SDWIS Prime Technical Assessment Request

**Introduction**

The Safe Drinking Water Act (SDWA), Title XIV of the Public Health Service Act, is the key federal law for protecting public water supplies from harmful contaminants. First enacted in 1974 and substantially amended in 1986, 1996, and 2016, the act is administered through programs that establish standards and treatment requirements for public water supplies, finance drinking water infrastructure projects, promote water system compliance, and control the underground injection of fluids to protect underground sources of drinking water. The 1974 law established the current federal-state arrangement in which states may be delegated primary implementation and enforcement authority for the drinking water program. The state-administered Public Water Supply Supervision (PWSS) Program remains the basic program for regulating the nation’s public water systems, and 49 states have assumed this authority.

Since the 1990’s, EPA has been providing SDWIS State software to the delegated “Primacy Agencies” to support the state-administered PWSS Programs. EPA developed a suite of applications and services commonly referred to as SDWIS State. To date, 54 out of 67 primacy agencies have adopted the use of the EPA provided SDWIS State software. The primacy agencies that do not use SDWIS State have either developed their own IT system for supporting their PWSS program or are using Direct Implementation Management Environment (DIME) software developed and maintained by EPA Region 9.

Main functions that SDWIS State provides include:

* Inventory of water systems.
* Tools for receiving and managing large sets of compliance monitoring data.
* Complex drinking water rules compliance management determination.
* Enforcement and program activity action tracking related to violations.
* Reporting to EPA.

Since 2010, EPA has been working on a legacy modernization project to replace SDWIS State. The modernization project includes two primary systems, the Compliance Monitoring Data Portal (CMDP) and SDWIS Prime.

* CMDP enables CROMERR compliant electronic reporting of both compliance and non-compliance drinking water data from drinking water utilities and laboratories to primacy agencies.
* SDWIS Prime was developed to replace the primary SDWIS State application.

**Current Status**

CMDP was released to Production in October 2016 and 10 primacy agencies have adopted usage.

SDWIS Prime development was formally suspended in mid-July 2019 due to increasing concerns with the data model related to the model not supporting two key requirements of the project:

* Ability to migrate an entire Primacy Agency data set from SDWIS State 3.3 into SDWIS Prime
* Ability for routine bulk transfer of data into and out of Prime, including transforming data from the SDWIS Prime format into and from the SDWIS State 3.3 format.

There were also concerns regarding technical debt, backlog of development requirements, and limited contractual support.  The current development contract expires on April 2020.

Following is the status of key aspects of SDWIS Prime as of the July 2019 suspension of SDWIS Prime development:

* + 12 of 14 user interface (UI) functional modules developed.
  + 12 of 13 drinking water rules / rule groupings with automated compliance determination support from the Business Rules Engine (BRE).
  + Proof of concept work completed under Exchange Network Grants for using the Exchange Network’s Virtual Exchange Services to connect SDWIS with local SDWIS repositories in Virginia and Utah.
  + Proof of concept SDWIS Prime API web service for sample data upload and a design for enabling external access to SDWIS Prime API web services.

**Problem Statement**

The focus of this task is to provide in-depth technical analysis and recommendations on the SDWIS Prime data model and associated SDWIS Prime components.

* Validate the concerns/deficiencies with the existing data model and identify options for resolution with an associated level of complexity for each option
* Determine if the system architecture and concept of operations of SDWIS Prime supports existing data flow/data exchange requirements between primacy agencies and EPA
  + Participate in 1 to a few key meetings (e.g. October 10 CIO meeting with Primacy Agency Managers to understand requirements)
* Business Rules Engine analysis:
  + Could the business rules engine be released as a stand-alone product?
  + Is it decoupled from the existing user interface and the underlying data model? If not, identify options for decoupling with an associated level of complexity for each option.
  + What is the level of effort required to integrate the business rules engine into the existing SDWIS State application (version 3.4)?
  + For primacy agencies not using SDWIS State, what is the feasibility of integrating the business rules engine with their own data system?

EPA will provide all necessary documentation and reasonable access to both EPA personnel and contractor personnel to support this analysis. We request the opportunity for a clarification meeting with the assessment team to review requirements and to answer questions before submission of an estimate or ROM.