STATEMENT OF WORK

1. Title

Drinking Water Quality Data Management System for the CBSA

2. Objective

The objective of this requirement is to obtain a secure and bilingual cloud-based Drinking Water Quality Data Management System service that will enable the Canada Border Services Agency (CBSA) employees to manage facility information and water quality data for potable water systems in CBSA facilities.

The service must include the functionality for transferring laboratory test data directly into the data management system and providing alerts to water quality managers and authorized users of any exceedances in drinking water quality parameters. The parameters are compared against the most current Guidelines for Canadian Drinking Water Quality (GCDWQ) published by Health Canada and the respective provincial/territorial guidelines.

This data management system is an integral component of CBSA's overall Drinking Water Management Program by storing and maintaining all past and current water data sampling results. It enables the Agency to continue to develop its multi-barrier approach to drinking water quality management by improving response times for taking corrective actions when non-compliance events occur and creating reports that highlight reoccurring drinking water system issues.

3. Background

The CBSA is required to provide a continuous supply of potable water to its employees. Monitoring of the water quality has been performed at approximately 80 CBSA owned-facilities nationwide over the years through CBSA's National Potable Water Monitoring Program (NPWMP). Water quality testing under the NPWMP is generally undertaken on a quarterly basis, which allows the CBSA to monitor the safe consumption and usage of the potable water for employees and visitors. The program also provides information to assist employees in determining whether 'do not drink' advisories are warranted at the border crossing sites and if any corrective/remedial measures are required.

To complement the above noted NPWMP, the CBSA currently contracts the services of a secure and bilingual Internet-based, central data management system to enter and maintain facility information and water quality data for each of its sites. This system enables employees to manage alert notifications to ensure that any non-compliance with Health Canada's GCDWQ and/or provincial/territorial guidelines can be addressed in a timely fashion to minimize risks to employees/visitors health.

4. Applicable Documents

4.1 The CBSA has an obligation to provide safe drinking water according to the following legislation and policies:

a. Canada Labour Code – Section 125 (1) (j) part II– requires federal employers to "provide potable water, in accordance with prescribed standards", based on GCDWQ;

b. Canada Occupational Health and Safety Regulations;

c. Health Canada's GCDWQ– defines parameters for drinking water quality that establish the maximum allowable concentration levels (MACs) for microbiological, chemical and radiological contaminants, along with operational guidance values (OG) and aesthetic objectives (AO) for the physical characteristics of drinking water; and

d. Provincial policies and legislation which are unique to each province/territory. As such, the quality of the drinking water at the facilities must be in accordance to their respective legislation, in association with where the facilities are located.

4.2 Drinking water at federal facilities is governed by:

a. Guidance For Providing Safe Drinking Water in Areas of Federal Jurisdiction– version 2.1 (2012)

Health Canada's guidance document states the requirements for a multi-barrier approach to ensure that potable water is kept safe and reliable through the application of a preventative risk management approach. By compiling the information pertaining to the water distribution systems and housing the water quality data in one database system, the CBSA will continue to have the capability to improve upon the management of its very-small and micro size drinking water systems at each facility, thus ensuring staff are continually provided with a safe source of water for drinking, food preparation and washing.

5. Scope

5.1 The bilingual electronic service requested of CBSA must achieve the following:

a. Provide data management of historical, current, field and lab water quality data for initially up to 100 CBSA employed border crossing facilities across Canada;

b. Contain drinking water infrastructure-related information pertaining to the sites (for example, source of water, on-site treatment systems);

c. Accept input from multiple sampling points throughout the distribution systems from up to 100 facilities;

d. Include an up-to-date database of all the parameters (i.e. health-based, operational and aesthetic), associated with the Guidelines for Canadian Drinking Water Quality (most recent addition), along with provincial water quality regulations, standards and guidelines from across Canada;

e. Compare and report on the water quality data against the federal and provincial water quality guidelines, regulations and standards; and

f. Provide a default alert feature which informs CBSA employees when exceedances to the guidelines, regulations and standards have occurred.

5.2 The Contractor must provide on-line (i.e. via webinar or similar) training in both English and French for up to 3-4 CBSA headquarters employees (in fiscal year 2023-2024) to access and utilize the database system, with an option to train up to 15-20 other CBSA regional employees in English and French (Atlantic to Pacific) within this same fiscal year.

5.3 The CBSA must have access to the data management system service for one (1) year. Historical records must be maintained 3 years beyond the expiration of this contract.

6. Tasks

The Contractor must complete at a minimum the following tasks:

6.1 Task 1 - Participate in an initial project kick-off meeting

i. The Contractor must have a discussion with the CBSA Project Authority to review the Contractor's overall plan and project timeline.

ii. The Contractor must provide a detailed work plan that will reflect the timeline (as per the Schedule below).

6.2 Task 2 - Develop a bilingual, Internet-based drinking water database system and associated user functions which must include at a minimum:

1. The incorporation of the most up to date versions of Health Canada's *Guidelines for Canadian Drinking Water Quality,* and provincial drinking water quality regulations/guidelines/standards;

2. A fully cascading hierarchy of fields allowing drinking water data to be grouped by levels, including but not limited to: facility, drinking water system, buildings, sample points, and measurements. CBSA employees will help determine proper configuration and sample point nomenclature;

3. A field to store information associated with individual drinking water systems (e.g. source of water, treatment equipment, sample point description, etc.);

4. An advisory or alert function that automatically generates notices to multiple CBSA employees via e-mail, or phone. Alerts must include a description of the site, drinking water system, sample point, parameter exceeded and associated measurement, date of exceedance, and related federal and provincial guideline, regulation or standard;

5. A unique user-name access (i.e. password protected) to the database for employees, providing at least 3 levels of data access and modification privileges, i.e. an administrator level account with full data access, modification privileges and capable of creating accounts for CBSA employees; a user level with full data access and modification privileges; and a viewer level with viewing privileges only;

6. Provide a reporting feature that allows data summaries at varying levels (i.e. facility, distribution system, sampling point); and

7. An ability of the Contractor to produce lab, client and user activity reports to track use of database system, what type of entry and by whom.

6.3 Task 3 - Upload historical water quality data into configured database

a. The Contractor must work with CBSA employees to upload historical water quality data from CBSA's existing data management system.

b. The quantity of historical data available for uploading can be estimated by considering 1 to 8 sampling rounds have occurred on a yearly basis since 2010 at approximately 80 locations with, on average, 4 sample points per location. Sampling includes e.coli, total coliforms, and turbidity analysis, as well as metals and baseline chemicals analysis. Baseline chemicals analysis refers to all parameters identified in the *Guidelines for Canadian Drinking Water Quality* with Maximum Acceptable Concentration limits.

6.4 Task 4 – Set up mechanism for upload of laboratory test data

a. The Contractor must initiate demonstrations, provide technical information, and deliver workshops directly with the laboratories, where necessary, to establish automatic uploading/file transfer mechanisms of the drinking water data directly to the secure Internet-based data management system.

6.5 Task 5 – Plan and deliver training for CBSA employees

a. The Contractor must plan and deliver training for CBSA employees who will utilize the database system. This includes:

i. Up to 6 sessions in either English or French in the following regions;

1. The Pacific region;
2. The Prairie region;
3. The Ontario region;
4. The Quebec region;
5. The Atlantic region; and
6. The Headquarters regions

b. Each region must include 3-4 participants.

c. The training must place via the Internet (e.g. webinar). Material covered in this training must include:

i. Registration and access to the Internet-based water quality data management service;
ii. General layout of database system and navigation techniques;
iii. Bottle labeling and completion of Chain of Custody form for lab samples;
iv. Entry of field data using the Contractor's preferred template log sheets;
v. Receipt of alert notifications;
vi. Issuing and revoking water quality advisories; and
vii. Generation of reports and graphs.

6.6 Task 6 - Implement quality control services

a. The Contractor must include monthly quality control review of electronic reporting by laboratories to ensure that accuracy and integrity of data is maintained.

6.7 Task 7 – The Contractor must incorporate into the database system up to date information and changes to the federal and provincial drinking water quality guidelines/regulations/standards.

6.8 Task 8 - Provide technical support

a. Assistance must be available to CBSA employees and laboratories on a full-time basis (via E-mail and telephone) to respond to technical issues, including user access to the service, data security, maintenance of the parameter database, electronic lab report receipt, laboratory technical liaison, and all information technology operation, maintenance, and support.

7. Constraints

The following are constraints that the Contractor might encounter:

a. The Industry standards for applying back-ups of data must be followed.

b. The Contract must provide a fully functional bilingual internet-based/browser-based cloud data management system specifically for drinking water and wastewater management, which can be accessed by computer with internet access and where all of its required data storage and management hardware and software is physically located in Canada.

c. All work, deliverables and training must be provided in both official languages of Canada (English and French).

d. The service must be delivered using a secure CBSA-approved Internet-based interface system.

8. Client Support

The CBSA will work with the Contractor to develop the hierarchal naming of the sample locations, i.e. starting from geographic region, province, and leading to facility name, system, building, and precise sample point coding.

Throughout every phase, the Project Authority will support, validate and provide feedback on all the work produced by the Contractor. When deemed necessary, the CBSA will request the Contractor to participate in meetings held by virtual call. It is expected that at least three (3) meetings will take place (project kick-off, mid and at project termination), although other meetings are expected to occur on an as-needed basis to ensure common understanding and appropriate project advancement.

9. Timelines/Delivery Dates

The main key dates for the deliverables are the following:

a. Task 1 – Project kick-off meeting: must take place within one (1) week of contract award.

b. Task 2, item 1, 3 to 7 – Complete the development of the bilingual, Internet-based drinking water database system and user functions: within 2 weeks of contract award.

c. Task 2, item 2 – Hierarchy of drinking water system and sample point nomenclature is finalized: within two (2) weeks of contract award.

d. Task 3 – Upload of historical water quality data into configured database: within one (1) month of contract award.

e. Task 4 – Mechanism for the transfer of laboratory test directly to the data management system is setup: within two (2) weeks of contract award.

f. Task 5 – Completion of the delivery of training for CBSA employees who will utilize the database system: within two (2) weeks of contract award.

g. Task 6 – Implement quality control services: ongoing until contract end.

h. Task 7 – Incorporate updates to the database system to reflect changes to the drinking water quality guidelines/regulations/standards: ongoing until contract end.

i. Task 8 – Provide technical support: ongoing until contract end.