

DQM Standard Operating Procedure (SOP) 8.1.1.1

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How to find the guidance and tools you need

1.0 About this SOP

The Data Quality Management (DQM) System is implemented by the Clean Water Team (CWT) to support collection of reliable data of known quality in a fully documented, scientifically defensible manner. This standard operating procedures (SOP) provides ‘navigation’ instructions for finding DQM guidance and tools, as well as other guidance, within “The Clean Water Team Guidance Compendium for Watershed Monitoring and Assessment”, referred to below as “the CWT compendium”. The SOP augments introductory materials provided in Section 1 of the compendium. In the current version of the compendium some items are part of the DQM system while others are not. They all fit together, though, and the instructions below are provided for anyone using the compendium.

2.0 The CWT compendium Table of Contents

As mentioned above, the CWT Compendium is an array of guidance documents written to enhance collection of usable and reliable data of known quality. It takes different kinds of guidance and tools to accomplish this. The compendium has some introductory materials up front (Section 1), and the rest of the compendium (Sections 2 to 9) consists of monitoring protocols. Because this is a compendium of methods, it has been arranged by logistics of the monitoring operations: guidance starts with what you pack in your field kit and ends with how you report the quality of your data. In other words, it is sliced by what you want to do and what spatial scale it represents (Point? Line? Area?). Within each section, items are organized hierarchically. The Table of Content of the compendium reflects this organization, as shown in the example in Box 8.1.1.1-1.

3.0 Instructions for use of the CWT compendium.

To find the guidance you need, you can look at the contents of Sections 2 through 9 and seek answers to the following question:

A. Is it about general field activities (mobilizing equipment, sampling, etc.) that are not measurements, observations, or analyses?

- Go to Section 2

Box 8.1.1.1-1: Example of the Compendium Table of Content

Section 3.0	Measurements taken at One Point in a Water Body or in a Container
3.1	Vital Signs: The basic 5 water quality parameter
Folder 3.1.1	Dissolved Oxygen
IP-3.1.1	Dissolved Oxygen Measurements
FS-3.1.1.0	Fact Sheet: Dissolved Oxygen
SOP-3.1.1.1	Dissolved Oxygen Measured With A Colorimetric Ampoule
SOP-3.1.1.2	Measurements of Dissolved Oxygen with the Modified Winkler Titration
SOP-3.1.1.3	Measurements of Dissolved Oxygen (D.O.) with an Electrode
Folder 3.1.2	Temperature Measurements
IP-3.1.2	Temperature Measurements Principles and Methods
FS-3.1.2.0	Temperature Fact Sheet
SOP-3.1.2.1	Measurements of Temperature with Bulb and -Min-Max Thermometers
SOP-3.1.2.2	Measuring Temperature with a Thermister Thermometer
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Folder 3.1.5	Turbidity
IP-3.1.5	Suspended Solids and Water Column Turbidity
FS-3.1.5.0	Turbidity Fact Sheet
SOP-3.1.5.1	Water clarity (transparency) and Color Using a Secchi Disc
SOP-3.1.5.2	Water clarity (transparency) Using a Transparency Tube
SOP-3.1.5.3	Turbidity Measurement using the Dual Cylinder Method
SOP-3.1.5.4	Using a Nephelometer ("Turbidimeter")
- - -	[[Murky Waters (Schloss 1998)]]

B. Is it about how to conduct measurements, analyses, or observations – of a specific parameter?

– go to Sections 3,4, 5, or 6: See Section 3 for things you measure at a point (field) or in a jar (lab), for example, electrical conductivity; Section 4 for field measurement that are measured in a line (e.g., flow) or describe a line (e.g., Thalweg profile); Section 5 for measurements that are relevant to an area (e.g., rainfall); and Section 6 for measurements that relate to more than one of the above spatial scales (e.g., GPS).

C. Is it about formal Quality Assurance Plans?

– go to Section 7

D. Is it about designing a monitoring plan, about documenting and keeping records, about assessing & communicating data quality, or about sending your data to a central database? In other words, is it about “Data Quality Management (DQM)”?

-- Go to Sections 8 and 9

As you can see, each **Section** contains a number of Groups (e.g., Group 3.1 is the five basic water quality parameters) and each **Group** is made of several **Folders** (e.g., folder 3.1.1 is about dissolved oxygen). The folders are organized by subjects or in order of importance to Citizen Monitoring. A Folder is a package of documents providing information and guidance on a specific Parameter or subject. There may be four types of guidance document in each Folder:

Fact Sheet (FS) – these tell you why the characteristic (i.e. parameter or property) you are monitoring is important. They provide parameter-specific information regarding the ecological significance and the regulatory benchmarks that have been developed for that water quality parameter. Examples: how much ammonia is toxic to fish, or what are the water quality standards for dissolved oxygen. Note that FSs are not guidance documents.

Information Paper (IP) – these help you choose your way of measuring a given parameter - in the parameter-specific guidance folders (Sections 3 to 6). The IPs provide a "method menu" table for a selection of methods with information on cost, labor, attainable accuracy & precision, applicability, and major sources of error associated with each method. Most IPs also include a brief description of the measurement principles and provide practical advice based on what folks have learned while using these methods.

Standard Operating Procedure (SOP) – these give you step by step instructions on how to use a given instrument or kit, and some of them are associated with formal data sheets or electronic file templates. The ‘ultimate SOP’ is an extremely comprehensive and detailed document that tells you how to calibrate or check your instrument and where to record your findings/actions, how to conduct

measurements in your samples, and how to control, check, record and report (CCRR) the accuracy and precision of your measurements. In short, the SOP is in charge of helping you generate and communicate data of known quality. There may be several SOPs in each Folder. SOPs are instrument or kit-specific, and are listed inside the Folder in the same order as provided in the “method menu” table of the IP.

Other guidance– these provide further insight on the theory and practice of monitoring methods and have been included in some folders because we found them useful. Most of these documents are independent publications. Some of them are labeled “T&P” documents in the compendium.

Once you have identified the Folder you need, you can go into these folders and select the pieces you want to use. Some folders have all four types of documents, while other Folders may only have two or three types.

4.0 The CWT Guidance Numbering Method, Compendium Binders, and Website organization

The present compendium – Spring 2004 edition, or Version 2 – contains a large number of the guidance documents planned by CWT, but not all. The long term vision includes many more items. That long list has been organized in a structure that allows addition of items to each folder and each group – without disrupting the numbering system - whenever they are ready. This works because each item gets its identifying number (e.g., 9.2.1.1) from its location in that hierarchical structure, also known as the Guidance Road Map.

The compendium materials are available on the Internet as stand-alone documents and electronic template files. For special events such as Train the Trainer workshops, CWT also prepares all the guidance materials in hardcopies and distributes them in one (very thick) binder.

5.0 Sources and Resources

(This section is common to all DQM-SOPs, except for the title and SOP number in the citation) This SOP is an integral part of the Data Quality Management (DQM) System implemented by the Clean Water Team, the Citizen Monitoring Program of the California State Water Resources Control Board..

For an electronic copy, to find many more CWT guidance documents, or to find the contact information for your Regional CWT Coordinator, visit our website at www.swrcb.ca.gov/nps/volunteer.html

If you wish to cite this SOP in other texts you can use “CWT 2004” and reference it as follows:

SOP-8.1.1.1

“Clean Water Team (CWT) 2004. How to find the guidance and tools you need, DQM SOP-8.1.1.1. in: The Clean Water Team Guidance Compendium for Watershed Monitoring and Assessment, Version 2.0. Division of Water Quality, California State Water Resources Control Board (SWRCB), Sacramento, CA.”