

# **The Emissions Collection and Monitoring Plan Project**

## **Quality Assurance and Certification Test XML Schema Version 1.0**

### **Submitted to:**

ECMPS Stakeholders

### **Submitted by:**

United States Environmental Protection Agency  
Office of Air and Radiation  
Clean Air Markets Division  
1310 L Street, NW  
Washington, DC 20005

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## List of Figures

	<u>Page</u>
Figure 1: QualityAssuranceAndCertData .....	2
Figure 2: QualityAssuranceAndCertification XML Elements .....	2
Figure 3: Complex Elements of the Quality Assurance and Certification Root.....	2
Figure 4: AppECorrelationTestRunData .....	4
Figure 5: AppECorrelationTestRunData XML Elements.....	4
Figure 6: AppECorrelationTestSummaryData .....	5
Figure 7: AppECorrelationTestSummaryData XML Elements.....	5
Figure 8: AppendixEHeatInputFromGasData .....	6
Figure 9: AppendixEHeatInputFromGasData XML Elements.....	6
Figure 10: AppendixEHeatInputFromOilData .....	7
Figure 11: AppendixEHeatInputFromOilData XML Elements.....	7
Figure 12: CalibrationInjectionData .....	8
Figure 13: CalibrationInjectionData XML Elements .....	8
Figure 14: CycleTimeInjectionData .....	10
Figure 15: CycleTimeInjectionData XML Elements.....	10
Figure 16: CycleTimeSummaryData .....	11
Figure 17: CycleTimeSummaryData XML Elements .....	11
Figure 18: FlowRATARunData.....	12
Figure 19: FlowRATARunData XML Elements.....	12
Figure 20: FlowToLoadCheckData .....	13
Figure 21: FlowToLoadCheckData XML Elements.....	14
Figure 22: FlowToLoadReferenceData .....	15
Figure 23: FlowToLoadReferenceData XML Elements.....	15
Figure 24: FuelFlowToLoadBaselineData.....	16
Figure 25: FuelFlowToLoadBaselineData XML Elements.....	16
Figure 26: FuelFlowToLoadTestData.....	17
Figure 27: FuelFlowToLoadTestData XML Elements.....	18
Figure 28: FuelFlowmeterAccuracyData.....	18
Figure 29: FuelFlowmeterAccuracyData XML Elements.....	19
Figure 30: LinearityInjectionData.....	19
Figure 31: LinearityInjectionData XML Elements.....	20
Figure 32: LinearitySummaryData .....	20
Figure 33: LinearitySummaryData XML Elements .....	21
Figure 34: OnlineOfflineCalibrationData .....	22
Figure 35: OnlineOfflineCalibrationData XML Elements .....	23
Figure 36: QACertificationEventData .....	25
Figure 37: QACertificationEventData XML Elements .....	25
Figure 38: RATAData.....	26
Figure 39: RATAData XML Elements.....	27
Figure 40: RATARunData.....	27
Figure 41: RATARunData XML Elements.....	28
Figure 42: RATASummaryData .....	29

**List of Figures (cont.)**

	<b><u>Page</u></b>
Figure 43: RATASummaryData XML Elements .....	30
Figure 44: RATATraverseData.....	31
Figure 45: RATATraverseData XML Elements.....	31
Figure 46: TestExtensionExemptionData .....	33
Figure 47: TestExtensionExemptionData XML Elements .....	33
Figure 48: TestQualificationData .....	34
Figure 49: TestQualificationData XML Elements.....	35
Figure 50: TestSummaryData .....	36
Figure 51: TestSummaryData XML Elements .....	37
Figure 52: TransmitterTransducerData.....	38
Figure 53: TransmitterTransducerData XML Elements .....	39
Figure 54: UnitDefaultTestData .....	39
Figure 55: UnitDefaultTestData XML Elements.....	40
Figure 56: UnitDefaultTestRunData.....	40
Figure 57: UnitDefaultTestRunData XML Elements .....	41
Figure 58: Simple Types Used for Validation .....	42

## Quality Assurance and Certification Test XML Schema

### 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 will be 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.

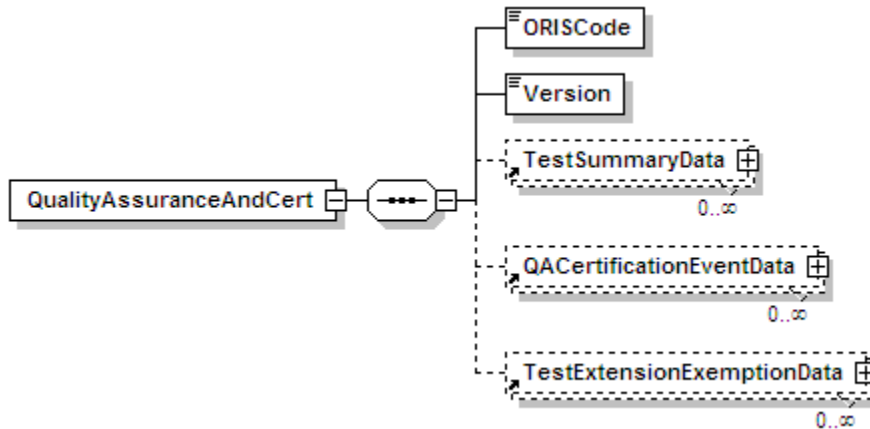
### 2.0 Quality Assurance and Certification Test XML Schema Tables

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 57 include information on the complex data elements in the XML schema.

Detailed information about the data types is included in Figure 58. 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**

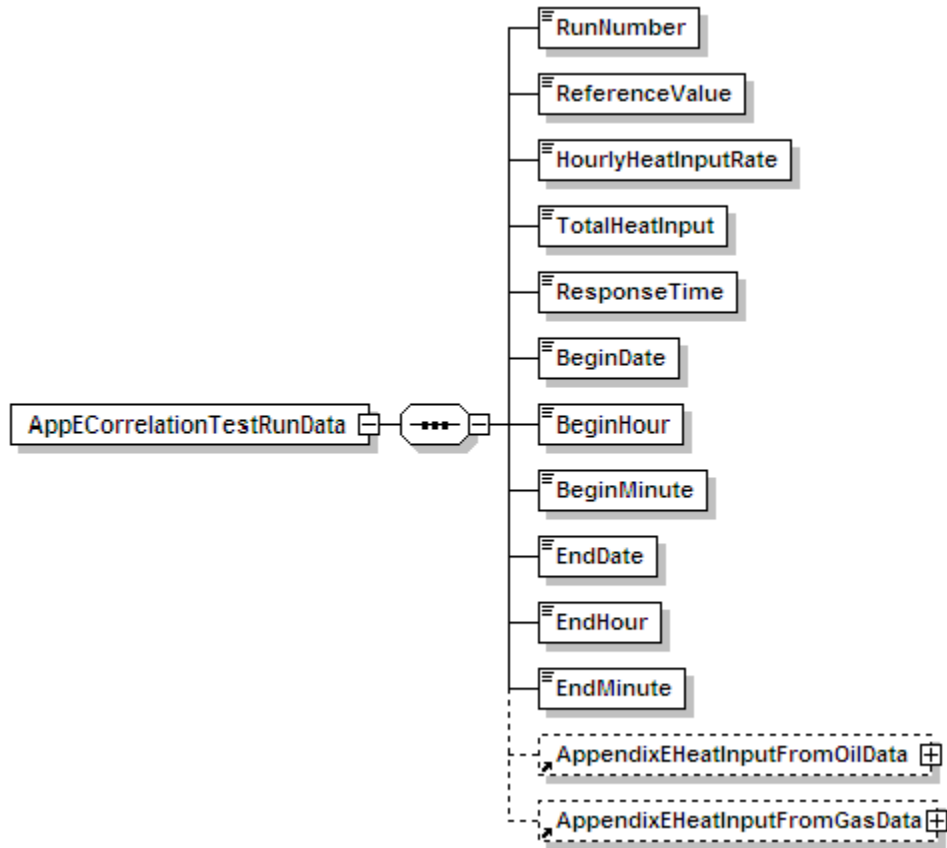
Complex Element	Parent Element	Minimum Occurrences	Maximum Occurrences
AppECorrelationTestRunData	AppECorrelationTestSummaryData	0	unbounded
AppECorrelationTestSummaryData	TestSummaryData	0	1
AppendixEHeatInputFromGasData	AppECorrelationTestRunData	0	1
AppendixEHeatInputFromOilData	AppECorrelationTestRunData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

(cont.)

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

<b>Complex Element</b>	<b>Parent Element</b>	<b>Minimum Occurrences</b>	<b>Maximum Occurrences</b>
CycleTimeInjectionData	CycleTimeSummaryData	0	unbounded
CycleTimeSummaryData	TestSummaryData	0	1
FlowToLoadCheckData	TestSummaryData	0	1
FlowToLoadReferenceData	TestSummaryData	0	1
FuelFlowmeterAccuracyData	TestSummaryData	0	1
FuelFlowToLoadBaselineData	TestSummaryData	0	1
FuelFlowToLoadTestData	TestSummaryData	0	1
LinearityInjectionData	LinearitySummaryData	0	unbounded
LinearitySummaryData	TestSummaryData	0	unbounded
OnlineOfflineCalibrationData	TestSummaryData	0	1
QACertificationEventData	QualityAssuranceAndCertification	0	unbounded
QualityAssuranceAndCertification		1	1
RATAData	TestSummaryData	0	1
RATARunData	RATASummaryData	1	unbounded
FlowRATARunData	RATARunData	0	1
RATASummaryData	RATAData	0	unbounded
RATATraverseData	FlowRATARunData	0	unbounded
TestExtensionExemptionData	QualityAssuranceAndCertification	0	unbounded
TestQualificationData	TestSummaryData	0	unbounded
TestSummaryData	QualityAssuranceAndCertification	0	unbounded
TransmitterTransducerData	TestSummaryData	0	1
UnitDefaultTestData	TestSummaryData	0	1
UnitDefaultTestRunData	UnitDefaultTestData	0	unbounded

**Figure 4**  
**AppECorrelationTestRunData**



**Figure 5**  
**AppECorrelationTestRunData XML Elements**

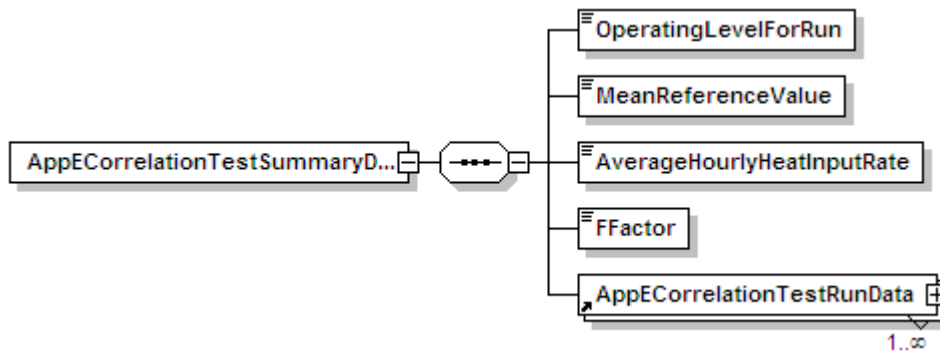
XML Tag	Type	Definition	EDR Reference (RT:Col)
RunNumber	RunNumberType	Run number.	650:44
ReferenceValue	ReferenceValueType	Value from reference method during run.	650:36
HourlyHeatInputRate	HourlyHeatInputRate Type	Hourly heat input rate during the run.	650:59
TotalHeatInput	HeatInputType	Total heat 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

(cont.)

**Figure 5**  
**AppECorrelationTestRunData XML Elements (cont.)**

XML Tag	Type	Definition	EDR Reference (RT:Col)
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

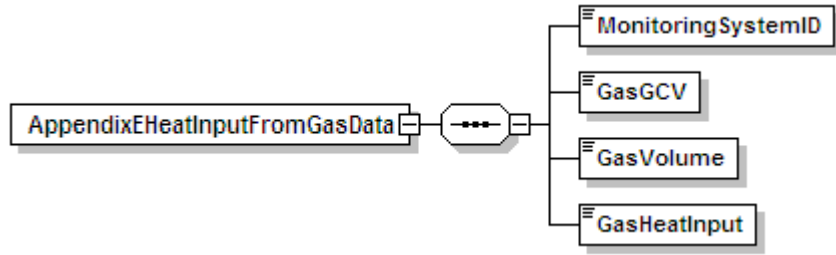
**Figure 6**  
**AppECorrelationTestSummaryData**



**Figure 7**  
**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
AverageHourlyHeatInputRate	HourlyHeatInputRateType	Average hourly heat input rate at this level.	651:41
FFactor	FFactorType	F-factor used to convert NO <sub>x</sub> concentrations to emission rates.	651:31

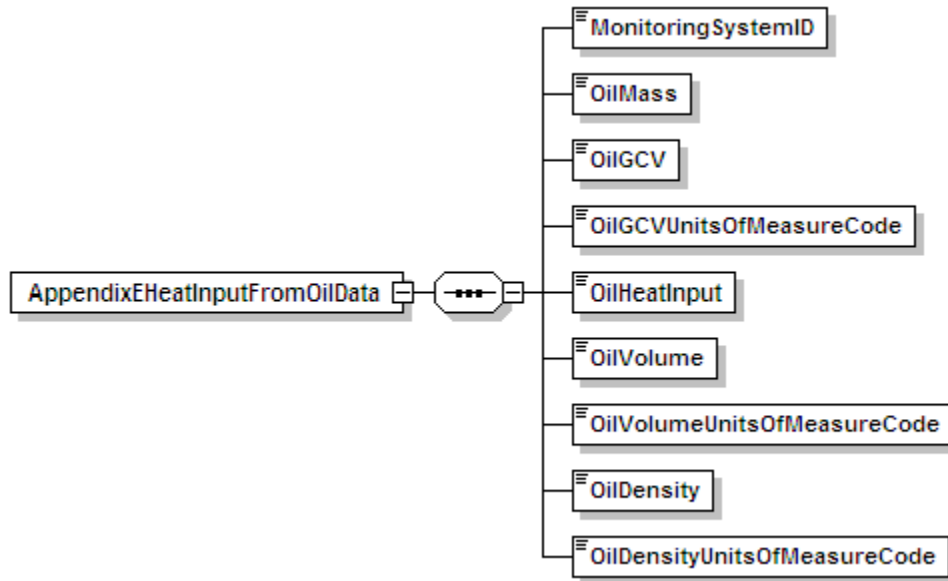
**Figure 8**  
**AppendixEHeatInputFromGasData**



**Figure 9**  
**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

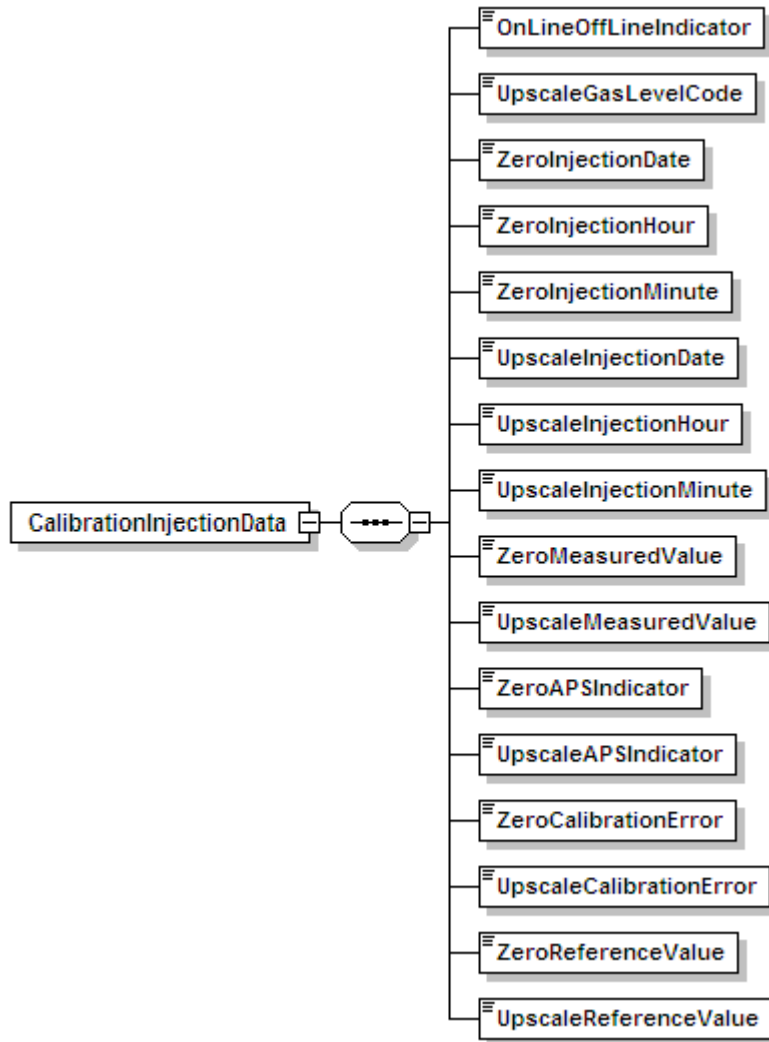
**Figure 10**  
**AppendixEHeatInputFromOilData**



**Figure 11**  
**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
OilGCVUnitsOfMeasureCode	GCVUnitsOfMeasureCodeType	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
OilVolumeUnitsOfMeasureCode	VolumeUnitsOfMeasureCodeType	Code used to identify units of measure for volume of oil.	652:72
OilDensity	DensityType	Density of oil.	652:77
OilDensityUnitsOfMeasureCode	DensityUnitsOfMeasureCodeType	Code used to identify units of measure for density of oil.	652:85

**Figure 12**  
**CalibrationInjectionData**



**Figure 13**  
**CalibrationInjectionData XML Elements**

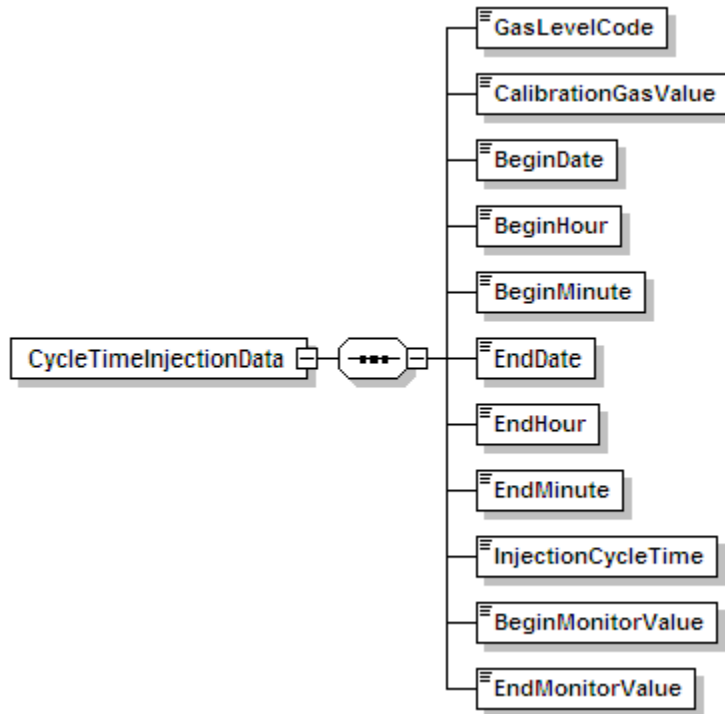
XML Tag	Type	Definition	EDR Reference (RT:Col)
OnLineOffLineIndicator	IndicatorType	Indicates whether the unit or stack is operating at the time of the test.	New
UpscaleGasLevelCode	UpscaleGasCodeType	Code used to identify upscale gas level.	600:69
ZeroInjectionDate	OptionalDateType	Date of zero level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

(cont.)

**Figure 13**  
**CalibrationInjectionData XML Elements (cont.)**

<b>XML Tag</b>	<b>Type</b>	<b>Definition</b>	<b>EDR Reference (RT:Col)</b>
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 14**  
**CycleTimeInjectionData**



**Figure 15**  
**CycleTimeInjectionData XML Elements**

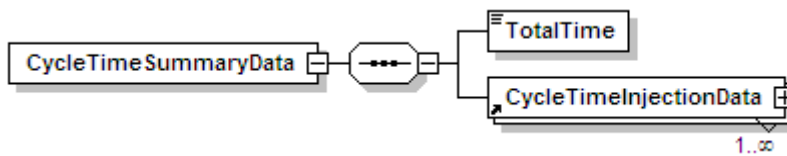
XML Tag	Type	Definition	EDR Reference (RT:Col)
GasLevelCode	CalibrationInjectionGasLevelCodeType	Code used to identify calibration gas level.	621:71
CalibrationGasValue	MonitorValueType	Calibration gas value.	621:58
BeginDate	RequiredDateType	Date of the cycle time injection.	621:16
BeginHour	RequiredHourType	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 15**  
**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

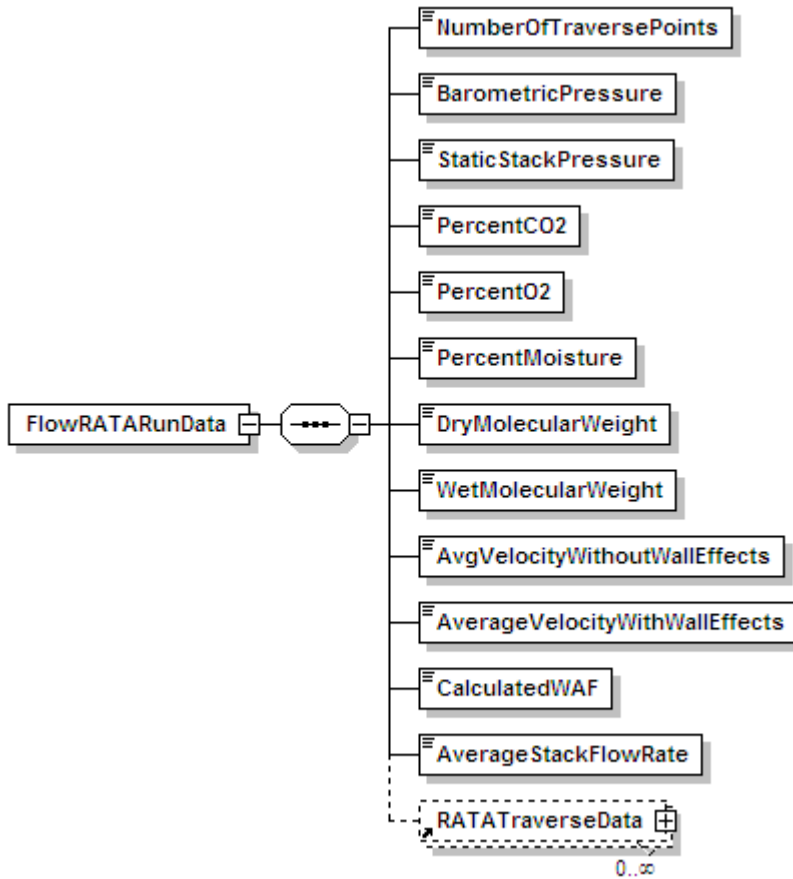
**Figure 16**  
**CycleTimeSummaryData**



**Figure 17**  
**CycleTimeSummaryData XML Elements**

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

**Figure 18**  
**FlowRATARunData**



**Figure 19**  
**FlowRATARunData XML Elements**

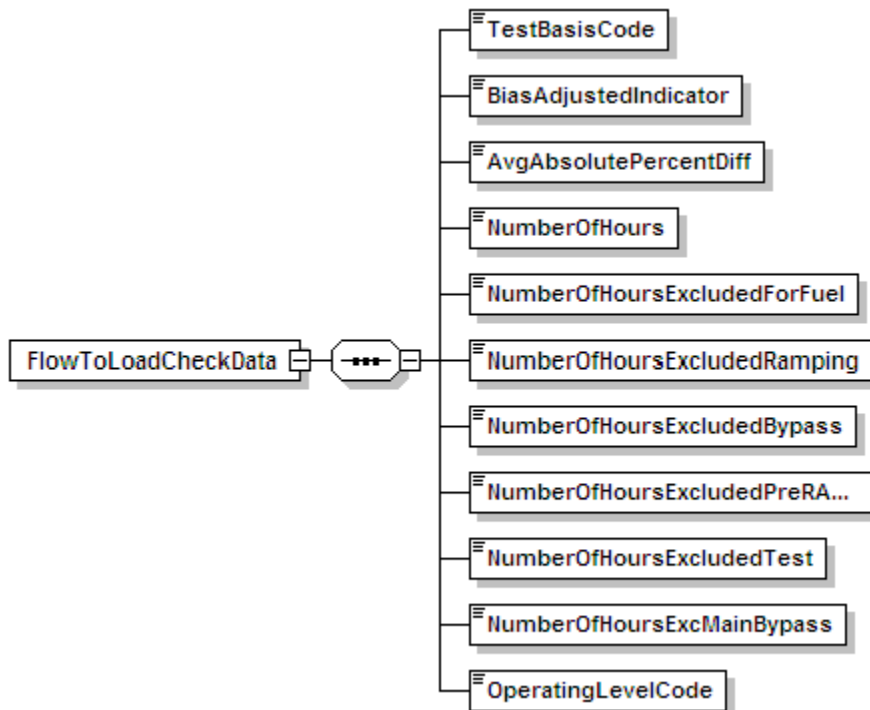
XML Tag	Type	Definition	EDR Reference (RT:Col)
NumberOfTraversePoints	NumberOfTraversePointsType	Number of traverse points.	614:45
BarometricPressure	RunPressureType	P-bar, barometric pressure, in Hg.	614:47
StaticStackPressure	RunPressureType	P(g), stack static pressure, in H <sub>2</sub> O.	614:52
PercentCO <sub>2</sub>	PercentType	Percent CO <sub>2</sub> in stack gas, dry basis	614:57
PercentO <sub>2</sub>	PercentType	Percent O <sub>2</sub> in stack gas, dry basis.	614:62

(cont.)

**Figure 19**  
**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
AvgVelocityWithoutWalleffects	VelocityType	Average velocity for run, not accounting for wall effects.	614:97
AverageVelocityWithWalleffects	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

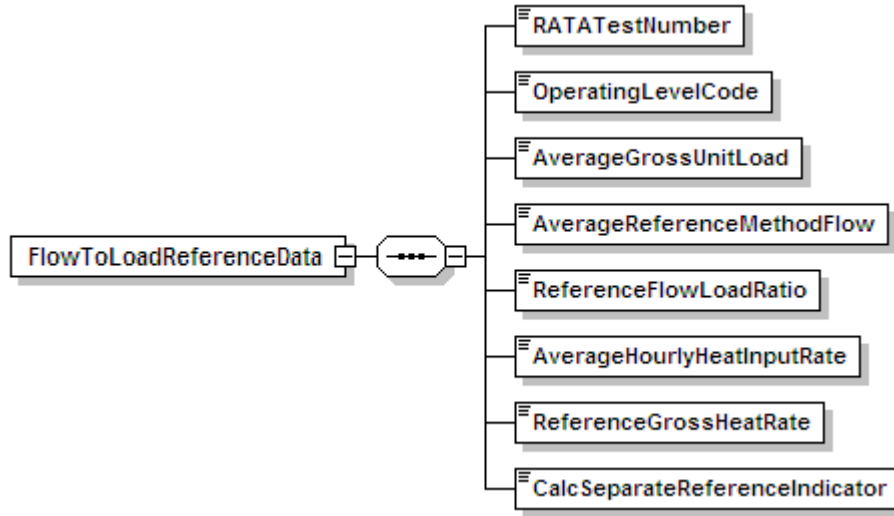
**Figure 20**  
**FlowToLoadCheckData**



**Figure 21**  
**FlowToLoadCheckData XML Elements**

<b>XML Tag</b>	<b>Type</b>	<b>Definition</b>	<b>EDR Reference (RT:Col)</b>
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

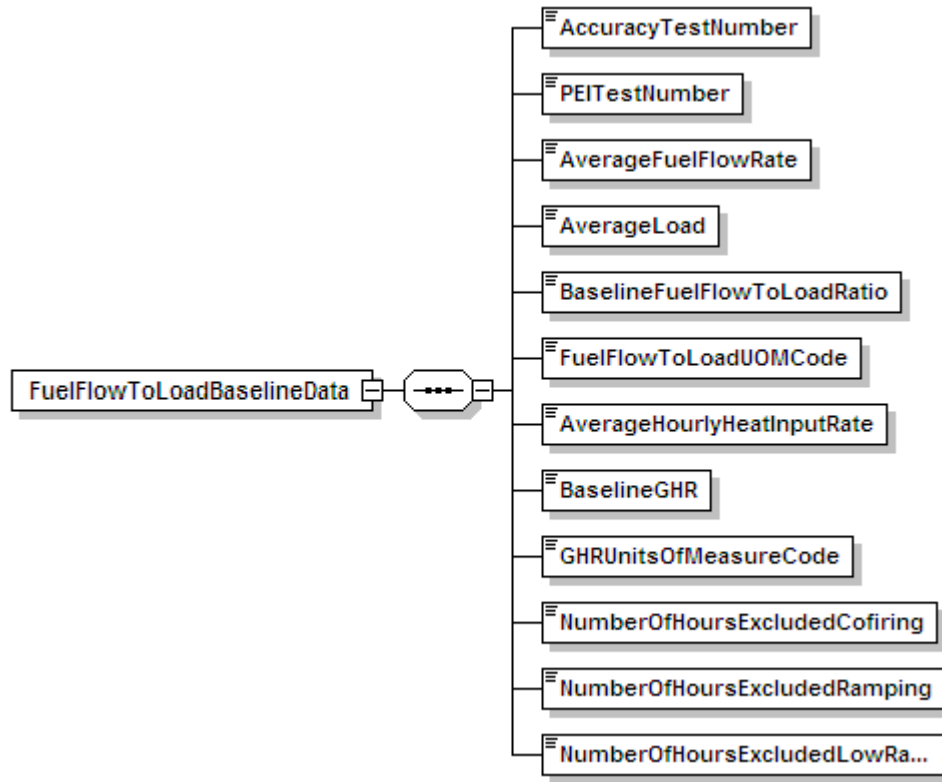
**Figure 22**  
**FlowToLoadReferenceData**



**Figure 23**  
**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 24**  
**FuelFlowToLoadBaselineData**



**Figure 25**  
**FuelFlowToLoadBaselineData XML Elements**

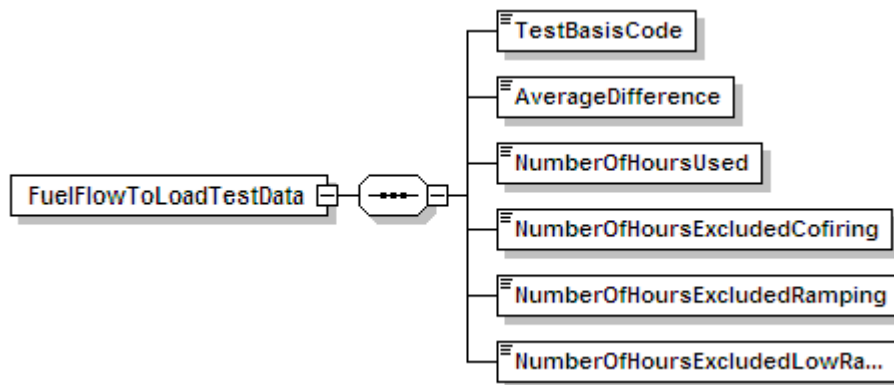
XML Tag	Type	Definition	EDR Reference (RT:Col)
AccuracyTestNumber	TestNumberType	Test number of most recent fuel flowmeter accuracy test.	629:23
PEITestNumber	TestNumberType	Test number of most recent primary element inspection test.	629:13
AverageFuelFlowRate	FuelFlowRateType	Average fuel flow rate (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
BaselineFuelFlowToLoadRatio	RatioType	Baseline fuel flow to load ratio.	629:69
FuelFlowToLoadUOMCode	FuelFlowToLoadBaselineUnitsOfMeasureCodeType	Code used to identify baseline fuel-flow-to-load units of measure.	629:75

(cont.)

**Figure 25**  
**FuelFlowToLoadBaselineData XML Elements (cont.)**

XML Tag	Type	Definition	EDR Reference (RT:Col)
AverageHourlyHeatInputRate	HourlyHeatInputRateType	Average hourly heat input rate.	629:76
BaselineGHR	GrossHeatRateType	Baseline gross heat rate (GHR).	629:83
GHRUnitsOfMeasureCode	GHRUnitsOfMeasureCodeType	Code used to identify baseline gross heat rate (GHR) units of measure.	629:89
NumberOfHoursExcludedCofiring	NumberOfHoursType	Number of hours excluded due to co-firing or combustion of a different type of fuel.	629:90
NumberOfHoursExcludedRamping	NumberOfHoursType	Number of hours excluded due to ramping.	629:93
NumberOfHoursExcludedLowRange	NumberOfHoursType	Number of hours excluded in lower 25% of range of operation.	629:96

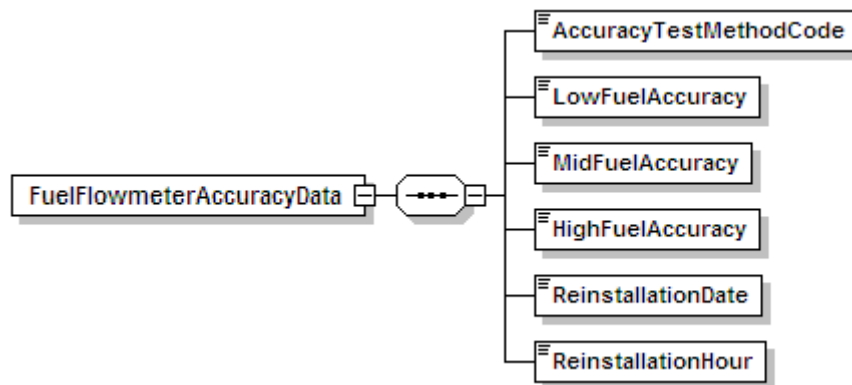
**Figure 26**  
**FuelFlowToLoadTestData**



**Figure 27**  
**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

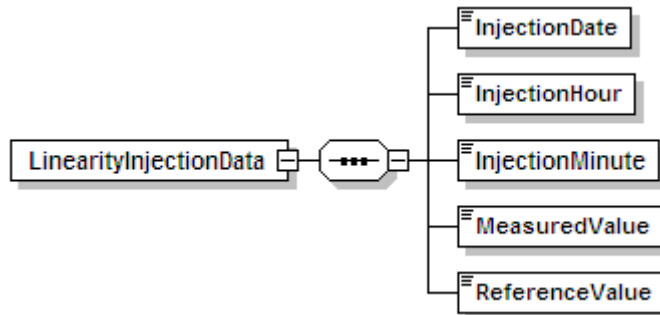
**Figure 28**  
**FuelFlowmeterAccuracyData**



**Figure 29**  
**FuelFlowmeterAccuracyData XML Elements**

XML Tag	Type	Definition	EDR Reference (RT:Col)
AccuracyTestMethodCode	AccuracyTestMethodCodeType	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

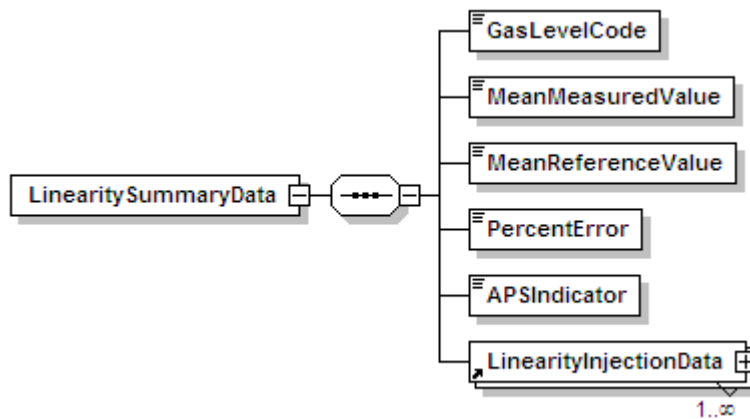
**Figure 30**  
**LinearityInjectionData**



**Figure 31**  
**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 32**  
**LinearitySummaryData**



**Figure 33**  
**LinearitySummaryData XML Elements**

<b>XML Tag</b>	<b>Type</b>	<b>Definition</b>	<b>EDR Reference (RT:Col)</b>
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 34**  
**OnlineOfflineCalibrationData**



**Figure 35**  
**OnlineOfflineCalibrationData XML Elements**

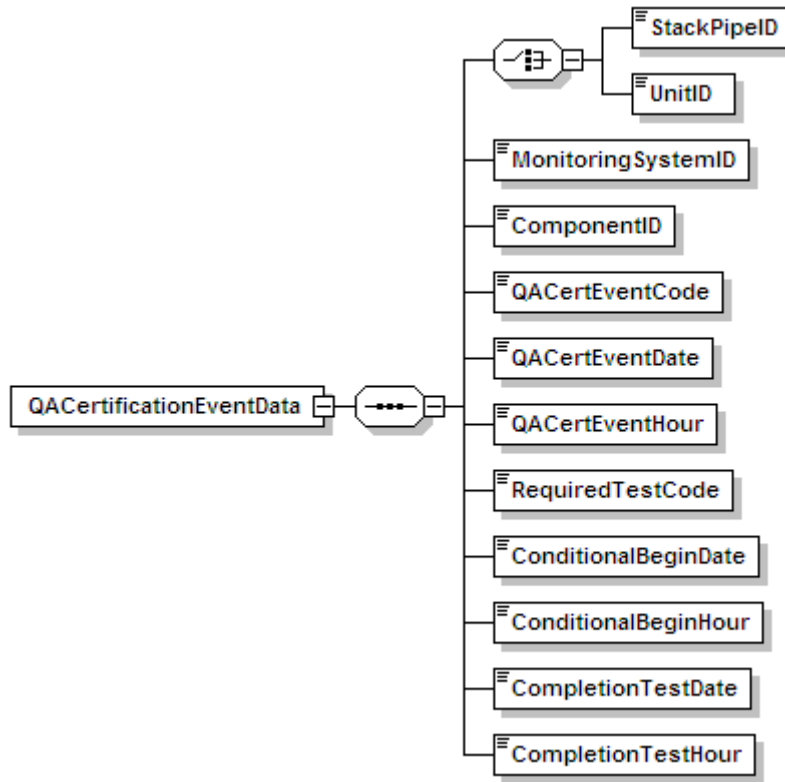
<b>XML Tag</b>	<b>Type</b>	<b>Definition</b>	<b>EDR Reference (RT:Col)</b>
OnlineZeroReferenceValue	ReferenceValueType	Online zero level reference value.	623:37
OnlineUpscaleReferenceValue	ReferenceValueType	Online upscale level reference value.	623:37
OfflineZeroReferenceValue	ReferenceValueType	Offline zero level reference value.	623:37
OfflineUpscaleReferenceValue	ReferenceValueType	Offline upscale level reference value.	623:37
OnlineZeroMeasuredValue	ZeroMeasuredValueType	Online zero level measured value.	623:50
OnlineUpscaleMeasuredValue	MeasuredValueType	Online upscale level measured value.	623:50
OfflineZeroMeasuredValue	ZeroMeasuredValueType	Offline zero level measured value.	623:50
OfflineUpscaleMeasuredValue	MeasuredValueType	Offline upscale measured value.	623:50
OnlineZeroCalibrationError	CalibrationErrorType	Online zero level calibration error or  R-A .	623:63
OnlineUpscaleCalibrationError	CalibrationErrorType	Online upscale level calibration error or  R-A .	623:63
OfflineZeroCalibrationError	CalibrationErrorType	Offline zero level calibration error or  R-A .	623:63
OfflineUpscaleCalibrationError	CalibrationErrorType	Offline upscale level calibration error or  R-A .	623:63
UpscaleGasLevelCode	UpscaleGasCodeType	Code used to identify upscale gas level.	N/A
OnlineZeroAPSIndicator	IndicatorType	Alternative performance specification (APS) indicator.	623:68
OnlineUpscaleAPSIndicator	IndicatorType	Alternative performance specification (APS) indicator.	623:68
OfflineZeroAPSIndicator	IndicatorType	Alternative performance specification (APS) indicator.	623:68
OfflineUpscaleAPSIndicator	IndicatorType	Alternative performance specification (APS) indicator.	623:68
OnlineZeroInjectionDate	OptionalDateType	Online zero level injection date.	623:16

(cont.)

**Figure 35**  
**OnlineOfflineCalibrationData XML Elements (cont.)**

<b>XML Tag</b>	<b>Type</b>	<b>Definition</b>	<b>EDR Reference (RT:Col)</b>
OnlineUpscaleInjectionDate	OptionalDateType	Online upscale level injection date.	623:16
OfflineZeroInjectionDate	OptionalDateType	Offline zero level injection date.	623:16
OfflineUpscaleInjectionDate	OptionalDateType	Offline upscale level injection date.	623:16
OnlineZeroInjectionHour	OptionalHourType	Online zero level injection hour.	623:22
OnlineUpscaleInjectionHour	OptionalHourType	Online upscale level injection hour.	623:22
OfflineZeroInjectionHour	OptionalHourType	Offline zero level injection hour.	623:22
OfflineUpscaleInjectionHour	OptionalHourType	Offline upscale level injection hour.	623:22

**Figure 36**  
**QACertificationEventData**



**Figure 37**  
**QACertificationEventData XML Elements**

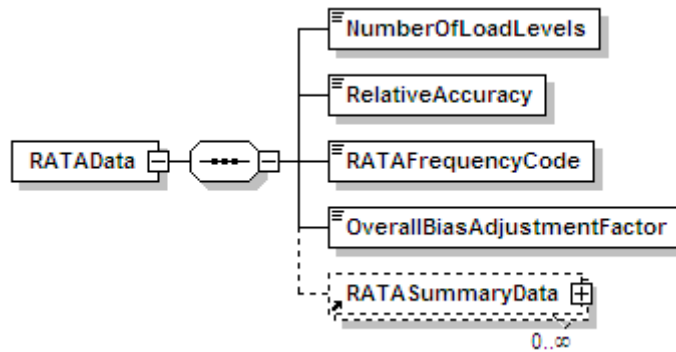
XML Tag	Type	Definition	EDR Reference (RT:Col)
StackPipeID	RequiredStackPipeType	Three to six alphanumeric character code which is assigned by the source to identify a stack or pipe.	556:4
UnitID	RequiredUnitType	One to six alphanumeric character code assigned by the source to identify a unit.	556:4
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

(cont.)

**Figure 37**  
**QACertificationEventData XML Elements (cont.)**

XML Tag	Type	Definition	EDR Reference (RT:Col)
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

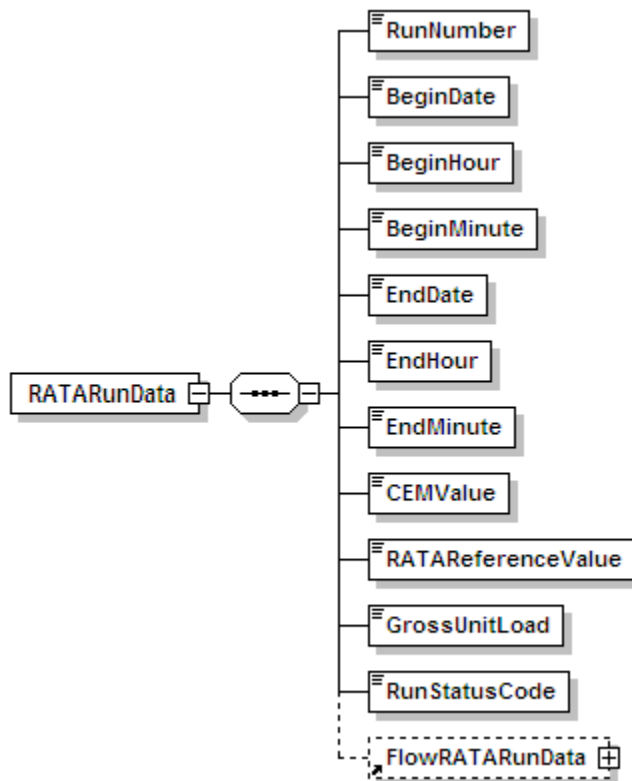
**Figure 38**  
**RATAData**



**Figure 39**  
**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

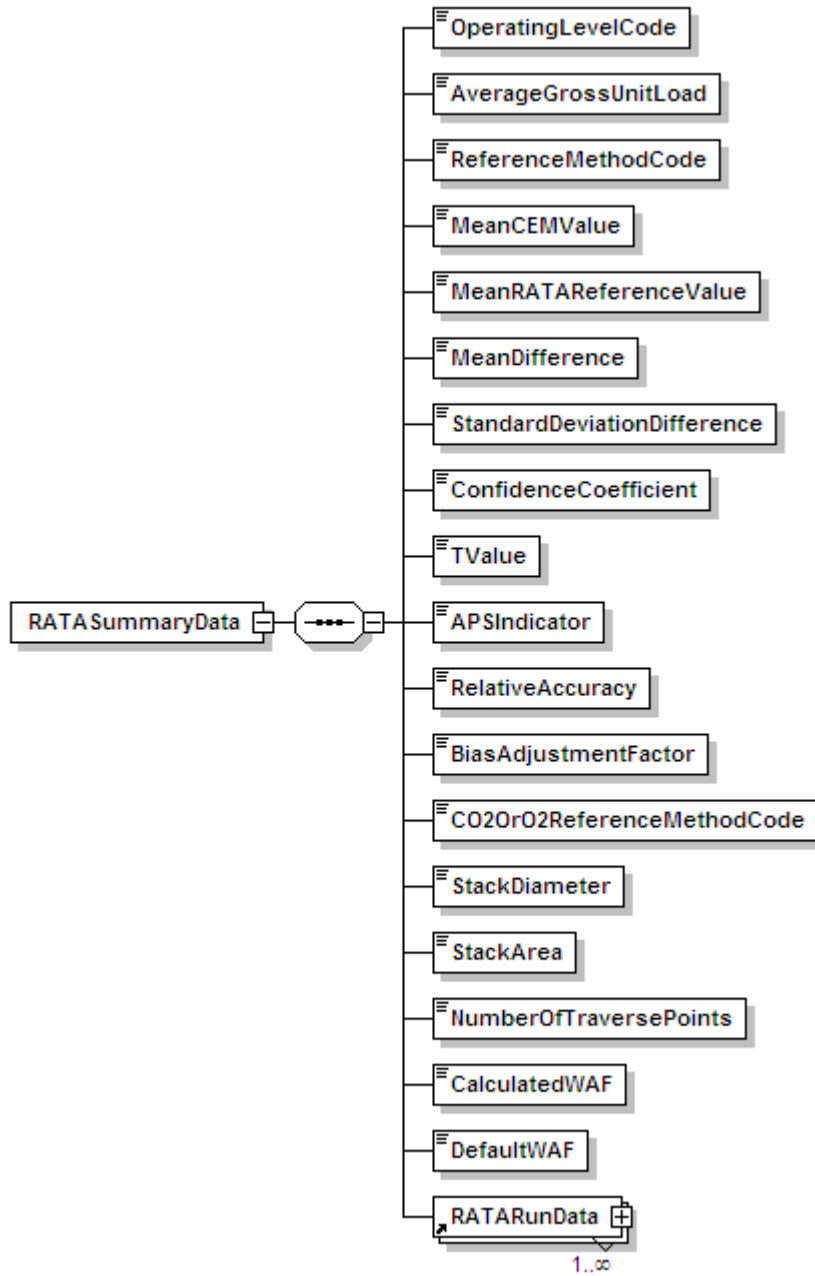
**Figure 40**  
**RATARunData**



**Figure 41**  
**RATARunData XML Elements**

<b>XML Tag</b>	<b>Type</b>	<b>Definition</b>	<b>EDR Reference (RT:Col)</b>
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
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	RATAReferenceValueType	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

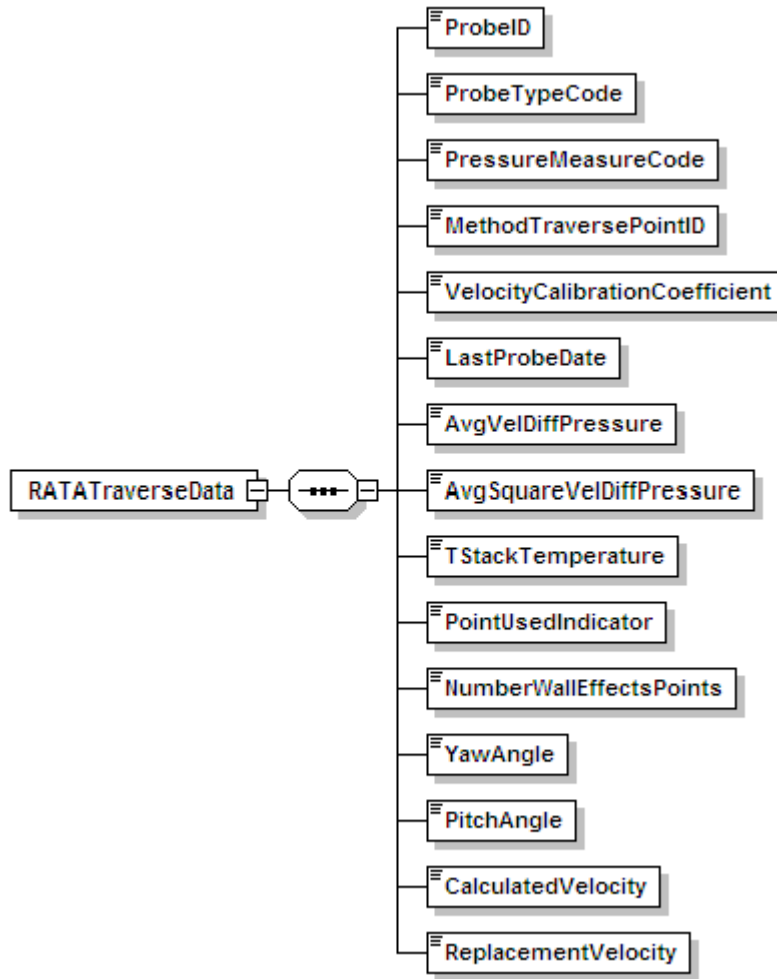
**Figure 42**  
**RATASummaryData**



**Figure 43**  
**RATASummaryData XML Elements**

<b>XML Tag</b>	<b>Type</b>	<b>Definition</b>	<b>EDR Reference (RT:Col)</b>
OperatingLevelCode	OperatingLevelCodeType	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	RATAReferenceValueType	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	ConfidenceCoefficientType	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	BiasAdjustmentFactorType	Reported bias adjustment factor of load level.	611:111
CO <sub>2</sub> OrO <sub>2</sub> Reference MethodCode	CO <sub>2</sub> OrO <sub>2</sub> ReferenceMethodType	Code used to identify reference method used for CO <sub>2</sub> or O <sub>2</sub> .	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	NumberOfTraversePointsType	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 44**  
**RATATraverseData**



**Figure 45**  
**RATATraverseData XML Elements**

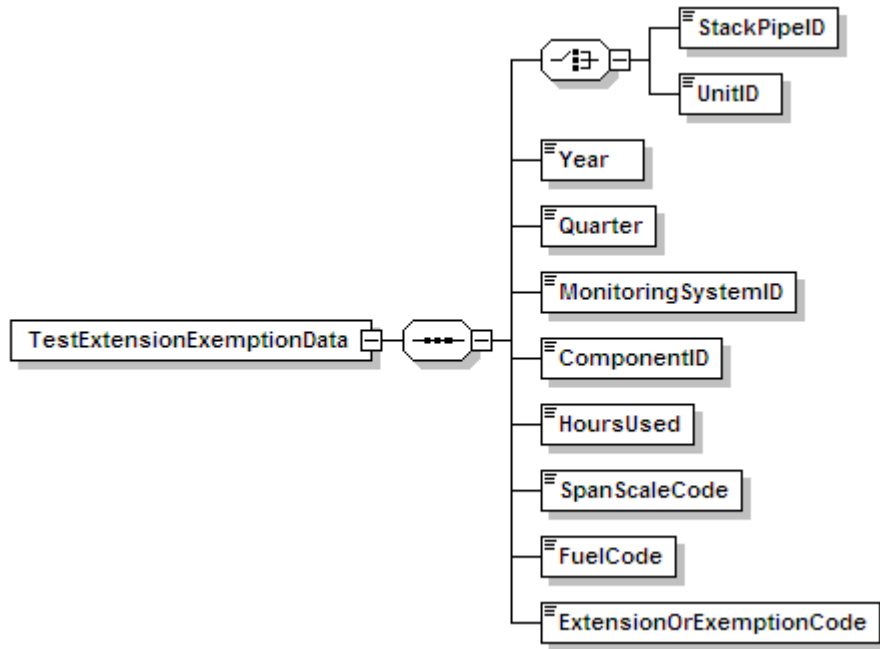
XML Tag	Type	Definition	EDR Reference (RT:Col)
ProbeID	ProbeIDType	Probe ID.	615:22
ProbeTypeCode	ProbeTypeCodeType	Code used to identify a probe type.	615:18
PressureMeasureCode	PressureMeasureCode Type	Code used to identify a pressure measurement device type.	615:33
MethodTraversePointID	MethodIDType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

(cont.)

**Figure 45**  
**RATATraverseData XML Elements (cont.)**

<b>XML Tag</b>	<b>Type</b>	<b>Definition</b>	<b>EDR Reference (RT:Col)</b>
VelocityCalibrationCoefficient	VelocityCalibrationCoefficientType	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
AvgSquareVelDiffPressure	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
NumberWallEffectsPoints	NumberWallEffectsPointsType	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 46**  
**TestExtensionExemptionData**



**Figure 47**  
**TestExtensionExemptionData XML Elements**

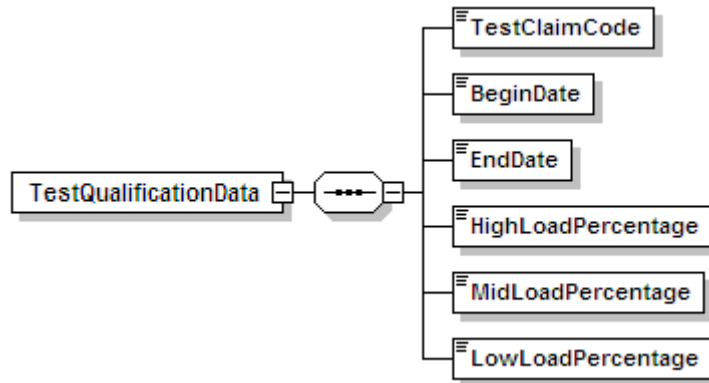
XML Tag	Type	Definition	EDR Reference (RT:Col)
StackPipeID	RequiredStackPipe Type	Three to six alphanumeric character code which is assigned by the source to identify a stack or pipe.	698:4
UnitID	RequiredUnitType	One to six alphanumeric character code assigned by the source to identify a unit.	698:4
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 47**  
**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	TestExtensionExemptionFuelCodeType	Code used to identify the type of fuel.	N/A
ExtensionOrExemptionCode	ExtensionExemptionCodeType	Code used to identify the extension or exemption.	New

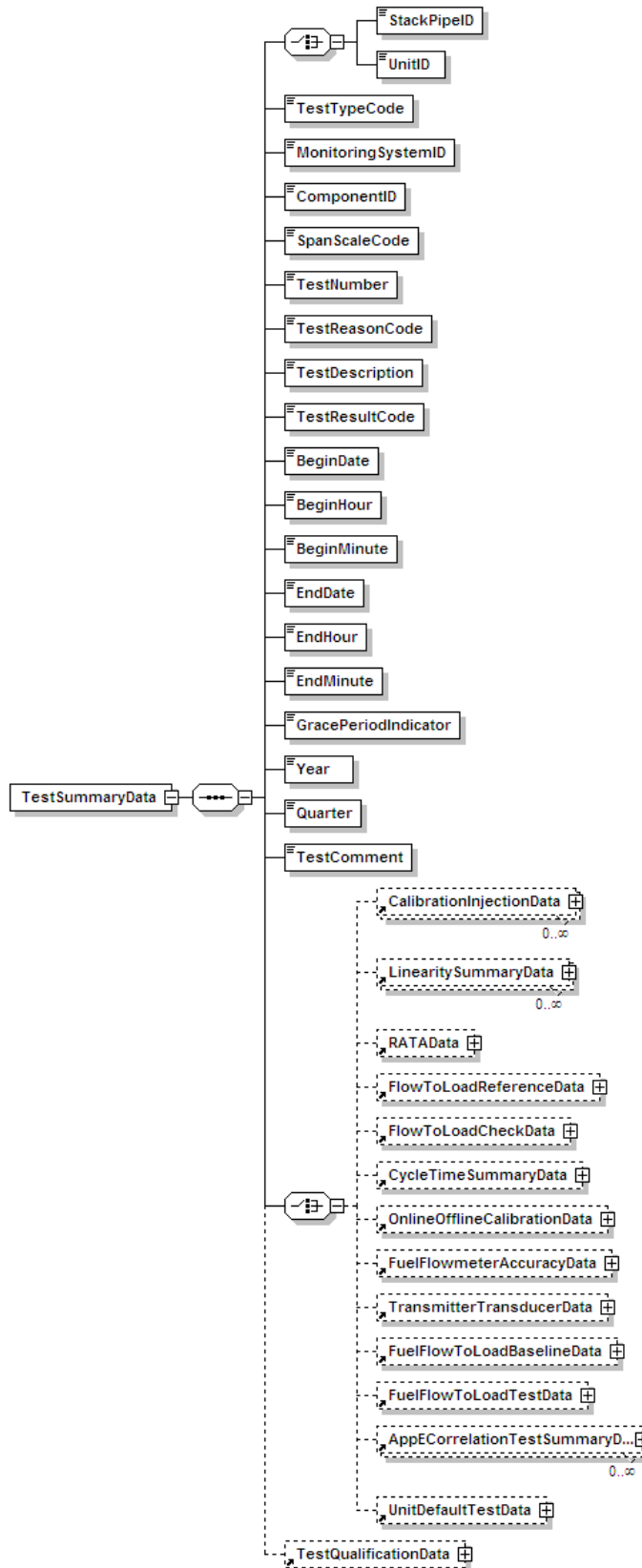
**Figure 48**  
**TestQualificationData**



**Figure 49**  
**TestQualificationData XML Elements**

<b>XML Tag</b>	<b>Type</b>	<b>Definition</b>	<b>EDR Reference (RT:Col)</b>
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 50**  
**TestSummaryData**



**Figure 51**  
**TestSummaryData XML Elements**

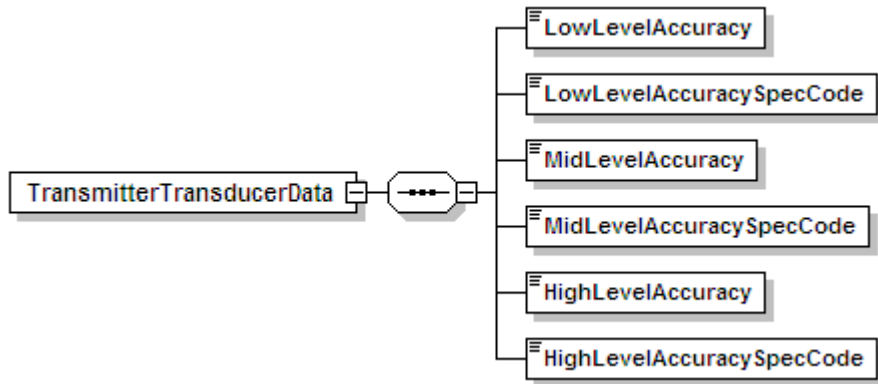
<b>XML Tag</b>	<b>Type</b>	<b>Definition</b>	<b>EDR Reference (RT:Col)</b>
StackPipeID	RequiredStackPipeType	Three to six alphanumeric character code which is assigned by the source to identify a stack or pipe.	N/A
UnitID	RequiredUnitType	One to six alphanumeric character code assigned by the source 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 51**  
**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

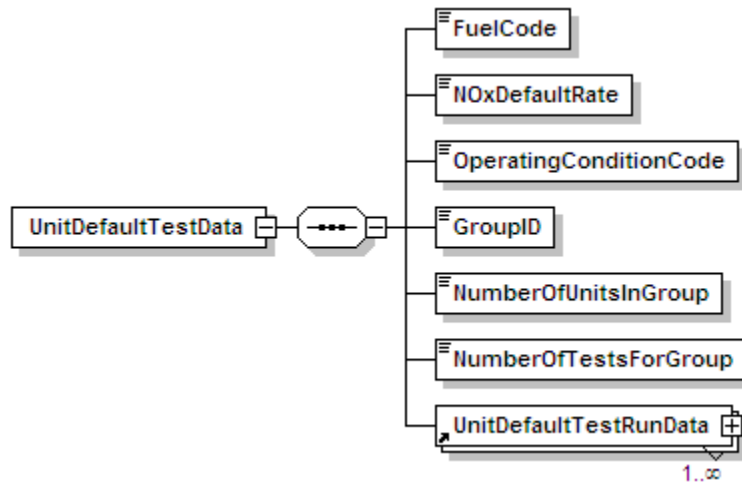
**Figure 52**  
**TransmitterTransducerData**



**Figure 53**  
**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

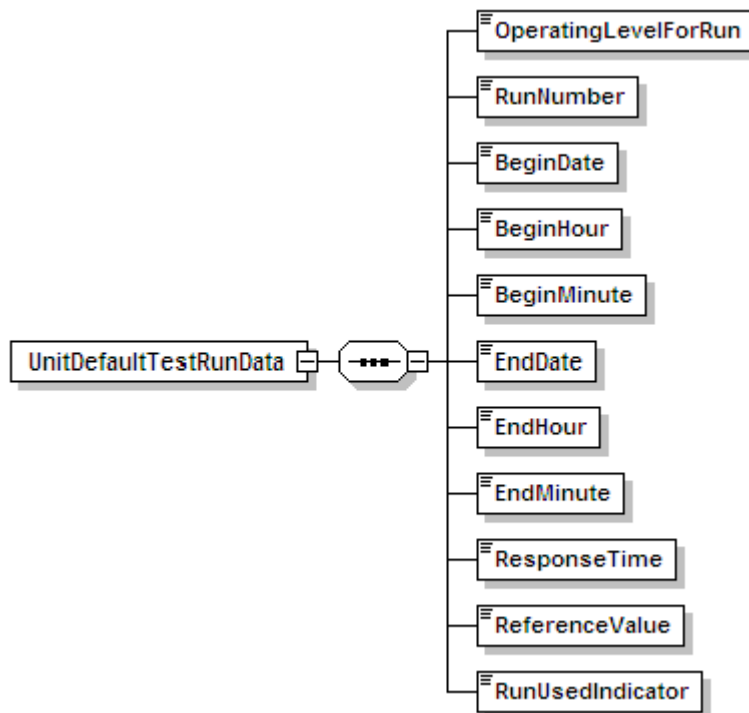
**Figure 54**  
**UnitDefaultTestData**



**Figure 55**  
**UnitDefaultTestData XML Elements**

XML Tag	Type	Definition	EDR Reference (RT:Col)
FuelCode	UnitDefaultTestFuelCodeType	Code used to identify the type of fuel.	N/A
NO <sub>x</sub> DefaultRate	NO <sub>x</sub> DefaultRateType	NO <sub>x</sub> default rate. Only applicable for LME Units.	N/A
OperatingConditionCode	UnitDefaultTestOperatingConditionCodeType	Code used to identify the operating condition.	N/A
GroupID	GroupIDType	For a group of identical units using testing to determine default NO <sub>x</sub> rate, this ID identifies the group.	N/A
NumberOfUnitsInGroup	NumberOfUnitsInGroupType	Number of identical units in the group.	N/A
NumberOfTestsForGroup	NumberOfTestsForGroupType	Number of unit-specific tests conducted for this group of identical units.	N/A

**Figure 56**  
**UnitDefaultTestRunData**



**Figure 57**  
**UnitDefaultTestRunData XML Elements**

<b>XML Tag</b>	<b>Type</b>	<b>Definition</b>	<b>EDR Reference (RT:Col)</b>
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 <sub>x</sub> emission rate average at any tested load level.	650:68

**Figure 58  
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	
AngleType	RATATraverseData/Pitch Angle  RATATraverseData/Yaw Angle	Decimal	Yes	Total Digits = 6, Decimal Places = 1	
BiasAdjustmentFactorType	RATAData/OverallBias AdjustmentFactor  RATASummaryData/Bias AdjustmentFactor	Decimal	Yes	Total Digits = 5, Decimal Places = 3	

(cont.)

**Figure 58**  
**Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
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	
CO <sub>2</sub> OrO <sub>2</sub> Reference MethodType	RATASummaryData/CO <sub>2</sub> Or O <sub>2</sub> ReferenceMethodCode	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	

(cont.)

**Figure 58  
Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
CycleTimeType	CycleTimeInjectionData/ InjectionCycleTime	Decimal	No	Total Digits = 2, Decimal Places = 0	
DensityType	AppendixEHeatInputFromOil Data/OilDensity	Decimal	Yes	Total Digits = 11, Decimal Places = 6	
DensityUnitsOf MeasureCode Type	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 = 13, Decimal Places = 3	
Extension ExemptionCode Type	TestExtensionExemptionData /ExtensionOrExemptionCode	String	No	LOWSQTR LOWSYTD NONQAOS 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	
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	

(cont.)

**Figure 58**  
**Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
FuelFlowToLoadBaselineUnitsOfMeasureCodeType	FuelFlowToLoadBaselineData/FuelFlowToLoadUOMCode	String	Yes	1 2 3 4 5 6 7 8 9	
GasLevelCodeType	LinearitySummaryData/GasLevelCode	String	No	HIGH LOW MID	
GCVType	AppendixEHeatInputFromGasData/GasGCV  AppendixEHeatInputFromOilData/OilGCV	Decimal	Yes	Total Digits = 10, Decimal Places = 1	
GCVUnitsOfMeasureCodeType	AppendixEHeatInputFromOilData/OilGCVUnitsOfMeasureCode	String	Yes	BTUBBL BTUGAL BTULB BTUM3 BTUSCF	
GHRUnitsOfMeasureCodeType	FuelFlowToLoadBaselineData/GHRUnitsOfMeasureCode	String	Yes	BTUKBTU BTUKWH BTULB	
GrossHeatRateType	FlowToLoadReferenceData/ReferenceGrossHeatRate  FuelFlowToLoadBaselineData/BaselineGHR	Decimal	Yes	Total Digits = 6, Decimal Places = 0	
GrossUnitLoadType	FlowToLoadReferenceData/AverageGrossUnitLoad  FuelFlowToLoadBaselineData/AverageLoad  RATARunData/GrossUnitLoad  RATASummaryData/AverageGrossUnitLoad	Decimal	Yes	Total Digits = 6, Decimal Places = 0	
GroupIDType	UnitDefaultTestData/GroupID	String	Yes	Maximum Length = 10 characters	

(cont.)

**Figure 58**  
**Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
HeatInputType	AppECorrelationTestRunData/TotalHeatInput  AppendixEHeatInputFromGasData/GasHeatInput  AppendixEHeatInputFromOilData/OilHeatInput	Decimal	Yes	Total Digits = 7, Decimal Places = 1	
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 58  
Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
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 58**  
**Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
LinearityValueType	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	
MeasuredValueType	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	
MolecularWeightType	FlowRATARunData/Dry MolecularWeight  FlowRATARunData/Wet MolecularWeight	Decimal	Yes	Total Digits = 5, Decimal Places = 2	
MonitorValueType	CycleTimeInjectionData/ BeginMonitorValue  CycleTimeInjectionData/ CalibrationGasValue  CycleTimeInjectionData/End MonitorValue	Decimal	Yes	Total Digits = 13, Decimal Places = 3	
NO <sub>x</sub> DefaultRateType	UnitDefaultTestData/NO <sub>x</sub> DefaultRate	Decimal	Yes	Total Digits = 6, Decimal Places = 3	

(cont.)

**Figure 58  
Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
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 58**  
**Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
NumberOfHours Type (cont.)	FuelFlowToLoadTestData/ NumberOfHoursExcluded Ramping  FuelFlowToLoadTestData/ NumberOfHoursUsed	Non Negative Integer (cont.)	Yes (cont.)	Maximum Value (inclusive) = 2208 (cont.)	
NumberOfLoad LevelsType	RATADData/NumberOfLoad Levels	Decimal	Yes	Total Digits = 1, Decimal Places = 0	
NumberOfTests ForGroupType	UnitDefaultTestData/NumberOfTestsForGroup	Decimal	Yes	Total Digits = 2, Decimal Places = 0	
NumberOf TraversePoints Type	FlowRATARunData/NumberOfTraversePoints  RATASummaryData/NumberOfTraversePoints	Decimal	Yes	Total Digits = 2, Decimal Places = 0	
NumberOfUnits InGroupType	UnitDefaultTestData/NumberOfUnitsInGroup	Decimal	Yes	Total Digits = 2, Decimal Places = 0	
NumberWall EffectsPoints Type	RATATraverseData/NumberWallEffectsPoints	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 58**  
**Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
OptionalDate Type	CalibrationInjectionData/ UpscaleInjectionDate  CalibrationInjectionData/Zero InjectionDate  FuelFlowmeterAccuracyData/ ReinstallationDate  OnlineOfflineCalibrationData /OfflineUpscaleInjectionDate  OnlineOfflineCalibrationData /OfflineZeroInjectionDate  OnlineOfflineCalibrationData /OnlineUpscaleInjectionDate  OnlineOfflineCalibrationData /OnlineZeroInjectionDate  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 58  
Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
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 58  
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 58  
Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
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	
PercentageValueType	TestQualificationData/HighLoadPercentage  TestQualificationData/LowLoadPercentage  TestQualificationData/MidLoadPercentage	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
PercentDifferenceType	FlowToLoadCheckData/AvgAbsolutePercentDiff	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
PercentErrorType	LinearitySummaryData/PercentError	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
PercentType	FlowRATARunData/PercentCO <sub>2</sub>  FlowRATARunData/PercentMoisture  FlowRATARunData/PercentO <sub>2</sub>	Decimal	Yes	Total Digits = 5, Decimal Places = 1	
PressureMeasureCodeType	RATATraverseData/PressureMeasureCode	String	Yes	ELEC FLUID MECH	
PressureType	RATATraverseData/AvgSquareVelDiffPressure  RATATraverseData/AvgVelDiffPressure	Decimal	Yes	Total Digits = 5, Decimal Places = 3	
ProbeIDType	RATATraverseData/ProbeID	String	No	Maximum Length = 11 characters	

(cont.)

**Figure 58**  
**Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
ProbeTypeCode Type	RATATraverseData/Probe TypeCode	String	Yes	PRANDT1 PRISM PRISM-T SPHERE TYPE-SA TYPE-SM	

(cont.)

**Figure 58**  
**Simple Types Used for Validation (cont.)**

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
QACertEventCodeType	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 58  
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	
QuarterType	TestExtensionExemptionData/ /Quarter	String	No	1 2 3 4	
RATAFrequency CodeType	RATADData/RATAFrequency Code	String	Yes	2QTRS 4QTRS 8QTRS ALTSL OS	
RATAReference Value Type	RATARunData/ RATAReferenceValue  RATASummaryData/Mean RATAReferenceValue	Decimal	Yes	Total Digits = 13, Decimal Places = 3	
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	

(cont.)

**Figure 58**  
**Simple Types Used for Validation (cont.)**

SimpleType Name	Used By	Base	Allow Null Values	Validation Patterns, Restrictions, and Values	Notes
ReferenceValueType	AppECorrelationTestRunData/ReferenceValue  AppECorrelationTestSummaryData/MeanReferenceValue  OnlineOfflineCalibrationData/OfflineUpscaleReferenceValue  OnlineOfflineCalibrationData/OfflineZeroReferenceValue  OnlineOfflineCalibrationData/OnlineUpscaleReferenceValue  OnlineOfflineCalibrationData/OnlineZeroReferenceValue  UnitDefaultTestRunData/ReferenceValue	Decimal	Yes	Total Digits = 8, Decimal Places = 3	
RefMethodCodeType	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 58  
Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
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	RATADData/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 58  
Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
RequiredDate Type	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 58  
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/BeginMinute CycleTimeInjectionData/EndMinute 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 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 58**  
**Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
RequiredTestCodeType	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	
RequiredTestNumberType	TestSummaryData/TestNumber	String	No	Maximum Length = 18 characters	

(cont.)

**Figure 58**  
**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 58  
Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
TestBasisCode Type	FlowToLoadCheckData/TestBasisCode  FuelFlowToLoadTestData/TestBasisCode	String	Yes	H Q	
TestClaimCode Type	TestQualificationData/TestClaimCode	String	No	NLE ORE SLC	
TestComment Type	TestSummaryData/TestComment	String	No	Maximum Length = 1,000 characters	
TestDescription Type	TestSummaryData/TestDescription	String	No	Maximum Length = 100 characters	
TestExtensionExemptionFuelCodeType	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  FuelFlowToLoadBaselineData/AccuracyTestNumber  FuelFlowToLoadBaselineData/PEITestNumber	String	Yes	Maximum Length = 18 characters	
TestReasonCode Type	TestSummaryData/TestReasonCode	String	Yes	DIAG INITIAL QA RECERT	

(cont.)

**Figure 58**  
**Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
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 58  
Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
UnitDefaultTestFuelCodeType	UnitDefaultTestData/FuelCode	String	No	BFG BUT CDG COG DGG DSL LFG LPG NNG OGS OIL OOL PDG PNG PRG PRP RFG SRG	
UnitDefaultTestOperatingConditionCodeType	UnitDefaultTestData/OperatingConditionCode	String	Yes	A B P	
UpscaleGasCodeType	CalibrationInjectionData/ UpscaleGasLevelCode  OnlineOfflineCalibrationData/ UpscaleGasLevelCode	String	Yes	HIGH MID	
VelocityCalibrationCoefficientType	RATATraverseData/VelocityCalibrationCoefficient	Decimal	Yes	Total Digits = 5, Decimal Places = 3	
VelocityType	FlowRATARunData/AverageVelocityWithWalleEffects  FlowRATARunData/AvgVelocityWithoutWalleEffects  RATATraverseData/CalculatedVelocity  RATATraverseData/ReplacementVelocity	Decimal	Yes	Total Digits = 6, Decimal Places = 2	
VersionType	QualityAssuranceAndCert/Version	String	Yes	Maximum Length = 10 characters	

(cont.)

**Figure 58**  
**Simple Types Used for Validation (cont.)**

<b>SimpleType Name</b>	<b>Used By</b>	<b>Base</b>	<b>Allow Null Values</b>	<b>Validation Patterns, Restrictions, and Values</b>	<b>Notes</b>
VolumeType	AppendixEHeatInputFromGasData/GasVolume  AppendixEHeatInputFromOilData/OilVolume	Decimal	Yes	Total Digits = 10, Decimal Places = 1	
VolumeUnitsOfMeasureCodeType	AppendixEHeatInputFromOilData/OilVolumeUnitsOfMeasureCode	String	Yes	BBL GAL M3 SCF	
WAFType	FlowRATARunData/CalculatedWAF  RATASummaryData/CalculatedWAF  RATASummaryData/DefaultWAF	Decimal	Yes	Total Digits = 6, Decimal Places = 4	
ZeroMeasuredValueType	OnlineOfflineCalibrationData/OfflineZeroMeasuredValue  OnlineOfflineCalibrationData/OnlineZeroMeasuredValue	Decimal	Yes	Total Digits = 13, Decimal Places = 3	

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