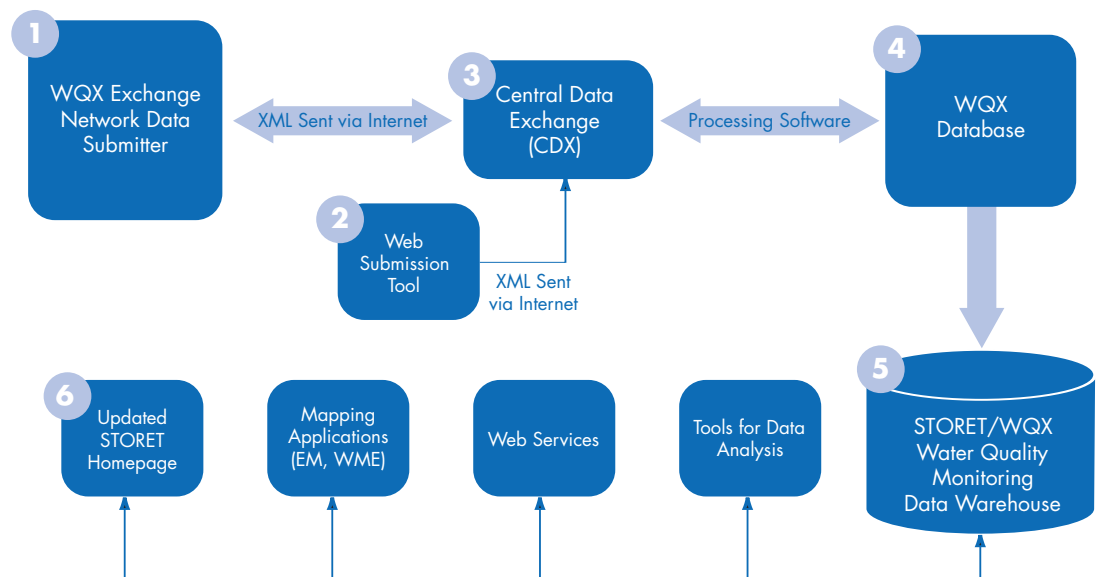# Water Quality Exchange

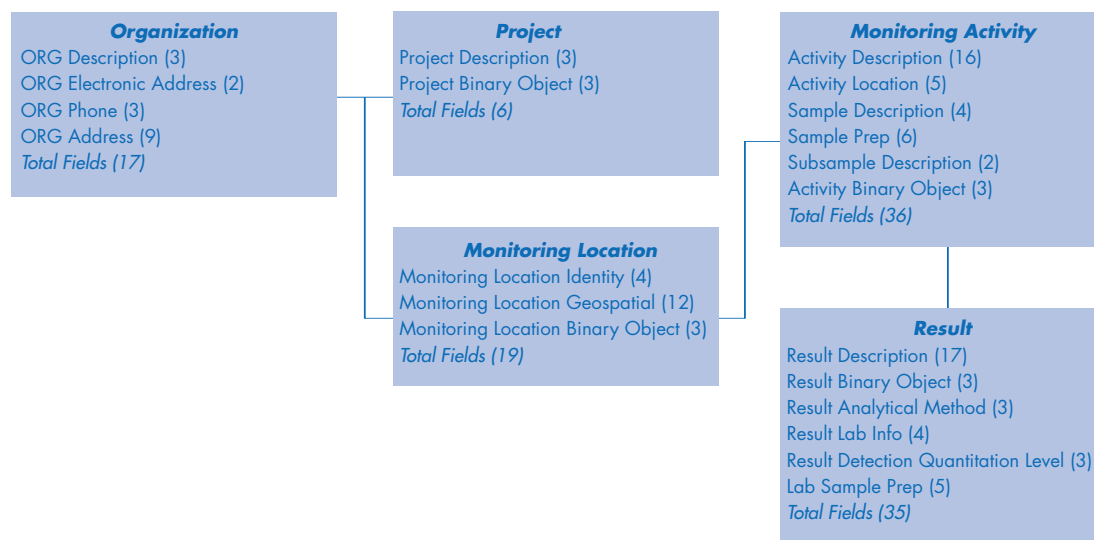## What Is Water Quality Exchange (WQX)?

- **The next evolution of the STORET system** and a new way of sharing ambient water quality data with the U.S. Environmental Protection Agency (EPA).

- **A system** that facilitates submission and exchange of water quality and other environmental monitoring data between EPA and its partners over the Internet.

- **A national repository** of water quality and environmental monitoring data.

- **The WQX schema** is a standard set of data formats that specify the data elements and data structure required for submission of data to EPA. The WQX schema is an implementation of the Environmental Sampling, Analysis, and Results (ESAR) data standard, developed by states and EPA.

How Does the WQX Data Flow Work?

1 WQX Exchange Network Data Submitter

← XML Sent via Internet →

3 Central Data Exchange (CDX)

← Processing Software →

4 WQX Database

2 Web Submission Tool

XML Sent via Internet

5 STORET/WQX Water Quality Monitoring Data Warehouse

6 Updated STORET Homepage

Mapping Applications (EM, WME)

Web Services

Tools for Data Analysis

1 Data are submitted to the WQX system using XML in the format of the WQX schema.

2 Alternatively, users may submit data using a Web submission tool that generates XML.

3 WQX data come in to EPA through the Central Data Exchange (CDX). CDX is EPA's presence on the Exchange Network, and all data submitted to EPA must come through CDX for user authentication and data validation.

4 The WQX database receives the data after they are processed to fit into the database format.

5 The data are then put into the Water Quality Monitoring Data Warehouse, where they can be accessed for data retrieval through:

6 the updated STORET homepage, mapping applications such as EnviroMapper and Window to My Environment, Web services, and other tools for data analysis.

The WQX Schema

Organization
ORG Description (3)
ORG Electronic Address (2)
ORG Phone (3)
ORG Address (9)
Total Fields (17)

Project
Project Description (3)
Project Binary Object (3)
Total Fields (6)

Monitoring Activity
Activity Description (16)
Activity Location (5)
Sample Description (4)
Sample Prep (6)
Subsample Description (2)
Activity Binary Object (3)
Total Fields (36)

Monitoring Location
Monitoring Location Identity (4)
Monitoring Location Geospatial (12)
Monitoring Location Binary Object (3)
Total Fields (19)

Result
Result Description (17)
Result Binary Object (3)
Result Analytical Method (3)
Result Lab Info (4)
Result Detection Quantitation Level (3)
Lab Sample Prep (5)
Total Fields (35)

- The WQX schema represents a more streamlined set of data elements than STORET yet still provides for complete reporting of water quality monitoring, from field measurements and observations to samples and subsamples.

- The major components of the WQX schema follow the ESAR data standard closely, and many of the data elements in WQX share the same names and definitions as the data elements in ESAR.

- The WQX schema accommodates the sharing of physical, chemical, and fish tissue results data. In the future, WQX will also accommodate the sharing of biological and habitat data.

WQX Milestones

Completion of Pilot Evaluation	March 2006
Regional Outreach Meetings	April–August 2006
Publication of Draft WQX Schema	May 2006
Publication of Draft Configuration Documentation to Exchange Network	June 2006
Publication of Final WQX Schema	September 2006
WQX System Ready to Receive Data	January 2007

What About STORET?

- STORET is the currently distributed suite of data management tools that facilitate water quality monitoring data submittal to EPA for placement in the STORET Central Warehouse.

- Over the next 3 to 4 years, WQX will become the primary means of submitting water quality monitoring data to EPA as support for STORET-distributed tools will be discontinued in September 2009.

- The STORET Central Warehouse will be enhanced to accommodate WQX data and will still serve as the national repository of water quality data.

Web Resources and Additional Information

For additional information about WQX, visit
www.epa.gov/storet/future_storet.html

or contact

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For additional information about the Exchange Network, visit
www.exchangenetwork.net

For additional information about CDX, visit **www.epa.gov/cdx**