

# Quality Assurance & Quality Control for DWR Data – Updated September 2013



## The Quality Assurance Work Group

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### Did You Know?

1. On September 18, 1992, the California Department of Water Resources (DWR) issued “**Water Resources Engineering Memorandum No. 60**” (WREM 60) “Quality Assurance/Control Policy for Water Related Monitoring Programs.”
2. WREM 60 notes that in 1992, DWR “invested about \$20 million/ per year and about 150 person-years of effort in the collection of water-related data.” **DWR now invests about \$100 million/yr.**

#### The Purpose of WREM 60

1. **Establish policy and procedures to assure that quality assurance is used** in the Department’s chemical and physical measurements, data collection, and data measurement and management activities.
2. **Form basis for the conduct of the Quality Assurance/Quality Control Program**
3. **Require “All of the Department’s Divisions, Districts, Field Divisions, Contractors and agency cooperators performing measurement activities are subject to the provisions of the policy.**
4. **Establish that “Initially, this policy focuses on water-related programs and will evolve to other measurement activities.**
5. **Point out that:**
  1. **“The majority of this data is of undocumented quality”** and that “Water data of unknown quality are considered to be below acceptable standards by agencies such as the USEPA, USGS, and USBR, SWRCB and the State Water Contractors.”
  2. **“... data of undocumented quality may be considered questionable for submission as court evidence.”**

#### Policy Established by WREM 60

1. **Integrates quality control procedures** into water-related monitoring activities, including collection, analysis, validation, reporting, storage (retention), and dissemination of data.
2. **Implements Standardized procedures**, adequate documentation, and training of departmental employees.
3. **Develops a Quality Assurance Program Plan**, approved by the Director, describes how the Department intends to consistently produce **water-related data** of a quality which is known and quantifiable.
4. **Assigns a Quality Assurance Officer** responsible for administering the Department’s Quality Assurance Control Program in compliance with the approved Quality Assurance Program Plan.
5. **Requires Quality Assurance Project Plans** for individual water-related projects. Data quality objectives will be defined in QA Project Plans.
6. **Requires all in-house and contract laboratories** to follow the USEPA approved analytical procedures or equivalent, which contain quality control requirements for laboratory operation.
7. **Implements quality control procedures** in the most cost effective manner without compromising data quality objectives.

#### More Recent Law and New California State Policy

**The California Water Quality Monitoring Council, created by Senate Bill 1070, (2006), requires state agencies to “integrate and coordinate their water quality and related ecosystem monitoring.”**  
[http://www.swrcb.ca.gov/mywaterquality/monitoring\\_council/](http://www.swrcb.ca.gov/mywaterquality/monitoring_council/)

### Quality Assurance Workgroup

In 2012, the Division of Environmental Services established a QA Workgroup. *The Mission of the QA Workgroup is to increase awareness* of quality assurance and quality control for all of the Department’s water-related data.

#### Training

Training continues to be one of the DWR QA/QC Program’s biggest successes over the years. Some examples of classes are:

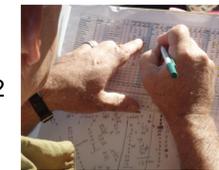
#### Upcoming:

- Applied Environmental Statistics: Spring 2014
- Scan with your smart phone for more information! →



#### Past:

- Introduction to Environmental Statistics using R
- Quality Assurance for Water Quality Monitoring
- Applied Environmental Statistics: October 1-5, 2012
- Time Series Analysis & Forecasting
- Nondetects and Data Analysis



If you have ideas for new courses to help meet your QA/QC goals contact Murage Ngatia at [murage.ngatia@water.ca.gov](mailto:murage.ngatia@water.ca.gov) or 916-376-9714.



#### The Role of FLIMS and WDL in Quality Assurance

- The **Field and Laboratory Information Management System (FLIMS)** captures all relevant QC information related to grab sample water quality monitoring data generated in the field and the laboratory.
- The **Water Data Library (WDL)** permanently stores all field and laboratory QC information that comes through Bryte Laboratory including field results, methods, blanks, duplicates, hold times, standards, and sample handling information.
- **On request, lab QC reports are provided** along with the sample data report from Bryte Lab. Electronic copies of lab and field QC data can be retrieved from the WDL by contacting Kelley Pepper ([kelly.pepper@water.ca.gov](mailto:kelly.pepper@water.ca.gov)) at Bryte Lab. QC data are available from 1998 to present in most cases.

#### Bryte Chemical Laboratory

- Bryte Chemical Laboratory is certified by the California Department of Public Health’s (CDPH) Environmental Laboratory Accreditation Program (ELAP) <http://www.cdph.ca.gov/certilabs/Pages/ELAP.aspx>. The accreditation demonstrates the laboratory’s capability to analyze environmental samples using approved USEPA and CDPH analytical methods and associated QA/QC protocols. This ensures the quality and defensibility of the analytical data and can be used for regulatory purposes to meet the requirements of the State’s drinking water, wastewater and hazardous waste programs.
- Bryte Lab: <http://www.water.ca.gov/waterquality/drinkingwater/brytelabs.cfm>

### Enhancing Awareness of DWR’s Data and their Reliability

#### Workgroup Progress

*During the past year, the Workgroup has:*

1. **Expanded the scope** of QA/QC at DWR to include other types of data that DWR staff collect, such as biological (benthics, fish, phytoplankton, zooplankton) and “Real-Time” data.
2. **Updated WREM 60**– Biological and real-time data have been added to a draft revision being called “WREM 60a” that is presently in management review.
3. **Shared Approved and Draft QAPPs on line:**  
[http://www.water.ca.gov/environmentalservices/qaqc\\_publications.cfm](http://www.water.ca.gov/environmentalservices/qaqc_publications.cfm)



#### QA Workgroup Goals

*Two of the initial goals of the QA Workgroup were:*

1. To **Share existing QA plans.** For improved efficiency and consistency, existing QA plans will be made available for DWR staff to use as examples. **DONE!**
2. **Develop procedures for QA Plan review and approval.** We still need to work on this goal, but **we need your help!**



#### QA/QC Guidance Documents

DWR QA Program website:

<http://www.water.ca.gov/environmentalservices/qaqc.cfm>

Guidance documents related to Quality Assurance and Quality Control:  
[http://www.water.ca.gov/environmentalservices/qaqc\\_guidance\\_docs.cfm](http://www.water.ca.gov/environmentalservices/qaqc_guidance_docs.cfm)

State Water Resources Control Board’s Surface Water Ambient Monitoring Program (SWAMP) - Quality Assurance and Quality Control;  
[http://www.swrcb.ca.gov/water\\_issues/programs/swamp/qapp.shtml](http://www.swrcb.ca.gov/water_issues/programs/swamp/qapp.shtml)

Quality Assurance Program Plan (QAPP) and SWAMP QAPP Advisor:  
[http://water101.waterboards.ca.gov/swamp/qapp\\_advisor](http://water101.waterboards.ca.gov/swamp/qapp_advisor)

Your contributions to the improvement of DWR’s quality assurance and quality control efforts are very important. Please provide any ideas for improvement, or other thoughts to Murage Ngatia, our Quality Assurance Officer at 916-376-9714 or [murage.ngatia@water.ca.gov](mailto:murage.ngatia@water.ca.gov)