CEDEN

California Environmental Data Exchange Network

Toxicity Data Submission Guidance Document

Updated January 8, 2019

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List of Acronyms

CEDEN	California Environmental Data Exchange Network
CNEG	Laboratory Toxicity Negative Control Sample
LABQA	Laboratory Quality Assurance or Laboratory Generated Quality Assurance Samples
RDC	Regional Data Center
QA	Quality Assurance
SWAMP	Surface Water Ambient Monitoring Program
QAO	Quality Assurance Officer

List of Terms

Controlled Vocabulary
Controlled vocabulary refers to codes and associated definitions maintained within CEDEN to ensure comparability between and among data sets. Current controlled vocabulary contained within associated lookup lists can be found at: http://ceden.org/CEDEN_checker/Checker/LookUpLists.php. The process for adding new values can be found at: http://ceden.org/vocabulary_request.shtml.

Data Checker
Web-based automated tool that assists data submitters in examining their data sets against the required LookUp lists, formats and business rules.

LookUp Lists
Controlled vocabularies are maintained within the CEDEN database as "LookUp Lists" and are managed through individual RDCs to maintain comparability between RDCs and throughout data sets available through CEDEN.

Primary Key
Uniquely identifies each row in a table and is comprised of a set of columns. No two distinct rows in a table can have the same combination of column values. Required for record uniqueness.

Data Type
Refers to the type of format required for a specific column heading in CEDEN templates. Data type examples include: integer (whole numbers), text, date and time, and decimal.
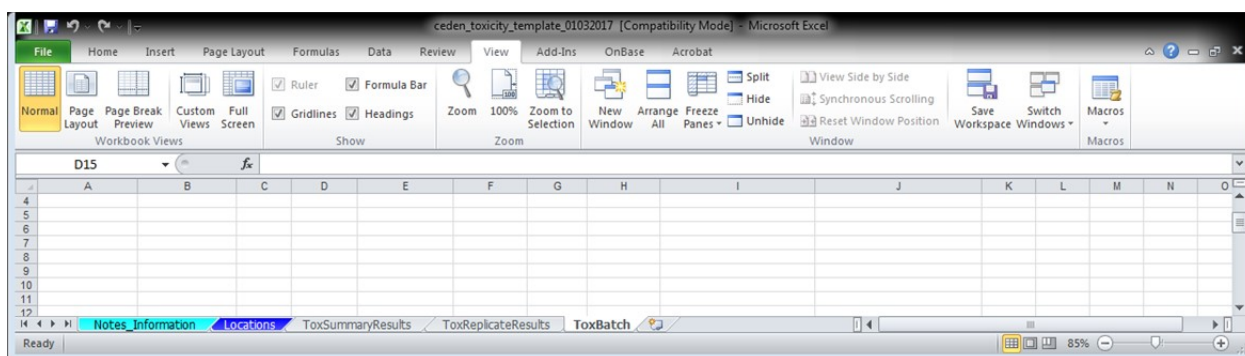
Introduction

This document is designed to provide guidance on reporting requirements for electronic data to be entered in the California Environmental Data Exchange Network (CEDEN) templates. Detailed below are definitions of data elements and rules for formatting toxicity data within the CEDEN toxicity template. For information on entering laboratory QA samples, i.e. negative control samples, see Appendix A. Please review the entire Toxicity Data Submission Guidance Document prior to filling out or submitting the CEDEN Toxicity Template. If you have any questions regarding these guidelines, contact your [Regional Data Center](#) (RDC) for help.

Regional Data Center (RDC)	Contact	Phone Number	Email
Central Coast RDC	Stacey Swenson	831/771-4114	sswenson@mlml.calstate.edu
Central Valley RDC	Melissa Turner	530/756-5200	mturner@mlj-llc.com
San Francisco RDC	Cristina Grosso	510/746-7371	cristina@sfei.org

Toxicity Data Submission Steps

To submit water quality toxicity data to CEDEN, start with the CEDEN_Toxicity_Template excel file you received from your Regional Data Center (RDC). In this template you will find the five data tables (each in a separate worksheet) required for submitting toxicity data. This file can be named at the discretion of the user; however, the Excel sheet tabs **MUST** be named **Locations**, **ToxSummaryResults**, **ToxReplicateResults** and **ToxBatch** respectively.

CEDEN Toxicity Template Tables

Below describes what is included and submission requirements for each of the 4 tables in the CEDEN Toxicity Template:

1. Locations
    a. Holds information about location sampled
    b. Required only if actual unique latitudes and longitudes were recorded for each sampling event.
2. ToxSummaryResults
    a. Used to record toxicity summary results
    b. Required to be submitted with the ToxBatch table. It is desired to include both the ToxSummaryResults and ToxReplicateResults tab but it is not required.

3. ToxReplicateResults
    a. Used to record toxicity replicate results
    b. Used to record toxicity in-test water quality measurements as well.
    c. Required to be submitted with the ToxBatch table. It is desired to include both the ToxSummaryResults and ToxReplicateResults tables but it is not required.
4. ToxBatch
    a. Used to record toxicity batch information necessary for analyzing the data
    b. Required and must be submitted with the ToxSummaryResults and/or ToxReplicateResults table.

The guidelines in the following sections will assist you in getting your data into the CEDEN Toxicity Template tables. However, if at any time you have questions more specific to your data, (e.g. adding new codes to LookUp lists) contact your local RDC.

Once you have placed your data into the CEDEN Toxicity Template tables, visit your Regional Data Center's website to check and submit your data. Regional Data Center information can be found at: http://www.ceden.org/data_centers.shtml. The online data submission process includes specific checks on your data to ensure both data integrity and comparability with other data sets. Once your data has passed all of the checks it will be uploaded into the centralized CEDEN database and become available through the CEDEN website (www.ceden.org).

Toxicity Template Data Tables

Locations Table

PURPOSE:

The locations table contains specific information about the locations sampled. Actual latitudes and longitudes are recorded here for each sampling event. In the event that only target latitudes and longitudes were recorded, it is sufficient to fill out the Stations table only.

COLUMN REQUIREMENTS:

Columns within the CEDEN Toxicity Template tables are either considered 1) required, 2) desired or 3) not required. Required columns must be filled out in order for data to be accepted by CEDEN. Desired columns are strongly encouraged and should be completed with known values, whenever possible. If the actual value is unknown, then the given default value **must** be used. Not required columns include additional information that aid in data usability. Individual column requirements are listed below:

Required Columns:
- **StationCode**
- **SampleDate**
- **ProjectCode**
- **CoordinateNumber**
- **ActualLatitude**
- **ActualLongitude**
- **Datum**

Desired Columns:
- **EventCode**
- **ProtocolCode**
- **AgencyCode**
- **LocationCode**
- **CoordinateSource**

Not Required Columns:
- SampleComments
- GeometryShape
- Elevation
- UnitElevation
- StationDetailVerBy
- StationDetailVerDate
- StationDetailComments

LOCATIONS TABLE STRUCTURE:

* Primary Key, required for record uniqueness.

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
StationCode*	Text	**Yes**	25	Station LookUp	A code representing the StationName and site and should be unique within CEDEN. A single waterbody may have multiple stations. StationCodes and station information must be submitted to the CEDEN system via the new vocabulary request process before lab data can be submitted.
SampleDate*	Date/Time	**Yes**	20		Refers to the date the sample was collected in the field; formatted as dd/mmm/yyyy.
ProjectCode*	Text	**Yes**	25	Project LookUp	References the project that is associated with the sample.
EventCode	Text	**Desired**	20	Event LookUp	Represents the primary reason (e.g. water quality, tissue or bioassessment sampling) of the sampling event at a particular station and date.
ProtocolCode	Text	**Desired**	50	Protocol LookUp	Represents the sampling protocol used, which includes the set of methods, methodology and/or specifications, such as "MPSLDFG_Field_v1.0." Established protocols may be used or Regions may document their own sampling protocols. Use "Not Recorded" when environmental samples are taken using unknown protocols.
AgencyCode	Text	**Desired**	20	Agency LookUp	Refers to the organization or agency that collected the sample. This should be listed on the Chain of Custody (COC) document that accompanies the samples from the field. Use "Not Recorded" if unknown.
SampleComments	Text	No	255		Comments related to the GIS station information verification.
LocationCode	Text	**Desired**	50	Location LookUp	Describes the physical location in the waterbody where the sample was collected. One sampling event may have a single or multiple locations. Use "Not Recorded" if unknown.

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
GeometryShape	Text	No	50	Variable Codes LookUp; Geometry-ShapeList	Physical shape of the location. Example values are Line, Point, or Polygon.
CoordinateNumber	Integer	Yes			Number of coordinates recorded at a Location; e.g. 1 for Points (target and actual coordinates), 1 and 2 for Lines. Default value equals "1."
ActualLatitude	Decimal	Yes			Represents the actual latitude for the sample site in decimal degrees with 5 decimal places.
ActualLongitude	Decimal	Yes			Represents the actual longitude for the sample site in decimal degrees with 5 decimal places (must be negative).
Datum	Text	Yes	10	Variable Codes LookUp; DatumList	The Datum field records the datum that was used on the GPS Device to record the GPS measurements. Example = NAD83. If the datum is unknown, use "NR."
CoordinateSource	Text	Desired	50	Variable Codes LookUp; Coordinate-SourceList	Describes how the coordinate was measured. For example, if measurement was taken from a map or GPS. Use "NR" if unknown.
Elevation	Decimal	No			Elevation at which the sample was taken. Example = 1.
UnitElevation	Text	No	2	Variable Codes LookUp; Unit-Elevation-List	Unit of the Elevation measurement. Example = m
StationDetailVerBy	Text	No	100		Agency or person who performed the verification of the station detail information.
StationDetailVerDate	Date/Time	No			Date the station detail information was verified; formatted as dd/mmm/yyyy.
StationDetailComments	Text	No	255		Comments related to the station detail information.

ToxBatch Table

PURPOSE:

The ToxBatch table contains information about toxicity batches. A batch groups all environmental samples and supporting QA samples within a unique analysis batch. Batches should only include one species and should not combine test types, i.e. reference toxicants and sample results should not be in the same batch.

COLUMN REQUIREMENTS:

Columns within the CEDEN Toxicity Template tables are either considered 1) required, 2) desired or 3) not required. Required columns must be filled out in order for data to be accepted by CEDEN. Desired columns are strongly encouraged and should be completed with known values, whenever possible. If the actual value is unknown, then the given default value **must** be used. Not required columns include additional information that aid in data usability. Individual column requirements are listed below:

Required Columns:
> **ToxBatch**
> **StartDate**
> **LabAgencyCode**

Desired Columns:
> **LabSubmissionCode**
> **BatchVerificationCode**
> **RefToxBatch**

Not Required Columns:
> OrganismAgeAtTestStart
> SubmittingAgencyCode
> OrganismSupplier
> ToxBatchComments

TOXBATCH TABLE STRUCTURE:

* Primary Key, required for record uniqueness.

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
ToxBatch*	Text	**Yes**	50		The ToxBatch is a unique code, provided by the laboratory, which represents a group of samples processed together. It groups all environmental samples with their supporting QC samples and will be used to verify completeness. Batches should only include one species and should not combine test types, i.e. reference toxicants and sample results should not be in the same batch. It is recommended that the species code be included in the ToxBatch. To ensure uniqueness in the CEDEN system, the LabAgencyCode may be appended to this value when loaded to CEDEN. Please use a standard format to construct a composite ToxBatch. Format as ToxBatch a dash – and the AgencyCode. Example: Batch1SCCWRP.
StartDate	Date/ Time	**Yes**			StartDate refers to the date the toxicity test began. Use "01/Jan/1950 00:00" if unknown.
LabAgencyCode*	Text	**Yes**	20	Agency LookUp	LabAgencyCode refers to the organization, agency or laboratory that performed the analysis on the sample. Default value equals Not Recorded.
LabSubmissionCode	Text	**Desired**	10	Lab Submission Lookup	The LabSubmissionCode is a unique batch qualifier code assigned to the ToxBatch as a whole by the analyzing laboratory which references the quality of the data in the ToxBatch. The LabSubmissionCode should be reviewed by the Project Manager or other appropriate person to ensure that the code has been applied based on project specific data quality objectives and criteria. Use "NR" if unknown.

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
BatchVerificationCode	Text	**Desired**	10	Batch Verification Lookup	Unique code referencing the Verification of a Batch. If the Batch Verification used is not found in the lookup list please contact your Regional Data Center for assistance. Use "NR" if unknown..
RefToxBatch	Text	**Desired**	25		RefToxBatch lists the Reference Tox Batch ID run with this batch of samples. Use "NR" if unknown.
OrganismAgeAtTestStart	Text	No	10		OrganismAgeAtTestStart indicates the age or age range (e.g. 7 days or 7-10 days) of the test organisms at the beginning of the test. The age or range is usually recommended by the method.
SubmittingAgencyCode	Text	No	20	Agency LookUp	Organization or agency that is responsible for submission of the data to the database. This agency may be different from LabAgencyCode if the toxicity tests were subcontracted to another agency.
OrganismSupplier	Text	No	75		OrganismSupplier refers to the agency that supplied the test organisms.
ToxBatchComments	Text	No	255		ToxBatchComments records any comments relating to the ToxBatch as a whole. Comments should explain any irregularities in sample processing and/or execution of the testing procedures.

ToxSummaryResults Table

PURPOSE:

The purpose of the toxicity summary table is to hold the core toxicity summary data including the mean, toxicity significance, and percent of effect. Each record represents the mean of a particular organism analyzed by a particular method at a specific station. Both the environmental sample and negative control should be included in this table.

COLUMN REQUIREMENTS:

Columns within the CEDEN Toxicity Template tables are either considered 1) required, 2) desired or 3) not required. Required columns must be filled out in order for data to be accepted by CEDEN. Desired columns are strongly encouraged and should be completed with known values, whenever possible. If the actual value is unknown, then the given default value **must** be used. Not required columns include additional information that aid in data usability. Individual column requirements are listed below:

Required Columns:

StationCode	TestDuration	TimePoint
SampleDate	OrganismName	RepCount
ProjectCode	QAControlID	Mean
CollectionTime	Treatment	StdDev
CollectionMethodCode	Concentration	StatisticalMethod
SampleTypeCode	UnitTreatment	AlphaValue
Replicate	Dilution	CalcValueType
CollectionDepth	WQSource	CalculatedValue
UnitCollectionDepth	ToxPointMethod	CriticalValue
ToxBatch	AnalyteName	PercentEffect
MatrixName	FractionName	SigEffect
MethodName	UnitAnalyte	TestQACode

Desired Columns:

EventCode	PositionWaterColumn
ProtocolCode	TestExposureType
AgencyCode	bValue
LocationCode	ComplianceCode
CollectionDeviceName	

Not Required Columns:

SampleComments	MSD
GeometryShape	EvalThreshold
LabCollectionComments	TIENarrative
ToxTestComments	
SampleID	ToxPointSummaryComments
LabSampleID	

TOX SUMMARY RESULTS TABLE STRUCTURE:

* Primary Key, required for record uniqueness.

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
StationCode*	Text	**Yes**	25	Station LookUp	A code representing the StationName and site and should be unique within CEDEN. A single waterbody may have multiple stations. StationCodes and station information must be submitted to the CEDEN system via the new vocabulary request process before lab data can be submitted.
SampleDate*	Date/ Time	**Yes**			Refers to the date the sample was collected in the field. Formatted as dd/mmm/yyyy.
ProjectCode	Text	**Yes**	25	Project LookUp	References the project that is associated with the sample.
EventCode	Text	**Desired**	20	Event LookUp	Represents the primary reason (e.g. water quality, tissue or bioassessment sampling) of the sampling event at a particular station and date.
ProtocolCode	Text	**Desired**	50	Protocol LookUp	Represents the sampling protocol used, which includes the set of methods, methodology and/or specifications, such as "MPSL-DFG_Field_v1.0." Established protocols may be used or Regions may document their own sampling protocols. Use "Not Recorded" when environmental samples are taken using unknown protocols.
AgencyCode	Text	**Desired**	20	Agency LookUp	Refers to the organization or agency that collected the sample. This should be listed on the Chain of Custody (COC) document that accompanies the samples from the field. Use "Not Recorded" if unknown.
SampleComments	Text	No	255		The comments field should be used for any notes or comments specifically related to the sample collection.

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION

LocationCode	Text	**Desired**	50	Location LookUp	Describes the physical location in the waterbody where the sample was collected. One sampling event may have a single or multiple locations. The default value of "Not Recorded" is utilized for environmental samples if unknown. For LabQA samples, utilize "Not Applicable."
GeometryShape	Text	No	50	Variable Codes LookUp; Geometry-ShapeList	Physical shape of the location. Example values are Line, Point, or Polygon.
CollectionTime*	Date/ Time	**Yes**	20		Refers to the time when the first sample of a sampling event at a specific station was collected in the field. Format equals hh:mm. Use "00:00" if the time sampling started is unknown.
CollectionMethodCode	Text	**Yes**	50	Collection Method LookUp	Refers to the general method of collection such as Sed_Grab, Sed_Core, Water_Grab, Autosampler24h, Autosampler7d. Use "Not Recorded" when environmental samples are taken using an unknown method. For LabQA samples utilize "Not Applicable."
SampleTypeCode*	Text	**Yes**	20	Sample Type LookUp	Refers to the type of sample collected or analyzed. Use "Not Recorded" if unknown.
Replicate*	Integer	**Yes**			Used to distinguish between replicates created at a single collection in the field. The default value is 1. Replicate samples are collected at the same station and date. Therefore, samples collected on different dates from the same station should both have a Replicate value of "1."
CollectionDeviceName	Text	**Desired**	50	Collection Device Lookup	Name of the CollectionDevice. Use "Not Recorded" if unknown.
CollectionDepth	Decimal	**Yes**			Records the depth or penetration, from the surface in the water or sediment column, at which the sample was collected.
UnitCollectionDepth	Text	**Yes**	50	Variable Codes LookUp	Refers to the units used in the CollectionDepth including cm (centimeters) and m (meters).

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
PositionWaterColumn	Text	**Desired**	20	Variable Codes LookUp; Position-Water-ColumnList	Position in water column where the sample was taken. Use "Not Applicable" if unknown.
LabCollectionComments	Text	No	255		Comments related to the LabCollection
ToxBatch*	Text	**Yes**	35		The ToxBatch is a unique code, provided by the laboratory, which represents a group of samples processed together. It groups all environmental samples with their supporting QC samples and will be used to verify completeness. Batches should only include one species and should not combine test types, i.e. reference toxicants and sample results should not be in the same batch. It is recommended that the species code be included in the ToxBatch. To ensure uniqueness in the CEDEN system, the LabAgencyCode may be appended to this value when loaded to CEDEN. Please use a standard format to construct a composite ToxBatch. Format as ToxBatch a dash – and the AgencyCode. Example: Batch1-SCCWRP
MatrixName*	Text	**Yes**	50	Matrix LookUp	Refers to the sample matrix, e.g. samplewater. Use "Not Recorded" if unknown.
MethodName*	Text	**Yes**	50	Method LookUp	Refers to the analysis method used by the laboratory to analyze the sample. Use "Not Recorded" if the method used is unknown.
TestDuration	Text	**Yes**	10	ToxTestDur LookUp	ToxTestDurCode indicates the duration of the toxicity test as a number and includes the associated units.
OrganismName	Text	**Yes**	100	Organism LookUp	OrganismName (FinalID) refers to the scientific name of the species used in the toxicity test.

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
TestExposureType	Text	**Desired**		Variable Codes LookUp; Test-Exposure-TypeList	Describes the type of exposure. Toxicity test exposure type based on the test method. Populate field with Acute or Chronic values. Use "Not Recorded" if unknown.
QAControlID	Text	Yes			LabSampleID of the control sample used for statistical comparisons
SampleID	Text	No	35		Unique identifier supplied by the organization directing the sampling or sampling agency and is used to track the sample throughout the sampling and analysis processes. This field can be used to tie a result to the sample.
LabSampleID	Text	No	35		Recommended field intended to provide lab specific identification for an analyzed sample.
ToxTestComments	Text	No	255		Holds any comments related to the toxicity test results. Usually provided by the laboratories or QA personnel. Examples include: comments about sample test anomalies, temperature changes, high DO values that may affect all other results, etc.
Treatment	Text	Yes	255	Analyte Lookup	Treatment refers to any treatment performed on the sample, such as a pH adjustment. Default value is "None."
Concentration	Integer	Yes			Concentration refers to the adjusted final concentration or value of the analyte applied to the toxicity sample, expressed as a number. Default value is "0."
UnitTreatment	Text	Yes	50	Unit LookUp	UnitTreatment refers to the units used in the treatment. When the treatment is "None," the default for unit is "None."
Dilution	Integer	Yes			Dilution is recorded as a proportion of the original sample. If no dilution is performed, the default value of "100" is used. A sample with 80% sample and 20% blank water has a dilution value of "80."

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
WQSource	Text	**Yes**	50	Matrix LookUp	WQSource differentiates between water quality measurements taken in the overlying water or interstitialwater (pore water). Default value equals "Not Applicable" for toxicity endpoints.
ToxPointMethod	Text	**Yes**		Method LookUp	ToxPointMethod refers to the general method used in obtaining or calculating the result. Toxicity replicate and summary data have a default value of "None" unless a method other than the test MethodName is used for the calculations.
AnalyteName*	Text	**Yes**	100	Analyte LookUp	Name of the analyte or parameter for which the analysis is conducted and result is reported. The LookUp list includes the acceptable abbreviation or name of the variable used by the database, enabling consistency across reporting.
FractionName*	Text	**Yes**	50	Fraction LookUp	Specific descriptor of the Analyte. For example, Ammonia as NH3 are often expressed as total or unionized and therefore this description should be used within the fraction field.
UnitAnalyte*	Text	**Yes**	50	Unit LookUp	UnitAnalyte indicates the units used in the measurement of the AnalyteName.
TimePoint*	Text	**Yes**	10	Time Point LookUp	TimePoint is the code value that represents the point in time during the test at which the measurement was recorded for water quality measurements or the day on which the end points were taken. Example if a test was originally going to last 7 days but the endpoints were taken on the 6th day then the TimePoint would indicate "Day 6."
RepCount	Integer	**Yes**			RepCount is the total number of sample replicates analyzed for the associated toxpoint in the toxicity test i.e. RepCount equals the number of lab replicates used to calculate the mean result.
Mean	Decimal	**Yes**			Mean is the average result calculated from all replicates of a single sample.

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
StdDev	Decimal	Yes			StdDev or standard deviation is a statistic that indicates how tightly all the replicates are clustered around the mean in a set of data. This calculation includes all the applicable replicates from a single sample.
StatisticalMethod	Text	Yes		Variable Codes LookUp; StatMethod-List	StatisticalMethod is the statistical test or method used to calculate the probability of whether a test is significant or not. Used to determine whether the sample replicates are significantly different from the control. Use "NR" when unknown.
AlphaValue	Decimal	Yes			AlphaValue is the predetermined statistical acceptance level that is not calculated, but is chosen by the laboratory when running the statistical method.
bValue	Decimal	Desired			bValue represents the threshold for unacceptable toxicity or the Regulatory Management Decision (RMD) associated with hypothesis testing between the control and sample
CalcValueType	Text	Yes		Variable Codes LookUp; CalcValue-TypeList	Calculated statistical type. For example Probability or T value.
CalculatedValue	Decimal	Yes			Calculated statistic from associated statistical method. Note when utilizing a CalcValueType of Probability ,negative control samples (CNEG) are "0.5."
CriticalValue	Decimal	Yes			The derived critical value based on sample size and alpha value of the statistical test. The CriticalValue is compared to the calculated value in the associated statistical test.
PercentEffect	Decimal	Yes			Percent difference between the mean of the endpoint and the mean of the control's associated endpoint; ((Mean Control Response – Mean Sample Response) / Mean Control Response) * 100.

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
MSD	Decimal	No			The minimum significant difference (MSD) is a measurement that can be produced for each statistical comparison performed between sample and control, or among multiple concentrations of a sample and control. It represents the smallest significant difference from the control and is unique for each statistical comparison. This number should be reported as a percentage, e.g., "20" = 20%. For the EPA TST method there is no MSD value therefore the MSD field should be left blank.
EvalThreshold	Decimal	No			The evaluation threshold or EvalThreshold is the programmatic level that is used to identify that an environmental sample is biologically significantly different from its associated control sample and is recorded as a percentage. EvalThreshold is compared to the PercentEffect field. In cases where programs use program specific MSDs the EvalThreshold will equal the MSD and will be compared to the PercentEffect. If you are utilizing the TST method this field corresponds to the critical difference in the EPA TST methods.
SigEffect	Text	**Yes**	10	SigEffect Lookup	The toxicity significant effect code or SigEffect indicates whether the sample result is significantly different from the control and can include whether or not it is greater or less than the evaluation threshold. Default value equals NR for environmental samples. Default value equals NA for LABQA with a CriticalValueType of Probability.

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
TestQACode	Text	**Yes**	30	QA LookUp	Applied to the result to describe any special conditions, situations or outliers that occurred during or prior to the analysis to achieve the result. The default code, indicating no special conditions, is "None." If more than one code needs to be applied to a record, the convention is to list them in alphabetical order separated by commas and no spaces. Use "NR" if unknown.
ComplianceCode	Text	**Desired**	25	Data Compliance LookUp	Unique code referencing the Compliance with the associated QAPP. Use "NR" if unknown.
ToxPointSummary Comments	Text	No	130		The SummaryComments field includes any comments necessary to describe special circumstances for the toxicity summary data for the specific record.
TIENarrative	Text	No	64000		Short narrative on the results of the toxicity identification evaluation (TIE).

ToxReplicateResults Table

PURPOSE:

The purpose of the toxicity replicate results table is to hold toxicity replicate data including in-test water quality measurements. This table should complement the toxicity summary results and provide the data that was used to calculate the summary results. This data will allow for external statistical analysis of the toxicity test replicates as well as provide environmental conditions of the samples to account for variability of the results and quality control review. Each record represents a replicate result of a particular organism analyzed by a particular method at a specific station or a particular water quality measurement at a specific point in time. Both the environmental and negative control samples should be included in this table.

COLUMN REQUIREMENTS:

Columns within the CEDEN Toxicity Template tables are either considered 1) required, 2) desired or 3) not required. Required columns must be filled out in order for data to be accepted by CEDEN. Desired columns are strongly encouraged and should be completed with known values, whenever possible. If the actual value is unknown, then the given default value **must** be used. Not required columns include additional information that aid in data usability. Individual column requirements are listed below:

Required Columns:

StationCode	MatrixName	WQSource
SampleDate	MethodName	ToxPointMethod
ProjectCode	TestDuration	AnalyteName
CollectionTime	OrganismName	FractionName
CollectionMethodCode	QAControlID	UnitAnalyte
SampleTypeCode	Treatment	TimePoint
Replicate	Concentration	LabReplicate
CollectionDepth	UnitTreatment	Result
UnitCollectionDepth	Dilution	ResQualCode
ToxBatch		

Desired Columns:

EventCode	**PositionWaterColumn**
ProtocolCode	**TestExposureType**
AgencyCode	**OrganismPerRep**
LocationCode	**ToxResultQACode**
CollectionDeviceName	**ComplianceCode**

Not Required Columns:

SampleComments	LabSampleID
GeometryShape	ToxTestComments
LabCollectionComments	ToxResultComments
SampleID	

TOX REPLICATE RESULTS TABLE STRUCTURE:

* Primary Key, required for record uniqueness.

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
StationCode*	Text	**Yes**	25	Station LookUp	A code representing the StationName and site and should be unique within CEDEN. A single waterbody may have multiple stations. StationCodes and station information must be submitted to the CEDEN system via the new vocabulary request process before lab data can be submitted.
SampleDate*	Date/ Time	**Yes**			Refers to the date the sample was collected in the field. Formatted as dd/mmm/yyyy. Use "01/Jan/1950" if the actual SampleDate is unknown.
ProjectCode	Text	**Yes**	25	Project LookUp	References the project that is associated with the sample.
EventCode	Text	No	20	Event LookUp	Represents the primary reason (e.g. water quality, tissue or bioassessment sampling) of the sampling event at a particular station and date.
ProtocolCode	Text	**Desired**	50	Protocol LookUp	Represents the sampling protocol used, which includes the set of methods, methodology and/or specifications, such as "MPSLDFG_Field_v1.0." Established protocols may be used or Regions may document their own sampling protocols. Use "Not Recorded" when environmental samples are taken using unknown protocols. Use "Not Applicable" when LabQA samples are taken with unknown protocols.
AgencyCode	Text	**Desired**	20	Agency LookUp	Refers to the organization or agency that collected the sample. This should be listed on the Chain of Custody (COC) document that accompanies the samples from the field. Use "Not Recorded" if unknown.
SampleComments	Text	No	255		The comments field should be used for any notes or comments specifically related to the sample collection.

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
LocationCode	Text	**Desired**	50	Location LookUp	Describes the physical location in the waterbody where the sample was collected. One sampling event may have a single or multiple locations. The default value of Not Recorded is utilized for environmental samples if unknown. For LabQA samples, utilize "Not Applicable."
GeometryShape	Text	No	50	Variable Codes LookUp; Geometry-ShapeList	Physical shape of the location. Example values are Line, Point, or Polygon.
CollectionTime*	Date/ Time	**Yes**	20		Refers to the time when the first sample of a sampling event at a specific station was collected in the field. Format equals hh:mm. Use "00:00" if the time sampling started is unknown.
CollectionMethodCode	Text	**Yes**	50	Collection Method LookUp	Refers to the general method of collection such as Sed_Grab, Sed_Core, Water_Grab, Autosampler24h, Autosampler7d. The default value of Not Recorded is utilized for environmental samples if unknown. For LabQA samples utilize "Not Applicable."
SampleTypeCode*	Text	**Yes**	20	Sample Type LookUp	Refers to the type of sample collected or analyzed. Use "Not Recorded" if unknown.
Replicate*	Integer	**Yes**			Used to distinguish between replicates created at a single collection in the field. Default value is 1. Replicate samples are collected at the same station and date. Therefore, samples collected on different dates from the same station should both have a value of 1 for FieldReplicate.
CollectionDeviceName	Text	**Desired**	50	Collection Device LookUp	Name of the CollectionDevice. Use "Not Recorded" if unknown.
CollectionDepth	Decimal	**Yes**			Records the depth and penetration, from the surface in the water or sediment column, at which the sample was collected.

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TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
UnitCollectionDepth	Text	Yes	50	Variable Codes LookUp; Unit-Collection-DepthList	Refers to the units used in the CollectionDepth including cm (centimeters) and m (meters).
PositionWaterColumn	Text	No	20	Variable Codes LookUp; Position-Water-ColumnList	Position in water column where sample was taken. Use "Not Applicable" if unknown.
LabCollection Comments	Text	No	255		Comments related to the LabCollection
ToxBatch*	Text	Yes	50		The ToxBatch is a unique code, provided by the laboratory, which represents a group of samples processed together. It groups all environmental samples with their supporting QC samples and will be used to verify completeness. Batches should only include one species and should not combine test types, i.e. reference toxicants and sample results should not be in the same batch. It is recommended that the species code be included in the ToxBatch. To ensure uniqueness in the CEDEN system, the LabAgencyCode may be appended to this value when loaded to CEDEN. Please use a standard format to construct a composite ToxBatch. Format as ToxBatch a dash – and the AgencyCode. Example: Batch1SCCWRP
MatrixName*	Text	Yes	50	Matrix LookUp	Refers to the sample matrix, e.g. samplewater. Use "Not Recorded" if unknown.
MethodName*	Text	Yes	50	Method LookUp	Refers to the analysis method used by the laboratory to analyze the sample. Use "Not Recorded" if unknown.

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
TestDuration*	Text	**Yes**	10	ToxTestDur LookUp	ToxTestDurCode indicates the duration of the toxicity test as a number and includes the associated units.
OrganismName*	Text	**Yes**	100	Organism LookUp	OrganismName refers to the scientific name of the species used in the toxicity test.
TestExposureType	Text	**Desired**		Variable Codes LookUp; Test-Exposure-List	Describes the type of exposure. Toxicity test exposure type based on the test method. Populate field with "Acute" or "Chronic values." Default value equals Not Recorded if unknown.
QAControlID	Text	**Yes**			LabSampleID of the control sample used for statistical comparisons
SampleID	Text	No	35		Unique identifier supplied by the organization directing the sampling or sampling agency and is used to track the sample throughout the sampling and analysis processes. This field can be used to tie a result to the sample.
LabSampleID	Text	No	35		Recommended field intended to provide lab specific identification for an analyzed sample.
ToxTestComments	Text	No	255		Holds any comments related to the toxicity test results. Usually provided by the laboratories or QA personnel. Examples include: comments about sample test anomalies, temperature changes, high DO values that may affect all other results, etc.
Treatment	Text	**Yes**	255	Analyte Lookup	Treatment refers to any treatment performed on the sample, such as a pH adjustment. Default value is "None."
Concentration	Integer	**Yes**			Concentration refers to the adjusted final concentration or value of the analyte applied to the toxicity sample, expressed as a number. Default value is "0."

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
Unit Treatment	Test	**Yes**	50	Unit LookUp	UnitTreatment refers to the units used in the treatment. When the treatment is none, the default for unit is "None."
Dilution	Integer	**Yes**			Dilution is recorded as a proportion of the original sample. If no dilution is performed, the default value of "100" is used. A sample with 80% sample and 20% blankwater has a dilution value of "80."
WQSource	Text	**Yes**	50	Matrix LookUp	WQSource differentiates between water quality measurements taken in the overlying water as well as in the sediment or interstitial water. Default value equals Not Applicable for toxicity endpoints. Default value equals Not recorded for water quality measurements if unknown.
ToxPointMethod	Text	**Yes**	50	Method LookUp	ToxPointMethod refers to the general method used in obtaining or calculating the result. Toxicity replicate and summary data have a default value of "None" unless a method other than the test MethodName is used for the calculations. Water quality measurement results have a default value of "ToxWQMeasurement."
AnalyteName*	Text	**Yes**	100	Analyte LookUp	Name of the analyte or parameter for which the analysis is conducted and result is reported. The LookUp list includes the acceptable abbreviation or name of the variable used by the database, enabling consistency across reporting.
FractionName*	Text	**Yes**	50	Fraction LookUp	Specific descriptor of the Analyte. For example, metals are often expressed as total or dissolved and therefore this description should be used within the fraction field.
UnitAnalyte*	Text	**Yes**	50	Unit LookUp	UnitAnalyte indicates the units used in the measurement of the AnalyteName.

TOXICITY TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
TimePoint*	Text	Yes	10	TimePoint LookUp	TimePoint is the code value that represents the point in time during the test at which the measurement was recorded for water quality measurements or the day on which the end points were taken. Example if a test was originally going to last 7 days but the endpoints were taken on the 6th day then the TimePoint would indicate "Day 6."
LabReplicate*	Integer	Yes			The LabReplicate identifies the individual splits of the toxicity sample and is used to identify from which replicate a result originated.
OrganismPerRep	Integer	Desired			Number of organisms in each replicate. Default value equals "-88" when unknown. Default value for ToxWQMeasurements equals "0."
Result	Text	Yes	10		Numeric result of test, stored as text to retain trailing zeros. Result may be left blank as long as an appropriate ResQualCode is provided.
ResQualCode	Text	Yes	10	ResQual LookUp	The Result Qualifier Code or ResultQualCode qualifies the analytical result of the sample. Default value equals "=."
ToxResultQACode	Text	Desired	30	ToxResultQA LookUp	A ToxResultQACode is used to further qualify the analytical result of the sample. Default value equals None.
ComplianceCode	Text	Desired	25	Data Compliance LookUp	Unique code referencing the compliance with the associated QAPP. Default value equals NR if unknown.
ToxResultComments	Text	No	255		In the ToxResultsComments field note any comments necessary to describe special circumstances for the toxicity results data for the specific record. These could be comments needed to clarify any portion of the analysis which is not described in any other field. Examples include: survival may be low due to lost individuals, questionable hardness due to probe variances, etc.

Appendix A: Specific Entry for Laboratory Generated QA Samples

INTRODUCTION

Appendix A has been created to give additional guidance regarding business rules and formatting of quality assurance data generated in the laboratory. The following sections on Laboratory Quality Assurance (QA) Samples list example values that can be used to ensure comparability with other QA samples generated with different projects. The example values are listed for a subset of the Toxicity Template columns and are associated with descriptions and business rules to further guide the data generator in how to format quality assurance data. Because the examples below only reference a subset of the columns in the Toxicity Template, the Toxicity Data Submission Guidance Document main body should be used as a reference for definitions and associated LookUp lists for how to populate the additional columns not addressed in the examples.

1. LABORATORY QA SAMPLES

The section below provides examples for entering negative controls, i.e. laboratory control samples.

1.1 LABORATORY GENERATED QA SAMPLES (LABQA)

All samples generated from within the laboratory, such as CNEG, should be entered into the Toxicity Template according to specific business rules. Below is an example of the data that should be entered for laboratory-generated QA samples for the specific Toxicity Template columns.

Table 1. Example values to be used for laboratory generated QA samples (LABQA) for a subset of toxicity template columns.

Toxicity Template Column Header	Value	Description & Business Rules
StationCode	LABQA	LABQA is used as the station code for any sample generated in the laboratory including CNEG, CSNL. etc.
SampleDate		SampleDate of LABQA reflects the date that the sample was created within the laboratory. SampleDate must be equal to or before AnalysisDate and expressed as dd/mmm/yyyy.
ProjectCode		Populate with applicable project code within Project LookUp or use default value of "Not Applicable"
EventCode	WQ	For water and sediment toxicity use "WQ." See the EventCode LookUp list for additional EventCodes and associated definitions. The EventCode should be consistent with the environmental samples in the same batch.
ProtocolCode		Populate with applicable ProtocolCode within Protocol LookUp or use default value of "Not Applicable"

Toxicity Template Column Header	Value	Description & Business Rules
AgencyCode		Organization or agency that analyzed the sample. Select from Agency LookUp list. Or utilize null value of "Not Recorded."
LocationCode	Not Applicable	LABQA samples are generated in the laboratory and therefore are associated with a LocationCode of "Not Applicable."
GeometryShape		Leave blank
CollectionTime	00:00	LABQA are associated with 00:00 time for collection since they are generated in the laboratory. BR: There are situations within a batch when two identical sample types are used for QA reasons and the only way to differentiate between them is to give them each a different CollectionTime. For example, when more than one CNEG is analyzed in the same but are not replicates of each other, one CollectionTime should be 0:00 and the other 0:15, increasing the time by 15 minutes for each additional sample. Adjusting the Replicate to differentiate between samples is also acceptable.
CollectionMethodCode	Not Applicable	LABQA samples are generated in the laboratory and therefore are not associated with a sample LocationCode.
SampleTypeCode	CNEG	Select from SampleTypeLookUp List. CNEG is listed as the most common LABQA sample type code for toxicity data.
Replicate	1	BR: There are situations within a batch when two identical sample types are used for QA reasons and the only way to differentiate between them is to give them each a different CollectionTime (See collection time for details) or Replicate.
CollectionDeviceName		Leave blank; there is no CollectionDeviceName associated with LABQA and this field does not need to be populated.
CollectionDepth	-88	"-88" is used as a null value for LABQA samples. This field must be populated with a number and cannot be left blank.
UnitCollectionDepth	m	For water use "m" for meter.
	cm	For sediment use "cm" for centimeter.
PositionWaterColumn	Not Applicable	LABQA samples are generated in the laboratory and therefore are associated with the PositionWaterColumn value of "Not Applicable."
Matrix	labwater	See Matrix LookUp for definition.
	blankwater	See Matrix LookUp for definition.
	blankmatrix	See Matrix LookUp for definition.
	sediment	See Matrix LookUp for definition.
LabReplicate	1	LabReplicate "1" is associated with the original LABQA sample.
	2	LabReplicate "2" is associated with a duplicate LABQA sample.

BR: Business Rule

Appendix B: Toxicity Data Submission Guidance Documentation Amendments

AMENDMENTS

Amendments made to the CEDEN Toxicity Data Submission Guidance Document are documented within Table 1.

Table 2. Amendments made to the Toxicity Data Submission Guidance Document.

Date of Amendment	Document Section	Amendment Summary	Amendment Details
August 23rd 2013	List of Acronyms	Added acronyms.	Added SWAMP and QAO to the List of Acronyms.

August 23rd 2013	Stations Table: Column Requirements	Updated required field designations for Stations Table.	Updated required field designations for Stations Table.
			Required Columns**:**
			    Added: StationAgency,
			        SWRCBWatTypeCode.
			Desired Columns:
			    Added: CoordinateSource
			    Removed: LocalWatershed,
			        LocalWaterbody,
			        Counties_2004_County,
			        SWRCBWatTypeCode,
			        CalWater_2004_RB.
			Not Required Columns: Added:
			    EventType1,
			        EventType2,
			        EventType3,
			        LocalWaterShed,
			        LocalWaterBody,
			        Counties_2004_COUNTY,
			        CalWater_2004_RB,
			        NHD_PlusCatchmentComID.
			        Removed: CalWater_2004_SWRCBNUM2
			HydrologicUnit

August 23rd 2013	Stations Table	Added Additional Resources section to Stations Table.	Added an "Additional Resources" section to the Stations Table after Column Requirements.
August 23rd 2013	Stations Table: Stations Table Structure: StationSource	Updated StationSource LookUp list and definition.	Updated StationSource LookUp List from blank to "AgencyLookUp or ProjectLookUp." Updated Definition from "Agency or project that created the station." to "Agency or project that submitted the station to CEDEN."
August 23rd 2013	Stations Table: Stations Table Structure	Added new fields to the Stations Table.	Added new fields to Stations Table Structure: StationAgency, EventType1, EventType2, EventType3 and NHD_Plus_CatchmentComID.

Date of Amendment	Document Section	Amendment Summary	Amendment Details
August 23rd 2013	Stations Table: Stations Table Structure: AddDate	Added format information to AddDate	Added "Format as dd/mmm/yyyy" to the AddDate definition.
August 23rd 2013	Stations Table: Stations Table Structure	Added default value information to Stations Table definitions.	Added default value information to the description field within the Stations Table for CoordinateNumber, Datum, CoordinateSource, SWRCBWatTypeCode
August 23rd 2013	Stations Table: Stations Table Structure: State	Added LookUp list information to State.	Updated State LookUp List from blank to "VariableCodesLookUp".
August 23rd 2013	Stations Table: Stations Table Structure	Updated Stations Table template header names.	Updated Stations Table template header names: "NHD24K_GNIS_Name" to "NHD_24K_v2_GNIS_Name", "NHD24k_Reachcode" to "NHD_24k_v2_ReachCode", "NHD24k_HUC12" to "NHD_24k_v2_HUC_12" and "NHD24k_Hu_12_Name" to "NHD_24k_v2_Name".
August 23rd 2013	ToxBatch Table: Column Requirements	Updated required field designations for ToxBatch Table.	Updated required field designations for ToxBatch Table. Required Columns: Added: LabAgencyCode. Desired Columns: Removed: LabAgencyCode OrganismAgeAtTestStart; Not Required Columns: Added: OrganismAgeAtTestStart.
August 23rd 2013	ToxBatch Table: ToxBatch Table Structure	Added default value information to ToxBatch Table definitions.	Added default value information to the description field within the ToxBatch Table for LabAgencyCode, LabSubmissionCode, BatchVerificaitonCode and RefToxBatch.
August 23rd 2013	ToxSummaryResults Table: Column Requirements	Updated required field designations for ToxSummaryResults Table.	Updated required field designations for ToxSummaryResults Table: Desired Columns: Added: EventCode, PositionWaterColumn; Removed: QAControlID, MSD, EvalThreshold. Not Required Columns: Added: QAControlID, MSD, EvalThreshold; Removed: PositionWaterColumn.

Date of Amendment	Document Section	Amendment Summary	Amendment Details
August 23rd 2013	ToxSummaryResults Table: ToxSummaryResults Table Structure	Deleted fields within the ToxSummaryResults Table.	Deleted fields within ToxSummaryResults Table Structure: Probability and PercentControl.
August 23rd 2013	ToxSummaryResults Table: ToxSummaryResults Table Structure	Added new fields to the ToxSummaryResults Table.	Added new fields to ToxSummaryResults Table Structure: CalcValueType, CalculatedValue CriticalValue, bValue and TestExposureType.
August 23rd 2013	ToxSummaryResults Table: ToxSummaryResults Table Structure	Added default value information to ToxSummaryResults Table definitions.	Added default value information to the description field within the ToxSummaryResults Table for SampleDate, ProtocolCode, AgencyCode, LocationCode, CollectionTime, CollectionMethodCode, SampleTypeCode, CollectionDeviceName, PositionWaterColumn, MatrixName, MethodName, WQSource, SigEffect, TestQACode and ComplianceCode .
August 23rd 2013	ToxSummaryResults Table: ToxSummaryResults Table Structure: TimePoint	Updated TimePoint definition.	Updated TimePoint definition from "TimePoint refers to the point in time during the test at which the measurement was recorded for water quality measurements" to "TimePoint refers to the point in time during the test at which the measurement was recorded for water quality measurements or the day on which the end points were taken. Example if a test was originally going to last 7 days but the endpoints were taken on the 6th day then the TimePoint would indicate "Day 6"."

Date of Amendment	Document Section	Amendment Summary	Amendment Details
August 23rd 2013	ToxSummaryResults Table: ToxSummaryResults Table Structure: EvalThreshold	Updated EvalThreshold definition.	Updated EvalThreshold definition from "The evaluation threshold or EvalThreshold is the associated level that is used to identify that an environmental sample is biologically significantly different from its associated control sample and is recorded in the same unit as the mean; e.g. 80 or in percent when evaluating against the percent control.In cases where programs use the MSD to evaluate the evaluation threshold, for percentage endpoints (e.g. survival, etc.) EvalThreshold = Mean of Control - MSD and is compared to the Mean of the sample. To calculate the EvalThreshold for non-percentage endpoints (e.g. growth, cell counts, etc.) EvalThreshold = Mean of Control*(100-MSD)/100 and is compared to the Mean of the sample.In cases where programs use the percent control to evaluate the evaluation threshold, EvalThreshold = Control % - MSD% and is compared to the percent control of the sample." to "The evaluation threshold or EvalThreshold is the programmatic level that is used to identify that an environmental sample is biologically significantly different from its associated control sample and is recorded as a percentage. EvalThreshold is compared to the PercentEffect field.In cases where programs use program specific MSDs the EvalThreshold will equal the MSD and will be compared to the PercentEffect. If you are utilizing the TST method this field corresponds to the critical difference in the EPA TST methods."
August 23rd 2013	ToxReplicateResults Table: Column Requirements	Updated required field designations for ToxReplicateResults Table.	Updated required field designations for ToxReplicateResults Table: Required Columns: Added ResQualCode. Desired Columns: Added: EventCode, PositionWaterColumn; Removed: QAControlID, ResQualCode. Not Required Columns: Added: QAControlID; Removed: PositionWaterColumn, EventCode.
August 23rd 2013	ToxReplicateResults Table: ToxReplicateResults Table Structure	Added new fields to the ToxReplicateResults Table.	Added new fields to ToxReplicateResults Table Structure: TestExposureType and OrganismPerRep.

Date of Amendment	Document Section	Amendment Summary	Amendment Details
August 23rd 2013	ToxReplicateResults Table: ToxReplicateResults Table Structure	Added default value information to ToxReplicateResults Table definitions.	Added default value information to the description field within the ToxReplicateResults Table for SampleDate, ProtocolCode, AgencyCode, LocationCode, CollectionTime, CollectionMethodCode, SampleTypeCode, CollectionDeviceName, PositionWaterColumn, MatrixName, MethodName, UnitTreatment, WQSource, ResQualCode, ToxResultQACode and ComplianceCode .
August 23rd 2013	ToxReplicateResults Table: ToxReplicateResults Table Structure: TimePoint	Updated TimePointMethod definition.	Updated TimePointMethod definition from "ToxPointMethod refers to the general method used in obtaining or calculating the result. Toxicity replicate and summary data have a default value of 'None Water quality measurement results have a default value of 'ToxWQMeasurement'." to "ToxPointMethod refers to the general method used in obtaining or calculating the result. Toxicity replicate and summary data have a default value of 'None unless a method other than the test MethodName is used for the calculations. Water quality measurement results have a default value of 'ToxWQMeasurement'."
August 23rd 2013	ToxReplicateResults Table: ToxReplicateResults Table Structure: TimePoint	Updated TimePoint definition.	Updated TimePoint definition from "TimePoint refers to the point in time during the test at which the measurement was recorded for water quality measurements" to "TimePoint refers to the point in time during the test at which the measurement was recorded for water quality measurements or the day on which the end points were taken. Example if a test was originally going to last 7 days but the endpoints were taken on the 6th day then the TimePoint would indicate "Day 6"."
October 11th 2013	Introduction	Updated Southern California RDC contact information.	Updated Southern California RDC contact information from Shelly Moore to Marlene Hanken contact information.
November26th 2013	ToxSummaryResults Table: Purpose	Updated ToxSummary purpose language from percent of control to percent of effect.	Updated language from "The purpose of the toxicity summary table is to hold the core toxicity summary data including the mean, toxicity significance, and percent of control." To "The purpose of the toxicity summary table is to hold the core toxicity summary data including the mean, toxicity significance, and percent of effect."

Date of Amendment	Document Section	Amendment Summary	Amendment Details
March 17th 2014	Appendix A	Updated Table 1 StationCode description	Updated StationCode description from " LABQA is used as the station code for any sample generated in the laboratory including LabBlank, LCS and CRMs" to " LABQA is used as the station code for any sample generated in the laboratory including CNEG, CSNL, etc."
March 17th 2014	Appendix A	Updated Table 1 Matrix Descriptions	Updated Table 1 Matrix descriptions to "See Matrix LookUp for definition."
January 3rd, 2017	Introduction, Station Table, and Chemistry Table	Removed references to Stations tab	Removed the Stations section and references to Stations tab, updated effected screen shot, and modified StationCode definition to note that station codes must be established through the new vocabulary request process prior to subittal.
January 3rd, 2017	All	Updated use of quotes	Replaced single quotes with double quotes.
January 3rd, 2017	All tables	Updated description of "desired" fields	Added reference to using default values when actual values are not know for "desired" fields in the "Column Requirements" paragraph.
January 3rd, 2017	List of Terms	Updated links	Added current links for the LookUp lists and vocabulary request process.
January 3rd, 2017	Introduction	Updated Central Coast RDC contact information	Updated the Central Coast RDC contact information from Mark Pranger to Stacey Swenson.
January 3rd, 2017	All tables	Modified use of "default" wording	Changed most instances of "Default equals…if unknown" to "Use…if unknown."
January 3rd, 2017	All	Various edits	Removed double spaces and duplicate words and other small edits.
January 3rd, 2017	All tables	Updated StationCode definition	Included that StationCode must be unique within CEDEN, not just within the study design, as previously stated.
January 8th, 2019	Introduction	Updated RDCs	Removed SCCWRP as current RDC.
January 8th, 2019	ToxSummary and ToxReplicate Results Tables	Updated status of QAControlID	Chaged QAControlID to a be a required field.
January 8th, 2019	All tables	Variable Code List references	Added references to the appropriate lists in the Lookup List columns for fields that rely on Variable Codes.
January 8th, 2019	All sections	Updated wording for "desired" (default required) fields	Changed "should" to "must" for "desired" fields in the "Column Requirements" paragraphs.
January 8th, 2019	All tables	Format changes	Changed shading, font, and alignment of tables as needed for consistency.