

Data Quality Management (DQM) Fact Sheet

What is DQM?

The Data Quality Management (DQM) system is an array of forms, spreadsheets, and dictionaries for information transfer and communication between operators within a scientifically-based data collection effort.

What does it do?

The DQM supports environmental monitoring Projects focused on water quality and related watershed information. A "Project" is defined as a data collection effort that is limited in space and time (e.g., routine monitoring of one water body over one year, or a special study to identify the source of a particular constituent).

How does it work?

The DQM provides tools and instructions that help any person communicate information and data in a consistent way through all planning, monitoring, and data reporting tasks of a typical monitoring Project. These tools and instructions are organized for three types of operators that play three distinct "roles" in the Project, using guidance and forms or templates that are specifically tailored to each of the roles. Project roles include the Field Operator, the Trainer, and the Technical Leader. There are additional roles that the DQM materials address (the Member of the Public, the Data User, and the Technical Expert); these roles are not an integral part of the Project but persons in these roles provide input during the planning and designing phase of a Project

What is the DQM made of?

The DQM system is made of guidance and tools. The major tool is the DQM "**Project File**", a Microsoft Excel workbook with multiple spreadsheets that include all the Results and all the supporting documentation relevant to one Project. Field Operators use forms and guidance that are compatible with it, while Trainers and Technical Leaders work with the Project File directly, each filling out appropriate parts of the Project File as the Project progresses.

What tasks does it cover?

Project tasks start with the Project planning phase (question formulation, parameter package & sampling design development, data quality objectives development, and monitoring method selection). The next phase includes all the tasks of data acquisition (field measurements, sampling, and off-site analyses). The last phase is transfer of the Results, through all the data validation and qualifying process, from the data collectors (Field operators, lab technicians) to the data users. .

Who can use it?

Anyone with a home computer and Excel 5.0 or higher can use the Project File. Entering and validating data is straightforward and requires minimum Excel skills. The file can be easily sent as an email attachment, even through a 56 K modem. There is nothing mysterious or hidden in the Project File; it is totally transparent, does not contain hyperlinks or special symbols, and has no macros or other automatic routines.

What's so special about it?

Detail and specificity: The DQM is based on the premise that communication of scientific contents has to be very specific. Each term or bit of information has to mean one thing only, and each word has to have only one meaning. The DQM also recognizes that operators need very detailed and clear guidance to assure clear, unambiguous communication. The DQM provides the specificity and level of detail that leaves nothing to interpretation.

Flexibility and modular structure: Although the DQM guidance is very specific, and the forms and spreadsheets are rigid to enable that specificity, it has a lot of built-in flexibility because the individual pieces are modular in nature, and the users can pick and choose the relevant pieces without having to comprehend or process the entire system.

Comprehensiveness: Another special feature of the DQM is that it is comprehensive. It contains placeholders for more than two hundred bits of information that describe monitoring Results. However it can be easily boiled down to a smaller number of bits of information that capture the essential data elements as required by State and Federal agencies.

Simplicity: The DQM is a database in itself, but it has a very simple structure and no automated features. These traits make the data stored in it totally transferable into central databases.

Sources and Resources

This Fact Sheet is an integral part of the Data Quality Management (DQM) system implemented by the Clean Water Team, the Citizen Monitoring Program of the State Water Resources Control Board. It has been authored by Revital Katznelson, Ph.D.

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 FS in other texts you can use “CWT 2004” and reference it as follows:

“Clean Water Team (CWT) 2004. Data Quality Management (DQM) Fact Sheet, FS-8.1.1.0(DQM). 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.”