CE-QUAL-W2 Control File Converter to 4.5

Scott Wells
Department of Civil and Environmental Engineering
Portland State University
April 2021

This document outlines the steps required to convert a legacy application control file, **w2_con.npt**, and its companion **graph.npt** file into the Excel version of the control file or to convert a w2_con.csv file from 4.1 or 4.22 to 4.5.

This is a relatively simple process that involves these steps:

- 1. Copy **ConverterControlFile.exe** into the directory of a legacy application or copy the three files read by the program (w2_con.npt, graph.npt, and the bathymetry file) into a directory with the executable. If you are just converting a 4.1 or 4.22 w2_con.csv file to the new format, just copy w2_con.csv and the bathymetry file into a new directory. After execution (double click the converter executable), the following files are written to the directory:
 - a. **w2_con45.csv** this is a csv file format of the control file. This will then need to be copied into a Version 4.5 example **w2_con.xlsm** template.
 - b. A csv form of the bathymetry file (if the bathymetry file was not already in csv format). The output bathymetry file is named **bthX.csv**, where X is the waterbody number. This new format is much easier for editing and analysis than the older file format. The file name in the w2_con.csv is also changed to bthX.csv.
- 2. Copy **w2_con.csv** into an existing Version 4.5 example file *.xlsm from another application (you can use one from the W2 Model Examples) by following these steps:
 - a. Open the file w2_con.xlsm (or it may have a different descriptive name, such as w2_con_DeGray.xslm) from an existing example problem supplied in the CE-QUAL-W2 example problems.

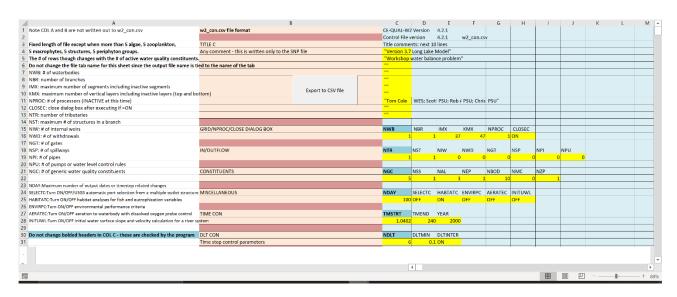


Figure 1. An example of an existing w2_con.xlsm file. Columns A and B are not used in the control file and we will be pasting the w2_con45.csv into column C1, not A1.

i. The easiest option is to open the file w2_con45.csv from the converter utility in Excel. Select the columns and rows with data. Do not select the entire sheet since you cannot copy and paste these into Cell C1 in w2_con.xlsm. Select the rows and columns necessary to select all the data. Be careful you select all the columns – especially for the SOD specification per segment. You will need to select as many columns as the # of segments (IMX).

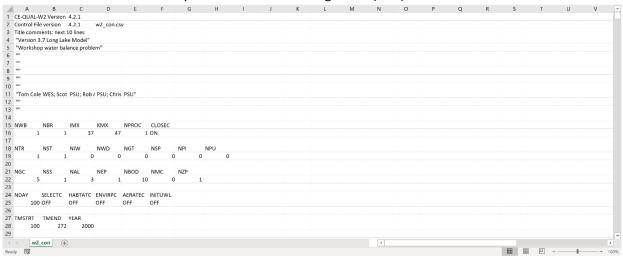


Figure 2. An example of the w2_con45.csv file from the converter utility.

- ii. Then Copy the selected cells from w2_con45.csv and paste to w2_con.xlsm cell C1 using Paste Values and Number Formatting so that the colors and other formatting are preserved in the original document.
- b. The next step is to adjust rows for the number of constituents. The template file you used **w2_con.xlsm** had an assumed number of water quality constituents that may be different from the number you will use. Go to approximately row 384 as shown below and delete or add cells *in only column A and B* only to match the specified number in

the formula. So, if you need to add cells, then select the correct number of cells in column A and B, right click your mouse and choose 'Insert', then 'shift cells down.' If you need to delete cells, then select the correct number of cells in column A and B, right click your mouse, choose 'Delete', then select 'move cells up'. Now the information in column A and B should line up with what is written in Column C.

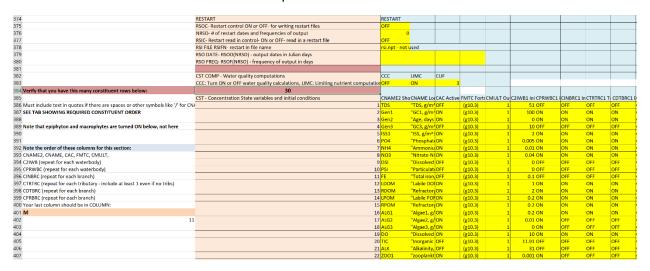


Figure 3. Location in Excel template where the constituent order is shown. In this example, the required number of constituents is 30. This is a formula computed in the Excel sheet. Make sure that you have that same number in the list that follows. There is guidance on another tab in the Excel file on the required order based on your dimensioning of number of algal groups, BOD groups, macrophyte groups, periphyton groups, suspended solids groups, and generic constituent groups. Also note that in column A, guidance is given on setting the number of columns needed in this section.

- c. If you have more than 5 structures, 5 epiphyton/periphyton groups, 5 algae groups, 5 macrophyte groups, or 5 zooplankton groups, you will have to add additional rows where necessary only in columns A and B. You can search in Column A for "increase # of rows" for where these areas are located.
 - i. For structures, look at rows 136-165 there are notes in Col A and B describing where to add rows if more than 5 structures.

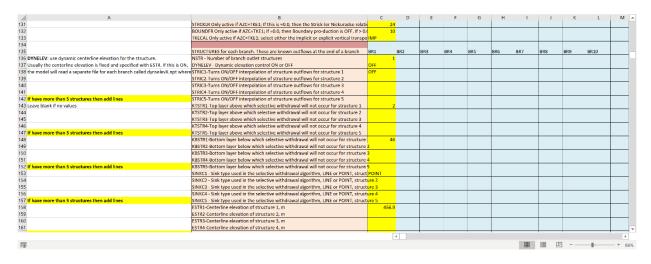


Figure 4. Location in Excel file where the number of rows needs to be increased in case there are more than 5 structures.

ii. For more than 5 epiphyton/periphyton groups, look in the epiphyton section (search for epiphyton).

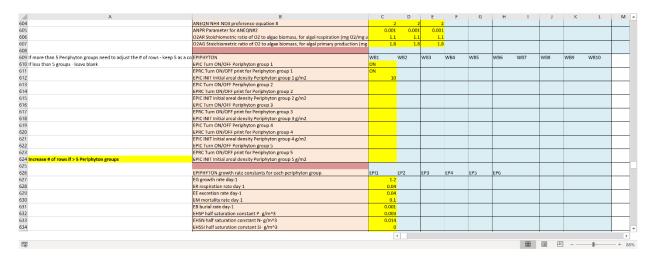


Figure 5. Location in Excel file where the number of rows needs to be increased in case there are more than 5 epiphyton/periphyton groups..

iii. For more than 5 algae and 5 zooplankton groups, look in the zooplankton section (search for zooplankton).

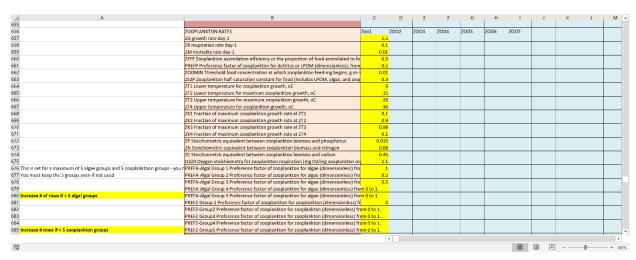


Figure 6. Location in Excel file where the number of rows needs to be increased in case there are more than 5 zooplankton groups.

iv. For more than 5 macrophyte groups, look in the macrophyte section (search for macrophyte).

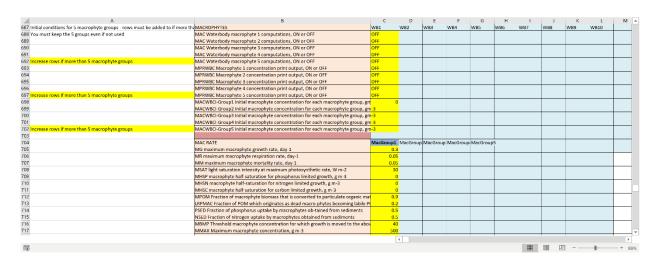


Figure 7. Location in Excel file where the number of rows needs to be increased in case there are more than 5 macrophyte groups.

- d. You will need to put quotes around the TITLE field, HNAME field, CNAME field, and CDNAME field. This can be done by setting up a formula using the existing cells as '=char(34)&[CELLREF]&char(34)' where CELLREF is the cell reference number of the original text. Then paste the values with the double quotes to the locations in the control file. If anyone figures out an easier way to do this let me know! Frustratingly, Excel drops the double quotes on importing them.
- e. The w2_con.xlsm file should now be working. As edits are made in this file, you will push the button on the top of the file in Column B to export it to w2_con.csv, which is read in by the W2 model. The preprocessor will 'yell' at you in case there is an error in the set up.