



SWAMP DATA MANAGEMENT PLAN

Water Quality Queries

Surface Water Ambient Monitoring Program

September 30, 2009



http://www.waterboards.ca.gov/water_issues/programs/swamp

TABLE OF CONTENTS

C. SWAMP QUERY FILE	3
1. REGIONAL BOARD QUERIES	3
a. <i>Water Quality & Toxicity Queries</i>	3
i. qry1Sample & qry1Sample with Details	3
ii. qrySELANalyte	4
iii. qry4FieldResults & qry4FieldResults with Details	5
iv. qry5FieldResults with Details_XTab.....	7
v. qry4HabitatResults with Details	8
vi. qry5HabitatResults with Details_XTab	11
vii. qry4LabResults, qryLabResultsWLABQA & qry4LabResults with Details.....	11
viii. qry5LabResults with Detals_XTab.....	15
ix. qry4ToxSummary & qryToxSummaryWControls	16
x. qry4ToxReplicateResults & qryToxReplicateResultsWControls.....	20



C. SWAMP QUERY FILE

1. REGIONAL BOARD QUERIES

a. Water Quality & Toxicity Queries

i. qry1Sample & qry1Sample with Details

These two queries present sample information, with and without associated sample details, in a flat file format.

The following query field names and descriptions are based on the query with details. There are more fields in the query with details as opposed to the query without details.

Query Field Name	Description
DatabaseSide	Describes which side of the database the data associated with the FundingCode is on.
StationCode	StationCode represents a unique sampling site in a sampling design. A single waterbody may have multiple stations.
SampleDate	SampleDate refers to the date the sample was collected in the field.
EventCode	EventCode represents the initial intent of the sampling event at a particular station.
ProtocolCode	ProtocolCode 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.
SampleAgency	AgencyCode 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.
SamplePurposeCode	Unique code referencing the purpose of collecting the sample; e.g. WaterChem, WaterTox, Tissue, Benthics, Habitat, etc. whether or not the sample was actually collected.
GroupSamples	GroupCode is a unique code referencing the Group Samples
StationName	StationName is the name of the StationCode
ProjectCode	ProjectCode references the project that is associated with the sample.
SampleComments	SampleComments records any comments related to the sampling event at a particular station.
FundingCode	Unique code referencing the sample and/or analysis Funding
PersonnelCode	PersonnelCode is a unique code referencing the personnel or person that collected the sample. A single or multiple personnel may be entered.
ActualCoordinateSource	CoordinateSource describes the way a coordinate was measured; e.g. Map, GPS
ActualCoordinateNumber	CoordinateNumber refers to the number of coordinates recorded at an



	individual Location.
ActualLatitude	Latitude records the actual Latitudes in decimal degrees with 5 decimal places.
ActualLongitude	Longitude records the actual Longitudes in decimal degrees with 5 decimal places as a negative number.
GeometryComments	GeometryComments are any comments related to the Geometry.
TargetLatitude	Records the Target Latitudes; Decimal Degrees, 5 decimal places
TargetLongitude	Records the Target Longitudes; Decimal Degrees, 5 decimal places, recorded as a negative
TargetElevation	Elevation of where the sample is being collected
TargetUnitElevation	Units for elevation; from VariableCodesLookUp
SampleComplete	Used to assess completeness of sample information; yes/no
UserName	Name of person that entered the sample; used for Data Management
Month	Month of date that the sample was collected; used for filtering purposes
Year	Year of date that the sample was collected; used for filtering purposes
GPSFix	GPSFix is the fix provided by the GPS device; e.g. 2D, 3D, NR
GPSDeviceCode	GPSDeviceCode refers to the GPS device used to record the GPS measurements.
GPSAccuracy	GPSAccuracy records the accuracy of the GPS from the GPSDevice.
UnitGPSAccuracy	UnitGPSAccuracy records the units used in measuring the GPSAccuracy.
WithIn10SecondsOfMap	Used to assess if site is within 10 seconds of Map coordinates; yes/no
ActualDatum	The Datum field records the datum that was used on the GPSDevice to record the GPS measurements.
ActualElevation	Elevation of where the sample is being collected
ActualUnitElevation	Units for elevation; from VariableCodesLookUp
ReconVerMode	ReconVerMode is the mode used to verify actual coordinates from the reconnaissance visit; from VariableCodesLookUp
VerificationBy	Name of person that verified the Actual coordinates
VerificationDate	Date the Actual coordinates were verified; dd/mmm/yyyy
ForMapping	Identifies a single coordinate number within a location that would be used for mapping actual coordinates
SampleRowID	Primary key; unique row identifier; generated from within database
GeometryRowID	Primary key; unique row identifier; generated from within database

ii. **Error! Not a valid link.qrySELAnalyte**

This query is used to limit subsequent field and chemistry queries by using specific groups; e.g. organics.



Query Field Name	Description
AnalyteWFractionWUnit	AnalyteWFractionWUnit is the combination of analyte, fraction and reporting unit concatenated from fields in the database
Utility	Text field populated by data user to create groupings for specific analyte combinations
Group1	Used in queries to enable user to group analytes
Group2	Used in queries to enable user to group analytes
Group3	Used in queries to enable user to group analytes
Group4	Used in queries to enable user to group analytes
Group5	Used in queries to enable user to group analytes
Group6	Used in queries to enable user to group analytes

iii. qry4FieldResults & qry4FieldResults with Details

These two queries present probe measurements collected in the field, with and without associated sample details, in a flat file format.

The following query field names and descriptions are based on the query with details. There are more fields in the query with details as opposed to the query without details.

Query Field Name	Description
DatabaseSide	Describes which side of the database the data associated with the FundingCode is on.
StationCode	StationCode represents a unique sampling site in a sampling design. A single waterbody may have multiple stations.
SampleDate	SampleDate refers to the date the sample was collected in the field.
CollectionTime	CollectionTime refers to the time when the first field measure of a sampling event at a specific station was recorded in the field.
LocationCode	LocationCode describes the physical location in the waterbody where the sample was collected. One sampling event may have a single or multiple locations.
CollectionDepth	CollectionDepth records the level, from the surface in the water or sediment column, at which the field measurements were recorded.
UnitCollectionDepth	UnitCollectionDepth refers to the units used in the CollectionDepth including cm (centimeters) and m (meters).
FieldCollectionReplicate	The Replicate number is used to distinguish between replicates recorded at a single collection in the field.
FieldReplicate	Field replicate number use to distinguish between multiple field measurements
MatrixName	MatrixName refers to the sample matrix.



AnalyteWFractionWUnit	AnalyteWFractionWUnit is the combination of analyte, fraction and reporting unit concatenated from fields in the database
Result	Final numeric result of a given analyte, stored as text to retain trailing zeros
Numeric_Result	Text result converted to numeric format; used for sorting purposes
ResQualCode	The Result Qualifier Code or ResultQualCode qualifies the analytical result of the sample.
QACode	QACode is applied to the result to describe any special conditions, situations or outliers that occurred during or prior to the analysis to achieve the result.
BatchVerificationCode	Unique code referencing the Verification of a Batch
ComplianceCode	ComplianceCode is a unique code referencing the Compliance with the associated QAPP.
SampleComments	SampleComments records any comments related to the sampling event at a particular station.
FieldCollectionComments	Comments related to the FieldCollection
FieldResultComments	Comments related to the FieldResult
CollectionDeviceName	CollectionDeviceCode refers to the specific device used in the collection of the sample.
CalibrationDate	Date of the most recent instrument calibration; dd/mmm/yyyy
EventCode	EventCode represents the initial intent of the sampling event at a particular station.
ProtocolCode	ProtocolCode 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.
SampleAgency	AgencyCode 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.
SamplePurposeCode	Unique code referencing the purpose of collecting the sample; e.g. WaterChem, WaterTox, Tissue, Benthics, Habitat, etc. whether or not the sample was actually collected.
GroupSamples	GroupCode is a unique code referencing the Group Samples
ProjectCode	ProjectCode references the project that is associated with the sample.
UserName	Name of person that entered the sample; used for Data Management
SampleComplete	Used to assess completeness of sample information; yes/no
FundingCode	Unique code referencing the sample and/or analysis Funding
MethodName	MethodName refers to the analysis method used by the laboratory to analyze the sample.
CollectionMethodName	CollectionMethodCode refers to the general method of collection.



PositionWaterColumn	PositionWaterColumn is the position in the water column where the sample was taken. This assists with sorting when multiple depths are used in collection.
CollectionComplete	Used to assess completeness of collection information; yes/no
GeometryShape	GeometryShape is the physical shape of the location; e.g. Line, Point, Line Centroid, Polygon, Polygon Centroid
TargetLatitude	Records the Target Latitudes; Decimal Degrees, 5 decimal places
TargetLongitude	Records the Target Longitudes; Decimal Degrees, 5 decimal places, recorded as a negative
OccupationMethod	Refers to how a sample was collected; Method of station occupation; e.g. Walk In, From Bridge, report RV name; from VariableCodesLookUp
StartingBank	Bank where distances are measured from; e.g. Left or Right Bank; from VariableCodesLookUp
DistanceFromBank	Horizontal distance from bank where sample was collected
UnitDistanceFromBank	Units for DistanceFromBank; from VariableCodesLookUp
StreamWidth	Width of the stream where sample was collected
UnitStreamWidth	Units for StreamWidth; from VariableCodesLookUp
StationWaterDepth	Depth of waterbody where sample was collected
UnitStationWaterDepth	Units for StationWaterDepth; from VariableCodesLookUp
Hydromod	Describes a hydromodification at sample site; from VariableCodesLookUp
HydromodLoc	Location of Hydromod in relation to the station; required if there is a Hydromodification; from VariableCodesLookUp
LocationDetailWQComments	Comments related to the LocationDetailsWQ
ChannelWidth	Width of the Channel; Used to define reach in meters
UpstreamLength	Upstream length (distance (m) form X-Site
DownstreamLength	Downstream length (distance (m) form X-Site
TotalReach	Length Intended (m)
DirectionsToStation	Directions to the station in text
LocationDetailBAComments	Comments related to the LocationDetailsBA
SampleRowID	Primary key; unique row identifier; generated from within database
LocationRowID	Primary key; unique row identifier; generated from within database
FieldCollectionRowID	Primary key; unique row identifier; generated from within database
FieldResultRowID	Primary key; unique row identifier; generated from within database

iv. qry5FieldResults with Details_XTab



This query presents probe measurements collected in the field, with associated details, in a cross tab format.

Query Field Name	Description
DatabaseSide	Describes which side of the database the data associated with the FundingCode is on.
StationCode	StationCode represents a unique sampling site in a sampling design. A single waterbody may have multiple stations.
SampleDate	SampleDate refers to the date the sample was collected in the field.
CollectionTime	CollectionTime refers to the time when the first field measure of a sampling event at a specific station was recorded in the field.
LocationCode	LocationCode describes the physical location in the waterbody where the sample was collected. One sampling event may have a single or multiple locations.
CollectionDepth	CollectionDepth records the level, from the surface in the water or sediment column, at which the field measurements were recorded.
UnitCollectionDepth	UnitCollectionDepth refers to the units used in the CollectionDepth including cm (centimeters) and m (meters).
SamplePurposeCode	Unique code referencing the purpose of collecting the sample; e.g. WaterChem, WaterTox, Tissue, Benthics, Habitat, etc. whether or not the sample was actually collected.
GroupSamples	GroupCode is a unique code referencing the Group Samples
FundingCode	Unique code referencing the sample and/or analysis Funding
MatrixName	MatrixName refers to the sample matrix.
CountOfNumeric_Result	Count of results; used in queries
AnalyteWFractionWUnit	AnalyteWFractionWUnit is the combination of analyte, fraction and reporting unit concatenated from fields in the database
Result	Final numeric result of a given analyte, stored as text to retain trailing zeros

v. qry4HabitatResults with Details

This query presents physical habitat (pHab) results and field observations, with associated sample details, in a flat file format.

Query Field Name	Description
DatabaseSide	Describes which side of the database the data associated with the FundingCode is on.
StationCode	StationCode represents a unique sampling site in a sampling design. A single waterbody may have multiple stations.
SampleDate	SampleDate refers to the date the sample was collected in the field.
CollectionTime	CollectionTime refers to the time when the first field observation of a



	sampling event at a specific station was recorded in the field.
LocationCode	LocationCode describes the physical location in the waterbody where the sample was collected. One sampling event may have a single or multiple locations.
HabitatCollectionReplicate	Replicate is the collection replicate number used to distinguish between replicates created at collection.
AnalyteWMatrixWUnit	AnalyteWMatrixWUnit is the combination of analyte, sample matrix and reporting unit concatenated from fields in the database
Observation	Result referencing a restricted list of ValueCodes from the FieldObsVarLookUp
Result	Final numeric result of a given analyte, stored as text to retain trailing zeros
Numeric_Result	Text result converted to numeric format; used for sorting purposes
ResQualCode	The Result Qualifier Code or ResultQualCode qualifies the analytical result of the sample.
QACode	QACode is applied to the result to describe any special conditions, situations or outliers that occurred during or prior to the analysis to achieve the result.
ComplianceCode	ComplianceCode is a unique code referencing the Compliance with the associated QAPP.
SampleComments	SampleComments records any comments related to the sampling event at a particular station.
HabitatCollectionComments	Comments related to the HabitatCollection
HabitatResultComments	Comments related to the HabitatResult
CollectionDeviceName	CollectionDeviceCode refers to the specific device used in the collection of the sample.
EventCode	EventCode represents the initial intent of the sampling event at a particular station.
ProtocolCode	ProtocolCode 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.
SampleAgency	AgencyCode 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.
SamplePurposeCode	Unique code referencing the purpose of collecting the sample; e.g. WaterChem, WaterTox, Tissue, Benthics, Habitat, etc. whether or not the sample was actually collected.
GroupSamples	GroupCode is a unique code referencing the Group Samples
ProjectCode	ProjectCode references the project that is associated with the sample.
UserName	Name of person that entered the sample; used for Data Management



SampleComplete	Used to assess completeness of sample information; yes/no
FundingCode	Unique code referencing the sample and/or analysis Funding
MethodName	MethodName refers to the analysis method used by the laboratory to analyze the sample.
CollectionMethodName	CollectionMethodCode refers to the general method of collection.
CollectionComplete	Used to assess completeness of collection information; yes/no
GeometryShape	GeometryShape is the physical shape of the location; e.g. Line, Point, Line Centroid, Polygon, Polygon Centroid
TargetLatitude	Records the Target Latitudes; Decimal Degrees, 5 decimal places
TargetLongitude	Records the Target Longitudes; Decimal Degrees, 5 decimal places, recorded as a negative
OccupationMethod	Refers to how a sample was collected; Method of station occupation; e.g. Walk In, From Bridge, report RV name; from VariableCodesLookUp
StartingBank	Bank where distances are measured from; e.g. Left or Right Bank; from VariableCodesLookUp
DistanceFromBank	Horizontal distance from bank where sample was collected
UnitDistanceFromBank	Units for DistanceFromBank; from VariableCodesLookUp
StreamWidth	Width of the stream where sample was collected
UnitStreamWidth	Units for StreamWidth; from VariableCodesLookUp
StationWaterDepth	Depth of waterbody where sample was collected
UnitStationWaterDepth	Units for StationWaterDepth; from VariableCodesLookUp
Hydromod	Describes a hydromodification at sample site; from VariableCodesLookUp
HydromodLoc	Location of Hydromod in relation to the station; required if there is a Hydromodification; from VariableCodesLookUp
LocationDetailWQComments	Comments related to the LocationDetailsWQ
ChannelWidth	Width of the Channel; Used to define reach in meters
UpstreamLength	Upstream length (distance (m) form X-Site
DownstreamLength	Downstream length (distance (m) form X-Site
TotalReach	Length Intended (m)
DirectionsToStation	Directions to the station in text
LocationDetailBAComments	Comments related to the LocationDetailsBA
SampleRowID	Primary key; unique row identifier; generated from within database
LocationRowID	Foreign key reference to Location table
HabitatCollectionRowID	Primary key; unique row identifier; generated from within database



HabitatResultRowID

Primary key; unique row identifier; generated from within database

vi. qry5HabitatResults with Details_XTab

This query presents physical habitat (pHab) results and field observations, with associated sample details, in a cross tab format.

Query Field Name	Description
DatabaseSide	Describes which side of the database the data associated with the FundingCode is on.
StationCode	StationCode represents a unique sampling site in a sampling design. A single waterbody may have multiple stations.
SampleDate	SampleDate refers to the date the sample was collected in the field.
CollectionTime	CollectionTime refers to the time when the first field observation of a sampling event at a specific station was recorded in the field.
LocationCode	LocationCode describes the physical location in the waterbody where the sample was collected. One sampling event may have a single or multiple locations.
SamplePurposeCode	Unique code referencing the purpose of collecting the sample; e.g. WaterChem, WaterTox, Tissue, Benthics, Habitat, etc. whether or not the sample was actually collected.
GroupSamples	GroupCode is a unique code referencing the Group Samples
FundingCode	Unique code referencing the sample and/or analysis Funding
CountOfVariableResult	Count of results; used in queries
AnalyteWMatrixWUnit	AnalyteWMatrixWUnit is the combination of analyte, sample matrix and reporting unit concatenated from fields in the database
Result	Final numeric result of a given analyte, stored as text to retain trailing zeros

vii. qry4LabResults, qryLabResultsWLABQA & qry4LabResults with Details

These three queries present chemistry results, with and without associated laboratory quality control (QC) samples, and chemistry results with associated sample details, in a flat file format.

The following query field names and descriptions are based on the query with details. There are more fields in the query with details as opposed to the query without details.

Query Field Name	Description
DatabaseSide	Describes which side of the database the data associated with the FundingCode is on.
LabBatch	The LabBatch 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 based on the SWAMP QAPrP.



SampleID	SampleID is a 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	The LabSampleID is a recommended field intended to provide lab specific identification for an analyzed sample.
StationCode	StationCode represents a unique sampling site in a sampling design. A single waterbody may have multiple stations.
SampleDate	SampleDate refers to the date the sample was collected in the field.
CollectionTime	CollectionTime refers to the time when the first sample of a sampling event at a specific station was collected in the field.
LocationCode	LocationCode describes the physical location in the waterbody where the sample was collected. One sampling event may have a single or multiple locations.
SampleTypeCode	SampleTypeCode refers to the type of sample collected or analyzed.
LabCollectionReplicate	The Replicate number is used to distinguish between replicates created at a single collection in the field.
LabReplicate	The LabReplicate number is used to distinguish between replicates created in the laboratory. It differentiates the original field sample that was analyzed from all subsequent laboratory duplicates.
MatrixName	MatrixName refers to the sample matrix.
MethodName	MethodName refers to the analysis method used by the laboratory to analyze the sample.
AnalyteWFractionWUnit	AnalyteWFractionWUnit is the combination of analyte, fraction and reporting unit concatenated from fields in the database
Result	Final numeric result of a given analyte, stored as text to retain trailing zeros
Numeric_w_MDL_Result	Text result converted to numeric format; includes -MDL when result is ND; used for sorting purposes
ResQualCode	The Result Qualifier Code or ResultQualCode qualifies the analytical result of the sample.
QACode	QACode is applied to the result to describe any special conditions, situations or outliers that occurred during or prior to the analysis to achieve the result.
BatchVerificationCode	Unique code referencing the Verification of a Batch
ComplianceCode	ComplianceCode is a unique code referencing the Compliance with the associated QAPP.
SampleComments	SampleComments records any comments related to the sampling event at a particular station.
LabCollectionComments	CollectionComments records any comments relating to the collection of the field sample for laboratory analysis.



LabResultComments	The LabResultComments field holds any comments related to the lab result or analysis of the sample.
LabBatchComments	LabBatchComments records any comments relating to the LabBatch as a whole.
EventCode	EventCode represents the initial intent of the sampling event at a particular station.
ProtocolCode	ProtocolCode 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.
SampleAgency	AgencyCode 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.
SamplePurposeCode	Unique code referencing the purpose of collecting the sample; e.g. WaterChem, WaterTox, Tissue, Benthics, Habitat, etc. whether or not the sample was actually collected.
GroupSamples	GroupCode is a unique code referencing the Group Samples
ProjectCode	ProjectCode references the project that is associated with the sample.
UserName	Name of person that entered the sample; used for Data Management
SampleComplete	Used to assess completeness of sample information; yes/no
FundingCode	Unique code referencing the sample and/or analysis Funding
GeometryShape	GeometryShape is the physical shape of the location; e.g. Line, Point, Line Centroid, Polygon, Polygon Centroid
CollectionMethodName	CollectionMethodCode refers to the general method of collection such as Sed_Grab, Sed_Core, Water_Grab, Autosampler24h, Autosampler7d.
CollectionDeviceName	CollectionDeviceCode refers to the specific device used in the collection of the sample such xxx. Be sure to double check that when entering a water collection that the device used is a water collection device.
CollectionDepth	CollectionDepth records the level, from the surface in the water or sediment column, at which the sample was collected.
UnitCollectionDepth	UnitCollectionDepth refers to the units used in the CollectionDepth including cm (centimeters) and m (meters). This information should be listed on the Chain of Custody (COC) document that accompanies the samples from the field.
PositionWaterColumn	PositionWaterColumn is the position in the water column where the sample was taken. This assists with sorting when multiple depths are used in collection.
CollectionComplete	Used to assess completeness of collection information; yes/no
PrepPreservationName	PreparationPreservation references the preparation or preservation method performed on the samples prior to analysis.
PrepPreservationDate	PreparationPreservationDate is the date and time the preparation or preservation was started.



DigestExtractMethod	DigestExtractMethod references the digestion or extraction method performed on the sample prior to analysis.
DigestExtractDate	DigestExtractDate is the date and time the digestion or extraction was started.
AnalysisDate	AnalysisDate is the date and time the sample was processed on the analytical instrument.
DilutionFactor	DilutionFactor is the factor by which a sample was diluted and is reported as a whole number.
MDL	Method Detection Limit (MDL) is the minimum concentration of an analyte that undergoes the entire measurement process and can be reported with a stated level of confidence that the analyte concentration is greater than zero. It is the detection limit associated with the method used to analyze the analyte, or parameter, in the sample.
RL	Reporting Limit (RL) is the minimum value below which data are documented as nonquantifiable. It is the reporting limit for the sample analyzed, as determined by the laboratory.
ExpectedValue	The ExpectedValue is the concentration of the analyte in a reference standard, laboratory control sample or matrix spike sample or the value expected to obtain from analysis of the QC Sample. This consists of the native sample result concentration plus the spike amount.
LabAgency	LabAgencyCode refers to the organization, agency or laboratory that performed the analysis on the sample.
SubmittingAgency	SubmittingAgencyCode is the organization or agency that is responsible for submission of the data to the database. This agency may be different from LabAgencyCode if the analytical data were subcontracted to another agency.
LabSubmissionCode	The LabSubmissionCode is a unique batch qualifier code assigned to the LabBatch as a whole by the analyzing laboratory which references the quality of the data in the LabBatch.
TargetLatitude	Latitude records the actual Latitudes in decimal degrees with 5 decimal places.
TargetLongitude	Longitude records the actual Longitudes in decimal degrees with 5 decimal places as a negative number.
OccupationMethod	Refers to how a sample was collected; Method of station occupation; e.g. Walk In, From Bridge, report RV name; from VariableCodesLookUp
StartingBank	Bank where distances are measured from; e.g. Left or Right Bank; from VariableCodesLookUp
DistanceFromBank	Horizontal distance from bank where sample was collected
UnitDistanceFromBank	Units for DistanceFromBank; from VariableCodesLookUp
StreamWidth	Width of the stream where sample was collected
UnitStreamWidth	Units for StreamWidth; from VariableCodesLookUp
StationWaterDepth	Depth of waterbody where sample was collected



UnitStationWaterDepth	Units for StationWaterDepth; from VariableCodesLookUp
Hydromod	Describes a hydromodification at sample site; from VariableCodesLookUp
HydromodLoc	Location of Hydromod in relation to the station; required if there is a Hydromodification; from VariableCodesLookUp
LocationDetailWQComments	Comments related to the LocationDetailsWQ
ChannelWidth	Width of the Channel; Used to define reach in meters
UpstreamLength	Upstream length (distance (m) form X-Site
DownstreamLength	Downstream length (distance (m) form X-Site
TotalReach	Length Intended (m)
DirectionsToStation	Directions to the station in text
LocationDetailBAComments	Comments related to the LocationDetailsBA
SampleRowID	Primary key; unique row identifier; generated from within database
LocationRowID	Primary key; unique row identifier; generated from within database
LabCollectionRowID	Primary key; unique row identifier; generated from within database
LabResultRowID	Primary key; unique row identifier; generated from within database
LabBatchRowID	Primary key; unique row identifier; generated from within database

viii. qry5LabResults with Detals_XTab

This query presents chemistry results, with associated sample details, in a cross tab format.

Query Field Name	Description
DatabaseSide	Describes which side of the database the data associated with the FundingCode is on.
StationCode	StationCode represents a unique sampling site in a sampling design. A single waterbody may have multiple stations.
SampleDate	SampleDate refers to the date the sample was collected in the field.
CollectionTime	CollectionTime refers to the time when the first sample of a sampling event at a specific station was collected in the field.
LocationCode	LocationCode describes the physical location in the waterbody where the sample was collected. One sampling event may have a single or multiple locations.
SampleTypeCode	SampleTypeCode refers to the type of sample collected or analyzed.
LabCollectionReplicate	The Replicate number is used to distinguish between replicates created at a single collection in the field.
CollectionDepth	CollectionDepth records the level, from the surface in the water or



	sediment column, at which the sample was collected.
UnitCollectionDepth	UnitCollectionDepth refers to the units used in the CollectionDepth including cm (centimeters) and m (meters). This information should be listed on the Chain of Custody (COC) document that accompanies the samples from the field.
SamplePurposeCode	Unique code referencing the purpose of collecting the sample; e.g. WaterChem, WaterTox, Tissue, Benthics, Habitat, etc. whether or not the sample was actually collected.
GroupSamples	GroupCode is a unique code referencing the Group Samples
FundingCode	Unique code referencing the sample and/or analysis Funding
MatrixName	MatrixName refers to the sample matrix.
CountOfNumeric_w_MDL_Result	Count of results; includes -MDL when result is ND; used in queries
AnalyteWFractionWUnit	AnalyteWFractionWUnit is the combination of analyte, fraction and reporting unit concatenated from fields in the database
Result	Final numeric result of a given analyte, stored as text to retain trailing zeros

ix. qry4ToxSummary & qryToxSummaryWControls

These two queries present toxicity summary data, with and without control data, in a flat file format. These queries do not present associated sample details.

Query Field Name	Description
DatabaseSide	Describes which side of the database the data associated with the FundingCode is on.
ToxBatch	The ToxBatch is assigned by the laboratory and groups all environmental samples and supporting QA samples within a unique analysis batch. It is used to compare field samples with their associated Negative Controls for statistical analysis and will be used to verify completeness based on the SWAMP QAPrP.
SampleID	SampleID is a 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	The LabSampleID is a recommended field intended to provide lab specific identification for an analyzed sample.
StationCode	StationCode represents a unique sampling site in a sampling design. A single waterbody may have multiple stations.
SampleDate	SampleDate refers to the date the sample was collected in the field.
CollectionTime	CollectionTime refers to the time when the first sample of a sampling event at a specific station was collected in the field.



LocationCode	LocationCode describes the physical location in the waterbody where the sample was collected. One sampling event may have a single or multiple locations.
SampleTypeCode	SampleTypeCode refers to the type of sample collected or analyzed.
LabCollectionReplicate	The Replicate number is used to distinguish between replicates created at a single collection in the field.
MatrixName	MatrixName refers to the sample matrix.
MethodName	MethodName refers to the analysis method used by the laboratory to analyze the sample.
ToxTestDurCode	ToxTestDurCode indicates the duration of the toxicity test as a number and includes the associated units.
OrganismName	OrganismName refers to the scientific name of the species used in the toxicity test.
AnalyteWFractionWUnit	AnalyteWFractionWUnit is the combination of analyte, fraction and reporting unit concatenated from fields in the database
WQSource	WQSource differentiates between water quality measurements taken in the overlying water as well as in the sediment or interstitialwater.
TimePointName	TimePoint refers to the point in time during the test at which the measurement was recorded for water quality measurements.
RepCount	RepCount is the total number of sample replicates analyzed for the associated toxpoint in the toxicity test.
Mean	Mean is the average result calculated from all replicates of a single sample.
StdDev	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.
StatMethod	StatisticalMethod is the statistical test or method used to calculate the probability of whether a test is significant or not. Essentially, whether the sample replicates are significantly different from the control.
Probability	Probability is the calculated probability using a standard statistical analysis between the replicates of the field samples and the control or reference sample within a ToxBatch.
PctControl	Percent Control is the result of dividing the mean of the environmental sample by the mean of the control for the ToxBatch and multiplying by 100.
EvalThreshold	Evaluation threshold or EvalThreshold is the associated level that is used to identify that an environmental sample is significantly different from its associated control sample and is recorded in the same unit as the mean, e.g. 80.
SigEffectCode	The toxicity significant effect code or SigEffect indicates whether the sample result is significantly different from the control.
AlphaLevel	AlphaValue is the predetermined statistical acceptance level that is not calculated, but is chosen by the laboratory.



MSD	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.
QACode	TestQACode is applied to each sample's toxpoint and water quality measurements to describe any special conditions, situations or outliers that occurred during or prior to the analysis to achieve the result.
BatchVerificationCode	Unique code referencing the Verification of a Batch
ComplianceCode	ComplianceCode is a unique code referencing the Compliance with the associated QAPP.
SampleComments	SampleComments records any comments related to the sampling event at a particular station.
LabCollectionComments	CollectionComments records any comments relating to the collection of the field sample for laboratory analysis.
ToxTestComments	Use the ToxTestComments field to note any comments necessary to describe special circumstances for the toxicity test for the specific record.
ToxPointComments	Comments related to the ToxPoint
ToxPointSummaryComments	In the SummaryComments field note any comments necessary to describe special circumstances for the toxicity summary data for the specific record.
ToxBatchComments	The ToxBatchComments field is intended to record any comments relating to the ToxBatch as a whole.
EventCode	EventCode represents the initial intent of the sampling event at a particular station.
ProtocolCode	ProtocolCode 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.
SampleAgency	AgencyCode 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.
SamplePurposeCode	Unique code referencing the purpose of collecting the sample; e.g. WaterChem, WaterTox, Tissue, Benthics, Habitat, etc. whether or not the sample was actually collected.
GroupSamples	GroupCode is a unique code referencing the Group Samples
ProjectCode	ProjectCode references the project that is associated with the sample.
UserName	Name of person that entered the sample; used for Data Management
SampleComplete	Used to assess completeness of sample information; yes/no
FundingCode	Unique code referencing the sample and/or analysis Funding



GeometryShape	GeometryShape is the physical shape of the location; e.g. Line, Point, Line Centroid, Polygon, Polygon Centroid
CollectionMethodName	CollectionMethodCode refers to the general method of collection such as Sed_Grab, Sed_Core, Water_Grab, Autosampler24h, Autosampler7d.
CollectionDeviceName	CollectionDeviceCode refers to the specific device used in the collection of the sample such xxx. Be sure to double check that when entering a water collection that the device used is a water collection device.
CollectionDepth	CollectionDepth records the level, from the surface in the water or sediment column, at which the sample was collected.
UnitCollectionDepth	UnitCollectionDepth refers to the units used in the CollectionDepth including cm (centimeters) and m (meters). This information should be listed on the Chain of Custody (COC) document that accompanies the samples from the field.
PositionWaterColumn	PositionWaterColumn is the position in the water column where the sample was taken. This assists with sorting when multiple depths are used in collection.
CollectionComplete	Used to assess completeness of collection information; yes/no
TIENarrative	A short narrative of the results of a TIE test
Dilution	Dilution is recorded as a proportion of the original sample. A sample with 80% sample and 20% blankwater has a Dilution Value of 80.
ToxPointMethod	ToxPointMethod refers to the general method used in obtaining or calculating the result.
Treatment	Treatment refers to any treatment performed on the sample, such as a pH adjustment.
UnitTreatment	UnitTreatment refers to the units used in the treatment.
TreatmentConcentration	Concentration refers to the adjusted final concentration or value of the analyte applied to the toxicity sample, expressed as a number.
LabAgency	AgencyCode refers to the organization, agency or laboratory that performed the analysis of the sample.
SubmittingAgency	SubmittingAgencyCode is the organization or agency that is responsible for submission of the data to the database. This agency may be different from LabAgencyCode if the analytical data were subcontracted to another agency.
ToxBatchStartDate	StartDate refers to the date the test began.
RefToxBatch	RefToxBatch lists the Reference Tox Batch ID run with this batch of samples.
OrganismSupplier	OrganismSupplier refers to the agency that supplied the test organisms.
OrganismAgeAtTestStart	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.
LabSubmissionCode	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.
SampleRowID	Primary key; unique row identifier; generated from within database
LocationRowID	Primary key; unique row identifier; generated from within database
LabCollectionRowID	Primary key; unique row identifier; generated from within database
ToxTestRowID	Primary key; unique row identifier; generated from within database
ToxPointRowID	Primary key; unique row identifier; generated from within database
ToxPointSummaryRowID	Primary key; unique row identifier; generated from within database
ToxBatchRowID	Primary key; unique row identifier; generated from within database

x. **qry4ToxReplicateResults & qryToxReplicateResultsWControls**

These two queries present individual toxicity replicate results, with and without control results, in a flat file format. These queries do not present associated sample details.

Query Field Name	Description
DatabaseSide	Describes which side of the database the data associated with the FundingCode is on.
ToxBatch	The ToxBatch is assigned by the laboratory and groups all environmental samples and supporting QA samples within a unique analysis batch. It is used to compare field samples with their associated Negative Controls for statistical analysis and will be used to verify completeness based on the SWAMP QAPrP.
SampleID	SampleID is a 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	The LabSampleID is a recommended field intended to provide lab specific identification for an analyzed sample.
StationCode	StationCode represents a unique sampling site in a sampling design. A single waterbody may have multiple stations.
SampleDate	SampleDate refers to the date the sample was collected in the field.
CollectionTime	CollectionTime refers to the time when the first sample of a sampling event at a specific station was collected in the field.
LocationCode	LocationCode describes the physical location in the waterbody where the sample was collected. One sampling event may have a single or multiple locations.
SampleTypeCode	SampleTypeCode refers to the type of sample collected or analyzed.
LabCollectionReplicate	The Replicate number is used to distinguish between replicates created at a single collection in the field.
LabReplicate	The LabReplicate identifies the individual splits of the toxicity sample and is



	used to identify from which replicate a result originated.
MatrixName	MatrixName refers to the sample matrix.
MethodName	MethodName refers to the analysis method used by the laboratory to analyze the sample.
ToxTestDurCode	ToxTestDurCode indicates the duration of the toxicity test as a number and includes the associated units.
OrganismName	OrganismName refers to the scientific name of the species used in the toxicity test.
AnalyteWFractionWUnit	AnalyteWFractionWUnit is the combination of analyte, fraction and reporting unit concatenated from fields in the database
WQSource	WQSource differentiates between water quality measurements taken in the overlying water as well as in the sediment or interstitialwater.
TimePointName	TimePoint refers to the point in time during the test at which the measurement was recorded for water quality measurements.
Result	Numeric result of test, stored as text to retain trailing zeros
Numeric_w_MDL_Result	Text result converted to numeric format; includes -MDL when result is ND; used for sorting purposes
ResQualCode	The Result Qualifier Code or ResultQualCode qualifies the analytical result of the sample.
ToxResultQACode	A ToxResultQACode is used to further qualify the analytical result of the sample.
QACode	TestQACode is applied to each sample's toxpoint and water quality measurements to describe any special conditions, situations or outliers that occurred during or prior to the analysis to achieve the result.
BatchVerificationCode	Unique code referencing the Verification of a Batch
ComplianceCode	ComplianceCode is a unique code referencing the Compliance with the associated QAPP.
SampleComments	SampleComments records any comments related to the sampling event at a particular station.
LabCollectionComments	CollectionComments records any comments relating to the collection of the field sample for laboratory analysis.
ToxTestComments	Use the ToxTestComments field to note any comments necessary to describe special circumstances for the toxicity test for the specific record.
TimePointComments	Comments related to the TimePoint
ToxResultComments	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.
ToxBatchComments	The ToxBatchComments field is intended to record any comments relating to the ToxBatch as a whole.
EventCode	EventCode represents the initial intent of the sampling event at a particular



	station.
ProtocolCode	ProtocolCode represents the sampling protocol used, which includes the set of methods, methodology and/or specifications, such as MPSSL-DFG_Field_v1.0. Established protocols may be used or Regions may document their own sampling protocols.
SampleAgency	AgencyCode 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.
SamplePurposeCode	Unique code referencing the purpose of collecting the sample; e.g. WaterChem, WaterTox, Tissue, Benthics, Habitat, etc. whether or not the sample was actually collected.
GroupSamples	GroupCode is a unique code referencing the Group Samples
ProjectCode	ProjectCode references the project that is associated with the sample.
UserName	Name of person that entered the sample; used for Data Management
SampleComplete	Used to assess completeness of sample information; yes/no
FundingCode	Unique code referencing the sample and/or analysis Funding
GeometryShape	GeometryShape is the physical shape of the location; e.g. Line, Point, Line Centroid, Polygon, Polygon Centroid
CollectionMethodName	CollectionMethodCode refers to the general method of collection such as Sed_Grab, Sed_Core, Water_Grab, Autosampler24h, Autosampler7d.
CollectionDeviceName	CollectionDeviceCode refers to the specific device used in the collection of the sample such xxx. Be sure to double check that when entering a water collection that the device used is a water collection device.
CollectionDepth	CollectionDepth records the level, from the surface in the water or sediment column, at which the sample was collected.
UnitCollectionDepth	UnitCollectionDepth refers to the units used in the CollectionDepth including cm (centimeters) and m (meters). This information should be listed on the Chain of Custody (COC) document that accompanies the samples from the field.
PositionWaterColumn	PositionWaterColumn is the position in the water column where the sample was taken. This assists with sorting when multiple depths are used in collection.
CollectionComplete	Used to assess completeness of collection information; yes/no
TIENarrative	A short narrative of the results of a TIE test
Dilution	Dilution is recorded as a proportion of the original sample. A sample with 80% sample and 20% blankwater has a Dilution Value of 80.
ToxPointMethod	ToxPointMethod refers to the general method used in obtaining or calculating the result.
Treatment	Treatment refers to any treatment performed on the sample, such as a pH adjustment.
UnitTreatment	UnitTreatment refers to the units used in the treatment.



TreatmentConcentration	Concentration refers to the adjusted final concentration or value of the analyte applied to the toxicity sample, expressed as a number.
LabAgency	AgencyCode refers to the organization, agency or laboratory that performed the analysis of the sample.
SubmittingAgency	SubmittingAgencyCode is the organization or agency that is responsible for submission of the data to the database. This agency may be different from LabAgencyCode if the analytical data were subcontracted to another agency.
ToxBatchStartDate	StartDate refers to the date the test began.
RefToxBatch	RefToxBatch lists the Reference Tox Batch ID run with this batch of samples.
OrganismSupplier	OrganismSupplier refers to the agency that supplied the test organisms.
OrganismAgeAtTestStart	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.
LabSubmissionCode	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.
SampleRowID	Primary key; unique row identifier; generated from within database
LocationRowID	Primary key; unique row identifier; generated from within database
LabCollectionRowID	Primary key; unique row identifier; generated from within database
ToxTestRowID	Primary key; unique row identifier; generated from within database
TimePointRowID	Primary key; unique row identifier; generated from within database
ToxResultRowID	Primary key; unique row identifier; generated from within database
ToxBatchRowID	Primary key; unique row identifier; generated from within database

