



the journey to restore
America's Everglades

CERP Quality Assurance Systems Requirements (QASR) - Chapter 6

HYDRO-METEOROLOGIC and HYDRAULIC MONITORING

Purpose and Scope

- Purpose is to provide guidelines for efficient and effective production of hydrologic data for CERP projects by the various agencies in Central and South Florida
- Scope is to outline the minimum quality assurance (QA) requirements for accuracy that should be met in the collection of hydro-meteorological and hydraulic data

Quality Assurance (QA) & Quality Control (QC)

- QA is an integrated system of management activities to ensure that a process is of the type and quality needed and expected by the customer
- QC is the system of technical activities that measures the performance of a process against defined standards set by the customer

Data Quality Objectives (DQO)

- The DQO is a process to define the type, quality, and quantity of data for a project
- The process identifies the requirements for a field investigation and the limits on tolerable error rates
- Qualitative component includes planning for data collection activities
- Quantitative component uses statistics for efficient data collection

Quantitative Components of DQO

- Accuracy/Precision
- Availability
- Completeness
- Reliability/Maintainability
- Resolution
- Timeliness

Design of Monitoring Network

- Objective of monitoring
- Total optimal number of monitoring stations needed
- Locations of the monitoring stations
- Sensor(s) needed for the monitoring station
- Frequency of data collection
- Use existing monitoring network in designing CERP monitoring network

Elements of Monitoring

- Rainfall Monitoring
- Other Meteorological Monitoring including:
 - solar radiation
 - air temperature
 - atmospheric pressure
 - wind speed
 - relative humidity
- Groundwater Level Monitoring
- Surface Water Stage
- Surface Water Flow Monitoring

Data Collection

- Site
- Sensors
- Installation
- Preventive Maintenance of Sensors and Site

Raw Data and Data Processing

- Raw data are unprocessed hydro-meteorological or hydraulic data that have been collected from a field location
- Data processing includes the following:
 1. Data retrieval
 2. Data review
 3. Data verification and validation
 4. Data analysis and interpretation
 5. Archival

Data Management

Need to create and implement data management policies and procedures to ensure high quality data over the entire life cycle

- Metadata
- Ownership and Accessibility
- Data Change
- Historical Data Management

Data Storage - DBHYDRO

- QA'd data are stored in the District's database, DBHYDRO, and the data is made available for downloading via internet: www.sfwmd.gov/dbhydro
- Data Attributes:
 - Station/Site ID,
 - Data Type,
 - Data Frequency,
 - Station Location...
- Time Series Data
- Data Modifications when necessary using SOP

Auditing & Assessment

- Audits are performed to determine compliance with SOPs and guidelines, and the effectiveness of their implementation
- Audits include:
 - observing & validating stream gauging data collection
 - preventive maintenance
 - installations
 - surface flow data development
 - data processing
 - archival
 - post-processing QA/QC activities

Questions?

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Thank you!