



# CMDP WEB SERVICES SAMPLING XML SCHEMA DEFINITIONS

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# INTRODUCTION

## ABOUT THIS DOCUMENT

This document contains supplemental information related to the file structure of Sample results data for the CMDP-State Database Interface Control Document (ICD) and CMDP-LIMS ICD. .

Sampling information submitted to CMDP will be delivered in the XML format.

## SUPPORTED SAMPLE TYPES

Type	Type ID (2 Chars)	Description
<b>Samples and Results</b>	SD	Individual water samples with analytical results.
<b>Operational Data</b>	OD	For example, water treatment operational data like turbidity measurements summaries, chlorine residual measurement summaries.

## SOURCE ENTITIES

Source entity is the entity that reports the samples to a primacy agency.

Source Entity Name	Source Entity Code (2 Chars)	Description
<b>Laboratory</b>	LB	

## SAMPLE DATA XML FILE STRUCTURE

This section provides details for the Sample Data XML File Structure.

**Please Note:** Both Sample Result and Operational Data can be submitted in one XML file. For illustrative purposes, Sample Result and Operational Data are presented in separate figures, Figure 1 – Overview of XML Structure for Sample Result Data and Figure 2 – Overview of XML Structure for Operational Data.

# SAMPLE RESULT DATA

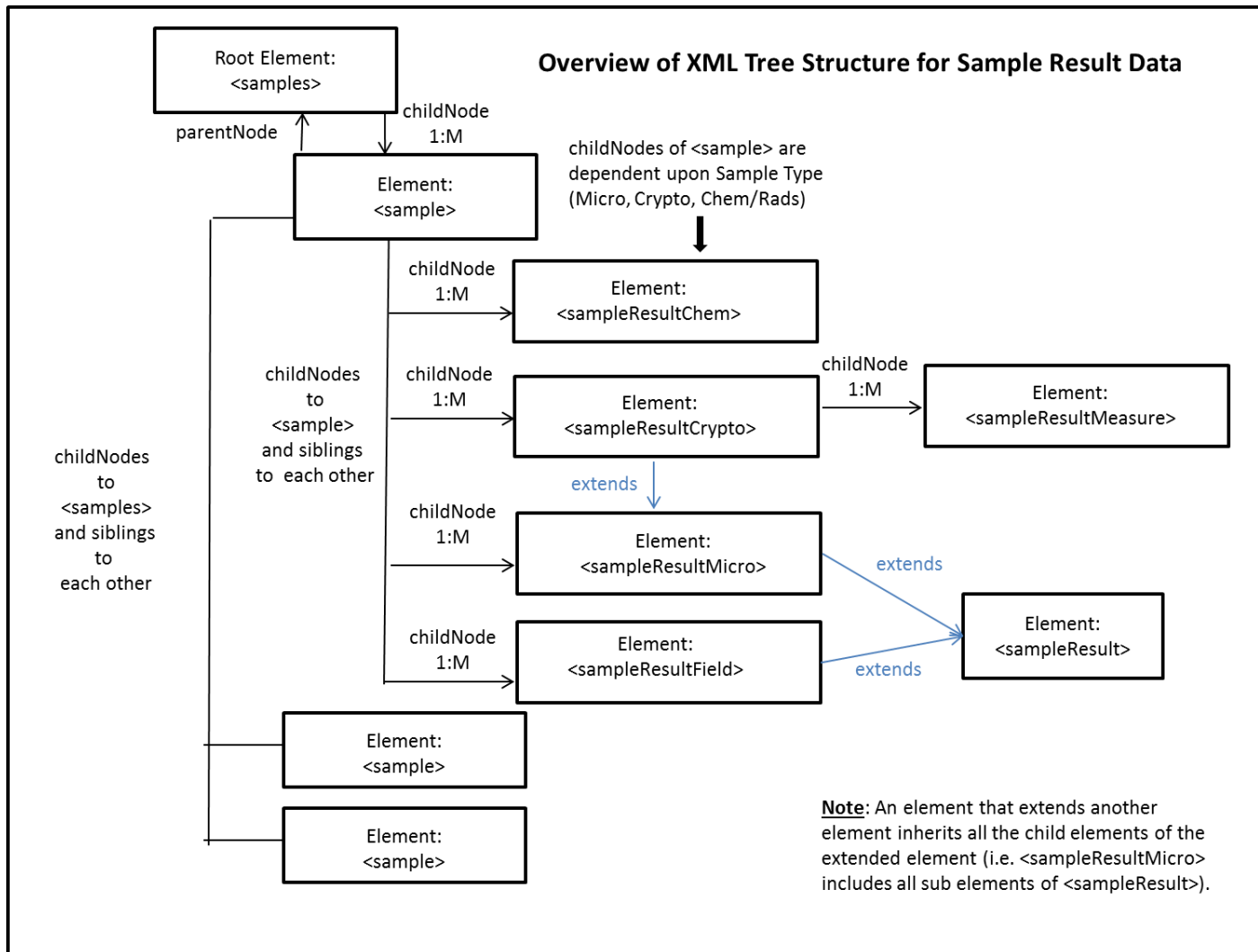


Figure 1 – Overview of XML Structure for Sample Result Data

The childNode(s) for sample data are dependent upon the Sample Type (Micro, Chem/Rads, Crypto). The table below details the valid childNodes based on Sample Type.

**Table 1 – Sample Data: Valid childNodes based on Sample Type**

Type	childNode (Element)
<b>Microbial</b>	sampleResultMicro sampleResultField
<b>Chem/Radionuclides</b>	sampleResultChem sampleResultField
<b>Cryptosporidium</b>	sampleResultCrypto >sampleResultMeasure sampleResultField

### A.1.1 Sample Result Data XML Structure and data elements

The section below details fields and format related to Sample Data (Microbial, Chemical\Rads and Cryptosporidium). Sample Data must be generated in the XML format using the definitions detailed in the section below before pushing it to CMDP.

XML Element	XML Element Name	Data Type	Required (R), Optional (O), Conditional (C)	Format/Valid Values	Description	Additional Designations	Database Table Name	DB Column Name	UI Field Name
<b>samples</b>	samples	XML Root Element							
<b>&gt;sample</b>	sample						SAMPLE		
	wsId	string	R	9 chars – first 2 chars for state code and next 7 chars for water system ID	Expected value is Federal ID assigned to		SAMPLE	WATER_SYS TEM_ID	Water System Id

				the water system			
facilityName	string	R	Alphanumeric - 40 chars	State Assigned Facility Identifier / Code	SAMPLE	FACILITY_ID	Facility
samplingPointId	string	R	Alphanumeric - 40 chars	State Assigned Sampling Point Identification Code	SAMPLE	FAC_SAMPLING_POINT_ID	Sampling Point
samplingLocation	string	O	Alphanumeric - 250 chars	Sampling Point Location	SAMPLE	SAMPLING_LOCATION	Sampling Location
sampleCd	string	R	Alphanumeric - 80 chars	Laboratory assigned Sample ID	SAMPLE	LAB_SAMPLE_CD	Sample ID
SampleReceivedDate	string	O	Date format: YYYY-MM-DD	Collection Date < Sample Received Date < Analysis State Date Enter in YYYY-MM-DD format	SAMPLE	SAMPLE_RECEIVED_DT	Sample Received Date
collectionDate	string	R	Date format: YYYY-MM-DD	Enter Collection Date in YYYY-MM-DD format	SAMPLE	COLLECTED_DT	Collection Date
collectionTime	string	O	Time format: 00:00	Enter Collection Time in 00:00 format	SAMPLE	COLLECTED_DT	Collection Time

legalEntityName	string	R	Alphanumeric - 40 chars	Expected value is 'Reporting Laboratory ID'. Used as a lookup field for Lab ID	SAMPLE	LAB_ID	Laboratory ID - Name	
			Submit Code (i.e. RT) <b>[Code] - [Description]:</b> <b>(Microbial / ChemsRads)</b> <b>RT</b> - Routine <b>RP</b> - Repeat <b>TG</b> - Triggered <b>CO</b> - Confirmation <b>SP</b> - Special <b>BB</b> - Batch Blanks <b>FB</b> - Field Blanks <b>PE</b> - Performance Evaluation <b>SB</b> - Shipping Blanks <b>ST</b> - Split Blanks <b>MR</b> - Maximum Residence Time <b>MS</b> - Matrix Spike  <b>[Code] - [Description]:</b> <b>(Cryptosporidium)</b> <b>RT</b> - Field (i.e., Routine) <b>MS</b> - Matrix Spike <b>SP</b> - Special <b>PE</b> - Performance Evaluation <b>BB</b> - Batch Blanks <b>FB</b> - Field Blanks <b>SB</b> - Shipping Blanks <b>ST</b> - Split Blanks	Expected value is the Sample Type code	Federally required	SAMPLE	SAMPLE_TY PE_ID	Sample Type
sampleVolume	decimal	O	Precision 9, Scale 2 [0000000.00]	Sample Volume	Federally required (Micobial, Crypto)	SAMPLE	SAMPLE_VO LUME_ID	Sample Volume(ML)



comments	string	O	Alphanumeric - 250 chars	Comments	SAMPLE	COMMENTS	Comment
SampleCollectorName	String	O	Alphanumeric - 250 chars	Comments	SAMPLE	COLLECTOR	Sample Collector Name
repeatLocationName	string	C	Original Site Downstream Upstream Source Alternative (RTCR) Other (TCR)	Req'd if is Sample Type is Repeat Enter one of the Repeat Location options	SAMPLE	REPEAT_LOCATION_ID	Repeat Location
originalLabSampleCd	string	R	Alphanumeric - 80 chars	Req'd if is Sample Type is Repeat/Triggered/Confirmation Enter Original Laboratory assigned Sample ID	SAMPLE	LAB_SAMPLE_CD	Related Original Sample Collected Sample ID
originalLegalEntityName	string	C	Alphanumeric - 40 chars	When Sample Type is Repeat/Triggered/Confirmation, Optional if Reporting Lab ID is the same as Original Lab ID, Required if Reporting Lab Id is different from Original lab ID. Enter Original Legal Entity Code (Lab ID)	SAMPLE	LAB_ID	

originalCollectionDate	string	O	Date format: YYYY-MM-DD	Enter Original Collection Date in YYYY-MM-DD format	SAMPLE	COLLECTED_DT	
sampleCategoryName	string	R	Microbial Chem/Radionuclides Cryptosporidium	Enter one of the Sample Category Name options	SAMPLE	SAMPLE_CATEGORY_ID	Category
<b>sampleResult</b>	[none]			Element that is extended by other elements.			
analyteName	string	R	<p><b>NOTE:</b> Valid values cannot be listed due to the large size of possible values (which is also dependent upon user primacyAgency)</p> <p><u>Analyte Codes for Sample Field only:</u>  <b>1013</b> - Free Chlorine Residual  <b>1012</b> - Total Chlorine Residual  <b>1996</b> - Temperature  <b>0100</b> - Turbidity  <b>1925</b> - pH  <b>1006</b> - Chloramine  <b>0999</b> - Chlorine  <b>1905</b> - Color</p>	Expected value is the Analyte code	<b>Federally required</b>	<b>C_SAMPLE_RESULT</b>	<b>ANALYTE_ID</b> <b>Analyte</b>
methodName	string	O	<p><b>NOTE:</b> Valid values cannot be listed due to the large size of possible values (which is also dependent upon user primacyAgency). Valid values are also dependent upon Analyte/Parameter</p>	Method Code Used as lookup for Method Code	<b>Federally required</b>	C_SAMPLE_RESULT	METHOD_ID Method

				(sampleResult.analyteName)				
analysisStartDt	string	O	Date format: YYYY-MM-DD	Enter Analysis Start Date YYYY-MM-DD format	Federally required	C_SAMPLE_RESULT	ANALYSIS_START_DT	Analysis Start Date
analysisStartTime	string	O	Time format: 00:00	Enter Analysis Start Time in 00:00 format	Federally required	C_SAMPLE_RESULT	ANALYSIS_START_DT	Analysis Start Time
analysisCompIDt	string	O	Date format: YYYY-MM-DD	Enter Analysis Completed Date YYYY-MM-DD format		C_SAMPLE_RESULT	ANALYSIS_COMPL_DT	Analysis Completed Date
analysisCompITime	string	O	Time format: 00:00	Enter Analysis Completed Time in 00:00 format		C_SAMPLE_RESULT	ANALYSIS_COMPL_DT	Analysis Completed Time
name	string	O	Alphanumeric - 80 chars	Analyzing Laboratory ID / Code		C_SAMPLE_RESULT	ANALYZING_LAB_ID	Analyzing Lab ID
comments	string	O	Alphanumeric - 250 chars	Comments		C_SAMPLE_RESULT	COMMENTS	Comments
volumeAssayed	decimal	O	Precision 9, Scale 2 [0000000.00]	Volume Assayed – (Microbial and ChemsRads) Per – (Cryptosporidium)	Federally required (Microbial)	C_SAMPLE_RESULT	VOLUME_ASSAYED	Volume Assayed/Per (ML)
<b>&gt;&gt;sampleResultChem</b>	sampleResultChem							
	See {sampleResult}			Extends {sampleResult} therefore all elements of sampleResult included.				

				Enter response whether analyte was Not Detected	Federally required	C_SAMPLE_RESULT_CHEM	NOT_DETECTED	Not Detected
notDetected	boolean	R	true false					
result	decimal	O	Precision 7, Scale 4 [000.0000]	Result Value. Federally Conditionally Required when "notDetected" is false.	Federally Conditionally Required	C_SAMPLE_RESULT_CHEM	RESULT	Result
resultUomName	string	O	C LANG NTU pH umho/cm TON CU mg/L ug/L ng/L pCi/L MFL	Federally Conditionally Required when "notDetected" is false.	Federally Conditionally Required	C_SAMPLE_RESULT_CHEM	RESULT_UOM_ID	Result UOM
standardDeviation	decimal	O	Precision 9, Scale 2 [0000000.00]	Standard Deviation. Federally Conditionally Required when "notDetected" is false.	Federally Conditionally Required	C_SAMPLE_RESULT_CHEM	STANDARD_DEVIATION	Standard Deviation
reportingLevel	decimal	O	Precision 7, Scale 4 [000.0000]	Reporting Limit. Federally Conditionally Required when "notDetected" is false.	Federally Conditionally Required	C_SAMPLE_RESULT_CHEM	REPORTING_LEVEL	Reporting Limit

				C LANG NTU pH umho/cm TON CU mg/L ug/L ng/L pCi/L MFL	Federally Conditionally Required when “notDetected” is false.	<b>Federally Conditional ly Required</b>	C_SAMPLE_RESULT_CHEM	REPORTING_LEVEL_UOM_ID	Reporting Limit UOM
<b>&gt;&gt;sampleResultMicro</b>									
				See {sampleResult}	Extends {sampleResult} therefore all elements of sampleResult included.				
				Submit Code (i.e. A) <b>[Code] - [Description]:</b> A - Absent P - Present	Enter response code of whether analyte was detected	<b>Federally required</b>	C_SAMPLE_RESULT_MICRO	AP	A/P
				Precision 7, Scale 0 [0000000]	Bacteria count in the sample. Refer to Crypto Rule for Federal Conditional Requirement.	<b>Federally Conditional ly required (Crypto)</b>	C_SAMPLE_RESULT_MICRO	COUNT	Count
				Colonies Tubes Most probable Number	Expected value is the type of Units – Microbial	<b>Federally Conditional ly required (Crypto)</b>	C_SAMPLE_RESULT_MICRO	TYPE_ID	Units/Oocysts

				Occysts – Cryptosporidium. Refer to Crypto Rule for Federal Conditional Requirement.			
resultVolume	decimal	O	Precision 9, Scale 2 [0000000.00]	Volume. Refer to Crypto Rule for Federal Conditional Requirement. <b>Federally Conditionally required (Crypto)</b>	C_SAMPLE_RESULT_MICRO	Volume	Volume(ML)
interferenceName	string	O	<b>CNFG</b> - Confluent Growth <b>TNTC</b> - Too Numerous to Count <b>TCNG</b> - Turbid Culture - no gas	Expected value is the Interference Name code	C_SAMPLE_RESULT_MICRO	INTERFERENCE_ID	Interference
filteredVolumeExaminedName	String	O	<b>Y</b> – Yes <b>N</b> - No	Enter response code of whether 100% of filtered volume was examined (Cryptosporidium). Refer to Crypto Rule for Federal Conditional Requirement. <b>Federally Conditionally Required (Crypto)</b>	C_SAMPLE_RESULT_MICRO	FILTERED_VOLUME_EXAMINED	Was 100% of filtered volume examined
sourceTypeName	string	O	Flowing stream Lake Reservoir GWUDI	Enter one of the Source Type options	C_SAMPLE_RESULT_MICRO	SOURCE_TYPE_ID	Source Type
>>sampleResultCrypto	sampleResultCrypto						

	See {sampleResultMicro}		Extends {sampleResult} therefore all elements of sampleResultMicro included.			
>>sampleResultField	sampleResultField					
	See {sampleResult}		Extends {sampleResult} therefore all elements of sampleResult included.	C_SAMPLE_RESULT_FIELD		
result	decimal	R	Precision 7, Scale 2 [00000.00]	C_SAMPLE_RESULT_FIELD	RESULT	Result
uomName	string	R	<p><u>1013 - Free Chlorine Residual:</u> mg/l mL L</p> <p><u>1012 - Total Chlorine Residual:</u> mg/l mL L</p> <p><u>1996 - Temperature:</u> F C</p> <p><u>0100 - Turbidity:</u> NTU</p> <p><u>1925 - pH:</u> ph</p> <p><u>0999 - Chlorine:</u> mg/L mL L</p> <p><u>1006 - Chloramine:</u> mg/L mL L</p>	C_SAMPLE_RESULT_FIELD	UOM_ID	Result UOM
						Expected value is the code for the Result Unit Of Measure <u>NOTE</u> ; Valid value depends on Parameter Value (sampleResult.analyteName)

<p><u>1905 - Color:</u> CU</p>			
<p>&gt;&gt;&gt;sampleResultMeasure sampleResult Measure</p>	<p>C_SAMPLE_RESULT_MEASURE</p>		
<p>Submit Code (i.e. A)  <u>[Code] - [Description]:</u>  <b>SAMPLE VOL FILTER</b>                  - Sample Volume                  Filtered  <b>SAMPLE VOL SPIKE</b>                  - Sample Volume                  Spiked  <b>#OOCYSTS SPIKE</b> -                  Number of Oocysts Spiked  <b>#FILTER USE</b> -                  Number of filters used  <b>PACK PELLET VOL</b>                  - Packed Pellet                  Volume  <b>#OOCYSTS</b> -                  Number of oocysts  <b>#OOCYSTS CLC</b>                  - Calculated                  number of oocysts per                  volume  <b>VOL RESSP C</b> -                  Volume of resuspended                  concentrate</p> <p>measureName string R</p>	<p>C_SAMPLE_RESULT_MEASURE</p>	<p>MEASURE_ID</p>	<p>Measures</p> <p>Expected value is the code for the Measure Code Name</p>



<b>VOL RESSP CP-</b> Volume of resuspended conc. processed						
result	decima 1	R	Precision 9, Scale 2 [0000000.00]	C_SAMPLE _RESULT_ MEASURE	RESULT	Result
uomName	string	R	N SAMP VOL SLIDE Org/100mL Org/l G L mL	C_SAMPLE _RESULT_ MEASURE	UOM_ID	Result UOM
Expected value is the type of Unit of Measure						

## OPERATIONAL DATA XML FILE STRUCTURE

This section provides details for the Operational Data XML File Structure. Figure 2 – Overview of XML Structure for Operational Data depicts the overall XML Tree structure of the Operational Data submission. As previously mentioned, please note that both Sample Result and Operational Data can be submitted in one XML file.

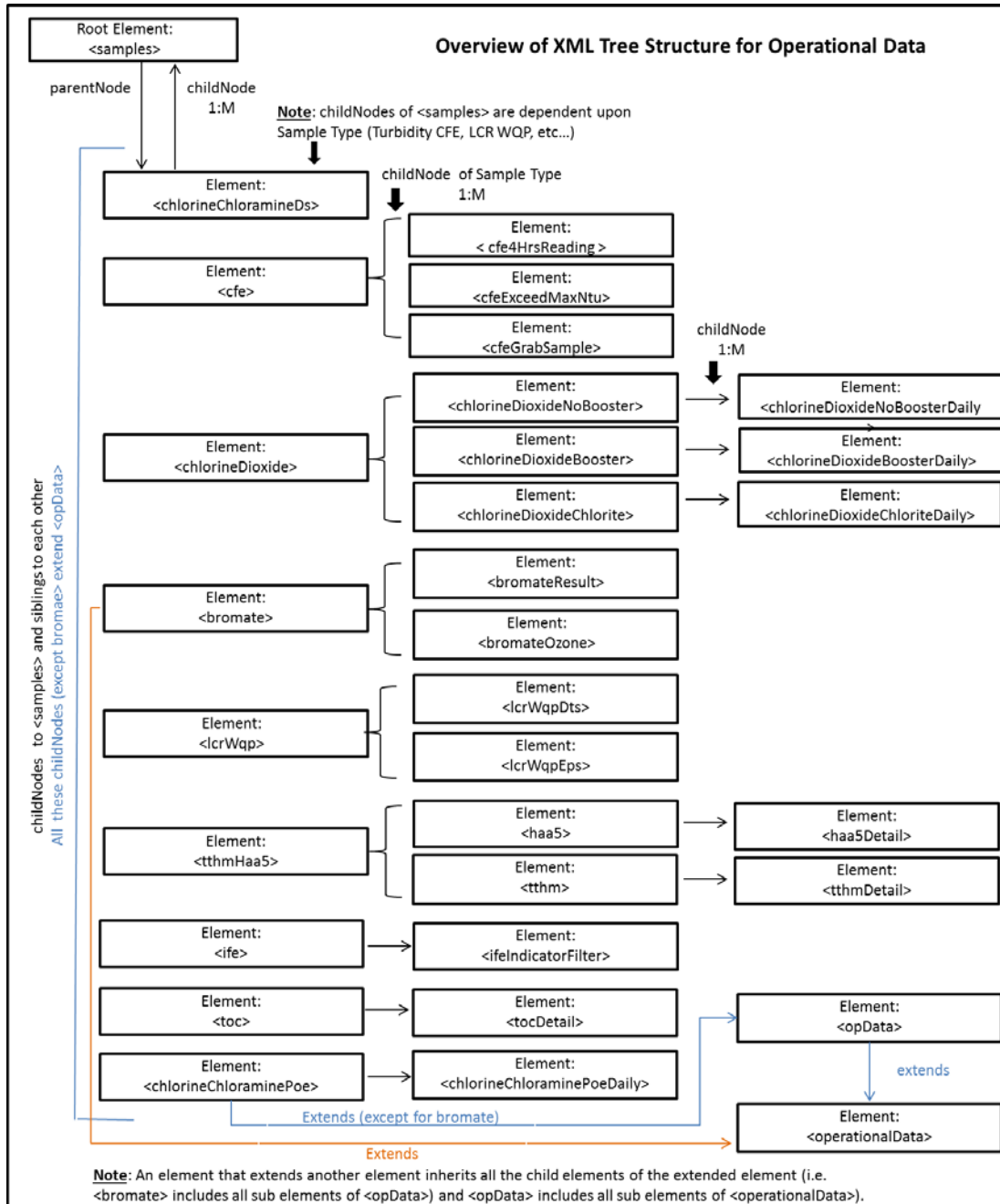


Figure 2 – Overview of XML Structure for Operational Data

The childNode(s) for Operational data are dependent upon the Sample Type (i.e. Turbidity CFE, Turbidity IFE, LCR WQP, etc...).

Table 2 – Operational Data: Valid childNodes based on Sample Type details the valid childNodes based on Sample Type.

**Table 2 – Operational Data: Valid childNodes based on Sample Type**

Type	childNode (Element)
<b>Turbidity CFE</b>	cfe cfe4HrsReading cfeExceedMaxNtu cfeGrabSample
<b>Turbidity IFE</b>	ife ifeIndicatorFilter
<b>Chlorine Dioxide and Chlorite</b>	chlorineDioxide  chlorineDioxideNoBooster >chlorineDioxideNoBoosterDaily  chlorineDioxideBooster >chlorineDioxideBoosterDaily  chlorineDioxideChlorite >chlorineDioxideChloriteDaily
<b>Chlorine and Chloramines Entering DS</b>	opDataClChloraminePoe >chlorineChloraminePoeDaily
<b>Chlorine and Chloramines in DS</b>	chlorineChloramineDs

Type	childNode (Element)
<b>LCR WQP</b>	lcrWqp >lcrWqpDts >lcrWqpEps
<b>Total Organic Carbon</b>	toc >tocDetail
<b>Ozone Treatment (Bromate)</b>	bromate >bromateResult >bromateOzone
<b>TTHM and HAA5</b>	tthmHaa5 >haa5 >>haa5Detail >tthm >>tthmDetail

**Table 3 – Operational Data XML Structure and data elements**

XML Element	XML Element Name	Data Type	Required (R), Optional (O), Conditional (C), Generated (G)	Format/Valid Values	Description	Additional Designations
<b>samples</b>	samples	XML Root Element				
<b>operationalData</b>	[none]				This element is extended by other elements.	
	wsId	string	R	9 chars – first 2 chars for state code and next 7 chars for water system ID	Federal ID assigned to the water system	
	facilityName	string	R		State Assigned Facility Identifier / Code ( Not valid for LCR samples)	

XML Element	XML Element Name	Data Type	Required (R), Optional (O), Conditional (C), Generated (G)	Format/Valid Values	Description	Additional Designations
	sampleType	string	R	Turbidity CFE Turbidity IFE Chlorine Dioxide and Chlorite Chlorine and Chloramines Entering DS Chlorine and Chloramines in DS LCR WQP Total Organic Carbon Generic Sample Type Ozone Treatment (Bromate) TTHM and HAA5	Enter one of the Sample Category options	
<b>opData</b>	[none]				This element is extended by other elements.	
	See {operationalData}			Extends {operationalData} therefore all elements of opData included.		
	samplingPointId	string	R	Alphanumeric - 40 chars	Enter Sampling Points ID within the Facility (Not valid for CFE, IFE, Chlorine Chlormine DS Samples)	<b>Federally required</b> (Except: CFE, IFE, Chlorine Chlormine DS Samples)
	mntrgPeriodMonth	int	R	Integer value representing month (i.e. 1=Jan, 2=Feb, 3=March, etc...) quarter value ( 13 = Q1 , 14 = Q2 , 15 = Q3 , 16 = Q4)	Integer values are expected for Monitoring Period Month (TOC and TTHM are Quarterly)	<b>Federally required</b>
	mntrgPeriodYear	int	R	Format: YYYY Valid Values 2011 through current Year	Enter Monitoring Period – Year in YYYY format	<b>Federally required</b>

XML Element	XML Element Name	Data Type	Required (R), Optional (O), Conditional (C), Generated (G)	Format/Valid Values	Description	Additional Designations
>chlorineChloramineDs	chlorineChloramineDs					
	See {opData}			Extends {opData} therefore all elements of opData included.		
	quarterlyRunningAnnualAvg	decimal	O	Precision 5, Scale 3 [00.000]	Only applies when Reporting Period month is March, June, September, December	Federally required
	mrdlViolationName	string	O	Yes No	Enter response whether there is a MRDL Violation	Federally required
	numMeasurementsReq	Int	O	Precision 5, Scale 0 [00000]	Number of MRDL Measurements Required	
	numMeasurement	int	O	Precision 5, Scale 0 [00000]	Number of MRDL Measurements	Federally required
	monthlyAvg	decimal	O	Precision 5, Scale 3 [00.000]	Monthly Average	Federally required
	noOfMsrDetectedMtDSResi	int	O	Precision 5, Scale 0 [00000]	Number of Measurements Meeting Minimum DS Residual Requirement	Federally required
	pctMtDSResiReq	decimal	O	Precision 3, Scale 3 [000.000]	% Meeting Minimum DS Residual Requirement	Federally required
	preMonthPctMtDSResiReq	decimal	O	Precision 3, Scale 3 [000.000]	Previous Month % Meeting Minimum DS Residual Requirement	Federally required
	residualReportingTypeName	string	R	MRDL MRDL and DS RDC	Residual Reporting Type	
	rdcNumMeasurementsReq	Int	O	Precision 5, Scale 0 [00000]	Number of Minimum RDC Measurements Required	
	rdcNumMeasurement	int	O	Precision 5, Scale 0 [00000]	Number of Minimum RDC Measurements	Federally required
>cfe	cfe					

XML Element	XML Element Name	Data Type	Required (R), Optional (O), Conditional (C), Generated (G)	Format/Valid Values	Description	Additional Designations
	See {opData}			Extends {opData} therefore all elements of opData included.		
	monthlyHrsOperation	int	O	Precision 5, Scale 0 [00000]	Monthly hours of operation	
	totalReq	int	O	Precision 5, Scale 0 [00000]	Total Number of CFE Turbidity measurements required	
	totalTaken	int	R	Precision 5, Scale 0 [00000]	Total number of CFE Turbidity measurements taken during the month*	<b>Federally required</b>
	totalTakenLessThanIeswtr	int	R	Precision 5, Scale 0 [00000]	Total <= 0.3 NTU in measurements taken	<b>Federally required</b>
	readingExceedMaxNtuAllowedName	string	R	Y - Yes N - No	Enter response code whether any Turbidity CFE reading during the month exceed the maximum NTU allowed	
	lessThan015Ntu95pctMsrrName	string	R	O - Not Reporting for LT2 Y - Yes N - No	Enter response code whether the CFE turbidity <= 0.15 NTU was in at least 95% of the measurements for the month Refer to CFE Rule for Federal Conditional Requirement.	<b>Federally conditionally required</b>
<b>&gt;cfeExceedMax Ntu</b>	<b>cfeExceedMaxNtu</b>					
	occurredDt	string	R	Date format: MM/DD/YYYY Must be within Reporting/Monitoring Period.	Enter Date in MM/DD/YYYY format Federally Conditionally required when "readingExceedMaxNtuAllowedName" is set to YES	<b>Federally conditionally required</b>
	turbidity	decimal	R	Precision 5, Scale 3 [00.000]	Turbidity (NTU)*. Federally Conditionally required when	<b>Federally conditionally required</b>

XML Element	XML Element Name	Data Type	Required (R), Optional (O), Conditional (C), Generated (G)	Format/Valid Values	Description	Additional Designations
					“readingExceedMaxNtuAllowedName” is set to YES	
	occurredTime	string	O	Time format: HH:MM Default value: 00:00	Enter Time in 00:00 format	
	duration	decimal	O	Precision 5, Scale 2 [000.00]	Duration (0.1 hour)	
<b>&gt;cfeGrabSample</b>	<b>cfeGrabSample</b>					
	day	int	R	Valid day based on month	Enter valid Day within month	
	totalHrsFiltering	decimal	R	Precision 5, Scale 2 [000.00]	Total Hours Filtering (in Operation)*	
	maxTurbidity	decimal	R	Precision 5, Scale 3 [00.000]	Maximum Turbidity*	
	minTurbidity	decimal	O	Precision 5, Scale 3 [00.000]	Minimum Turbidity	
	avgTurbidity	decimal	O	Precision 5, Scale 3 [00.000]	Average Turbidity	
	gsTotalNumResult	int	O	Precision 5, Scale 0 [00000]	Grab Sample Reports – Total Number of Results	
	gsTotalResultExceed	int	O	Precision 5, Scale 2 [000.00]	Grab Sample Reports - # of Results Exceeding Max NTU	
	cmTotalHrResultRecorded	decimal	O	Precision 5, Scale 2 [000.00]	Continuous Monitoring Report – Total Hours Results Were Reported	
	cmTotalHrResultExceed	decimal	O	Precision 5, Scale 2 [000.00]	Continuous Monitoring: Total Hours Results Exceed Max NTU*	
<b>&gt;cfe4HrsReading</b>	<b>cfe4HrsReading</b>					
	day	int	R	Valid day based on month	Enter valid Day within month	
	firstReading	decimal	O	Precision 5, Scale 3 [00.000]	12:00 AM or 1st Reading*	
	secondReading	decimal	O	Precision 5, Scale 3 [00.000]	4:00 AM or 2nd Reading*	



XML Element	XML Element Name	Data Type	Required (R), Optional (O), Conditional (C), Generated (G)	Format/Valid Values	Description	Additional Designations
	thirdReading	decimal	O	Precision 5, Scale 3 [00.000]	8:00 AM or 3rd Reading*	
	fourthReading	decimal	O	Precision 5, Scale 3 [00.000]	12:00 PM or 4th Reading*	
	fifthReading	decimal	O	Precision 5, Scale 3 [00.000]	4:00 PM or 5th Reading*	
	sixthReading	decimal	O	Precision 5, Scale 3 [00.000]	8:00 PM or 6th Reading*	
	rawTurbidity	decimal	O	Precision 5, Scale 3 [00.000]	Raw Turbidity (once per day)*	
	hrsOperation	decimal	O	Precision 5, Scale 2 [000.00]	Hours of Operations	
<b>&gt;chlorineDioxide</b>	chlorineDioxide					
	See {opData}			Extends {opData} therefore all elements of opData included.		
	sampleCd	string	R	Alphanumeric – 25 chars	Enter Sample Id Code	
	name	string	R	<b>NOTE:</b> Valid values cannot be listed due to possible values being dependent upon user	Enter Reporting Lab Id	
	reportingCTValueName	string	O	Y - Yes N - No	Enter response code whether also Reporting for CT Values for LT2ESWTR (Toolbox reporting requirements)	
<b>&gt;chlorineDioxideNoBooster</b>	chlorineDioxideNoBooster					
	daysUseCIDioxide	int	O	Precision 5, Scale 0 [00000]	Number of Days where Chlorine Dioxide was used	

XML Element	XML Element Name	Data Type	Required (R), Optional (O), Conditional (C), Generated (G)	Format/Valid Values	Description	Additional Designations
<b>&gt;&gt;chlorineDioxideNoBoosterDaily</b>	chlorineDioxideNoBoosterDaily					
	day	int	R	Valid day based on month	Enter valid Day within month	
	resultPoe	decimal	R	Precision 5, Scale 3 [00.000]	Result at POE (mg/L)	<b>Federally required</b>
	exceedMrdlName	string	R	Y - Yes N - No	Enter response code whether the Routine exceeds the MRDL (0.8 mg/L)*	<b>Federally required</b>
	exceed2ConsecDailyName	string	C Federally conditional ly required	Y - Yes N - No	Enter response code whether Exceeded MRDL were two consecutive daily samples exceeded Federally Conditionally Required if "exceedMrdlName" is set to YES.	<b>Federally conditionally required</b>
	firstSample	decimal	C Federally conditional ly required	Precision 5, Scale 3 [00.000]	1 <sup>st</sup> Sample @First Customer (mg/L). Federally Conditionally Required if "exceedMrdlName" is set to YES.	<b>Federally conditionally required</b>
	secondSample	decimal	C Federally conditional ly required	Precision 5, Scale 3 [00.000]	2 <sup>nd</sup> Sample @1 <sup>st</sup> Customer (mg/L) + 6 hours. Federally Conditionally Required if "exceedMrdlName" is set to YES.	<b>Federally conditionally required</b>
	thirdSample	decimal	C Federally conditional ly required	Precision 5, Scale 3 [00.000]	3 <sup>rd</sup> Sample @1 <sup>st</sup> Customer (mg/L) + 12 hours. Federally Conditionally Required if "exceedMrdlName" is set to YES.	<b>Federally conditionally required</b>

XML Element	XML Element Name	Data Type	Required (R), Optional (O), Conditional (C), Generated (G)	Format/Valid Values	Description	Additional Designations
	violationTypeName	string	C Federally conditional ly required	Acute Non Acute No Violation	Enter one of the Violation Type choices Federally Conditionally Required if "exceedMrdlName" is set to YES.	<b>Federally conditionally required</b>
	notifyStateName	string	O	Y - Yes N - No	Enter response code whether to Notify State	
	notifyPublicName	string	O	Y - Yes N - No	Enter response code whether to Notify Public	
	lt2Temperature	decimal	C Federally conditional ly required	Precision 3, Scale 1 [0.00]	LT 2Temperature. Federally Conditionally Required if "reportingCTValueName" is set to YES.	<b>Federally conditionally required</b>
	lt2Concentration	decimal	C Federally conditional ly required	Precision 5, Scale 3 [00.000]	LT 2Concentration. Federally Conditionally Required if "reportingCTValueName" is set to YES.	<b>Federally conditionally required</b>
	lt2ContactTime	decimal	C Federally conditional ly required	Precision 5, Scale 3 [00.000]	Contact Time. Federally Conditionally Required if "reportingCTValueName" is set to YES.	<b>Federally conditionally required</b>
	lt2CtValue	decimal	C Federally conditional ly required	Precision 5, Scale 3 [00.000]	LT2 CT Value. Federally Conditionally Required if "reportingCTValueName" is set to YES.	<b>Federally conditionally required</b>
	lt2RatioAchieved	decimal	C Federally conditional ly required	Precision 6, Scale 3 [000.000]	LT2 Ratio Achieved. Conditionally Required if "reportingCTValueName" is set to YES.	<b>Conditionally required</b>

Federally Conditionally Required if “reportingCTValueName” is set to YES.

	lt2TTReqMetToolboxCr d	string	C Federally conditional ly required	Y - Yes N - No	Enter response code whether the LT2 Was a TT requirement met for toolbox credit Conditionally Required if “reportingCTValueName” is set to YES.	<b>Conditionally required</b>
<b>&gt;chlorineDioxideBooster</b>						
	chlorineDioxideBooster					
	daysUseClDioxide	int	O	Precision 5, Scale 0 [00000]	Number of Days where Chlorine Dioxide was used	
<b>&gt;&gt;chlorineDioxideBoosterDaily</b>						
	chlorineDioxideBooster Daily					
	day	int	R	Valid day based on month	Enter valid Day within month	
	resultPoe	decimal	R		Enter Routine ClO2 Daily Result at POE (mg/L)*	<b>Federally required</b>
	exceedMrdlName	string	R	Y - Yes N - No	Enter response code whether the Routine exceeds the MRDL (0.8 mg/L)?*	<b>Federally required</b>
	exceed2ConsecDailyName	string	C Federally conditional ly required	Y - Yes N - No	Enter response code whether Exceeded MRDL were two consecutive daily samples exceeded Federally Conditionally Required if “exceedMrdlName” is set to YES.	<b>Federally conditionally required</b>
	firstSample	decimal	C Federally conditional ly required	Precision 5, scale 3 [00.000]	1st Sample @ First Customer (mg/L)* Federally Conditionally Required if “exceedMrdlName” is set to YES.	<b>Federally conditionally required</b>
	secondSample	decimal	C Federally conditional ly required	Precision 5, scale 3 [00.000]	2nd Sample @ Average Residence Time Location (mg/l)* Federally Conditionally Required if “exceedMrdlName” is set to YES.	<b>Federally conditionally required</b>

thirdSample	decimal	C Federally conditional ly required	Precision 5, scale 3 [00.000]	3rd Sample @ Maximum Residence Time Location (mg/l)* Federally Conditionally Required if “exceedMrdlName” is set to YES.	<b>Federally conditionally required</b>
violationTypeName	string	C Federally conditional ly required	Acute Non Acute No Violation	Enter one of the Violation Type choices Federally Conditionally Required if “exceedMrdlName” is set to YES.	<b>Federally conditionally required</b>
notifyStateName	string	O	Y - Yes N - No	Enter response code whether to Notify State	
notifyPublicName	string	O	Y - Yes N - No	Enter response code whether to Notify Public	
lt2Temperature	decimal	O	Precision 3, scale 1 [00.0]	LT2 Temperature. Federally Conditionally Required if “reportingCTValueName” is set to YES.	<b>Federally conditionally required</b>
lt2Concentration	decimal	C Federally conditional ly required	Precision 5, scale 3 [00.000]	LT2 Concentration. Federally Conditionally Required if “reportingCTValueName” is set to YES.	<b>Federally conditionally required</b>
lt2ContactTime	decimal	C Federally conditional ly required	Precision 5, scale 3 [00.000]	LT2 Contact Time. Federally Conditionally Required if “reportingCTValueName” is set to YES.	<b>Federally conditionally required</b>
lt2CtValue	decimal	C Federally conditional ly required	Precision 5, scale 3 [00.000]	LT2 CT Value. Federally Conditionally Required if “reportingCTValueName” is set to YES.	<b>Federally conditionally required</b>
lt2RatioAchieved	decimal	C Federally conditional ly required	Precision 6, Scale 3 [000.000]	LT2 Ratio Achieved. Conditionally Required if “reportingCTValueName” is set to YES.	<b>Conditionally required</b>

	lt2TTRReqMetToolboxCredit	string	C Federally conditional ly required	Y - Yes N - No	Enter response code whether LT2 TT requirement was met for toolbox credit Conditionally Required if "reportingCTValueName" is set to YES.	Conditionally required
<b>&gt;chlorineDioxideChlorite</b>						
	totalNumSample	int	R	Precision 5, Scale 0 [00000]	Total number of samples taken in the last 3 months	Federally Required
	numMclViolation	int	R	Precision 5, Scale 0 [00000]	Number of MCL Violations for the Month	Federally Required
	monthlyArithmeticAvg	decimal	R	Precision 5, Scale 3 [00.000]	Monthly Arithmetic Average (DS 3-sample sets)	Federally Required
	name	string	O	Alphanumeric - 80 chars	Enter Analyzing Lab ID (if not reporting lab)	
<b>&gt;&gt;chlorineDioxideChloriteDaily</b>						
	day	int	R	Valid day based on month	ch	
	resultPoe	decimal	R	Precision 5, scale 3 [00.000]	Routine ClO2 Daily Result at POE (mg/L)*	Federally Required
	rexceedMrdlName	string	R	Y - Yes N - No	Enter response code whether the Routine exceeds the MRDL (0.1 mg/L)?*	Federally Required
	firstSample	decimal	O	Precision 5, scale 3 [00.000]	1st Sample @ First Customer (mg/L)*	Federally Required
	secondSample	decimal	O	Precision 5, scale 3 [00.000]	2nd Sample @ Avg. Residence Time Location(mg/L)*	Federally Required
	thirdSample	decimal	O	Precision 5, scale 3 [00.000]	3rd Sample @ @ Avg. Residence Time Location(mg/L)*	Federally Required
	avgSampleSet	decimal	O	Precision 5, scale 3 [00.000]	Average of 3 Sample Set*	Federally Required
	avgSampleSetExceedMclName	string	O	Y - Yes N - No	Enter response code whether 3-Sample Average Exceed Chlorite MCL (1.0 mg/L)	Federally Required
	notifyStateName	string	O	Y - Yes N - No	Enter response code whether to Notify State	

	notifyPublicName	string	O	Y - Yes N - No	Enter response code whether to Notify Public	
<b>&gt;bromate</b>	bromate					
	See {opData}			Extends {opData} therefore all elements of opData included.		
	reportingLabName	string	O	Alphanumeric - 80 chars	Enter Reporting Lab ID	
	quarterlyBromateRaa	decimal	O	Precision 5, Scale 3 [00.000]	Quarterly Bromate RAA Applies only to March, June, September, Decem	<b>Federally Required</b>
	totalNumSampleTaken	int	O	Precision 5, Scale 0	Total number of samples taken Applies only to March, June, September, Decem	<b>Federally Required</b>
	reportingCtValueName	string	O	Y - Yes N - No	Enter response code whether also Reporting for CT Values for LT2ESWTR (Toolbox reporting requirements?)	
<b>&gt;&gt;bromateResult</b>	bromateResult					
	resultDt	string	R	Date format: YYYY-MM-DD	Date should be within the Reporting Period and in YYYY-MM-DD format	<b>Federally Required</b>
	name	string	O	Alphanumeric - 80 chars	Enter Laboratory ID Name of lab that performed the analysis	
	sampleCd	string	R	Alphanumeric - 20 chars	Enter Lab Sample ID	
	notDetected	boolean	R	True False	Enter response whether result was Not Detected	<b>Federally Required</b>
	result	decimal	C Federally conditional ly required	Precision 5, scale 3 [00.000]	Result Federally Conditionally Required if "notDetected" is false.	<b>Federally Conditionally Required</b>

resultUomName	string	C Federally conditional ly required	mg/L ug/L C LANG MFL ng/L NTU pH umho/cm pCi/L TON CU	Federally Conditionally Required if "notDetected" is false.	<b>Federally Conditionally Required</b>
reportingLimit	decimal	C Federally conditional ly required	Precision 5, scale 3 [00.000]	Reporting Limit. Federally Conditionally Required if "notDetected" is false.	<b>Federally Conditionally Required</b>
reportingLimitUomName	string	C Federally conditional ly required	mg/L ug/L C LANG MFL ng/L NTU pH umho/cm pCi/L TON CU	Expected value is the type of Reporting Limit UOM. Federally Conditionally Required if "notDetected" is false.	<b>Federally Conditionally Required</b>
methodName	string	O	List of Methods used by selected Laboratory. <b>NOTE:</b> Valid values cannot be listed due to the large size of possible values	Expected value is Method Code. Analysis Method Name is used as lookup for Method Code	<b>Federally Required</b>
analysisStartDt	string	O	Date format: YYYY- MM-DD	Enter Analysis Start Date in YYYY-MM-DD format	<b>Federally Required</b>



	analysisStartTime	string	O	Time format: HH:MM Default value: 00:00	Enter Analysis Start Time in 00:00 format	<b>Federally Required</b>
	analysisCompIDt	string	O	Date format: YYYY-MM-DD	Enter Analysis Complete Date in YYYY-MM-DD	
	analysisCompTime	string	O	Time format: HH:MM Default value: 00:00	Enter Analysis Complete Time in 00:00 format	
<b>&gt;&gt;bromateOzone</b>	<b>bromateOzone</b>					
	day	int	R	Valid day based on month	Enter valid Day within month	
	temperature	decimal	O	Precision 3, scale 1 [00.0]	Temperature. Refer to Bromate rule for Federal Conditional Requirement.	<b>Federally Conditionally Required</b>
	concentration	decimal	O	Precision 5, scale 3 [00.000]	Concentration. Refer to Bromate rule for Federal Conditional Requirement.	<b>Federally Conditionally Required</b>
	contactTime	decimal	O	Precision 5, scale 3 [00.000]	Contact Time. Refer to Bromate rule for Federal Conditional Requirement.	<b>Federally Conditionally Required</b>
	ctValue	decimal	O	Precision 5, scale 3 [00.000]	CT Value. Refer to Bromate rule for Federal Conditional Requirement.	<b>Federally Conditionally Required</b>
<b>&gt;lcrWqp</b>	<b>lcrWqp</b>					
	See {opData}			Extends {opData} therefore all elements of opData included.		
<b>&gt;&gt;lcrWqpDts</b>	<b>lcrWqpDts</b>					
	collectionDate	string	R	Date format: YYYY-MM-DD Must be within Reporting Period.	Enter Collection Date in YYYY-MM-DD format*	<b>Federally Required</b>
	collectionTime	string	O	Time format: HH:MM Default value: 00:00	Enter Collection Time in 00:00 format	<b>Federally Required</b>
	facilityName	string	O		Facility Name: Name given to the water system facility	<b>Federally Required</b>
	samplingPointId	string	O	Alphanumeric - 40 chars	Sampling Points within the Facility	<b>Federally Required</b>

				Submit Code		
				<u>Code</u> - [ <u>Name</u> ]:		
				1925 - pH		
				1064 - Conductivity		
				1996 - Temperature		
				1927 - Alkanality Total		
				1044 - Orthophosphate		
				1049 - Silica		
				1019 - Calcium	Expected value is	
analyteCd	string	R		1919 - Calcium	Analyte/Parameter Code*	<b>Federally Required</b>
measureValue	decimal	R		Precision 5, scale 3	Result	<b>Federally Required</b>
				[00.000]		
				uG/L		
				pH		
				C		
				MG/L	Expected value is the type of Unit	
measureUomName	string	R		umho/cm	of Measure*	<b>Federally Required</b>
name	string	O		Alphanumeric - 80 chars	Analyzing Lab Id (if not reporting	
sampleCd	string	R		Alphanumeric - 100 chars	lab)	
analysisDate	string	O		Date format: YYYY-MM-DD	Enter Analysis Date in YYYY-MM-DD format	<b>Federally Required</b>
				List of Methods used by selected Laboratory.		
				<b>NOTE:</b> Valid values cannot be listed due to the large size of possible values	Analysis Method Name	
methodName	string	O		Alphanumeric - 50 chars	Used as lookup for Method Code	
collectedBy	string	O		Alphanumeric - 250 chars	Collected By	
comments	string	O			Comments	
>>lcrWqpEps	lcrWqpEps					
collectionDate	string	R		Date format: MM/DD/YYYY	Enter Collection Date in MM/DD/YYYY format*	<b>Federally Required</b>
				Must be within Reporting Period.		

collectionTime	string	O	Time format: HH:MM Default value: 00:00	Enter Collection Time in 00:00 format	<b>Federally Required</b>
facilityName	string	O		Facility Name: Name given to the water system facility	<b>Federally Required</b>
samplingPointId	string	O	Alphanumeric - 40 chars	Sampling Points within the Facility	<b>Federally Required</b>
			Submit Code <b>Code] - [Name]:</b> 1925 - pH 1064 - Conductivity 1996 - Temperature 1927 - Alkanality Total 1044 - Orthophosphate 1049 - Silica 1019 - Calcium 1919 - Calcium	Expected value is Analyte/Parameter Code*	<b>Federally Required</b>
analyteCd	string	R			
measureValue	decimal	R	Precision 5, scale 3 [00.000]	Result	<b>Federally Required</b>
			uG/L pH Unit C MG/L uMHO/cm	Expected value is the type of Unit of Measure*	<b>Federally Required</b>
measureUomName	string	R			
name	string	O	Alphanumeric - 80 chars	Analyzing Lab ID Name (if not reporting lab)	
sampleCd	string	R	Alphanumeric - 100 chars	Lab Sample ID, Assigned ID	
analysisDate	string	O	Date format: MM/DD/YYYY	Enter Analysis Date in MM/DD/YYYY format	<b>Federally Required</b>
			List of Methods used by selected Laboratory. <b>NOTE:</b> Valid values cannot be listed due to the large size of possible values	Analysis Method Name Used as lookup for Method Code	
methodName	string	O			
collectedBy	string	O	Alphanumeric - 50 chars	Collected By	
comments	string	O	Alphanumeric - 250 chars	Comments	
>tthmHaa5	tthmHaa5				

	See {opData}			Extends {opData} therefore all elements of opData included.		
	reportingLabName	string	O		Reporting Laboratory ID Name	
<b>&gt;tthm</b>	<b>tthm</b>					
	numSampleTaken	int	O	Precision 5, Scale 0 [00000]	Number of TTHM samples taken	<b>Federally Required</b>
<b>&gt;&gt;tthmDetail</b>	<b>tthmDetail</b>					
	tthmDt	string	R	Date format: MM/DD/YYYY	Date should be within the Reporting Period, and in MM/DD/YYYY format	<b>Federally Required</b>
	SampleReceivedDate	string	O	Date format: MM/DD/YYYY	Sample Received Date < Analysis State Date, and in MM/DD/YYYY format	<b>Federally required</b>
	name	string	O	Alphanumeric - 80 chars	Analyzing Lab ID name (if not reporting lab)	
	sampleCd	string	R	Alphanumeric - 20 chars	Sample ID code, Assigned ID code	
	notDetected	boolean	R	True False	Enter response whether the Analyte was Not Detected	<b>Federally Required</b>
	result	decimal	O	Precision 5, scale 3 [00.000]	Result. Federally Conditionally Required if "notDetected" value is false.	<b>Federally Conditionally Required</b>
	resultUomName	string	C Federally conditionally required	MG/L UG/L NG/L	Expected value is the type of Result UOM. Federally Conditionally Required if "notDetected" value is false.	<b>Federally Conditionally Required</b>
	reportingLimit	decimal	C Federally conditionally required	Precision 5, Scale 3 [00.000]	Reporting Limit. Federally Conditionally Required if "notDetected" value is false.	<b>Federally Conditionally Required</b>
	reportingLimitUomName	string	C Federally conditionally required	MG/L UG/L NG/L	Expected value is the type of Reporting Limit UOM. Federally Conditionally Required if "notDetected" value is false.	<b>Federally Conditionally Required</b>

				List of Methods used by selected Laboratory. <b>NOTE:</b> Valid values cannot be listed due to the large size of possible values	Analysis Method Name Used as lookup for Method Code	<b>Federally Required</b>
methodName	string	O				
analysisStartDt	string	O		Date format: MM/DD/YYYY	Enter Analysis Start Date in MM/DD/YYYY format	<b>Federally Required</b>
analysisStartTime	string	O		Time format: HH:MM Default value: 00:00	Enter Analysis Start Time in 00:00 format	<b>Federally Required</b>
analysisCompIDt	string	O		Date format: MM/DD/YYYY	Enter Analysis Complete Date in MM/DD/YYYY format	
analysisCompTime	string	O		Time format: HH:MM Default value: 00:00	Enter Analysis Complete Time in 00:00 format	
samplingPointId	string	R		Alphanumeric - 40 chars	Sampling Points within the Facility	<b>Federally required</b>
quarterlyLocationalRaa	decimal	O		Precision 5, Scale 3 [00.000]	TTHM Locational RAA	<b>Federally Required</b>
locationalUomName	String	O		MG/L UG/L NG/L	Expected value is the type of Locational RAA UOM. Federally Required if "quarterlyLocationalRaa" value is entered.	<b>Federally Required</b>
lraaMclViolated	string	O		Y - Yes N - No	Enter response code of whether LRAA MCL was violated?	<b>Federally Required</b>
volumeAssayed	decimal	O		Precision 9, Scale 2 [0000000.00]	Volume Assayed – defaulted to ML UOM..	<b>Federally required</b>
SampleCollectorName	String	O		Alphanumeric - 250 chars	Sample Collector Name	
<b>&gt;&gt;haa5</b>	<b>haa5</b>					
numSampleTaken	int	O		Precision 5, Scale 0 [00000]	Number of HAA5 samples taken	<b>Federally Required</b>
<b>&gt;&gt;haa5Detail</b>	<b>haa5Detail</b>					
haa5Dt	string	R		Date format: MM/DD/YYYY	Date should be within the Reporting Period, and in MM/DD/YYYY	<b>Federally Required</b>

SampleReceivedDate	string	O	Date format: MM/DD/YYYY	Sample Received Date < Analysis State Date, and in MM/DD/YYYY format	<b>Federally required</b>
name	string	O	Alphanumeric - 80 chars	Analyzing Lab ID name (if not reporting lab)	
sampleCd	string	R	Alphanumeric - 20 chars	Sample Code	
notDetected	boolean	R	True False	Enter response whether the Analyte was Not Detected	<b>Federally Required</b>
result	decimal	O	Precision 5, scale 3 [00.000]	Result. Federally Conditionally Required if "notDetected" value is false.	<b>Federally Conditionally Required</b>
resultUomName	string	O	MG/L UG/L NG/L	Expected value is the Result UOM. Federally Conditionally Required if "notDetected" value is false.	<b>Federally Conditionally Required</b>
reportingLimit	decimal	O	Precision 5, scale 3 [00.000]	Reporting Limit. Federally Conditionally Required if "notDetected" value is false.	<b>Federally Conditionally Required</b>
reportingLimitUomName	string	O		Reporting Limit UOM. Federally Conditionally Required if "notDetected" value is false.	<b>Federally Conditionally Required</b>
methodName	string	O	List of Methods used by selected Laboratory. <b>NOTE:</b> Valid values cannot be listed due to the large size of possible values	Analysis Method Name Used as lookup for Method Code	<b>Federally Required</b>
analysisStartDt	string	O	Date format: MM/DD/YYYY	Enter Analysis Start Date in MM/DD/YYYY format	<b>Federally Required</b>
analysisStartTime	string	O	Time format: HH:MM Default value: 00:00	Enter Analysis Start Time in 00:00 format	<b>Federally Required</b>
analysisComplDt	string	O	Date format: MM/DD/YYYY	Enter Analysis Complete Date in MM/DD/YYYY format	
analysisComplTime	string	O	Time format: HH:MM Default value: 00:00	Enter Analysis Complete Time in 00:00 format	
samplingPointId	string	R	Alphanumeric - 40 chars	Sampling Points within the Facility	<b>Federally required</b>
quarterlyLocationalRaa	decimal	O	Precision 5, Scale 3 [00.000]	HAA5 Locational LRAA	<b>Federally Required</b>

locationalUomName	String	O	MG/L UG/L NG/L	Expected value is the Locational RAA UOM. Federally Required if “quarterlyLocationalRaa” value is entered.	<b>Federally Required</b>
lraaMclViolated	string	O	Y - Yes N - No	Enter response code whether LRAA MCL violated	<b>Federally Required</b>
volumeAssayed	decimal	O	Precision 9, Scale 2 [0000000.00]	Volume Assayed – defaulted to ML UOM..	<b>Federally required</b>
SampleCollectorName	String	O	Alphanumeric - 250 chars	Sample Collector Name	
<b>&gt;ifc</b>					
ifc				Extends {opData} therefore all elements of opData included.	
See {opData}					
combinedPopServedName	string	R	Submit Code <b>[Code] - [Name]:</b> <b>lessthan10k</b> - Less than 10,000 <b>morethan10k</b> - Greater or Equal to 10,000	Combined Population Served	
indFilterEffluent	string	R	Y - Yes N - No	Enter response code to Q1: Did you monitor each individual filter effluent continuously and record measurements at least every 15 minutes (or combined filter effluent for systems with two filters)?	<b>Federally required</b>
contMntrgRestored14Days	string	C Federally conditional ly required	Y - Yes N - No O - NA	<b><u>If combinedPopServedName lessthan10k:</u></b> Enter response code to Q2: If IFE continuous monitoring was interrupted, was continuous monitoring restored in 14 days or fewer (Y/N)? If No, please contact your State or Primacy Agency for required additional data. Conditionally Required if “indFilterEffluent” is set to NO.	<b>Conditionally Required</b>

contMntrgRestored5Days	string	C Federally conditionally required	Y - Yes N - No	<p><b><u>If combinedPopServedName morethan10k:</u></b>                  Enter response code to Q2: If IFE continuous monitoring was interrupted, was continuous monitoring restored in 5 working days or fewer? If No, please contact your State or Primacy Agency for required additional data.                  Conditionally Required if "indFilterEffluent" is set to NO.</p>	<p><b>Conditionally Required</b></p>
contMntrgRecEquipOffline	string	R	Y - Yes N - No	<p>Enter response code to Q3: Did your system conduct grab sampling or manual recording every 4 hours while continuous monitoring equipment was offline?                  Conditionally Required if "indFilterEffluent" is set to NO.</p>	<p><b>Conditionally Required</b></p>
exceed1Ntu2Consec	string	R	Y - Yes N - No	<p><b><u>If combinedPopServedName lessthan10k:</u></b>                  Enter response code to Q4: Did any individual filter exceed 1.0 NTU in two consecutive measurements taken 15 minutes apart? If yes complete the table and indicate required follow-up action status (report cause if known). [IFE Event Type 'A']</p> <p><b><u>If combinedPopServedName morethan10k:</u></b>                  Enter response code to Q4: Did any individual filter exceed 1.0 NTU in two consecutive measurements taken 15 minutes apart? If yes, complete the table and indicate required follow-up action status (i.e. filter profile). [IFE Event Type 'A']</p>	<p><b>Federally required</b></p>



<p>exceed1Ntu2Consec3Mth</p>	<p>string</p>	<p>R</p>	<p>Y - Yes N - No</p>	<p>Enter response code to Q5: Did any individual filter exceed 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of three consecutive months? If yes complete the table and indicate required follow-up action status (i.e. Individual Filter Self-Assessment - IFSA). [IFE Event Type 'B']</p>
<p><b><u>If combinedPopServedName lessthan10k:</u></b></p>				
<p>Enter response code to Q6: Did any individual filter exceed 2.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of two consecutive months? If yes complete the table and indicate required follow-up action status (i.e. Comprehensive Performance Evaluation - CPE). [IFE Event Type 'C']</p>				
<p><b><u>If combinedPopServedName morethan10k:</u></b></p>				
<p>Enter response code to Q6: Did any individual filter exceed 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of three consecutive months? If yes, complete the table and indicate required follow-up action status (i.e. Individual Filter Self-Assessment - IFSA). [IFE Event Type 'C']</p>				
<p>exceed2Ntu</p>	<p>string</p>	<p>R</p>	<p>Y - Yes N - No</p>	

**If combinedPopServedName morethan10k:**

Enter response code to Q5: Did any individual filter exceed 0.5 NTU in two consecutive measurements taken 15 minutes apart at the end of the first four hours of continuous operation after the filter has been backwashed, or otherwise taken offline? If yes, complete the table and indicate required follow-up action status (i.e. filter profile). [IFE Event Type 'B']

Enter response code to whether user is seeking credit for using toolbox option for IFE performance

Enter response code to whether IFE turbidity >0.3 NTU in two consecutive readings are 15 minutes apart during the month at any filter  
 Federally Conditionally Required if "creditUsingToolboxOption" is set YES.

Enter response code to whether IFE turbidity <= 0.15 NTU is in at least 95% of the measurements for the month at each filter  
 Federally Conditionally Required if "creditUsingToolboxOption" is set YES.

**Federally Conditionally Required**

**Federally Conditionally Required**

**Federally Conditionally Required**

exceed05Ntu	string	C Federally conditionally required	Y - Yes N - No	
creditUsingToolboxOption	string	O	Y - Yes N - No	
greatThan03Ntu2ConsecName	string	C Federally conditionally required	Y - Yes N - No	
lessThan015Ntu95pctMsName	string	C	Y - Yes N - No	
<b>&gt;&gt;ifeIndicatorFilter</b>				
ifeIndicatorFilter				
filterNum	string	R	Alphanumeric	

				A B C D (If combinedPopServedNam e is greater or equal to 10,000)	Expected value is response code for Individual Filter Event*	
indFilterEventName	string	R			Federally Conditionally Required if Q4, Q5, Q6 are set to YES Enter in MM/DD/YYYY format	<b>Federally Conditionally Required</b>
exceedingTriggerDate	string	R		Date format: MM/DD/YYYY	Federally Conditionally Required if Q4, Q5, Q6 are set to YES. Enter in 00:00 format	
exceedingTriggerTime	string	O		Time format: HH:MM Default value: 00:00	Turbidity (NTU)* Federally Conditionally Required if Q4, Q5, Q6 are set to YES.	<b>Federally Conditionally Required</b>
turbidity	decimal	R		Precision 5, Scale 3 [00.000]		
<b>&gt;&gt;chlorineChloraminePoe</b>						
chlorineChloraminePoe				Extends {opData} therefore all elements of opData included.		
See {opData}						
samplingLocation	string	O			Sampling Location	
waterSourceDisplay	string	R		FSW - Filtered Surface Water USW - Unfiltered Surface Water GW - Groundwater	Enter one of the Filtering/Water Source code options	
minDisinfectResidualReq	decimal			Precision 5, Scale 3 [00.000]	Minimum Disinfectant Residual Req. at Sampling Location	
numMeasurementsReq	Int	R		Precision 2, Scale 0 [00]	Number of Measurements Required	
numMeasurementsTaken	Int	R		Precision 2, Scale 0 [00]	Number of Measurements Taken	
numMeasureBelowMinimum	int			Precision 5, Scale 0 [00000]	Number of Measurements Below Minimum	
usingChlorine	string		C Federally conditional ly required	Y - Yes N - No	Enter response code of whether Using Chlorine.	<b>Conditionally Required</b>

Conditionally Required if  
 "waterSourceDisplay" is set to  
 Unfiltered Surface Water.

>>chlorineChloraminePoeDaily		chlorineChloraminePoeDaily				
day	int	R	Valid day based on month	On	Enter valid Day within month	
operationStatusName	string	R	Off		Enter response on Operation Status	
minResidual	decimal	C Required if Minimum Residual < Minimum Required	Precision 5, Scale 3 [00.000]		Minimum Residual Measured	<b>Federally Required</b>
residualMeasuredName	string	R	Free Total Combined		Enter one of the Type of Residual Measured options*	<b>Federally Required</b>
duration	decimal	C Required if Minimum Residual < Minimum Required	Precision 5, scale 2 [000.00]		Duration < Minimum Residual (hours)+. Federally Conditionally Required if "minResidual" is less than "minDisinfectResidualReq".	<b>Federally Conditionally Required</b>
stateNotifyDt	string	C Required if Minimum Residual < Minimum Required	Date Format: MM/DD/YYYY		Date State Notified+ Federally Conditionally Required if "minResidual" is less than "minDisinfectResidualReq".	<b>Federally Conditionally Required</b>
ph	decimal	R	Precision 4, scale 1 [000.0]		pH* Federally Conditionally Required if "usingChlorine" is set to YES	<b>Federally Conditionally Required</b>

temperature	decimal	C Required if Minimum Residual at Entry Point is less than Fed Min Required	Precision 3, scale 1 [00.0]	Temperature ( C ) * (Unfiltered Surface Water)	<b>Federally Required</b>
disinfectConcentration	decimal	C Federally conditional ly required	Precision 5, scale 3 [00.000]	Disinfectant Concentration (C) in mg/l* (Unfiltered Surface Water)	<b>Federally Required</b>
effDisinfectContactTime	decimal	C Required if Minimum Residual at Entry Point is less than Fed Min Required	Precision 5, scale 3 [00.000]	Effective Disinfectant Contact Time (T)* (Unfiltered Surface Water)	<b>Federally Required</b>
requiredCt	decimal	C Required if Minimum Residual at Entry Point is less than Fed Min Required	Precision 5, scale 3 [00.000]	Required CT (min x mg/L) (Unfiltered Surface Water)	
minActualCt	decimal	C Required if Minimum Residual at Entry Point is less than Fed Min Required	Precision 5, scale 3 [00.000]	CT Achieved (CT calc) (Unfiltered Surface Water)	<b>Federally Required</b>

ct999	decimal	C Federally conditionally required	Precision 5, scale 3 [00.000]	CT99.9 (Unfiltered Surface Water)	<b>Federally Required</b>
sumAll	decimal	C Required if Minimum Residual at Entry Point is less than Fed Min Required	Precision 5, scale 3 [00.000]	Sum of all CTcalc/CT99.9 at the first customer* (Unfiltered Surface Water)	<b>Federally Required</b>
achievedInactivationName	string	C Required if Minimum Residual at Entry Point is less than Fed Min Required	Yes No	Enter response whether Achieved Inactivation (Unfiltered Surface Water)	<b>Federally Required</b>
comments	string	O	Alphanumeric - 250 chars	Comments	
<b>&gt;toc</b>	toc				
	See {opData}		Extends {opData} therefore all elements of opData included.		
sampleCd	string	R	Alphanumeric – 25 chars	Sample ID code	
name	string	R	Alphanumeric - 80 chars	Analyzing Lab ID name (if not reporting lab)	
raaComputedQuarterly	decimal	C Enabled only for March, June, September and December	Precision 5, Scale 3 [00.000]	RAA of Monthly TOC Removal Ratios. Refer to TOC rule for Federal Conditional Requirement.	<b>Federally Conditionally Required</b>

raaAlternativeComplCriteria	decimal	C Federally conditionally required	Precision 5, Scale 3 [00.000]	RAA for Alternative Compliance Criteria Refer to TOC rule for Federal Conditional Requirement.	<b>Federally Conditionally Required</b>
numPairedSamples	int	C Enabled only for March, June, September and December		# of Paired Samples/Quarter*	<b>Federally Required</b>
stateCalculateRaa	string	R	Y - Yes N - No	Enter response code whether State Calculates RAAs are for DBP Precursors	
complianceName	string	R	Y - Yes N - No	Enter response code whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in 40 CFR 141.135(b)?	<b>Federally Required</b>
month1ArithmeticAvgPct	decimal	O	Precision 5, Scale 2 [000.00]	Month 1 Arithmetic Average % Reduction of TOC	
month2ArithmeticAvgPct	decimal	O	Precision 5, Scale 2 [000.00]	Month 2 Arithmetic Average % Reduction of TOC	
month3ArithmeticAvgPct	decimal	O	Precision 5, Scale 2 [000.00]	Month 3 Arithmetic Average % Reduction of TOC	
<b>&gt;&gt;tocDetail</b>	<b>tocDetail</b>				
tocDt	string	R	Date format: MM/DD/YYYY Cannot be a future date	Enter Date in MM/DD/YYYY format*	<b>Federally required</b>
rawWaterToc	decimal	R	Precision 5, Scale 2 [000.00]	Raw Water TOC*	<b>Federally required</b>
checkRawLessThan2Name	string	R	Yes No	Check Raw <=2.0*	
rawWaterAlkalinity	decimal	R	Precision 5, Scale 2 [000.00]	Raw Water Alkalinity*	<b>Federally required</b>

finishedWaterToc	decimal	R	Precision 5, Scale 2 [000.00]	Finished Water TOC	<b>Federally required</b>
step1ReqTocRemovalPct	decimal	C Federally conditional ly required	Precision 5, Scale 2 [000.00] Must be between 0 and 100	Step 1 Req. TOC Removal % Refer to TOC rule for Federal Conditional Requirement.	<b>Federally Conditionally Required</b>
step1ActualTocRemoval Pct	decimal	C Federally conditional ly required	Precision 5, Scale 2 [000.00] Must be between 0 and 100	Step 1Actual TOC Removal % Refer to TOC rule for Federal Conditional Requirement.	<b>Federally Conditionally Required</b>
step1Ratio	decimal	C Federally conditional ly required	Precision 4, Scale 2 [00.00]	Step 1 RemovalRatio. Calculated: step1ReqTocRemovalPct/ step1ActualTocRemovalPct Refer to TOC rule for Federal Conditional Requirement.	<b>Federally Conditionally Required</b>
altComp	int	O	Precision 3	RAA for Alternative Compliance Criteria Refer to TOC rule for Federal Conditional Requirement.	<b>Federally Conditionally Required</b>
altRatioAssigned	decimal	C Federally conditional ly required	Precision 5, Scale 2 [000.00]	Alt. Ratio Assigned Refer to TOC rule for Federal Conditional Requirement.	<b>Federally Conditionally Required</b>
step2ReqTocRemovalPct	decimal	O	Precision 5, Scale 2 [000.00] Must be between 0 and 100	Step 2 Req. TOC Removal % Refer to TOC rule for Federal Conditional Requirement.	<b>Federally Conditionally Required</b>
step2ActualTocRemoval Pct	decimal	O	Precision 5, Scale 2 [000.00] Must be between 0 and 100	Step 2 Actual TOC Removal % Refer to TOC rule for Federal Conditional Requirement.	<b>Federally Conditionally Required</b>
step2Ratio	decimal	O	Precision 4, Scale 2 [00.00]	Step 2 RemovalRatio Calculated: step2ReqTocRemovalPct/ step2ActualTocRemovalPct Refer to TOC rule for Federal Conditional Requirement.	<b>Federally Conditionally Required</b>



step2RemovalAchieved	string	O	Yes No	Enter response whether Removal was Achieved Refer to TOC rule for Federal Conditional Requirement.	<b>Federally Conditionally Required</b>
comments	string	O	Alphanumeric - 250 chars	Comments	

XML Element	XML Element Name	Data Type	Required (R), Optional (O)	Format/Valid Values	Description			
<b>samples</b>	samples	XML Root Element						
<b>composite Sample</b>	compositeSample							
	compositeSampleId	R		Lab assigned Composite Sample ID	C_COMPOSITE_SAMPLE	COMPOSITE_SAMPLE_CD	Composite Sample ID	
	compositeDate	R		Enter Composite Sample Date in MM/DD/YYYY format		COMPOSITE_DT	Composite Date	
	samplePurposeName			Submit Code (i.e. RT) <b>[Code] - [Description]:</b> FS -Field Surveillance SS -Sanitary Survey		SAMPLE_PURPOSE_ID		

XML Element	XML Element Name	Data Type	Required (R), Optional (O)	Format/Valid Values	Description			
	sampleVolumeName	decimal	O	Precision 9, Scale 2 [0000000.00]	Sample Volume (ML)		SAMPLE_VOLUME_ID	Sample Volume (ML)
	legalEntityName	String	R		Laboratory ID		LAB_ID	Laboratory ID - Name
	rad	boolean		true false	Enter response For Radionuclides		RAD	For Radionuclides
<b>&gt;individualSample</b>	individualSample							
	wsId	string	R	9 chars – first 2 chars for state code and next 7 chars for water system ID	Expected value is Water System ID followed by the Federal ID assigned to the water system	C_SAMPLE	WATER_SYSTEM_ID	Water System Id
	facilityName	string	R	Alphanumeric - 40 chars	State Assigned Facility ID	C_SAMPLE	FACILITY_ID	Facility
	samplingPointId	string	R	Alphanumeric - 40 chars	State Assigned Sampling Point ID	C_SAMPLE	FAC_SAMPLING_POINT_ID	Sampling Point
	samplingLocation	string	O	Alphanumeric - 250 chars	Free Form Text	C_SAMPLE	SAMPLING_LOCATION	Sampling Location
	sampleCd	string	R	Alphanumeric - 80 chars	Laboratory assigned Sample ID	C_SAMPLE	LAB_SAMPLE_CD	Sample Id
	collectionDate	string	R	Date format: MM/DD/YYYY	Enter Collection Date in MM/DD/YYYY format	C_SAMPLE	COLLECTED_DT	Collection Date
	collectionTime	string	O	Time format: 00:00	Enter Collection Time in 00:00 format	C_SAMPLE	COLLECTED_DT	Collection Time
	legalEntityName	string	R	Alphanumeric - 40 chars	Reporting Laboratory ID name	C_SAMPLE	LAB_ID	Laboratory ID - Name
	sampleTypeName	string	R	Submit Code (i.e. RT)	Expected value is the Sample Type code	C_SAMPLE	SAMPLE_TYPE_ID	Sample Type

XML Element	XML Element Name	Data Type	Required (R), Optional (O)	Format/Valid Values Description			
				<p><b>[Code]-</b>  <b>[Description]:</b>  <b>(Microbial</b>  <b>/ChemsRads)</b>  <b>RT</b> - Routine  <b>RP</b> - Repeat  <b>TG</b> - Triggered  <b>CO</b> -                      Confirmation  <b>SP</b> - Special  <b>BB</b> - Batch                      Blanks  <b>FB</b> - Field                      Blanks  <b>PE</b> -                      Performance                      Evaluation  <b>SB</b> - Shipping                      Blanks  <b>ST</b> - Split                      Blanks  <b>MR</b> - Maximum                      Residence Time  <b>MS</b> - Matrix                      Spike</p> <p><b>[Code]-</b>  <b>[Description]:</b>  <b>(Cryptosporidi</b>  <b>um)</b>  <b>RT</b> - Field (i.e.,                      Routine)</p>			

XML Element	XML Element Name	Data Type	Required (R), Optional (O)	Format/Valid Values	Description			
				<b>MS</b> - Matrix Spike <b>SP</b> - Special <b>PE</b> - Performance Evaluation <b>BB</b> - Batch Blanks <b>FB</b> - Field Blanks <b>SB</b> - Shipping Blanks <b>ST</b> - Split Blanks				
	sampleVolume	decimal	O	Precision 9, Scale 2 [0000000.00]	Sample Volume	C_SAMPLE	SAMPLE_VOLUME_ID	Sample Volume
	comments	string	O	Alphanumeric - 250 chars	Comments	C_SAMPLE	COMMENTS	
	repeatLocationName	string	C	Original Site Downstream Upstream Source Alternative (RTCR) Other (TCR)	Req'd if is Sample Type is Repeat Enter one of the Repeat Location options	C_SAMPLE	REPEAT_LOCATION_ID	
	originalLabSampleCd	string	R	Alphanumeric - 80 chars	Req'd if is Sample Type is Repeat/Triggered/Confirmation Original Laboratory assigned Sample ID	C_SAMPLE	Original Sample LAB_SAMPLE_CD	

XML Element	XML Element Name	Data Type	Required (R), Optional (O)	Format/Valid Values	Description			
	sampleCategoryName	string	R	CompositeSample	Sample Category Name	C_SAMPLE	SAMPLE_CAT_ID	
<b>&gt;compositeSampleResultChem</b>	compositeSampleResultChem							
	analyteName	string	R	<b>NOTE:</b> Valid values cannot be listed due to the large size of possible values (which is also dependent upon user primacyAgency)	Analyte Code Name		ANALYTE_ID	Analyte
	methodName	string	O	<b>NOTE:</b> Valid values cannot be listed due to the large size of possible values (which is also dependent upon user primacyAgency)	Method Code Used as lookup for Method Code		METHOD_ID	Method
	analysisStartTime	string	O	Date format: MM/DD/YYYY	Enter Analysis Start Date in MM/DD/YYYY format		ANALYSIS_START_DT	Analysis Start Date
	analysisStartTime	string	O	Time format: 00:00	Enter Analysis Start Time in 00:00 format		ANALYSIS_START_DT	Analysis Start Time

XML Element	XML Element Name	Data Type	Required (R), Optional (O)	Format/Valid Values	Description			
	analysisComplDt	string	O	Date format: MM/DD/YYYY	Analysis Completed Date in MM/DD/YYYY format		ANALYSIS_COMPL_DT	Analysis Completed Date
	analysisComplTime	string	O	Time format: 00:00	Enter Analysis Completed Time in 00:00 format		ANALYSIS_COMPL_DT	Analysis Completed Time
	name	string	O	Alphanumeric - 80 chars	Analyzing Laboratory ID name		ANALYZING_LAB_ID	Analyzing Laboratory Id
	comments	string	O	Alphanumeric - 250 chars			COMMENTS	Comments
	volumeAssayed	string	O	1 5 10 100 400 500	Enter one of the Volume Assayed –( Microbial and ChemsRads) options Per – (Cryptosporidium)		VOLUME_ASSAYED	Volume Assayed(ML)
	notDetected	boolean	R	true false	Enter response whether the Analyte was Not Detected		NOT_DETECTED	Not Detected
	result	decimal	O	Precision 7, Scale 4 [000.0000]	Result Value		RESULT	Result
	resultUomName	string	O	C LANG NTU pH umho/cm TON CU mg/L	Expected value is the type of Result Unit of Measure		RESULT_UOM_ID	Result UOM

XML Element	XML Element Name	Data Type	Required (R), Optional (O)	Format/Valid Values	Description		
				ug/L ng/L pCi/L MFL			
	standardDeviation	decimal	O	Precision 9, Scale 2 [0000000.00]	Standard Deviation		STANDARD_DEVIATION Standard Deviation(+ -)
	reportingLevel	decimal	O	Precision 7, Scale 4 [000.0000]	Reporting Limit		REPORTING_LIMIT Reporting Limit
	reportingLevelUomName	string	O	C LANG NTU pH umho/cm TON CU mg/L ug/L ng/L pCi/L MFL	Expected value is the type of Reporting Limit Unit of Measure		REPORTING_LIMIT_UOM_ID Reporting Limit UOM