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DATA MANAGEMENT IN SUPPORT OF PCB TMDL

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ABSTRACT: The Delaware River Basin Commission (DRBC) has developed a collaborative framework for data management as part of the polychlorinated biphenyl (PCB) total maximum daily load (TMDL) program in the Delaware Estuary. An Access database capable of storing PCB data that has been analyzed using the U.S. Environmental Protection Agency (EPA) Method 1668A was developed specifically for this purpose. There are three components of the database: chain of custody (COC), location information and laboratory electronic data deliverables (EDDs). The submitted data sets are screened for adequacy of formats and adherence to sample collection requirements prior to incorporation into the database. The database can accept 1668A analytical results for water, sediment and tissue samples. This paper presents specifics regarding the data management approach, sample collection elements, analytical requirements and formatting protocols, and outlines how the database was instrumental in implementing the TMDL program.Long-term PCB monitoring is required of dischargers as part of their Pollutant Minimization Plan (PMP) efforts to control the discharge of PCBs. Additionally, the Commission conducts ambient water, sediment and fish tissue. Therefore, the ability to manage large amounts of data from various sources and media in an efficient way is essential to evaluate long-term trends and determine the effectiveness of remedial efforts. The Access database can reside on any laptop or desktop system, and can utilize any version of Access. Currently, the Commission database contains approximately 800 samples, their associated blanks and laboratory quality assurance/quality control samples. More than 600,000 rows of data reside in the database, and new data can be added as required.A consistent approach to sample collection, analysis and data reporting provides comparability of analytical results between samples, reduced analytical uncertainty and greater accuracy in estimating loadings and long-term reductions. The approach was developed in a collaborative manner between regulated industry, Pennsylvania and New Jersey regulators, DRBC and consultants. The greatest benefits are data transparency, understandable objectives and the ease of data transferability. These features provide a critical link for an open dialogue between regulated community and regulatory agencies for evaluating effectiveness of remedial efforts and PCB reductions in support of the TMDL process.

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