The Emissions Collection and Monitoring Plan Project

Quality Assurance and Certification Test XML Schema Version 1.1

Submitted to:

ECMPS Stakeholders

Submitted by:

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Quality Assurance and Certification Test XML Schema Version 1.1

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, 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, 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 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
QualityAssuranceAndCertData

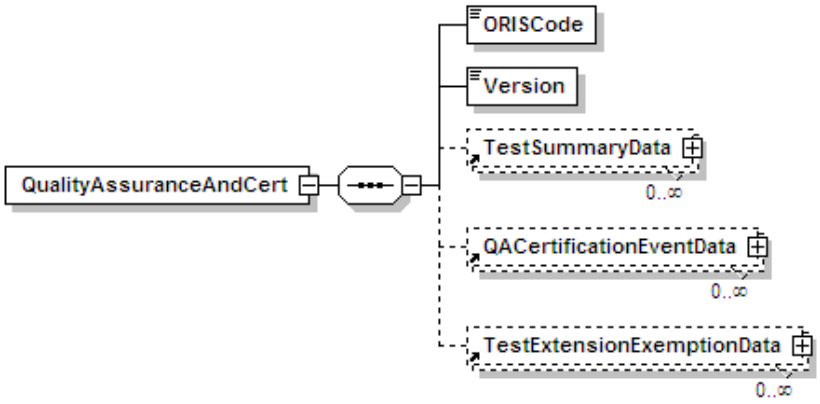

Figure 2
QualityAssuranceAndCertification XML Elements

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 Quality Assurance and Certification Root

Complex Element	Parent Element	Minimum Occurrences	Maximum Occurrences
AirEmissionTestingData	TestSummaryData		
AppECorrelationTestRunData	AppECorrelationTest SummaryData	0	unbounded
AppECorrelationTestSummary Data	TestSummaryData	0	1
AppendixEHeatInputFromGas Data	AppECorrelationTestRun Data	0	1
AppendixEHeatInputFromOil Data	AppECorrelationTestRun Data	0	1
CalibrationInjectionData	TestSummaryData	0	unbounded

(cont.)

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

Complex Element	Parent Element	Minimum Occurrences	Maximum Occurrences
CycleTimeInjectionData	CycleTimeSummaryData	0	unbounded
CycleTimeSummary Data	TestSummaryData	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
LinearityInjectionData	LinearitySummaryData	0	unbounded
LinearitySummaryData	TestSummaryData	0	unbounded
OnlineOffline CalibrationData	TestSummaryData	0	1
ProtocolGasData	TestSummaryData	0	unbounded
QACertificationEvent Data	QualityAssuranceAnd Certification	0	unbounded
QualityAssuranceAnd Certification		1	1
RATAData	TestSummaryData	0	1
RATARunData	RATASummaryData	1	unbounded
FlowRATARunData	RATARunData	0	1
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

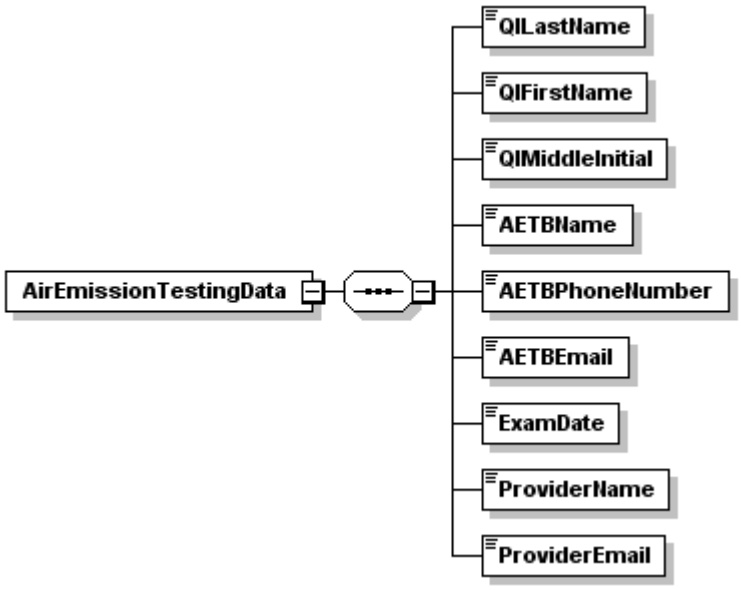

Figure 5
AirEmissionTestingData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
QILastName	QINameType	Last name of the on-site Qualified Individual who conducted or oversaw the test.	New
QIFirstName	QINameType	First name of the on-site Qualified Individual who conducted or oversaw the test.	New
QIMiddleInitial	QIMiddleNameType	Middle initial of the on-site Qualified Individual who conducted or oversaw the test.	New
AETBName	AETBNameType	Name of the Air Emission Testing Body that performed the test.	New
AETBPhoneNumber	AETBPhoneNumberType	Phone number of the Air Emission Testing Body that performed the test.	New
AETBEmail	AETBEmailType	Email address of the Air Emission Testing Body that performed the test.	New

(cont.)

Figure 5
AirEmissionTestingData XML Elements (cont.)

XML Tag	Type	Definition	EDR Reference (RT:Col)
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.	New
ProviderName	AETBNameType	Provider(s) of the qualification test that took place on the exam date.	New
ProviderEmail	AETBEmailType	Email address(es) of provider(s) of the qualification test that took place on the exam date.	New

Figure 6
AppECorrelationTestRunData

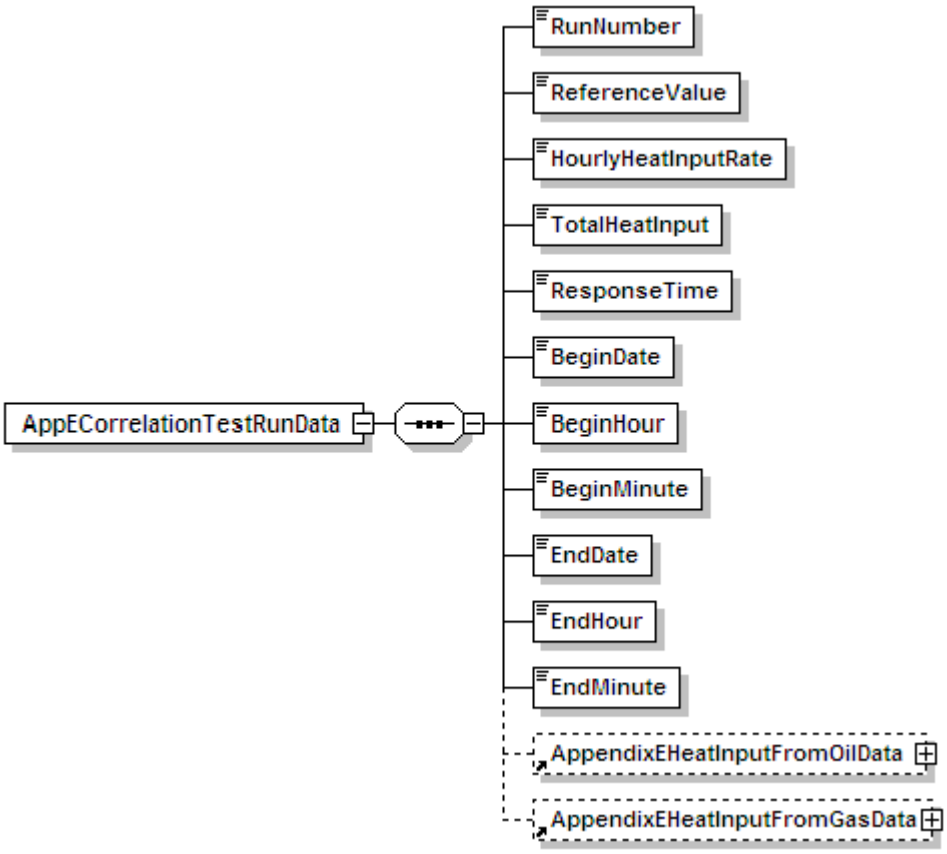

Figure 7
AppECorrelationTestRunData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
RunNumber	RunNumberType	Run number.	650:44
ReferenceValue	ReferenceValueType	Value from reference method during run.	650:36
HourlyHeatInputRate	HourlyHeatInputRate Type	Hourly heat input rate during the run.	650:59
TotalHeatInput	HeatInputType	Total heat input during the run.	650:49
ResponseTime	ResponseTimeType	Reference method response time during run.	650:33
BeginDate	RequiredDateType	Date on which the run started.	650:13
BeginHour	RequiredHourType	Hour in which the run started.	650:19
BeginMinute	RequiredMinuteType	Minute in which the run started.	650:19
EndDate	RequiredDateType	Last date in which information was effective or date in which activity ended.	650:23
EndHour	RequiredHourType	Last hour in which information was effective or hour in which activity ended.	650:29
EndMinute	RequiredMinuteType	Last minute in which information was effective or minute in which activity ended.	650:29

Figure 8
AppECorrelationTestSummaryData

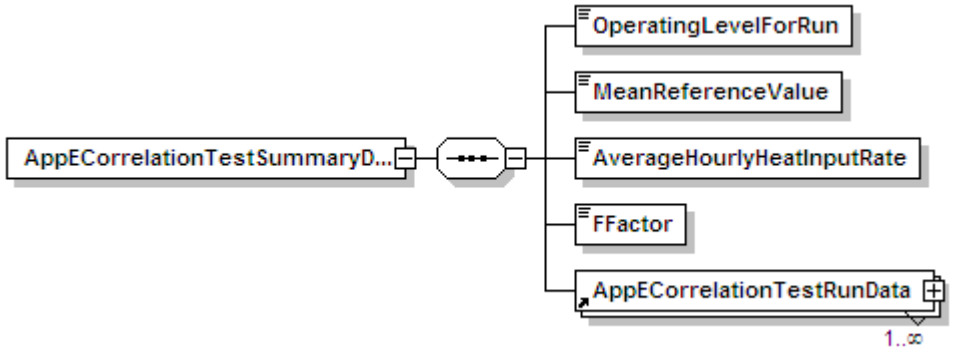

Figure 9
AppECorrelationTestSummaryData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
OperatingLevelForRun	OperatingLevelType	Operating level for run.	651:48
MeanReferenceValue	ReferenceValueType	Arithmetic mean of reference method values at this level.	651:23
AverageHourlyHeat InputRate	HourlyHeatInputRate Type	Average hourly heat input rate at this level.	651:41
FFactor	FFactorType	F-factor used to convert NO_x concentrations to emission rates.	651:31

Figure 10
AppendixEHeatInputFromGasData

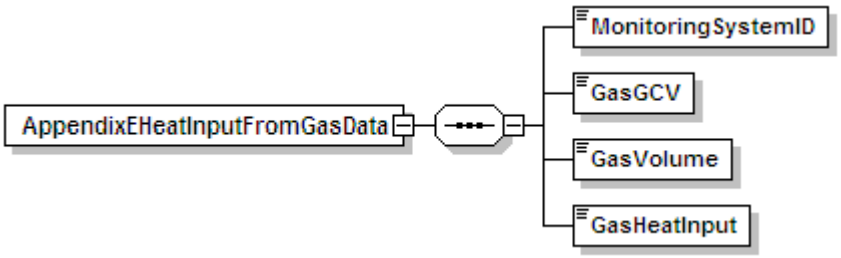

Figure 11
AppendixEHeatInputFromGasData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
MonitoringSystemID	OptionalIdentifierType	The three digit code used by the source to identify the monitoring system.	653:10
GasGCV	GCVType	Gross calorific value (GCV) of gas.	653:43
GasVolume	VolumeType	Volume of gas combusted during run.	653:33
GasHeatInput	HeatInputType	Heat input from gas during run.	653:53

Figure 12
AppendixEHeatInputFromOilData

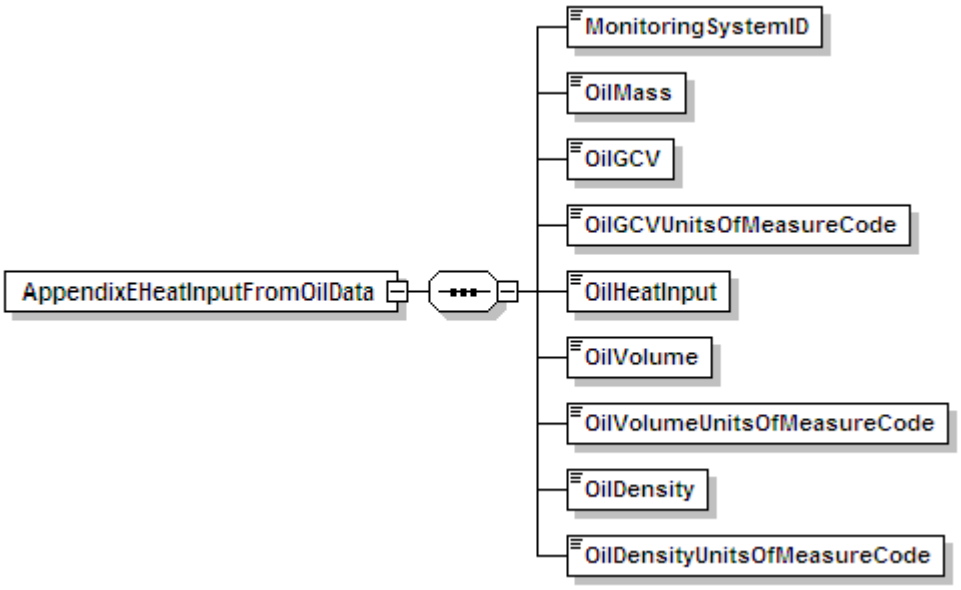

Figure 13
AppendixEHeatInputFromOilData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
MonitoringSystemID	OptionalIdentifierType	The three digit code used by the source to identify the monitoring system.	652:10
OilMass	MassType	Mass of oil combusted during run.	652:35
OilGCV	GCVType	Gross calorific value (GCV) of oil.	652:45
OilGCVUnitsOf MeasureCode	GCVUnitsOfMeasure CodeType	Code used to identify units of measure for GCV of oil.	652:92
OilHeatInput	HeatInputType	Heat input from oil during run.	652:55
OilVolume	VolumeType	Volume of oil combusted during run.	652:62
OilVolumeUnitsOf MeasureCode	VolumeUnitsOf MeasureCodeType	Code used to identify units of measure for volume of oil.	652:72
OilDensity	DensityType	Density of oil.	652:77
OilDensityUnitsOf MeasureCode	DensityUnitsOf MeasureCodeType	Code used to identify units of measure for density of oil.	652:85

Figure 14
CalibrationInjectionData

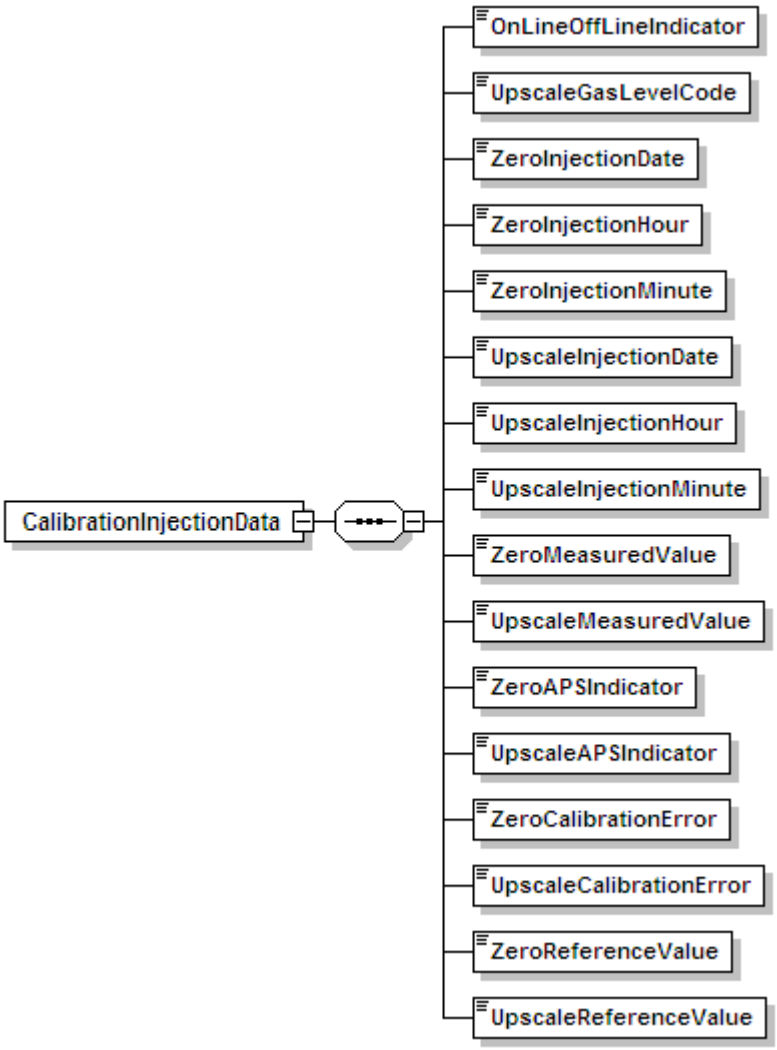

Figure 15
CalibrationInjectionData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
OnLineOffLine Indicator	IndicatorType	Indicates whether the unit or stack is operating at the time of the test.	New
UpscaleGasLevelCode	UpscaleGasCodeType	Code used to identify upscale gas level.	600:69
ZeroInjectionDate	OptionalDateType	Date of zero level injection.	600:16

(cont.)

Figure 15
CalibrationInjectionData XML Elements (cont.)

XML Tag	Type	Definition	EDR Reference (RT:Col)
ZeroInjectionHour	OptionalHourType	Hour of zero level injection.	600:22
ZeroInjectionMinute	OptionalMinuteType	Zero Injection Minute.	New
UpscaleInjectionDate	OptionalDateType	Date of upscale injection.	600:16
UpscaleInjectionHour	OptionalHourType	Hour of upscale injection.	600:22
UpscaleInjection Minute	OptionalMinuteType	Upscale Injection minute.	New
ZeroMeasuredValue	CalibrationValueType	Zero measured value.	600:50
UpscaleMeasuredValue	CalibrationValueType	Upscale measured value.	600:50
ZeroAPSIndicator	IndicatorType	Alternative performance specification (APS) indicator.	600:68
UpscaleAPSIndicator	IndicatorType	Alternative performance specification (APS) indicator.	600:68
ZeroCalibrationError	CalibrationErrorType	Reported zero level calibration error.	600:63
UpscaleCalibration Error	CalibrationErrorType	Reported upscale level calibration error.	600:63
ZeroReferenceValue	CalibrationValueType	Zero level reference value.	600:37
UpscaleReference Value	CalibrationValueType	Upscale reference value.	600:37

Figure 16
CycleTimeInjectionData

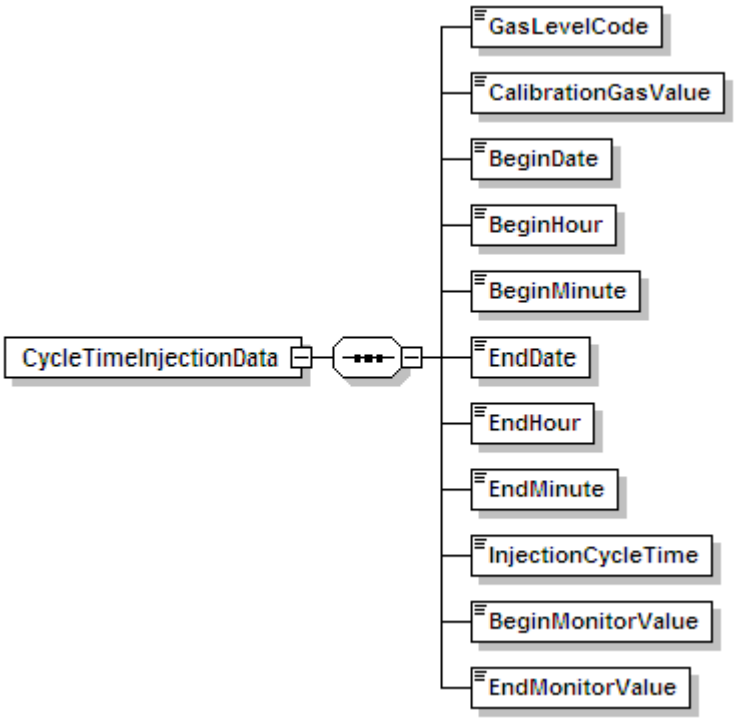

Figure 17
CycleTimeInjectionData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
GasLevelCode	CalibrationInjectionGasLevelCodeType	Code used to identify calibration gas level.	621:71
CalibrationGasValue	MonitorValueType	Calibration gas value.	621:58
BeginDate	RequiredDateType	Date of the cycle time injection.	621:16
BeginHour	RequiredHourType	Hour in which information became effective or activity started.	621:22
BeginMinute	RequiredMinuteType	Minute in which the cycle time injection began.	621:22
EndDate	RequiredDateType	Last date in which information was effective or date in which activity ended.	621:16

(cont.)

Figure 17
CycleTimeInjectionData XML Elements (cont.)

XML Tag	Type	Definition	EDR Reference (RT:Col)
EndHour	RequiredHourType	Last hour in which information was effective or hour in which activity ended.	621:26
EndMinute	RequiredMinuteType	Last minute in which information was effective or minute in which activity ended.	621:26
InjectionCycleTime	CycleTimeType	Component cycle time.	621:30
BeginMonitorValue	MonitorValueType	Stable analyzer response at the start of the cycle time test.	621:32
EndMonitorValue	MonitorValueType	Stable analyzer response at the end of the cycle time test.	621:45

Figure 18
CycleTimeSummaryData

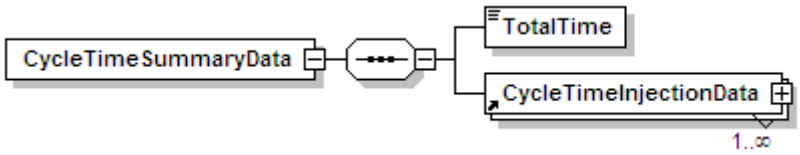

Figure 19
CycleTimeSummaryData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
TotalTime	OptionalTimeType	Reported time.	621:72

Figure 20
FlowRATARunData

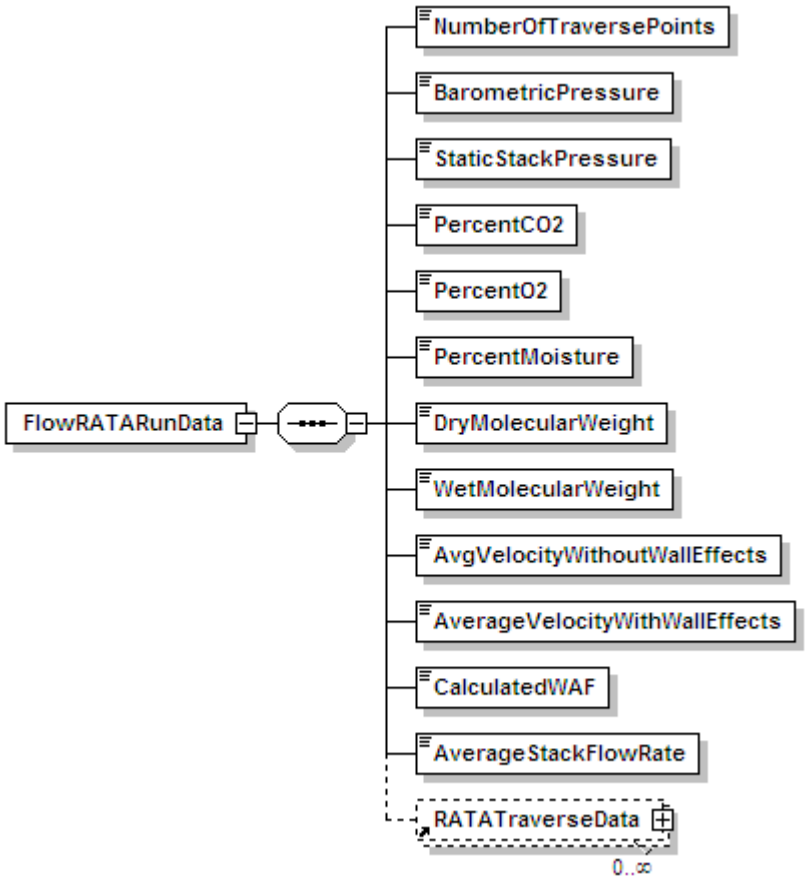

Figure 21
FlowRATARunData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
NumberOfTraverse Points	NumberOfTraverse PointsType	Number of traverse points.	614:45
BarometricPressure	RunPressureType	P-bar, barometric pressure, in Hg.	614:47
StaticStackPressure	RunPressureType	P(g), stack static pressure, in H_2O.	614:52
PercentCO_2	PercentType	Percent CO_2 in stack gas, dry basis	614:57
PercentO_2	PercentType	Percent O_2 in stack gas, dry basis.	614:62

(cont.)

Figure 21
FlowRATARunData XML Elements (cont.)

XML Tag	Type	Definition	EDR Reference (RT:Col)
PercentMoisture	PercentType	Percent moisture in stack gas.	614:71
DryMolecularWeight	MolecularWeightType	Stack gas molecular weight, dry basis.	614:76
WetMolecularWeight	MolecularWeightType	Stack gas molecular weight, wet basis.	614:81
AvgVelocityWithout WallEffects	VelocityType	Average velocity for run, not accounting for wall effects.	614:97
AverageVelocityWith WallEffects	VelocityType	Average velocity for run, accounting for wall effects.	614:103
CalculatedWAF	WAFType	Calculated wall effects adjustment factor (WAF) derived from this test run.	614:109
AverageStackFlowRate	StackFlowRateType	Average stack flow rate, wet basis, adjusted if applicable for wall effects.	614:127

Figure 22
FlowToLoadCheckData

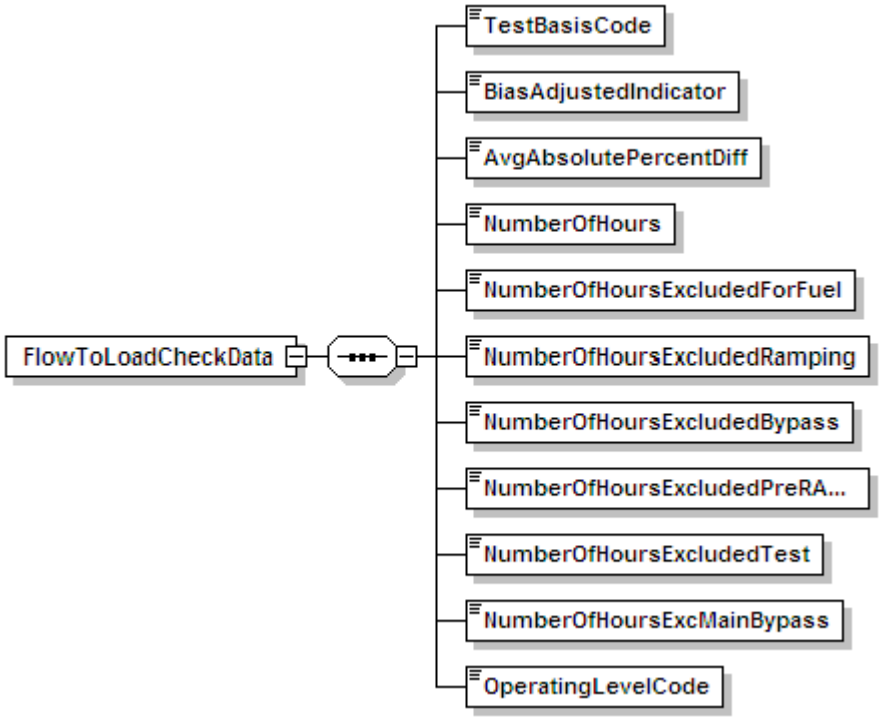

Figure 23
FlowToLoadCheckData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
TestBasisCode	TestBasisCodeType	Code used to identify the test basis (Q-flow-to-load ratio; H-gross heat rate).	606:18
BiasAdjustedIndicator	IndicatorType	Used to Indicate whether the BAF was applied to reported flow values.	606:19
AvgAbsolutePercentDiff	PercentDifferenceType	Average absolute percent difference between reference ration (GHR) and hourly ratios (or GHR values).	606:20
NumberOfHours	NumberOfHoursType	Number of hours used in quarterly flow-to-load or GHR analysis.	606:26
NumberOfHours ExcludedForFuel	NumberOfHoursType	Number of hours excluded for different type of fuel.	606:30
NumberOfHours ExcludedRamping	NumberOfHoursType	Number of hours excluded for load ramping up or down.	606:34
NumberOfHours ExcludedBypass	NumberOfHoursType	Number of hours excluded for scrubber bypass.	606:38
NumberOfHours ExcludedPreRATA	NumberOfHoursType	Number of hours excluded preceding a normal load flow RATA.	606:42
NumberOfHours ExcludedTest	NumberOfHoursType	Number of excluded hours preceding a successful diagnostic test, following a documented monitor repair, or following a major component replacement.	606:46
NumberOfHoursExc MainBypass	NumberOfHoursType	Number of hours excluded for flue gases discharging simultaneously through a main stack and bypass stack.	606:50
OperatingLevelCode	FlowToLoadCheckOperatingLevelCodeType	Code used to identify the operating level.	N/A

Figure 24
FlowToLoadReferenceData

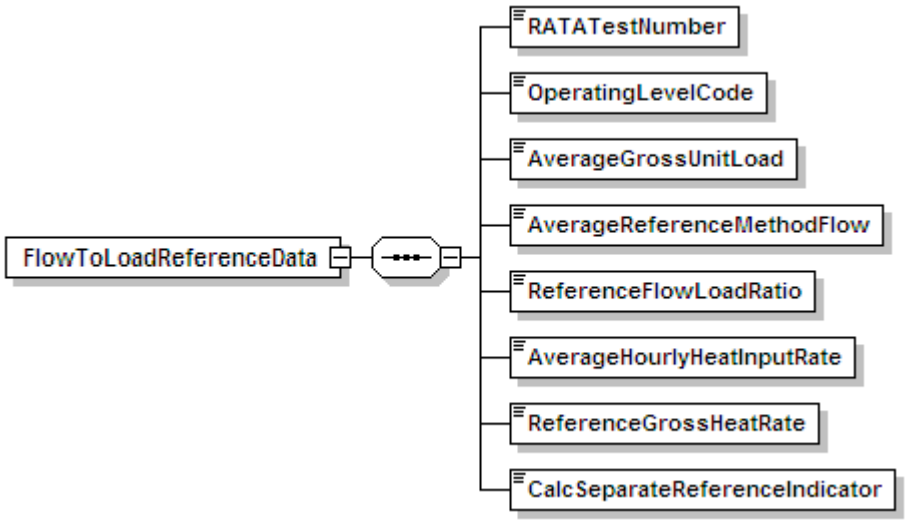

Figure 25
FlowToLoadReferenceData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
RATATestNumber	TestNumberType	RATA test number.	N/A
OperatingLevelCode	OperatingLevelCode Type	Code used to identify the operating level.	N/A
AverageGrossUnitLoad	GrossUnitLoadType	Average gross unit load (MWe or Steam).	605:27
AverageReference MethodFlow	ReferenceMethodFlow Type	Average reference method flow rate during reference flow RATA.	605:34
ReferenceFlowLoad Ratio	FlowLoadRatioType	Reference flow to load ratio.	605:44
AverageHourlyHeat InputRate	HourlyHeatInputRate Type	Average hourly heat input rate during RATA.	605:50
ReferenceGrossHeat Rate	GrossHeatRateType	Reference gross heat rate (GHR) value.	605:57
CalcSeparateReference Indicator	IndicatorType	Used to indicate if separate reference ratio was calculated for each multiple stack.	605:63

Figure 26
FuelFlowToLoadBaselineData

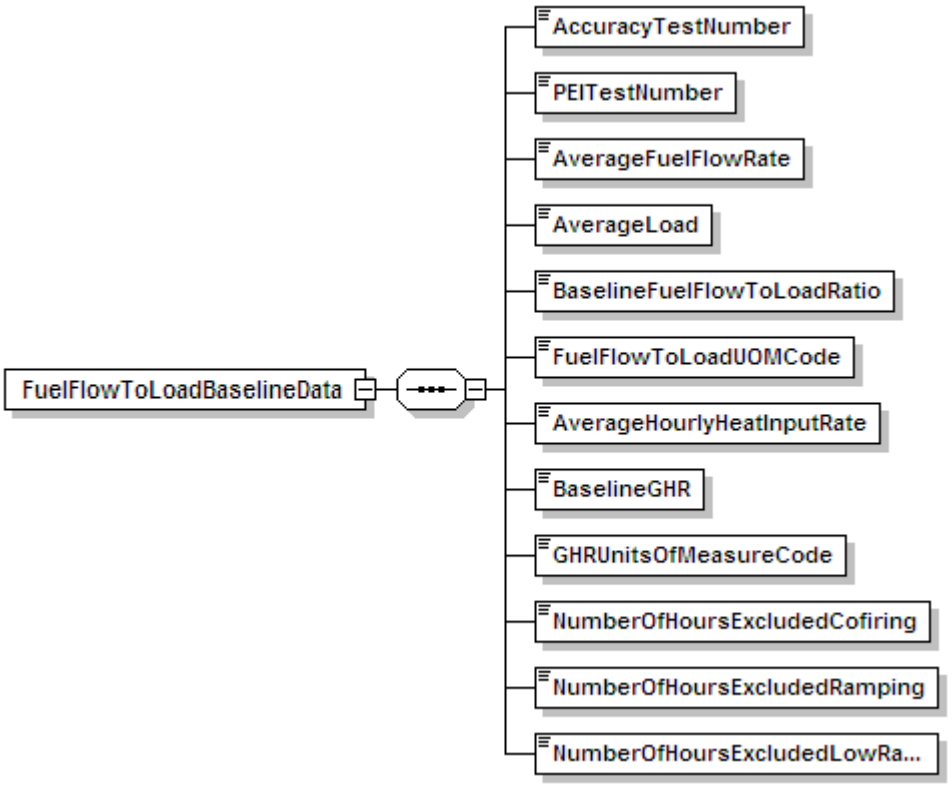

Figure 27
FuelFlowToLoadBaselineData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
AccuracyTestNumber	TestNumberType	Test number of most recent fuel flowmeter accuracy test.	629:23
PEITestNumber	TestNumberType	Test number of most recent primary element inspection test.	629:13
AverageFuelFlowRate	FuelFlowRateType	Average fuel flow rate (100 scfh for gas and lb/hr for oil).	629:53
AverageLoad	GrossUnitLoadType	Average load (MWe or 1,000 lbs steam per hour).	629:63
BaselineFuelFlowTo LoadRatio	RatioType	Baseline fuel flow to load ratio.	629:69
FuelFlowToLoad UOMCode	FuelFlowToLoadBaselineUnitsOfMeasureCode Type	Code used to identify baseline fuel-flow-to-load units of measure.	629:75

(cont.)

Figure 27
FuelFlowToLoadBaselineData XML Elements (cont.)

XML Tag	Type	Definition	EDR Reference (RT:Col)
AverageHourlyHeat InputRate	HourlyHeatInputRate Type	Average hourly heat input rate.	629:76
BaselineGHR	GrossHeatRateType	Baseline gross heat rate (GHR).	629:83
GHRUnitsOfMeasure Code	GHRUnitsOfMeasure CodeType	Code used to identify baseline gross heat rate (GHR) units of measure.	629:89
NumberOfHours ExcludedCofiring	NumberOfHoursType	Number of hours excluded due to co-firing or combustion of a different type of fuel.	629:90
NumberOfHours ExcludedRamping	NumberOfHoursType	Number of hours excluded due to ramping.	629:93
NumberOfHours ExcludedLowRange	NumberOfHoursType	Number of hours excluded in lower 25% of range of operation.	629:96

Figure 28
FuelFlowToLoadTestData

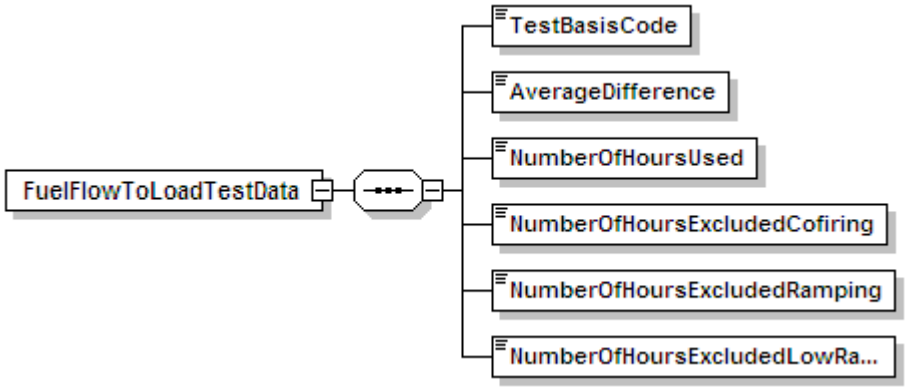

Figure 29
FuelFlowToLoadTestData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
TestBasisCode	TestBasisCodeType	Code used to identify the test basis (Q-flow-to-load ratio; H-gross heat rate).	630:21
AverageDifference	DifferenceType	Quarterly average absolute percent difference between baseline ratio and hourly quarterly ratios.	630:22
NumberOfHoursUsed	NumberOfHoursType	Number of hours used in the quarterly data analysis.	630:28
NumberOfHours ExcludedCofiring	NumberOfHoursType	Number of hours excluded due to co-firing or combustion of a different type of fuel.	630:32
NumberOfHours ExcludedRamping	NumberOfHoursType	Number of hours excluded for load ramping up or down.	630:36
NumberOfHours ExcludedLowRange	NumberOfHoursType	Number of hours excluded in lower 25% of range of operation.	630:40

Figure 30
FuelFlowmeterAccuracyData

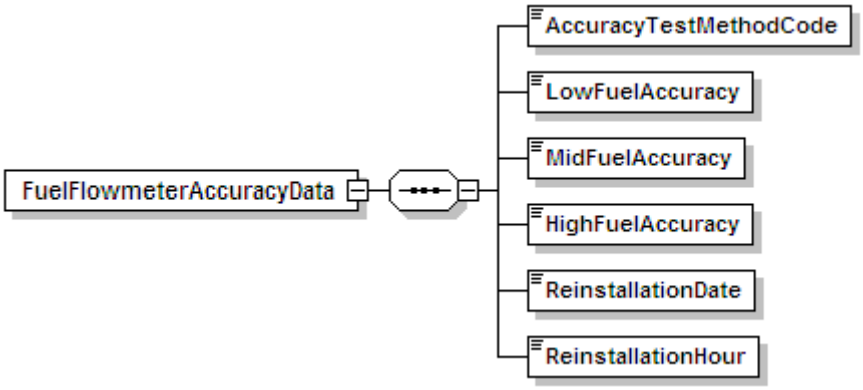

Figure 31
FuelFlowmeterAccuracyData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
AccuracyTestMethod Code	AccuracyTestMethod CodeType	Code used to indicate fuel flowmeter accuracy test method.	627:51
LowFuelAccuracy	FuelAccuracyType	Highest accuracy at low fuel flow rate (% of URV).	627:36
MidFuelAccuracy	FuelAccuracyType	Highest accuracy at mid fuel flowrate (% of URV).	627:41
HighFuelAccuracy	FuelAccuracyType	Highest accuracy at high fuel flow rate (% of URV).	627:46
ReinstallationDate	OptionalDateType	Date in which fuel flow meter was reinstalled.	627:26
ReinstallationHour	OptionalHourType	Hour in which fuel flow meter was reinstalled.	627:34

Figure 32
LinearityInjectionData

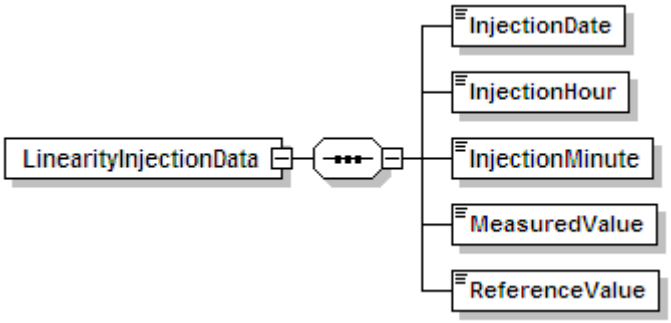

Figure 33
LinearityInjectionData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
InjectionDate	RequiredDateType	Date on which injection occurred.	601:16
InjectionHour	RequiredHourType	Hour in which injection occurred.	601:22
InjectionMinute	RequiredMinuteType	Minute in which injection occurred.	601:22
MeasuredValue	LinearityValueType	Measured value.	601:52
ReferenceValue	LinearityValueType	Reference value.	601:39

Figure 34
LinearitySummaryData

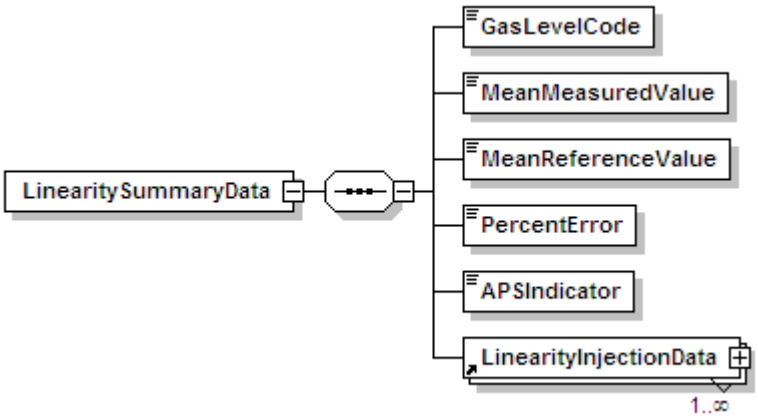

Figure 35
LinearitySummaryData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
GasLevelCode	GasLevelCodeType	Code used to identify calibration gas level.	602:71
MeanMeasuredValue	LinearityValueType	Reported mean of measured values.	602:48
MeanReferenceValue	LinearityValueType	Reported mean of referenced values.	602:35
PercentError	PercentErrorType	Reported percentage of error.	602:61
APSIndicator	IndicatorType	Used to indicate if the alternative performance specification (APS) is used.	602:66

Figure 36
OnlineOfflineCalibrationData

Figure 37
OnlineOfflineCalibrationData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
OnlineZeroReference Value	CalibrationValueType	Online zero level calibration value.	623:37
OnlineUpscale ReferenceValue	CalibrationValueType	Online upscale level calibration value.	623:37
OfflineZeroReference Value	CalibrationValueType	Offline zero level calibration value.	623:37
OfflineUpscale ReferenceValue	CalibrationValueType	Offline upscale level calibration value.	623:37
OnlineZeroMeasured Value	ZeroMeasuredValue Type	Online zero level measured value.	623:50
OnlineUpscale MeasuredValue	MeasuredValueType	Online upscale level measured value.	623:50
OfflineZeroMeasured Value	ZeroMeasuredValue Type	Offline zero level measured value.	623:50
OfflineUpscale MeasuredValue	MeasuredValueType	Offline upscale measured value.	623:50
OnlineZeroCalibration Error	CalibrationErrorType	Online zero level calibration error or |R-A|.	623:63
OnlineUpscale CalibrationError	CalibrationErrorType	Online upscale level calibration error or |R-A|.	623:63
OfflineZeroCalibration Error	CalibrationErrorType	Offline zero level calibration error or |R-A|.	623:63
OfflineUpscale CalibrationError	CalibrationErrorType	Offline upscale level calibration error or |R-A|.	623:63
UpscaleGasLevelCode	UpscaleGasCodeType	Code used to identify upscale gas level.	N/A
OnlineZeroAPS Indicator	IndicatorType	Alternative performance specification (APS) indicator.	623:68
OnlineUpscaleAPS Indicator	IndicatorType	Alternative performance specification (APS) indicator.	623:68
OfflineZeroAPS Indicator	IndicatorType	Alternative performance specification (APS) indicator.	623:68
OfflineUpscaleAPS Indicator	IndicatorType	Alternative performance specification (APS) indicator.	623:68
OnlineZeroInjection Date	OptionalDateType	Online zero level injection date.	623:16

(cont.)

Figure 37
OnlineOfflineCalibrationData XML Elements (cont.)

XML Tag	Type	Definition	EDR Reference (RT:Col)
OnlineUpscaleInjection Date	OptionalDateType	Online upscale level injection date.	623:16
OfflineZeroInjection Date	OptionalDateType	Offline zero level injection date.	623:16
OfflineUpscale InjectionDate	OptionalDateType	Offline upscale level injection date.	623:16
OnlineZeroInjection Hour	OptionalHourType	Online zero level injection hour.	623:22
OnlineUpscaleInjection Hour	OptionalHourType	Online upscale level injection hour.	623:22
OfflineZeroInjection Hour	OptionalHourType	Offline zero level injection hour.	623:22
OfflineUpscale InjectionHour	OptionalHourType	Offline upscale level injection hour.	623:22

Figure 38
ProtocolGasData

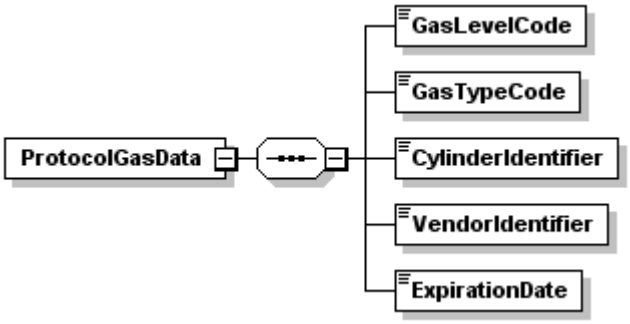

Figure 39
ProtocolGasData XML Elements

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

Figure 40
QACertificationEventData

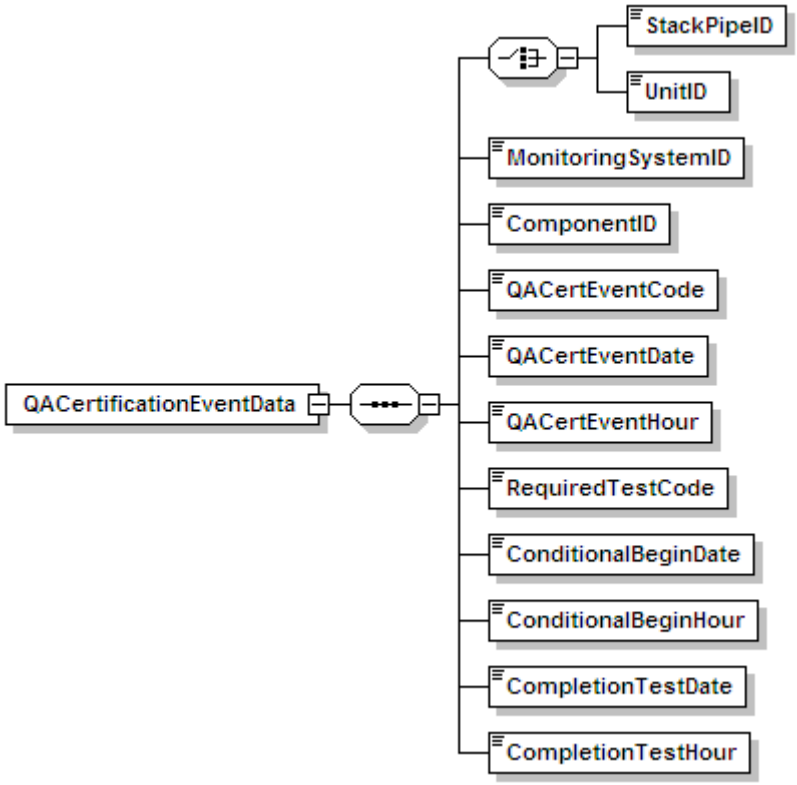

Figure 41
QACertificationEventData XML Elements

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.	556:4
UnitID	RequiredUnitType	One to six alphanumeric character code assigned by the source to identify a unit.	556:4
MonitoringSystemID	OptionalIdentifierType	The three digit code used by the source to identify the monitoring system.	556:13
ComponentID	OptionalIdentifierType	The three digit code assigned by the source to identify the component.	556:10
QACertEventCode	QACertEventCodeType	Code used to identify QA and certification event.	556:16
QACertEventDate	RequiredDateType	Date on which the QA Cert Event occurred.	556:21
QACertEventHour	RequiredHourType	Hour in which the QA Cert Event occurred.	556:29
RequiredTestCode	RequiredTestCodeType	Code used to identify the test(s) required due to the event.	556:19
ConditionalBeginDate	OptionalDateType	Date on which conditional data validation began based on completion of a successful daily calibration.	556:31
ConditionalBeginHour	OptionalHourType	Hour in which conditional data validation began based on completion of a successful daily calibration.	556:39
CompletionTestDate	OptionalDateType	Date in which the last test was completed.	556:41
CompletionTestHour	OptionalHourType	Hour in which last test was completed.	556:49

Figure 42
RATAData

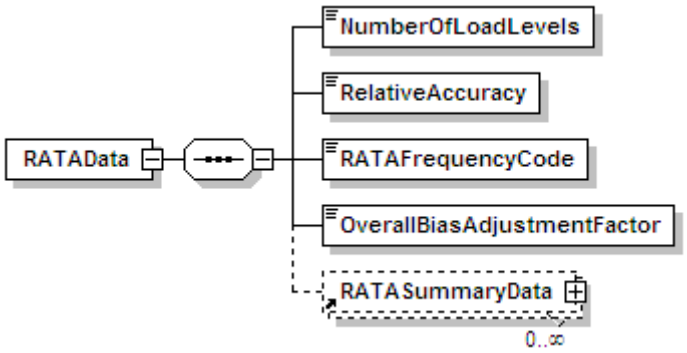

Figure 43
RATAData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
NumberOfLoadLevels	NumberOfLoadLevels Type	Number of load or operating levels comprising test.	611:133
RelativeAccuracy	RelativeAccuracyType	Reported relative accuracy.	611:100
RATAFrequencyCode	RATAFrequencyCode Type	Code used to identify RATA frequency.	N/A
OverallBiasAdjustment Factor	BiasAdjustmentFactor Type	Reported overall bias adjustment factor for this test.	611:111

Figure 44
RATARunData

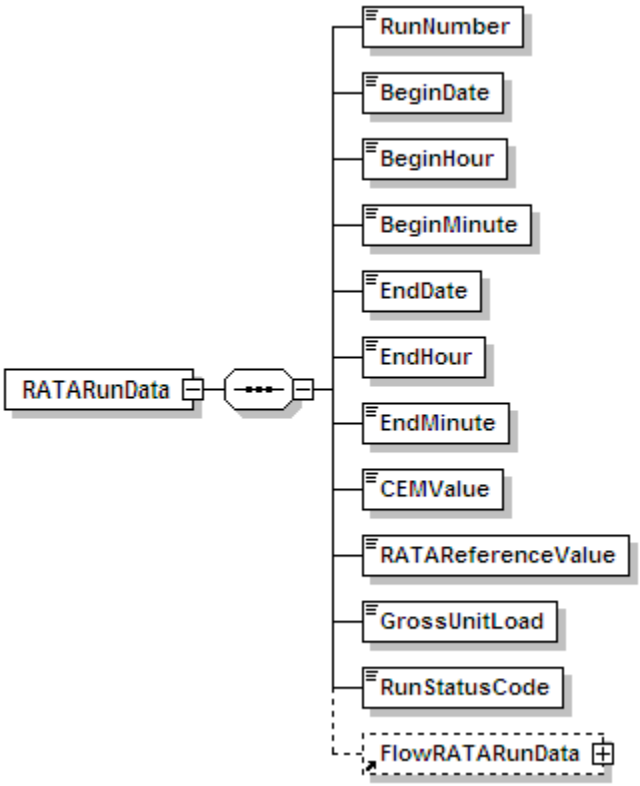

Figure 45
RATARunData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
RunNumber	RunNumberType	Run number.	610:60
BeginDate	RequiredDateType	Date in which information became effective or activity started.	610:13
BeginHour	RequiredHourType	Hour in which information became effective or activity started.	610:19
BeginMinute	RequiredMinuteType	Minute in which the RATA run began.	610:19

(cont.)

Figure 45
RATARunData XML Elements (cont.)

XML Tag	Type	Definition	EDR Reference (RT:Col)
EndDate	RequiredDateType	Last date in which information was effective or date in which activity ended.	610:23
EndHour	RequiredHourType	Last hour in which information was effective or hour in which activity ended.	610:29
EndMinute	RequiredMinuteType	Last minute in which information was effective or minute in which activity ended.	610:29
CEMValue	CEMValueType	Value from CEM system being tested.	610:34
RATAReferenceValue	RATAReferenceValue Type	Value from reference method, adjusted as necessary for moisture and/or calibration bias.	610:47
GrossUnitLoad	GrossUnitLoadType	Gross unit load or average velocity at operating level.	610:64
RunStatusCode	RunStatusCodeType	Code used to identify run status.	610:62

Figure 46
RATASummaryData

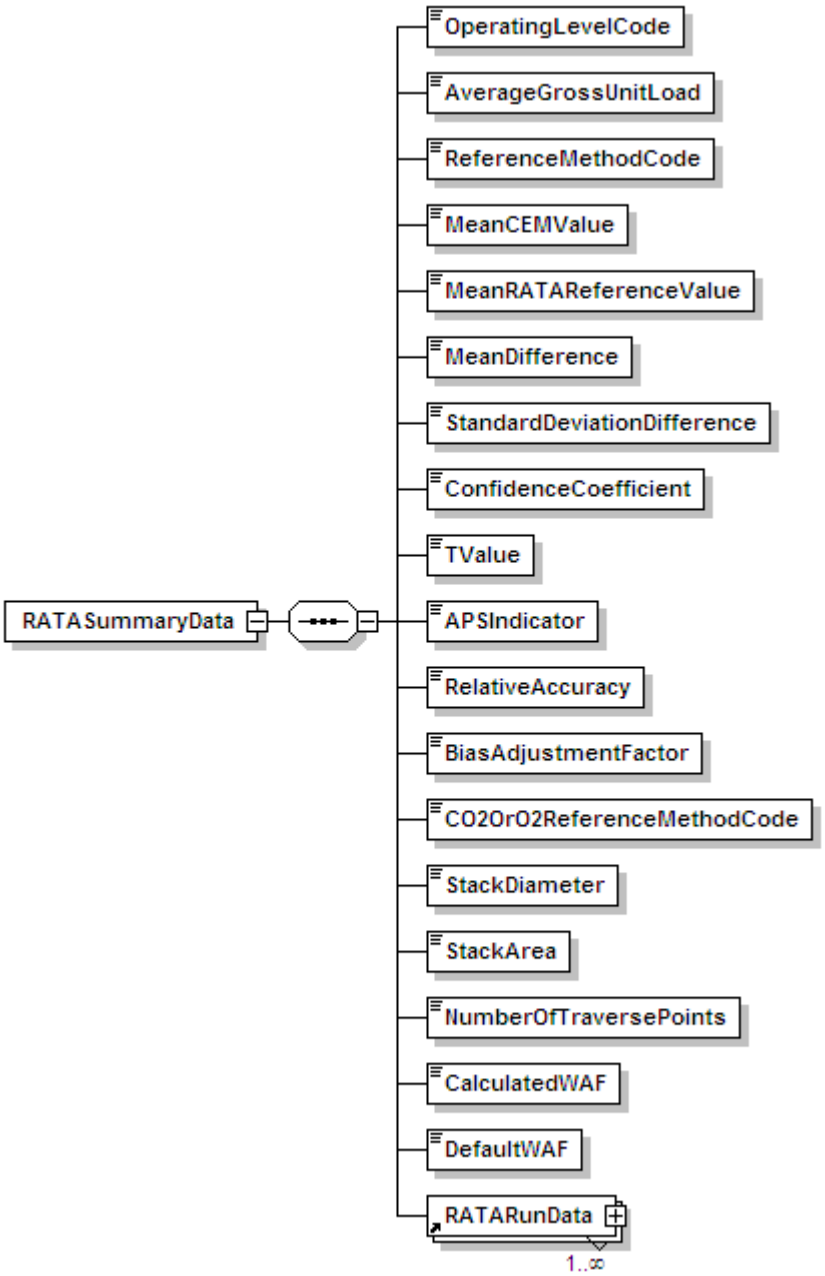

Figure 47
RATASummaryData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
OperatingLevelCode	OperatingLevelCode Type	Code used to identify the operating level.	611:116
AverageGrossUnitLoad	GrossUnitLoadType	Average gross unit load (MWe or steam) or average velocity at operating level.	611:117
ReferenceMethodCode	RefMethodCodeType	Code used to identify a reference method.	611:23
MeanCEMValue	CEMValueType	Arithmetic mean of CEMS values.	611:35
MeanRATAReference Value	RATAReferenceValue Type	Arithmetic mean of reference method values.	611:48
MeanDifference	DifferenceValueType	Reported mean of the difference data.	611:61
StandardDeviation Difference	DifferenceValueType	Standard deviation of difference data.	611:74
ConfidenceCoefficient	ConfidenceCoefficient Type	Confidence coefficient.	611:87
TValue	TValueType	Tabulated t-value.	611:105
APSIndicator	IndicatorType	Used to indicate if the alternative performance specification (APS) is used.	611:128
RelativeAccuracy	RelativeAccuracyType	Reported relative accuracy.	611:100
BiasAdjustmentFactor	BiasAdjustmentFactor Type	Reported bias adjustment factor of load level.	611:111
CO_2OrO_2Reference MethodCode	CO_2OrO_2Reference MethodType	Code used to identify reference method used for CO_2 or O_2.	614:67
StackDiameter	StackDiameterType	Stack diameter at test port location.	614:86
StackArea	CrossSectionType	Stack or duct cross-sectional area at test port.	614:91
NumberOfTraverse Points	NumberOfTraverse PointsType	The number of Method 1 traverse points in the test runs.	617:28
CalculatedWAF	WAFType	Calculated WAF applied to all runs of this RATA load level.	614:115
DefaultWAF	WAFType	Default wall effects adjustment factor.	614:121

Figure 48
RATATraverseData

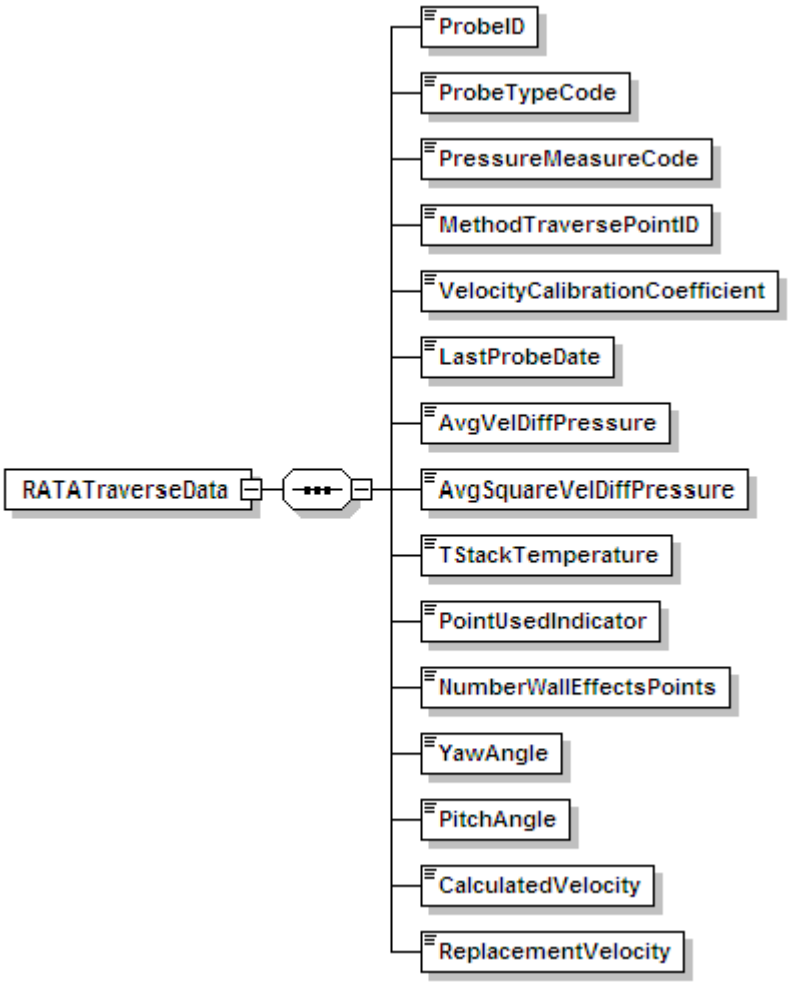

Figure 49
RATATraverseData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
ProbeID	ProbeIDType	Probe ID.	615:22
ProbeTypeCode	ProbeTypeCodeType	Code used to identify a probe type.	615:18
PressureMeasureCode	PressureMeasureCode Type	Code used to identify a pressure measurement device type.	615:33
MethodTraversePointID	MethodIDType	Method 1 traverse point ID.	615:35

(cont.)

Figure 49
RATATraverseData XML Elements (cont.)

XML Tag	Type	Definition	EDR Reference (RT:Col)
VelocityCalibration Coefficient	VelocityCalibration CoefficientType	Probe or pitot tube velocity calibration coefficient.	615:38
LastProbeDate	OptionalDateType	Date of latest probe or pitot tube calibration.	615:43
AvgVelDiffPressure	PressureType	Average velocity differential pressure at traverse point.	615:51
AvgSquareVelDiff Pressure	PressureType	Average of square roots of velocity differential pressures at traverse point.	615:56
TStackTemperature	TemperatureType	T Stack temperature at traverse point.	615:61
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.	615:66
NumberWallEffects Points	NumberWallEffects PointsType	Number of wall effects measurement points used to derive replacement velocity.	615:67
YawAngle	AngleType	Yaw angle of flow at traverse point.	615:69
PitchAngle	AngleType	Pitch angle of flow at traverse point.	615:75
CalculatedVelocity	VelocityType	Calculated velocity at traverse point, not accounting for wall effects.	615:81
ReplacementVelocity	VelocityType	Replacement velocity at traverse point, accounting for wall effects.	615:87

Figure 50
TestExtensionExemptionData

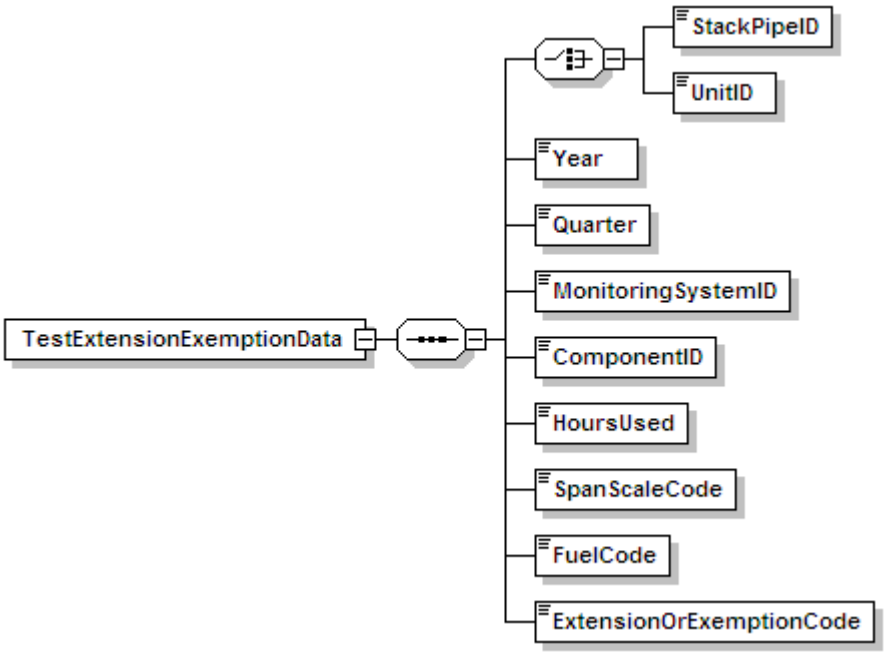

Figure 51
TestExtensionExemptionData XML Elements

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.	698:4
UnitID	RequiredUnitType	One to six alphanumeric character code assigned by the source to identify a unit.	698:4
Year	ReportingYearType	Year.	N/A
Quarter	QuarterType	Quarter.	N/A
MonitoringSystemID	OptionalIdentifierType	The three digit code used by the source to identify the monitoring system.	698:13
ComponentID	OptionalIdentifierType	The three digit code assigned by the source to identify the component.	698:10

(cont.)

Figure 51
TestExtensionExemptionData XML Elements (cont.)

XML Tag	Type	Definition	EDR Reference (RT:Col)
HoursUsed	HoursUsedType	Hours of use for non-redundant backup or other type of claim for QA schedule extension.	N/A
SpanScaleCode	SpanScaleCodeType	Code used to identify the span scale.	698:23
FuelCode	TestExtension ExemptionFuelCode Type	Code used to identify the type of fuel.	N/A
ExtensionOrExemption Code	ExtensionExemption CodeType	Code used to identify the extension or exemption.	New

Figure 52
TestQualificationData

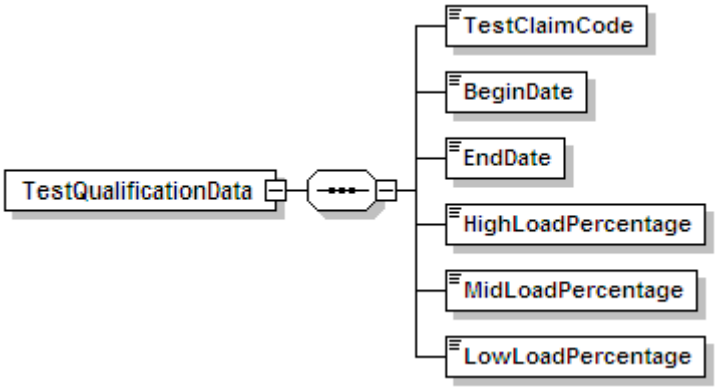

Figure 53
TestQualificationData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
TestClaimCode	TestClaimCodeType	Code used to indicate the type of test claim (i.e., single load, normal load exemption or operating range exemption).	New
BeginDate	OptionalDateType	Date 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
HighLoadPercentage	PercentageValueType	Percentage of the time that the unit operated at high load.	695:39
MidLoadPercentage	PercentageValueType	Percentage of the time that the unit operated at mid load.	695:34
LowLoadPercentage	PercentageValueType	Percentage of the time that the unit operated at low load.	695:29

Figure 54
TestSummaryData

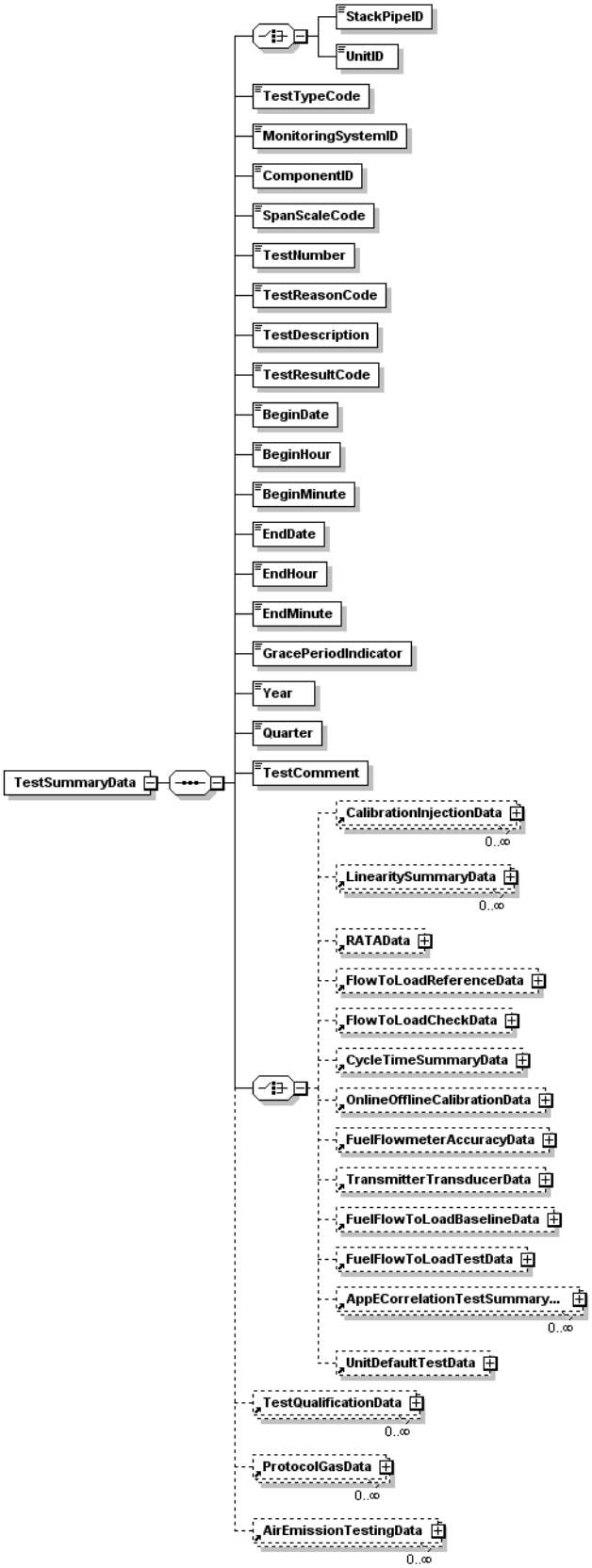

Figure 55
TestSummaryData XML Elements

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
TestTypeCode	TestTypeCodeType	Code used to identify test type.	N/A
MonitoringSystemID	OptionalIdentifierType	The three digit code used by the source to identify the monitoring system.	N/A
ComponentID	OptionalIdentifierType	The three digit code assigned by the source to identify the component.	N/A
SpanScaleCode	SpanScaleCodeType	Code used to identify the span scale.	New
TestNumber	RequiredTestNumber Type	Test number.	N/A
TestReasonCode	TestReasonCodeType	Code used to identify test reason.	N/A
TestDescription	TestDescriptionType	Test activity description.	N/A
TestResultCode	TestSummaryTestResult CodeType	Code used to identify reported test result.	N/A
BeginDate	OptionalDateType	Date in which information became effective or activity started.	New
BeginHour	OptionalHourType	Hour in which information became effective or activity started.	New
BeginMinute	OptionalMinuteType	Minute in which the test began.	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
EndMinute	OptionalMinuteType	Last minute in which information was effective or minute in which activity ended.	New

(cont.)

Figure 55
TestSummaryData XML Elements (cont.)

XML Tag	Type	Definition	EDR Reference (RT:Col)
GracePeriodIndicator	IndicatorType	Used to indicate whether the test was performed in a grace period.	N/A
Year	OptionalYearType	Year.	N/A
Quarter	OptionalQuarterType	Quarter.	N/A
TestComment	TestCommentType	Test comment.	New

Figure 56
TransmitterTransducerData

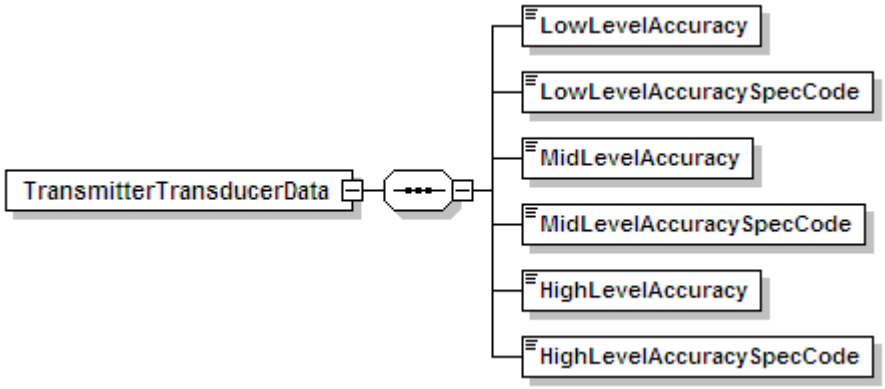

Figure 57
TransmitterTransducerData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
LowLevelAccuracy	AccuracyType	Accuracy determination at low level.	628:26
LowLevelAccuracy SpecCode	AccuracyMethodType	Code used to determine the accuracy determination methodology for low level.	628:31
MidLevelAccuracy	AccuracyType	Highest accuracy determination methodology for mid level.	628:35
MidLevelAccuracy SpecCode	AccuracyMethodType	Code used to identify the accuracy determination methodology for mid level.	628:40
HighLevelAccuracy	AccuracyType	Accuracy determination at high level.	628:44
HighLevelAccuracy SpecCode	AccuracyMethodType	Code used to identify the accuracy determination methodology for high level.	628:49

Figure 58
UnitDefaultTestData

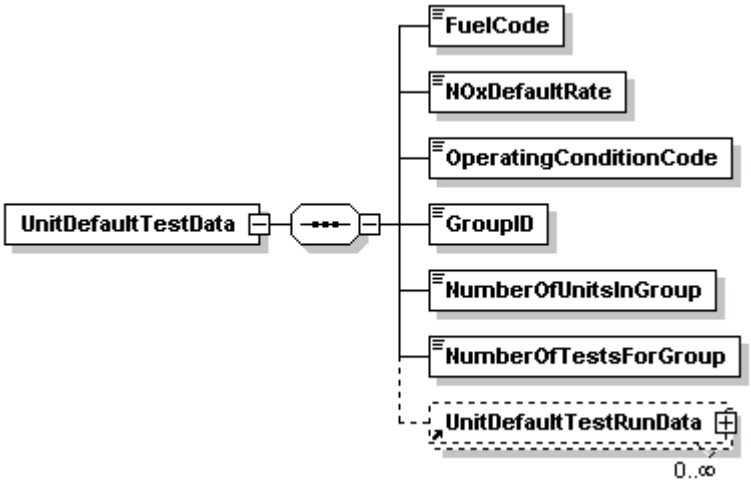

Figure 59
UnitDefaultTestData XML Elements

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

Figure 60
UnitDefaultTestRunData

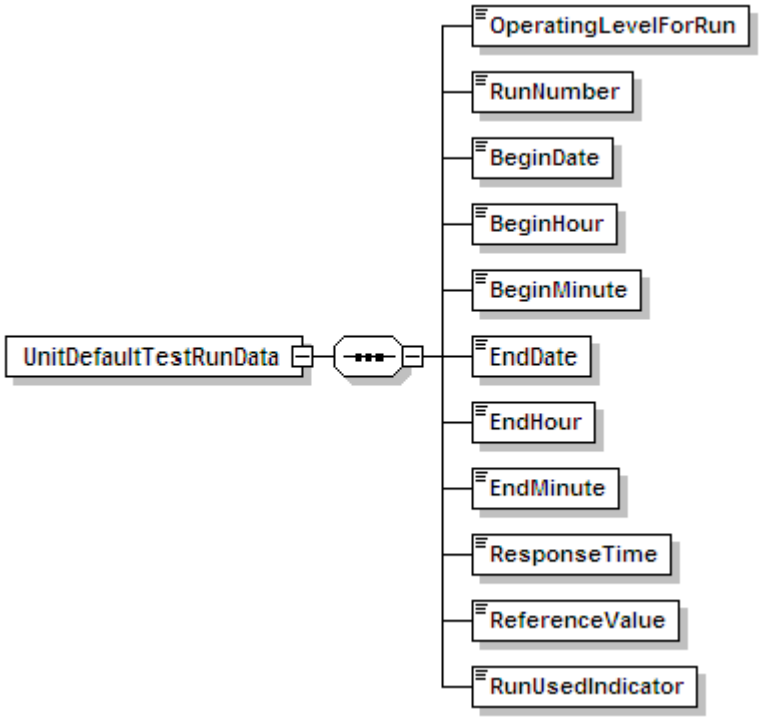

Figure 61
UnitDefaultTestRunData XML Elements

XML Tag	Type	Definition	EDR Reference (RT:Col)
OperatingLevelForRun	OperatingLevelType	Identifies the operating level for this run of a unit default test.	650:46
RunNumber	RunNumberType	Run number.	650:44
BeginDate	OptionalDateType	Date on which the unit default test run began.	650:13
BeginHour	OptionalHourType	Hour in which the unit default test run began.	650:19
BeginMinute	OptionalMinuteType	Minute in which the unit default test run began.	650:19
EndDate	OptionalDateType	Last date in which information was effective or date in which activity ended.	650:23
EndHour	OptionalHourType	Last hour in which information was effective or hour in which activity ended.	650:29
EndMinute	OptionalMinuteType	Last minute in which information was effective or minute in which activity ended.	650:29
ResponseTime	ResponseTimeType	Response time in seconds according to Method 20 of Appendix A to Part 60.	650:33
ReferenceValue	ReferenceValueType	The reference method value for the run.	650:36
RunUsedIndicator	IndicatorType	Flag to indicate this run used to calculate highest 3-run NO_x emission rate average at any tested load level.	650:68

Figure 62
Simple Types Used for Validation

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
AccuracyMethodType	TransmitterTransducerData/HighLevelMethod TransmitterTransducerData/LowLevelMethod TransmitterTransducerData/MidLevelMethod	String	Yes	ACT AGA3 SUM	
AccuracyTestMethodCodeType	FuelFlowmeterAccuracyData/AccuracyTestMethodCode	String	Yes	AGA7 API ASME ILMMF ISO LCRM NIST	
AccuracyType	TransmitterTransducerData/HighLevelAccuracy TransmitterTransducerData/LowLevelAccuracy TransmitterTransducerData/MidLevelAccuracy	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
AETBNameType	AirEmissionTestingData/AETBName AirEmissionTestingData/ProviderName	String	No	Maximum Length = 50 characters	
AETBEMailType	AirEmissionTestingData/AETBEmail AirEmissionTestingData/ProviderEmail	String	No	[\p{L}_-]+(\.[\p{L}_-]+)*@[\p{L}_]+(\.[\p{L}_]+)+	
AETBPhoneNumberType	AirEmissionTestingData/AETBPhoneNumber	String	No	Maximum Length = 18 characters	
AngleType	RATATraverseData/Pitch Angle RATATraverseData/Yaw Angle	Decimal	Yes	Total Digits = 6, Decimal Places = 1	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
BiasAdjustment FactorType	RATAData/OverallBias AdjustmentFactor RATASummaryData/Bias AdjustmentFactor	Decimal	Yes	Total Digits = 5, Decimal Places = 3	
CalibrationError Type	CalibrationInjectionData/ UpscaleCalibrationError CalibrationInjectionData/Zero CalibrationError OnlineOfflineCalibrationData /OfflineUpscaleCalibration Error OnlineOfflineCalibrationData /OfflineZeroCalibrationError OnlineOfflineCalibrationData /OnlineUpscaleCalibration Error OnlineOfflineCalibrationData /OnlineZeroCalibrationError	Decimal	Yes	Total Digits = 6, Decimal Places = 2	
Calibration InjectionGas LevelCodeType	CycleTimeInjectionData/Gas LevelCode	String	No	HIGH ZERO	
CalibrationValue Type	CalibrationInjectionData/ UpscaleMeasuredValue CalibrationInjectionData/ UpscaleReferenceValue CalibrationInjectionData/Zero MeasuredValue CalibrationInjectionData/Zero ReferenceValue	Decimal	Yes	Total Digits = 13, Decimal Places = 3	
CEMValueType	RATARunData/CEMValue RATASummaryData/Mean CEMValue	Decimal	Yes	Total Digits = 13, Decimal Places = 3	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
CO_2OrO_2 Reference MethodType	RATASummaryData/CO_2OrO_2ReferenceMethodCode	String	Yes	3 3A	
Confidence CoefficientType	RATASummaryData/ ConfidenceCoefficient	Decimal	Yes	Total Digits = 13, Decimal Places = 3	
CrossSection Type	RATASummaryData/Stack Area	Decimal	Yes	Total Digits = 6, Decimal Places = 1	
CycleTimeType	CycleTimeInjectionData/ InjectionCycleTime	Decimal	No	Total Digits = 2, Decimal Places = 0	
CylinderIdentifierType	ProtocolGasData/CylinderIdentifier	String	No	Maximum Length = 25 characters	
DensityType	AppendixEHeatInputFromOilData/OilDensity	Decimal	Yes	Total Digits = 11, Decimal Places = 6	
DensityUnitsOfMeasureCode Type	AppendixEHeatInputFromOilData/OilDensityUnitsOfMeasureCode	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 = 13, Decimal Places = 3	
Extension ExemptionCode Type	TestExtensionExemptionData /ExtensionOrExemptionCode	String	No	LOWSQTR LOWSYTD NONQAOS NRB720 RANGENU FLOWEXP	
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	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
FuelAccuracy Type	FuelFlowmeterAccuracyData/ HighFuelAccuracy FuelFlowmeterAccuracyData/ LowFuelAccuracy FuelFlowmeterAccuracyData/ MidFuelAccuracy	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
FuelFlowRate Type	FuelFlowToLoadBaseline Data/AverageFuelFlowRate	Decimal	Yes	Total Digits = 10, Decimal Places = 1	
FuelFlowToLoad BaselineUnitsOf MeasureCode Type	FuelFlowToLoadBaseline Data/FuelFlowToLoad UOMCode	String	Yes	1 2 3 4 5 6 7 8 9	
GasLevelCode Type	LinearitySummaryData/Gas LevelCode ProtocolGasData/GasLevelCo de	String	No	HIGH LOW MID	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
GasTypeCode	ProtocolGasData/GasType	String	No	AIR APPVD CO2 GMIS N2C N2C2 N2CC NC NC2 NCC NO NO2 NTRM NX NXC NXC2 NXCC O2 OC OC2 OCC PRM RGM SC SC2 SN SN2 SN2C SN2C2 SN2CC SNC SNC2 SNCC SNX SNXC SNXC2 SNXCC SO SO2 SOC SRM ZAM ZERO	
GCVType	AppendixEHeatInputFromGasData/GasGCV AppendixEHeatInputFromOilData/OilGCV	Decimal	Yes	Total Digits = 10, Decimal Places = 1	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
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	
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 AppendixEHeatInputFromOil Data/OilHeatInput	Decimal	Yes	Total Digits = 7, Decimal Places = 1	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
HourlyHeatInputRateType	AppECorrelationTestRunData/HourlyHeatInputRate AppECorrelationTestSummaryData/AverageHourlyHeatInputRate FlowToLoadReferenceData/AverageHourlyHeatInputRate FuelFlowToLoadBaselineData/AverageHourlyHeatInputRate	Decimal	Yes	Total Digits = 7, Decimal Places = 1	
HoursUsedType	TestExtensionExemptionData/HoursUsed	Integer	Yes	Minimum Value (inclusive) = 0, Maximum Value (inclusive) = 2208	

(cont.)

Figure 62
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/Bias AdjustedIndicator FlowToLoadReferenceData/ CalcSeparateReference Indicator LinearitySummaryData/ APSIndicator OnlineOfflineCalibrationData /OfflineUpscaleAPSIndicator OnlineOfflineCalibrationData /OfflineZeroAPSIndicator OnlineOfflineCalibrationData /OnlineUpscaleAPSIndicator OnlineOfflineCalibrationData /OnlineZeroAPSIndicator RATASummaryData/APS Indicator RATATraverseData/Point UsedIndicator TestSummaryData/Grace PeriodIndicator UnitDefaultTestRunData/Run UsedFlag	String	Yes	0 1	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

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

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
NumberOfHours Type	FlowToLoadCheckData/ NumberOfHours FlowToLoadCheckData/ NumberOfHoursExcluded Bypass FlowToLoadCheckData/ NumberOfHoursExcludedFor Fuel FlowToLoadCheckData/ NumberOfHoursExcluded PreRATA FlowToLoadCheckData/ NumberOfHoursExcluded Ramping FlowToLoadCheckData/ NumberOfHoursExcluded Test FlowToLoadCheckData/ NumberOfHoursExcMain Bypass FuelFlowToLoadBaseline Data/NumberOfHours ExcludedCofiring FuelFlowToLoadBaseline Data/NumberOfHours ExcludedLowRange FuelFlowToLoadBaseline Data/NumberOfHours ExcludedRamping FuelFlowToLoadTestData/ NumberOfHoursExcluded Cofiring FuelFlowToLoadTestData/ NumberOfHoursExcluded LowRange	Non Negative Integer	Yes	Maximum Value (inclusive) = 2208	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
NumberOfHours Type (cont.)	FuelFlowToLoadTestData/ NumberOfHoursExcluded Ramping FuelFlowToLoadTestData/ NumberOfHoursUsed	Non Negative Integer (cont.)	Yes (cont.)	Maximum Value (inclusive) = 2208 (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	
NumberOfUnits InGroupType	UnitDefaultTestData/Number OfUnitsInGroup	Decimal	Yes	Total Digits = 2, Decimal Places = 0	
NumberWall EffectsPoints Type	RATATraverseData/Number WallEffectsPoints	Decimal	Yes	Total Digits = 2, Decimal Places = 0	
OperatingLevel CodeType	FlowToLoadReferenceData/ OperatingLevelCode RATASummaryData/ OperatingLevelCode	String	No	H L M N	
OperatingLevel Type	AppECorrelationTest SummaryData/Operating LevelForRun UnitDefaultTestRunData/ OperatingLevelForRun	Non Negative Integer	No	Minimum Value (inclusive) = 0, Maximum Value (inclusive) = 99	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

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

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

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

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

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

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
OptionalYear Type	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/Avg AbsolutePercentDiff	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
PercentError Type	LinearitySummaryData/ PercentError	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
PercentType	FlowRATARunData/Percent CO_2 FlowRATARunData/Percent Moisture FlowRATARunData/Percent O_2	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
PressureMeasure CodeType	RATATraverseData/Pressure MeasureCode	String	Yes	ELEC FLUID MECH	
PressureType	RATATraverseData/Avg SquareVelDiffPressure RATATraverseData/Avg VelDiffPressure	Decimal	Yes	Total Digits = 5, Decimal Places = 3	
ProbeIDType	RATATraverseData/ProbeID	String	No	Maximum Length = 11 characters	

(cont.)

Figure 62
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	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
QACertEvent CodeType	QACertificationEventData/ QACertEventCode	String	No	1 2 3 5 10 15 20 25 26 30 35 40 50 51 99 100 101 102 105 106 107 108 109 110 120 125 130 140 141 150 151 160 170 180 185 190 191 192 195 200 250 251 252 253 254 255 300 301 302	

(cont.)

Figure 62
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.)	305 310 311 312 400 401 402 403 405 410 501 502 503 504 600 610 620 630 700 800	
QIMiddleNameType	AirEmissionTestingData\QIMiddleInitial	String	Yes	Maximum Length = 1 character	
QINameType	AirEmissionTestingData\QIFirstName AirEmissionTestingData\QILastName	String	No	Minimum Length = 1 character Maximum Length = 25 characters	
QuarterType	TestExtensionExemptionData /Quarter	String	No	1 2 3 4	
RATAFrequency CodeType	RATAData/RATAFrequency Code	String	Yes	2QTRS 4QTRS 8QTRS ALTSL OS	
RATAReference ValueType	RATARunData/ RATAReferenceValue RATASummaryData/Mean RATAReferenceValue	Decimal	Yes	Total Digits = 13, Decimal Places = 3	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
RatioType	FuelFlowToLoadBaseline Data/BaselineFuelFlowTo LoadRatio	Decimal	Yes	Total Digits = 6, Decimal Places = 2	
Reference MethodFlow Type	FlowToLoadReferenceData/ AverageReferenceMethod Flow	Decimal	Yes	Total Digits = 10, Decimal Places = 0	
ReferenceValue Type	AppECorrelationTestRunData /ReferenceValue AppECorrelationTest SummaryData/Mean ReferenceValue OnlineOfflineCalibrationData /OfflineUpscaleReference Value OnlineOfflineCalibrationData /OfflineZeroReferenceValue OnlineOfflineCalibrationData /OnlineUpscaleReference Value OnlineOfflineCalibrationData /OnlineZeroReferenceValue UnitDefaultTestRunData/ ReferenceValue	Decimal	Yes	Total Digits = 8, Decimal Places = 3	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
RefMethodCode Type	RATASummaryData/ ReferenceMethodCode	String	Yes	2 3 4 6 7 20 20,3 20,3A 20,3B 2F 2FH 2FJ 2G 2GH 2GJ 2J 3A 3B 6,3 6,3A 6,3B 6A	

(cont.)

Figure 62
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.)	6A,3 6A,3A 6A,3B 6C 6C,3 6C,3A 6C,3B 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 M2H	
Relative AccuracyType	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

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
RequiredDate Type	AirEmissionTestingData/ExamDate AppECorrelationTestRunData/BeginDate AppECorrelationTestRunData/EndDate CycleTimeInjectionData/BeginDate CycleTimeInjectionData/EndDate LinearityInjectionData/InjectionDate QACertificationEventData/QACertEventDate RATARunData/BeginDate RATARunData/EndDate	Date	No		Must be a date
RequiredHour Type	AppECorrelationTestRunData/BeginHour AppECorrelationTestRunData/EndHour CycleTimeInjectionData/BeginHour CycleTimeInjectionData/EndHour LinearityInjectionData/InjectionHour QACertificationEventData/QACertEventHour RATARunData/BeginHour RATARunData/EndHour	Integer	No	Minimum Value (inclusive) = 0, Maximum Value (inclusive) = 23	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
RequiredMinuteType	AppECorrelationTestRunData/BeginMinute AppECorrelationTestRunData/EndMinute CycleTimeInjectionData/BeginMinute CycleTimeInjectionData/EndMinute LinearityInjectionData/InjectionMinute RATARunData/BeginMinute RATARunData/EndMinute	Integer	No	Minimum Value (inclusive) = 0, Maximum Value (inclusive) = 59	
RequiredStackPipeType	QACertificationEventData/StackPipeID TestExtensionExemptionData/StackPipeID TestSummaryData/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 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
RequiredTest CodeType	QACertificationEventData/ RequiredTestCode	String	Yes	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 40 42 51 52 53 54 55 56 57 75 76 80 81 82 99	
RequiredTest NumberType	TestSummaryData/Test Number	String	No	Maximum Length = 18 characters	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
RequiredUnit Type	QACertificationEventData/ UnitID TestExtensionExemptionData /UnitID TestSummaryData/UnitID	String	No	[A-z0-9 \-*#]{1,6}	One to six character alphanumeric string; also allow asterisk (*), hyphen (-), and pound sign (#)
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	
RunPressure Type	FlowRATARunData/ BarometricPressure FlowRATARunData/Static StackPressure	Decimal	Yes	Total Digits = 5, Decimal Places = 2	
RunStatusCode Type	RATARunData/RunStatus Code	String	Yes	NOTUSED RUNUSED	
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	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
TestBasisCode Type	FlowToLoadCheckData/Test BasisCode FuelFlowToLoadTestData/ TestBasisCode	String	Yes	H Q	
TestClaimCode Type	TestQualificationData/Test ClaimCode	String	No	NLE ORE SLC	
TestComment Type	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	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
TestSummary TestResultCode Type	TestSummaryData/TestResult Code	String	Yes	ABORTED EXC168H FAILED FEW168H INPROG PASSAPS PASSED	
TestTypeCode Type	TestSummaryData/TestType Code	String	No	7DAY APPE CYCLE DAHS F2LCHK F2LREF FF2LBAS FF2LTST FFACC FFACCTT LEAK LINE ONOFF OTHER PEI PEMSACC RATA UNITDEF	
TValueType	RATASummaryData/TValue	Decimal	Yes	Total Digits = 6, Decimal Places = 3	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
UnitDefaultTest FuelCodeType	UnitDefaultTestData/Fuel Code	String	No	BFG BUT CDG COG DGG DSL LFG LPG NNG OGS OIL OOL PDG PNG PRG PRP RFG SRG	
UnitDefaultTest Operating ConditionCode Type	UnitDefaultTestData/ OperatingConditionCode	String	Yes	A B P	
UpscaleGasCode Type	CalibrationInjectionData/ UpscaleGasLevelCode OnlineOfflineCalibrationData /UpscaleGasLevelCode	String	Yes	HIGH MID	
Velocity Calibration CoefficientType	RATATraverseData/Velocity CalibrationCoefficient	Decimal	Yes	Total Digits = 5, Decimal Places = 3	
VelocityType	FlowRATARunData/Average VelocityWithWallEffects FlowRATARunData/Avg VelocityWithoutWallEffects RATATraverseData/ CalculatedVelocity RATATraverseData/ ReplacementVelocity	Decimal	Yes	Total Digits = 6, Decimal Places = 2	
VendorIdentificationType	ProtocolGasData/VendorIdentifier	String	No	Maximum Length = 8 characters	

(cont.)

Figure 62
Simple Types Used for Validation (cont.)

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
VersionType	QualityAssuranceAndCert/ Version	String	Yes	Maximum Length = 10 characters	
VolumeType	AppendixEHeatInputFrom GasData/GasVolume AppendixEHeatInputFromOil Data/OilVolume	Decimal	Yes	Total Digits = 10, Decimal Places = 1	
VolumeUnitsOf MeasureCode Type	AppendixEHeatInputFromOil Data/OilVolumeUnitsOf MeasureCode	String	Yes	BBL GAL M3 SCF	
WAFType	FlowRATARunData/ CalculatedWAF RATASummaryData/ CalculatedWAF 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	