WQX Web Physical Chemical Template

Introduction

This is a step by step guide to use the WQX Web Monitoring Data Entry Template to prepare Physical/Chemical data for import into WQX Web, and subsequent transfer to the Water Quality Portal. This template will assist in properly formatting your data by providing lists of allowable values, as well as highlight necessary business rules detailing when fields are needed. This template is meant to be an easy way to assemble or track your data, maintaining it in such a way so that it can be easily migrated to the Portal.

Please note: The WQX Web template is meant to be used with standardized configuration files saved within the folder downloaded with this guide. It is OK to make changes to the WQX Web template to better suite your needs, however, if you do, the please know that the configuration that you use in WQX Web may need to be changed as well. In addition, the domain values in the WQX Web template might be out of date. They were last updated 7/6/2017. Please reference the look up tables in the WQX Web tool in order to get the most up to date values.

Using the WQX Web template

The WQX Web template is made up of two Excel spreadsheet files that are meant to be used together to assist with data tracking and entry. The first file, labeled "WQXWeb Template dictionary v3.xls" provides a dictionary of all the types of data, formats, and associated data rules that can be included within a WQX Web data file. The second file, labeled "Physical Chemical Template.xlsx" provides columns that match the dictionary for the purpose of entering in data and contains a "definitions" tab for all the column names in the template. For the purposes of these directions, you will be using "Physical Chemical Template.xlsx" to enter the data.

Data Structure

Three categories of data are required, Projects, Monitoring Locations, and Results.

Projects: At least one project is required. This describes the purpose of the monitoring.
***Monitoring Locations*:** Description of the geographic location of the site where monitoring took place.
Results: Water quality sampling and field observations that take place during a visit to a monitoring station, including descriptions of what was sampled or observed, analytical methods, sample collection procedures and measurements of what was monitored.

Creating Projects

A project should define WHY a sample is being collected. A project should contain a unique ID, a name, and a description of the projects purpose. You need to have at least one project, but you can have many. A project could contain an entire year's sampling, sampling related to a specific study, or even sampling related to particular water types (i.e. a lakes project). To create a project, do the following:

1. Open the template in Excel (Physical Chemical Template.xlsx).

2. Click the ‘Projects’ tab.
3. Enter an ID of 35 characters or less
4. Project Name can be no longer than 120 characters
5. Keep the Description as brief as possible.

Creating Monitoring Locations (Stations)

A monitoring location should describe WHERE a sample is being collected. A monitoring location must contain a unique ID, a name, a monitoring location type (i.e. river/stream, lake, etc.), state/county, and latitude/longitude coordinate information including the method for getting the lat/long coordinates. A monitoring location should also contain a name and description. This will help you distinguish monitoring locations down the road.

Click the ‘Monitoring Locations’ tab to begin.

- Each monitoring location must have a unique id. This can be anything up to 35 characters long.
- Monitoring Location name is required. This can be up to 255 characters long.
- Monitoring Location Type is the type of station. Select the best one from the drop down list.
- Use degrees followed by decimal degrees for latitude and longitude. This is the default reading of most GPS units. Longitude must be negative in the western hemisphere.
- The Horizontal Collection method is required. This field represents the method that you used to determine the latitude and longitude of your monitoring location. If you determined the latitude and longitude of your monitoring location using a GPS, but do not have any more specific detail about the GPS method, then you may use GPS-Unspecified. If you determined your coordinates from a map, you must then specify the denominator of your map scale (24,000 instead of 1:24,000) in the Monitoring Location Source Map Scale field.
- The Horizontal Coordinate Reference System Datum Name is required. This field determines the datum that your latitude and longitude coordinates are based upon. Commonly used data are NAD83 or NAD27. This is a setting that may be changed on most GPS units. Good quality maps should have this information in the legend information.
- Select the State and county from the drop down list. The county code will automatically generate in column M. Please disregard the column. It is needed for WQX to load the data.
- Optional fields are provided for tribal land information.

Results – Water Chemistry Samples

The results section defines the WHAT, WHEN, and HOW of the sample being collected. Within the WQX model, individual samples are identified as unique ‘Activities’. An Activity can be defined as any individual action you are performing at a location to collect data. For example, if you were to visit a location, and do the following:

collect 1 bottle of water to be sent to a lab for nutrient analysis
collect 1 bottle of water to be sent to a lab for pathogen analysis
collect a series of field parameters (i.e. pH, DO, Temperature)

Within WQX, each of these would be considered a separate activity, and would need their own unique Activity ID. In short, any time there is a change in Activity Type, Activity Medium, Monitoring Location, Activity Start Date, or Activity Depth, a new Activity ID must be created. An Activity ID will often contain multiple Characteristics.

To enter results, do the following:

- Click Results tab and enter the appropriate project and monitoring location information then start entering the below results information.
- **Activity ID** is required. An Activity ID must be completely unique across an Organization, so Activity IDs cannot be reused for multiple activities. The tab called "Activity ID Formula(s) contains formulas that can be copied and pasted into the Activity ID cells to automatically create a unique ID for you.
- **Activity Type** – Sample-Routine (for samples taken and sent to a lab) or Field Msr/Obs (for measurements taken at a site such as with a probe or other on site instrument) There are others for sample blanks, etc. Please use the drop down menu to select the correct type.
- **Activity Medium Name** – Typically Water but use the drop down to select the media type.
- **Activity Start Date** refers to the date the sample was collected.
- **Activity Start Time** is optional, but if entered **Activity Start Time Zone** becomes required, for example: CST.
- **Activity Depth and Depth Units** are optional, though if Depth is entered the units must also be entered. Choices are ft (feet) and m (meters).
- **Sample Collection Method ID** and **Sample Collection Equipment Name** are required for samples that are collected and sent to the lab. If uncertain about the Sample Collection Method, you may refer to your QAPP and attach the QAPP during data submission. These fields will turn blue when they are required.
- **Characteristic** Name MUST have a match in WQX. These are available by either using the dropdown arrow in the Characteristic Name column, or by searching the list in the associated allowable values worksheet. For the 106 guidance, the following WQX characteristics are available:

Parameter as defined in 106 Tribal Guidance	Corresponding WQX Characteristic(s)
Dissolved Oxygen	Dissolved oxygen (DO)
Water Temperature	Temperature, water
Turbidity	Turbidity
pH	pH
Phosphorous	Total Phosphorus, mixed forms
Total Nitrogen	Total Nitrogen, mixed forms
E. Coli	Escherichia coli
Enterococci	Enterococcus

- **Method Speciation Name** is required if a form of Nitrogen or Phosphorus is being reported. For example, Ammonium may be measured as N or as NH4. If you need guidance on how to report nutrient data, please see our WQX Nutrient Best Practices Guide at: https://www.epa.gov/waterdata/wqx-nutrients-best-practices-guide
- **Result Value** is the actual measurement for each characteristic. Either the Result Value field or the Result Detection Condition field must contain a value, never both fields. If the result is below detection limit, the Result Value must be blank, and the Result Detection Condition field must contain 'Not Detected'. Please see the image below.

Characteristic Name	Result Detection Condition	Result Value	Result Unit	Result Detection/Quantitation Limit Type	Result Detection/Quantitation Limit Measure	Result Detection/Quantitation Limit Unit
Nitrite		4.46	mg/l	Method Detection Level	0.001	mg/l
Nitrogen-15		11.3	mg/l			
Ammonia-nitrogen		0.8022	mg/l			
Nitrate		6.2	mg/l			
Nitrite	Present Below Quantification Limit			Lower Quantitation Limit	0.50	mg/l
Nitrogen-15		10.3	mg/l			
Ammonia-nitrogen		1.0022	mg/l			
Nitrate	Not Detected			Method Detection Level	0.001	mg/l

- **Result Detection Condition** - If you indicate a sample is “Not Detected” or above/below a detection limit, you must provide the Detection Limit Type, Limit, and Unit. This should be provided by the lab along with appropriate units. When you are required to submit a Limit type, value and unit, the cells will turn yellow.
- **Result Unit** is required for non-text result values, unless the Result Detection Condition field contains a value. For pH it will always be None.
- **Sample Fraction** is a description of the portion of the characteristic being analyzed. Sample Fraction will usually be Total, Dissolved, Unfiltered, Filtered. Please check with your lab to confirm the sample fraction used for the analysis. In addition, nutrient data should be captured as filtered/unfiltered given “Total” is ambiguous for nutrient data. More information can be found in the nutrient best practices guide above.
- **Result Status ID** is required if you reported a result. In order for your data to be uploaded to the Water Quality Portal, this field MUST NOT BE set to “Preliminary”.
- **Result Value Type** is required if a result is non-text. It must be either Actual, Estimated, Calculated, or Control Adjusted. The default entry is Actual.
- **Result Analytical Method ID** and **Context** (The organization that owns the method) are the analytical procedures used by the lab for analyzing samples. You can find the Analytical methods in the results you receive from your lab or by contacting them. These cells will turn blue when they are required.
- **Analysis Start Date** is the date the lab started analyzing samples.

Loading into WQX Web

WQX Web accepts Excel files. To load data, log into WQX Web by going to cdx.epa.gov and selecting the “WQX Web” role.

1. Start by selecting the tab “Setup” > “Import configurations”
2. Select “Add New”
3. Select “from a configuration file”
4. Navigate to the **projects.cfg** file in the Physical Chemical folder, select continue, and Save the file
5. Go to “Import & Submit” > “Import Projects into the staging area”
6. Select the import configuration you just created
7. Change the Organization ID to the Organization ID you have been assigned.
8. Choose the “WQX Web Physical Chemical Template.xlsx”
9. Select import data
10. To load Monitoring Locations and results, follow steps 1-9 using the Monitoring Locations and Results Import configuration files.

Other resources for data management, loading, and error resolution can be found on our website at https://www.epa.gov/waterdata/storage-and-retrieval-and-water-quality-exchange or for questions contact the helpdesk at storet@epa.gov.