Central Valley
REGIONAL DATA CENTER

Central Valley Regional Data Center

CEDEN Field Template Entry Manual

July 15, 2015

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LIST OF ACRONYMS

CEDEN	California Environmental Data Exchange Network
CV RDC	Central Valley Regional Data Center
ILRP	Irrigated Lands Regulatory Program
MLML RDC	Moss Landing Marine Laboratory Regional Data Center
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
SWAMP	Surface Water Ambient Monitoring Program

LIST OF TERMS

LookUp lists	Tables that contain specific CV RDC codes found in the CV RDC or CEDEN database. Current LookUp lists can be found at: http://ftp.mpsl.mlml.calstate.edu/CVRDC_LookUpLists.php http://ceden.waterboards.ca.gov/Metadata/ControlledVocab.php
Constituent Code	A group of codes comprising of MatrixName, MethodName, AnalyteName, FractionName and UnitName.

AMENDMENTS

Date of Amendment	Document Section	Page Number	Amendment to CV RDC Field Documentation
April 27, 2012	**Appendix B**		Updated Appendix B to include CEDEN tables to help describe/define the CV RDC Excel field template structure.
March 8, 2013	**Appendix B-3**	51	Updated Data Checker link.
March 11, 2013	**Table A3**	38	Updated fractions from None to Total.
June 18, 2015	**All sections**	All pages	Revised language to reflect new CEDEN template and process.
July 15, 2015	**Section 2.2**	9	Updated business rule entry for dry sites.

i. INTRODUCTION

This document is designed to provide guidance for field data entry into the Central Valley Regional Data Center (CV RDC) data base that will eventually be loaded into California Environmental Data Exchange Network (CEDEN).

Before data entry commences, specific programmatic codes may need to be added to the CV RDC LookUp lists. LookUp lists provide all the available codes for inputting data into the CV RDC database. Please contact the CV RDC prior to field entry if any LookUp lists need to be updated. See website for additional information on how to add project specific codes to the CV RDC http://mlj-llc.com/cvrdc_step2.html. Current LookUp lists can be found at: http://ftp.mpsl.mlml.calstate.edu/CVRDC_LookUpLists.php.

This document has been divided in to two sections with three main appendices. A brief description of each is provided below:

Section 1.	Field Sheet Entry Data Elements Summary
Section 2.	Specific Field Business Rules
Appendix A.	Entering Field Data into the CEDEN Field Templates
Appendix B.	Descriptions and Business Rules

Section 1, Field Sheet Entry Data Elements Summary. This section briefly describes data elements that a project would need to enter field/sample information into the CV RDC database. This section details the information recorded by the CV RDC database. Please note that all fields are strongly encouraged to be populated with information, but the minimum data requirements for CEDEN are noted. Appendix C describes each data element in further detail while also addressing specific business rules when applicable.

Section 2, Specific Field Business Rules. This section describes specific business rules for unique situations/events.

Field data is submitted to the CV RDC through an excel template to be later loaded by the CV RDC into the database. This entry form is described in Appendix A.

Appendix A, Entering Field Data through Excel Templates, describes the business rules for entering field information into the excel templates. Excel templates for field entry can be found at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/electronic_data_submission/index.shtml . Appendix A-2 also describes template data entry tools that can be used by programs to customize data entry documents to fit their program's needs. These checklists/tools are recommended to ease data entry. Appendix A-3, Data Checker, details a web-based automated tool provided to assist data submitters in examining their data sets against the required LookUp lists, formats and business rules of the CV RDC.

Appendix B, Descriptions and Business Rules, gives the appropriate LookUp list, descriptions, business rules and examples for each element/code.

1. Field Sheet Entry Data Elements Summary

The following are brief descriptions of the sample and field data elements. Please note that all fields are strongly encouraged to be populated with information, but the minimum data requirements for the database are noted. Column names that include an asterisk indicate that the code needs to be within valid LookUp lists. For information on how to add new LookUp list values please visit http://mlj-llc.com/cvrdc_step2.html. Appendix B describes each data element in further detail while also addressing specific business rules when applicable

1.1 Sample Information

A. **EventCode*:** EventCode represents the primary reason for the sampling event at a particular station and date, e.g., water quality, tissue or bioassessment.

B. **ProtocolCode*:** ProtocolCode represents the sampling protocol i.e. methods used during the sampling event.

C. **StationCode* (Required):** The station code is a 9-digit assigned code that uniquely identifies the monitoring location within the database. Note for new station codes that need to be added Latitude and Longitude are required data elements as well.

D. **SampleDate (Required):** SampleDate refers to the date the sample was collected in the field, expressed as dd/mmm/yyyy.

E. **AgencyCode***: Agency Code is the acronym for the agency that collected/created the sample.

F. **ProjectCode* (Required):** The ProjectCode references the project that originated the sample.

G. **SampleComments:** The comments field should be used for any notes or comments specifically related to the sample collection.

1.2 Associated Sample Information

A. **FundingCode***: Represents the funding for the project or sampling event/analysis.

B. **GroupSample***: Allows programs to group samples together to meet individual program needs. Examples are by Season, Sampling events, etc.

C. **SamplePurposeCode***: This code represents what a project went to a specific station on a specific date to collect i.e. habitat, water chemistry etc.

D. **PurposeFailureName***: This code is used to identify if there were any issues with collecting any of the intended samples/information at a site, for example dry sites.

E. **PersonnelCode***: The PersonnelCode references the personnel collecting the sample.

1.3 LOCATION INFORMATION

A. **LocationCode*:** LocationCode describes the physical location in the waterbody where the sample was collected, for example, "Bank", "Thalweg", "Midchannel", or "OpenWater".

B. **Shape***: Is the physical shape of the sampling location. For example, a point would represent an individual sample collected by hand; where as a line would represent a net trawl.

1.4 GEOMETRY DATA

A. **CoordinateSource*:** CoordinateSource describes the way a coordinate was measured e.g. "Map", or "GPS".

B. **CoordinateNumber (Required):** CoordinateNumber refers to the number of coordinates recorded at an individual Location; e.g. 1 for Points (target and actual coordinates); 1 and 2 for Lines

C. **ActualLatitude (Required):** Coordinate Latitude records both the actual and target Latitudes in decimal degrees with 5 decimal places.

D. **ActualLongitude (Required):** Coordinate Longitude records both the actual and target Longitudes in decimal degrees with 5 decimal places as a negative number.

E. **Fix*:** GPSFix is the fix provided by the GPS device; e.g. 2D, 3D, NR

F. **GPSDevice***: GPSDeviceCode refers to the GPS device used to record the GPS measurements.

G. **Accuracy**: GPSAccuracy records the accuracy of the GPS from the GPSDevice.

H. **Within 10 Seconds:** Used to assess if site is within 10 seconds of map coordinates.

I. **Datum (Required):** The Datum field records the datum that was used on the GPSDevice to record the GPS measurements.

J. **Elevation:** Elevation of where the sample is being collected

1.5 LOCATION INFORMATION DETAILS

A. **OccupationMethod***: Method of station occupation e.g. "Walk In", "From Bridge", or report research vessel name.

B. **Starting Bank*:** Bank where distances are measured from; left or right bank (when looking downstream).

C. **Distance From Bank:** Recommended if multiple samples are taken along a transect; the horizontal distance from bank where sample was taken; units in meters

D. **Stream Width:** Stream Width at the station where sample was taken.

E. **Water Depth:** Water depth at location of sample

F. **Hydromodification*:** Describe any hydromodification at sample site e.g. Bridge, ConcreteChannel, Pipes, etc.

G. **Hydromodification Location*:** Location of hydromodification relative to sample, e.g. upstream, downstream, not applicable, or not recorded ("US", "DS", "NA", "NR").

H. **LocationDetailWQComments:** The comments field should be used for any notes or comments specifically related to location details. Put additional hydromodifications here.

1.6 HABITAT DATA

Minimum required data elements within the habitat data section are only required if the project intends to take habitat data, otherwise leave cells blank.

A. **CollectionMethodCode* (Required):** Refers to the general method of collection. Default for habitat is "Not Applicable".

B. **CollectionTime (Required):** CollectionTime refers to the time when the **first sample** was collected at that site in the field, expressed as hh:mm. (24 hour clock).

C. **Replicate (Required):** The replicate number identifies replicates created in the field.

D. **HabitatCollectionComments:** The comments field should be used for any notes or comments specifically related to location details. Put additional hydromodifications here.

E. **AnalyteName* (Required):** The Analyte is the parameter for which the analysis is conducted and result is reported.

F. **MatrixName* (Required):** This field describes the sample matrix, for example samplewater.

G. **MethodName* (Required):** MethodName is the analysis method that is used by the laboratory to analyze the sample. If a laboratory has modified a standard method, the laboratory agency needs to add "M" to the Method Name.

H. **FractionName* (Required):** This field allows for a further description of the analyte when needed. For example, metals are often expressed as Total or Dissolved and therefore this description should be used within the fraction field.

I. **Unit* (Required):** This field contains the units associated with the above AnalyteName. The default values should be "None" for habitat observations.

J. **Variable Result* (Required):** Categorial Result of FieldObservation

K. **Result* (Required):** The result of the ObservedFieldMeasure. Be sure to key any trailing zeros that were entered on the field sheet.

L. **ResQualCode* (Required):** The ResultQualifierCode qualifies the result for the sample, if necessary. The Default value is "=" for Habitat.

M. **QACode* (Required):** QACode is applied to the result to describe any special conditions, situations or outliers that occurred during or prior to the observation to achieve the result. Default value for habitat is "None".

N. **CollectionDeviceName*:** CollectionDeviceCode refers to the specific device used in the collection of the sample. Default value for habitat is "None".

O. **HabitatResultComments:** The comments field should be used for any notes or comments specifically related to the habitat result. Put additional variable results here if needed.

1.7 FIELD RESULTS

Minimum required data elements within the field results section are only required if the project intends to take field measurement data, otherwise leave cells blank.

A. **CollectionMethodCode* (Required):** Refers to the general method of collection. Default value is "Field".

B. **CollectionTime (Required):** CollectionTime refers to the time when the **first sample** was collected at that site in the field, expressed as hh:mm. (24 hour clock).

C. **CollectionDepth (Required):** CollectionDepth measures the depth the sample was collected.

D. **UnitCollectionDepth (Required):** This field contains the units associated with the above "CollectionDepth" value. The default values should be "m" (meters) for water samples or "cm" (centimeters) for sediment samples.

E. **Replicate (Required):** The replicate number identifies replicates created in the field.

F. **PositionWaterColumn*:** PositionWaterColumn is the position in the water column where the sample was taken.

G. **FieldCollectionComments:** The comments field should be used for any notes or comments specifically related to field collection.

H. **AnalyteName* (Required):** The Analyte is the parameter for which the analysis is conducted and result is reported.

I. **MatrixName* (Required):** This field describes the sample matrix, for example samplewater.

J. **MethodName* (Required):** MethodName is the analysis method that is used by the laboratory to analyze the sample. Default is FieldMeasure for field results.

K. **FractionName* (Required):** This field allows for a further description of the analyte when needed.

L. **Unit* (Required):** This field contains the units associated with the above AnalyteName.

M. **Result (Required):** The result of the field measurement. Be sure to key any trailing zeros that were entered on the field sheet.

N. **ResQualCode* (Required):** The ResultQualifierCode qualifies the result for the sample, if necessary. The Default value is "=".

O. **QACode* (Required):** QACode is applied to the result to describe any special conditions, situations or outliers that occurred during or prior to the observation to achieve the result.

P. **CollectionDeviceName*:** CollectionDeviceCode refers to the specific device used in the collection of the sample.

Q. FieldResultComments: The comments field should be used for any notes or comments specifically related to the field result. If any failures or issues occurred put explanation here.

1.8 LAB COLLECTION INFORMATION

Minimum required data elements within the lab collection section are only required if the project intends to take chemistry data, otherwise leave cells blank.

A. **CollectionTime (Required):** CollectionTime refers to the time when the **first sample** was collected at that site in the field, expressed as hh:mm. (24 hour clock).

B. **CollectionMethodCode* (Required):** CollectionMethodCode refers to the general method of collection for example "Water_Grab", "Sed_Grab", "Autosampler24h", etc.

C. **SampleTypeCode* (Required):** SampleTypeCode is the type of sample collected or analyzed, for example "Grab", "Fieldblank", "LCS", etc.

D. **Replicate (Required):** The replicate number identifies replicates created in the field.

E. **CollectionDepth (Required):** CollectionDepth measures the depth the sample was collected.

F. **UnitCollectionDepth* (Required):** This field contains the units associated with the above "CollectionDepth" value. The default values should be "m" (meters) for water samples or "cm" (centimeters) for sediment samples.

G. **CollectionComments:** The comments field should be used for any notes or comments specifically related to the sample collection.

2. Specific Field Business Rules

Listed below are business rules for specific situations found in the field. Listed under each situation are how specific data elements should be completed and any data elements not listed should be completed under the normal business rules. Data elements are named in the form entry format (For the associated column name see Appendix C, e.g. QA = QACode within the excel templates).

2.1 Non-Contiguous Water Body/ Isolated Pool

- **Sample Comments** = Non-contiguous water body
- **GroupSample** = Non-Contiguous
- **For Habitat Analyte = Observed Flow**
  - **Variable Result** = "isolated pool"
  - **QA** = "FLV"
- **For Fieldmeasure Analyte = Discharge**
  - **Result** = "0"
  - **QA** = "FLV"
  - **Comments** = "Discharge recorded as zero due to non-contiguous water body."

2.2 Dry Site

Enter the following (along with required columns) into the **Habitat** worksheet:

- **Location** = "Not Applicable"
- **Geometry Shape** = "Leave blank"
- **For Habitat Analyte = "**Observed Flow"
  - **Variable Result** = "dry waterbody bed"
  - **Time** = arrival time (ex: "13:21")
  - **QA** = "FDS"

Enter the following (along with required columns) into the **Location** worksheet:

- **Sample Comments** = "Dry site, no samples collected"
- **Sample Purpose Code** = "FieldMeasure; WaterChem" or "FieldMeasure; SedChem"
- **Purpose Failure Name** = "Dry (no water)"

A second entry in the **Location** worksheet is required for dry site. Enter the following (along with required columns):

- **Sample Comments** = "Dry site, no samples collected"
- **Sample Purpose Code** = "Habitat"
- **Purpose Failure Name** = "None"

2.3 WATER PRESENT, BUT FLOW IS MOVING IN OPPOSITE DIRECTION THAN USUALLY OBSERVED

- **For Fieldmeasure Analyte = Discharge**
  - **Result** = "0"
  - **QA** = "FLV"
  - **Comments** = "Discharge recorded as zero due to flow moving in upstream direction, from west to east.*" (*or the appropriate directions)

2.4 WATER PRESENT, BUT NO MEASURABLE FLOW AND NO OBSERVED FLOW

- **For Fieldmeasure Analyte = Discharge**
  - **Result** = "0"
  - **QA** = "FLV"
  - **ResQualCode = "="**
  - **Comments** = "Discharge recorded as zero due to no measurable flow."

2.5 WATER PRESENT, BUT TOO DEEP TO WADE

- **For Fieldmeasure Analyte = Discharge**
  - **Result** = -88
  - **Res Qual** = NR
  - **QA** = "FUD"
  - **Comments** = "Too deep to take discharge."

2.6 WATER PRESENT, BUT TOO SHALLOW TO TAKE DISCHARGE

- **For Fieldmeasure Analyte = Discharge**
  - **Result** = -88
  - **Res Qual** = NR
  - **QA** = "FS"
  - **Comments** = "Too shallow to take discharge."

2.7 WATER PRESENT, BUT NO OBSERVED FLOW BECAUSE PUMP STATION IS NOT ON

- **For Fieldmeasure Analyte = Discharge**
  - **Result** = 0
  - **QA** = "FLV"
  - **Comments** = "Pump station not running; discharge recorded as zero."

2.8 WATER PRESENT, BUT NO MEASURABLE FLOW YET FLOW IS OBSERVED.

- **For Fieldmeasure Analyte = Discharge**
  - **Result** = -88
  - **Res Qual** = NR
  - **QA** = "FLV"
  - **Comments** = Example: "No measurable flow but flow estimated to be ~ XX ft/s based on debris on surface."

2.9 WATER PRESENT, BUT UNABLE TO DEPLOY INSTRUMENT YET FLOW IS OBSERVED.

- **For Fieldmeasure Analyte = Discharge**
  - **Result** = -88
  - **Res Qual** = NR
  - **QA** = "FUD"
  - **Comments** = Example: "Unable to deploy instrument but flow estimated to be ~ XX ft/s based on debris on surface."

2.10 WATER PRESENT, BUT UNABLE TO DEPLOY INSTRUMENT AND NO FLOW IS OBSERVED.

- **For Fieldmeasure Analyte = Discharge**
  - **Result** = -88
  - **Res Qual** = NR
  - **QA** = "FUD"
  - **Comments** = Example: "Unable to deploy instrument but flow estimated to be 0 ft/s based on debris on surface."

2.11 INSTRUMENT FAILURE

- **For Fieldmeasure**
  - **Result** = -88
  - **Res Qual** = NR
  - **QA** = "FIF"
  - **Comments** = "Instrument failure"

3. REFERENCES

Surface Water Ambient Monitoring Program, 2008. SWAMP Data Management Plan: Field Data Entry. June 17, 2008

Appendix A: Entering Field Data into the CEDEN Field Templates

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A-1: Entering Field Data through Excel Templates

Field information can be entered into an excel CEDEN template that can be found at the following link: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/electronic_data_submission/index.shtml . This template has five excel worksheet tabs, including a notes/information tab, that contain all field and collection information needed to load data into the CV RDC database. Columns within the worksheets have multiple formats to indicate the following:

1. Bolded green text indicates a minimum/required field necessary for loading data into CEDEN.
2. Black bolded text indicates a requested/desired field to help increase the usability of the data by CEDEN users.
3. Grey highlighted cells not required, but desirable, used for additional information and completeness purposes.

The Stations and Locations tabs do not need to be filled out unless desired/needed.

The following sections will explain how to enter collection information by each worksheet tab and include a table showing the structure of the specific table within each excel worksheet tab. Appendix B has additional descriptions and business rules for each column name when applicable. Current LookUp lists can be found at http://ftp.mpsl.mlml.calstate.edu/CVRDC_LookUpLists.php. Please contact the CV RDC or look on the CV RDC website at http://mlj-llc.com/cvrdc_step2.html for how to add new codes to the CV RDC database if needed.

1. Stations

Only fill out the stations tab when the stations are not currently within the CVRDC database. Each row represents a single station. The Station lookup table will tell you if the station is not in the data base.

STATIONS TABLE STRUCTURE:

Table A1: Stations tab header definitions, cell requirements and LookUp list availability.
* Primary Key, required for record uniqueness.

FIELD TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
StationSource*	Text	Yes	50		Project that submitted the station to CEDEN.
StationCode*	Text	Yes	25	Station LookUp	A code representing the StationName and site and should be unique within a study design.
StationName*	Text	Yes	100	Station LookUp	Represents a unique sampling site in a sampling design. A single waterbody may have multiple stations. Station name must be unique for all stations.

FIELD TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
StationDescr	Text	No	255		Description of the StationCode.
StationAgency	Text	**Yes**	20	AgencyCode LookUp	Represents the agency that created the station and is responsible for any updates or modifications to the station. Only the agency listed here can modify the information for this station. Default value equals 'Not Recorded' if unknown.
StationComments	Text	No	255		Any pertinent comments regarding the station and/or station area.
EventType1	Text	No	20	Event LookUp	Represents what type of sampling events will or have occurred at a station, i.e. water quality, tissue or bioassessment sampling.
EventType2	Text	No	20	Event LookUp	Represents what type of sampling events will or have occurred at a station, i.e. water quality, tissue or bioassessment sampling.
EventType3	Text	No	20	Event LookUp	Represents what type of sampling events will or have occurred at a station, i.e. water quality, tissue or bioassessment sampling.
GeometryShape	Text	No	50		Physical shape of the Station. Example values are Line, Point, or Polygon.
DirectionsToStation	Text	No	255		A general description of how to get to the station using streets, landmarks, etc.
AddDate	Date/ Time	No			Date the StationCode was added.
CoordinateNumber	Integer	**Yes**			Number of the coordinate recorded at a Station; e.g. 1 for Points (target and actual coordinates), 1 and 2 for Lines.
TargetLatitude	Decimal	**Yes**			Represents the targeted latitude for the sample site in decimal degrees with 5 decimal places.
TargetLongitude	Decimal	**Yes**			Represents the targeted longitude for the sample site in decimal degrees with 5 decimal places (must be negative).
Datum	Text	**Desired**	10		The Datum field records the datum that was used on the GPS Device to record the GPS measurements.

FIELD TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
CoordinateSource	Text	**Desired**	50		Describes how the coordinate was measured. For example, if measurement was taken from a map or GPS.
Elevation	Decimal	No			Elevation at which the sample was taken.
UnitElevation	Text	No	2		Unit of the Elevation measurement.
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.
StationDetailComments	Text	No	255		Comments related to the station detail information.
LocalWatershed	Text	**Desired**	50		Local watershed of the station as supplied by data user.
LocalWaterbody	Text	**Desired**	50		Local waterbody of the station as supplied by data user.
State	Text	**Desired**	2		State in which the station was surveyed. Default = CA
Counties_2004_County	Text	No	50		County in which the station was surveyed.
SWRCBWatTypeCode	Text	**Desired**	10	WBType LookUp	Unique code assigned by the state for the appropriate waterbody type.
CalWater_2004_RB	Integer	No	1		Regional Board ID Number from the CalWater 2.2.1 2004 GIS layer. This layer can be retrieved from: https://projects.atlas.ca.gov/frs/download.php/676/calw221_e00.zip
CalWater_2004_CALWNUM	Text	No	12		Watershed ID Number from the CalWater 2.2.1 2004 GIS layer.
CalWater_2004_HUNAME	Text	No	35		Hydrologic Unit Name from the CalWater 2.2.1 2004 GIS layer.
GageStationID	Text	No	50		Identifier for USGS Gage station located at the Station location.
UpstreamArea	Decimal	No			Area (measured in km2) upstream that drains to the sampling point.

FIELD TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
HBASA2_1995_ NHCODE	Text	No	6		NHDCODE from Teale HBASA watershed GIS layer. This layer can be retrieved from: https://projects.atlas.ca.gov/frs/download.php/389/hbasa2-1997_shp.zip
NHD_24k_v2_ GNIS_Name	Text	No	65		Official federal Geographic Names Information System (GNIS) name of stream from the NHD high-resolution GIS layer. This layer can be retrieved from: http://nhd.usgs.gov/data.html
NHD_24k_v2_ReachCode	Text	No	14		14-digit ReachCode ID Number for streams from NHD high-resolution GIS layer.
NHD_24k_v2_HUC_12	Text	No	12		12-digit Hydrologic Unit ID for NHD watershed polygon (WBD) from NHD high-resolution GIS layer.
NHD_24k_v2_ Hu_12_Name	Text	No	120		Name of 12-digit Hydrologic Unit for NHD watershed polygon (WBD) from NHD high-resolution GIS layer.
NHD_100k_GNIS_Name	Text	No	120		Official federal Geographic Names Information System (GNIS) name of stream from the NHD medium-resolution GIS layer. This layer can be retrieved from: http://nhd.usgs.gov/data.html
NHD_100k_ReachCode	Text	No	14		14-digit ReachCode ID Number for streams from NHD medium-resolution GIS layer.
NHD_Plus_CatchmentComID	Text	No	50		Represents the common identifier of an NHD Flowline for the catchment polygon.
Ecoregion_1987_Level3	Text	No	5		EPA Ecoregion Level III name (US_L3NAME). This layer can be retrieved from: ftp://ftp.epa.gov/wed/ecoregions/ca/
IBI_NorthCoast_ 2005_WithinPolygon	TRUE/ FALSE	No			True if the Station is located within the IBI North Coast 2005 polygon. False if otherwise.
IBI_SoCal_ 2005_WithinPolygon	TRUE/ FALSE	No			True if the Station is located within the IBI Southern California 2005 polygon. False if otherwise.
StationGISVerBy	Text	No	100		Agency or person who performed the verification of the GIS station information.
StationGISVerDate	Date/ Time	No			Date the GIS station information was verified.

FIELD TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
StationGISVerComments	Text	No	255		Comments related to the GIS station information verification.

* Primary Key, required for record uniqueness.

2. LOCATIONS

Only fill out the locations tab if actual latitude and longitude measurements are being recorded. Each row represents a single location.

LOCATION TABLE STRUCTURE:

Table A2: Locations tab header definitions, cell requirements and LookUp list availability.

FIELD TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
StationCode*	Text	**Yes**	25	Stations LookUp	A code representing the StationName and site and should be unique within a study design.
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	No	20	Event LookUp	Represents the primary reason, i.e. 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.
AgencyCode	Text	**Desired**	20	Agency LookUp	Refers to the organization or agency that collected the sample.
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.

FIELD TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
GeometryShape	Text	No	50		Physical shape of the location. Example values are Line, Point, or Polygon.
CoordinateNumber	Integer	**Yes**			Number of the coordinate recorded at a Location; e.g. 1 for Points (target and actual coordinates), 1 and 2 for Lines.
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		The Datum field records the datum that was used on the GPS Device to record the GPS measurements. Example = NAD83
CoordinateSource	Text	No	50		Describes how the coordinate was measured. For example, if measurement was taken from a map or GPS.
Elevation	Decimal	No			Elevation at which the sample was taken. Example = 1
UnitElevation	Text	No	2		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.
StationDetailComments	Text	No	255		Comments related to the station detail information.
SamplePurposeCode	Text	**Yes**	20	SamplePurpose Lookup	Represents why the sample was collected. i.e. habitat, water chemistry etc.
PurposeFailureName	Text	**Yes**	50	Purpose Failure Lookup	Identifies sample collection issues or informational issues at a site. For example, dry sites.

3. FIELDRESULTS

The *Field Results* refer to the discrete probe measurements recorded in the field at a sampling event location, e.g. pH, Dissolved Oxygen, Turbidity. Each row represents a single field measure result for each sampling event. Sample, location, and collection information must be entered multiple times when there is more than one field measure result. Enter each column. See Appendix B for each of the column names. Below are some helpful hints for some of the columns.

- Enter Collection*MethodCode.* Default is "Field" for field measurements.
- Enter the *Time*, formatted in Excel as hh:mm in 24 hour time.
- Enter *Depth*
- Enter *Replicate*
- Enter *PositionWater Column*
- Fill in *FieldCollectionComments* with any detail information for field results
- Fill in the MatrixName, MethodName, AnalyteName, FractionName and UnitName. Together these groups of columns are called constituent codes. The below table contains the most commonly used codes.

Table A3: Commonly used Field Measure Constituent Codes

MatrixName	MethodName	AnalyteName	FractionName	UnitName
samplewater	FieldMeasure	Oxygen, Dissolved	Total	mg/L
samplewater	FieldMeasure	Oxygen, Saturation	Total	%
samplewater	FieldMeasure	pH	None	none
samplewater	FieldMeasure	Salinity	Total	ppt
samplewater	FieldMeasure	SpecificConductivity	Total	uS/cm
samplewater	FieldMeasure	Temperature	None	Deg C
samplewater	FieldMeasure	Turbidity	Total	NTU
air	FieldMeasure	Temperature	None	Deg C
samplewater	FieldMeasure	Discharge	None	cfs

- Enter the probe or meter result in the *Result* field. When typing the result, include the correct amount of significant figures. For example, if the result is 7.0, the only way to communicate the significance of the ".0" through the database is to type 7.0.
- Enter the *ResQualCode*, *QACode*, *CollectionDeviceCode*, and *CalibrationDate*. The *ResQualCode* and *QACode* should be "=" and "None" respectively if no issues occurred while sampling for the analyte.
- *ComplianceCode* and *BatchVerificationCode* should be NA for Not Applicable.
- For any field result that needs further clarification or when the *CollectionDeviceCode* is **Other**, enter notes or comments in the *FieldResultComments* field.

FIELD RESULTS TABLE STRUCTURE:

Table A4: FieldResults tab header definitions, cell requirements and LookUp list availability.
*Primary Key, required for record uniqueness.

FIELD 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 a study design.
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, i.e. 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.
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.
SampleComments	Text	No	255		The comments field should be used for any notes or comments specifically related to the sample collection.
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.
GeometryShape	Text	No	50		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.

FIELD TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
CollectionMethodCode	Text	**Yes**	50	CollectionMethod LookUp	Refers to the general method of collection such as Sed_Grab, Sed_Core, Water_Grab, Autosampler24h, Autosampler7d.
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		Unique name of the CollectionDevice.
CollectionDepth	Decimal	**Yes**			Records the level, from the surface in the water or sediment column, at which the sample was collected.
UnitCollectionDepth	Text	**Yes**	50		Refers to the units used in the CollectionDepth including cm (centimeters) and m (meters).
PositionWaterColumn	Text	**Desired**	20		Position in water column where sample was taken.
FieldCollectionComments	Text	No	255		Comments related to the FieldCollection
MatrixName*	Text	**Yes**	50	MatrixLookUp	Refers to the sample matrix, e.g. samplewater.
MethodName*	Text	**Yes**	50	Method LookUp	Refers to the analysis method used to analyze the sample. Default is "FieldMeasure".
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.
UnitName*	Text	**Yes**	50	Unit LookUp	Refers to how the chemistry result is measured or expressed.
FieldReplicate*	Integer	**Desired**			The replicate number identifies replicates created in the field.

FIELD TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
Result	Text	**Yes**	50		Final numeric result of a given analyte, stored as text to retain trailing zeros. The result should be reported with the appropriate number of significant figures.
ResQualCode	Text	**Yes**	10	ResQual LookUp	Qualifies the analytical result of the sample.
QACode*	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 should be applied to a record, the convention is to list them in alphabetical order separated by commas and no spaces.
ComplianceCode	Text	**Desired**		Compliance LookUp	Unique code referencing the Compliance with the associated QAPP.
BatchVerificationCode	Text	**Desired**	10	Batch Verification Lookup	Unique code referencing the Verification of a Batch, with default value equal to “NA”. If the Batch Verification used is not found in the lookup list please contact your Regional Data Center for assistance.
CalibrationDate	Date/ Time	**Desired**			CalibrationDate refers to the date the collection device was calibrated. Formatted as dd/mmm/yyyy.
FieldResultComments	Text	No	255		Holds any comments related to the field result or analysis of the sample.

* Primary Key, required for record uniqueness.

4. HABITATRESULTS

Each row represents a single field observation for each sampling event. Sample, location, and collection information must be entered multiple times when there is more than one field observation. Populate each column (i.e. sample, location, collection and field observation information if applicable) with the appropriate code or information. If no habitat is collected, leave worksheet blank. Below are some helpful hints for some of the columns.

- Enter the Collection*MethodCode*. Use the default code of Not Applicable for field observations i.e. habitat data.
- Enter the *Time*, formatted in Excel as hh:mm in 24 hour time.
- Enter the Replicate number. Default is 1.
- Enter any HabitatCollectionComments that are related to habitat collection.
- Fill in the MatrixName, MethodName, AnalyteName, FractionName and UnitName. Together these groups of columns are called constituent codes. The table below contains the most commonly used codes.

Table A5: Commonly used Habitat Constituent Codes

MatrixName	MethodName	AnalyteName	FractionName	UnitName
habitat	FieldObservations	BeaufortScale	None	none
samplewater	FieldObservations	Color	None	none
sediment	FieldObservations	Color	None	none
sediment	FieldObservations	Composition	None	none
habitat	FieldObservations	DominantSubstrate	None	none
habitat	FieldObservations	Evidence of Fire	None	none
habitat	FieldObservations	ObservedFlow	None	none
habitat	FieldObservations	Odor	None	none
sediment	FieldObservations	Odor	None	none
samplewater	FieldObservations	Odor	None	none
habitat	FieldObservations	OtherPresence	None	none
habitat	FieldObservations	PictureCode	None	none
habitat	FieldObservations	Precipitation	None	none
habitat	FieldObservations	PrecipitationLast24hrs	None	none
habitat	FieldObservations	SkyCode	None	none
habitat	FieldObservations	Wadeability	None	none
samplewater	FieldObservations	WaterClarity	None	none
habitat	FieldObservations	WindDirection	None	none

- Enter the *ResQualCode*, *QACode*, *CollectionDeviceCode*, and *CalibrationDate*. The *ResQualCode* and *QACode* should be "=" and "None" respectively if no issues occurred while sampling for the analyte.
- *ComplianceCode* and *BatchVerificationCode* should be "NA" for Not Applicable.

HABITAT RESULTS TABLE STRUCTURE:

Table A6: HabitatResults tab header definitions, cell requirements and LookUp list availability.
*Primary Key, required for record uniqueness.

FIELD TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
StationCode*	Text	**Yes**	25	Station LookUp	A code representing the StationName and site. Should be unique within a study design.
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	Refers to the project associated with the sample.
EventCode	Text	**Desired**	20	Event LookUp	Represents the primary reason, i.e. water quality, tissue or bioassessment sampling, for the sampling event.
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.
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.
SampleComments	Text	No	255		The comments field should be used for any notes or comments specifically related to the sample collection.
LocationCode	Text	**Desired**	50	Location LookUp	Describes the physical location where the sample was collected. One sampling event may have a single or multiple locations.
GeometryShape	Text	No	50		Physical shape of the location. Example values are Line, Point, or Polygon.
CollectionTime*	Date/ Time	**Yes**	20		Refers to the time of day when the first sample was collected.
CollectionMethod Code	Text	**Yes**	50	Collection Method LookUp	Refers to the general method of collection such as Sed_Grab, Sed_Core, Water_Grab, Autosampler24h, Autosampler7d.

FIELD TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
Replicate*	Integer	Yes			Used to distinguish between replicates created during 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.
CollectionDevice Name	Text	**Desired**	50	Collection Device LookUp	Unique name of the CollectionDevice. Default value for habitat is "None".
HabitatCollection Comments	Text	No	255		Comments related to the habitat collection.
MatrixName*	Text	Yes	50	Matrix Lookup	Refers to the sample matrix, e.g. samplewater.
MethodName*	Text	Yes	50	Method LookUp	Refers to the analysis method used to analyze the sample. Default is "FieldObservation".
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 field observations this is "None".
UnitName*	Text	Yes	50	Unit LookUp	Refers to how the result is measured or expressed. For field observations this is "None".
VariableResult	Text	Yes	80	FieldObs VarLooku p	Categorical result for field observation.
Result	Text	Yes	50		Final numeric result of a given analyte, stored as text to retain trailing zeros. The result should be reported with the appropriate number of significant figures.
ResQualCode	Text	Yes	10	ResQual LookUp	Qualifies the analytical result of the sample.

FIELD TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
QACode*	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 should be applied to a record, the convention is to list them in alphabetical order separated by commas and no spaces.
ComplianceCode	Text	**Desired**		Compliance LookUp	Unique code referencing the Compliance with the associated QAPP.
BatchVerification Code	Text	**Desired**	10	Batch Verification Lookup	Unique code referencing the Verification of a Batch, with default value equal to "NA". If the Batch Verification used is not found in the lookup list please contact your Regional Data Center for assistance.
HabitatResult Comments	Text	No	255		Comments related to the habitat result.

* Primary Key, required for record uniqueness.

~~5. SAMPLEPURPOSE~~

~~The purpose of the sample purpose table is to document the reason a project went to a specific station on a specific date to collect. Each record represents a specific purpose for a particular station on a specific date. For example, if tissue and water quality samples were taken and field measurements were made on one day at two different stations, six rows should be recorded in the "SamplePurpose" tab.~~

~~SAMPLE PURPOSE TABLE STRUCTURE:~~

~~Table A10: SamplePurpose template header definitions, cell requirements and LookUp list availability.~~

~~FIELD 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 a study design.~~

FIELD TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
SampleDate*	Date/ Time	Yes			Refers to the date the sample was collected in the field. For WQ samples with collection times that last longer than one day, like autosamplers, the sample date is the date sample was retrieved. For transplanted bivalves, the SampleDate is the date the transplanted organisms were collected, removed, or retrieved from the field. For overnight tissue collections, the SampleDate is the date the sample was retrieved. Formatted as dd/mmm/yyyy. Default value equals 01/Jan/1950 if unknown.
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 for the sampling event (e.g. water quality, tissue or bioassessment sampling). If there are multiple sampling events that take place, the higher ranking EventCode is entered.
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. Default value equals Not Recorded if unknown.
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. Default value equals "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.
SamplePurposeCode	Text	Yes	20	Sample Purpose LookUp	Codes that represents what was collected at a station (e.g. habitat or water chemistry) on a specific date.
PurposeFailureName	Text	Yes	50	Purpose Failure LookUp	Code used to identify issues with collecting any of the intended samples/information at a site (e.g. dry sites).

FIELD TEMPLATE HEADER	DATA TYPE	REQUIRED	SIZE	LOOKUP LIST	DEFINITION
SampleHistoryComments	Text	No	255		The comments field should be used for any notes or comments specifically related to the Sample Purpose. For example, if the PurposeFailureName was to identify that a site was dry, the SampleHistoryComments should have a corresponded comment to describe the situation.

* Primary Key, required for record uniqueness.

A-2: Excel Template Data Entry Tools

Please utilize the tools below to help provide data entry staff with a tailored data entry process for your program.

1. Field sheets

Using field sheets that contain all the necessary information for data entry will help speed up the data entry process. Example field sheets can be found at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/electronic_data_submission/index.shtml . See website section CVRDC Templates and Manuals.

2. Template Entry Checklist

An example checklist created by the Central Valley Water Board step by step data entry rules for the field template entry process.

A-3: DATA CHECKER

When the field data template is complete please utilize the online Data Checker to verify entry against current LookUp lists, business rules and formatting. The Data Checker can be found at: http://ceden.org/CEDEN_checker/Checker/CEDENUpload.php. Directions on how to use this tool are described below:

1. Choose "Field Results" for the data category.
2. Enter your Name, Email Address and select your Agency.
3. Browse for your file.
4. Deselect Check for existing samples.
5. Click "Check Excel File"

NOTE: Do not insert Microsoft Excel comments into the data set (comments in headers are allowed).

Please be patient while the Data Checker processes your data. The Data Checker will then provide a report through the website and to the given email address with the errors found within the data template. Files may be checked more than once to ensure errors have been corrected successfully.

Once the field template has been verified through the Data Checker and all applicable errors have been addressed submit the data to the Central Valley Water Board ILRP liaison. (Please note that the data checker is used as a tool to help catch errors and some errors might not be applicable to your program/project. If this happens please note that you can still submit your data and the errors can be addressed if needed).

For more information on the Data Checker and submitting data, see online at http://ceden.org/CEDEN_checker/Checker/index.htm

Appendix B: Descriptions and Business Rules

Appendix B Tables

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Table B1: Sample Information (Excel Template Worksheet: Field Results)

Template Column Name	LookUpList	Description & Business Rules Description in bold, business rules are noted with (•), and examples are noted with (*), ILRP specific business rules are italicized
EventCode (Not Required)	EventLookUp	**EventCode represents the primary reason for the sampling event at a particular station and date.** • The EventCode will be in a hierarchical order as follows: *"BA" – If the primary reason for sampling is for Bioassessment (Tissue and/or WaterQuality samples may or may not also be collected) *"TI" – If the primary reason for sampling is for Tissue (WaterQuality samples may or may not also be collected; no associated Bioassessment samples collected) *"WQ" – If the primary reason for sampling is for WaterQuality (no associated Bioassessment or Tissue samples collected) *For example, if the primary reason for sampling on Day 1 was for Tissue and WaterQuality, the EventCode would be "TI". If for some reason the WaterQuality had to be re-sampled the next day, on Day 2, the event for the re-sampling would be WQ because WaterQuality was the primary reason for sampling on Day 2 even though it was intended to be sampled on Day 1.
ProtocolCode (Not Required)	ProtocolLookUp	**ProtocolCode represents the sampling protocol used which includes the set of methods, methodology and/or specifications such as MPSL-DFG_Field SOP_v1.0. Established protocols may be used or Regions may document their own sampling protocols.** • It is preferable to combine protocols per StationCode and date so that all WaterQuality, Bioassessment, Tissue data are combined under the same EventCode. For example, if Tissue and WaterQuality are sampled at a station, the EventCode would be "TI". If the protocols are different for Tissue and WaterQuality, the Tissue protocol would be used and the WaterQuality protocol would be listed in the SampleComments. If that is not preferable, separate EventCodes may be used with each individual protocol. Default value is "Not Recorded".
StationCode (Required)	StationLookUp	**StationCode represents a unique sampling site in a sampling design. A single waterbody may have multiple stations.**

Template Column Name	LookUpList	Description & Business Rules Description in bold, business rules are noted with (•), and examples are noted with (*), ILRP specific business rules are italicized
		• The format for the unique alphanumeric description of the station is ###ABC123, where ### is the Hydrologic Unit number and ABC123 is an alphanumeric description of the Station. An example is 111EELBRN which is Hydrologic Unit 111 and an abbreviated code to indicate "Eel River - South Fork near Branscomb".
SampleDate (Required)		**SampleDate refers to the date the sample was collected in the field.** • The format for electronic data submission (not data entry forms) is dd/mmm/yyyy, such as "10/Nov/2007". For samples with collection times that last longer than one day, e.g. autosamplers, the sample date is the date sampling began. • When entering data using the forms, the format is mm/dd/yy. • For transplanted bivalves, the SampleDate is the date when the bivalves were deployed in the field.
ProjectCode (Required)	ProjectLookUp	**ProjectCode references the project that is associated with the sample.**
AgencyCode (Not Required)	AgencyLookUp	**AgencyCode refers to the organization or agency that collected the sample.**
Sample Comments (Not Required)		**SampleComments are any comments related to the sample.**

Table B2: Location Information (Excel Template Worksheet: FieldResults)

Template Column Name	LookUpList	Description & Business Rules Description in bold, business rules are noted with (·), and examples are noted with (*), ILRP specific business rules are italicized
LocationCode (Not Required)	LocationLookUp	**LocationCode describes the physical location in the waterbody where the sample was collected. One sampling event may have a single or multiple locations.** • For a single point of sampling, the physical location in the waterbody can be used such as "Bank", "Thalweg", "Midchannel", "OpenWater". • Location for field results should be the same as the location for the "Water_Grab" collection method. • For "TI" EventType sampling, the physical location plus the CollectionMethod is used such as "BankNet1", "BankShock1", "OpenWaterTrawl1", "OpenWaterNet1". For Resident mussel or clam collections, the LocationCode would be the physical location in the water body plus the generic CollectionMethod, e.g. "BankTissue_Grab". • Multiple physical locations within a single station could consist of LocationCodes such as "BankShock1", "BankNet1", "OpenWaterHook1". • OpenWater sampling with multiple sub-locations within a single water body or station could have locations of "OpenWaterTrawl1", and "OpenWaterTrawl2" describing one large location with two smaller areas of sampling within the OpenWater Location. • If recording specific locations within a station is necessary for the project, LocationCodes such as "Location1Net1", "Location1Net2", "Location2Shock1" may be used.
GeometryShape (Not Required)	VariableCodes LookUp	**GeometryShape is the physical shape of the location; e.g. "Line", "Point", "Line Centroid", "Polygon", "Polygon Centroid"** • For Field QA use associated environmental sample's shape or leave blank.

Table B3: Geometry Data (Excel Template Worksheet: Locations)

Template Column Name	LookUpList	Description & Business Rules Description in bold, business rules are noted with (·), and examples are noted with (*), CV RDC specific business rules are italicized
CoordinateSource (Not Required)	VariableCodesLookUp	**CoordinateSource describes the way a coordinate was measured; e.g. "Map", "GPS"**
CoordinateNumber (Required)		**CoordinateNumber refers to the number of coordinates recorded at an individual Location; e.g. "1" for Points (target and actual coordinates); 1 and "2" for Lines**
ActualLatitude (Required)		**Coordinate Latitude records both the actual and target Latitudes in decimal degrees with 5 decimal places.**
ActualLongitude (Required)		**Coordinate Longitude records both the actual and target Longitudes in decimal degrees with 5 decimal places as a negative number.**
Datum (Required)	VariableCodesLookUp	**The Datum field records the datum that was used on the GPSDevice to record the GPS measurements.** • "NAD83" is recommended for CV RDC.
Elevation (Not Required)		**Elevation of where the sample is being collected**
UnitElevation (Not Required)	VariableCodesLookUp	**Units for elevation**
StationDetailComments (Not Required)		**GeometryComments are any comments related to the Geometry.**

Table B4: Habitat Data (Excel Template Worksheet: HabitatResults)

Template Column Name	LookUpList	Description & Business Rules Description in bold, business rules are noted with (·), and examples are noted with (*), ILRP specific business rules are italicized
CollectionMethodCode (Required)	CollectionMethodLookUp	**CollectionMethodCode refers to the general method of collection.** •*The CV RDC habitat default is "Not Applicable".*
CollectionTime (Required)		**Time habitat information was taken.**
Replicate (Required)		**Replicate is the collection replicate number used to distinguish between replicates created at collection.** •The default value is "1".
HabitatCollectionComments (Not Required)		**Any comments associated with Habitat collection**
AnalyteName (Required)	AnalyteLookUp	**The AnalyteName is the 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.**
MatrixName (Required)	MatrixLookUp	**MatrixName refers to the sample matrix.** • For field-generated water samples, the MatrixName is "samplewater". • For field-generated sediment samples, the MatrixName is "sediment".
MethodName (Required)	MethodLookUp	**MethodName refers to the analysis method used by the laboratory to analyze the sample.** • "FieldObservation" is used for categorical descriptions made in the field by observation i.e. habitat • "ObservedFieldMeasure" is used for numeric measurements made in the field by observation
FractionName	FractionLookUp	**FractionName is a specific descriptor of the**

Template Column Name	LookUpList	Description & Business Rules Description in bold, business rules are noted with (·), and examples are noted with (*), ILRP specific business rules are italicized
(Required)		**Analyte.** • Default is "none" for Habitat Observations
UnitName (Required)	UnitLookUp	**Unit refers to how the result is measured or expressed.** • For Field Observations this is "None".
VariableResult (Required)	FieldObsVarLookUp	**Categorical Result of FieldObservation**
Result (Required)		**The result of the ObservedFieldMeasure. Be sure to key any trailing zeros that were entered on the field sheet. Can leave blank if variable result is populated.**
ResQualCode (Required)	ResQualLookUp	**The Result Qualifier Code or ResultQualCode qualifies the analytical result of the sample.** • Default value is "=" for Habitat • When the result is left blank due to a failure etc, a ResultQualCode other than "=" is required. If the ResultQualCode value is "NR" for Not Recorded, then a reason for this code must be written into the comments field and an appropriate QACode would be applied.
QACode (Required)	QALookUp	**QACode is applied to the result to describe any special conditions, situations or outliers that occured during or prior to the observation to achieve the result.** • Default value is "None" for habitat or "NR" for Not Recorded
CollectionDeviceName (Not Required)	CollectionDeviceLookUp	**CollectionDeviceCode refers to the specific device used in the collection of the sample.** • Default value is "None" for Habitat.
ComplianceCode (Not Required)	ComplianceLookUp	**ComplianceCode is a unique code referencing the compliance with the associated QAPP.**

Template Column Name	LookUpList	Description & Business Rules Description in bold, business rules are noted with (·), and examples are noted with (*), ILRP specific business rules are italicized
		• Default value for Habitat is "NA" for Not Applicable
HabitatResultComments (Not Required)		**Any comments related to habitat**

Table B5: Field Results (Excel Template Worksheet: FieldResults)

Template Column Name	LookUpList	Description & Business Rules Description in bold, business rules are noted with (·), and examples are noted with (*), ILRP specific business rules are italicized
CollectionMethodCode (Required)	CollectionMethodLookUp	**CollectionMethodCode refers to the general method of collection.** • The CV RDC field default is "Field".
CollectionTime (Required)		**Time field samples are taken.** • The CollectionTime format should be expressed as hh:mm in 24 hour time, such as "13:30" for 1:30 pm.
CollectionDepth (Required)		**CollectionDepth measures the depth at which the sample was collected.** • Default of "0" m collection depth is Surface, "0.1" m collection depth is Subsurface.
UnitCollectionDepth (Required)	UnitLookUp	**CollectionDepth units in "m"**
Replicate (Required)		**The replicate number identifies replicates created in the field.** • Default is "1"
PositionWaterColumn (Not Required)	VariableCodesLookUp	**PositionWaterColumn is the position in the water column where the sample was taken. This assists with sorting when multiple depths are used in collection.** • Project specific but for ILRP water collections, 0 m collection depth is "Surface", 0.1 m collection depth is "Subsurface". For sediment collections use "Not Applicable".
FieldCollectionComments (Not Required)		**Any comments related to field collection**
AnalyteName (Required)	AnalyteLookUp	**The AnalyteName is the 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.**
MatrixName	MatrixLookUp	**MatrixName refers to the sample matrix.**

Template Column Name	LookUpList	Description & Business Rules Description in bold, business rules are noted with (·), and examples are noted with (*), ILRP specific business rules are italicized
(Required)		• For field-generated water samples, the MatrixName is "samplewater".
MethodName (Required)	MethodLookUp	**MethodName refers to the analysis method used by the laboratory to analyze the sample.** • Default is "FieldMeasure"
FractionName (Required)	FractionLookUp	**FractionName is a specific descriptor of the Analyte.**
UnitName (Required)	UnitLookUp	**Unit refers to how the field result is measured or expressed.** * Water units are indicated by weight/volume, e.g. "ng/L". Sediment units are indicated by weight/weight and includes whether the sample result is reported as wet weight ("ww") or dry weight ("dw"). For example, "ng/g ww" for ng/g wet weight. Surrogates recovery results will use a unit of "%".
FieldReplicate (Required)		**The replicate number identifies replicates created in the field.** • Default is "1".
Result (Required)		**The result of the field measurement. Be sure to key any trailing zeros that were entered on the field sheet.**
ResQualCode (Required)	ResQualLookUp	**The Result Qualifier Code or ResultQualCode qualifies the analytical result of the sample.** • Default value is "=" • If result is left blank because of a failure then the ResQualCode cannot be "=".
QACode (Required)	QALookUp	**QACode is applied to the result to describe any special conditions, situations or outliers that occurred during or prior to the observation to achieve the result.**
CollectionDeviceName (Not Required)	CollectionDeviceLookUp	**CollectionDeviceCode refers to the specific device used in the collection of the sample.**

Template Column Name	LookUpList	Description & Business Rules Description in bold, business rules are noted with (·), and examples are noted with (*), ILRP specific business rules are italicized
CalibrationDate (Not Required)		**CalibrationDate refers to the date the collection device was calibrated.** • The format for electronic data submission (not data entry forms) is dd/mmm/yyyy, such as "10/Nov/2007". • Default value is 01/01/1950.
BatchVerificationCode (Not Required)	BatchVerificationLookUp	**BatchVerificationCode is a unique code referencing the Verification of a Batch.** *• Habitat and field data will be coded as "Not Recorded" unless otherwise specified.*
ComplianceCode (Not Required)	ComplianceLookUp	**ComplianceCode is a unique code referencing the Compliance with the associated QAPP.** *• Habitat and field data will be coded as "Not Applicable".*
FieldResultComments (Not Required)		**Enter comments to explain any conditions encountered in obtaining the constituent result.**