Wisconsin's Surface Water Monitoring Station Application

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During 2004, the Wisconsin DNR developed a strategy and tools to improve the assignment of surface water monitoring stations for chemical, physical, biological, and habitat data so that relevant data is effectively loaded into the federal STORET system. These processes and tools also further the equally important goal of resource management through geolocating stations on the state's 1:24K hydrolayer. This spatial linkage will make the station and associated monitoring data available to DNR and the public through a broad spectrum of applications including web-based mapping applications and the state's Surface Water Integration System.

Similar to other state agencies, WDNR's available resources have precipitously declined in the past few years due to a sagging economy and shifting federal and state priorities, inextricably linked to the events of 9/11, dual military action oversees, and subsequent strategic budgeting reallocations. These trends coincide with an enhanced public interest in monitoring data and how that data is used for resource management. Thus, in addition to WDNR's need for a place to store, manage, and retrieve monitoring data on the Department's servers, the increasing importance of volunteer data and, conversely, potential civil suits regarding procedural and substantive aspects of 303(d) listings and standards implementation highlight the need for readily available, reportable, and summarized surface water data.

Due to these competing needs, WDNR is developing an integrated tabular and spatial surface water monitoring station management application using Oracle 9(.i), ArcGIS 9.0, and Java to provide an internally accessible system with a modified externally accessible component. This application will allow DNR staff to spatially verify the presence of or to request a new monitoring station associated with subsequent field work. The application will generate lab slips with preprinted project, budget, parameter, and station data, and carry the laboratory tracking number in a bar code. This code will streamline the sample, submittal, tracking and results receipt process by storing associated data custodian information in the host application. Quality assurance is enhanced by the required verification of the location of stations prior to the release of associated analytical results.

The application is being developed to store a broad spectrum of surface water monitoring data, however its primary intent is to facilitate effective loading of relevant data into local STORET oracle tables and subsequently exporting this data to the federal STORET system. To ensure the achievement of this primary goal, the project is consolidating and "cleaning" STORET stations from disparate sources including a master list of STORET stations (Microsoft Access), the state's fish and sediment toxics system (Oracle), the state's Lakes Water Quality Database (Oracle), the Modernized STORET system, the Legacy STORET system, and from the most recently developed disparate system, BEACH stations. All STORET stations must be consolidated and analyzed for duplication, attribute data such as station name, waterbody etc. must be reviewed and cleaned. Once this work has been completed, the data will be migrated into a new Oracle table structure and associated user interface to make this data and application available for use by December 2004.