

California Home

Wednesday, April 28, 2004




California Environmental Protection Agency
STATE WATER RESOURCES CONTROL BOARD
WATER QUALITY

Surface Water Ambient Monitoring Program (SWAMP)

QUALITY ASSURANCE AND QUALITY CONTROL

Quality Assurance Program Plan

For the State of California's
Surface Water Ambient Monitoring Program



"SWAMP"

prepared under contract to:
 State Water Resources Control Board
 1400 State Street, Suite 1000
 Sacramento, CA 95833
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 www.swrcb.ca.gov

(click on image to enlarge)

Quality Assurance (QA) includes activities that ensure that data collected are of adequate quality given the monitoring objectives. Quality Assurance consists of two separate but interrelated activities: Quality Control (QC); and Quality Assessment. Quality control refers to the technical activities employed to ensure that the data collected are adequate given the monitoring objectives to be tested. Quality Assessment activities are implemented to quantify the effectiveness of the quality control procedures.

Some of the steps being taken to ensure that high quality data is produced by SWAMP efforts include:

- Implementation of provisions described in the Quality Assurance Project Plan (QAPP) document;
- External expert peer review of program's scientific, technical and programmatic processes and findings;
- External third party referee QA program to provide external QA services including QA planning and review assistance, conducting/assisting with laboratory performance audits, data validation and verification efforts.

QAPP Supporting Documents

- [View a QAPP Template for Volunteer or Citizen Monitoring \(CWT\) Groups](#)
- [Instructions for Using the CWT QAPP](#)
- [Citizen Group's Funding Opportunities Provided by the Clean Water Team \(CWT\)](#)

- **New ! PBMS - Performance Based Method System Protocol**
- SWAMP Program QAPP Web Page Table of Contents
 - View the SWAMP QAPP
 - Appendices for QAPP
 - Appendix A SWAMP Program Contact Information, Programmatic Organization and Agency/Organization Responsibilities.
 - Appendix B SWAMP Workplans for FY 02-03 and FY 03-04
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 - Appendix J INTERIM SWAMP Information Management System Plan

View the SWAMP QAPP

- QAPP Main Text (pdf version)
- QAPP Main Text (word version)

- Cover Page
- Section A1 - Title and Approval Sheet; Citation for QAPP; Preface/Acknowledgments
- Section A2 - Table of Contents
- Section A3 - Distribution List and Contact Information
- Section A4 - SWAMP Program Organization
- Section A5 - Problem Definition/Background

- Section A6 - Program Description
- Section A7 - Data Quality Objectives and Criteria for Measurement
- Section A8 - Special Training Requirements/Safety
- Section A9 - Documentation and Records

- Section B1 - Sampling Process Design (Experimental Design)
- Section B2 - Sampling Methods Requirements
- Section B3 - Sample Handling and Custody Requirements
- Section B4 - Analytical Methods Requirements
- Section B5 - Quality Control Requirements

- Section B6 - Instrument/Equipment Testing, Inspection, and Maintenance Requirements
- Section B7 - Instrument Calibration and Frequency
- Section B8 - Inspection/Acceptance Requirements for Supplies and

Consumables

- Section B9 - Data Acquisition Requirements (Non-direct Measurements)
- Section B10 - Data Management

- Section C1 - Assessments and Response Actions
- Section C2 - Reports to Management

- Section D1 - Data Review, Validation, and Verification Requirements
- Section D2 - Validation and Verification Methods
- Section D3 - Reconciliation with User Requirements

- List of Abbreviations
- Reference

- Appendices for QAPP

- Appendix A SWAMP Program Contact Information, Programmatic Organization, and Agency/Organization Responsibilities

- Appendix B **SWAMP Work Plans for FY 02-03**
Region 1: North Coast Regional Water Quality Control Board
Region 2: San Francisco Regional Water Quality Control Board
Region 3: Central Coast Regional Water Quality Control Board

Region 4: Los Angeles Regional Water Quality Control Board
Region 5: Central Valley Regional Water Quality Control Board
Region 6: Lahontan Regional Water Quality Control Board

Region 7: Colorado River Basin Regional Water Quality Control Board
Region 8: Santa Ana Regional Water Quality Control Board
Region 9: San Diego Regional Water Quality Control Board

New ! SWAMP Work Plans for FY 03-04
Region 1: North Coast Regional Water Quality Control Board
Region 2: San Francisco Regional Water Quality Control Board
Region 3: Central Coast Regional Water Quality Control Board

Region 4: Los Angeles Regional Water Quality Control Board
Region 5: Central Valley Regional Water Quality Control Board
Region 6: Lahontan Regional Water Quality Control Board

Region 7: Colorado River Basin Regional Water Quality Control

Board

Region 8: Santa Ana Regional Water Quality Control Board

Region 9: San Diego Regional Water Quality Control Board

- o Appendix C Data Acceptability Criteria, Target Reporting Limits, Sample Handling Requirements (cover page)
 - Data Acceptability Criteria Tables
 - Conventional Constituents in Water
 - Volatile Organic Analytes in Water
 - Synthetic Organic Compounds in Water
 - Trace Metals in Water
 - Monomethyl Mercury in Water

 - Organic Compounds in Tissue and Sediment; Semi-Volatiles and Volatiles in Sediment only
 - Trace Metals in Tissue and Sediment
 - Monomethyl Mercury in Tissue and Sediment

 - Sediment Total Organic Carbon and Sediment Grain Size
 - Water Quality Samples for Bacteria-Pathogen Indicators
 - Benthic Invertebrates
 - Toxicity Testing Samples
 - Target Reporting Limits
 - Conventional Water Quality Constituents
 - Trace Metals
 - Synthetic Organic Analytes
 - Sample Handling Requirements
 - Tables for all Analytes, all Media
 - Water Quality Goals Compendium Information
- o Appendix D SWAMP Field Collection Standard Operating Procedures (cover page)
 - Site Selection and Reconnaissance
 - Guidelines
 - Reconnaissance Form
 - Tissue Sample Collection SOPs
 - Standard Operating Procedure
 - Bioaccumulation COC Form
 - Dissection Sheet
 - Water Sample Collection SOPs
 - Field Collection of Water Samples
 - Citizen Monitoring Protocol
 - Region 3 Protocol
 - Region 6 Protocol
 - USGS NAWQA Protocol
 - USGS Clean Hand/Dirty Hand Techniques
 - Ultra Clean Sample Filtration

Bed Sediment Sample Collection SOPs

- SWAMP Protocol
- USGS NAWQA Protocol

Additional Files

- Proper Waste Disposal
- Field Data Sheets
- Chain of Custody Blank Forms
- Worksheet for Calculating Latitude and Longitude

- o Appendix E SWAMP Field Data Measurement SOP's (cover page)
 - Field Equipment List
 - Field Measurements Procedures

SWAMP Field Instrument Calibration and Maintenance SOP's

- Multiparameter Instrument Calibration and Maintenance
- Hydrolab Multiprobe Calibration/Maintenance Log
- YSI Multiprobe Calibration/Maintenance Log

- o Appendix F SWAMP Toxicity Testing SOP's (cover page)
 - Summary of Methods Used
 - Summary of Methods Used for Toxicity Testing

Toxicity Testing SOP's

- Alkalinity
- Ammonia
- Ceriodaphnia 7 day test
- Ceriodaphnia 96 hour test
- Data Handling

- ELISA
- Freshwater TIE
- Glassware
- Hach SensION
- Hardness
- Holmesimysis 7 day test
- Hyalella 10 day test

- Pimephales 7 day test
- Sample Handling

- [Selenastrum](#)
- [Urchin Development](#)
- o Appendix G [Biological Assessment and Benthic Infaunal Community Assessment](#) (cover page)
[Bioassessment QAPPs and SOPs](#)
 - [Department of Fish and Game](#)
 - [Region 6 SNARL](#)
 - [Algae Chl Summary](#)
 - [Biomonitoring Data and Designs](#)
 - [CPOM-FPOM and Periphyton Protocols](#)
 - [Lab Processing and ID Log](#)
 - [Physical Habitat Summary](#)
 - [Sample Processing-ID SOPs](#)
 - [Stream Algae AFDM Data Sheet](#)
 - [Stream Form 200X](#)
 - [Stream Invertebrate ID Data Sheet](#)
 - [Stream Invertebrate Sampling Protocol](#)
 - [Stream Organic Matter AFDM Data Sheet](#)
 - [Stream Physical Habitat Survey SOP](#)
 - [UC SNARL SWAMP Bioassessment QAPP](#)
 - [Water Chemistry Protocol](#)
- [UCD ATL](#)
 - [UCD ATL Biological Assessment QAPP](#)
- [USGS NAWQA](#)
 - [SOP link](#)
- [Benthic Infaunal Community Assessment](#)
 - [Laboratory Analysis](#)
 - [Sample Collection](#)
- o Appendix H [Health and Safety Measures Minimum Guidance](#) (cover page)
[- Recommended Minimum Health and Safety Guidance for Field Activities](#)
- o Appendix I [Performance Evaluation Audits Guidance](#) (cover page)
[- QA Performance Evaluations of Field Data Measurements and Field Sample Collection Methods](#)
- o Appendix J [INTERIM SWAMP Information Management System Plan](#) (cover page)
 - [Information Management System Plan Interim Draft](#)
 - [Field Data Sheets](#)
 - [Data Formats](#)

For Additional Background, Review [U.S.EPA's Volunteer Monitor's Guide to Quality Assurance Project Plans](#)

For technical questions on the QAPP, please refer to Bill Ray, State Water Resources Control Board Quality Assurance Officer (916-341-5583; rayb@dwq.swrcb.ca.gov).

(updated 4/19/04)

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