



State Water Resources Control Board

WATER MEASUREMENT AND REPORTING REGULATION: DATAFILE TEMPLATE MANUAL

DISCLAIMER: This template is intended as an *optional* tool to aid in compliance with the measurement and reporting requirements specified in [California Code of Regulations title 23, chapter 2.8](#) (Regulation). Alternative datafile formats that meet the criteria specified in the Regulation are permitted. The California State Water Resources Control Board (State Water Board) is actively developing statewide guidance to help water diverters with measurement and reporting.

CHOOSING A TEMPLATE BASED ON MEASUREMENT FREQUENCY

Your minimum required measurement frequency is specified in section 933(b)(1) of the Regulation. Templates are available for those using a monthly, weekly, daily, and hourly timestep. If you measure more frequently than your required timestep, please use the “custom interval” datafile template and self-report the days and times measurements were made.

USING THE TEMPLATE

In each template, data entry is restricted to the rows and columns in which you will enter your measurement data. Please ensure that you enter a value under each required column header for every row of data reported.

You will be reporting the **raw, unaltered data** recorded by your Measuring Device or collected as part of a Measurement Method, as well as **QA/QC'd data** correcting for any known or suspected errors and the **volume of water diverted** determined by that data point. The following are acceptable parameters for a Measuring Device to measure, as specified in the Regulation, along with common units:

Flow Rate: Cubic feet per second (CFS), Gallons per minute (GPM), or Gallons per Day (GPD)

Volume of Water Diverted: Gallons (GAL) or Acre-feet (AF)

Water Velocity: Feet per second (FT/S)

Water Level or Elevation: Feet (FT)

Measurements outside of the above parameters, such as electrical rate for a pump, may also be reported as raw data, but would be considered as being collected via a Measurement Method, not a Measuring Device. Please see [California Code of Regulations, title 23, section 934](#) for more information on requirements for Measurement Methods.

WHAT TO ENTER IN EACH COLUMN

I. DATE

Enter the date each measurement was taken, in MM/DD/YYYY format. In the Daily and Hourly datafile templates, these dates are already provided, to ensure that you are reporting a complete record of data at the required timestep.

II. TIME

Enter the time each measurement was taken, in 24-hour format (HH:MM). For example, if the measurement was taken at 3:45 PM, the time should be reported as 15:45. Time of measurement refers to the time recorded by the datalogger for a specific measurement or the time the specific measurement value was recorded from a machine or instrument by a person.

III. RAW MEASUREMENT VALUE

Enter the value that was recorded by your Measuring Device or determined by your Measurement Method. *This value should **not** be altered in any way from the original recorded value unless this is done automatically by your Device.*

IV. RAW UNIT OF MEASUREMENT

Specify the units of measurement corresponding to the Raw Measurement Value in the previous column.

V. QA/QC (CORRECTED) MEASUREMENT VALUE

Quality Assurance and Quality Control (QA/QC) refers to the process you use to confirm the quality of your measurements and correct erroneous data. If you believe your device was malfunctioning and the Raw Measurement Value is incorrect, please enter the value that you believe to be correct. It is acceptable to alter this value only if you believe your device malfunctioned. Use this value to calculate Volume Diverted. If there were no apparent errors in the Raw Measurement Value data, then copy over the Raw Measurement Value into this column.

VI. QA/QC UNIT OF MEASUREMENT

Specify the units of measurement corresponding to the QA/QC Measurement Value in the previous column. In most cases, this will be the same as the Raw Unit of Measurement.

VII. VOLUME DIVERTED

Enter the volume of water diverted for the timestep. If your Measuring Device or Measurement Method directly measures volume diverted, this will be the same as the "QA/QC Measurement Value" column. In all other cases, the measurement value will need to be converted to volume. For example, if your Device measures cubic feet per second (CFS) and you are measuring at a daily timestep, you will need to convert from CFS to acre-feet per day to calculate the volume of water diverted between

measurements. Some Devices will measure and record both flow and volume total volume; in this case you can report the volume recorded by your Device.

If your data has known measurement errors, please correct these errors when calculating total volume diverted. Volume diverted should be calculated using QA/QC Measurement Values, not Raw Measurement Values that are known to be incorrect. If calculating volume using QA/QC'd data, please note the reason for believing the Raw Measurement Value was incorrect in the Data Flags column.

This volume should be specific to the diversion measured by this Measuring Device/Measurement Method and the water right or claim being reported on. If you are attaching a datafile for each Device at each point of diversion, the volume diverted in each datafile should correspond only to that point of diversion. If the same Measuring Device is used to measure diversions for multiple water rights, the volume diverted in each datafile should correspond only to the single water right or claim under which the Annual Report is being submitted.

VIII. VOLUME DIVERTED UNITS

Specify the units of volume diverted – this will either be gallons or acre-feet.

IX. DATA FLAGS (OPTIONAL)

If there were any issues with a specific measurement or with the Measuring Device itself at a given timestep, you may note them here. Please report a data flag only in the rows for which there were inaccurate or missing readings; this cell should be empty in rows with acceptable measurement values.

HOW TO SUBMIT YOUR DATAFILE

You will attach your measurement datafile through your Annual Report as required in [California Code of Regulations title 23, chapter 2.7](#). Once your Measuring Device and/or Measurement Method is registered via a Report of Water Measuring Device, there will be an option to manage and upload data from the Device for the given reporting year, as seen in the image below. Please visit the [Water Measurement and Reporting Regulation webpage](#) for more detailed instructions on how to report your measurement data.

WATER DIVERSION MEASUREMENT

[Video Tutorial - Water Diversion Measurement](#)

I am required to measure as of the date this report is submitted
 I am not required to measure as of the date this report is submitted
[Information on measurement requirements](#)

SUMMARY OF MEASURING DEVICES / MEASUREMENT METHODS ASSOCIATED WITH THE DIVERSION OR STORAGE OF WATER

I measure my diversion and/or storage of water
 My diversion is measured by a watermaster assigned to the following service area:

 I do not measure my diversion and/or storage of water

An alternative compliance plan was submitted to the Division of Water Rights on: (mm/dd/yyyy, example: 02/07/2009)

A request for additional time was submitted to the Division of Water Rights on: (mm/dd/yyyy, example: 02/07/2009)

Manage Measuring Devices and Upload Measurement Data

Select	Measuring Device ID	Nickname	This Device/Method was used to measure water during the current reporting period	Submitted Data File(s)	Upload/Manage Data Files
<input checked="" type="checkbox"/>	M		<input checked="" type="radio"/> Yes <input type="radio"/> No		<input type="button" value="Manage Data Files"/>

Add new or remove measurement device(s) to your report by selecting the appropriate action below. The first option allows you to enter one device at a time. If you have multiple devices for this water right, you can return to this page and add additional devices. The second option allows you to import a device that you have previously entered if you use the same device for multiple water rights. The last option allows you to remove any added devices from your report. After you have added your measurement device(s) click the corresponding "Manage Data Files" to upload measurement data files. If you did not use a measuring device, select the "No" button.

CONVERSIONS, ACCOUNTING, AND OTHER METADATA

If your diversion scenario is more complicated than a single Measuring Device at each point of diversion, and the volume diverted cannot be determined by a simple conversion of your measurement value, you will need to report the protocol used to determine the volume diverted. Please attach a file explaining your method of conversion or accounting along with your Annual Report: this can be done under the "Attached Documents" section when registering a Measuring Device or Measurement Method via your Annual Report. This is also where you will attach required information not covered in your datafile, such as maximum and minimum elevations and volumes for a reservoir.

CREATING A DATAFILE BASED ON THIS TEMPLATE

If this datafile template is not appropriate for your measurement scenario and you would like to create your own file based on this one, the following choices are recommended:

- Limit the first row of the spreadsheet to the descriptive column headers. You should have the following column labels in your datafile: Date, Time, Raw Measurement Value, Raw Measurement Value Units, QA/QC Measurement Value (if applicable),

QA/QC Measurement Value Units (if applicable), Volume Diverted, Volume Diverted Units

- Report your measurement data in a single table on the first sheet/tab of the file; data not entered under the corresponding column headers in the first row will not be recognized by a machine
- Do not “merge” cells

Please contact the Division of Water Rights via email at DWR-Measurement@Waterboards.ca.gov with any questions.