeType | MonitoringDefaultData/ParameterCode | String | No | CO2N CO2R CO2X FLOX H2O H2ON H2OX MHHI MNGF MNHI MNNX MNOF NOCX NORX NOXR O2N O2X SO2R SO2X SORX | |
| DefaultPurposeCodeType | MonitoringDefaultData/DefaultPurposeCode | String | Yes | DC DM F23 LM MD PM | |
| DefaultSourceCodeType | MonitoringDefaultData/DefaultSourceCode | String | Yes | APP CONT DATA DEF MAXD PERM SAMP TEST | |
| DefaultUnitsOfMeasureCodeType | MonitoringDefaultData/DefaultUnitsOfMeasureCode | String | Yes | BBLHR GALHR HSCF LBHR LBMMBTU M3HR MMBTUHR PCT PPM SCFH TNMMBTU | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|------------------------|---------------------------------------|-------------|--------------------------|--|--------------|
| DefaultValueType | MonitoringDefaultData/DefaultValue | Decimal | No | Total Digits = 15 Decimal Places = 4 | |
| DemMethodCodeType | UnitFuelData/DemGCV | String | Yes | GGC GHS GOC | |
| DemSO2Type | UnitFuelData/DemSO2 | String | Yes | SGC SHS | |
| DuctDepthType | RectangularDuct WAFData/DuctDepth | Decimal | Yes | Total Digits = 5 Decimal Places = 1 | |
| DuctWidthType | RectangularDuct WAFData/DuctWidth | Decimal | Yes | Total Digits = 5 Decimal Places = 1 | |
| EquationCodeType | MonitoringFormulaData/ FormulaCode | String | Yes | 19-1 19-14 19-2 19-3 19-3D 19-4 19-5 19-5D 19-6 19-7 19-8 19-9 D-12 D-15 D-15A D-1H D-2 D-3 D-4 D-5 D-6 D-8 E-2 F-1 F-11 F-14A F-14B F-15 F-16 F-17 F-18 F-19 | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|---------------------------|---------------------------------------|-------------|--------------------------|--|--------------|
| EquationCode Type (cont.) | MonitoringFormulaData/FormulaCode | String | Yes | F-19V F-2 F-20 F-21A F-21B F-21C F-21D F-23 F-24A F-25 F-26A F-26B F-31 F-5 F-6 F-7A F-7B F-8 G-1 G-2 G-3 G-4 G-4A G-5 G-6 G-8 M-1K N-GAS N-OIL NS-1 NS-2 SS-1A SS-1B SS-2A SS-2B SS-2C SS-3A SS-3B T-FL X-FL | |
| FlowFullScale RangeType | MonitoringSpanData/FlowFullScaleRange | Decimal | Yes | Total Digits = 10 Decimal Places = 0 | |
| FlowSpanValue Type | MonitoringSpanData/FlowSpanValue | Decimal | Yes | Total Digits = 10 Decimal Places = 0 | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|--------------------------|-------------------------------------|-------------|--------------------------|---|--------------|
| FormulaParameterCodeType | MonitoringFormulaData/ParameterCode | String | No | CO2 CO2C CO2M FC FD FGAS FLOW FOIL FW H2O HI HIT NOX NOXR OILM SO2 SO2R | |
| FormulaTextType | MonitoringFormulaData/FormulaText | String | No | Minimum Length = 0 Maximum Length = 200 characters | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|------------------------|--|-------------|--------------------------|---|--------------|
| FuelCodeType | MonitoringDefaultData/ FuelCode | String | Yes | ANT BFG BT BUT C CDG COG CRF DGG DSL LFG LIG LPG MIX NFS NNG OGS OIL OOL OSF PDG PNG PRG PRP PRS PTC R RFG SRG SUB TDF W WL | |
| FullScaleRange Type | MonitoringSpanData/ FullScaleRange | Decimal | Yes | Total Digits = 13 Decimal Places = 3 | |
| GroundElevation Type | MonitoringLocation AttribData/Ground Elevation | Decimal | Yes | Total Digits = 5 Decimal Places = 0 | |
| GroupIDType | MonitoringDefaultData/ GroupID | String | Yes | Maximum Length = 10 characters | |
| IndicatorCode Type | UnitFuelData/Indicator Code | String | Yes | E I P S | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|--|--|-------------|--------------------------|--|--------------|
| IndicatorType | AnalyzerRangeData/ DualRangeIndicator MonitoringLoadData/ SecondNormalIndicator MonitoringLocation AttribData/Bypass Indicator MonitoringLocation AttribData/Duct Indicator UnitControlData/ OriginalCode UnitControlData/ SeasonalControls Indicator UnitData/NonLoad BasedIndicator UnitFuelData/Ozone SeasonIndicator | String | Yes | 0 1 | |
| LevelCodeType | MonitoringLoadData/ NormalLevelCode MonitoringLoadData/ SecondLevelCode | String | Yes | H L M | |
| LowerOperation BoundaryType | MonitoringLoadData/ LowerOperation Boundary | Decimal | Yes | Total Digits = 6 Decimal Places = 0 | |
| Manufacturer Type | ComponentData/ Manufacturer | String | No | Maximum Length = 25 characters | |
| MaterialCode Type | MonitoringLocation AttribData/MaterialCode | String | Yes | BRICK OTHER | |
| MaximumFuel FlowRateType | MonitoringSystemFuel FlowData/Maximum FuelFlowRate | Decimal | No | Total Digits = 9 Decimal Places = 1 | |
| MaximumHourly HeatInput CapacityType | UnitCapacityData/ MaximumHourlyHeat InputCapacity | Decimal | Yes | Total Digits = 7 Decimal Places = 1 | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|-----------------------------------|--|-------------|--------------------------|--|--------------|
| MaximumLoadUnitsOfMeasureCodeType | MonitoringLoadData/MaximumLoadUnitsOfMeasureCode | String | Yes | KLBHR MMBTUHR MW | |
| MaximumLoadValueType | MonitoringLoadData/MaximumLoadValue | Decimal | Yes | Total Digits = 6 Decimal Places = 0 | |
| MaxRateSourceCodeType | MonitoringSystemFuelFlowData/MaximumFuelFlowRateSourceCode | String | Yes | UMX URV | |
| MECValueType | MonitoringSpanData/MECValue | Decimal | Yes | Total Digits = 6 Decimal Places = 1 | |
| MethodCodeType | MonitoringMethodData/MonitoringMethodCode | String | No | AD ADCALC AE AMS CALC CEM CEMF23 CEMNOXR COM EXP F23 FSA LME LTFCALC LTFF MDF MHHI MMS MTB MWD NOXR PEM | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| Simple Type Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|---------------------------------|---|-------------|--------------------------|---|--------------|
| MethodParameter CodeType | MonitoringMethodData/ ParameterCode | String | No | CO2 CO2M H2O HI HIT NOX NOXM NOXR OP PM SO2 SO2M | |
| ModelVersion Type | ComponentData/Model Version | String | No | Maximum Length = 15 characters | |
| MonitoringPlan CommentType | MonitoringPlan CommentData/ MonitoringPlan Comment | String | No | Minimum Length = 1 Maximum Length = 4,000 characters | |
| MPCValueType | MonitoringSpanData/ MPCValue | Decimal | Yes | Total Digits = 6 Decimal Places = 1 | |
| MPFValueType | MonitoringSpanData/ MPFValue | Decimal | Yes | Total Digits = 10 Decimal Places = 0 | |
| NOxTonsType | MonitoringQualLME Data/NOxTons | Decimal | Yes | Total Digits = 4 Decimal Places = 1 | |
| NumberOfTest PortsType | RectangularDuct WAFData/NumberOf TestPorts | Decimal | Yes | Total Digits = 2 Decimal Places = 0 | |
| NumberOfTest RunsType | RectangularDuct WAFData/NumberOf TestRuns | Decimal | Yes | Total Digits = 2 Decimal Places = 0 | |
| NumberOf TraversePoints RefType | RectangularDuct WAFData/NumberOf TraversePointsRef | Decimal | Yes | Total Digits = 2 Decimal Places = 0 | |
| NumberOf TraversePoints WAFType | RectangularDuct WAFData/NumberOf TraversePointsWAF | Decimal | Yes | Total Digits = 2 Decimal Places = 0 | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|----------------------------|--|-------------|--------------------------|--|---------------------|
| OperatingConditionCodeType | MonitoringDefaultData/OperatingConditionCode | String | Yes | A B C P U | |
| OperatingHoursType | MonitoringQualLMEDData/OperatingHours | Integer | Yes | | Must be an integer. |

(cont.)

**Figure 52
Simple Types Used for Validation (cont.)**

| Simple Type Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|-------------------------|--|-------------|--------------------------|--|-----------------|
| OptionalDate Type | AnalyzerRangeData/BeginDate AnalyzerRangeData/EndDate MonitoringDefaultData/EndDate MonitoringFormulaData/BeginDate MonitoringFormulaData/EndDate MonitoringLoadData/EndDate MonitoringLoadData/LoadAnalysisDate MonitoringLocationAttribData/EndDate MonitoringMethodData/EndDate MonitoringPlanCommentData/EndDate MonitoringQualificationData/EndDate MonitoringSpanData/EndDate MonitoringSystemComponentData/BeginDate MonitoringSystemComponentData/EndDate MonitoringSystemData/BeginDate | Date | Yes | | Must be a date. |

(cont.)

**Figure 52
Simple Types Used for Validation (cont.)**

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|---------------------------|---|-------------|--------------------------|--|-----------------|
| OptionalDate Type (cont.) | MonitoringSystemData/EndDate MonitoringSystemFuelFlowData/BeginDate MonitoringSystemFuelFlowData/EndDate RectangularDuctWAFData/WAFDeterminationDate RectangularDuctWAFData/WAFEndDate StackPipeData/RetireDate UnitCapacityData/EndDate UnitControlData/InstallDate UnitControlData/OptimizationDate UnitControlData/RetireDate UnitFuelData/EndDate UnitStackConfigurationData/EndDate | Date | Yes | | Must be a date. |

(cont.)

**Figure 52
Simple Types Used for Validation (cont.)**

| Simple Type Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|-------------------------|--|-------------|--------------------------|---|--------------|
| OptionalHour Type | AnalyzerRangeData/BeginHour AnalyzerRangeData/EndHour MonitoringDefaultData/EndHour MonitoringFormulaData/BeginHour MonitoringFormulaData/EndHour MonitoringLoadData/EndHour MonitoringMethodData/EndHour MonitoringSpanData/EndHour MonitoringSystemComponentData/BeginHour MonitoringSystemComponentData/EndHour MonitoringSystemData/BeginHour MonitoringSystemData/EndHour MonitoringSystemFuelFlowData/BeginHour MonitoringSystemFuelFlowData/EndHour RectangularDuctWAFData/WAFEndHour | Decimal | Yes | Minimum Value (inclusive) = 0 Maximum Value (inclusive) = 23 | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|------------------------|--|-------------|--------------------------|--|---------------------------------------|
| OptionalYear Type | MonitoringQualPercentData/Yr1QualificationDataYear MonitoringQualPercentData/Yr2QualificationDataYear MonitoringQualPercentData/Yr3QualificationDataYear | Integer | Yes | Minimum Value (inclusive) = 1940 Maximum Value (inclusive) = 2050 | Four-digit year between 1940 and 2050 |
| ORISCodeType | MonitoringPlan/ORISCode | Integer | No | Minimum Value (inclusive) = 1 Maximum Value (inclusive) = 999999 | |
| PercentageValue Type | MonitoringQualPercentData/Yr1PercentageValue MonitoringQualPercentData/Yr2PercentageValue MonitoringQualPercentData/Yr3PercentageValue | Decimal | Yes | Total Digits = 5 Decimal Places = 1 | |
| QualDataTypeCodeType | MonitoringQualPercentData/Yr1QualificationDataTypeCode MonitoringQualPercentData/Yr2QualificationDataTypeCode MonitoringQualPercentData/Yr3QualificationDataTypeCode | String | Yes | A D P | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|------------------------|--|-------------|--------------------------|--|-----------------|
| QualTypeCode Type | MonitoringQualificationData/QualificationTypeCode | String | No | COMPLEX GF LMEA LMES LOWSULF PK PRATA1 PRATA2 SK | |
| RequiredDate Type | MonitoringDefaultData/BeginDate MonitoringLoadData/BeginDate MonitoringLocationAttribData/BeginDate MonitoringMethodData/BeginDate MonitoringPlanCommentData/BeginDate MonitoringQualificationData/BeginDate MonitoringSpanData/BeginDate RectangularDuctWAFData/WAFBeginDate StackPipeData/ActiveDate UnitCapacityData/BeginDate UnitFuelData/BeginDate UnitStackConfigurationData/BeginDate | Date | No | | Must be a date. |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|-------------------------|--|-------------|--------------------------|---|---|
| RequiredHour Type | MonitoringDefaultData/BeginHour MonitoringLoadData/BeginHour MonitoringMethodData/BeginHour MonitoringSpanData/BeginHour RectangularDuctWAFData/WAFBeginHour | Decimal | No | Minimum Value (inclusive) = 0 Maximum Value (inclusive) = 23 | |
| Required IdentifierType | ComponentData/ComponentID MonitoringFormulaData/FormulaID MonitoringSystemComponentData/ComponentID MonitoringSystemData/MonitoringSystemID | String | No | [A-Z0-9]{1,3} | One to three character alphanumeric string. |
| Required StackPipeType | MonitoringLocationData/StackPipeID UnitStackConfigurationData/StackPipeID | String | No | (C c M m X x)(S s P p) [A-z0-9]{1,4} | Three to six character string beginning with "CS," "CP," "MS," "MP," or "XS." |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|---------------------------|---|-------------|--------------------------|--|--|
| RequiredUnit Type | MonitoringLocationData/UnitID UnitStackConfigurationData/UnitID | String | No | [A-z0-9 \- *#]{1,6} | One to six character alphanumeric string; also allow asterisk (*), hyphen (-), and pound sign (#). |
| RequiredYear Type | MonitoringQualLMEDData/QualificationDataYear MonitoringQualPercentData/QualificationYear | Integer | No | (19[0-9][0-9])20[0-9][0-9] | Four-digit year between 1900 and 2099. |
| ScaleTransitionPointType | MonitoringSpanData/ScaleTransitionPoint | Decimal | Yes | Total Digits = 6 Decimal Places = 1 | |
| SerialNumber Type | ComponentData/SerialNumber | String | No | Maximum Length = 20 characters | |
| ShapeCodeType | MonitoringLocationAttribData/ShapeCode | String | Yes | RECT ROUND | |
| SO2TonsType | MonitoringQualLMEDData/SO2Tons | Decimal | Yes | Total Digits = 4 Decimal Places = 1 | |
| SpanComponentTypeCodeType | MonitoringSpanData/ComponentTypeCode | String | No | CO2 FLOW NOX O2 SO2 | |
| SpanMethodCode Type | MonitoringSpanData/SpanMethodCode | String | Yes | F GS HD ME OL PL TB TR | |
| SpanScaleCode Type | MonitoringSpanData/SpanScaleCode | String | Yes | H L | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|----------------------------|--|-------------|--------------------------|---|--------------|
| SpanUnitsOfMeasureCodeType | MonitoringSpanData/ SpanUnitsOfMeasureCode | String | Yes | ACFH ACFM AFPM AMSEC INH2O KACFH KACFM KAFPM KSCFH KSCFM KSFPM MACFH MSCFH PCT PPM SCFH SCFM SFPM SMSEC | |
| SpanValueType | MonitoringSpanData/ SpanValue | Decimal | Yes | Total Digits = 13 Decimal Places = 3 | |
| StackHeightType | MonitoringLocation AttribData/StackHeight | Decimal | Yes | Total Digits = 4 Decimal Places = 0 | |
| SubstituteDataCodeType | MonitoringMethodData/ SubstituteDataCode | String | Yes | FSP75 FSP75C MHHI NLB NLBOP OZN75 REV75 SPTS | |
| SystemDesignationCodeType | MonitoringSystemData/ SystemDesignationCode | String | Yes | B CI DB P PB RB RM | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|---------------------------|--|-------------|--------------------------|--|--------------|
| SystemFuelCodeType | MonitoringSystemData/ FuelCode | String | Yes | BFG BUT CDG COG DGG DSL LFG LPG MIX NFS NNG OGS OIL OOL PDG PNG PRG PRP RFG SRG | |
| SystemFuelFlowUOMCodeType | MonitoringSystemFuel FlowData/SystemFuel FlowUOMCode | String | No | BBLHR GALHR HSCF LBHR M3HR SCFH | |
| SystemTypeCodeType | MonitoringSystemData/ SystemTypeCode | String | No | CO2 FLOW GAS H2O H2OM H2OT LTGS LTOL NOX NOXC NOXE NOXP O2 OILM OILV OP PM SO2 | |

(cont.)

Figure 52
Simple Types Used for Validation (cont.)

| SimpleType Name | Used By | Base | Allow Null Values | Validation Patterns, Restrictions, and Values | Notes |
|------------------------------|---|-------------|--------------------------|--|--------------|
| UnitControlParameterCodeType | UnitControlData/ParameterCode | String | No | NOX PART SO2 | |
| UnitFuelCodeType | UnitFuelData/FuelCode | String | No | C CRF DSL LPG NNG OGS OIL OOL OSF PNG PRG PRS PTC R TDF W WL | |
| UpperOperationBoundaryType | MonitoringLoadData/UpperOperationBoundary | Decimal | Yes | Total Digits = 6 Decimal Places = 0 | |
| VersionType | MonitoringPlan/Version | String | Yes | Maximum Length = 10 characters | |
| WAFMethodCodeType | RectangularDuctWAFData/WAFMethodCode | String | Yes | AT DF FT | |
| WAFValueType | RectangularDuctWAFData/WAFValue | Decimal | No | Total Digits = 6 Decimal Places = 4 | |