GEC

teamed with

West Virginia Rural Capacity Assistance Program
Stantec
TruePani

submits our proposal to

West Virginia Department of Environmental Protection

for

Lead Service Line Inventory System for DWWM

CRFQ 0313 DEP 2300000001

June 15, 2023

Vendor Signature:

Global Environmental Consulting
7014 East Camelback Road
Suite B100A Office #79
Scottsdale, AZ 85251

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Signature Pages

Department of
Administration Purchasing
Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Request for Proposals
Service - Prof

Proc Folder: 1226392 **Doc Description:** Lead Service Line Inventory System for DWWM **Proc Type:** Central Master Agreement			**Reason for Modification:**
Date Issued	**Solicitation Closes**	**Solicitation No**	**Version**
2023-05-19	2023-06-15 13:30	CRFP 0313 DEP2300000001	1

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Customer Code:	000000229385
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86-0984978

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Vendor Signature X **FEIN#** 86-0984978 **DATE** 6/14/2023

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

(Printed Name and Title) Michael Corbin, Chief Operating Officer

(Address) GEC, 7014 East Camelback Road , Suite B100A Office #79, Scottsdale, AZ 85251

(Phone Number) / (Fax Number) (602) 301-6802./ (480) 827-9827

(Email address) contracts@1gec.com

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through *wv*OASIS, I certify that: I have reviewed this Solicitation/Contract in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation/Contract for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that this bid or offer was made without prior understanding, agreement, or connection with any entity submitting a bid or offer for the same material, supplies, equipment or services; that this bid or offer is in all respects fair and without collusion or fraud; that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; that I am authorized by the Vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on Vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law; and that pursuant to W. Va. Code 5A-3-63, the entity entering into this contract is prohibited from engaging in a boycott against Israel.

Global Environmental Consulting
(Company)

(Signature of Authorized Representative)
Michael Corbin, Chief Operating Officer, June 15, 2023
(Printed Name and Title of Authorized Representative) (Date)
((602) 301-6802./ (480) 827-9827
(Phone Number) (Fax Number)
mike.corbin@1gec.com
(Email Address)

All offers subject to all terms and conditions contained in this solicitation

By signing below, I certify that I have reviewed this Request for Proposal in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that, to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

Global Environmental Consulting
(Company)

Mike Corbin, Chief Operating Officer 
(Representative Name, Title)

(602) 301-6802 / (480) 827-9827
(Contact Phone/Fax Number)

6/14/2023
(Date)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CRFP-DEP23*01

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

[X] Addendum No. 1 [ ] Addendum No. 6
[ ] Addendum No. 2 [ ] Addendum No. 7
[ ] Addendum No. 3 [ ] Addendum No. 8
[ ] Addendum No. 4 [ ] Addendum No. 9
[ ] Addendum No. 5 [ ] Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Global Environmental Consulting
Company

Authorized Signature

06/15/2023
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing
Revised 6/8/2012

Introduction

The Global Environmental Consulting (GEC) team presents the high-value, low-risk solution for the West Virginia Department of Environmental Protection (DEP) to select as the winning bid for the Lead Service Line Inventory System for DWWM contract.

GEC is a small business that has been providing results-oriented information and data management service solutions to states since 2000 and specifically to the Department of Health and Human Resources (DHHR) for over 21 years. GEC is one of the leading firms helping Primacy Agencies develop and maintain drinking water information systems, and also brings expertise in Safe Drinking Water Act (SDWA) implementation support for EPA and Primacy Agencies (including DHHR). GEC develops commercial off the shelf (COTS) applications that interface with EPA's Safe Drinking Water Information System/State version (SDWIS) which is used in 26 states, including West Virginia, and custom tools that provide better user interfaces or functionality to state users. Since 1991, GEC staff have supported EPA and 43 Primacy Agencies in development and implementation of all National Primary Drinking Water Regulations (NPDWRs). GEC has supported DHHR with several COTS solutions and SDWA program implementation consulting since 2002. GEC will support the Database Services portion of the project specification, and we added partners that complement and improve our abilities.

For this response, we have built a team with West Virginia Rural Community Assistance Program (WVRCAP), Stantec Consulting Services Inc. (Stantec), and TruePani Inc. (TruePani). We are delighted to offer the support of local staff in the Stantec Bridgeport, WV office and the Charleston, WV office of WVRCAP to conduct the Field Services portion of the project, as well as support the import of data into the state database. TruePani will act as a fulfillment company to provide sample bottles, swab/scratch tests, and pitcher/filters with replacement cartridges as part of the Field Services, and also work with WVRCAP to fulfill the mailing and customer surveys as part of the Customer Outreach Services.

This proposal will demonstrate that the GEC team can successfully provide all the services required in the Request for Proposal (RFP). We have an in-depth understanding of this project and the mission of the DEP (the Agency) and DHHR (the Primacy Agency), gained from years of working with the Primacy Agency. Ours is the only team that combines empathy for the state's mission to support small water systems in West Virginia through the work of our team's technical assistance providers and engineering design and build firm; critical and decades-long expertise in the SDWA regulatory and legal requirements and the SDWIS; and practical institutional experience from decades of experience supporting DHHR with SDWIS and interfacing applications. And, we have a strong track record within West Virginia of providing cost-effective consulting and software solutions that produce high-value services and functional products. Our team features:

- **Continuity.** We have supported DHHR systems for over 21 years. This long-standing relationship ensures there will be low transition costs, few learning-curve risks, no deployment hiccups, and no false starts or rework that will increase the state's costs or schedule. An assurance of knowledgeable, unbroken technical support is of particular importance now, as the state addresses mandates to do more even as budgets decrease. In short, the GEC team provides the lowest risk and best overall value for this work.
- **Innovation.** The GEC team provides innovative software solutions and technical assistance to DHHR and West Virginia's small public water systems. Our team includes the foremost contractor providing SDWIS interfacing applications to states (including West Virginia). EPA leadership has recognized West Virginia with its data management quality award and GEC has supported the DHHR team for years to help the

state earn this distinction. Our team members are experts on the software side and use the most modern tools, development practices, and platforms. We anticipate and closely follow EPA's modernization of SDWIS (which will be the Drinking Water-State-Federal-Tribal, Information Exchange System, or DW-SFTIES), to assure that our software applications will work both now – with SDWIS – and in the future. We make the reinvestment opportunities that will ensure our database and software solution remains relevant, updated, and secure for the future. Similarly, our Field Services team members seek options to evaluate lead service line inventories (LSLIs) that will work with small and rural systems such as new means to communicate, or cost-effective methods to identify service line materials. We recognize the importance of funding to the small water systems that we will be supporting and can offer insights on possible funding options for help with lead service line replacement (LSLR) projects.

- **Proven technical leadership.** We offer experienced project managers, database developers and business analysts, technical leads, and community and user support staff who have been key personnel on numerous West Virginia contracts, as well as direct contracts with water systems and federal contracts with EPA to support the Lead and Copper Rule Revisions (and all its subsequent modifications). We bring extensive knowledge of and experience in West Virginia's technical/IT environments, water system communities, and state policies. Our team includes a West Virginia-certified Technical Assistance Provider (TAP) that has decades-long experience. And, our team's global engineering design and delivery firm has offices in Bridgeport and Charleston with extensive experience supporting federal, state, and Abandoned Mine Land (AML) funded engineering projects for West Virginia water systems.
- **A fully developed, integrated team.** Our team is in place and ready to support DEP/DHHR on day one. We have supported the state for many years and have an internal team structure to ensure integration among team members. Our team's staff provide the breadth and depth of experience necessary. GEC and its partners have extremely high staff retention rate. So the proposed team will be here to support the state throughout the life of this contract.

4.1 Background and Current Operating Environment

The GEC team recognizes the federal regulatory requirements that drive the goals and objectives of this project and set the October 16, 2024 deadline for submission of the initial, comprehensive LSLIs and LSLR plans to the state's Primacy Agency. Our proposed methodology to meet this target and the software solution we can provide to facilitate the state's management of the data and ability to report to EPA's SDWIS is described below.

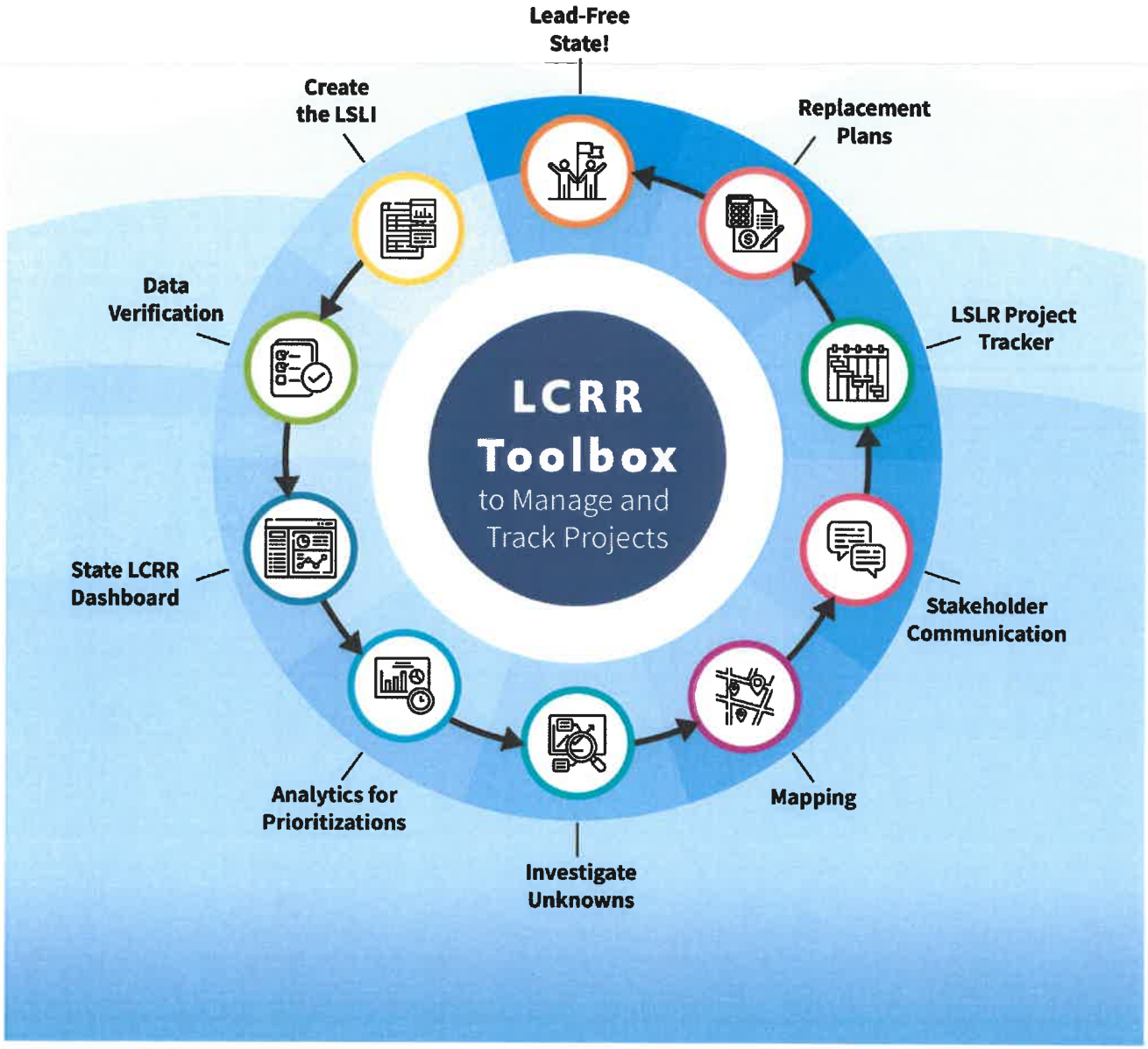
4.2 Project Goals and Proposed Approach

The GEC team can perform all areas of the business requirements described in the RFP and outlined in Section 4.2 Project Goals and Mandatory Requirements. Our vision of the project is reflected in the graphic below that shows the Lead and Copper Rule Revisions (LCRR) Toolbox that we will employ to achieve these goals.

Project Kickoff Meeting

GEC anticipates conducting a project kick-off meeting with West Virginia staff to review project goals and timelines. GEC typically then conducts periodic meetings with State staff to provide project updates or when an issue has emerged. Meeting notes will be stored in Microsoft OneNote in Teams. This pattern is how GEC

has managed other projects with the state over the years. These project management calls can be conducted on a schedule requested by the state.



4.2.1 Goals and Objectives – Database Services

The GEC team proposes GEC's SWIFT Submittals-LSLI (Submittals-LSLI) solution for the state's database services. Submittals-LSLI is a mobile responsive, secure, intuitive, cloud-based solution that enables water systems to submit files and reports to the state.

Getting the data for millions of service lines is the first step, but then states need a place to put the data and SDWIS is extremely limited on the data it can house. States need to access detailed data to make determinations on funding eligibility or compliance with the LCRR, including things like public notification. Submittals-LSLI provides an answer for these additional needs.

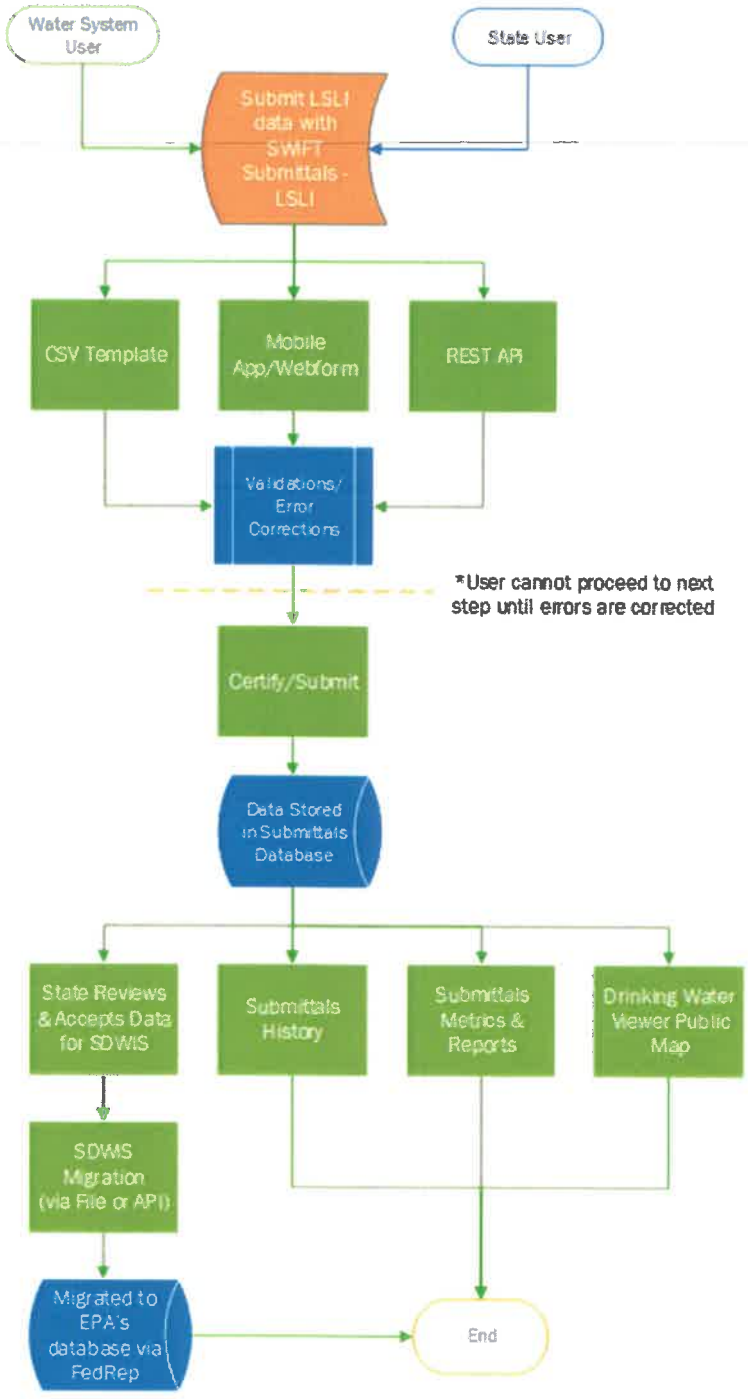
4.2.1.1 Inventory Database

GEC SWIFT Submittals-Lead Service Line Inventory (Submittals-LSLI) is a turnkey solution that helps states easily capture and manage detailed lead service line (LSL) data required by the state, and by the US Environmental Protection Agency (EPA).

Submittals-LSLI enables water systems (or the state) that are authenticated with logins in the GEC Portal to securely upload submittals of LSLIs and files, reports, and photographs to the primacy agency. Water systems (or their proxy, such as the GEC team) must download and use the Submittals-LSLI spreadsheet template that has been configured for West Virginia to upload data to the application. Or water systems with only a couple of service lines may elect to complete the mobile webform.

At the outset of the project, GEC will work with the state to create this state-specific spreadsheet template. We can either match the template that the state has already created or enhance the state's worksheet to include additional information that other states have suggested may be useful, based on the state's preferences.

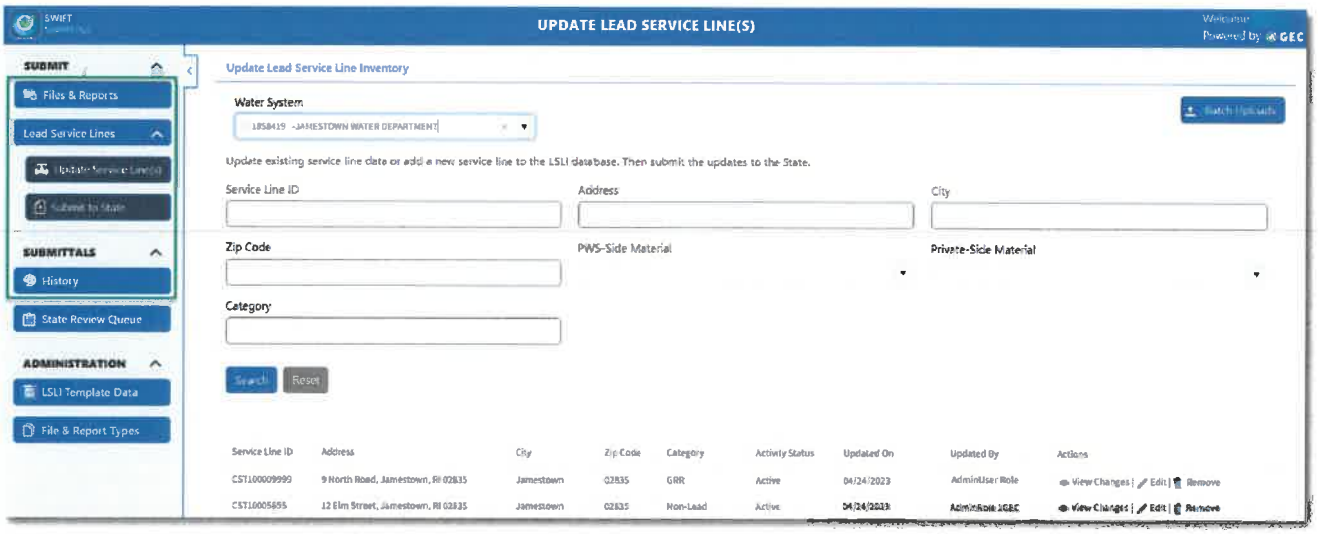
The process flow for Submittals-LSLI is shown in the flowchart to the immediate right.



User Interface for Water System, State User, and Admins

The user interface for Submittals-LSLI is very clean and simple to use, with instructions and the ability to add extra instructions, if the state wishes. The screenshot on the next page shows the view that an administrator would have, which includes all three sections of the app: Submit, Submittals, and Administration.

As highlighted in green in the screenshot, the water system or their proxy only sees the "SUBMIT" section and the SUBMITTAL History.



The state user has all the functions of the water system to SUBMIT and view the HISTORY, but also has the ability to see and review submissions in the STATE REVIEW QUEUE and accept for migration into SDWIS.

As shown in the screen shot, the state application administrators have an additional section of their interface named "ADMINISTRATION," where they can update their LSLI Template(s) and instructions and edit the list of files that can be submitted in the application (e.g., Lead Consumer Notices, Replacement Plans, Consumer Confidence Reports [CCRs]).

Water System User Capabilities in Submittals-LSLI

Maintain LSLI

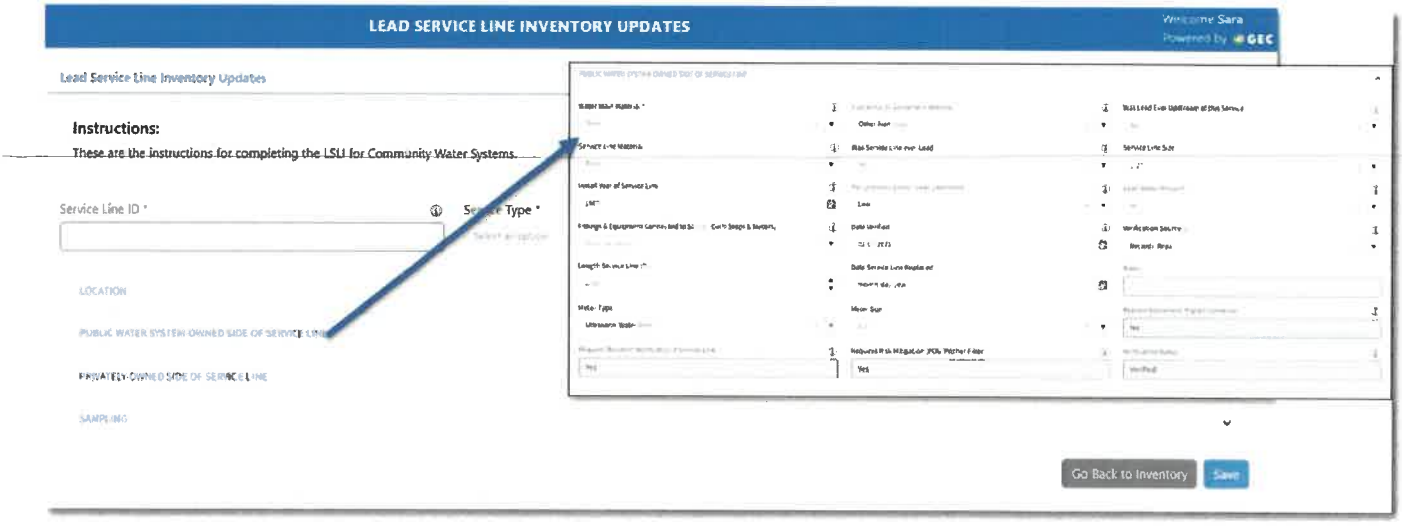
GEC uses web services to pull information from SDWIS (and DW-SFTIES in the future). This ensures the application has standardized data entry, such as drop-down lists for the user to select the water system name that will avoid errors from users entering different spellings or nicknames. When the user logs in, the application defaults to the last water system for which a submission was made, but the user can select another water system if they are authorized to submit information for more than one water system.

Water systems can update service line data and add to their LSL inventory as they identify changes or updates to their service line data in the app's webform or by uploading a Microsoft Excel template. The main "Update Service Line(s)" page shows the system's entire LSL inventory, and a screen shot is on the next page. The water system can select an existing service line to view/update or add a new one using the webform. The webform corresponds to the Microsoft Excel template. It is divided into sections and contains the data elements specifically determined by the state. Calculated data elements are also displayed for each individual service line.

Calculated fields follow the rules determined by the state and could include fields like LSL material category, verification status, replacement status, etc.

The LSLI data is stored in the app and is displayed in dashboard metrics displayed on the next page (such as replacement percentages or a summary of LSL categories) on the home page. The data can be made available

for other websites, dashboards, maps, and reports as well, including GEC Drinking Water Viewer, which is a separate application used by West Virginia to display drinking water information (see Section 4.2.2 Mandatory Project Requirements – Exceedances – Use of Submittals LSLI as Support for Tracking Compliance and Enforcement for detailed examples of data availability and reporting tools).

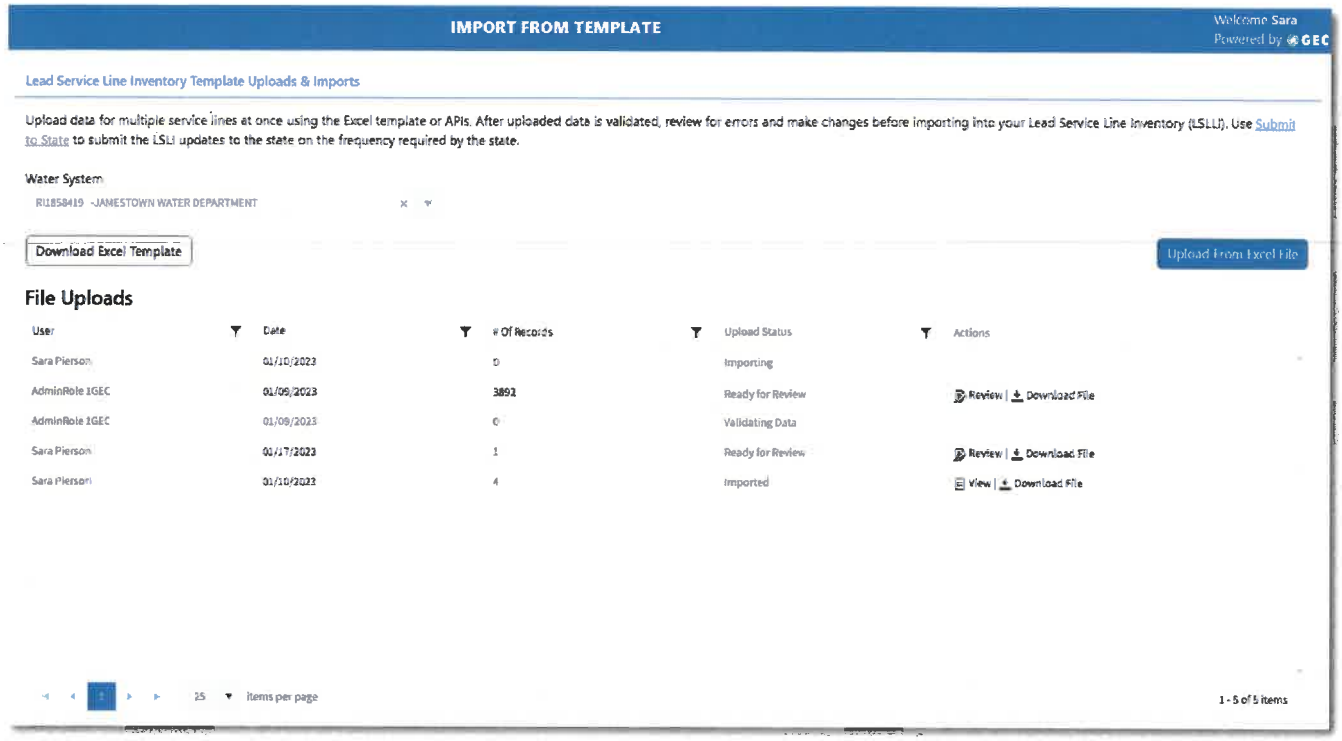


Service line data can also be added and updated using the Microsoft Excel template batch upload functionality.

The Microsoft Excel template is maintained in the Admin section of the application. States determine what fields they want included in the template, what permitted values should be shown in the drop-down lists, which fields are required or optional, and they can edit the default wording for field descriptions/help info, and instructions. The webform mimics these admin configurations.

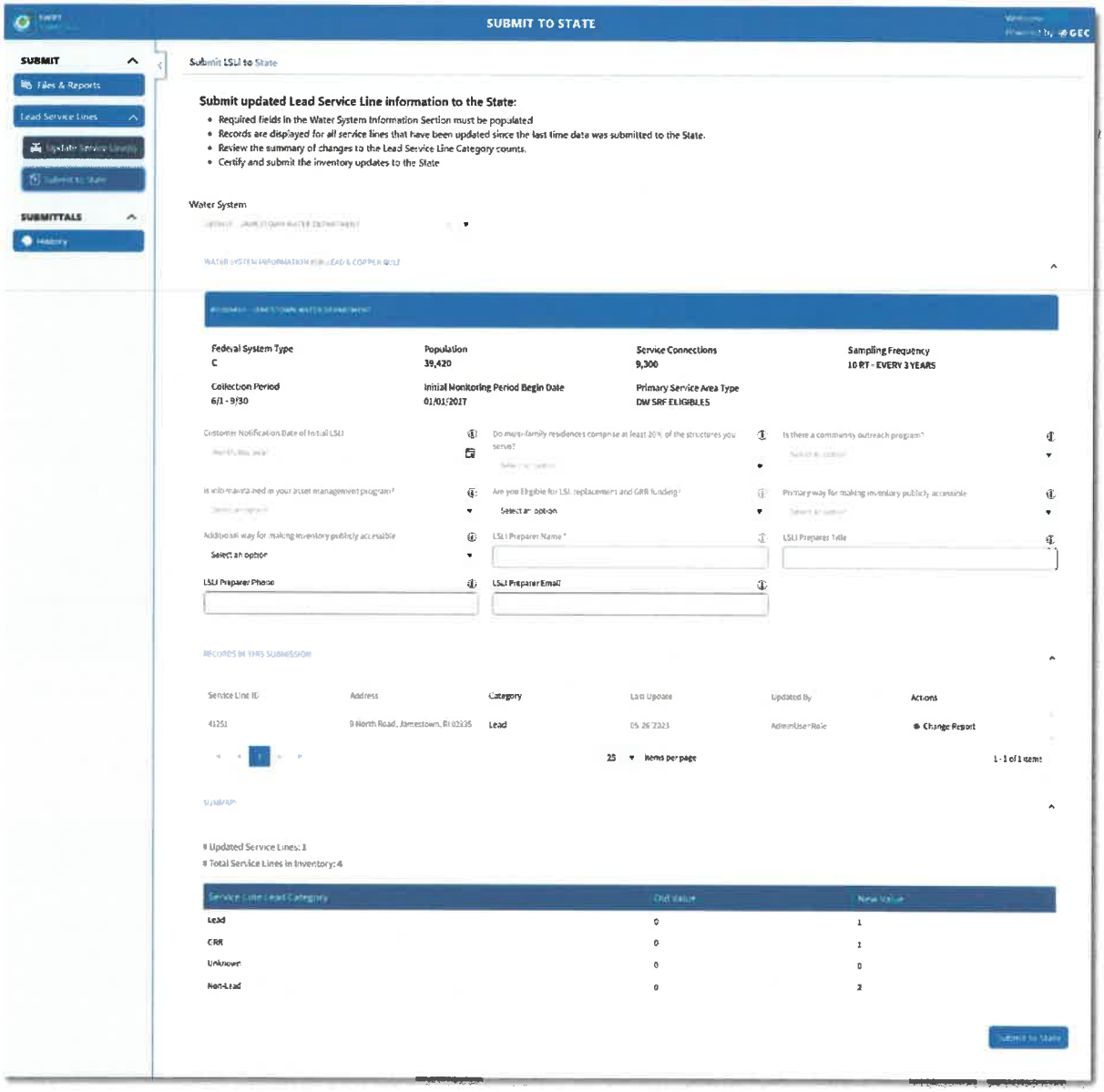
The user downloads the template in the app. If a state has more than one template, like for Community Water Systems (CWSs) versus Non-Transient Non-Community Water Systems (NTNCWSs), the correct template will be provided at download based on the system type of the selected water system. This way the water system is sure to be using the correct template.

When the Microsoft Excel template is uploaded (see the next screen shot), the app runs data validations. The user must correct all errors before they can import the service line data into their LSLI.



Submit to State

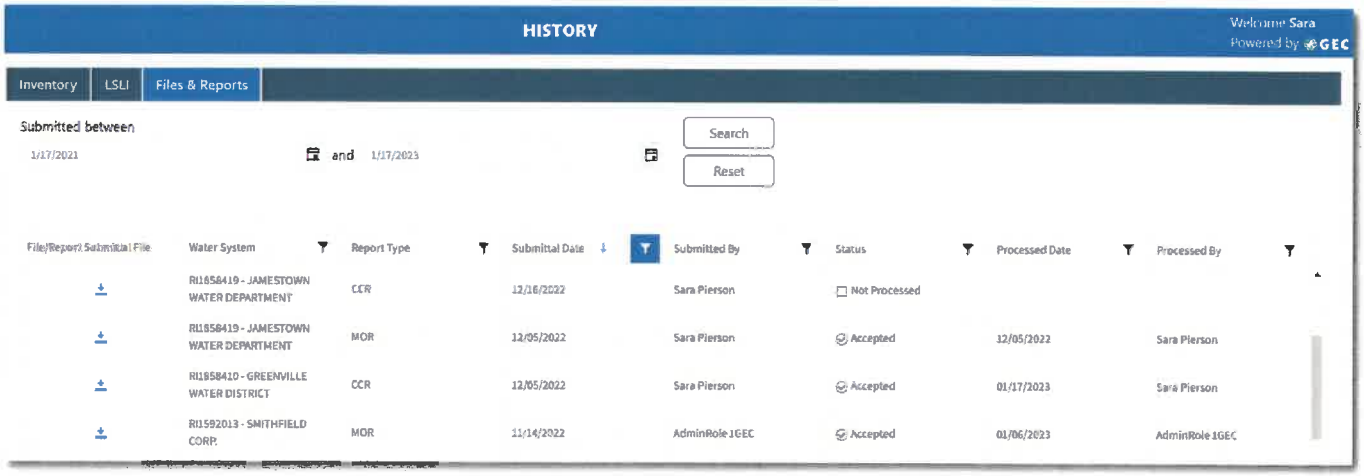
Although water systems can update and maintain their LSLI continuously throughout the year, they may only need to submit the data to the state annually or on some other designated frequency. To submit LSLI data to the state, users enter additional water system-level information as determined by the state and review the service line data being submitted (see next screen shot). Data can be reviewed at the service line level and in summary (see next screen shot).



After their review is complete and they are ready to formally submit the information to the state, the water system hits the "Submit to State" button. The application will confirm the upload and ask the user to certify their submission by entering their pin and "Certify & Submit" the file to the state. This step assures that Submittals-LSLI follows the Cross-Media Electronic Reporting Rule (CROMERR) conventions for submission of the LSLI and supporting documentation.

Water systems may also submit files and reports to the state (see next screen shot). The state can determine which files and reports to accept. Examples could include Lead Consumer Notices, Replacement Plans, CCRs, Applications, etc. The user selects the type of report they are submitting, chooses a file, uploads, and certifies and submits the report to the state (see next screen shot).

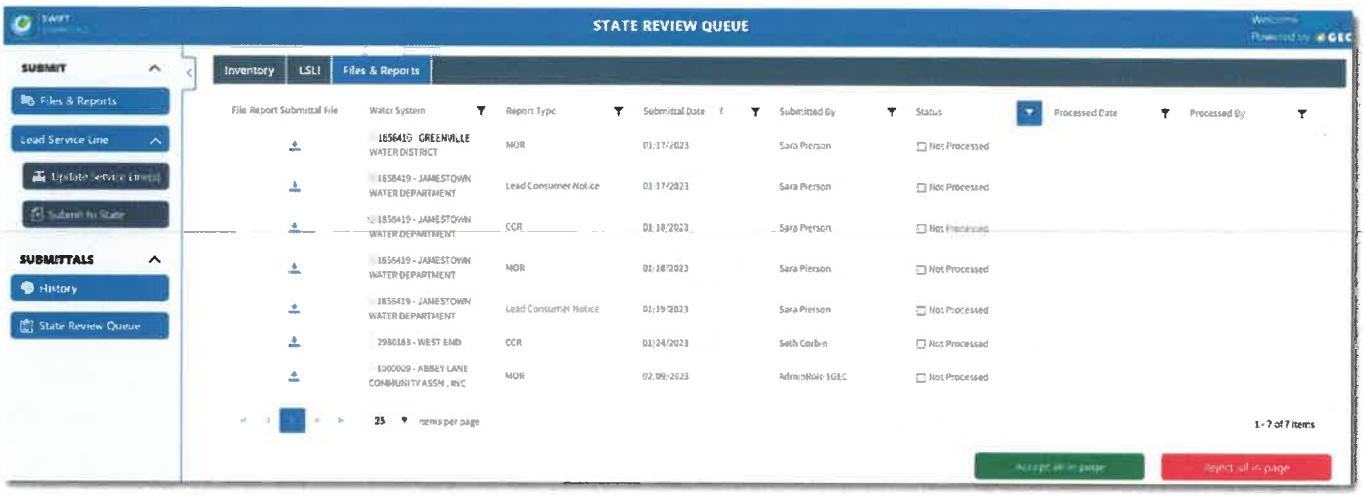
Once a user submits their LSLI or Files to the state, the submission is logged in the Submittal History, and they are available for State users to process in the State Review Queue (see next screen shot). The history is a "read-only" view where the user can see what was previously submitted to the state, the submittal status, and the metadata connected to the submission, (e.g., who submitted what and when). Users can also download the file that was submitted (see next screen shot).



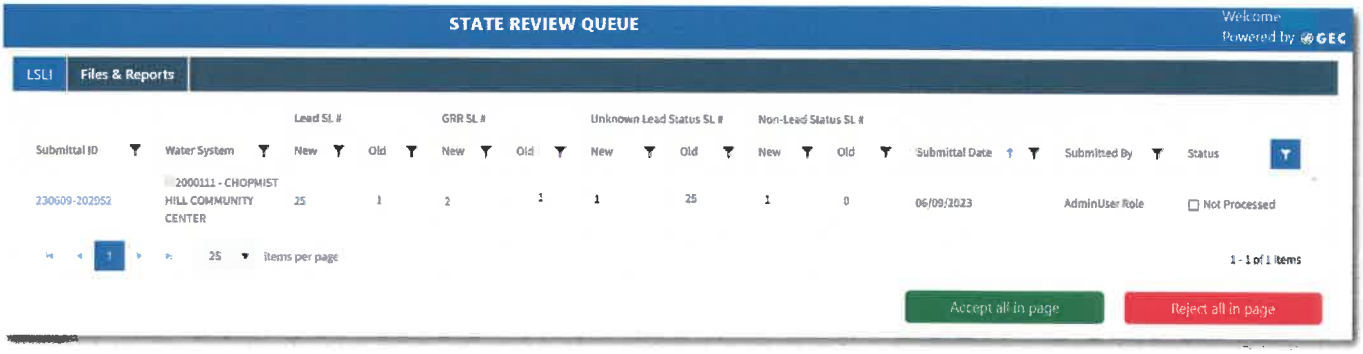
State User Capabilities in Submittals-LSLI

Once the water system's information is submitted, the data becomes available in the State Review Queue, which is where state staff may go to process submittals that have come in (see next screen shot). By default, the state user will see the submissions that have not been processed yet, but they can change that filter to see all submissions if they wish to see something that was submitted previously. They can also filter the Reports if they want to focus on processing a certain type of Report. The state user can elect to "Accept All", "Reject All", or click the status to change the status of each submittal on an individual basis. State users also can add comments. For example, they may note that the water system sent the wrong file, or the CCR is missing data.

The application will still have a record of the submission, but the submission does not have to be accepted for state purposes until it is complete and accurate.



Submittals-LSLI streamlines workload for the state and presents a summary of the changes in Lead Service Category numbers for review (see next screen shot). If desired, states can view the detailed submittal data, including specific service line changes, in the Service Line Change Report which presents old and new information for each field that has changed, making it easy to compare the information. The state user also can download the Service Line Change Report to store with other records or share with people who are not users of the application.



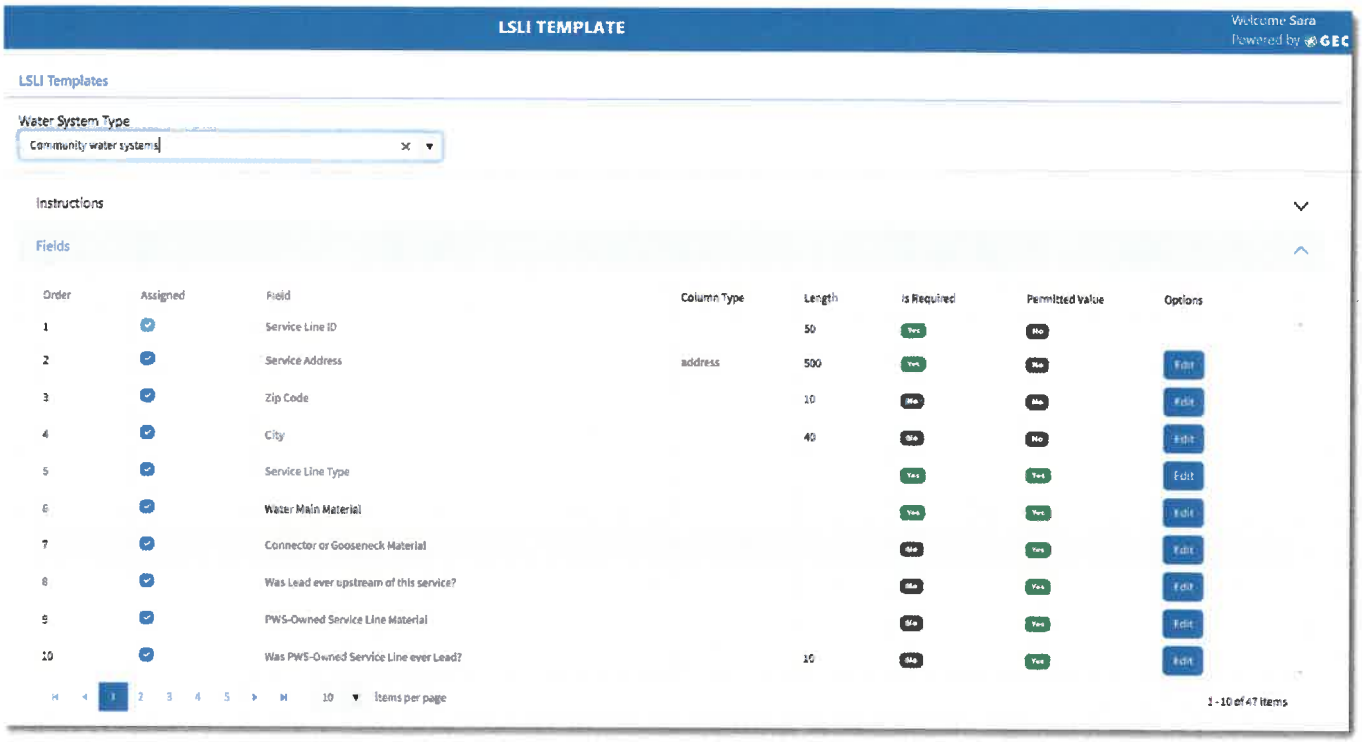
The Review Queue is where the state user reviews the data and determines whether they want to accept the data into the SDWIS/State database. Data from multiple systems can be processed at once and when accepted, they are converted into a migration file for SDWIS Bridge. This file can be manually uploaded but will eventually become an automated migration process using existing SDWIS State Bridge APIs and/or DW-SFTIES APIs in the future.

State Application Administrator User Capabilities in Submittals-LSLI

LSLI

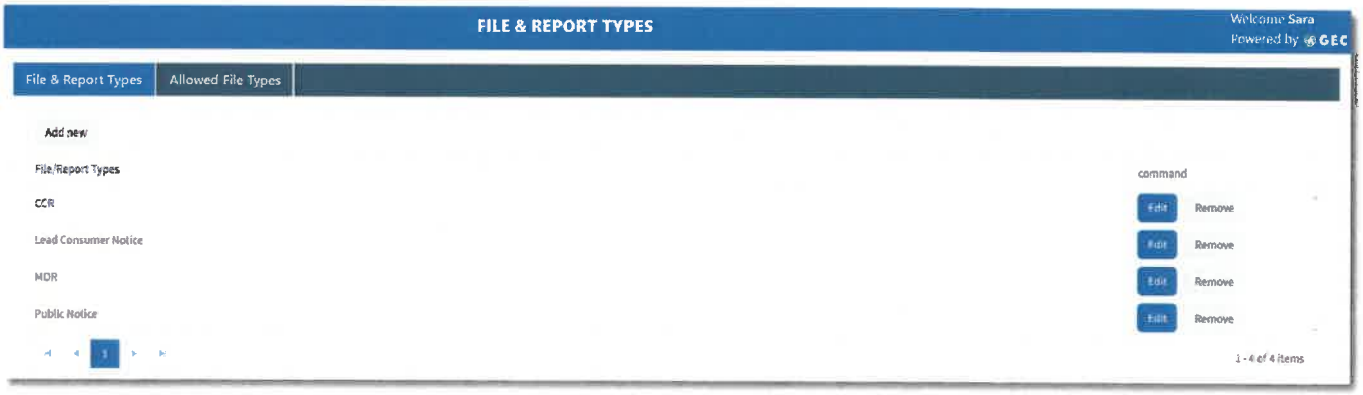
A state admin has all of the functionality of the water system user and the state user, with additional configuration capabilities (see screen shot below). The admins can customize the Submittals-LSLI

template(s), instructions, help information, data elements, and permitted values. Data fields can easily be turned on or off. For the initial setup of the templates, West Virginia will receive help from GEC. We will support the state until the admins understand how to make the simple changes, or we can implement the changes for them.



Files & Reports

The admin controls the sorts of files and reports that the water system can select in the dropdown list when they submit a file (see next screen shot). The admin can add new ones and edit or remove existing ones. The admin also can control the formats acceptable for the files, (e.g., .PDF, .XLSX, .DOCX, .JPG, and so on).



Security and Privacy

To meet government information technology standards and resiliency requirements necessary for a state's database of record, particularly if it houses personal identifiable information, our firm passed a Service

Organization Control (SOC) 2/Type 2 audit with annual renewal and hosts our cloud-based products and state data in the Microsoft Azure Government Cloud. GEC applications are also routinely scanned for security vulnerabilities, and vulnerabilities are remediated in accordance with GEC security standards and policies.

Users create a log in and password in the GEC Portal, and user permissions are assigned by an application administrator. For instance, West Virginia State staff would be administrators and can set permissions levels for water systems or other others in the GEC Portal to ensure that permissions are appropriate for the type of user accessing the application. Water systems can be users if they have an email address and access to a computer. Note that when a water system cannot meet these two requirements, our GEC team members will facilitate using Submittals-LSLI and submit the spreadsheet with the inventory on the water system's behalf. As West Virginia expects there to be approximately 450 concurrent users, the GEC team can assist with approving users in the portal, or migrate users into the GEC portal, if state administrators do not want to manage this activity for the initial submittals.

Training for Software Administrators and Users

GEC provides training to state administrators on using Submittals-LSLI, and our GEC team members who will conduct the field services portion of the project also will be trained users of the software who can help water systems learn to use the tool. All GEC products include significant documentation in our online Knowledge Center, and we provide technical assistance through a Zendesk ticketing system. Should the state desire, some of the estimated customization funds could be used to create mini videos that can be shared with water systems to remind them how to submit their LSLI after this project is completed.

GEC HELPS DHHR WITH CYBER BOT ATTACKS

DHHR formerly used the EPA application Drinking Water Watch (DWW) and was suffering regular cyber-attacks. This older application was no longer supported by EPA, and its outdated code was vulnerable to attack. GEC created a successor to DWW named Drinking Water Viewer, which maintains GEC's high security standards and follows gold standard industry security practices. DHHR elected to replace DWW with Drinking Water Viewer to assure its drinking water data remained protected.

Upgrades and Maintenance

GEC has an ongoing commitment to ensure our software products remain current, the user interfaces meet client needs, and our content and calculations reflect any changes in the regulatory requirements. As part of this commitment, GEC meets quarterly with our clients to discuss any challenges, new business needs, training assistance, state and federal regulatory requirements, or new data entry instructions, and seek client input and ideas to enhance our products. GEC constantly upgrades our products to meet our user community needs.

4.2.1.2 Compilation, Tracking, and Provision of the Material Inventory and Lead Service Replacement Data

Public Water Systems (PWSs) can review their LSLI in Submittals-LSLI at any time, using any mobile device with a web browser. They can continuously add updates in the application, even while offline or out in the field. They can also review their inventory before submitting it to the state. The data are stored in the Submittals-LSLI database and displayed in the app's dashboard metrics. The dashboard helps water systems view their own metrics, but also enables states to view state-wide or individual metrics for PWSs. West Virginia

staff will be able to review inventories submitted by their water systems. Submittals-LSLI will transform the inventory reported by PWSs into SDWIS/State and in a format so the data can be reported to EPA. The data can also be made available for state-wide reports, analysis, GIS layers, etc. to help with replacement prioritizations, percentages, and other state implementation needs. See Section 4.2.2 Mandatory Project Requirements – Exceedances – Use of Submittals LSLI as Support for Tracking Compliance and Enforcement for detailed examples of data availability and reporting tools.

4.2.1.3 Import of Data

LSLI requirements are formatted to West Virginia's specific requirements. Data can be manually entered via webform or uploaded using a Microsoft Excel spreadsheet by water systems or the GEC team. If service line data is entered manually via webform, validations are run on entry and errors need to be corrected to save the data in the inventory.

To upload data using the Microsoft Excel spreadsheet, users must download the current template. If the state has different LSLI templates set up based on water system type (CWS or NTNCWS), the user can only download the template that matches the water system that they have selected. For example, if the selected water system is a CWS in SDWIS, then the Community Template will be the only one available for download.

The spreadsheet is filled out by water systems or the GEC team with the required information, and then is submitted through the Submittals-LSLI application. Users can upload their spreadsheet, correct any errors, then import the data into the LSLI database.

The RFP specified that submittals to the state should occur without state assistance. Submittals-LSLI has easy-to-use instructions and tracking tools that help water systems, so they do not need to contact the state. The GEC team is also available to assist water systems when needed.

For this project, when initial, comprehensive LSLIs are completed for the water systems to comply with the regulatory deadline of October 16, 2024, we envision that the water system may be submitting many rows of data as each service line must be included in the initial LSLI – even if the service line materials classification is "Lead Status Unknown". However, on an ongoing basis, the water system will be maintaining their inventory in Submittals-LSLI and may only make a change to one service line at a time. They can update it using the webform on their mobile device, submit a new spreadsheet of their entire inventory after updating the one row, or send a spreadsheet with only a single row of data to submit. The same process is used to upload a spreadsheet for a single row or many rows of data. The upload process is streamlined so users only have to view and correct data for service lines with new or updated information. The Import Template screen (shown in Section 4.2.1.1 Inventory Database) allows the user to download the template, upload the template, correct errors, and import the information to the Inventory. The basic process is summarized below.

In the case of an uncooperative CWS, the GEC team will first try to identify the content of the service lines from all publicly available records, data, and visual inspections as permitted. Our team has relationships with many water systems that will help with cooperation, but we have discussed internally that there are systems among the 175 CWS under 1,000 population that are "known to be recalcitrant". If no determination is able to be made without CWS assistance, GEC will escalate the issue to DEP/DHHR for further action and seek their feedback. ideas, or help. This can occur during the periodic project management meetings that GEC will hold with the state (see more detail in 4.2. Project Goals and Proposed Approach, Project Kick-Off Meeting). If a CWS does not submit or report their LSLI information to the state, DHHR can issue violations to the CWS using the following violation codes (or any others identified by EPA as the rule is finalized):

- 2E LSL Inventory Initial
- 2E LSLI Updated
- 4G LSL Reporting

Validating Data

For data quality and to reduce the workload for the state, Submittals-LSLI completes a series of data validations when the spreadsheet file is uploaded. This quality assurance is critical to preserve the data quality of the state's database of record. These validations include checks to confirm that the user has properly completed all required fields and the data is in the proper format.

The validation process is very quick for one record but could take longer if it is a huge file (e.g., one million rows) and many giant files are being validated simultaneously. Therefore, to save the user time, the user receives an email when the validation step is done. This benefit is not likely a major factor for this project, as most of the small water systems in West Virginia have a small number of service connections, and GEC does not anticipate that the validation step will take long. However, we assume that the state will use this application for the LSLIs for larger systems with more records, for which this email feature will be even more valuable.

Ready for Review

As shown in the Import from Template screenshot in the Section 4.2.1.1 Inventory Database, the application has a File Upload section that allows the user to view uploads and review and correct their uploaded data before importing into their inventory. Users correct errors identified during the validation step by editing data in the webform or removing erroneous data.

Import

Once the user has completed their review of the upload and the upload is error-free, the valid data is ready to be imported into the LSLI database. Once imported, the data is included in the water system's LSLI and is available to be submitted to the state. Submitting to the state is a separate step as LSL updates should be happening all the time, though water systems may only need to submit to the state once per year or whatever frequency is designated by the state.

4.2.1 Goals and Objectives – Field Services

Stantec and WVRCAP will divide and manage the technical assistance and field services offered to the 175 small CWSs targeted by this project. One exception would be if WVRCAP already has contracts with a water system that would be in the geographic area largely covered by Stantec, as WVRCAP could complete this LSLI as part of another project. The travel costs for this work would already be covered by the travel costs charged under the other assignment, thereby saving costs for this project.

4.2.1.4 Material Inventories

Under the auspices of the State of West Virginia's Lead Service Line Inventory System for DWWM, we envision that the field services workflow for the GEC team will be as follows:

Records Review for Inventory Development

We anticipate that a large number of historic records will need to be reviewed for each PWS that receives assistance under this program. While it is highly likely that this will be a very tedious undertaking for all PWSs, it is also very important to recognize the importance of obtaining accurate information.

With regards to data review and documentation, following are some of the steps that we anticipate will be undertaken for each PWS with whom we engage through this program:

PWS Outreach and Communication to Develop LSLIs

Following receipt of a notice to proceed (NTP) to work with a PWS, the GEC team will reach out to schedule a call with the PWS. This meeting will introduce the GEC team/PWS staff to be involved, recap the scope of the project, define project goals and expectations, identify data sources that may be utilized in developing the service line inventory, and establish points of contact associated with specific PWS departments for access to PWS historical records which are not available online. This meeting may be online, by phone, or in person, and potentially involve multiple water systems. If the latter, it will be to coordinate with water systems that are geographically close to one another. Throughout the duration of the effort to create the water system's inventory, GEC will contact the PWSs on an as needed basis and will endeavor to keep the calls to a maximum of 30 minutes to review efforts, issues, and challenges associated with the ability to access/review information and findings resulting from the records reviews. We recognize that many of these systems may only have one person on staff and they may not always be full-time staff so we will limit these meetings as much as possible to be respectful of the water system staff workload and time.

Plumbing Code Review

The State of West Virginia banned the use of lead pipe on June 19, 1988. This followed the amendment to the Safe Drinking Water Act (SDWA) banning the use of lead pipe which took effect exactly two years earlier (on June 19, 1986). Thus, individual municipal plumbing codes will be reviewed to determine if an earlier effective date for banning the use of lead pipe was established. Note that this is an occurrence that GEC team members have come across while working with other clients to develop their LSLI.

Billing Account Records

The GEC team will coordinate with the PWS regarding their approximate number of water service accounts. A complete accounts record will be reviewed to reconcile with the total number of building services in the water system.

Records Collection, Review, and Inventory Assessment

The GEC team will identify and review the PWS's available data sources, which may require coordination across other multiple departments (depending on the utility's size). Data sources that may support the development of the service line inventory include the following:

- Building Permits/Code Enforcement Department (i.e., renovations and/or tear downs that note service replacement).
- Work Orders (i.e., meter replacements, service line repairs).
- Planning Department Records.
- Construction Records (i.e., major water main repairs/ replacements that identify updated service line materials).
- Plumbing Permits (for replacement of services).

- Local Ordinances noting a ban on lead pipe (as applicable)
- Tax/Parcel Records (indicating the date a home/business was constructed).
- Maps/Record Drawings.

When possible, the GEC team will endeavor to obtain necessary records from the website of the PWS (if this exists). Obtaining some of these documents/data may require access to internal databases or records storage of the PWS. As data sources are reviewed and found to be accurate and relevant to the LCRR service line inventory, the LSL inventory spreadsheet from Submittals-LSLI will be populated with the relevant information. All information incorporated into the LSL inventory will indicate the data source. It is assumed that some of these internal databases may only be accessible at the respective PWS departments. This reinforces the added value of having local Stantec and WVRCAP staff who stand ready to conduct an in-person visit (when required).

Interviews with Town Staff

During the records review for the LSLI development, interviews with staff potentially knowledgeable of information that can be used to provide direction and/or verify records will be conducted. The GEC team anticipates that these types of interviews may be conducted with representatives from the following departments of a PWS (as applicable): Assessors, Building Department, Engineering/Planning, and Public Works. (We also recognize that there may be no separate departments for the small systems – but included this list to be thorough.)

The GEC team will primarily conduct these records review and collect/prepare data for subsequent entry into the LSL inventory template spreadsheet for each PWS that receives assistance under this program. While the goal will be to teach the water systems to use the spreadsheet and software provided (so they may keep their inventory updated after this project's conclusion), it is likely that the GEC team will need to enter the data. This has been the experience for WVRCAP on projects to complete LSLIs for other small water systems in the state. WVRCAP has done the data entry for the water system both because of time and equipment/computer knowledge limitations on the part of the water system staff.

4.2.1.5 Identification Methods for Determination of Lead in Service Lines

We know that small water systems which are the focus of this program may not have a great inventory of historical records. Thus, the following section describes how we will be prepared to utilize visual inspections in the field to assist with the determination of service line materials on both the public and private sides.

Visual Inspections for LSL Inventory Development

The GEC team is well versed in utilizing several visual inspection methods to assist PWSs with development of their initial LSL inventory as well as the subsequent inventory updates that will be made as part of an LCRR compliance program. These have included the use of mechanical excavations, hydrovac excavations (i.e., potholing), and visual inspections at water meter boxes. For the small water systems (i.e., serving less than 1,000 persons) that this program will primarily assist, we know that the cost of mechanical/hydrovac excavations will be excessive.

Thus, our efforts will center around utilizing more cost-effective means. These may include conducting a customer survey in which we ask them to perform a visual inspection of their service line piping (e.g., within a water meter box, inside a home) and indicate the service line material substantiated with a photograph (that

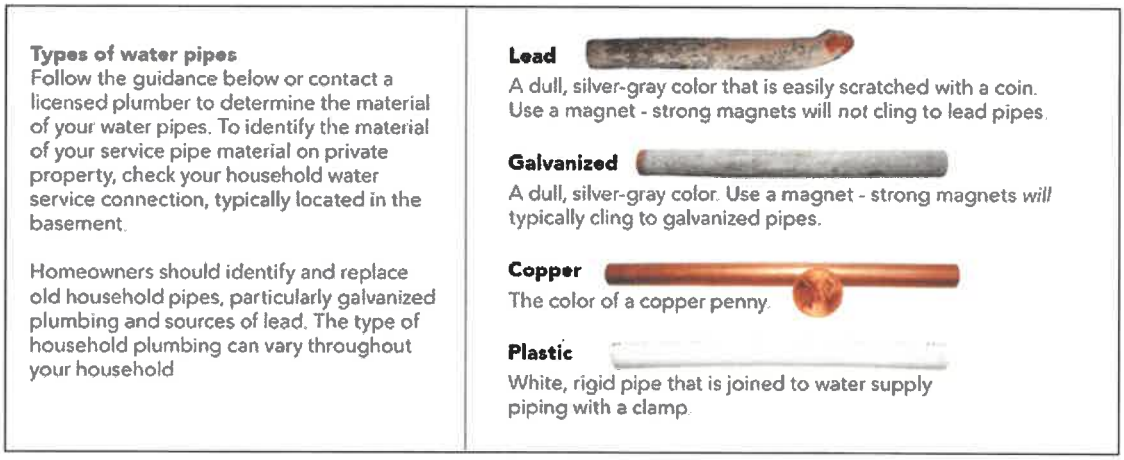
can be reviewed by a PWS employee or GEC team member). This may also be accomplished by a GEC team member following these same steps if a customer does not respond to the survey request.

The visual inspections may include a scratch test on all metal piping. The lead is a dull gray color and very soft. If scraped with a key, it will turn a bright silver color. Even a very strong magnet will not stick to lead. The GEC team can also provide scratch tests from their fulfillment center, if needed.

Visual scratch testing

Lead is a dull gray color and very soft. If scraped with a key it will turn a bright silver color. Even a very strong magnet will not stick to lead.

DC Water: Understanding your Water Service Pipe



Source: DC Water

Based on demonstrations from Electro Scan's Swordfish (which utilizes electrical resistance to determine the presence/absence of lead and/or galvanized materials), we believe this is another cost-effective means to verify service line materials that can be used by the GEC team's field personnel. Note that the potential use of this investigation method requires approval by the State of West Virginia.

1L Bottle Sample Kits and Analysis

Using bottle sample kits is another means to verify service line materials and this method is requested in the scope. Our team member, TruePani, will provide this method, if requested by the state.

TruePani can provide sample kits and lab analysis (NELAC accredited E200.8) for compliance sampling, investigative sampling for identification of unknown service lines, and post-LSL replacement sampling. Samples collected by residents are cost-efficient compared to in-person sampling by water system staff.

Compliance sampling kits include:

- 1L sample bottles (one or five bottles depending on first or first and fifth liter sampling requirements), pre-cleaned and certified for metals analysis.
- Instructions.
- Bottle labels/Chain-of-Custody.
- Pre-paid return label for shipping to the lab.

TruePani will track shipments updates and share information with project partners through regular exports and a tracking dashboard. TruePani personnel will review laboratory reports and EDDs and ensure proper QAQC procedures are implemented for all water samples collected during the project.

Any sample bottle kits required for water systems assisted by WVRCAP will be supplied by WVRCAP. WVRCAP will pick up the bottles from a local lab and drop them off after helping the water system collect the samples during the site visit. As the sample collectors, the well-trained WVRCAP team personnel will follow the following sampling procedures that they have been using for approved methodologies for sampling under other LSLI contracts for the state. They will report the samples collected and results to project partners, so TruePani can create the lead sample notification reminders for notification to the owner and occupant(s) of any building where a sample was collected.

However, the GEC team will discuss the benefits of using this method to identify lead service lines during scoping meetings at the beginning of the project. We do not believe it will be cost effective for this program for the following reasons:

- Sampling will need to be done for a very large number of homes. In the cost sheet provided under Attachment A, the total number of bottles (across all sizes) is 16,000. When the costs of both this equipment and related analyses are considered, it will not be as cost-effective as trying to engage homeowners through a customer survey augmented by Stantec and WVRCAP personnel support (for field investigations).
- This program will concentrate on public water systems serving under 1,000 persons (and in many cases less than 250 persons). These systems are located in very rural areas throughout the state. Such a large coverage area is not conducive to directing a cost-effective sampling program.
- Sampling can still be useful if used appropriately. It does not confirm whether a service line is or is not lead, but it may be valuable as an indicator for whether the other service line verification methods were thorough. For instance, if records or a customer survey state the service lines are plastic, and a sample shows notable lead presence, then the GEC team would work with the system to figure out what is going on. The single random sample does not confirm a lead service line but suggests there could be lead elsewhere. For these situations, the GEC team could collect random samples from booster stations and the plant to rule out whether lead is introduced in these locations. Another example is to use sampling to confirm the likelihood of lead service lines in homes built at about the same time as a household in the same area that has had elevated lead levels.
- As part of the discussion, the situations that merit a single sample bottle for flushed sampling, five sample bottles for sequential sampling, or 10 bottles for targeted sampling will be discussed with the state.

The results of these various methods for verification, in combination with other available information, will be used to predict service line materials at other sites in the vicinity and help with the determination of the materials when it is unknown. Based on records of when houses were built or when the area received service from the water system, the GEC team will be able to conclude that the service lines in the area are either lead or some other material. This approach has been used for developing LSLI for other small water systems in West Virginia and discussed with the state.

Development of Lead Service Line Replacement (LSLR) Plan

Development of the LSLR plan for each PWS is another core strength of the GEC team. We know that each LSLR plan that is prepared must include each of the following components:

- Development of a strategy to determine the composition of 'Lead Status Unknown' service lines in each LSL inventory.
- Preparation of a procedure for conducting full LSLRs (for both the public and private sides of each service line).
- Development of a strategy to inform customers prior to a full or partial LSLR (with the former being the requirement as noted above).
- Establishment of a LSLR goal rate if there is a trigger level (TL) exceedance. Note that the TL = 10 ppb and this requirement is only for community water systems serving more than 10,000 persons. Thus, it will not apply for the majority of water systems served by this program.
- Preparation of a procedure for customers to flush service lines/premise plumbing of particulate lead.
- Creation of a LSLR prioritization strategy that focuses on historically underserved communities that are disproportionately impacted by the presence of lead in drinking water.
- Establishment of a funding strategy for conducting LSLRs which assists homeowners with covering the cost of private side replacements.

The GEC team will help each public water system supported by this program to have their LSLR plan ready for submission on or prior to the compliance deadline in the final rule.

Pitcher/Filter with Replacement Cartridge

Once the lead service lines have been replaced, should West Virginia elect to provide water systems with pitcher/filters to water systems for the interval after the line has been replaced for additional protection, the GEC team can assure this happens. TruePani has a fulfilment center in Knoxville, Tennessee and maintains an inventory of pitcher filters and filter cartridges for other lead service line replacement projects. TruePani has developed an internal system to manage inventory, shipments, and track deliveries to customers that can be shared with project partners through a dashboard.

TruePani has completed a total cost of ownership (TCO) analysis for past filter distribution projects and has procured pitcher style filters that meet the product specifications and standards listed in the LCRR.

4.2.1 Goals and Objectives – Customer Outreach Services

Communication must inform the water system about the risks from lead in the drinking water as an increasingly significant source of public health risk from lead and explain what action(s) they may take to reduce that risk. All forms of communication will be mailed or texted to customers and be readily available upon request.

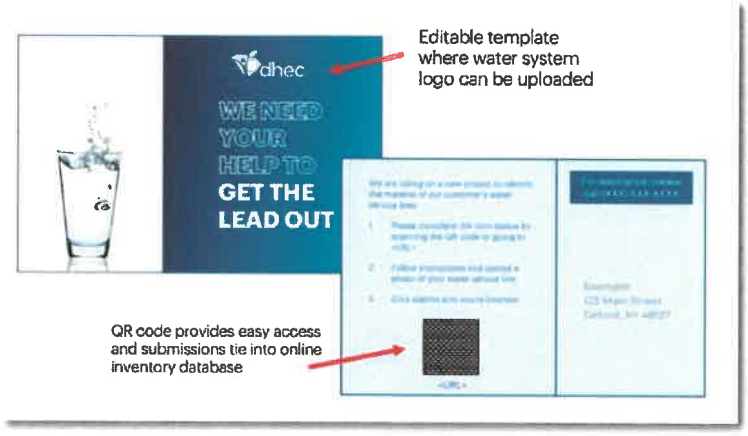
4.2.1.6 Methods for Customer Outreach of Opportunity to Participate in Lead Service Discovery and Replacement

TruePani's communications team will work collaboratively with the larger project team to develop a communications strategy and accompanying materials that further the goals of the program and achieve compliance with the updated LCRR requirements, including planning, training, public education, notifications, and outreach programs. Adequate planning is critical for effective communication.

The water system operational staff is also likely to be approached by customers, as they are often working on service lines and may also be involved with a lead line replacement project. For that reason, it is important that these employees be trained and fully briefed on the risks of working with lead service lines and appropriate safety measures. In addition, they need to have some training and resources made available to them for communicating about lead to customers in case they are approached. It may make sense for a utility to designate one or two employees as the points of contact for lead issues for operations staff and to provide informational cards to operations personnel. The GEC team members involved in the field services will cover these topics during the site visits, or via mailings.

Customer Survey (Postcard w/QR Code)

The effectiveness of customer surveys varies by region. Should homeowner surveys be deemed appropriate, TruePani's award-winning "Locate Your Line" Tool can be linked from a QR code on the postcard and be utilized to directly feed customer survey information into the inventory database.



Text Messages

WVRCAP learned through other projects that sending a survey link via text message is a potentially powerful way to improve the response rate. Many people do not read mail or bother to open emails from their water system, but most will at least quickly review a text message. The GEC team will discuss the feasibility of this approach for this project, and if the state agrees, can ask water systems for the data needed to reach customers via this method.

Custom Letter

TruePani's Data Management System (DMS) can generate customized letters based on customer account data and bulk print communications materials. For example, letters could be generated for all customer accounts with unknown service line materials, lead service lines, or galvanized requiring replacement lines, meeting the annual customer notification requirement under the LCRR. For compliance sampling, sampling tiers could be imported into DMS, and letters or emails could be sent within 24 hours of receiving laboratory results. TruePani staff can print and mail the generated letters.

4.2.2 Mandatory Project Requirements – comply with mandatory requirements

4.2.2.1 Database Solution Compatibility with SDWIS-State and Reporting to EPA under LCRR

As noted in Section 4.2.1.1, Submittals-LSLI has a process to create a SDWIS migration file. Pushing data to SDWIS is a well-established process within GEC applications, and we have a similar process embedded in many of the GEC applications that West Virginia already uses. GEC's policy is to use EPA's methods to migrate data into SDWIS. Submittals-LSLI will generate migration files for manual upload. Eventually this migration process will be automated such that once the data is accepted, it will be migrated into SDWIS via EPA's APIs.

This capability, which is a mandatory requirement of this RFP, is critical and no other consulting firm in the country has had as much experience with SDWIS migration from interfacing applications. Many vendors suggest they can migrate information to SDWIS, but GEC has a long history of successfully doing it. We know the challenges of interfacing with SDWIS. GEC's SDWIS experts are extremely familiar with the database structure for SDWIS: in fact, some of our team members were on the original EPA workgroups that developed the schema and have supported application design as it has been modified over the years. This in-depth understanding is critical for the success of our vetted web services that have been in production for decades. If there are any problems with submissions to SDWIS, we can quickly and easily resolve the problems with our state clients, as our SDWIS experts have decades of experience with this work supporting numerous state clients.

This process is not static. At this time, EPA is developing a replacement for SDWIS. GEC closely follows the modernization of SDWIS into DW-SFTIES. We are on the EPA contractor's team responsible for modernization (although we are not doing the development). We participate in the Association of State Drinking Water Administrators (ASDWA) SDWIS user community, which shares insights and knowledge. We participate in national workgroups that monitor the progress of the modernization project, working closely with the SDWIS database managers in many states as all states have the same concern that the modernization must be done with careful accommodation for the ability of states to continue to use the interfacing applications that they have built over the years to accomplish their work more efficiently. We work well with EPA, help with debugging and testing their updates and releases, and have the IT knowledge necessary to be ready to make this big adjustment when this change happens.

As part of our application license agreement, GEC has committed to upgrading Submittals-LSLI to ensure that it will continue to work with the modernized EPA database (expected within the next five years). We will consume the web services that EPA has promised to provide to allow interfacing applications to continue to work as soon as they are released. We will be testing and working with EPA to resolve any kinks in the process immediately – and not just for Submittals-LSLI but also for our other 23 applications that interface with SDWIS – and we can assure West Virginia that we will successfully complete this project.

For 20 years, GEC has worked with West Virginia to support upgrades to their SDWIS database, when released by EPA, and we can confidently say that we will be here to support the state when this big change occurs. Our reputation as a consultancy that delivers has been proven over the years as West Virginia has maintained SDWIS with our support and we have ensured continuity and compatibility with SDWIS through our interfacing applications that West Virginia uses.

4.2.2 Mandatory Project Requirements – Exceedance of Mandatory Requirements

Inventory Database

In many spots throughout the write-up of how the Submittals-LSLI application works, we have documented where our solution exceeds the mandatory requirements. Here is a summary of the key benefits that exceed the mandatory requirements:

- The Submittals-LSLI application has data validation steps to weed out errors introduced by the water system. The state knows how critical this step is for quality assurance. Using a different example, the state spends extensive time reviewing lab results submitted to meet water system compliance sampling requirements to ensure that the samples are submitted with the correct metadata and meet the data fields requirements. When a laboratory or water system submits water samples using the wrong units, or forgets to complete a required field, the state must reach out to the water system and/or laboratory to obtain the data and correct any inaccuracies, then go through a repeated review cycle to confirm that the new submission resolved the problem. With the validation checks embedded in the Submittals-LSLI, these checks occur prior to the data reaching the state, and reduce the state workload. The application has documentation in the screen and online to help the water system understand what they must fix, which also reduces any interaction with the state. This is a benefit for the water system too: they get immediate feedback on what they have entered and can fix any errors right away while the task is fresh in their mind. As the small water systems in West Virginia may have few or only one staff person with large workloads, this time savings is important. Without this immediate feedback loop, the water system might not hear back from the state until a day(s) after they submit information, which means the water system has to go back to their records and bring it up, figure out where the mistake was made, and try again. Think of it like making an airline reservation: if you fail to fill in a field, you are asked to fix a highlighted field and a message explains what you did wrong. You fix it, hit the "try again" button, and you have made a successful reservation. Submittals-LSLI was created with this scenario in mind, with every effort made to make using the application the experience as simple and effective as possible.
- The application's dashboard provides metrics that allow the state to track "at a glance" the status of LSLIs by system or statewide, and to generate reports that summarize this information. The LCRR program created the need to manage enormous amounts of data, and states do not have many staff or data management resources to do it. SDWIS does not provide places to store more than the four summary data points that EPA requires states to report, leaving most of the information that states collect without a home. Submittals-LSLI organizes, stores, and presents key compliance data without state effort and creates essential time-savings that states need.
- The state review process for submissions into Submittals-LSLI zeroes in on the changes and allows the state to quickly review and approve or disapprove the submission. The review is presented in a simple format and the approval is accomplished with the click of a button for each submittal or can be done even more rapidly with the button that approves "Accept all in page" or denies "Reject all in page" at the bottom of the screen.
- GEC commits to upgrading Submittals-LSLI to be able to submit to the modernized SDWIS database when it is released.

Use of Submittals-LSLI as Support for Tracking Compliance and Enforcement

GEC can provide additional value to DEP/DHHR through integration between software already used by the state with the Submittals-LSLI application proposed under this project.

GEC applications are integrated closely with SDWIS/State via web services and allow for integration with each other. Several of the applications included below that are currently used by West Virginia are integrated with the GEC Submittals-LSLI. This integration will be useful to the state for tracking compliance and enforcement status as the LCRR program progresses.

- Reports, Evaluation, Compliance, and Processing (RECAP) offers more advanced functionality than Microsoft Access. It has four add-on features that use web services to extract information from databases and present it in useful formats.
    - RECAP-Reports generates custom reports, outputs, and letters to help primacy agencies quickly review water system data and compliance information. West Virginia uses RECAP-Reports already. Information from Submittals-LSLI can be pulled and integrated within existing outputs from this application that are used by the state, or new outputs can be created.
    - RECAP-CCR creates federally compliant Consumer Confidence Reports, plus allows for customized appearance, data, and content based on state requirements (and preference). West Virginia already uses this GEC application, and the information from the Submittals-LSLI can be shown in both the CCRs generated by this application and also shown on Drinking Water Viewer (see below). Specifically, the results from the sampling verification could be added to the Consumer Confidence Report with the number of samples collected, lowest sample, highest sample, and an average.
    - RECAP-Dashboard displays key compliance information for all water systems that needs to be addressed by the compliance management team immediately, daily, weekly, monthly, or other intervals. Note that West Virginia does not currently purchase this application.
    - RECAP-PWS Status draws from multiple information sources to conduct a health status check that indicates whether a water system complies with regulations or state-established criteria, e.g., for a loan, target for technical assistance, or permit. Note that West Virginia does not currently purchase this application.
- Drinking Water Viewer (DWV) provides easily accessible drinking water data for the public, regulated community, and primacy agency staff, and was developed to provide primacy agencies with flexibility to determine what data are visible to the public, such as addresses for LSLs. West Virginia already uses this product for displaying SDWIS Drinking Water data, and information from Submittals-LSLI will be integrated into this application so that LSLI information, including geolocation data and maps, can be viewed in Drinking Water Viewer.
- Safe Water Engineering Project Tool (SWEPT) tracks water system engineering projects including project progress, costs, contacts, and generates letters and reports. Note that West Virginia does not currently purchase this application.
- Enforcement Tracker (ET) manages all aspects of an agency's enforcement strategy, including compliance schedule activities, agency workflows, calendar events, timelines, and violations to help water systems return to compliance. Note that West Virginia does not currently purchase this application.

Single Sign-on to the GEC Portal

And, where helpful, GEC can provide other customizations. For instance, GEC has provided custom portal login integrations so that state users can log into the GEC portal and the GEC applications using the state's single sign on solution.

Coordination with other LSLI or Technical Assistance Projects in West Virginia

WVRCAP holds contracts to provide technical assistance and, specifically in some cases, preparation of LSLI for small water systems in West Virginia. Our GEC team will benefit from this, as WVRCAP will diligently track where work has already been committed and completed or will be done under other contracts to ensure that the state does not pay for the same work twice.

As part of their work and already scheduled assignments, WVRCAP travels to small water systems throughout the state. The GEC team will coordinate their schedule so the LSLI could be done as part of an already scheduled visit, if there is sufficient time remaining on that visit to do the tasks under this project. This saves time and money. Time for both the technical assistance provider and for the water system, as multiple tasks can be completed at the same time, which is helpful to time-strapped water system staff and cheaper because WVRCAP completes two projects and only travels once. Money because WVRCAP has already received funding to make these trips, so adding additional hours to their schedule will only mean they must track and bill this project for the time required to do the LSLI but will not have to bill this project for time to travel to the site, mileage, per diem, and possibly hotel.

Knowing the water systems lets us plan for geographical advantages. We made a list of the 175 water systems and created a proposal for which water systems could be visited during a single one-day or two-day visit, to maximize efficiency and reduce time and dollars spent on travel. We will share this proposal with the state for their input.

These are quantifiable savings. But, more than that, this project benefits because our team members have a long history of working with these small systems. They have the water system's trust. When WVRCAP says they will assist a system, the water system knows that this is true. And the same is true of Stantec. Both firms' history of working for water systems to do water system improvements in West Virginia means they know the terrain, the regulations, and codes (which will be valuable for records research), the geology, the local people and decision makers, and can competently do the work. Our team will truly be assisting the small systems with boots on the ground support: they will not be limited to providing instructions and offering phone support or limited technical assistance. We know what it takes to obtain cooperation and compliance from small water systems and have built this into our time estimates. Equally important, we know and have made a list of which of the 175 small CWSs under 1,000 population are likely to be intractable or difficult to get to cooperate. For these systems, we will work with the state to do as much as we can. Again, our history with these systems will help us strategize to achieve success.

4.3 Qualifications and Experience

4.3.1: Qualifications and Experience Information

Global Environmental Consulting

GEC was incorporated in Arizona on April 27, 2000. GEC's main office is located at 7014 East Camelback Road Suite B100A Office #79, Scottsdale, AZ 85251. GEC's website is here: https://www.1gec.com/. GEC's main

phone number is (480) 827-9827. Laurie Potter is the primary proposing contact, and she can be reached via email at laurie.potter@1gec.com or by phone at (603) 397-7838. GEC staff work remotely throughout the United States. Kim Clemente will be the project manager and is in Lake Mary, FL — the same time zone as West Virginia — and she can be reached via email at kim.clemente@1gec.com or phone at (407) 720-0477.

Since 2000, GEC has supported 41 primacy agencies in their administration of the Safe Drinking Water Act (SDWA) and EPA's Safe Drinking Water Information System (SDWIS). Our mission is to save clients time and resources through expert consulting by re cognized national experts. Examples of GEC's background with technical assistance for SDWA implementation include:

- Supported and developed protocols for file reviews for SDWIS data flow and compliance determination and performed the reviews multiple times in every state and region.
- Created and implemented file reviews to evaluate state enforcement programs.
- Supported regulatory development and implementation for the OGWDW for every National Primary Drinking Water Regulation (NPDWRs) of the SDWA since the Total Coliform Rule, including support for the LCR and its revisions since 1993.
- For EPA, GEC staff developed fact sheets, guidance documents, data entry instructions for SDWIS, and performed rule and SDWIS training for all NPDWRs.
- For states – including for DHHR - GEC has supported all aspects of compliance and enforcement program activities for primacy agencies for all regulations, including Federal Reporting assistance. Many of our clients - including West Virginia last year - have won data quality awards from EPA with our training and support.
- GEC has performed legacy database migration to SDWIS/State for 13 states (including DHHR), conversions from Oracle to SQL (including conversion of legacy applications), and database administration (including serving as the SDWIS database administrator and/or hosting SDWIS for some clients). GEC also provides data migration support, such as developing scripts to handle bulk data uploads and continuous migrations to SDWIS/State.

GEC's seven subject matter experts each have between 20 and 35 years of experience supporting or working for primacy agencies, serving as representatives of primacy agencies on national workgroups, or providing direct contract support to the EPA Office of Ground Water and Drinking Water (OGWDW). GEC's team has provided drinking water program implementation support for all SDWA regulations promulgated since 1991 and has been involved in business requirements gathering and design teams for most data management products created by OGWDW. Most staff are former state drinking water program employees from different states. Our expert knowledge of how states collect, store, and use drinking water data allows us to help our clients make evidence-based program decisions. GEC has supported OGWDW, EPA regions, and primacy agencies on numerous projects related to strategies for SDWA implementation and use of SDWIS. Our federal and state clients turn to us for insights and analytics on drinking water data and ask us to build tools or design protocols that allow programs to evaluate performance, work more efficiently, or provide information to co-regulators and the public more readily. The GEC SWIFT Submittals-Lead Service Line Inventory (Submittals-LSLI) solution is an example of this business need that our clients identified.

GEC Software Applications Experience

GEC has developed over 20 software applications that apply to any agency's needs. They are based on the SDWA rules, and integrate with state data management systems, including SDWIS. Our clients recognize and recommend our outstanding reputation for software that represents national standards but has flexibility for

individual state considerations. To meet government information technology standards and resiliency requirements necessary for a state's database of record and personal identifiable information, our firm passed a Service Organization Control (SOC) 2/Type 2 audit with annual renewal and hosts our cloud-based products and state data in the Microsoft Azure Government Cloud.

GEC provides expertise in software management and transitions to new business practices for 25 primacy agencies (including West Virginia) to implement SDWIS/State and GEC's more than 20 interfacing applications. GEC also hosts SDWIS/State applications and databases in the GEC Microsoft Azure Government Cloud for two states. GEC provides software and has developed numerous custom reports and software tools to help Primacy Agency staff more easily analyze data, make compliance determinations, and track steps taken to assist PWSs return to compliance. The concepts and business requirements defined for our software applications emerge from our understanding of state business practices and the limitations of existing tools (e.g., SDWIS), or through requests from our clients who need these products. We participate in national workgroups and closely track federal regulatory development and data management options for our clients, including as a subcontractor on the EPA team developing the SDWIS Modernization project, (named Drinking Water State, Federal, Tribal Information Exchange System or DW-SFTIES). For example, the Submittals-LSLI application helps states easily capture and manage detailed service line data required by the state. The application grew out of participation in workgroups and discussion with Virginia, Michigan, and Kansas about shortcomings of SDWIS to meet the LCRR data management needs for state rule managers.

GEC Approach to Services and Application Support

GEC currently supports 25 Primacy Agencies and EPA Direct Implementation programs, including West Virginia. We assign primacy agency "leads" who shepherd all requests for a single agency, track delivery and support services, and confirm client satisfaction. GEC already has work with DHHR, and the GEC state lead is Casey Davidson.

Our experts field client questions that cover high-level programmatic questions; best practices; detailed and very technical questions about SDWIS implementation, infrastructure, and security questions; or regulatory compliance determination. The entire GEC staff work collaboratively to check our responses to the state's questions and provide careful QA/QC on deliverables.

GEC Software as a Service contracts, such as what is proposed in this response to West Virginia for Submittals-LSLI, include industry-aggressive service level agreements and contractual obligations to ensure rapid response and support, which ensures we normally respond to our clients within minutes, or a maximum of four business hours. This promise has been met for the more than 20 years that we have provided software to DHHR.

West Virginia Rural Capacity Assurance Program (WVRCAP)

The West Virginia Rural Community Assistance Program (WVRCAP) is a program of the West Virginia Community Action Partnership Inc. and is part of the Great Lakes RCAP network. WVRCAP receives funding from a number of federal programs to provide technical assistance to communities with populations under 10,000.

WVRCAP has a team of Technical Assistance Providers (TAPs) who live and work in the communities we serve. These TAPs help communities by assessing the technical, managerial, and financial (TMF) capabilities of water or wastewater systems, making recommendations for areas needing improvement, and providing technical

assistance and on-site training to systems to enable and ensure improvements can be achieved which will improve the system's capabilities and help achieve long-term viability.

WVRCAP is dedicated to working side-by-side with small, rural communities to find creative, innovative, and local solutions to their problems. WVRCAP helps communities find solutions in the areas of capacity building, compliance, disaster management, management and finance, operations, and maintenance, planning and development, and much more. WVRCAP will be tasked with support for 50 percent of the small CWSs that are provided field services under this project, with preference for the water systems closest to their offices in Charleston, WV. Note: the exception would be if WVRCAP already has contracts with a water system located in the geographic area largely covered by Stantec. It would be more efficient and offer cost savings for WVRCAP to complete this LSLI project while visiting the same water system as part of another project. In particular, the travel costs for this work would already be covered by the travel costs charged under the other assignment. Also, WVRCAP already has a contract to create the LSLI for some water systems that are in the size category covered by this project, so those systems will not need to be paid for by this project.

Stantec

Stantec is a global engineering and design firm with 26,000 employees in 440 locations, including 30 staff in Bridgeport, WV and seven (7) staff members in Charleston, WV. Their experience with water systems includes all aspects of treatment and facilities, including many projects within West Virginia funded by state, federal, or AML resources.

Specific to this scope of work, and as delineated by the project work descriptions that follow for two of our clients (Norwood, MA and Saugus, MA), Stantec is well versed in reviewing widely variable water system records (which will be the case for the small systems targeted under this program) and conducting field inspections to further validate service line materials. We also have a group comprised of dedicated funding specialists that have assisted many clients, both large and small, with obtaining monies that cover large amounts of the overall design/construction costs throughout the life of the respective project or program.

Stantec will be tasked with support for 50 percent of the small CWSs that are provided field services under this project, with preference for the water systems closest to their office in Bridgeport, WV.

TruePani

TruePani, Inc. ("TruePani"), is an environmental consulting and communications firm specialized in providing comprehensive services related to lead in drinking water. Past clients include state, county, and municipal entities, school districts, non-profits, and private organizations. TruePani's areas of expertise include:

- Lead and Copper Rule Revisions Compliance
- Water Utilities Services
- State Regulatory Compliance
- Data Management
- Drinking Water Sampling
- Sample Kit and Pitcher Filter Direct-to-Customer Fulfillment
- Project Management
- Communications and Marketing

TruePani was established in 2016 by a team of civil and environmental engineers and is headquartered in Knoxville, Tennessee. TruePani has worked with clients in 13 states and is one of the most experienced firms

in the country as it relates to lead in drinking water projects. TruePani's proven project experience includes managing the distribution, collection, and analysis of 100,000+ samples for lead in drinking water at schools, childcare programs, tier sites, and properties undergoing lead service line replacements (and providing pitcher/filters for these properties).

TruePani is 100% female-owned and operated and disadvantaged business enterprise (DBE) certified (NAICS 541620 Environmental Consulting Services/NIGP 91843). Because TruePani specializes in lead in drinking water projects, all staff that are assigned to this project are well-versed in LCRR requirements and have firsthand experience with lead in drinking water regulations. TruePani's role in this response is to act as the fulfillment center for this project and provide nearly all of the items listed in the cost proposal under Supply. The exception is 1L bottle sample kits for water systems that will be assisted by WVRCAP. WVRCAP will obtain bottle sample kits from a local lab in Charleston, WV for the water systems that they will be tasked to support.

Principal Personnel Proposed to West Virginia

Brief resumes for key personnel and a GEC team organizational chart are included below.

Laurie Potter (GEC Director of Business Development/Principal in Charge) will be the principal contact for this RFQ response. Laurie is GEC's Director of Business Development and is a Subject Matter Expert (SME). She has over 35 years of experience supporting every state, tribe, EPA Region, and the EPA OGWDW. Her background includes support for development and implementation of all SDWA regulations since the Total Coliform Rule; initial development of the business logic for the modernization of SDWIS; training on SDWIS and SDWA rule implementation (including the Lead and Copper Rule (LCR) and all its revisions) for regions and states; support for EPA's laboratory certification program; and development of EPA OGWDW's program and file review program to audit state data management for compliance with federal regulatory requirements (including multiple reviews in West Virginia). Laurie has a B.A. in Economics and Public Policy from Smith College.

Mike Corbin (GEC COO/Software Implementation Lead) has over 30 years of experience with SDWIS-State, including 10 years as a Chemist and Supervisor for the Maine State Laboratory, then Maine's Compliance Enforcement Supervisor for 5 years. For 20 years at GEC, he has coordinated with state employees to resolve issues with drinking water rules and SDWIS including SDWA rule implementation assistance, training, data migration, and data interchange. Mike has assisted on EPA Compliance Monitoring Data Portal (CMDP) projects, data migrations to SDWIS-State, and SDWA training. He is the lead of the software development team for GEC and will be the point of contact for the deployment and maintenance of GEC software. Mike has worked closely with LCR compliance managers in many states, including West Virginia, to train and offer suggestions for best practices in this program. For about 20 years, Mike has traveled regularly to the DHHR offices in Charleston, WV on contracts to support the drinking water program staff and is very familiar with the program and its implementation philosophy, as well as challenges faced with small and rural water systems in West Virginia. Mike holds a B.A. in Chemistry from the University of Maine and an MBA from Thomas College. Mike is a Project Management Institute Agile Certified Practitioner (PMI-ACP), EPA Certified Laboratory Auditor – Chemical Analysis (Organic and Inorganic), and American Industrial Hygiene Association (AIHA) Childhood Lead Analysis Certified.

Sara Pierson (GEC Project Manager/GEC Submittals-LSLI Product Owner) has 18 years of experience with the Indiana Department of Environmental Management's drinking water program as the SDWIS database administrator and compliance rule manager. Sara joined GEC in 2021 and is the product owner for both

Submittals-LSLI and Drinking Water Viewer (DWV). Sara will be the primary project manager for the software implementation portion of this project, responsible for daily coordination, logistical planning, tracking schedule and budget, and quality assurance (QA) of all deliverables. Sara has a B.S. in Environmental Biology from the University of Dayton and is a Certified Scrum Master.

Kim Clemente (GEC Project Manager) has over 25 years of environmental consulting experience, with over 12 years of project management experience. Kim is a certified Advanced Scrum Master who has managed various software design, development, and implementation projects. Kim has supported EPA and numerous states with GEC software implementation, with drinking water rule implementation, guidance, and analysis, and with Compliance Data Management Portal (CMDP) planning, training, and implementation. She is GEC's current project manager in West Virginia, working closely with the GEC lead for the state. She has a B.A. in Political Science and an M.A. in Energy and Environmental Analysis from Boston University.

Mary Hutson (WVRCAP Project Manager/RCAP State Coordinator). Since joining RCAP, Mary manages West Virginia's Technical Assistance Providers and provides direct assistance to small communities with drinking water and wastewater needs, from planning to maintaining operations once the facilities have been constructed. Assistance varies from project to project and includes tasks such as assessing project environmental impacts; preparing environmental reviews; training operators and decision makers on federal and state regulatory requirements; and utilizing social marketing strategies to gain community support and involvement for issues such as source water protection plans. Mary assists each system with developing a strategic plan to provide services at an affordable price to all its customers to ensure sustainability for that system. Activities typically include the preparation of annual operating budgets, cash flow analysis, financial record keeping, rate studies, capital improvement plans, asset management plans, water audits, internal controls, preparation and assistance with preparing water purchase contracts, regionalization contracts, user agreements, ordinances, resolutions, and rights-of-way. State regulatory agencies and organizations request Mary's participation in statewide training due to her expertise and success with incorporating effective teaching strategies and learning styles for the adult learner. Prior to her RCAP work, Mary was a Training Specialist at WV Rural Water Association where she provided training for both water and wastewater systems on various topics ranging from compliance to administration. Mary has Master of Science degrees in Environmental Sciences and Organic Chemistry from Marshall University. Mary will lead the WVRCAP effort for field services that will be provided to 50 percent of the 175 CWSs, primarily in the southern part of the state, which have been identified for this project.

Robin Montgomery (WVRCAP Technical Assistance Provider). Robin joined RCAP in 2018 as a providing Technical, Managerial, and Financial (TMF) Capacity Development to rural communities. Typical tasks include the preparation of water/wastewater rate studies, vulnerability assessments, and emergency response plans; strategic plans complete with mission and goals; preventative maintenance programs; budgets preparation; water/wastewater rate studies; and execution of legal documents (i.e., water/sewer user agreements, rights-of-way easements); and procuring services for communities. Prior to joining RCAP, Ms. Montgomery spent ten years as a Source Water Protection Specialist/ARRA Circuit Rider, providing technical assistance to rural areas on federally funded grants. She assisted systems with reporting, budget creation and analysis, funding application, user rate analysis and management and finance training. Since joining RCAP, Robin provides much the same kinds of technical assistance to rural areas. Robin will assist with field services on this project.

Mat Wiseman (WVRCAP Technical Assistance Provider) has more than 12 years of experience. Mat joined RCAP in 2018 as a Technical Assistance Provider. As a Technical Assistance Provider, he provides direct assistance to

small communities with both water and wastewater needs. Assistance varies from project to project and includes activities such as preparation of: vulnerability assessments, emergency response plans, preventative maintenance programs, budgets, cross connection prevention plans, flushing programs, valve inspection plans, manhole inspection programs, asset management plans, Discharge Monitoring Reports, consumer confidence reports and Technical, Managerial, and Financial Capacity Development on-site utility trainings for small systems; adherence to the West Virginia Procurement code and compliance with the SDWA and the Clean Water Act. Prior to his time with RCAP, Mr. Wiseman worked with water systems for more than seven (7) years as a Technical Analysis Associate with the WV Bureau for Public Health, and nine (9) years as the Coordinator of Drinking Water Capacity Development within the WV Department of Health and Human Resources, where his duties included evaluating the technical, managerial and financial capacity of water systems, oversight of water operator continuing education, and approving or rejecting new water systems.

James Morris (WVRCAP Technical Assistance Provider) James joined RCAP in 2020 as a Technical Assistance Provider. As a Technical Assistance Provider, he provides direct assistance to small communities with both water and wastewater needs. Assistance varies from project to project and includes activities such as preparation of: vulnerability assessments, emergency response plans, preventative maintenance programs, cross connection prevention plans, flushing programs, valve inspection plans, operation & maintenance plans, water loss programs, asset management plans, Discharge Monitoring Reports, consumer confidence reports and Technical, Managerial, and Financial Capacity Development on-site utility trainings for small systems; adherence to the West Virginia Procurement code and compliance with the SDWA and the Clean Water Act. Since prior to his time with RCAP, Mr. Morris also serves as the Chief Operator of a water treatment plant where he is responsible for managing the daily operational activities of system in a manner that ensures the system is meeting state and federal safe drinking water regulations.

Kristina Ward (WVRCAP Technical Assistance Provider) joined RCAP in 2022. She provides direct assistance to small communities with both water and wastewater needs. Assistance varies from project to project and includes activities such as preparation of: vulnerability assessments, emergency response plans, preventative maintenance programs, cross connection prevention plans, flushing programs, valve inspection plans, operation & maintenance plans, water loss programs, asset management plans, Discharge Monitoring Reports, consumer confidence reports and Technical, Managerial, and Financial Capacity Development on-site utility trainings for small systems; adherence to the West Virginia Procurement code and compliance with the Safe Drinking Water Act and the Clean Water Act. Prior to her time with RCAP, Ms. Ward worked as the Chief Operator of a water treatment plant where she was responsible for managing the daily operational activities of system in a manner that ensures meeting state and federal safe drinking water regulations.

Richard Gaines (Stantec State Coordinator) Richard has more than 34 years of experience in project management and civil engineering related to municipal, residential, and commercial development; sanitary sewer collection and treatment; water systems and treatment; and oil and gas development. As principal-in-charge, he provides local high-level project oversight and client coordination. He is a senior civil engineer in charge of Stantec's Bridgeport, WV office. He has been the project engineer and/or project manager for many water projects in West Virginia. Richard holds a B.S. in Civil Engineering, and an A. S. in Mechanical Engineering – both from Fairmont State College. He is a Professional Engineer registered in West Virginia and Virginia and received numerous awards prior to moving to West Virginia for Outstanding Service to the Chapter for the Florida Engineering Society, including Engineer of the Year. Richard will lead the Stantec effort for the field services that will be provided to 50 percent of the 175 CWSs, primarily in the northern part of the state, which have been identified for this project.

Christopher Hannah (Stantec Project Engineer) Chris began his career with Stantec right out of college as a construction inspector and as a utility inspector. He obtained his PE license in West Virginia in 2016 and has actively practiced design engineering and project management from the Bridgeport, WV office. He has successfully managed multiple projects that in total exceed $1.4 million in construction costs. He actively coordinates and manages multiple staff to ensure projects are complete and successful. He has managed waterline extension projects using AML and Drinking Water State Revolving Fund (DWSRF) funding in West Virginia for numerous communities. Chris holds a B.S. in Civil Engineering from Fairmont State University and is a registered asbestos inspector. He is also a Professional Engineer registered in West Virginia, Pennsylvania, and Ohio.

Bruce McDaniel (Stantec Tech) brings 52 years of professional experience in public-sector water and wastewater utility management, operations, and maintenance (O&M), and municipal government administration. His career has encompassed water, wastewater, and stormwater utility construction, project management, system start-up, and personnel training. He has managed projects throughout West Virginia that have entailed defining project scope, project financing, rate setting, design, and construction review, and implementing utility management structures from the ground up. His projects range from public parking garages and municipal public safety buildings to water and sewer systems. He has developed professional relationships with regulatory and funding agencies at all levels of the West Virginia government. He is an EPA Certified Instructor for Wastewater Treatment, Water & Wastewater Technical School and was certified in the Train the Trainer program and Troubleshooting Operation & Maintenance at Municipal Wastewater Treatment Plants courses given by EPA. He has a degree in Business Management and numerous certifications, including as a Class IV Wastewater Treatment Plant Operator in West Virginia and is a member of the West Virginia Wastewater Exam Review Committee.

Cory Luzier (Stantec Engineer) is a civil engineer from Arthurdale, West Virginia with 10 years of experience who works in Stantec's Bridgeport, WV office. His focus includes site development, environmental permitting, and surveying, and his design experience includes erosion and sediment control, stormwater drainage and management, layout, grading, access roads, and well pads. He has participated in relevant field surveys and water system improvement projects in West Virginia. Cory has a B.S. in Civil Engineering from West Virginia University, has completed an OSHA 10-hour construction Safety and Health, Occupational Safety and Health Administration training, and is a Professional Engineer registered in West Virginia, Maryland, Ohio, and Pennsylvania.

Alissa Butcher (Stantec Civil Designer) Alissa is a determined civil engineering technician with over 10 years of experience. Her problem solving, decision making, and communication skills are focused to assist Stantec professional engineers with complex projects involving pipelines, well pads, and roadway maintenance. She is proficient in: AutoCAD Civil 3D; Carlson; Inventor; Autodesk Revit; ProjectWise; AASHTOWare; OpenRoads; ArcMap; Adobe Acrobat; Bluebeam; and Microsoft Office. She holds both a B.S. and A.S. in Civil Engineering Technology, and an A.S. in Drafting and Design Engineering Technology, all from Fairmont State University.

Shannon Evanchec (TruePani Project Manager) is the Director of Lead in Drinking Water Programs at TruePani and will serve as Project Manager for the project and will be responsible for the overall management and performance under the contract, including overseeing the creation of initial project schedules, monthly invoices, and hosting project meetings with project partners. She will be the primary point of contact. Shannon will oversee the Project Associate and Fulfillment Technicians. Shannon brings six years of experience at TruePani in managing projects of similar size and scope. She holds an MBA with a concentration

in supply chain concentration from the University of Tennessee and a BS in Environmental Engineering from Georgia Institute of Technology.

Sam Becker (TruePani Data Manager) is the Director of Data Management for Lead and Copper Rule Compliance Projects, with seven years of experience at TruePani. Sam holds degrees in Civil Engineering from Georgia Tech and a MPH from the University of Michigan. Sam will oversee the LCRR Specialist, Project Associates and Public Outreach & Education Teams. Prior to TruePani, Sam worked as an Engineering Consultant at Ramboll, completing Phase I & II site assessments.

Daniel Yuan (TruePani Managing Consultant) brings over a decade of past work experience working for public water systems to TruePani. Daniel provides expert-level LCRR knowledge and technical assistance to multiple of TruePani's projects. He holds an MPH concentrated in Environmental and Occupational Health sciences, a MS with a focus in genetics, both from the University of Texas Health Science Center, and a BS in Microbiology from the University of Texas at Austin.

Katherine Melito (TruePani Outreach Coordinator) is a Communications Specialist at TruePani, orchestrating communications on WIIN Projects. Katherine works diligently with clients and participants to create informative, effective, and assistive experiences throughout program enrollment. She holds an MPH in Health Promotion and Health Education, and a BS in Public Health, both from the University of Texas.

Kathleen Powers (TruePani Fulfillment Technician) is a Project Associate and will serve as a fulfillment technician, overseeing inventory management and distribution of pitchers/filters and sample kits from the Knoxville, TN fulfillment center. Kathleen holds a BS in Environmental Science and a minor in Data Analytics from the University of Virginia.

The GEC team members offer clients flexibility in scheduling, and direct and shift staff workload to ensure every project is staffed appropriately to ensure all deadlines for all clients are met. Staff will be available to focus on this project for 100 percent of their time as needed to meet project demands. We will commit to a rapid deployment that meets the state's schedule to have the software installed swiftly and begin field investigations immediately to ensure we can meet the regulatory deadline to complete the inventories and LSLR plans by October 2024. Note that this capability to manage the workload and meet client expectations is appreciated by our clients and frequently noted in our letters of reference.

4.3.1.1 Previous Experience with the Current LCR or LCRR Requirements

The GEC team has a deep understanding and experience with the LCRR, the EPA implementation staff and workgroups that support the LCRR and specifically the LSLI requirements, plus knowledge of the particular needs of the PWSs, state regulators, and federal partners. This background assures our Submittals-LSLI application will meet the needs of all parties.

Additional examples of GEC staff LCR-specific experience include:

- As the former compliance rule managers and/or SDWIS database administrators for Connecticut, Indiana, Nebraska, Virginia, and in support of the EPA Regional Direct Implementation programs, GEC SMEs have firsthand experience with verification of LCR sample sites, sample siting plan review, and compliance calculations (e.g., 90th percentile values, LSL categorization, sample site tiers, etc.). For example, they populated and used sampling points and the LCR Tier level and Tier Type fields in SDWIS-State to verify that samples were collected from the proper location.
- Since 1993, GEC team members Laurie Potter, Kim Clemente, and another SME have supported the EPA OGWDW with regulatory development and implementation of the original LCR and all subsequent revisions. They supported the EPA Six-Year Regulatory Review and Unregulated Contaminant Monitoring Rule (UCMR), performed on-site data verifications of rule implementation for all regulations (including the LCR) for EPA, and conducted a statistically significant and intensive review of LCR implementation in a sample of 10 states, which guided future rule revisions.

Since inception of the LCRR requirements, Stantec has made it a point to become very familiar with all applicable federal and state rules, laws, regulations, etc. that are applicable across multiple geographic regions of the US. One of our primary points of focus is to proactively engage with LCRR decision makers at the State level since these are the agencies that are charged with administering the regulations and receiving the initial LSL inventory, LSLR plan, and tap sampling plan. Thus, we have endeavored to determine if emerging and innovative technologies, such as predictive modeling and Electro Scan's Swordfish (which measures electrical resistance resulting from low voltage conductivity), will be acceptable investigation methods to support development of LSL inventories since these decisions have to be made at the State level.

Specific projects and references are also included below.

Name of Client: Virginia Department of Health (VDH)	**Project Location:** Richmond, VA; Remote
Contact: Aaron Moses | Field Services Engineer	Aaron.Moses@vdh.virginia.gov | (540) 520-6507
Service Dates: 2018 - Present	**Budget:** $847,587
GEC has worked closely with VDH since 2018 to help them more efficiently and effectively manage their drinking water program data and to transition VDH from using Microsoft Access databases to using web-	

based software solutions which meet much higher cyber security standards. VDH is currently using many of GEC's software applications (SWIFT Surveys; Reporting, Evaluation, Compliance and Processing (RECAP)-Reports; RECAP-Dashboard, Drinking Water Viewer; Safe Water Engineering Project Tool (SWEPT), and Submittals-LSLI. GEC is currently working with VDH to refine their LSLI Excel spreadsheets for CWSs and NCWSs. GEC has worked closely with VDH to develop additional applications to close the gap between state-specific needs and the capabilities provided by EPA's SDWIS/State database. GEC is also currently assisting VDH as they transfer their SDWIS/State applications to a LINUX server from a Tomcat server to address and remediate known security vulnerabilities.

Name of Client: West Virginia Department of Health and Human Services (DHHR)	**Project Location:** Charleston, WV; Remote
Contact: Meredith Vance | Environmental Engineering Division Director	Meredith.J.Vance@wv.gov | (304) 352-5046
Service Dates: 2003 - Present	**Budget:** $639,626.56 (work was a task within this budget)
GEC has worked closely with WV DHHR since 2003 to help them more efficiently and effectively manage their drinking water program data and to transition WV DHHR from using Microsoft products, including Microsoft Access databases to using web-based software solutions which meet much higher cyber security standards. WV DHHR is currently using many of GEC's software applications (SWIFT Surveys; Reporting, Evaluation, Compliance and Processing (RECAP)-Reports; Drinking Water Viewer; and Certification Tracker. GEC staff also developed standard operating process documents for WV compliance staff on implementing the lead and copper rules, the Phase II/V rules, and the Revised Total Coliform Rule. GEC has conducted in-person training for new WV compliance staff on the use of SDWIS/State and all of the SDWA rules to ensure that WV staff have the knowledge needed to effectively manage their drinking water program. GEC has worked closely with DHHR to develop additional applications to reports in RECAP-Reports to close the gap between state-specific needs and the capabilities provided by EPA's SDWIS/State database. GEC also assisted WV IT staff when they transitioned from using Microsoft SQL server to Oracle. Before their employment at GEC, current staff have helped WV DHHR with the SDWA regulations, provided training, and developed earlier versions of the standard operating procedures for SDWA regulations since 2011,	

4.3.1.2 Previous Experience with Identifying Materials Inventories and Methods to be Used to Complete the Initial and Final Materials Inventories

Name of Client: McDowell County Public Service District	**Project Location:** Welch, WV
Contact: Mavis Brewster, General Manager	(304) 297-2622
McDowell County Public Service District was established in 1990. Since its inception, the PSD has continued to expand its role in the county, taking over and upgrading small private community systems in trouble. The PSD covers approximately 300 square miles, and its customer base has grown to about 3,600. The PSD now operates a total of 16 public water systems throughout the county, 14 very small systems serving less than 500 and 2 small systems serving a population less than 2,000. WVRCAP has assisted with the compliance Lead and Copper Sampling plans. RCAP has conducted Lead Service Line Inventory training for the system and developed a working spreadsheet to track the inventory.	

WVRCAP has worked closely with the General Manager and Field Supervisor in reviewing county tax maps, water system records such as tap cards, meter installation records, and engineering project plans to identify service line materials and installation dates. In instances where records were not available or did not provide enough detail, RCAP has assisted with customer surveys and developed a standard operating procedure for visual inspections at the meters.

Name of Client: Clay Roane Public Service District	**Project Location:** Procious, WV
Contact: Crystal Adkins, General Manager	(304) 548-5209
Clay Roane Public Service District is a small system that serves water to approximately 2,000 customers in portions of Clay and Roane Counties. WVRCAP has assisted with developing the lead service line inventory, working with information from county tax records and existing system records and conducting visual inspections at the meter. WVRCAP has also assisted with data collection and entry and GIS mapping of the system.	

Name of Client: Saint Paul Regional Water Services	**Project Location:** Saint Paul, MN
Contact: Kaitlin Swanson	Kaitlin.Swanson@ci.stpaul.mn.us
Service Dates: April 2023 – April 2024	**Budget:** $224,272
For the Saint Paul Pitcher Filter, Filter Cartridges, and Water Quality Sampling for Post Lead Service Line Replacement Construction project, the Saint Paul Regional Water Services (SPRWS) selected TruePani to oversee the distribution of pitcher filters and sampling kits to customers who have had their lead water service replaced under the Lead Free SPRWS Program. In addition, TruePani developed a real-time dashboard allowing SPRWS to track the status of filters and all available water quality testing results. This project required the same skills needed for the West Virginia project, including pitcher/filter fulfillment; sample kit fulfillment; inventory management; packaging and instructions graphics; logistics; deliveries to customer; Water Quality Data Dashboard; and laboratory management.	

Name of Client: Texas Commission on Environmental Quality (TCEQ)	**Project Location:** Austin, TX
Contact: Seth Kramer	seth.kramer@tceq.texas.gov
Service Dates: February 2022 – August 2024	**Budget:** $7,000,000
The TCEQ selected TruePani through a competitive RFP process to design and manage the statewide Lead Testing in School and Child Care Program. Services provided include developing a database and web portal to house program data, fulfillment of sample kits and laboratory analysis services, assistance with sampling plans and inventories, and public communication and outreach. This project required the same skills needed for the West Virginia project including outreach and communications; sample kit fulfillment; inventory management; packaging and instructions graphics; logistics; deliveries to customer; Water Quality Data Dashboard; and laboratory management.	

Name of Client: Virginia Department of Health Office of Drinking Water	**Project Location:** Richmond, VA

Contact: Bob Edelman, Director, Division of Technical Services	robert.edelman@vdh.virginia.gov (804) 864-7490 (office), (434) 466-4012 (cell/text)
Service Dates: March 2023 – March 2024	**Budget:** $187,500
Virginia Department of Health selected TruePani to offer training and technical assistance to over 300 waterworks across the State. Services provided include twelve in-person training sessions, technical assistance for all compliance needs due by October 2024, and the development of videos for tap compliance sampling to be deployed for public use. This project required the same skills needed for the West Virginia project, including technical communications; outreach and communications; Lead and Copper Rule Revisions Technical Assistance; Public Water Systems trainings; and Service Line Inventory development.	

Name of Client: Town of Saugus	**Project Location:** Saugus, MA
Contact: Jon Hume, PE, Assistant Director of Public Works	jhume@saugus-ma.gov, (617) 797-9082
Service Dates: 2021 – Present	**Budget:** $100,000 (task order based)
The Town of Saugus hired Stantec to update an inventory of service line materials utilizing additional data sources that were not originally reviewed during earlier 2018 efforts to digitize service line information from handwritten tie cards. Under the first phase of this project, Stantec reviewed the existing inventory for accuracy and identified data gaps. Additional sources of information were then identified by the project team including a customer billing database, an assessor's database, and the Engineering Department's GIS. These starting points were then reviewed and consolidated into a single LSL inventory. In the project's second phase, Stantec is taking steps to address data gaps in the service line inventory while also identifying materials for those pipes that were categorized as "unknown" and verifying pipe materials that are logged in the inventory database. It is anticipated that confirmation methods may include visual inspections and the use of an innovative technology (i.e., Electro Scan SWORDFISH) that was recently identified by the US EPA as an emerging technology to support the preparation of LSL inventories.	

Name of Client: Town of Norwood	**Project Location:** Norwood, MA
Contact: Mark Ryan, PE, Director of Public Works	mryan@norwoodma.gov, (781) 762-1413
Service Dates: 2021 – Present	**Budget:** $150,000 (task order based)
In response to the US EPA's LCRR requirements, the Town of Norwood hired Stantec to prepare a material inventory of their nearly 10,000 water service lines utilizing all available historical record information. Under the first phase of the project, Stantec worked with the Town's Public Works Department to unearth water service-related documents dating back to the late 1800's once it was determined that the water service cards alone could not provide the level of detail desired for material information. The ability to cross-reference multiple sources of data (i.e., water service installation ledgers, service repair, and replacement reports, past lead service replacements and assessor's information) and transfer this information from old record books to electronic databases has accomplished important first steps in the development of the initial LSL inventory. With other ongoing water main rehabilitation and main/service line replacement projects in the Town, the goal of proactively identifying and replacing lead service lines is well underway.	

4.3.1.3 References and Examples for Previous Experiences in Deploying and Creating a Lead Line Inventory System

GEC proposes our software application named Submittals-LSLI as the software that West Virginia can use to collect, compile, and store information needed for their LSLI/LCRR program. As the product owner for every software product, GEC assigned SMEs with nuanced and detailed understanding of the client needs. For SWIFT Submittals-LSLI, GEC assigned Sara Pierson (formerly IDEM's Compliance Section Chief in the Drinking Water Branch). Sara draws upon her own experience, participation in national workgroups, and projects for clients to thoughtfully construct an application that will be specific enough to meet requirements, yet flexible enough to allow for state application administrators to configure the product to meet state-specific requirements and preferences.

Name of Client: Virginia Department of Health (VDH)	**Project Location:** Richmond, VA
Contact: Aaron Moses | Field Services Engineer	Aaron.Moses@vdh.virginia.gov | (540) 520-6507
Service Dates: 2022 – Present	**Budget:** $119,977
VDH is currently setting up GEC's Submittals-LSLI, which allows PWS and state staff to collect, submit, review, accept or reject, and display their LSLI data, and report required information to EPA via FedRep. Submittals-LSLI provides the state with all the data they need to manage their LSLI program, and can be customized to capture, store, and report on state-specific information. VDH worked closely with GEC to define the business requirements for the Submittals-LSLI application. GEC provides consulting services to VDH, assisting them with managing SDWA processes and training or consulting with staff on the drinking water rules and SDWIS, developing standard operating procedures for complex drinking water rule compliance processes, and using EPA's Compliance Monitoring Data Portal (CMDP).	

Name of Client: Kansas Department of Health & Environment (KDHE)	**Project Location:** Topeka, Kansas; Remote
Contact: Cathy Tucker-Vogel, Chief, PWS Section	cathy.tucker-vogel@ks.gov | (785) 368-7130
Service Dates: 2021 - Present	**Budget:** $13,000 (which is a subtask of >$400,000 annual support budget)
GEC supports the Kansas LSLI Project remotely and on-site in Topeka, Kansas as needed. GEC helped Kansas create a LSLI spreadsheet to collect data from PWSs for the LCR Revisions (LCRR). The spreadsheet includes calculations to determine service line category, sample site tiers, replacement requirements, etc. The project included the ability for LSLI data to be submitted to the Kansas Public Water Supply Data Collector (PWSDC) tool (previously developed by GEC), then imported into their SQL Server database where the data can be extracted for federal reporting.	

Attachment A

The Lead Line Inventory Turnkey Solution Cost Sheet is provided in a separate document and envelope, as requested by the instructions in the RFP.