The Emissions Collection and Monitoring Plan Project

Quality Assurance and
Certification Test XML Schema
Version 1.3

Submitted to:

ECMPS Stakeholders

Submitted by:

United States Environmental Protection Agency
Office of Air and Radiation
Clean Air Markets Division
1201 Constitution Ave, NW
Washington, DC 20004

June 14, 2017

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1.0 Introduction

This document is the second 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 was developed for each data type, i.e., monitoring plan, quality assurance and certification test data, and emissions data. The schema will be used for all quality assurance and certification test 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 Quality Assurance and Certification Test XML Schema Tables

The following tables provide information about the data elements of the Quality Assurance and Certification Test XML schema. The information includes a description of the data element, the type of the element, and a definition for the element.

Figures 1 and 2 provide information on the root element of the Quality Assurance and Certification Test 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 61 include information on the complex data elements in the XML schema.

Detailed information about the data types is included in Figure 62. 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
QualityAssuranceAndCert
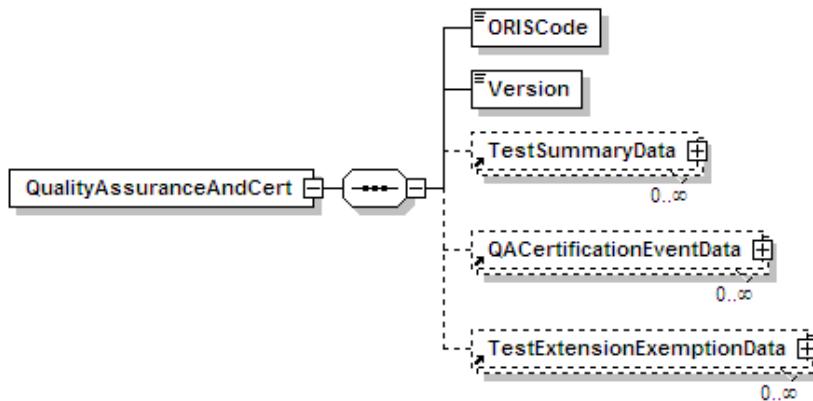
Figure 2
QualityAssuranceAndCert XML Elements

XML Tag	Type	Definition
ORISCode	ORISCodeType	EIA-assigned identifier or Facility identifier assigned by CAMD (if EIA number is not applicable).
Version	VersionType	Identifies the XML schema version.

Figure 3
Complex Elements of the Quality Assurance and Certification Root

Complex Element	Parent Element	Minimum Occurrences	Maximum Occurrences
AirEmissionTestingData	TestSummaryData	0	unbounded
AppECorrelationTestRunData	AppECorrelationTestSummaryData	0	unbounded
AppECorrelationTestSummaryData	TestSummaryData	0	1
AppendixEHeatInputFromGasData	AppECorrelationTestRunData	0	1
AppendixEHeatInputFromOilData	AppECorrelationTestRunData	0	1
CalibrationInjectionData	TestSummaryData	0	unbounded
CycleTimeInjectionData	CycleTimeSummaryData	0	unbounded

(cont.)

Figure 3
Complex Elements of the Quality Assurance and Certification Root (cont.)

Complex Element	Parent Element	Minimum Occurrences	Maximum Occurrences
CycleTimeSummary Data	TestSummaryData	0	1
FlowRATARunData	RATARunData	0	1
FlowToLoadCheckData	TestSummaryData	0	1
FlowToLoadReferenceData	TestSummaryData	0	1
FuelFlowmeter AccuracyData	TestSummaryData	0	1
FuelFlowToLoad BaselineData	TestSummaryData	0	1
FuelFlowToLoadTest Data	TestSummaryData	0	1
HgInjectionData	HgSummaryData	0	unbounded
HgSummaryData	Test SummaryData	0	unbounded
LinearityInjectionData	LinearitySummaryData	0	unbounded
LinearitySummaryData	TestSummaryData	0	unbounded
OnlineOffline CalibrationData	TestSummaryData	0	1
ProtocolGasData	TestSummaryData	0	unbounded
QACertificationEvent Data	QualityAssuranceAnd Certification	0	unbounded
QualityAssuranceAnd Cert		1	1
RATAData	TestSummaryData	0	1
RATARunData	RATASummaryData	1	unbounded
RATASummaryData	RATAData	0	unbounded
RATATraverseData	FlowRATARunData	0	unbounded
TestExtension ExemptionData	QualityAssuranceAnd Certification	0	unbounded
TestQualificationData	TestSummaryData	0	unbounded
TestSummaryData	QualityAssuranceAnd Certification	0	unbounded
TransmitterTransducerData	TestSummaryData	0	1
UnitDefaultTestData	TestSummaryData	0	1
UnitDefaultTestRunData	UnitDefaultTestData	0	unbounded

Figure 4
AirEmissionTestingData
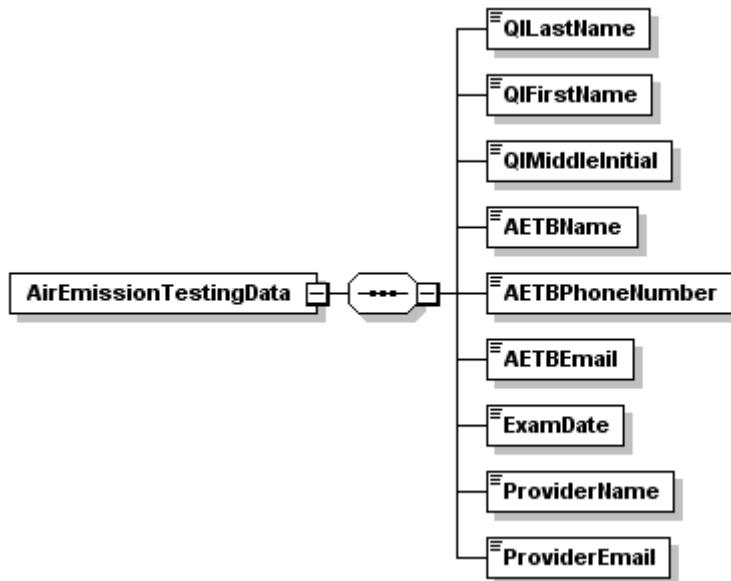
Figure 5
AirEmissionTestingData XML Elements

XML Tag	Type	Definition
QILastName	QINameType	Last name of the on-site Qualified Individual who conducted or oversaw the test.
QIFirstName	QINameType	First name of the on-site Qualified Individual who conducted or oversaw the test.
QIMiddleInitial	QIMiddleNameType	Middle initial of the on-site Qualified Individual who conducted or oversaw the test.
AETBName	AETBNameType	Name of the Air Emission Testing Body that performed the test.
AETBPhoneNumber	AETBPhoneNumberType	Phone number of the Air Emission Testing Body that performed the test.
AETBEmail	AETBEmailType	Email address of the Air Emission Testing Body that performed the test.
ExamDate	RequiredDateType	Date on which the on-site Qualified Individual took and passed the relevant qualification exam(s) for the reference method(s) that were performed during the test.
ProviderName	AETBNameType	Provider(s) of the qualification test that took place on the exam date.
ProviderEmail	AETBEmailType	Email address(es) of provider(s) of the qualification test that took place on the exam date.

Figure 6
AppECorrelationTestRunData
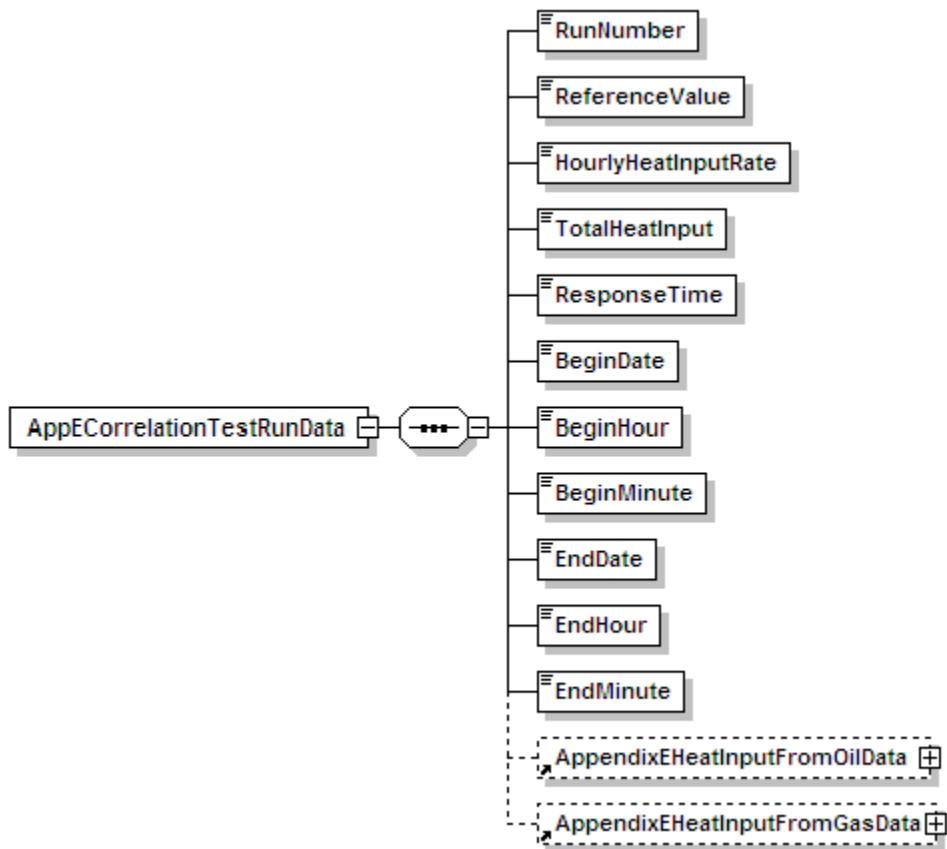
Figure 7
AppECorrelationTestRunData XML Elements

XML Tag	Type	Definition
RunNumber	RunNumberType	Run number.
ReferenceValue	ReferenceValueType	Value from reference method during run.
HourlyHeatInputRate	HourlyHeatInputRate Type	Hourly heat input rate during the run.
TotalHeatInput	HeatInputType	Total heat input during the run.
ResponseTime	ResponseTimeType	Reference method response time during run.
BeginDate	RequiredDateType	Date on which the run started.
BeginHour	RequiredHourType	Hour in which the run started.
BeginMinute	RequiredMinuteType	Minute in which the run started.

cont.

Figure 7
AppECorrelationTestRunData XML Elements (cont.)

XML Tag	Type	Definition
EndDate	RequiredDateType	Last date in which information was effective or date in which activity ended.
EndHour	RequiredHourType	Last hour in which information was effective or hour in which activity ended.
EndMinute	RequiredMinuteType	Last minute in which information was effective or minute in which activity ended.

Figure 8
AppECorrelationTestSummaryData
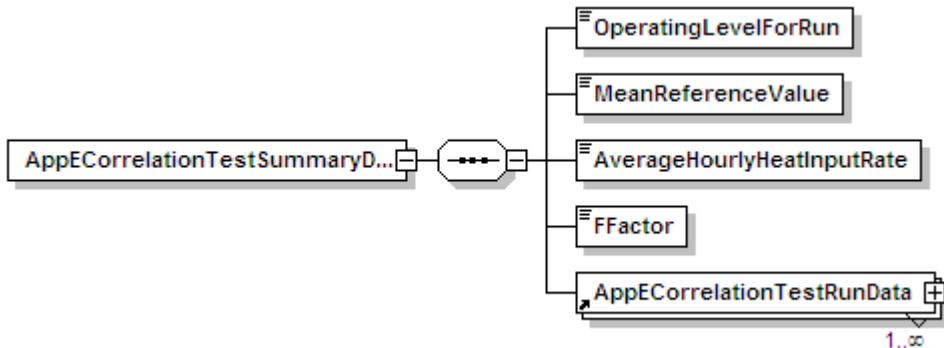
Figure 9
AppECorrelationTestSummaryData XML Elements

XML Tag	Type	Definition
OperatingLevelForRun	OperatingLevelType	Operating level for run.
MeanReferenceValue	ReferenceValueType	Arithmetic mean of reference method values at this level.
AverageHourlyHeat InputRate	HourlyHeatInputRate Type	Average hourly heat input rate at this level.
FFactor	FFactorType	F-factor used to convert NO_x concentrations to emission rates.

Figure 10
AppendixEHeatInputFromGasData
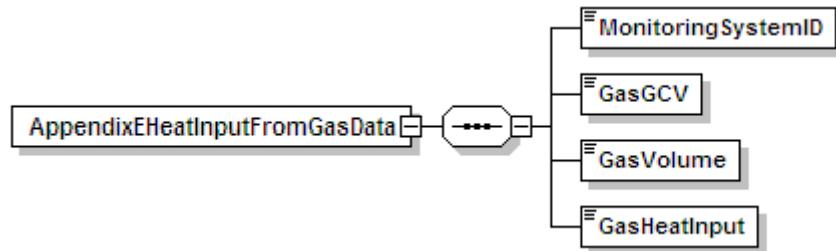
Figure 11
AppendixEHeatInputFromGasData XML Elements

XML Tag	Type	Definition
MonitoringSystemID	RequiredIdentifierType	The three digit code used by the source to identify the monitoring system.
GasGCV	GCVType	Gross calorific value (GCV) of gas.
GasVolume	VolumeType	Volume of gas combusted during run.
GasHeatInput	HeatInputType	Heat input from gas during run.

Figure 12
AppendixEHeatInputFromOilData
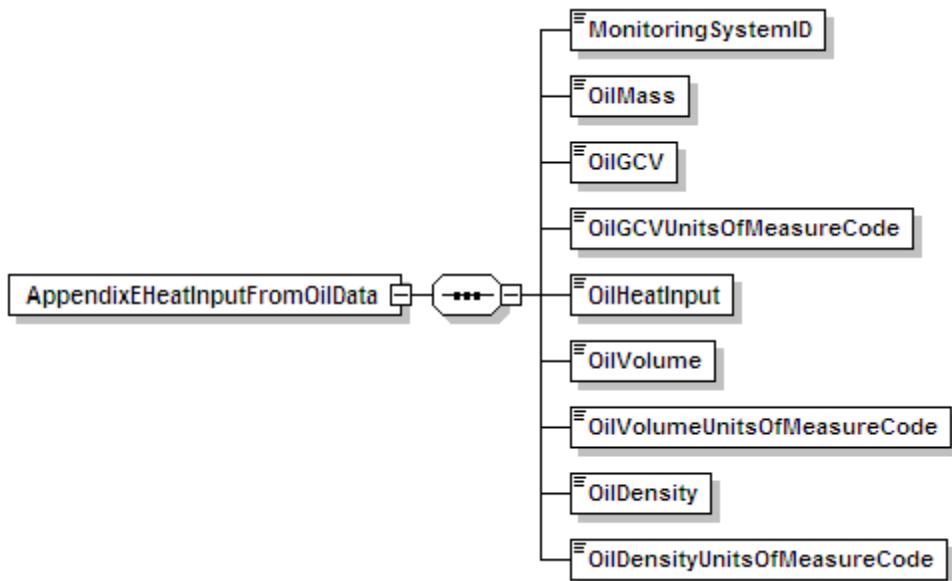
Figure 13
AppendixEHeatInputFromOilData XML Elements

XML Tag	Type	Definition
MonitoringSystemID	RequiredIdentifierType	The three digit code used by the source to identify the monitoring system.
OilMass	MassType	Mass of oil combusted during run.
OilGCV	GCVType	Gross calorific value (GCV) of oil.
OilGCVUnitsOf MeasureCode	GCVUnitsOfMeasure CodeType	Code used to identify units of measure for GCV of oil.
OilHeatInput	HeatInputType	Heat input from oil during run.
OilVolume	VolumeType	Volume of oil combusted during run.
OilVolumeUnitsOf MeasureCode	VolumeUnitsOf MeasureCodeType	Code used to identify units of measure for volume of oil.
OilDensity	DensityType	Density of oil.
OilDensityUnitsOf MeasureCode	DensityUnitsOf MeasureCodeType	Code used to identify units of measure for density of oil.

Figure 14
CalibrationInjectionData
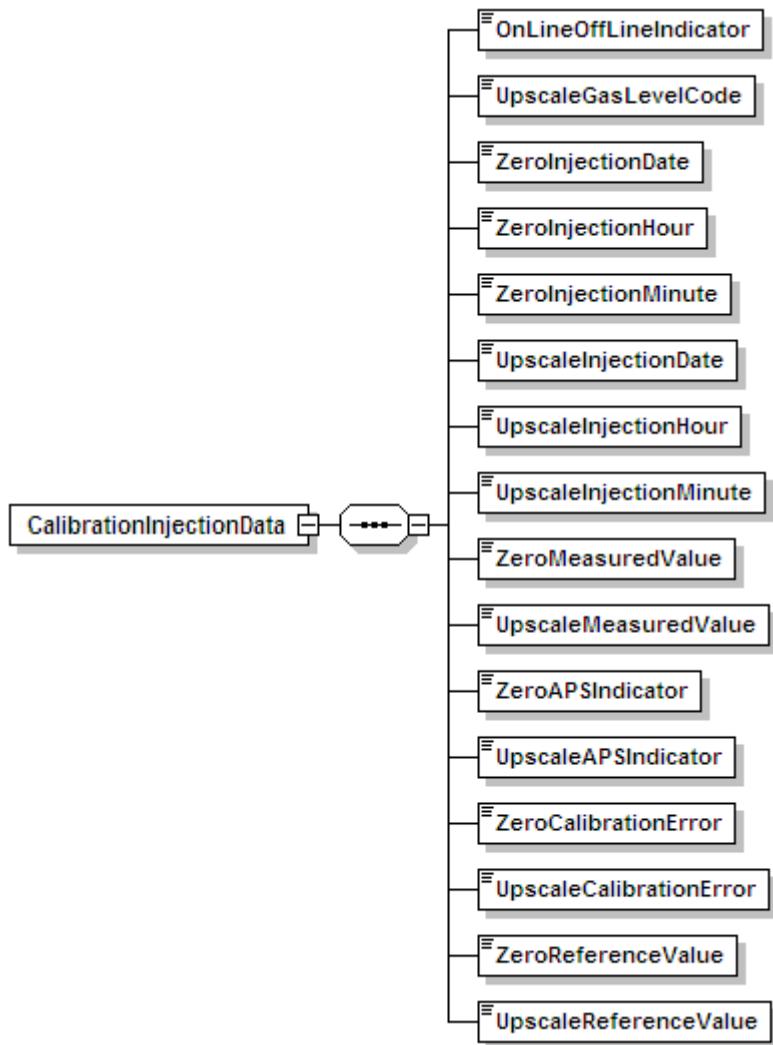
Figure 15
CalibrationInjectionData XML Elements

XML Tag	Type	Definition
OnLineOffLine Indicator	IndicatorType	Indicates whether the unit or stack is operating at the time of the test.
UpscaleGasLevelCode	UpscaleGasCodeType	Code used to identify upscale gas level.
ZeroInjectionDate	OptionalDateType	Date of zero level injection.
ZeroInjectionHour	OptionalHourType	Hour of zero level injection.
ZeroInjectionMinute	OptionalMinuteType	Zero Injection Minute.

(cont.)

Figure 15
CalibrationInjectionData XML Elements (cont.)

XML Tag	Type	Definition
UpscaleInjectionDate	OptionalDateType	Date of upscale injection.
UpscaleInjectionHour	OptionalHourType	Hour of upscale injection.
UpscaleInjection Minute	OptionalMinuteType	Upscale Injection minute.
ZeroMeasuredValue	CalibrationValueType	Zero measured value.
UpscaleMeasuredValue	CalibrationValueType	Upscale measured value.
ZeroAPSIndicator	IndicatorType	Alternative performance specification (APS) indicator.
UpscaleAPSIndicator	IndicatorType	Alternative performance specification (APS) indicator.
ZeroCalibrationError	CalibrationErrorType	Reported zero level calibration error.
UpscaleCalibration Error	CalibrationErrorType	Reported upscale level calibration error.
ZeroReferenceValue	CalibrationValueType	Zero level reference value.
UpscaleReference Value	CalibrationValueType	Upscale reference value.

Figure 16
CycleTimeInjectionData
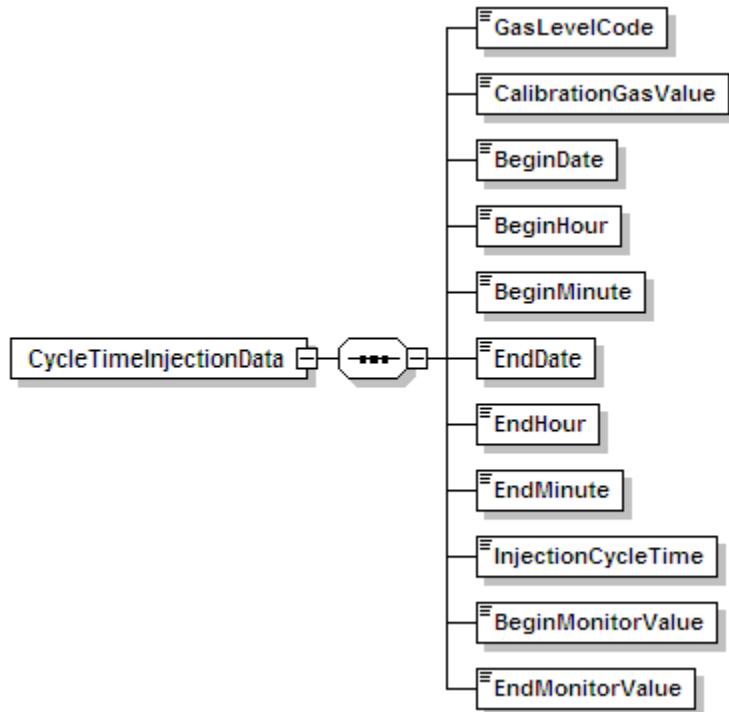
Figure 17
CycleTimeInjectionData XML Elements

XML Tag	Type	Definition
GasLevelCode	CalibrationInjectionGas LevelCodeType	Code used to identify calibration gas level.
CalibrationGasValue	MonitorValueType	Calibration gas value.
BeginDate	RequiredDateType	Date of the cycle time injection.
BeginHour	RequiredHourType	Hour in which information became effective or activity started.
BeginMinute	RequiredMinuteType	Minute in which the cycle time injection began.
EndDate	RequiredDateType	Last date in which information was effective or date in which activity ended.
EndHour	RequiredHourType	Last hour in which information was effective or hour in which activity ended.
EndMinute	RequiredMinuteType	Last minute in which information was effective or minute in which activity ended.

(cont.)

Figure 17
CycleTimeInjectionData XML Elements (cont.)

XML Tag	Type	Definition
InjectionCycleTime	CycleTimeType	Component cycle time.
BeginMonitorValue	MonitorValueType	Stable analyzer response at the start of the cycle time test.
EndMonitorValue	MonitorValueType	Stable analyzer response at the end of the cycle time test.

Figure 18
CycleTimeSummaryData
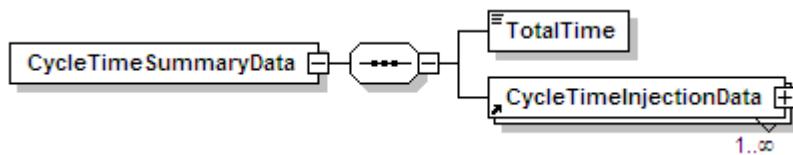
Figure 19
CycleTimeSummaryData XML Elements

XML Tag	Type	Definition
TotalTime	OptionalTimeType	Reported time.

Figure 20
FlowRATARunData
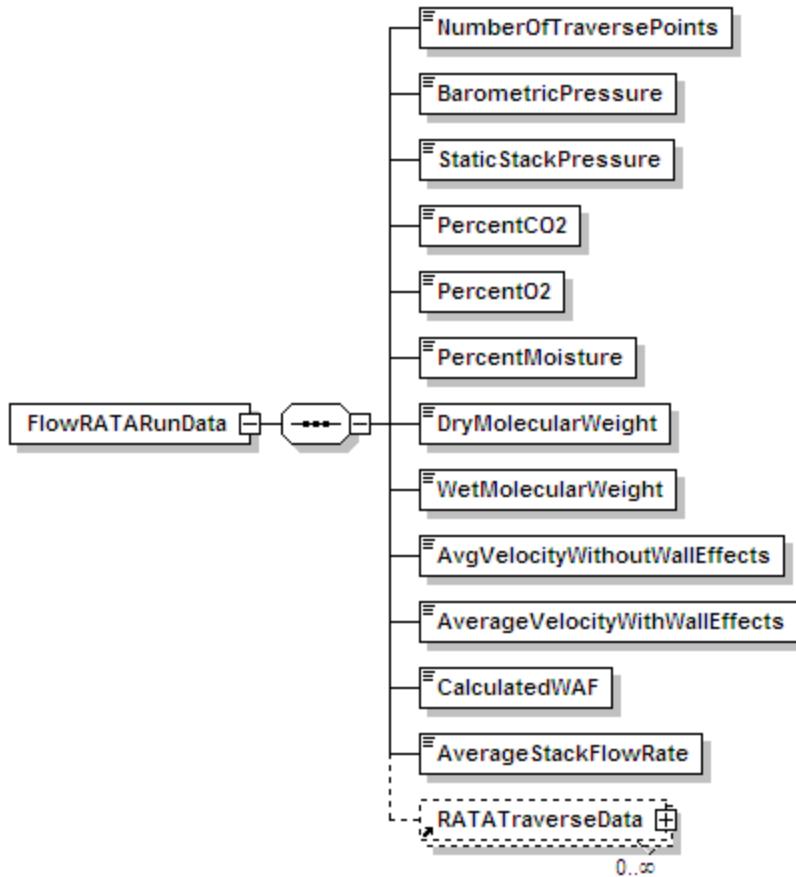
Figure 21
FlowRATARunData XML Elements

XML Tag	Type	Definition
NumberOfTraverse Points	NumberOfTraverse PointsType	Number of traverse points.
BarometricPressure	RunPressureType	P-bar, barometric pressure, in Hg.
StaticStackPressure	RunPressureType	P(g), stack static pressure, in H_2O.
PercentCO$_2$	PercentType	Percent CO_2 in stack gas, dry basis
PercentO$_2$	PercentType	Percent O_2 in stack gas, dry basis.
PercentMoisture	PercentType	Percent moisture in stack gas.
DryMolecularWeight	MolecularWeightType	Stack gas molecular weight, dry basis.
WetMolecularWeight	MolecularWeightType	Stack gas molecular weight, wet basis.

(cont.)

Figure 21
FlowRATARunData XML Elements (cont.)

XML Tag	Type	Definition
AvgVelocityWithout WallEffects	VelocityType	Average velocity for run, not accounting for wall effects.
AverageVelocityWith WallEffects	VelocityType	Average velocity for run, accounting for wall effects.
CalculatedWAF	WAFType	Calculated wall effects adjustment factor (WAF) derived from this test run.
AverageStackFlowRate	StackFlowRateType	Average stack flow rate, wet basis, adjusted if applicable for wall effects.

Figure 22
FlowToLoadCheckData
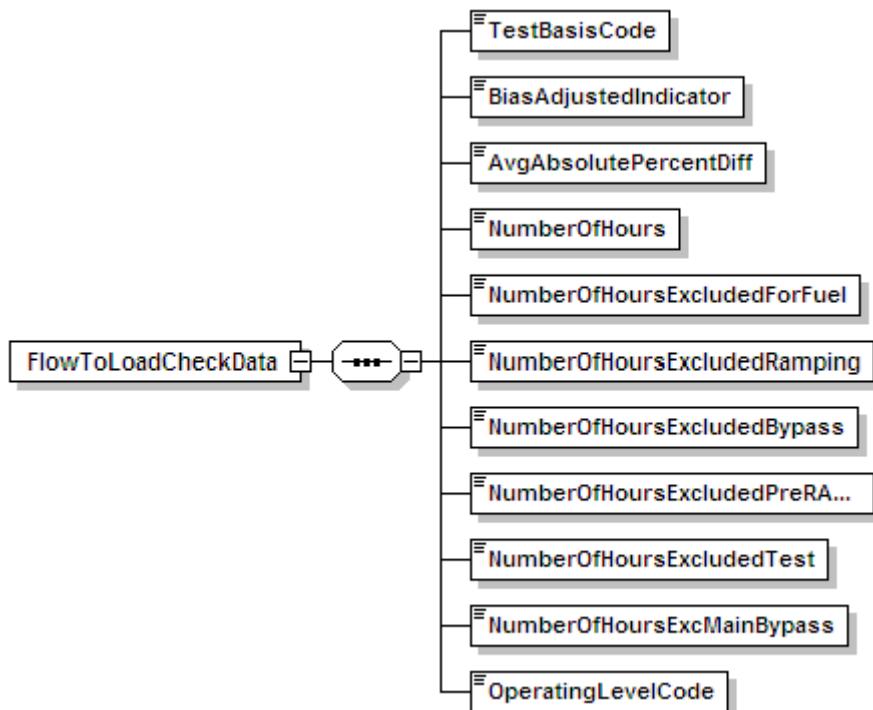
Figure 23
FlowToLoadCheckData XML Elements

XML Tag	Type	Definition
TestBasisCode	TestBasisCodeType	Code used to identify the test basis (Q-flow-to-load ratio; H-gross heat rate).
BiasAdjustedIndicator	IndicatorType	Used to Indicate whether the BAF was applied to reported flow values.
AvgAbsolutePercentDiff	PercentDifferenceType	Average absolute percent difference between reference ration (GHR) and hourly ratios (or GHR values).
NumberOfHours	NumberOfHoursType	Number of hours used in quarterly flow-to-load or GHR analysis.
NumberOfHours ExcludedForFuel	NumberOfHoursType	Number of hours excluded for different type of fuel.
NumberOfHours ExcludedRamping	NumberOfHoursType	Number of hours excluded for load ramping up or down.
NumberOfHours ExcludedBypass	NumberOfHoursType	Number of hours excluded for scrubber bypass.
NumberOfHours ExcludedPreRATA	NumberOfHoursType	Number of hours excluded preceding a normal load flow RATA.
NumberOfHours ExcludedTest	NumberOfHoursType	Number of excluded hours preceding a successful diagnostic test, following a documented monitor repair, or following a major component replacement.
NumberOfHoursExc MainBypass	NumberOfHoursType	Number of hours excluded for flue gases discharging simultaneously through a main stack and bypass stack.
OperatingLevelCode	FlowToLoadCheckOperatingLevelCodeType	Code used to identify the operating level.

Figure 24
FlowToLoadReferenceData
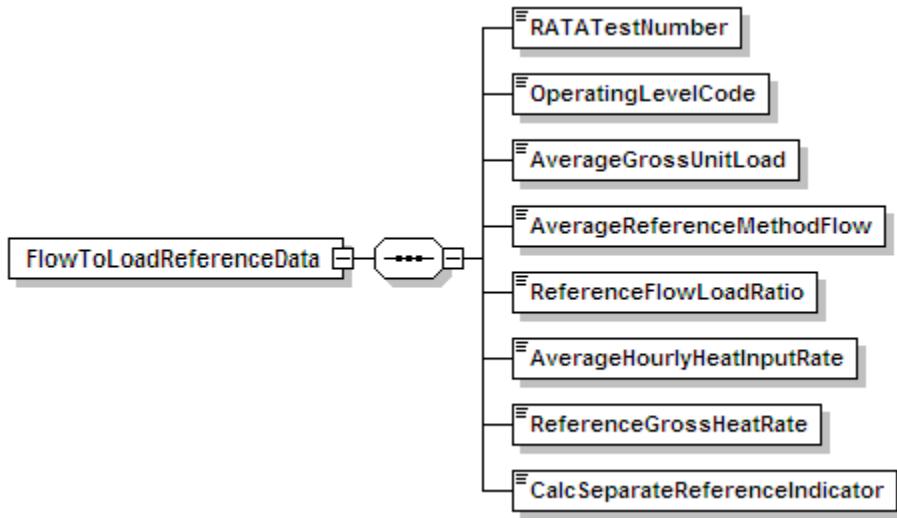
Figure 25
FlowToLoadReferenceData XML Elements

XML Tag	Type	Definition
RATATestNumber	TestNumberType	RATA test number.
OperatingLevelCode	OperatingLevelCode Type	Code used to identify the operating level.
AverageGrossUnitLoad	GrossUnitLoadType	Average gross unit load (MWe or Steam).
AverageReference MethodFlow	ReferenceMethodFlow Type	Average reference method flow rate during reference flow RATA.
ReferenceFlowLoad Ratio	FlowLoadRatioType	Reference flow to load ratio.
AverageHourlyHeat InputRate	HourlyHeatInputRate Type	Average hourly heat input rate during RATA.
ReferenceGrossHeat Rate	GrossHeatRateType	Reference gross heat rate (GHR) value.
CalcSeparateReference Indicator	IndicatorType	Used to indicate if separate reference ratio was calculated for each multiple stack.

Figure 26
FuelFlowToLoadBaselineData
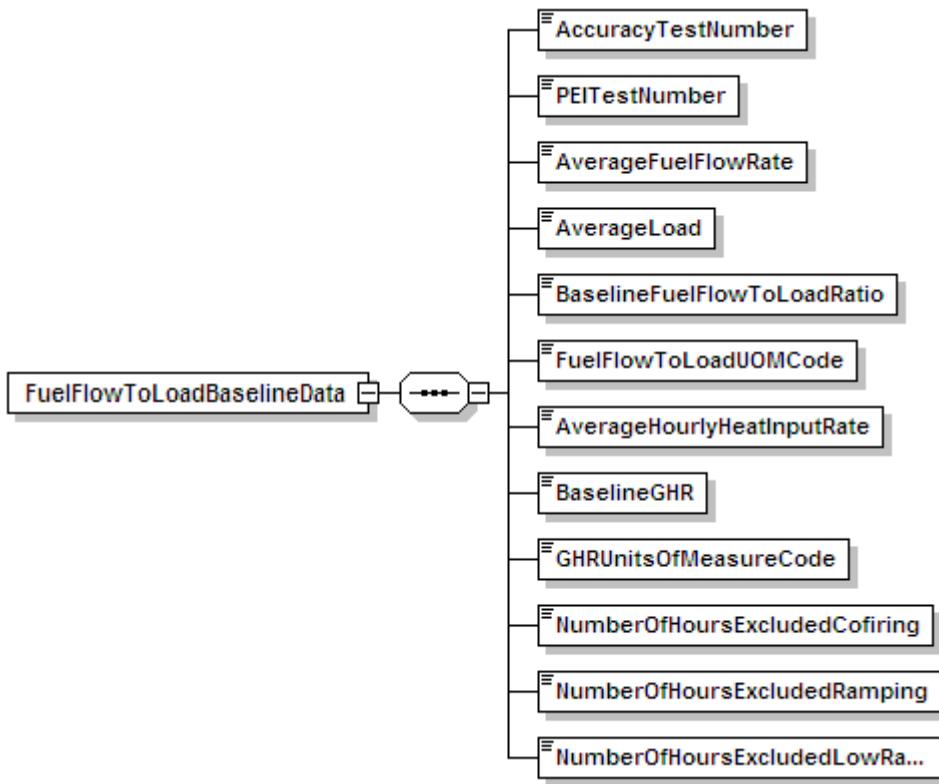
Figure 27
FuelFlowToLoadBaselineData XML Elements

XML Tag	Type	Definition
AccuracyTestNumber	TestNumberType	Test number of most recent fuel flowmeter accuracy test.
PEITestNumber	TestNumberType	Test number of most recent primary element inspection test.
AverageFuelFlowRate	FuelFlowRateType	Average fuel flow rate (100 scfh for gas and lb/hr for oil).
AverageLoad	GrossUnitLoadType	Average load (MWe or 1,000 lbs steam per hour).
BaselineFuelFlowTo LoadRatio	RatioType	Baseline fuel flow to load ratio.
FuelFlowToLoad UOMCode	FuelFlowToLoadBaselin eUnitsOfMeasureCode Type	Code used to identify baseline fuel-flow-to-load units of measure.

(cont.)

Figure 27
FuelFlowToLoadBaselineData XML Elements (cont.)

XML Tag	Type	Definition
AverageHourlyHeat InputRate	HourlyHeatInputRate Type	Average hourly heat input rate.
BaselineGHR	GrossHeatRateType	Baseline gross heat rate (GHR).
GHRUnitsOfMeasure Code	GHRUnitsOfMeasure CodeType	Code used to identify baseline gross heat rate (GHR) units of measure.
NumberOfHours ExcludedCofiring	NumberOfHoursType	Number of hours excluded due to co-firing or combustion of a different type of fuel.
NumberOfHours ExcludedRamping	NumberOfHoursType	Number of hours excluded due to ramping.
NumberOfHours ExcludedLowRange	NumberOfHoursType	Number of hours excluded in lower 25% of range of operation.

Figure 28
FuelFlowToLoadTestData
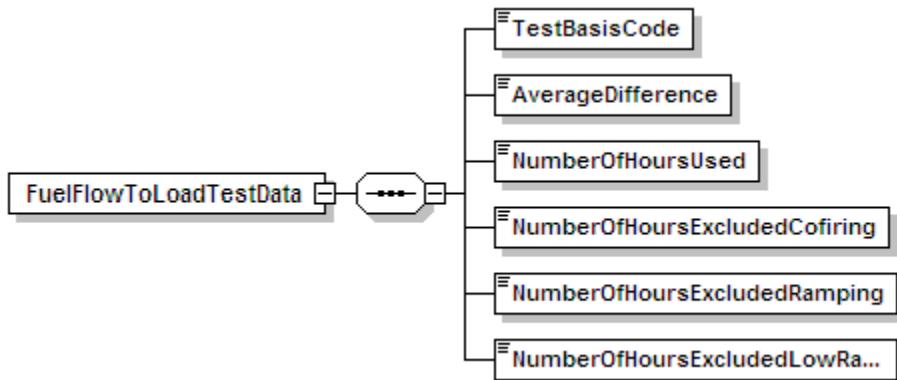
Figure 29
FuelFlowToLoadTestData XML Elements

XML Tag	Type	Definition
TestBasisCode	TestBasisCodeType	Code used to identify the test basis (Q-flow-to-load ratio; H-gross heat rate).
AverageDifference	DifferenceType	Quarterly average absolute percent difference between baseline ratio and hourly quarterly ratios.
NumberOfHoursUsed	NumberOfHoursType	Number of hours used in the quarterly data analysis.

cont.

Figure 29
FuelFlowToLoadTestData XML Elements (cont.)

XML Tag	Type	Definition
NumberOfHours ExcludedCofiring	NumberOfHoursType	Number of hours excluded due to co-firing or combustion of a different type of fuel.
NumberOfHours ExcludedRamping	NumberOfHoursType	Number of hours excluded for load ramping up or down.
NumberOfHours ExcludedLowRange	NumberOfHoursType	Number of hours excluded in lower 25% of range of operation.

Figure 30
FuelFlowmeterAccuracyData
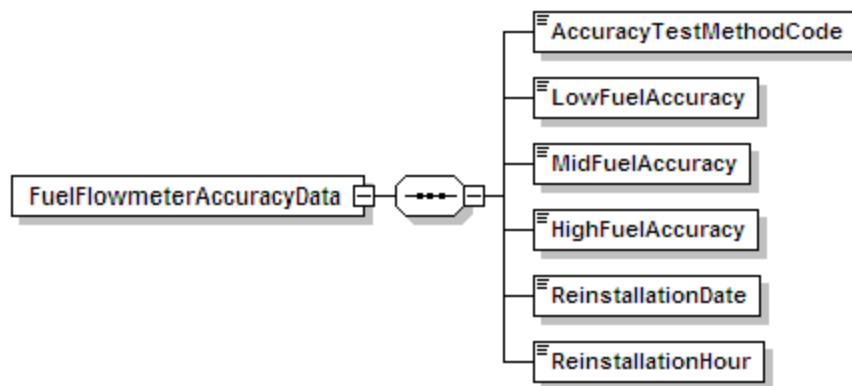
Figure 31
FuelFlowmeterAccuracyData XML Elements

XML Tag	Type	Definition
AccuracyTestMethod Code	AccuracyTestMethod CodeType	Code used to indicate fuel flowmeter accuracy test method.
LowFuelAccuracy	FuelAccuracyType	Highest accuracy at low fuel flow rate (% of URV).
MidFuelAccuracy	FuelAccuracyType	Highest accuracy at mid fuel flowrate (% of URV).
HighFuelAccuracy	FuelAccuracyType	Highest accuracy at high fuel flow rate (% of URV).
ReinstallationDate	OptionalDateType	Date in which fuel flow meter was reinstalled.
ReinstallationHour	OptionalHourType	Hour in which fuel flow meter was reinstalled.

Figure 32
HgInjectionData
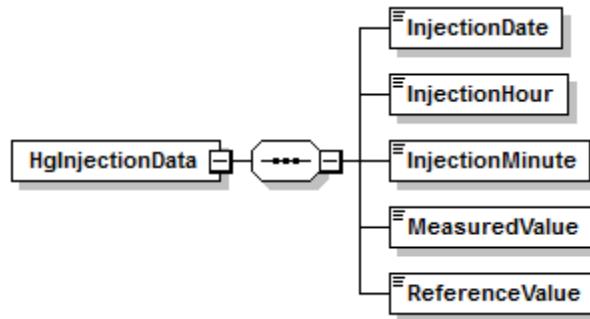
Figure 33
HgInjectionData XML Elements

XML Tag	Type	Definition
InjectionDate	RequiredDateType	Date on which injection occurred.
InjectionHour	RequiredHourType	Hour in which injection occurred.
InjectionMinute	RequiredMinuteType	Minute in which injection occurred.
MeasuredValue	LinearityValueType	Measured value.
ReferenceValue	LinearityValueType	Reference value.

Figure 34
HgSummaryData
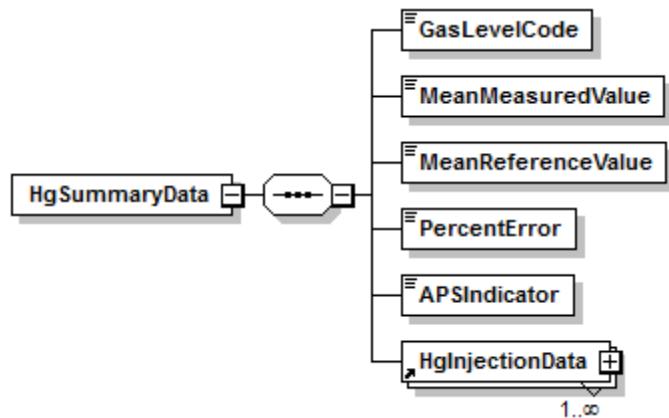
Figure 35
HgSummaryData XML Elements

XML Tag	Type	Definition
GasLevelCode	GasLevelCodeType	Code used to identify calibration gas level.
MeanMeasuredValue	LinearityValueType	Reported mean of measured values.
MeanReferenceValue	LinearityValueType	Reported mean of referenced values.
PercentError	PercentErrorType	Reported percentage of error.
APSIndicator	IndicatorType	Used to indicate if the alternative performance specification (APS) is used.

Figure 36
LinearityInjectionData
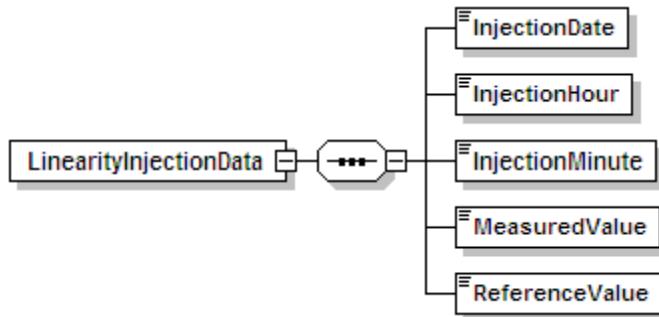
Figure 37
LinearityInjectionData XML Elements

XML Tag	Type	Definition
InjectionDate	RequiredDateType	Date on which injection occurred.
InjectionHour	RequiredHourType	Hour in which injection occurred.
InjectionMinute	RequiredMinuteType	Minute in which injection occurred.
MeasuredValue	LinearityValueType	Measured value.
ReferenceValue	LinearityValueType	Reference value.

Figure 38
LinearitySummaryData
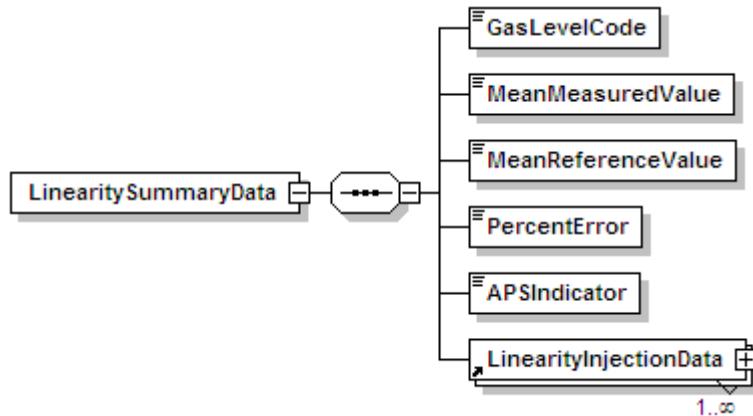
Figure 39
LinearitySummaryData XML Elements

XML Tag	Type	Definition
GasLevelCode	GasLevelCodeType	Code used to identify calibration gas level.
MeanMeasuredValue	LinearityValueType	Reported mean of measured values.
MeanReferenceValue	LinearityValueType	Reported mean of referenced values.
PercentError	PercentErrorType	Reported percentage of error.
APSIndicator	IndicatorType	Used to indicate if the alternative performance specification (APS) is used.

Figure 40
OnlineOfflineCalibrationData

Figure 41
OnlineOfflineCalibrationData XML Elements

XML Tag	Type	Definition
OnlineZeroReferenceValue	CalibrationValueType	Online zero level calibration value.
OnlineUpscaleReferenceValue	CalibrationValueType	Online upscale level calibration value.
OfflineZeroReferenceValue	CalibrationValueType	Offline zero level calibration value.
OfflineUpscaleReferenceValue	CalibrationValueType	Offline upscale level calibration value.
OnlineZeroMeasuredValue	ZeroMeasuredValue Type	Online zero level measured value.
OnlineUpscaleMeasuredValue	MeasuredValueType	Online upscale level measured value.
OfflineZeroMeasuredValue	ZeroMeasuredValue Type	Offline zero level measured value.
OfflineUpscaleMeasuredValue	MeasuredValueType	Offline upscale measured value.
OnlineZeroCalibrationError	CalibrationErrorType	Online zero level calibration error or |R-A|.
OnlineUpscaleCalibrationError	CalibrationErrorType	Online upscale level calibration error or |R-A|.
OfflineZeroCalibrationError	CalibrationErrorType	Offline zero level calibration error or |R-A|.
OfflineUpscaleCalibrationError	CalibrationErrorType	Offline upscale level calibration error or |R-A|.
UpscaleGasLevelCode	UpscaleGasCodeType	Code used to identify upscale gas level.
OnlineZeroAPSIndicator	IndicatorType	Alternative performance specification (APS) indicator.
OnlineUpscaleAPSIndicator	IndicatorType	Alternative performance specification (APS) indicator.
OfflineZeroAPSIndicator	IndicatorType	Alternative performance specification (APS) indicator.
OfflineUpscaleAPSIndicator	IndicatorType	Alternative performance specification (APS) indicator.
OnlineZeroInjectionDate	OptionalDateType	Online zero level injection date.
OnlineUpscaleInjectionDate	OptionalDateType	Online upscale level injection date.
OfflineZeroInjectionDate	OptionalDateType	Offline zero level injection date.
OfflineUpscaleInjectionDate	OptionalDateType	Offline upscale level injection date.
OnlineZeroInjectionHour	OptionalHourType	Online zero level injection hour.
OnlineUpscaleInjectionHour	OptionalHourType	Online upscale level injection hour.
OfflineZeroInjectionHour	OptionalHourType	Offline zero level injection hour.
OfflineUpscaleInjectionHour	OptionalHourType	Offline upscale level injection hour.

Figure 42
ProtocolGasData
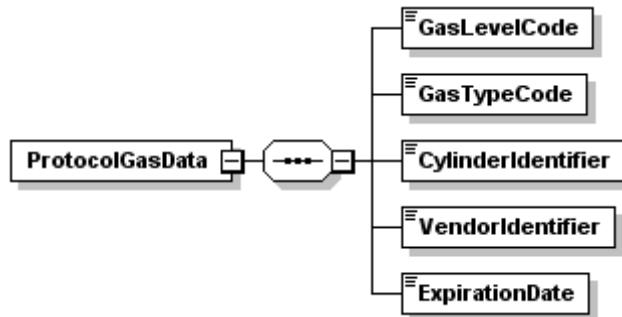
Figure 43
ProtocolGasData XML Elements

XML Tag	Type	Definition
GasLevelCode	GasLevelCodeType	Code used to identify calibration gas level.
GasTypeCode	GasTypeCodeType	Code used to identify the type of gas in the cylinder.
CylinderIdentifier	CylinderIdentifierType	Vendor-assigned identification or serial number found on the cylinder.
VendorIdentifier	VendorIndentifierType	The EPA-assigned PGVP Vendor ID of the production site that supplied the cylinder.
ExpirationDate	OptionalDateType	Date on which the cylinder's gas expires.

Figure 44
QACertificationEventData
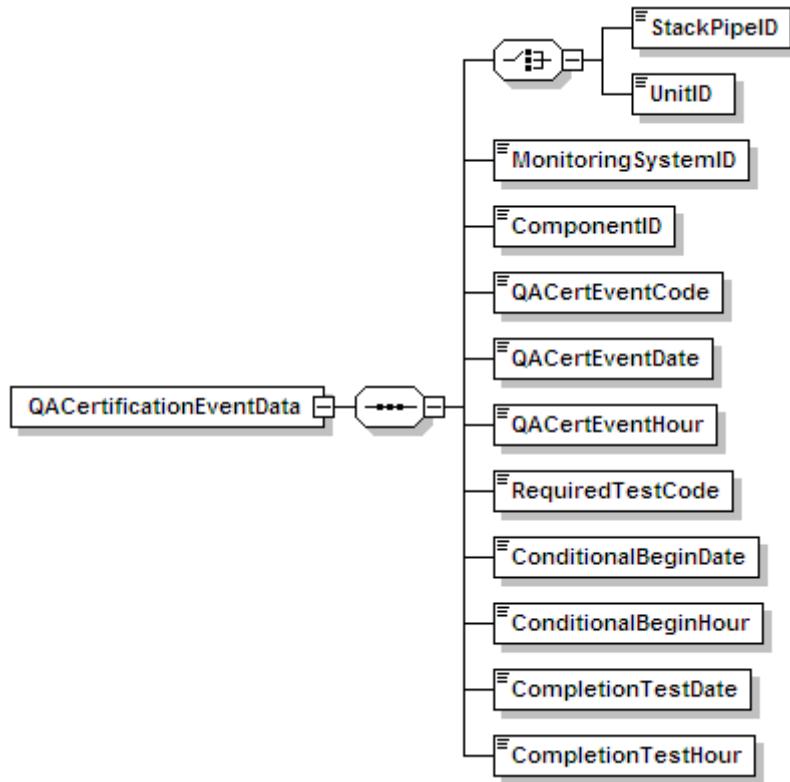
Figure 45
QACertificationEventData XML Elements

XML Tag	Type	Definition
StackPipeID	RequiredStackPipeType	Three to six alphanumeric character code which is assigned by the source to identify a stack or pipe.
UnitID	RequiredUnitType	One to six alphanumeric character code assigned by the source to identify a unit.
MonitoringSystemID	OptionalIdentifierType	The three digit code used by the source to identify the monitoring system.
ComponentID	OptionalIdentifierType	The three digit code assigned by the source to identify the component.
QACertEventCode	QACertEventCodeType	Code used to identify QA and certification event.
QACertEventDate	RequiredDateType	Date on which the QA Cert Event occurred.
QACertEventHour	RequiredHourType	Hour in which the QA Cert Event occurred.

cont.

Figure 45
QACertificationEventData XML Elements (cont.)

XML Tag	Type	Definition
RequiredTestCode	RequiredTestCodeType	Code used to identify the test(s) required due to the event.
ConditionalBeginDate	OptionalDateType	Date on which conditional data validation began based on completion of a successful daily calibration.
ConditionalBeginHour	OptionalHourType	Hour in which conditional data validation began based on completion of a successful daily calibration.
CompletionTestDate	OptionalDateType	Date in which the last test was completed.
CompletionTestHour	OptionalHourType	Hour in which last test was completed.

Figure 46
RATAData
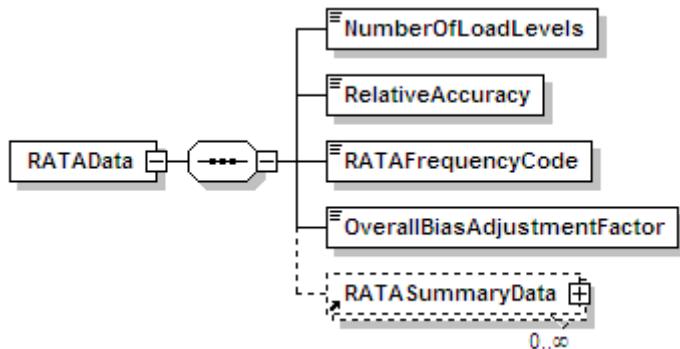
Figure 47
RATAData XML Elements

XML Tag	Type	Definition
NumberOfLoadLevels	NumberOfLoadLevels Type	Number of load or operating levels comprising test.
RelativeAccuracy	RelativeAccuracyType	Reported relative accuracy.
RATAFrequencyCode	RATAFrequencyCode Type	Code used to identify RATA frequency.
OverallBiasAdjustment Factor	BiasAdjustmentFactor Type	Reported overall bias adjustment factor for this test.

Figure 48
RATARunData
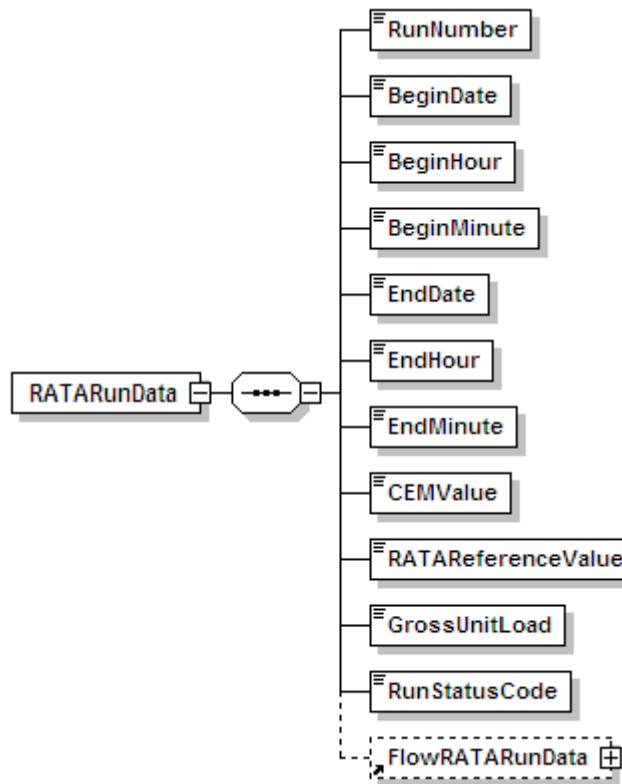
Figure 49
RATARunData XML Elements

XML Tag	Type	Definition
RunNumber	RunNumberType	Run number.
BeginDate	RequiredDateType	Date in which information became effective or activity started.
BeginHour	RequiredHourType	Hour in which information became effective or activity started.
BeginMinute	RequiredMinuteType	Minute in which the RATA run began.
EndHour	RequiredHourType	Last hour in which information was effective or hour in which activity ended.
EndMinute	RequiredMinuteType	Last minute in which information was effective or minute in which activity ended.
EndDate	RequiredDateType	Last date in which information was effective or date in which activity ended.

(cont.)

Figure 49
RATARunData XML Elements (cont.)

XML Tag	Type	Definition
CEMValue	CEMValueType	Value from CEM system being tested.
RATAReferenceValue	RATAReferenceValue Type	Value from reference method, adjusted as necessary for moisture and/or calibration bias.
GrossUnitLoad	GrossUnitLoadType	Gross unit load or average velocity at operating level.
RunStatusCode	RunStatusCodeType	Code used to identify run status.

Figure 50
RATASummaryData
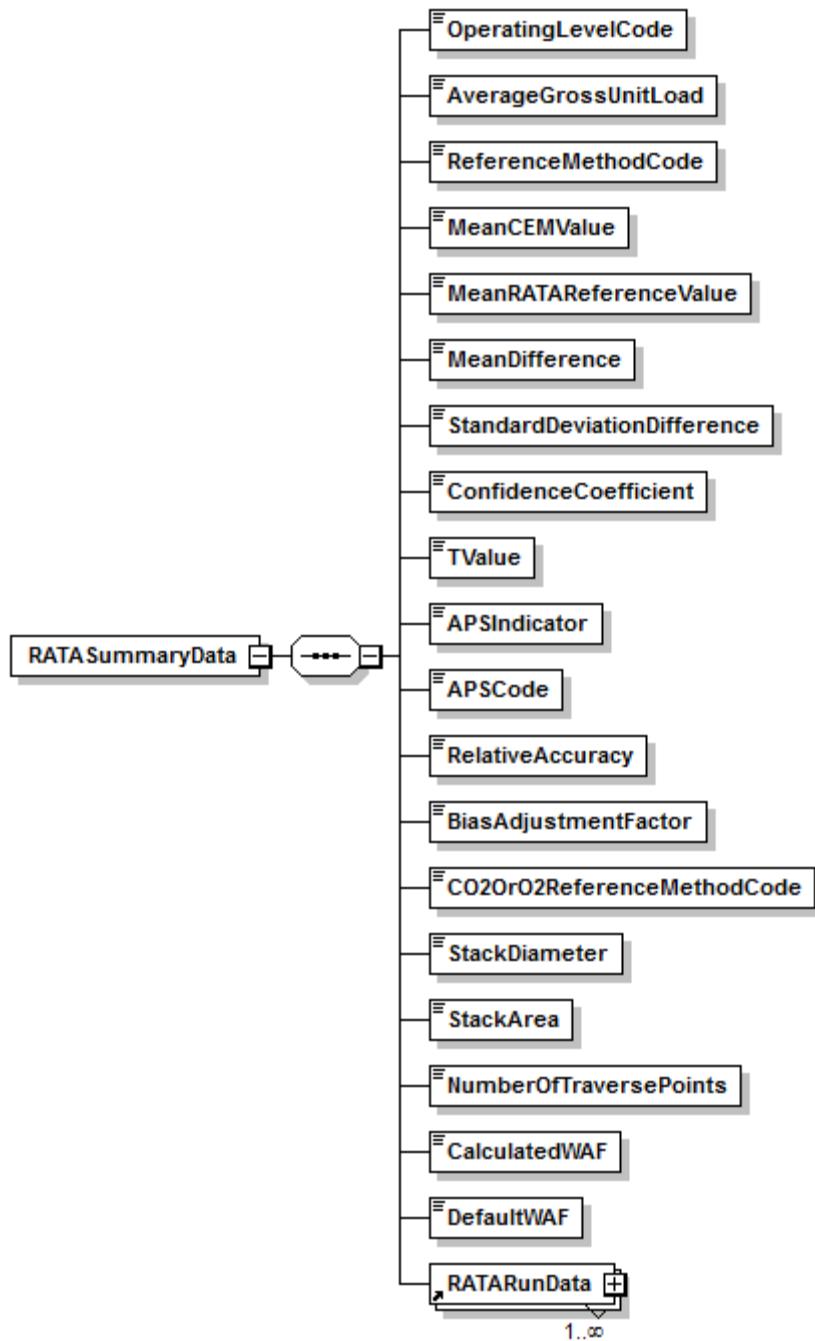
Figure 51
RATASummaryData XML Elements

XML Tag	Type	Definition
OperatingLevelCode	OperatingLevelCode Type	Code used to identify the operating level.
AverageGrossUnitLoad	GrossUnitLoadType	Average gross unit load (MWe or steam) or average velocity at operating level.
ReferenceMethodCode	RefMethodCodeType	Code used to identify a reference method.
MeanCEMValue	CEMValueType	Arithmetic mean of CEMS values.
MeanRATAReference Value	RATAReferenceValue Type	Arithmetic mean of reference method values.
MeanDifference	DifferenceValueType	Reported mean of the difference data.
StandardDeviation Difference	DifferenceValueType	Standard deviation of difference data.
ConfidenceCoefficient	ConfidenceCoefficient Type	Confidence coefficient.
TValue	TValueType	Tabulated t-value.
APSIndicator	IndicatorType	Used to indicate if the alternative performance specification (APS) is used.
APSCode	APSCodeType	Used to indicate if the alternative performance specification (PS15/PS18) is used for HCl systems.
RelativeAccuracy	RelativeAccuracyType	Reported relative accuracy.
BiasAdjustmentFactor	BiasAdjustmentFactor Type	Reported bias adjustment factor of load level.
CO_2OrO_2Reference MethodCode	CO_2OrO_2Reference MethodType	Code used to identify reference method used for CO_2 or O_2.
StackDiameter	StackDiameterType	Stack diameter at test port location.
StackArea	CrossSectionType	Stack or duct cross-sectional area at test port.
NumberOfTraverse Points	NumberOfTraverse PointsType	The number of Method 1 traverse points in the test runs.
CalculatedWAF	WAFType	Calculated WAF applied to all runs of this RATA load level.
DefaultWAF	WAFType	Default wall effects adjustment factor.

Figure 52
RATATraverseData
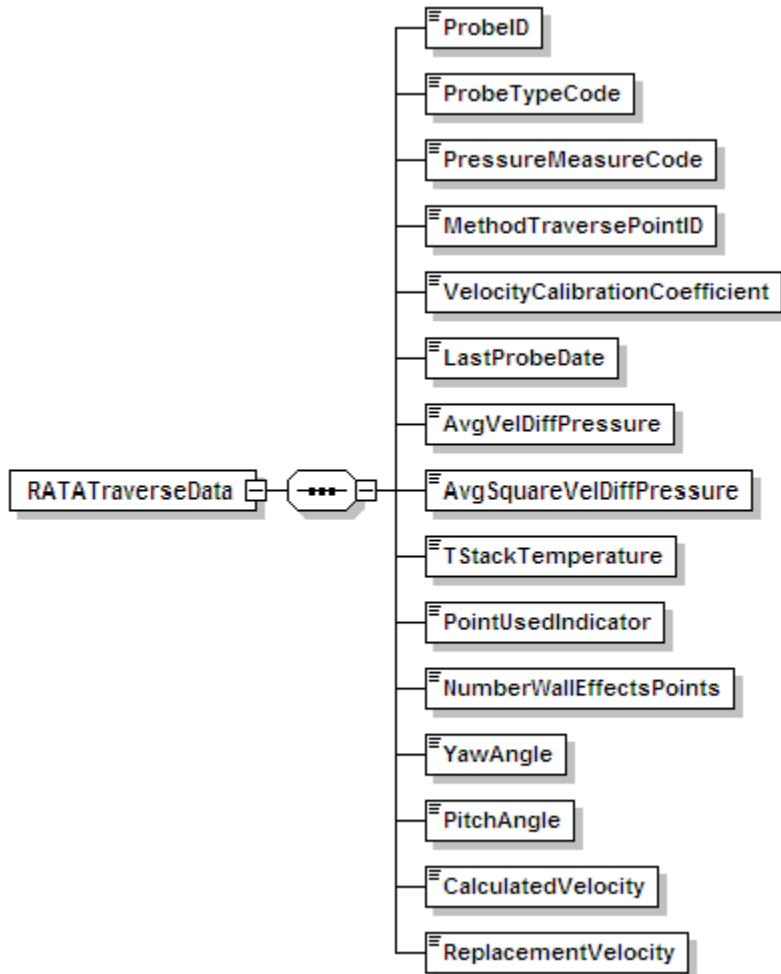
Figure 53
RATATraverseData XML Elements

XML Tag	Type	Definition
ProbeID	ProbeIDType	Probe ID.
ProbeTypeCode	ProbeTypeCodeType	Code used to identify a probe type.
PressureMeasureCode	PressureMeasureCode Type	Code used to identify a pressure measurement device type.
MethodTraversePointID	MethodIDType	Method 1 traverse point ID.
VelocityCalibration Coefficient	VelocityCalibration CoefficientType	Probe or pitot tube velocity calibration coefficient.
LastProbeDate	OptionalDateType	Date of latest probe or pitot tube calibration.

(cont.)

Figure 53
RATATraverseData XML Elements (cont.)

XML Tag	Type	Definition
AvgVelDiffPressure	PressureType	Average velocity differential pressure at traverse point.
AvgSquareVelDiff Pressure	PressureType	Average of square roots of velocity differential pressures at traverse point.
TStackTemperature	TemperatureType	T Stack temperature at traverse point.
PointUsedIndicator	IndicatorType	Used to indicate that the traverse point is one of the four method 1 points closest to the stack wall and this test run was used to determine a WAF.
NumberWallEffects Points	NumberWallEffects PointsType	Number of wall effects measurement points used to derive replacement velocity.
YawAngle	AngleType	Yaw angle of flow at traverse point.
PitchAngle	AngleType	Pitch angle of flow at traverse point.
CalculatedVelocity	VelocityType	Calculated velocity at traverse point, not accounting for wall effects.
ReplacementVelocity	VelocityType	Replacement velocity at traverse point, accounting for wall effects.

Figure 54
TestExtensionExemptionData
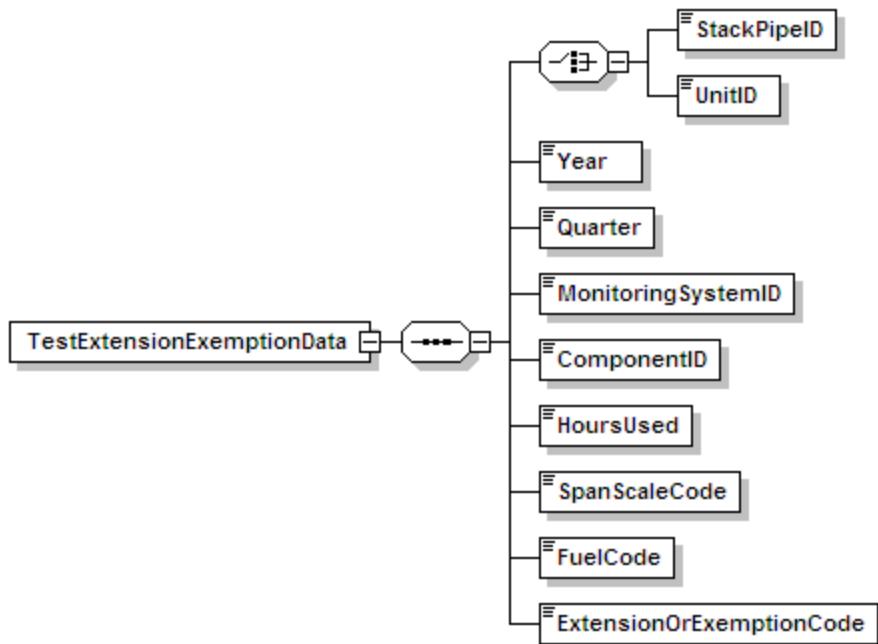
Figure 55
TestExtensionExemptionData XML Elements

XML Tag	Type	Definition
StackPipeID	RequiredStackPipe Type	Three to six alphanumeric character code which is assigned by the source to identify a stack or pipe.
UnitID	RequiredUnitType	One to six alphanumeric character code assigned by the source to identify a unit.
Year	ReportingYearType	Year.
Quarter	QuarterType	Quarter.
MonitoringSystemID	OptionalIdentifierType	The three digit code used by the source to identify the monitoring system.
ComponentID	OptionalIdentifierType	The three digit code assigned by the source to identify the component.
HoursUsed	HoursUsedType	Hours of use for non-redundant backup or other type of claim for QA schedule extension.
SpanScaleCode	SpanScaleCodeType	Code used to identify the span scale.
FuelCode	TestExtension ExemptionFuelCode Type	Code used to identify the type of fuel.
ExtensionOrExemption Code	ExtensionExemption CodeType	Code used to identify the extension or exemption.

Figure 56
TestQualificationData
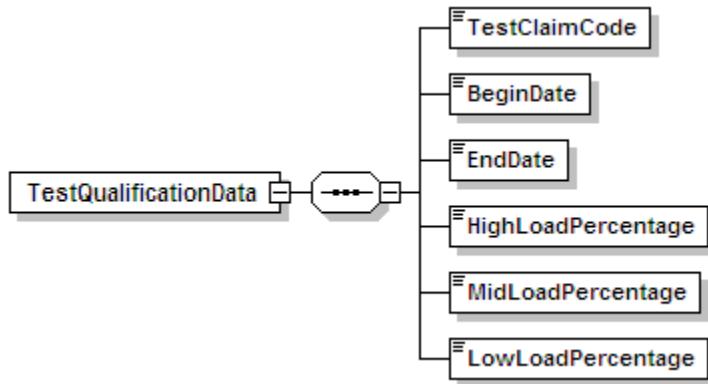
Figure 57
TestQualificationData XML Elements

XML Tag	Type	Definition
TestClaimCode	TestClaimCodeType	Code used to indicate the type of test claim (i.e., single load, normal load exemption or operating range exemption).
BeginDate	OptionalDateType	Date in which information became effective or activity started.
EndDate	OptionalDateType	Last date in which information was effective or date in which activity ended.
HighLoadPercentage	PercentageValueType	Percentage of the time that the unit operated at high load.
MidLoadPercentage	PercentageValueType	Percentage of the time that the unit operated at mid load.
LowLoadPercentage	PercentageValueType	Percentage of the time that the unit operated at low load.

Figure 58
TestSummaryData
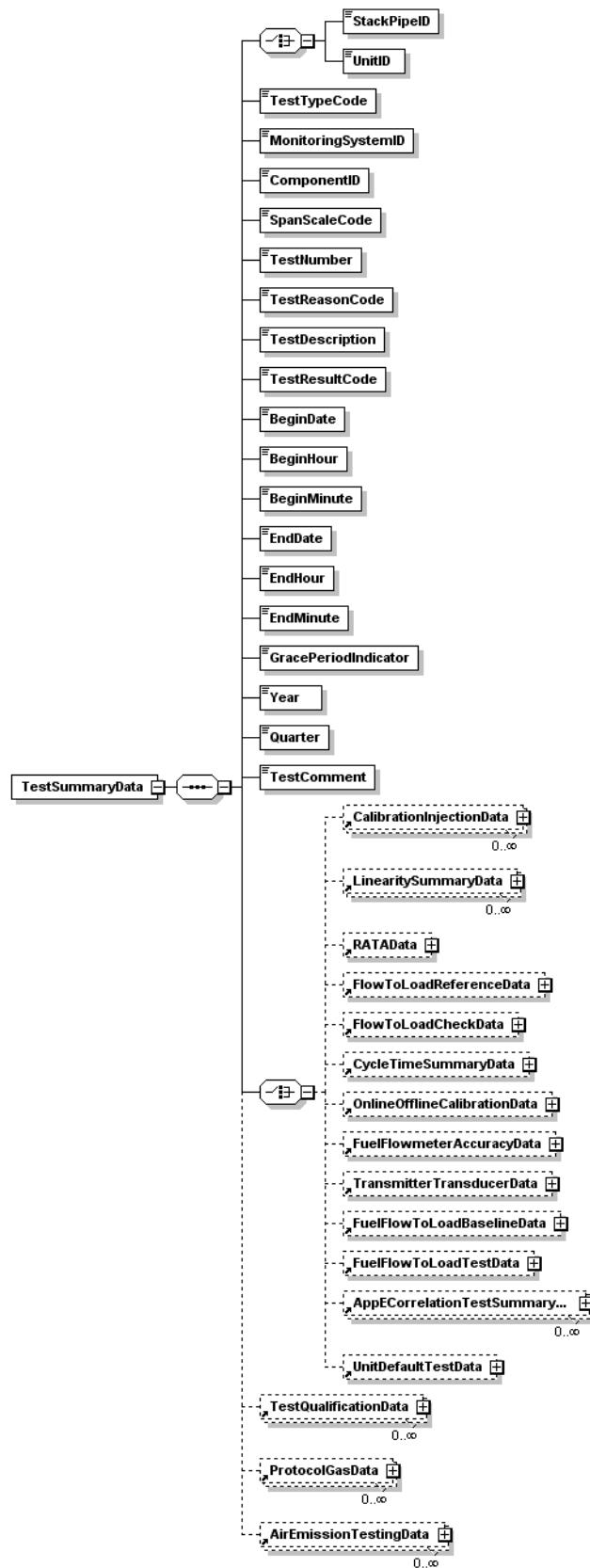
Figure 59
TestSummaryData XML Elements

XML Tag	Type	Definition
StackPipeID	RequiredStackPipeType	Three to six alphanumeric character code which is assigned by the source to identify a stack or pipe.
UnitID	RequiredUnitType	One to six alphanumeric character code assigned by the source to identify a unit.
TestTypeCode	TestTypeCodeType	Code used to identify test type.
MonitoringSystemID	OptionalIdentifierType	The three digit code used by the source to identify the monitoring system.
ComponentID	OptionalIdentifierType	The three digit code assigned by the source to identify the component.
SpanScaleCode	SpanScaleCodeType	Code used to identify the span scale.
TestNumber	RequiredTestNumber Type	Test number.
TestReasonCode	TestReasonCodeType	Code used to identify test reason.
TestDescription	TestDescriptionType	Test activity description.
TestResultCode	TestSummaryTestResult CodeType	Code used to identify reported test result.
BeginDate	OptionalDateType	Date in which information became effective or activity started.
BeginHour	OptionalHourType	Hour in which information became effective or activity started.
BeginMinute	OptionalMinuteType	Minute in which the test began.
EndDate	OptionalDateType	Last date in which information was effective or date in which activity ended.
EndHour	OptionalHourType	Last hour in which information was effective or hour in which activity ended.
EndMinute	OptionalMinuteType	Last minute in which information was effective or minute in which activity ended.
GracePeriodIndicator	IndicatorType	Used to indicate whether the test was performed in a grace period.
Year	OptionalYearType	Year.
Quarter	OptionalQuarterType	Quarter.
TestComment	TestCommentType	Test comment.
InjectionProtocolCode	InjectionProtocolCode Type	Indicates the use of either elemental or oxidized NIST-traceable Hg standards.

Figure 60
TransmitterTransducerData
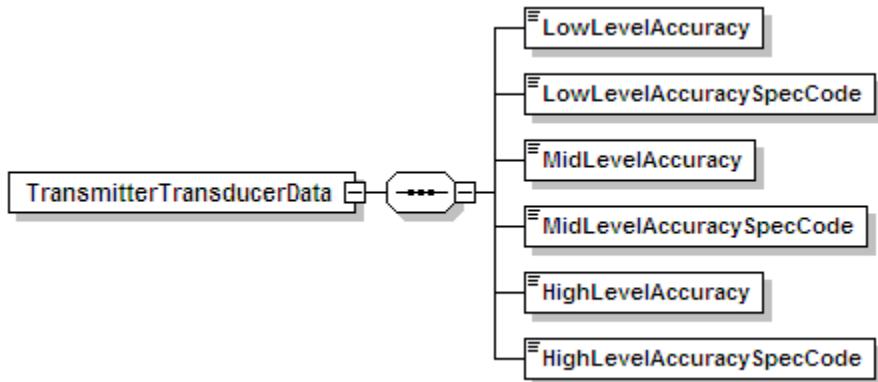
Figure 61
TransmitterTransducerData XML Elements

XML Tag	Type	Definition
LowLevelAccuracy	AccuracyType	Accuracy determination at low level.
LowLevelAccuracy SpecCode	AccuracyMethodType	Code used to determine the accuracy determination methodology for low level.
MidLevelAccuracy	AccuracyType	Highest accuracy determination methodology for mid level.
MidLevelAccuracy SpecCode	AccuracyMethodType	Code used to identify the accuracy determination methodology for mid level.
HighLevelAccuracy	AccuracyType	Accuracy determination at high level.
HighLevelAccuracy SpecCode	AccuracyMethodType	Code used to identify the accuracy determination methodology for high level.

Figure 62
UnitDefaultTestData
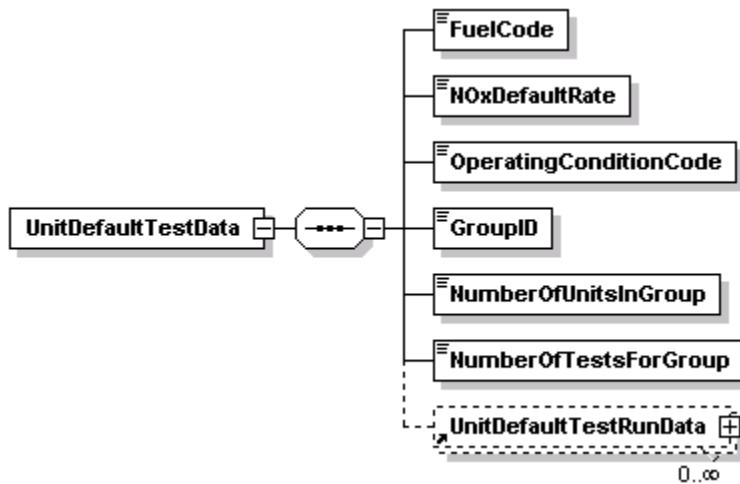
Figure 63
UnitDefaultTestData XML Elements

XML Tag	Type	Definition
FuelCode	UnitDefaultTestFuel CodeType	Code used to identify the type of fuel.
NO_xDefaultRate	NO_xDefaultRateType	NO_x default rate. Only applicable for LME Units.
OperatingCondition Code	UnitDefaultTest OperatingCondition CodeType	Code used to identify the operating condition.
GroupID	GroupIDType	For a group of identical units using testing to determine default NO_x rate, this ID identifies the group.
NumberOfUnitsIn Group	NumberOfUnitsIn GroupType	Number of identical units in the group.
NumberOfTestsFor Group	NumberOfTestsFor GroupType	Number of unit-specific tests conducted for this group of identical units.

Figure 64
UnitDefaultTestRunData
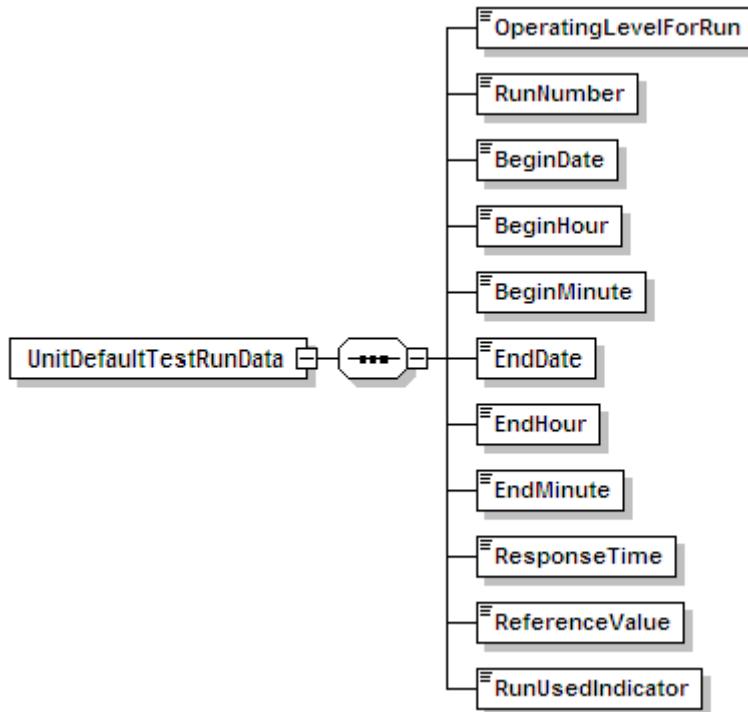
Figure 65
UnitDefaultTestRunData XML Elements

XML Tag	Type	Definition
OperatingLevelForRun	OperatingLevelType	Identifies the operating level for this run of a unit default test.
RunNumber	RunNumberType	Run number.
BeginDate	OptionalDateType	Date on which the unit default test run began.
BeginHour	OptionalHourType	Hour in which the unit default test run began.
BeginMinute	OptionalMinuteType	Minute in which the unit default test run began.
EndDate	OptionalDateType	Last date in which information was effective or date in which activity ended.
EndHour	OptionalHourType	Last hour in which information was effective or hour in which activity ended.
EndMinute	OptionalMinuteType	Last minute in which information was effective or minute in which activity ended.

cont.

Figure 65
UnitDefaultTestRunData XML Elements (cont.)

XML Tag	Type	Definition
ResponseTime	ResponseTimeType	Response time in seconds according to Method 20 of Appendix A to Part 60.
ReferenceValue	ReferenceValueType	The reference method value for the run.
RunUsedIndicator	IndicatorType	Flag to indicate this run used to calculate highest 3-run NO_x emission rate average at any tested load level.

Figure 66
Simple Types Used for Validation

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
AccuracyMethod Type	TransmitterTransducerData/ HighLevelMethod TransmitterTransducerData/ LowLevelMethod TransmitterTransducerData/ MidLevelMethod	String	Yes	ACT AGA3 SUM	
AccuracyTest MethodCodeType	FuelFlowmeterAccuracyData/A ccuracyTestMethodCode	String	Yes	AGA7 API ASME ILMMF ISO LCRM NIST	
AccuracyType	TransmitterTransducerData/ HighLevelAccuracy TransmitterTransducerData/ LowLevelAccuracy TransmitterTransducerData/ MidLevelAccuracy	Decimal	Yes	Total Digits = 5, Decimal Places = 1	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
AETBNameType	AirEmissionTestingData/AETB Name AirEmissionTestingData/ ProviderName	String	No	Maximum Length = 50 characters	
AETBEMailType	AirEmissionTestingData/AETB Email AirEmissionTestingData/ ProviderEmail	String	No	Maximum Length = 70 characters	
AETBPhone NumberType	AirEmissionTestingData/AETB PhoneNumber	String	No	Maximum Length = 18 characters	
AngleType	RATATraverseData/Pitch Angle RATATraverseData/Yaw Angle	Decimal	Yes	Total Digits = 6, Decimal Places = 1	
APSCodeType	APSCode	String	Yes	PS15 PS18	
BiasAdjustment FactorType	RATAData/OverallBias AdjustmentFactor RATASummaryData/Bias AdjustmentFactor	Decimal	Yes	Total Digits = 5, Decimal Places = 3	
CalibrationError Type	CalibrationInjectionData/ UpscaleCalibrationError CalibrationInjectionData/ ZeroCalibrationError OnlineOfflineCalibrationData/ OfflineUpscaleCalibrationError OnlineOfflineCalibrationData/ OfflineZeroCalibrationError OnlineOfflineCalibrationData/ OnlineUpscaleCalibration Error OnlineOfflineCalibrationData/ OnlineZeroCalibrationError	Decimal	Yes	Total Digits = 6, Decimal Places = 2	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
Calibration InjectionGas LevelCodeType	CycleTimeInjectionData/ GasLevelCode	String	No	HIGH ZERO	
CalibrationValue Type	CalibrationInjectionData/ UpscaleMeasuredValue CalibrationInjectionData/ UpscaleReferenceValue CalibrationInjectionData/Zero MeasuredValue CalibrationInjectionData/Zero ReferenceValue OnlineOfflineCalibrationData/ OnlineZeroReferenceValue OnlineOfflineCalibrationData/ OnlineUpscaleReferenceValue OnlineOfflineCalibrationData/ OfflineZeroReferenceValue OnlineOfflineCalibrationData/ OfflineUpscaleReferenceValue	Decimal	Yes	Total Digits = 13, Decimal Places = 3	
CEMValueType	RATARunData/CEMValue RATASummaryData/Mean CEMValue	Decimal	Yes	Total Digits = 15, Decimal Places = 5	
CO_2OrO_2 Reference MethodType	RATASummaryData/CO_2OrO_2 ReferenceMethodCode	String	Yes	3 3A	
Confidence CoefficientType	RATASummaryData/ ConfidenceCoefficient	Decimal	Yes	Total Digits = 15, Decimal Places = 5	
CrossSection Type	RATASummaryData/Stack Area	Decimal	Yes	Total Digits = 6, Decimal Places = 1	
CycleTimeType	CycleTimeInjectionData/ InjectionCycleTime	Decimal	No	Total Digits = 2, Decimal Places = 0	
CylinderIdentifier Type	ProtocolGasData/Cylinder Identifier	String	No	Maximum Length = 25 characters	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
DensityType	AppendixEHeatInputFromOil Data/OilDensity	Decimal	Yes	Total Digits = 11, Decimal Places = 6	
DensityUnitsOf MeasureCodeType	AppendixEHeatInputFromOil Data/OilDensityUnitsOf MeasureCode	String	Yes	LBBBL LBGAL LBM3 LBSCF	
DifferenceType	FuelFlowToLoadTestData/ AverageDifference	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
DifferenceValue Type	RATASummaryData/Mean Difference RATASummaryData/ StandardDeviationDifference	Decimal	Yes	Total Digits = 15, Decimal Places = 5	
Extension ExemptionCode Type	TestExtensionExemptionData/ ExtensionOrExemptionCode	String	No	F2LEXP FLOWEXP GRACEPB LOWSQTR LOWSYTD NONQADB NONQAOS NONQAPB NRB720 RANGENU	
FFactorType	AppECorrelationTest SummaryData/FFactor	Decimal	Yes	Total Digits = 10, Decimal Places = 1	
FlowLoadRatio Type	FlowToLoadReferenceData/ ReferenceFlowLoadRatio	Decimal	Yes	Total Digits = 6, Decimal Places = 2	
FlowToLoad CheckOperating LevelCodeType	FlowToLoadCheckData/ OperatingLevelCode	String	Yes	H L M N	
FuelAccuracyType	FuelFlowmeterAccuracyData/ HighFuelAccuracy FuelFlowmeterAccuracyData/ LowFuelAccuracy FuelFlowmeterAccuracyData/ MidFuelAccuracy	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
FuelFlowRateType	FuelFlowToLoadBaseline Data/AverageFuelFlowRate	Decimal	Yes	Total Digits = 10, Decimal Places = 1	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
FuelFlowToLoad BaselineUnitsOfM easureCodeType	FuelFlowToLoadBaselineData/ FuelFlowToLoadUOMCode	String	Yes	1 2 3 4 5 6 7 8 9	
GasLevelCode Type	LinearitySummaryData/Gas LevelCode ProtocolGasData/GasLevel Code HgSummaryData/GasLevel Code	String	No	HIGH LOW MID	
GasTypeCodeType	ProtocolGasData/GasTypeCode	String	No	Maximum Length = 255 characters	
GCVType	AppendixEHeatInputFrom GasData/GasGCV AppendixEHeatInputFromOil Data/OilGCV	Decimal	Yes	Total Digits = 10, Decimal Places = 1	
GCVUnitsOf MeasureCode Type	AppendixEHeatInputFromOil Data/OilGCVUnitsOfMeasure Code	String	Yes	BTUBBL BTUGAL BTULB BTUM3 BTUSCF	
GHRUnitsOf MeasureCode Type	FuelFlowToLoadBaseline Data/GHRUnitsOfMeasure Code	String	Yes	BTUKBTU BTUKWH BTULB	
GrossHeatRate Type	FlowToLoadReferenceData/ ReferenceGrossHeatRate FuelFlowToLoadBaseline Data/BaselineGHR	Decimal	Yes	Total Digits = 6, Decimal Places = 0	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
GrossUnitLoad Type	FlowToLoadReferenceData/ AverageGrossUnitLoad FuelFlowToLoadBaseline Data/AverageLoad RATARunData/GrossUnit Load RATASummaryData/Average GrossUnitLoad	Decimal	Yes	Total Digits = 6, Decimal Places = 0	
GroupIDType	UnitDefaultTestData/ GroupID	String	Yes	Maximum Length = 10 characters	
HeatInputType	AppECorrelationTestRunData/ TotalHeatInput AppendixEHeatInputFrom GasData/GasHeatInput AppendixEHeatInputFromOilD ata/OilHeatInput	Decimal	Yes	Total Digits = 7, Decimal Places = 1	
HourlyHeatInput RateType	AppECorrelationTestRunData/ HourlyHeatInputRate AppECorrelationTest SummaryData/Average HourlyHeatInputRate FlowToLoadReferenceData/ AverageHourlyHeatInputRate FuelFlowToLoadBaseline Data/AverageHourlyHeat InputRate	Decimal	Yes	Total Digits = 7, Decimal Places = 1	
HoursUsedType	TestExtensionExemptionData/ HoursUsed	Integer	Yes	Minimum Value (inclusive) = 0, Maximum Value (inclusive) = 2208	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
IndicatorType	CalibrationInjectionData/ OnLineOffLineIndicator CalibrationInjectionData/ UpscaleAPSIndicator CalibrationInjectionData/Zero APSIndicator FlowToLoadCheckData/Bia sAdjustedIndicator FlowToLoadReferenceData/ CalcSeparateReference Indicator HgSummaryData/APSIndicator LinearitySummaryData/ APSIndicator OnlineOfflineCalibrationData/ OfflineUpscaleAPSIndicator OnlineOfflineCalibrationData/ OfflineZeroAPSIndicator OnlineOfflineCalibrationData/ OnlineUpscaleAPSIndicator OnlineOfflineCalibrationData/ OnlineZeroAPSIndicator RATASummaryData/APS Indicator RATATraverseData/Point UsedIndicator TestSummaryData/Grace PeriodIndicator UnitDefaultTestRunData/Run UsedIndicator	String	Yes	0 1	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
InjectionProtocol CodeType	TestSummaryData/Injection ProtocolCode	String	Yes	HGE HGO	
LinearityValue Type	HgSummaryData/Mean MeasuredValue	Decimal	Yes	Total Digits = 13, Decimal Places = 3	
	HgSummaryData/Mean ReferenceValue				
	HgInjectionData/Mean MeasuredValue				
	HgInjectionData/Mean ReferenceValue				
	LinearityInjectionData/ MeasuredValue				
	LinearityInjectionData/ ReferenceValue				
	LinearitySummaryData/Mean MeasuredValue				
	LinearitySummaryData/Mean ReferenceValue				
MassType	AppendixEHeatInputFromOil Data/OilMass	Decimal	Yes	Total Digits = 10, Decimal Places = 1	
MeasuredValue Type	OnlineOfflineCalibrationData/ OfflineUpscaleMeasured Value	Decimal	Yes	Total Digits = 13, Decimal Places = 3	
	OnlineOfflineCalibrationData/ OnlineUpscaleMeasured Value				
MethodIDType	RATATraverseData/Method TraversePointID	String	No	Minimum Length = 1 character, Maximum Length = 3 characters	
MolecularWeight Type	FlowRATARunData/Dry MolecularWeight	Decimal	Yes	Total Digits = 5, Decimal Places = 2	
	FlowRATARunData/Wet MolecularWeight				

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
MonitorValueType	CycleTimeInjectionData/Begin MonitorValue CycleTimeInjectionData/ CalibrationGasValue CycleTimeInjectionData/End MonitorValue	Decimal	Yes	Total Digits = 13, Decimal Places = 3	
NO_xDefaultRate Type	UnitDefaultTestData/NO_x DefaultRate	Decimal	Yes	Total Digits = 6, Decimal Places = 3	
NumberOfHours Type	FlowToLoadCheckData/ NumberOfHours FlowToLoadCheckData/ NumberOfHoursExcluded Bypass FlowToLoadCheckData/ NumberOfHoursExcludedForF uel FlowToLoadCheckData/ NumberOfHoursExcluded PreRATA FlowToLoadCheckData/ NumberOfHoursExcluded Ramping FlowToLoadCheckData/ NumberOfHoursExcluded Test FlowToLoadCheckData/ NumberOfHoursExcMain Bypass FuelFlowToLoadBaseline Data/NumberOfHours ExcludedCofiring FuelFlowToLoadBaseline Data/NumberOfHours ExcludedLowRange	Non-Negative Integer	Yes	Maximum Value (inclusive) = 9999	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
NumberOfHours Type (cont.)	FuelFlowToLoadBaseline Data/NumberOfHours ExcludedRamping FuelFlowToLoadTestData/ NumberOfHoursExcluded Cofiring FuelFlowToLoadTestData/ NumberOfHoursExcluded LowRange FuelFlowToLoadTestData/ NumberOfHoursExcluded Ramping FuelFlowToLoadTestData/ NumberOfHoursUsed	Non-Negative Integer (cont.)	Yes (cont.)	Maximum Value (inclusive) = 9999 (cont.)	
NumberOfLoad LevelsType	RATAData/NumberOfLoad Levels	Decimal	Yes	Total Digits = 1, Decimal Places = 0	
NumberOfTests ForGroupType	UnitDefaultTestData/Number OfTestsForGroup	Decimal	Yes	Total Digits = 2, Decimal Places = 0	
NumberOf TraversePoints Type	FlowRATARunData/Number OfTraversePoints RATASummaryData/Number OfTraversePoints	Decimal	Yes	Total Digits = 2, Decimal Places = 0	
NumberOfUnitsIn GroupType	UnitDefaultTestData/Number OfUnitsInGroup	Decimal	Yes	Total Digits = 2, Decimal Places = 0	
NumberWall EffectsPointsType	RATATraverseData/Number WallEffectsPoints	Decimal	Yes	Total Digits = 2, Decimal Places = 0	
OperatingLevel CodeType	FlowToLoadReferenceData/ OperatingLevelCode RATASummaryData/Operating LevelCode	String	No	H L M N	
OperatingLevel Type	AppECorrelationTestSummary Data/OperatingLevelForRun UnitDefaultTestRunData/ OperatingLevelForRun	Non-Negative Integer	No	Minimum Value (inclusive) = 0, Maximum Value (inclusive) = 99	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
OptionalDateType	CalibrationInjectionData/ UpscaleInjectionDate	Date	Yes		Must be a date
	CalibrationInjectionData/Zero InjectionDate				
	FuelFlowmeterAccuracyData/ ReinstallationDate				
	OnlineOfflineCalibrationData/ OfflineUpscaleInjectionDate				
	OnlineOfflineCalibrationData/ OfflineZeroInjectionDate				
	OnlineOfflineCalibrationData/ OnlineUpscaleInjectionDate				
	OnlineOfflineCalibrationData/ OnlineZeroInjectionDate				
	ProtocolGasData/Expiration Date				
	QACertificationEventData/ CompletionTestDate				
	QACertificationEventData/ ConditionalBeginDate				
	RATATraverseData/LastProbe Date				
	TestQualificationData/Begin Date				
	TestQualificationData/EndDate				
	TestSummaryData/BeginDate				
	TestSummaryData/EndDate				
	UnitDefaultTestRunData/Begin Date				
	UnitDefaultTestRunData/End Date				

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
OptionalHourType	CalibrationInjectionData/ UpscaleInjectionHour CalibrationInjectionData/Zero InjectionHour FuelFlowmeterAccuracyData/ ReinstallationHour OnlineOfflineCalibrationData/ OfflineUpscaleInjectionHour OnlineOfflineCalibrationData/ OfflineZeroInjectionHour OnlineOfflineCalibrationData/ OnlineUpscaleInjectionHour OnlineOfflineCalibrationData/ OnlineZeroInjectionHour QACertificationEventData/ CompletionTestHour QACertificationEventData/ ConditionalBeginHour TestSummaryData/BeginHour TestSummaryData/EndHour UnitDefaultTestRunData/Begin Hour UnitDefaultTestRunData/End Hour	Integer	Yes	Minimum Value (inclusive) = 0, Maximum Value (inclusive) = 23	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
OptionalIdentifier Type	QACertificationEventData/ ComponentID QACertificationEventData/ MonitoringSystemID TestExtensionExemptionData/ ComponentID TestExtensionExemptionData/ MonitoringSystemID TestSummaryData/ ComponentID TestSummaryData/Monitoring SystemID	String	Yes	[A-Z0-9]{1,3}	One to three character alphanumeric string
OptionalMinute Type	CalibrationInjectionData/ UpscaleInjectionMinute CalibrationInjectionData/Zero InjectionMinute TestSummaryData/Begin Minute TestSummaryData/EndMinute UnitDefaultTestRunData/Begin Minute UnitDefaultTestRunData/End Minute	Integer	Yes	Minimum Value (inclusive) = 0, Maximum Value (inclusive) = 59	
OptionalQuarter Type	TestSummaryData/Quarter	Integer	Yes	Minimum Value (inclusive) = 1, Maximum Value (inclusive) = 4	
OptionalTimeType	CycleTimeSummaryData/ TotalTime	Integer	Yes	Minimum Value (inclusive) = 0, Maximum Value (inclusive) = 99	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
OptionalYearType	TestSummaryData/Year	Integer	Yes	Minimum Value (inclusive) = 1940, Maximum Value (inclusive) = 2050	
ORISCodeType	QualityAssuranceAndCert/ ORISCode	Integer	No	Minimum Value (inclusive) = 1, Maximum Value (inclusive) = 999999	
PercentageValue Type	TestQualificationData/High LoadPercentage TestQualificationData/Low LoadPercentage TestQualificationData/Mid LoadPercentage	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
Percent DifferenceType	FlowToLoadCheckData/AvgA bsolutePercentDiff	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
PercentErrorType	HgSummaryData/PercentError LinearitySummaryData/ PercentError	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
PercentType	FlowRATARunData/Percent CO_2 FlowRATARunData/Percent Moisture FlowRATARunData/PercentO_2	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
PressureMeasure CodeType	RATATraverseData/Pressure MeasureCode	String	Yes	ELEC FLUID MECH	
PressureType	RATATraverseData/Avg SquareVelDiffPressure RATATraverseData/AvgVel DiffPressure	Decimal	Yes	Total Digits = 5, Decimal Places = 3	
ProbeIDType	RATATraverseData/ProbeID	String	No	Maximum Length = 11 characters	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
ProbeTypeCode Type	RATATraverseData/Probe TypeCode	String	Yes	PRANDT1 PRISM PRISM-T SPHERE TYPE-SA TYPE-SM	
QACertEvent CodeType	QACertificationEventData/ QACertEventCode	String	No	1 2 3 5 10 15 20 25 26 30 35 40 50 51 99 100 101 102 105 106 107 108 109 110 120 125 130 140 141 150 151 160 170 171 172 175 180 185 190 191 192	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
QACertEvent CodeType (cont.)	QACertificationEventData/ QACertEventCode (cont.)	String (cont.)	Yes (cont.)	195 200 250 251 252 253 254 255 300 301 302 305 310 311 312 400 401 402 403 405 410 501 502 503 504 600 605 610 620 630 700 800 900 950	
QIMiddleName Type	AirEmissionTestingData\QI MiddleInitial	String	Yes	Maximum Length = 1 character	
QINameType	AirEmissionTestingData\QI FirstName AirEmissionTestingData\QI LastName	String	No	Minimum Length = 1 character Maximum Length = 25 characters	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
QuarterType	TestExtensionExemptionData/ Quarter	String	No	1 2 3 4	
RATAFrequency CodeType	RATAData/RATAFrequency Code	String	Yes	2QTRS 4QTRS 8QTRS ALTSL OS	
RATAReference ValueType	RATARunData/RATA ReferenceValue RATASummaryData/Mean RATAReferenceValue	Decimal	Yes	Total Digits = 15, Decimal Places = 5	
RatioType	FuelFlowToLoadBaselineData/ BaselineFuelFlowToLoadRatio	Decimal	Yes	Total Digits = 6, Decimal Places = 2	
ReferenceMethod FlowType	FlowToLoadReferenceData/ AverageReferenceMethodFlow	Decimal	Yes	Total Digits = 10, Decimal Places = 0	
ReferenceValue Type	AppECorrelationTestRunData/ ReferenceValue AppECorrelationTestSummary Data/MeanReferenceValue UnitDefaultTestRunData/ ReferenceValue	Decimal	Yes	Total Digits = 8, Decimal Places = 3	
RefMethodCode Type	RATASummaryData/ ReferenceMethodCode	String	Yes	2 2F 2FH 2FJ 2G 2GH 2GJ 2J 20 20,3 20,3A 20,3B 26 26A 29	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
RefMethodCode Type (cont.)	RATASummaryData/ ReferenceMethodCode (cont.)	String (cont.)	Yes (cont.)	3 3A 3B 30A 30B 320 4 6 6,3 6,3A 6,3B 6A 6A,3 6A,3A 6A,3B 6C 6C,3 6C,3A 6C,3B 7 7,3 7,3A 7,3B 7A 7A,3 7A,3A 7A,3B 7C 7C,3 7C,3A 7C,3B 7D 7D,3 7D,3A 7D,3B 7E 7E,3 7E,3A 7E,3B D2H D6348 M2H OH	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
RelativeAccuracy Type	RATAData/RelativeAccuracy RATASummaryData/Relative Accuracy	Decimal	Yes	Total Digits = 5, Decimal Places = 2	
ReportingYear Type	TestExtensionExemptionData/ Year	String	No	(20)\d\d	Year 2000-2099
RequiredDateType	AirEmissionTestingData/Exam Date AppECorrelationTestRunData/ BeginDate AppECorrelationTestRunData/ EndDate CycleTimeInjectionData/ BeginDate CycleTimeInjectionData/End Date HgInjectionData/InjectionDate LinearityInjectionData/ InjectionDate QACertificationEventData/ QACertEventDate RATARunData/BeginDate RATARunData/EndDate	Date	No		Must be a date

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
RequiredHour Type	AppECorrelationTestRunData/ BeginHour AppECorrelationTestRunData/ EndHour CycleTimeInjectionData/ BeginHour CycleTimeInjectionData/End Hour HgInjectionData/InjectionHour LinearityInjectionData/ InjectionHour QACertificationEventData/ QACertEventHour RATARunData/BeginHour RATARunData/EndHour	Integer	No	Minimum Value (inclusive) = 0, Maximum Value (inclusive) = 23	
RequiredIdentifier Type	AppendixEHeatInputFromOilD ata/ MonitoringSystemID AppendixEHeatInputFromGas Data/ MonitoringSystemID	String	No	[A-Z0-9]{1,3}	One to three character alphanumeric string

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
RequiredMinute Type	AppECorrelationTestRunData/ BeginMinute AppECorrelationTestRunData/ EndMinute CycleTimeInjectionData/Begin Minute CycleTimeInjectionData/End Minute HgInjectionData/Injection Minute LinearityInjectionData/ InjectionMinute RATARunData/BeginMinute RATARunData/EndMinute	Integer	No	Minimum Value (inclusive) = 0, Maximum Value (inclusive) = 59	
RequiredStack PipeType	QACertificationEventData/ StackPipeID TestExtensionExemptionData/ StackPipeID TestSummaryData/StackPipeID	String	No	(C|c|M|m)(S|s|P|p) [A-z0-9]{1,4}	Three to six character string beginning with "CS," "CP," "MS," or "MP"
RequiredTest CodeType	QACertificationEventData/ RequiredTestCode	String	Yes	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
RequiredTest CodeType (cont.)	QACertificationEventData/ RequiredTestCode (cont.)	String (cont.)	Yes (cont.)	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 40 42 51 52 53 54 55 56 57 75 76 77 80 81 82 99	
RequiredTest NumberType	TestSummaryData/TestNumber	String	No	Maximum Length = 18 characters	
RequiredUnitType	QACertificationEventData/Unit ID TestExtensionExemptionData/ UnitID TestSummaryData/UnitID	String	No	[A-z0-9 \-*#]{1,6}	One to six character alphanumeric string; also allow asterisk (*) and hyphen (-)

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
ResponseTime Type	AppECorrelationTestRunData/ ResponseTime UnitDefaultTestRunData/ ResponseTime	Decimal	Yes	Total Digits = 3, Decimal Places = 0	
RunNumberType	AppECorrelationTestRunData/ RunNumber RATARunData/RunNumber UnitDefaultTestRunData/Run Number	Decimal	No	Total Digits = 2, Decimal Places = 0	
RunPressureType	FlowRATARunData/ BarometricPressure FlowRATARunData/Static StackPressure	Decimal	Yes	Total Digits = 5, Decimal Places = 2	
RunStatusCode Type	RATARunData/RunStatusCode	String	Yes	NOTUSED RUNUSED IGNORED	
SpanScaleCode Type	TestExtensionExemptionData/ SpanScaleCode TestSummaryData/SpanScale Code	String	Yes	H L	
StackDiameter Type	RATASummaryData/Stack Diameter	Decimal	Yes	Total Digits = 5, Decimal Places = 2	
StackFlowRate Type	FlowRATARunData/Average StackFlowRate	Decimal	Yes	Total Digits = 10, Decimal Places = 0	
Temperature Type	RATATraverseData/TStack Temperature	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
TestBasisCode Type	FlowToLoadCheckData/Test BasisCode FuelFlowToLoadTestData/Test BasisCode	String	Yes	H Q	
TestClaimCode Type	TestQualificationData/Test ClaimCode	String	No	NLE ORE SLC	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
TestCommentType	TestSummaryData/Test Comment	String	No	Maximum Length = 1,000 characters	
TestDescription Type	TestSummaryData/Test Description	String	No	Maximum Length = 100 characters	
TestExtension ExemptionFuel CodeType	TestExtensionExemptionData/ FuelCode	String	Yes	BFG BUT CDG COG DGG DSL LFG LPG NNG OGS OIL OOL PDG PNG PRG PRP RFG SRG	
TestNumberType	FlowToLoadReferenceData/ RATATestNumber FuelFlowToLoadBaseline Data/AccuracyTestNumber FuelFlowToLoadBaseline Data/PEITestNumber	String	Yes	Maximum Length = 18 characters	
TestReasonCode Type	TestSummaryData/Test ReasonCode	String	Yes	DIAG INITIAL QA RECERT	
TestSummaryTest ResultCodeType	TestSummaryData/TestResult Code	String	Yes	ABORTED EXC168H FAILED FEW168H INPROG PASSAPS PASSED	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
TestTypeCodeType	TestSummaryData/TestType Code	String	No	7DAY APPE BCAL CYCLE DAHS DGFMCAL F2LCHK F2LREF FF2LBAS FF2LTST FFACC FFACCTT HGLINE HGSI3 LEAK LINE MFMCAL ONOFF OTHER PEI PEMSACC QGA RATA TSCAL UNITDEF	
TValueType	RATASummaryData/TValue	Decimal	Yes	Total Digits = 6, Decimal Places = 3	
UnitDefaultTest FuelCodeType	UnitDefaultTestData/FuelCode	String	No	BFG BUT CDG COG DGG DSL LFG LPG MIX NNG OGS OIL OOL PDG PNG PRG PRP RFG SRG	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
UnitDefaultTest Operating ConditionCode Type	UnitDefaultTestData/Operating ConditionCode	String	Yes	A B P	
UpscaleGasCode Type	CalibrationInjectionData/ UpscaleGasLevelCode OnlineOfflineCalibrationData/ UpscaleGasLevelCode	String	Yes	HIGH MID	
VendorIdentifier Type	ProtocolGasData/Vendor Identifier	String	No	[A-Z0-9]{1,8}	One to eight character alphanumeric string
Velocity Calibration CoefficientType	RATATraverseData/Velocity CalibrationCoefficient	Decimal	Yes	Total Digits = 5, Decimal Places = 3	
VelocityType	FlowRATARunData/Average VelocityWithWallEffects FlowRATARunData/Avg VelocityWithoutWallEffects RATATraverseData/Calculated Velocity RATATraverseData/ ReplacementVelocity	Decimal	Yes	Total Digits = 6, Decimal Places = 2	
VersionType	QualityAssuranceAndCert/ Version	String	Yes	Maximum Length = 10 characters	
VolumeType	AppendixEHeatInputFromGas Data/GasVolume AppendixEHeatInputFromOil Data/OilVolume	Decimal	Yes	Total Digits = 10, Decimal Places = 1	
VolumeUnitsOf MeasureCodeType	AppendixEHeatInputFromOilD ata/OilVolumeUnitsOfMeasure Code	String	Yes	BBL GAL M3 SCF	

(cont.)

Figure 66
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
WAFType	FlowRATARunData/Calculate dWAF RATASummaryData/Calculate dWAF RATASummaryData/Default WAF	Decimal	Yes	Total Digits = 6, Decimal Places = 4	
ZeroMeasured ValueType	OnlineOfflineCalibrationData/ OfflineZeroMeasuredValue OnlineOfflineCalibrationData/ OnlineZeroMeasuredValue	Decimal	Yes	Total Digits = 13, Decimal Places = 3	