

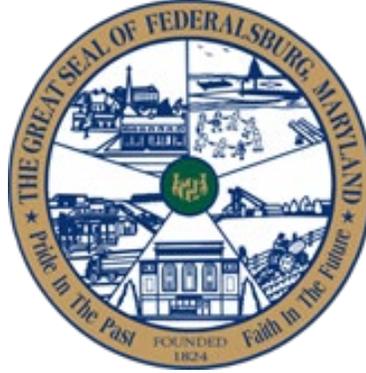


Statement of Qualifications (SOQ) for
**SERVICES FOR WATER METER
SYSTEM REPLACEMENT**

Town of Federalsburg, MD

November 10, 2021





Statement of Qualifications (SOQ) for
**SERVICES FOR WATER METER
SYSTEM REPLACEMENT**

TOWN OFFICE
PUBLIC WORKS DEPARTMENT
TOWN OF FEDERALSBURG, MD

SUBMITTED BY: UTILITY SERVICE CO., INC. (A SUEZ COMPANY)
ADDRESS: 1230 PEACHTREE STREET NE, SUITE 1100, ATLANTA, GA 30309
PHONE: (855) 526-4413



November 10, 2021 (11/10/2021)

COVER LETTER

Town Manager
Town Office
118 North Main Street
Federalsburg, MD 21632

Dear Town Manager,

Thank you for the opportunity to respond to the Town of Federalsburg's *Statement of Qualifications (SOQ) for Services for Water Meter System Replacement*. As the owner and operator of the largest AMI smart meter network within the United States, we are uniquely qualified to assist the Town of Federalsburg in the development and implementation of a smart metering solution.

Our team is the largest provider and user of AMI smart meter networks within the United States—with extensive experience working with and deploying every major meter brand, including: Sensus, Neptune, Badger, Master Meter, and Aclara. As a result, we best understand the pros and cons of each meter brand—as well as the long-term maintenance required for each meter brand—and can make expert recommendations that will benefit the Town of Federalsburg's metering program for many years to come.

We are truly agnostic to any metering technology or manufacturer—allowing us to select the finest technologies from all providers to deliver a solution that best fits and is in alignment with the Town of Federalsburg's program objectives. As a result, we will provide a custom solution for the Town of Federalsburg that is proven and robust, maximizes revenue, and provides the best analytics at the lowest lifecycle cost. With over 150 years of experience in delivering maintenance and asset management programs, our model is time-tested, proven, and delivers high-quality results.

From the project startup, we will become the single point of contact for the entire duration of the project and are 100% responsible for the successful delivery and maintenance of the smart meter system. We pioneered our maintenance and asset management approach over 35 years ago, and this approach is employed by over 6,000 of our clients within the United States.

The city-wide, full-deployment propagation study and project team has matched and selected the best metering technologies to meet the Town of Federalsburg's unique specifications. Our selection for the technology is Aclara and their FCC licensed 450 MHz system. Aclara is also a proven partner and was the first AMI technology to be marketed many years ago—resulting in them having more meter installations than any other firm.

The Aclara system and frequency spectrum propagates buildings, is proven to be reliable over long signal transmission, and was chosen by New York City, Boston, Toronto, and Wooster, OH. Aclara's system was also recently selected by Mansfield, OH—who selected us to install 20,000 meters in basements for their 15-year smart meter maintenance program. Additionally, this Aclara system seamlessly integrates with Badger meters—which were also selected. The system also integrates with our asset management system—which generates work orders and assists in maintaining the system—and our online VISIO Center.

Our VISIO Center will monitor the on-going performance of the Town of Federalsburg's AMI system in real-time. Aclara's local office and headquarters is based out of Ohio—located in the City of Solon. Both our operations and management teams also have local offices to support the Town of Federalsburg's smart metering project.

We thank you for your consideration and look forward to continuing a mutually beneficial partnership with the Town of Federalsburg and welcome the opportunity of speaking with you directly to answer any additional questions you may have—as well as to highlight our project approach, capabilities, and expertise.

Respectfully yours,

Mr. Andre Noel

Director of Revenue Management & Metering Services
Phone: (334) 322-8251
Email: andre.noel@suez.com

Mr. Rob Murlas

Water System Consultant (State of Maryland)
Phone: (410) 443-1429
Email: robert.murlas@suez.com



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EXECUTIVE SUMMARY

As the largest provider of asset maintenance programs for the potable water industry in the United States, Utility Service Co., Inc.—a SUEZ company (hereinafter referred to as “SUEZ”)—provides both water and wastewater utility clients with specialized programs and valuable services to assist them with the suitable management of their critical assets. SUEZ’s goal is to provide the highest value of services possible to allow clients to invest capital and operating funds for the maximum benefit of their fixed distribution water assets and to build a long-standing partnership—ultimately ensuring the successful maintenance of water distribution system assets.

As communities continue to expand and grow, so does the impact on our resources. The successful management of one (1) resource is especially vital—water. Safeguarding your water supply is our singular mission at SUEZ. We partner with communities to provide integrated solutions in all aspects of water management—from water quality and metering systems to full service asset management programs. We understand the critical nature of water management and are committed to providing peace of mind protecting your most precious natural resource. With over 150 years of experience, we offer essential support to ensure the conservation, efficiency, and operability of your water system. We offer dependable, innovative solutions to manage the pressures of increasing regulations and operational costs with effective practices to create sustainable water systems. Our comprehensive approach delivers the peace of mind that the water resources and assets are protected. Together with our team of experts and advanced technologies, partnering with SUEZ is a plan for the future.

At a time when water rates are increasing at twice the inflation rate—and with most water systems experience rising water loss due to the aging infrastructure—metering systems have become an important tool for the financial stability of water utilities. The implementation of a smart metering system requires significant support maintenance, technology, and software expertise—as well as funding—to cover the up-front installation costs of the advanced metering infrastructure (AMI) and smart meters. As a result, smart metering systems are often out of reach for small and medium-sized communities. The SUEZ Metering Asset Management Program was designed with these types of systems in mind.

SUEZ has deployed over three (3) million smart water meters worldwide and manages over 650,000 meters nationwide—including over 200,000 meters on the AMI system as the largest smart water network in the United States with over 1,000 square miles of coverage. SUEZ has both operated and maintained water meters since the twentieth century and served as pioneers in AMI by inventing and operating a phone-based system to read every meter—every day—in the mid-1980s. Since, we have transitioned to the utilization of wireless meter-reading technologies and continue to expand through means of ongoing research, development, and innovation.

SUEZ METERING ASSET MAINTENANCE PROGRAM VALUE

- Customized AMI System
- Operational peace of mind
- Single point of responsibility
- Long-term risk transfer
- Predictable cost



SUEZ's team has experience with every leading metering system and software vendor and employs noted experts in metrology and telemetry. We also actively contribute to bodies of knowledge within the industry. Our systems interpret meter data and translate results into live, usable information. Utilizing our solutions and expertise, our metering systems improve the operations of municipalities and water systems by reducing non-revenue water, increasing overall revenues, and providing a comprehensive customer experience.

SUEZ's maintenance program puts all of the benefits of smart metering within reach of any water system. A full asset management solution with a single partner—rather than multiple companies—minimizes risks and streamlines the entire process.

The SUEZ program and services specified in the following pages will ensure the successful turnkey replacement of water meters with the implementation of an Advanced Metering Infrastructure (AMI) System—as well as an asset maintenance program—to support the Town of Federalsburg. We will work with the Town of Federalsburg to ensure that there is a smooth transition from the existing system during the implementation process.

This *SOQ for Services for Water Meter System Replacement* provides the Town of Federalsburg with an overview of the SUEZ Advanced Metering Infrastructure (AMI) System for water utilities—including both the implementation plan and maintenance program. It outlines our qualifications, experience, vast resources, and advanced technological capabilities to ensure that we meet our commitment to the Town of Federalsburg while fulfilling all high-quality expectations.

In 2018, SUEZ North America was deemed the **number one (1) leading all-environmental firm** according to a survey by the publication **Engineering News Record** based on revenue and including our operations in North America for water, wastewater, solid waste treatment services, water technologies, and innovative water solutions.

In 2017, SUEZ was recognized as the **Smart Water Company of the Year** at the **Global Water Awards**—the world's largest global event for the Water Industry—based on operating performance, innovative technology adoption, and the use of sustainable financial models:

- Over 3,000,000 smart water meters deployed globally
- Over 200,000 smart meters deployed across the largest network in the United States
- 1,000 square miles covered across 150 cities and towns
- Up to 38% reduction in water loss and 5% in demand
- Vast experience with all major meter, AMI manufacturers, and billing vendors

In addition, we were recognized with the **Utility Industry Innovation in Water & Sewer Award** by the **National Association of Regulatory Utility Commissioners** for our state-of-the-art deployment of our Smart Utility Network.

b. INTRODUCTION

SUEZ—along with our partners at Aclara and Vanguard—has the capability to address any and all situations regarding meter operability, reliability, maintenance, and AMI software. Our experts have extensive experience and specialized knowledge of the characteristics and conditions associated with water system infrastructure—specific to water utilities and AMI systems—and will deliver the quality results expected by our valued clients. SUEZ has deployed over three (3) million smart water meters worldwide, and we manage over 650,000 meters nationwide—including over 200,000 meters on the AMI system. The extensive experience allows us to successfully implement and execute the services specified by the Town of Federalsburg. Our maintenance programs center on long-term partnerships with our clients—with a consultative philosophy and approach to solving problems.

SUEZ has created a customized program to provide and implement the AMI system to the Town of Federalsburg and maintain long-term value over the life of the system. Our program will ensure that both the hardware and software comprising the AMI system are integrated with the Town of Federalsburg’s software for billing and data collection and that their administrative teams are fully trained on the operation and maintenance of the system. All work performed will be in accordance with all American Water Works Association (AWWA) standards, rules, and regulations required by the State of Maryland.

SUEZ’s metering program has improved both the operability and reliability of metering systems for water utilities nationwide and has generated over ten percent (10%) increases in overall revenue—on average—for a municipality or water distribution system client in the United States. Some of the key benefits of the SUEZ AMI system and asset maintenance program include:

- Access to a SUEZ service center that is readily available to service the Town of Federalsburg—as well as a local SUEZ Water System Consultant (WSC). **Mr. Rob Mourlas**—WSC (State of Maryland)—will serve as the dedicated WSC for the Town of Federalsburg.
- Firmware updates and installation included as part of the asset maintenance program
- Limit technology or obsolescence risks as part of the asset maintenance program
- The program provides a comprehensive preventative and corrective maintenance service
- Financial stability and cost-effective solutions

SUEZ IN THE SMART WATER MARKET

- **3 Million** smart water meters deployed worldwide
- **Largest** Smart Water Utility network award by NARUC
 - **200,000** smart meters deployed in network – SUEZ NJ
 - **1,000** square miles covered in **160** towns and cities
 - Up to **38%** reduction in water loss and **5%** in demand
- **Vast Experience** with all major meter manufacturers

C. SUBMITTER HISTORY

i. Include company contact name, address, e-mail, and phone number of project manager.

NAME	ADDRESS	EMAIL	PHONE
Mr. Tim Schwartz, PMP	535 Courtney Hodges Blvd., Perry, GA	timothy.schwartz@suez.com	(817) 609-0894

➤ *Summary Resumes for Project Team members can be found in Appendix section*

ii. The Submitter shall have a proven project manager to ensure successful Full Service Program installation. Project managers shall be experienced in managing the design, installation and optimization of systems. Project management experience shall include system integration and training support.

CONTRACT MANAGEMENT

SUEZ will designate a direct employee—for the duration of the contract—to serve as the Contract Manager. The Contract Manager will have direct oversight over all elements of the project.

- **Mr. Eric Merithew**—Service Center Manager (Bridgewater, MA)—has over ten (10) years of experience and will serve as the Contract Manager for the Town of Federalsburg. He will be present during critical phases of the AMI network installation—as well as throughout the mass deployment of the meters—with approximately 25% of his time being dedicated to onsite services.

PROJECT MANAGEMENT

Project managers for the northern region of the United States operate under the oversight of their regional management team—as well as their respective line of business—to help control all costs, keep projects on schedule, and communicate with our clients to execute project objectives.

- **Mr. Tim Schwartz, PMP**—Project Manager (AMI Metering Services)—has 15 years of experience in both AMI services and asset management. He will serve as the primary project manager to ensure the quality and successful outcome of the water meter system replacement project. He will oversee **Mr. Benjamin Farrell**—Project Manager (Aclara)—on the implementation of the design, equipment deployment, and training for the AMI system. Mr. Schwartz will also coordinate with **Mr. Byron D. Weaver**—Regional Project Manager & Onsite Field Supervisor (Vanguard)—and will supervise the installation team and provide ongoing quality control (QC) for the field service crews. Mr. Schwartz will also be responsible for the performance testing, systems integration, and training in coordination with our technology partners. He serves as the primary person in charge of SUEZ's metering projects. Mr. Schwartz is experienced in the development of innovative solutions tailored to each of our client's needs and will deploy this approach for the Town of Federalsburg.
- Additional support services for the water meter system replacement project that require field personnel will be provided by our service center. **Mr. Ryan Cooper**—Sales Director (Aclara)—will also provide additional support services during the maintenance phase of the program. In addition, **Mr. Andre Noel**—Director of Revenue Management & Metering Services—will lend his expertise to clients in the region to ensure optimum project execution and operability of water system assets.

SUEZ AMI/METERING TEAM

The SUEZ AMI/Metering Team is comprised of experts in their respective fields, including:

- **Mr. Andre Noel**—Director of Revenue Management & Metering Services—has over 30 years of industrial, commercial, and residential metering experience from around the world. He is responsible for providing oversight and resources to the Project Managers—ultimately ensuring each project is managed in a way that brings complete satisfaction and high-quality results to the client. Mr. Noel is also a leading specialist and technical expert in the selection, installation, testing, and troubleshooting of metering products and services.
- **Mr. Frank Sublett**—Director of Metering Implementation Services—has 25 years of experience and is responsible for the delivery of all AMI implementation in the United States. He oversees the project team and serves as a constant resource for the project team members.
- **Mr. Jason Stoneback**—Product Manager (Metering Services)—has over 18 years of experience and is responsible for product pricing and product marketing—as well as AMI, AMR, and metering subject matter expertise. He primarily supports SUEZ metering clients by providing the technology that best supports their business model.
- **Mr. Tim Schwartz, PMP**—Project Manager (AMI Metering Services)—has more than 15 years of experience and is responsible for the project execution of all SUEZ AMI projects within the southern region of the United States. Metering project teams directly report to Mr. Schwartz.
- **Mr. Michael Kimmelman, PMP**—Project Manager (Metering Implementation Services)—has over 40 years of experience and is responsible for ensuring the quality and successful outcome of SUEZ’s AMI projects by managing the details of the projects, including—but not limited to—the vendors, supplies, field operations, performance, and maintenance services.
- **Mr. Charles Williams**—Technical Services Manager—has over 30 years of experience and is responsible for maintaining the smart meter infrastructure for the metering line of business. He also manages the technical services associated with the AMI system.

SUEZ MANAGEMENT TEAM

The SUEZ Management Team is comprised of experts in their respective fields, including:

- **Mr. Ed Faust**—Senior Vice President (North Region)—has more than 30 years of environmental operations, business development, and asset management experience within the industrial and municipal markets of the water and wastewater industry.
- **Mr. Chris Quinn**—Director of Sales (North Region)—has over 25 years of asset management and business development experience in the water and wastewater industries.
- **Mr. Mark Coose**—Director of Operations (North Region)—has extensive experience in asset management and water system operations. Mr. Coose works directly with the service center managers and inspectors to plan and execute the renovation work and maintenance services under our asset maintenance program while providing his expertise and support directly to clients.
- **Mr. Bryan Morrow**—Director of Quality (North Region)—is a NACE Level III (3) Certified Coatings Inspector (#9135) with more than 20 years of experience in the water, wastewater, and asset maintenance industry. He is responsible for the effective execution of the Quality Assurance and Quality Control (QA/QC) Program for the North Region of the United States.
- **Mr. Jonathan Cato**—Senior Vice President (Lines of Business, Operations, & Engineering)—possesses over 20 years of experience in asset management.
- **Ms. Kerri deFriess**—Customer Service Manager—has over 20 years of experience in customer service and oversees all operations for the SUEZ Customer Account Specialist team.

ACLARA PROFESSIONAL SERVICES TEAM

The Aclara Professional Services Team is comprised of experts in their respective fields, including:

- **Mr. Ken Logozar**—Vice President (Professional Services)—is an Aclara veteran that serves as Executive Oversight. He has over 12 years of industry experience overseeing installations for millions of endpoints for electric, water, and gas. Mr. Logozar has experience managing a team of experts during the hands-on field service support—including back-office system set-up and initialization—through on-site DCU commissioning. He serves as senior level program oversight and point of escalation during the life cycle of a project.
- **Mr. Tyson Turner**—Program Management Office—has over 13 years of industry experience and possesses a variety of technical and functional skills. He brings a deep understanding of Aclara's RF Network and has successfully managed more than a dozen water, electric, and gas projects. Mr. Turner is very detail oriented and committed to exceeding client expectations.
- **Mr. Benjamin Farrell**—Project Manager—has over 12 years of experience in the realm of municipal and utility engineering. He is an experienced Project Manager providing seamless project implementation execution—while also supporting Aclara's clients for their installation, upgrade, and on-going maintenance projects. Mr. Farrell possesses a cross-functional skillset and attention to detail that ensures client satisfaction, project accuracy, and completion.
- **Mr. Todd Aznavorian** brings over 15 years of experience and serves as the lead technical arm of the professional services delivery team. He has managed both the product development and engineering activities for a global team of over 20 members—consisting of UI/UX designers, systems, integration, test/evaluation, hardware and software engineers.
- **Mr. Sylvester Moshiro** has over 17 years of industry experience. He is a dynamic leader with experience in many areas of information technology (IT) delivery—technology consulting, project and product management, and business development focused on energy and utility companies.
- **Mr. Ian Hockaday** has over 38 years of experience in database design, data analysis, project management, and systems development. He brings over 12 years of industry experience and will focus on integration development and data analysis for the billing system—as well as CIS integration. Mr. Hockaday also supports hardware setup and software installation.
- **Mr. John Gedris** is has over 12 years of experience and is a veteran with vast knowledge and experience that provides technical support. His experience includes defining both metrics and goals for Customer Support—as well as tracking progress to ensure established SLA metrics are met. Mr. Gedris has managed teams of over 15 specialists overseeing Level I–III support.
- **Mr. Mark Fredebaugh** has 13 years of industry experience focused on AMI training. He is adept at implementing software needs to match a client's internal business process and standards and has an ability to multi-task and manage multiple training processes and implementations simultaneously—training individuals and large groups in web-based and in-person settings.
- **Mr. Justin Willman**—Senior System Administrator—has over 12 years of industry experience serving as an IT professional. He has a solid background in server and network design, support, configuration, set up and troubleshooting.

VANGUARD INSTALLATION TEAM

The Vanguard Installation Team is comprised of experts in their respective fields, including:

- **Mr. Keith Tamminga**—Vice President (Field Operations) & Project Sponsor—has 25 years of experience in operations management, business development, supply chain management, process engineering, logistics, strategic planning, budget development, personnel training and management, and utility control—including ISO implementation, performance, and quality standards. With a focus on customer satisfaction, Mr. Tamminga works closely with leadership team representatives to ensure that a successful project is delivered.
- **Ms. Kathy Kolter**—Director of Sales, Bids, Proposals, Contracts, and Customer Relations—has 13 years in managing the Sales/Contracts Department. Responsibilities include vendor and customer relations, executing and enforcing contract requirements to ensure that signed contracts are communicated to all relevant parties in order to provide full contract visibility, awareness, and interpretation to support implementation.
- **Mr. Byron Weaver**—Operations Manager & Project Plan Implementation Administration—has 21 years of hands-on technical skills in all areas managed. Functional experience includes field operations management, QA, budgetary tracking, logistical management, and technical installations. He sets company standards for hiring project management, quality, and field employees. He has been in the meter industry with Vanguard for 14 years and has overseen both the installation process and management personnel of large projects for over 20 years.
- **Mr. Bret Bates**—Commercial Meter Manager—has 30 years of field experience in commercial testing, repairing, and replacing of commercial and industrial water meters. He has been a key role in the start-up, training, and management of many residential replacement programs; in his administrative roles, he is responsible for both workforce management and training.
- **Mr. Ryan Henshaw**—Crew Lead—has over 16 years of experience as an installer and project manager. He has managed projects in multiple sites across the United States and has relocated existing meters from inside buildings and homes to the active service lines. Mr. Henshaw has managed crews larger than six (6) while maintaining production and ensuring on-time closeouts.
- **Mr. John Mann**—Safety Management & Trainer—has over 24 years of management experience in the water meter industry. He is an OSHA Certified Safety Manager and serves as Vanguard's current Safety Trainer responsible for managing all safety aspects of water meter projects.
- **Ms. Amanda Froehlich**—Human Resources (HR)—has over 19 years of HR experience. She has written, edited, published, and administered policies and procedures—while also creating the monthly financial statements. Ms. Froehlich has maintained compliance to all federal, state, and city laws while recruiting, hiring, terminating, and enforcing company regulations. She is the HR Manager—overseeing the staffing and transporting of employees throughout the US.
- **Mr. Tom Carter**—Manager (Call Center, Data Integrity, and Quality Control)—has over 15 years of experience in Information Technology (IT), Business Management, and Accounting. He reviews and audits all cash, inventory, accounts payable, revenue and expenses, accounts receivable, and leases. He has experience with managing over 150 employee's IT staff at a time—while also implementing new inventory tracking software.

ENGINEERING

The engineering team—under the guidance and leadership of **Mr. Jason Saylor, P.E.**—serves as the technical resource for the company and provides engineering support for all areas of our asset management programs. The engineering staff has more than 30 years of combined experience in both the evaluation and maintenance of water infrastructure assets and water treatment facilities. The engineering staff also provides specific project support through the development of technical engineering documents that may be required for the delivery of our projects—such as the technical installation details, permitting for regulatory compliance, and project plans needed to implement the maintenance services.

- *Mr. Jason Saylor is a Licensed Professional Engineer in the State of Maryland (#47037)*
- *SUEZ is also a Licensed Professional Engineering Firm in the State of Maryland (#47516)*

iii. The asset management experience and capabilities shall be detailed; preference will be given to long-term asset management experience. Provide a listing of references of similar project scope and complexity with customer contact information, so that the Town can verify experience.

Over 50 years ago, SUEZ created a full-service asset management program that enables a utility owner to transfer the future maintenance and risks of a water asset to SUEZ. Our background and experience with water utility assets—including water meters of all sizes and types—allow SUEZ to assume the risks associated with the maintenance, upkeep, repair, and preservation of large and small assets. SUEZ now serves over 6,000 clients nationwide and protects over 8,000 assets under our full-service asset management program. The SUEZ asset maintenance program was initially specific to water storage tanks, but now includes assets such as water and wastewater treatment structures, trihalomethane (THM) removal systems (TRS), and water meters—to name just a few.

Our maintenance programs also allow utilities to shift the maintenance obligations to SUEZ—giving them the peace of mind for future maintenance and longevity of the asset. The Town of Federalsburg will also benefit from our collective experience as municipal and industrial consultants—as well as our experience as water and wastewater system managers.

CLIENT REFERENCES

SUEZ has completed over \$600 million in water asset projects over the last five (5) years. Our main goal is to provide comprehensive asset management solutions to ensure the long-term success of our many clients—as well as their water system assets. Our expertise in both rehabilitation and preventative maintenance extends the usable life of assets and eliminates the risks associated with the run-to-failure approach. SUEZ manages and maintains over 8,000 water assets for more than 6,000 industrial and municipal clients nationwide.

In addition to the three (3) SUEZ client references, we have also provided three (3) client references for each of our subcontractor resources—Aclara and Vanguard.

- *Please find the client references for SUEZ, Aclara, and Vanguard in the Appendix section*

iv. Provide details outlining the ability to service the long-term asset management program from within the state of Maryland, including local offices and service centers as well as the local offices and service centers of technology partners.

SUEZ SERVICE CENTERS

SUEZ has become one (1) of the primary leader in asset management—in part for our ability to service our valued clients on a timely basis. All of the metering services provided will be successfully conducted by SUEZ, Aclara, and Vanguard personnel that are both trained and qualified. These experienced, fully-trained metering crews will perform all meter replacements—as well as the installation of both the meter equipment and software.



SUEZ has 12 service centers strategically located throughout the United States to serve our many clients on a timely basis. The locations of these service centers include: Arkansas (1), California (2), Florida (1), Georgia (1), Illinois (1), Indiana (1), Kansas (1), Massachusetts (1), North Carolina (1), Ohio (1), and Texas (1). Our service center crews manage and maintain over 8,000 water distribution system assets for over 6,000 industrial and municipal clients nationwide. Our experienced teams include: 120+ paint crews, 30+ field service crews, 40+ certified welders, and other qualified support teams.

The primary service center that will be supporting the Town of Federalsburg is located in the **City of Bridgewater, MA**. This service center team ensures that all projects adhere to all performance standards, schedule, and budget. Responsible for the successful maintenance and operability of hundreds of water storage assets in the northern region of the United States, the SUEZ team has extensive project experience and specialized knowledge of both the characteristics and conditions associated with water assets, systems, and infrastructure within the State of Maryland. The SUEZ facility successfully manages and maintains the operability of hundreds of critical assets within the northern region of the United States—from Maryland to Maine. This SUEZ service center is located at **128 Elm Street, Bridgewater, MA 02324** and can be reached via telephone at **(508) 279-9965**.

- **Mr. Eric Merithew**—Service Center Manager (Bridgewater, MA)—is the principal in charge of managing the operations at this facility and has over ten (10) years of experience in the water and asset management industries. He possesses specialized knowledge of both water system infrastructure and conditions within the State of Maryland—as well as the northern region of the United States. Both his expertise and insight into evaluating project costs ensure that water system assets will be both maintained and managed to the highest standard and in the most efficient and cost-effective manner possible.
- **Mr. Pierce Law**—Service Center Manager (Bridgewater, MA)—has over 30 years of experience in asset management. He manages all of the renovation operations for this service center.

TECHNOLOGY PARTNERS & SUBCONTRACTOR RESOURCE OFFICE LOCATIONS

- Aclara Technologies LLC (Aclara): 30400 Solon Road, Solon, OH 44139
- Vanguard Utility Service, Inc. (Vanguard): 1421 West 9th Street, Owensboro, KY 42301

vii. Provide documentation of ISO9001 certification for Asset Maintenance Programs

- *A full copy of the SUEZ ISO 9001:2015 Certification can be found in the Appendix section*

d. FINANCIAL STABILITY

i. Provide a summary detailing years in business, number of customers, financial strength, corporate structure and reporting. Demonstrate the ability to self-finance the initial meter infrastructure for up to five (5) years by providing three (3) references with contact information. No third party financing references shall be allowed.

SUEZ within North America dates back to the founding of the Hackensack Water Company in 1869. Since, SUEZ has grown into one (1) of the United States’ largest and most technologically advanced water service companies.

The respondent—**Utility Service Co., Inc. (Tax Identification No. 58-1920989)**—was initially formed in 1963. In 2008, it became a wholly-owned subsidiary of SUEZ North America Inc. Utility Service Co., Inc. delivers innovative and advanced service solutions to minimize capital and operational expenses, improve the system operations and performance, extend the useful life of the utility assets, and ultimately improve water quality.

Utility Service Co., Inc. and SUEZ Water Inc.—the Utility and Contract Services Divisions—are wholly-owned by SUEZ North America Inc. The three (3) major SUEZ companies operate across all 50 states—as well as Canada—with more than 3,260 qualified employees that are dedicated to environmental sustainability and smart, sustainable resource management.

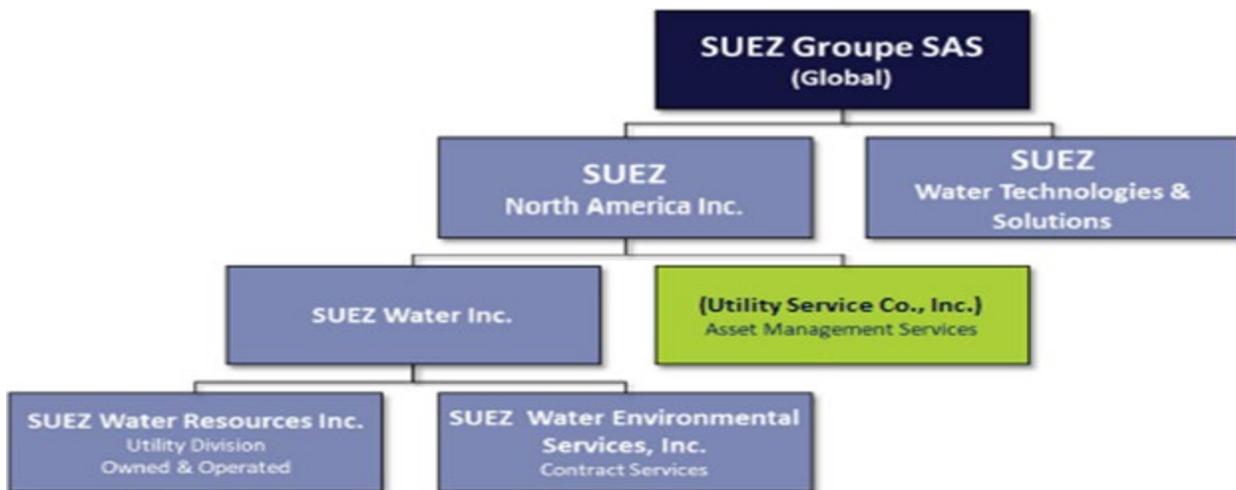
SUEZ North America Inc. is wholly-owned by SUEZ Groupe—headquartered in France. With over 90,000 dedicated water and wastewater professionals across five (5) continents, SUEZ Groupe is a world leader in smart, sustainable resource management. We provide water and waste management solutions that enable our clients to optimize their resource management and strengthen environmental and economic performances in line with regulatory standards.

The headquarters for Utility Service Co., Inc. is located at: **1230 Peachtree Street NE, Suite 1100, Atlanta, GA 30309.**

The following Stockholder Information table lists the names of stockholders who own ten percent (10%) or more of the shares.

STOCKHOLDER INFORMATION
SUEZ North America Inc. owns 100% of the shares of SUEZ Advanced Solutions, LLC.
SUEZ Advanced Solutions, LLC owns 100% of the shares of Utility Service Co., Inc.

SUEZ OWNERSHIP STRUCTURE



SUEZ FINANCIAL STATISTICS & CAPABILITIES

With over 150 years of industry experience, a parent company with total assets worth \$4.1 billion, and a consolidated revenue of \$1.064 billion in 2017, we have the financial strength and stability—as well as access to capital—that is required by the Town of Federalsburg. Also, SUEZ has never defaulted on a project—nor have we failed to complete a project.

- *The fully audited financial statements of SUEZ North America—as well as its subsidiaries—can be provided upon request.*
- *A reputable financial institution reference can also be provided upon request.*

SUEZ has successfully worked with thousands of water utility clients on critical water infrastructure issues—providing cost-effective solutions to our clients in order solve countless water quality and compliance issues. We are capable of addressing the need for overdue maintenance investment and infrastructure renovations. Our creative programs and innovative pricing structures have allowed our clients to tackle significant water and wastewater infrastructure problems while also minimizing the financial burden experienced by both the utility’s customers and taxpayers.

<u>SUEZ NORTH AMERICA FACTS & FIGURES</u>	
Utility Experience:	150+ Years
O&M Contract Experience:	50+ Years
Employees:	3,260+
Assets:	\$4.1 Billion
Revenue:	\$1.064 Billion
Population Served:	6.4 Million
O&M Contracts:	69
Regulated Utilities:	15
Industrial & Municipal Sites:	16,000
Global R&D Budget:	\$142 Million

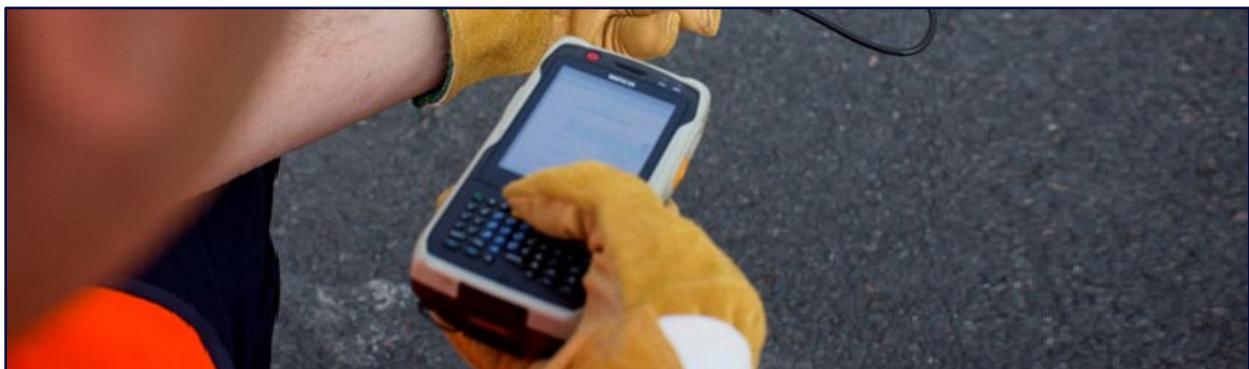
SUEZ also has the ability to self-finance the initial meter infrastructure for up to five (5) years for the Town of Federalsburg.

- *Please find the client references for SUEZ, Aclara, and Vanguard in the Appendix section*

ii. The Submitter must also be able to delay the first payment of the Project for one (1) year or until final completion of the initial installation and testing of the AMI network is complete. SUEZ has the ability to delay the first payment of the project for one (1) year or until final completion of the initial installation and testing of the AMI network is complete.

iii. The Submitter is to complete a financial analysis that will detail the expected financial benefits that the Utility can expect to realize. The Submitter shall project the analysis for 15 years. All assumptions used in the financial analysis must be clearly explained.

- *Please find the financial analysis detailing the expected financial benefits in the Appendix*



e. FULL SERVICE PROGRAM CAPABILITIES

i. Include a summary of the Submitters capabilities in accordance with the required maintenance program services.

SUEZ IS A PIONEER IN ASSET MANAGEMENT SERVICES

SUEZ is focused on providing sustainable asset management, water conservation, and water quality solutions to the United States water industry. Since 1963, our team at has provided a full range of potable water storage tank maintenance services. In 1985, we extended the value of services offered to our clients with our revolutionary tank maintenance program, allowing utility owners to transfer all future risks of ownership—repairs, rehabilitation, maintenance, etc.—to SUEZ. The SUEZ asset maintenance programs ultimately provide long-term sustainability and operational support.

In 2008, Utility Service Co., Inc. was acquired by SUEZ—expanding our capabilities with additional global resources, technologies, information systems, and strategic solutions necessary to address the current challenges facing water and wastewater utilities in the United States. By leveraging the knowledge and lessons learned from SUEZ and our sister companies, we were able to extend our signature tank asset maintenance program to additional water and wastewater distribution system assets, including: water meters, water treatment systems, pumps, and pipeline system assets. Our maintenance programs restore aging infrastructure to full operability and extend the life of assets with preventative maintenance and condition assessments. As part of our mission to address the critical water resource challenges facing the planet, SUEZ delivers advanced service solutions to minimize capital and operational expenses, improve system operations and performance, extend the useful life of utility assets, and ultimately improve water quality within the distribution system.

A PROVEN APPROACH TO THE WATER METER MAINTENANCE PROGRAM SERVICES

The SUEZ Meter Asset Maintenance Program implementation process demonstrates our long-term commitment to our clients. Our approach takes you from software, meter, and AMI installation up to the normal, daily use of the new software system—with the goal of providing the best equipment, software, services, and support to clients. Clients receive guidance throughout implementation from experienced professionals who have implemented meters, AMI systems, and integrated products.

We utilize a proven stage-driven implementation approach that allows for ongoing validation of the system throughout the project, and improved knowledge is learned and shared during each stage. The stages build on each other—allowing the project to progress with the goal of delivering a refined and mature solution that meets policies and procedures, while taking into account best industry practices. The approach ensures that process-specific details are mastered prior to moving to each subsequent stage. A formalized sign-off process—defined by major objectives, deliverables, and outcomes—is the key to a successful implementation. Our ISO 9001:2015 Certification reinforces this concept that we will execute the implementation process—as defined.

The nature of the SUEZ asset management program ensures that a full design analysis is performed prior to the start of the AMI system deployment. Analysis of the meter network, selection of equipment, and review of the asset deployment plan reduces or eliminates costly changes to the system following initial implementation. The performance guarantee that SUEZ provides also ensures that the most effective and reliable equipment available on the market is utilized in the field. This knowledge is gained through our own experience as water system operators around the world.

PROJECT EXECUTION

The SUEZ metering asset management team has already initiated the design analysis process, and we are aware of the challenges associated with the existing water meter system. SUEZ's goal is to improve the process of collecting water utility meter data and enhance the level of services offered to the Town of Federalsburg.

SUEZ utilizes a phase-based approach in regard to our installation organization for project delivery. Based on our experience and specialized knowledge, we will break the project into two (2) phases—an installation phase and an operation phase. The installation team will have three (3) task areas for the water meter system replacement project, including: the water meter change-out and installation, the AMI system installation and data coordination, and the Town of Federalsburg's information and billing software integration.

SUEZ—along with our partners at both Aclara and Vanguard—will perform the preliminary design analysis and DCU installation. The assigned project managers will execute the data integration and interface with the Town of Federalsburg's billing system. SUEZ's project team will provide direction, project oversight, and ongoing quality control—as well as primary communication—with the Town of Federalsburg on the AMI conversion and meter replacement process.

The ongoing operations phase will be led by an assigned Operations Manager—who will be focused on the daily business of meter reading, following up on field calls and data actions, and the ongoing management of operational reports after the installation is complete. Ongoing operations support will be comprised of a separate—but overlapping—team responsible for the ongoing support to the Town of Federalsburg during the water meter system replacement project.

The SUEZ partnership with Aclara provides trained personnel that perform and guide all aspects of an AMI system implementation. Our staff—as well as the staff of our technology partners—consists of seasoned professionals with years of extensive experience. This experience is coupled with unique proprietary skills specialized in managing and delivering projects focused on business processes.

Our implementation process also emphasizes the importance of cultural change management. This is how we guide you through the changes that accompany implementation of a new software systems and help to ensure a smooth transition. We have worked with all major meter vendors in our utilities and managed contracts. We operate the largest smart utility group in North America. Our dedicated implementation staff has vast experience in analyzing policies, procedures, and organizational needs.

To ensure our program will maintain the highest level of quality and operational efficiencies, SUEZ will collaborate with the Town of Federalsburg's operators and managers to execute the services specified for the AMI system and asset maintenance program. Our team will communicate with the Town of Federalsburg throughout every step of the program—from the initial project meetings to providing detailed status updates and reports on project progress. The success of our program is driven by collaboration—where the Town of Federalsburg and SUEZ work together to maximize the operability of meters and manage system assets.

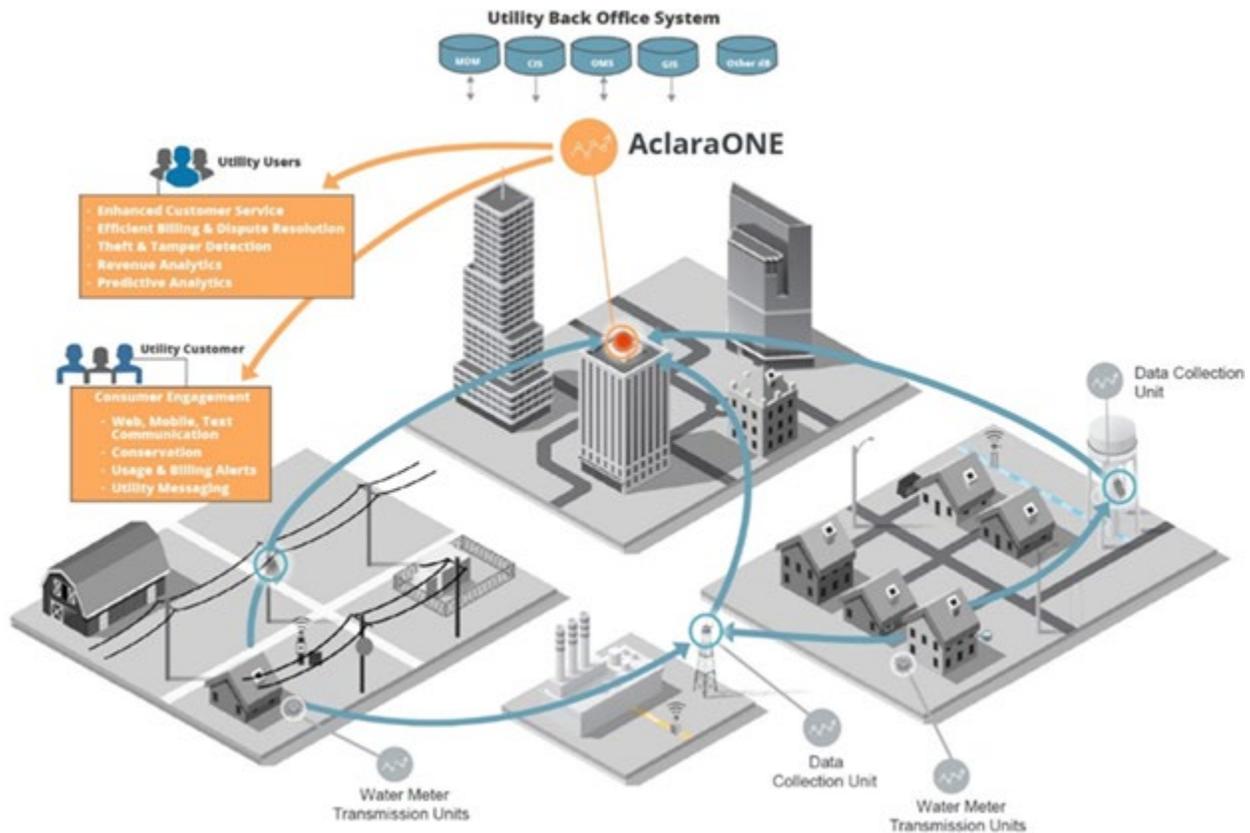
SUEZ's VISIO Center is staffed with AMI experts who monitor our clients' water distribution systems to identify any possible issues. We have integrated a powerful asset management and work order management system with the client's AMI system in order to allow us to issue work orders to our crews and manage the critical water assets over the life of the system. The SUEZ VISIO Center also helps our staff monitor alarms and allows us to analyze potential problems as they arise to provide actionable intelligence, reporting, and ongoing support to our many valued clients.

- *Please see the VISIO® Center Brochure—located in the Appendix—for additional information*

ii. Include product descriptions for the proposed AMI system components and software capabilities.

ACLARA SMART INFRASTRUCTURE SOLUTIONS

Aclara Technologies LLC (Aclara) is a world class supplier of smart infrastructure solutions (SIS) to water, gas, and electric utilities worldwide. Aclara SIS offerings include smart meters and other field devices, advanced metering infrastructure (AMI), software, and services that enable utilities to predict and respond to conditions, leverage their distribution networks effectively, and engage with their customers. Over 780 utilities—including over 150 water utilities across 36 countries—rely on Aclara’s solutions to connect with their customers.



ACLARA RF 3400 WATER METER TRANSMISSION UNIT

The Aclara RF 3400 Water Meter Transmission Unit (MTU) uses two (2)-way communication between the MTU and utility systems. These MTUs are typically configured to capture hourly meter reads and transmit readings four (4) times per day—with all meter reads time-stamped and system clocks synchronized to within one (1) minute. Time-stamped meter reads provide utilities and regulators with the ability to set structured rate plans—billing the customers not only for the water they use, but for when it is used. The time synchronization feature also allows a network-wide reading of system water consumption at a single point in time—which can be utilized to compare the system’s input volume to its measured consumption—ultimately quantifying non-revenue water distribution system losses.

The Aclara MTU is user-configurable for read rates that vary from 15 minutes to six (6) hours. MTUs can transmit groups of readings anywhere from once every hour to every two (2) days and can be programmed remotely.

The Aclara RF Water network enables on-demand reads to the MTU and firmware downloads over the air. The MTU can store up to 96 days of hourly readings (2,304 total) onboard—available for extraction over the air, if needed.



- Please see the Aclara RF 3400 Water MTU datasheet in the Appendix for additional information

ACLARA RF NETWORK DATA COLLECTION UNIT II

The Aclara RF Network Data Collection Unit (DCU) II enhances AMI networks by providing reliable, flexible, two (2)-way communications. A DCU is the backbone of an AMI network—communicating to MTUs and the head-end using a network backhaul of choice.

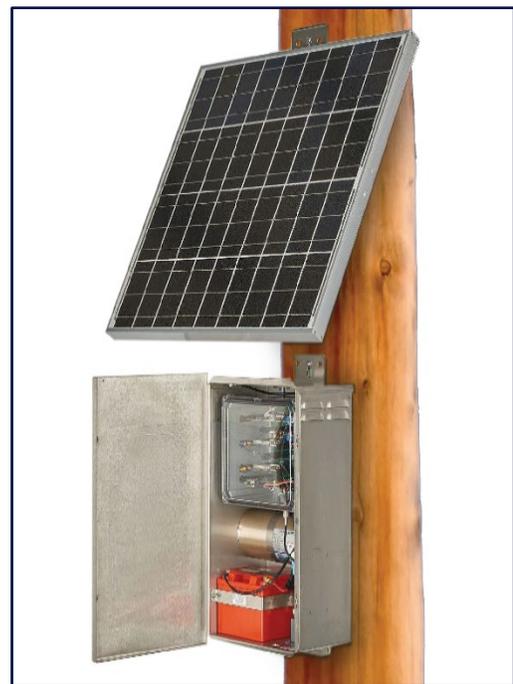
The DCU is designed to be flexible and inconspicuous in its mounting options. DCUs can be mounted throughout the service territory on municipal and utility assets like building roofs, water towers, street lights, or utility poles.

DCU antenna are placed at least 30 feet above ground. We normally place the DCU RF antenna at least 12 feet above the electronics enclosure; however, we can use an optional extended cable to extend the distance between the DCU and the antenna up to 150 feet to allow the best positioning for access of the DCU—as well as the best RF placement for the antenna. The DCUs are powered by an AC line or by a self-contained battery that is recharged via a solar panel; the units can operate without charging for eight (8) days.

The DCUs communicate with the MTUs in a two (2)-way mode. The collectors issue specific commands—such as a time synchronization—on a daily basis. The collectors may issue additional commands to the MTUs—such as on-demand read requests—or to initiate a configuration change or firmware download. The MTUs will send data and other messages to the DCUs; then, the DCUs send this data and other messages to the head-end. Examples of such types of messages include: diagnostic and health information; the responses to requests—such as a time synchronization or over-the-air reprogramming; and any specific data requests—such as scheduled readings, on-demand readings, and alarm data.

The DCU sends commands to the MTU at five (5) watts—which is an appropriate RF power level to maintain the communication performance required for the system.

- Please see the Aclara RF Network DCU datasheet provided in the Appendix for additional information



ACLARAONE

The AclaraONE™ (One Network for Everyone) platform is a powerful tool utilized to enable Aclara’s communications technology—while also adding comprehensive solutions to transform business operations, reduce costs, and increase efficiency and customer satisfaction. It was built to provide actionable insights—as well as the situational awareness needed to handle any growing distribution challenges. The AclaraONE platform allows gas, water, and electric utilities to securely, reliably, and efficiently operate their distribution networks. From the meter-to-cash, network management, distribution operations, sensors, analytics, and consumer engagement, it delivers the broad set of functionalities that water utilities require to monitor, optimize, and improve the operation of their infrastructures under a single platform.



When equipped with the robust, scalable, next-generation AclaraONE smart infrastructure solution (SIS) software, network operators can react faster and more effectively while improving the technical and economical operation of their distribution grids.

Aclara’s **Adaptive Consumer Engagement (Aclara ACE®) Platform** was architected at every layer to be flexible and configurable—allowing for our solutions to adapt to each of our utility partner’s needs. Whether the utility is focused on the bill or cost awareness, utility program adoption, water conservation, or AMI data presentation, the Aclara ACE portal can be configured with content that is in direct alignment with the utility’s priorities.

The Aclara ACE platform equips utility customers with personalized content that enables them to better understand their utility bill and changes to their costs—**My Bills**; transparency into their consumption—**My Usage**; and tools and information to reduce their overall costs—**My Savings**. In addition, our **Insights** engine generates succinct, direct, and personalized messages for each user that keeps them informed of changes to their costs due to weather or other factors, consumption patterns, and promotion of **Ways to Save** to help the user control their costs.

➤ *More details on the Aclara ACE Customer Engagement software can be found in the Appendix*

Large Accounts

- New York City (840k endpoints)
- Kansas City (170k endpoints)
- Missouri American Water (340k endpoints)
- Boston Water and Sewer (90k endpoints)
- City of Toronto Water (480k endpoints)
- San Francisco PUC (175k endpoints)
- DC Water (125k endpoints)
- Minneapolis (110K endpoints)
- Southern California Gas (5.9M endpoints)

ACLARA A SUEZ PARTNER

Local References

- Canton, OH (42k endpoints)
- Middletown, OH (22k endpoints)
- Newark, OH (19k endpoints)
- Wooster, OH (9700 endpoints)
- Springboro, OH (7500 endpoints)
- Sylvania, OH (7200 endpoints)
- Berea (6900), Bexley (5k)

iii. Include product descriptions for the proposed meter components and capabilities.

The broad compatibility of the Aclara AMI system allows for a wide selection of metering options for the Town of Federalsburg to consider. Please see the following SUEZ meter recommendations:

RESIDENTIAL WATER METER

For residential applications, SUEZ is recommending the use of the **Badger Meter Recordall® Disc Meters (sizes 5/8", 5/8" x 3/4", 3/4", and 1")** due to their long track record of proven reliability. These Recordall® Disc Series meters meet or exceed the most recent revision of AWWA Standard C700 and are available in a lead-free bronze alloy. The meters comply with the lead-free provisions of the Safe Drinking Water Act, are certified to NSF/ANSI Standards 61 and 372 (Trade Designations: M25-LL, M35-LL, M55-LL, M70-LL), and carry the NSF-61 mark on the housing. All components of the lead-free bronze alloy meter (housing, measuring element, seals, etc.) comprise the certified metering system.

- *Please refer to the Appendix section for the Badger Meter Recordall® Disc Meter (sizes 5/8", 5/8" x 3/4", 3/4", and 1") product datasheet.*

LIGHT COMMERCIAL WATER METER

For light commercial applications, SUEZ is recommending the use of the **Badger Meter Recordall® Disc Meters (sizes 1½" and 2")** due to their long track record of proven reliability. These Recordall® Disc Series water meters meet or exceed the most recent revision of AWWA Standard C700 and are available in a lead-free bronze alloy. These meters comply with the lead-free provisions of the Safe Drinking Water Act, are certified to NSF/ANSI Standards 61 and 372 (Trade Designations: M25-LL, M35-LL, M55-LL, M70-LL), and carry the NSF-61 mark on the housing. All components of the lead-free bronze alloy meter (housing, measuring element, seals, etc.) comprise the metering system.

- *Please refer to the Appendix section for the Badger Meter Recordall® Disc Meter (sizes 1½" and 2") product datasheet.*

COMMERCIAL WATER METER

For commercial applications, SUEZ is recommending the use of the **Badger Meter Recordall® Turbo Series Meters (sizes 1½", 2", 3", 4", 6", 8", 10", and 12")** due to their long track record of proven reliability. These Recordall® Turbo Series meters meet or exceed the most recent revision of AWWA Standard C701 Class II Standards and are available in lead-free bronze alloy for sizes 1½"-10" and cast iron for 12" meters. The Turbo Series meters comply with the lead-free provisions of the Safe Drinking Water Act. The 1½"-10" meters sizes are also certified to NSF/ANSI Standards 61 and 372 (Trade Designation: Turbo Series LL-NS) and carry the NSF-61 mark on the housing. All components of the lead-free alloy meter (housing, measuring element, seals, etc.) comprise the metering system.

- *Please refer to the Appendix section for the Badger Meter Recordall® Turbo Series Meter (sizes 1½", 2", 3", 4", 6", 8", 10", and 12") product datasheet.*

iv. Proposals for AMR/Drive-by, Hybrid AMI/AMR, Cellular, Mesh, or systems with Repeaters Based shall NOT be allowed.

SUEZ acknowledges, understands, and complies with this requirement.

f. REFERENCES

i. Include a list of at least three references for similar asset management projects

- *Please find the client references for SUEZ, Aclara, and Vanguard in the Appendix section*

III. MAINTENANCE PROGRAM

The Submitter shall provide a maintenance program that, at the option of the Town is renewable on an annual basis. The maintenance program will provide for the operation and long-term maintenance of the AMI Full-Service Program.

SUEZ provides valuable services to assist our clients in the effective management of their valued water utility assets. As the largest provider of asset maintenance programs in the United States, SUEZ's team will deliver the highest value of service when conducting all associated work. SUEZ's asset maintenance program is customizable to fill the specific resource needs of the client's community—while also allowing the water utility to continue providing services where they excel. This knowledge is based on our rather extensive experience as both water providers and smart water system managers.



Some critical components of the AMI Full-Service Maintenance Program that will be experienced by the Town of Federalsburg include:

- A system design process that is focused on performance and reliability—tailored to the Town of Federalsburg's needs
- Thorough upfront testing and planning to avoid costly changes after system installation begins
- A single point of contact throughout the meter replacement process that also extends through the 15-year maintenance program
- Rapid deployment of all meters and the full AMI network
- Dedicated support for software training and billing system integration
- No change orders outside of the design modifications or technology changes requested by the Town of Federalsburg

Following the initial meter system replacement project, the Town of Federalsburg will benefit from:

- A full 15-year warranty on all meter assets deployed during the replacement project
- A full 15-year warranty on all AMI network components, backhaul, and meter data management
- All AMI system hardware and software upgrades are included for the duration of the contract
- Scalability ensuring that the network grows with the Town of Federalsburg and is not constrained by changing technologies
- A local service center team for prompt and effective support and ongoing training of the Town of Federalsburg's personnel
- Cloud-based data storage with ongoing software support to ensure data safety and reduce the burden on the Town of Federalsburg's infrastructure technology (IT) resources

The goal of the metering asset management program is to empower the Town of Federalsburg with real-time information and data-management tools to both maximize efficiency and provide quality customer engagement. This will allow the existing water department personnel to focus on other aspects of system performance, water quality, and customer satisfaction. Ultimately, it will enhance the end-user experience with improved customer service support, proactive water usage notification, and water conservation tools.

c. Subcontractors: Submitter will provide a list of subcontractors that will be used to execute the project. Each subcontractor will be identified by name and shall provide the following information: years in business, outline of similar experience and capabilities.

➤ *Please refer to the Appendix for information on our subcontractors—Aclara and Vanguard*

V. AMI SYSTEM DESCRIPTION

a. Provide a detailed description of the proposed Fixed Network or cellular AMI System. Include a full system architecture diagram. Include a description of your System.

The Aclara RF Water Network is an advanced, highly robust, meter-reading solution that delivers comprehensive meter data through a secure, long-range wireless networking using private FCC-licensed radio channels in the 450–470 MHz spectrum. The system provides timely, high-resolution meter readings that enable water utilities to eliminate all on-site visits and estimated reads, reduce theft and loss, implement time-of-use billing, and profit from the financial and operational benefits of a fixed-network AMI system.

The Aclara RF Water Network offers two (2)-way communication that delivers hourly meter data four (4) times per day with more robust functionality. Both aspects of the communication data delivery are configurable. Timely, high-resolution meter readings will eliminate on-site visits and estimated reads, reduce both theft and loss, and ultimately profit from the financial and operational benefits of a fixed-network AMI system. Aclara’s RF Network features and benefits include the following:

- **Protected Spectrum (Licensed 450–470 MHz):** Aclara secures exclusive operator licenses for every RF Network in operation. Our licensed spectrum ensures that data is not obstructed by unwanted traffic.
- **Reliable Signals (Penetration):** The 450–470 MHz used by the RF Network penetrates foliage and standard construction materials more effectively than higher-frequency systems.
- **Lower Infrastructure, Operations, and Maintenance Costs (Lower Free Space Path Loss):** Since the RF Network operates in the 450–470 MHz band, less power is required compared to other systems that operate in the 900 MHz band. In general, doubling the frequency (from 450 to 900) requires four (4) times more power to transmit a signal the same distance.

The Aclara RF Water AMI’s radio topology consists of the following three (3) scalable components: Meter Transmission Units (MTUs), Data Collector Units (DCUs), and the Head-End. The MTUs use RF waves to communicate with the DCUs. The DCUs communicate with the head-end via a variety of available backhaul technologies—cellular, ethernet, etc. The network is designed for redundancy to ensure a high read percentage. Aclara’s RF Water System is carefully designed to maintain full backwards compatibility with more than 20 years of releases. The system integrates with most water meter platforms—allowing the customers to use existing meter infrastructure or to upgrade to new meters without compatibility concerns. These MTUs periodically transmit data to—and accept data from—DCUs. The DCUs send data to the head-end via a cellular or ethernet backhaul. Typically, the Aclara RF Water Network has redundancy in multiple places: each reading is transmitted at least twice—configurable—with 100% of the MTUs designed to be heard by two (2) DCUs. This results in a single reading having at least six (6) chances of collection. If a collector needs to be taken out of service, other collectors will be in place to communicate with endpoints in the field. The redundancy ensures continuous communications resulting in a read rate of more than 98%.

➤ *Please refer to the Aclara RF Network System Diagrams located in the Appendix section*

SPECIFICATION COMPLIANCE

The following information has been provided by the Town of Federalsburg within their *SOQ* and SUEZ complies with all of the associated requirements and specifications:

- III. Maintenance Program
- IV. Fixed Network Advanced Metering Infrastructure (AMI) System Specifications
- V. AMI System Description
- VI. Meter Specifications

EXCEPTIONS/NOTES

SUEZ would like to note the following exception for the Town of Federalsburg:

- SUEZ's proposal is conditioned upon the negotiation and execution by both parties of a written, definitive agreement containing mutually acceptable terms and conditions. This agreement shall include—but not be limited to—mutually acceptable provisions on the following subjects: (i) force majeure, (ii) indemnification, (iii) waiver of consequential damages, (iv) warranty, (v) liability cap, (vi) insurance requirements, (vii) bonding, and (viii) dispute resolution. SUEZ shall not have any contractual obligations with respect to the matters referred to herein unless and until a mutually acceptable definitive agreement has been executed and delivered.

X. MINIMUM INSURANCE REQUIREMENTS

a. Qualifications are to submit a copy of their certificate(s) of insurance evidencing policies and limits of insurance that they currently have in force. If this document is not submitted, the Qualifications may be rejected.

- *Please refer to the Appendix section for a copy of SUEZ's Certificate of Insurance*

XIV. SAFETY & HEALTH PROGRAM

a. Submitter shall describe their Safety and Health Program. It shall address the company's safety standards and policy, confirming they are trained for safety in the workplace and the field per all OSHA and applicable standards. The proposing company SHALL submit a full copy of their Safety and Health Program. If the Program is too large/lengthy to include as a document with the response, please provide/submit it on an external USB flash drive.

Workplace safety is a top priority for SUEZ, and we are committed to protecting all of our employees, clients, and contractors from any danger or harm. We continue to enhance all safety processes—as well as training—and we take action every day to protect the lives and health of our employees, subcontractors, clients, and the populations among which we work. SUEZ aims to be a leader in this area and deploy ambitious action plans to fulfil this goal. We work in rather dangerous environments and recognize that safety is critical to both the success and well-being of all SUEZ employees.

- **Mr. Robert Weaver**—Director of Environmental Health & Safety (EH&S)—has over 15 years of experience and oversees all aspects of the SUEZ Environmental Health and Safety Program.

The *SUEZ Safety & Health Program* is a 300+ page printed document. It is SUEZ's policy to protect both its employees and clients with safe work practices and to manage work in a safe, orderly, and effective manner. SUEZ adheres to all OSHA and applicable standards when conducting work both within the workplace and the field.

- *A full copy of the formal SUEZ Safety & Health Program is included on a USB flash drive*



APPENDIX



This Appendix section provides the Town of Federalsburg with the executed documents, submittal requirements, and additionally relevant information associated with this *SOQ for Services for Water Meter System Replacement*; the required forms and additionally relevant information include:

- Meter Product Data Sheets
- AMI System Component Datasheets
- Aclara RF Network System Diagrams
- Aclara Water Meter Compatibility Chart
- Propagation Study
- Financial Analysis
- Subcontractor Information
- Client References
- Summary Resumes
- Certificate of Insurance
- ISO 9001:2015 Certification
- VISIO® Center Brochure

SUEZ also acknowledges receipt of the following Addenda:

- **ADDENDUM ONE**—issued by the Town of Federalsburg on October 20, 2021 (10/20/2021)

In addition to the items included in the Appendix, SUEZ has provided the Town of Federalsburg with additional information submitted on an external USB flash drive, including:

- SUEZ Safety & Health Program

METER PRODUCT DATA SHEETS





Badger Meter

Recordall® Disc Meters

Lead-Free Bronze Alloy, Sizes 5/8, 5/8 x 3/4, 3/4 & 1 inch
NSF/ANSI Standards 61 and 372 Certified



Model 25—5/8 in., 5/8 x 3/4 in.



Model 35—3/4 in.



Model 55—1 in.



Model 70—1 in.

DESCRIPTION

The Recordall Disc Series meters meet or exceed the most recent revision of AWWA Standard C700 and are available in a lead-free bronze alloy. The meters comply with the lead-free provisions of the Safe Drinking Water Act, are certified to NSF/ANSI Standards 61 and 372 (Trade Designations: M25-LL, M35-LL, M55-LL, M70-LL) and carry the NSF-61 mark on the housing. All components of the lead-free bronze alloy meter (housing, measuring element, seals, and so on) comprise the certified system.

Applications: For use in measurement of potable cold water in residential, commercial and industrial services where flow is in one direction only.

Operation: Water flows through the meter's strainer and into the measuring chamber where it causes the disc to nutate. The disc, which moves freely, nutates on its own ball, guided by a thrust roller. A drive magnet transmits the motion of the disc to a follower magnet located within the permanently sealed register. The follower magnet is connected to the register gear train. The gear train reduces the disc nutations into volume totalization units displayed on the register or encoder face.

Operating Performance: The Recordall Disc Series meters meet or exceed registration accuracy for the low flow rates (95%), normal operating flow rates (100 ±1.5%), and maximum continuous operation flow rates as specifically stated in AWWA Standard C700.

Construction: Recordall Disc meter construction, which complies with ANSI/AWWA standard C700, consists of three basic components: meter housing, measuring chamber and permanently sealed register or encoder. The meter is available in a lead-free bronze alloy with externally threaded spuds. A corrosion-resistant engineered polymer material is used for the measuring chamber.

Magnetic Drive: Direct magnetic drive, through the use of high-strength magnets, provides positive, reliable and dependable register coupling for straight-reading or AMR/AMI meter reading options.

Tamper-Proof Features: Unauthorized removal of the register or encoder is inhibited by the option of a tamper detection seal wire screw, TORX® tamper-resistant seal screw or the proprietary tamper-resistant keyed seal screw. Each can be installed at the meter site or at the factory.

Maintenance: Badger Meter Recordall Disc Series meters are designed and manufactured to provide long-term service with minimal maintenance. When maintenance is required, it can be performed easily either at the meter installation or at any other convenient location.

To simplify maintenance, the register, measuring chamber, and strainer can be replaced without removing the meter housing from the installation. No change gears are required for accuracy calibration. Interchangeability of parts among like-sized meters and meter models also minimizes spare parts inventory investment. The built-in strainer has an effective straining area of twice the inlet size.

Connections: Tailpieces/Unions for installations of meters on various pipe types and sizes, including misaligned pipes, are available as an option.

Meter Spud and Connection Sizes

Model	Size Designation (in.)	×	"L" Laying Length (in.)	"B" Bore Dia. (in.)	Coupling Nut and Spud Thread (in.)	Tailpiece Pipe Thread (NPT) (in.)
25	5/8	×	7-1/2	5/8	3/4 (5/8)	1/2
	5/8 x 3/4	×	7-1/2	5/8, 3/4	1 (3/4)	3/4
35	3/4	×	7-1/2	3/4	1 (3/4)	3/4
	3/4	×	9	3/4	1 (3/4)	3/4
	3/4 x 1	×	9	3/4	1-1/4 (1)	1
55	1	×	10-3/4	1	1-1/4 (1)	1
70	1	×	10-3/4	1	1-1/4 (1)	1

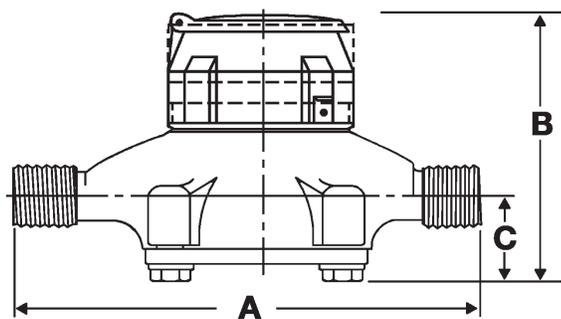
SPECIFICATIONS

	Model 25 (5/8 in. & 5/8 x 3/4 in.)	Model 35 (3/4 in.)	Model 55 (1 in.)	Model 70 (1 in.)
Typical Operating Range (100% ±1.5%)	0.5...25 gpm (0.11...5.7 m ³ /hr)	0.75...35 gpm (0.17...7.9 m ³ /hr)	1...55 gpm (0.23...12.5 m ³ /hr)	1.25...70 gpm (0.28...16 m ³ /hr)
Low Flow	0.25 gpm (0.057 m ³ /hr) Min. 98.5%	0.375 gpm (0.085 m ³ /hr) Min. 97%	0.5 gpm (0.11 m ³ /hr) Min. 95%	0.75 gpm (0.17 m ³ /hr) Min. 95%
Maximum Continuous Operation	15 gpm (3.4 m ³ /hr)	25 gpm (5.7 m ³ /hr)	40 gpm (9.1 m ³ /hr)	50 gpm (11.3 m ³ /hr)
Pressure Loss at Maximum Continuous Operation	5/8 in. size: 3.5 psi @ 15 gpm (0.24 bar @ 3.4 m ³ /hr) 5/8 x 3/4 in. size: 2.8 psi @ 15 gpm (0.19 bar @ 3.4 m ³ /hr)	5 psi @ 25 gpm (0.37 bar @ 5.7 m ³ /hr)	3.4 psi @ 40 gpm (0.23 bar @ 9.1 m ³ /hr)	6.5 psi @ 50 gpm (0.45 bar @ 11.3 m ³ /hr)
Maximum Operating Temperature	80° F (26° C)			
Maximum Operating Pressure	150 psi (10 bar)			
Measuring Element	Nutating disc, positive displacement			
Meter Connections	<i>Available in NL bronze and engineered polymer to fit spud thread bore diameter sizes:</i>			
	5/8 in. size: 5/8 in. (DN 15 mm) 5/8 x 3/4 in. size: 3/4 in. (DN 15 mm)	3/4 in. (DN 20 mm)	1 in. (DN 25 mm)	1 in. (DN 25 mm)

MATERIALS

	Model 25 (5/8 in. & 5/8 x 3/4 in.)	Model 35 (3/4 in.)	Model 55 (1 in.)	Model 70 (1 in.)
Meter Housing	Lead-free bronze alloy			
Housing Bottom Plates	Lead-free bronze alloy, cast iron, engineered polymer		Cast iron, lead-free bronze alloy	
Measuring Chamber	Engineered polymer			
Disc	Engineered polymer			
Trim	Stainless steel			
Strainer	Engineered polymer			
Disc Spindle	Stainless steel	Stainless steel	Engineered polymer	Stainless steel
Magnet	Ceramic	Ceramic	Polymer bonded	Ceramic
Magnet Spindle	Stainless steel	Stainless steel	Engineered polymer	Stainless steel
Register Lid and Shroud	Engineered polymer, bronze			

DIMENSIONS



Meter Size	Model	A Laying Length	B Height Reg.	C Centerline Base	Width	Approx. Shipping Weight
5/8 in. (15 mm)	25	7-1/2 in. (190 mm)	4-15/16 in. (125 mm)	1-11/16 in. (42 mm)	4-1/4 in. (108 mm)	4-1/2 lb (2 kg)
5/8 in. x 3/4 in. (15 mm)		7-1/2 in. (190 mm)	4-15/16 in. (125 mm)	1-11/16 in. (42 mm)	4-1/4 in. (108 mm)	4-1/2 lb (2 kg)
3/4 in. (20 mm)	35	7-1/2 in. (190 mm)	5-1/4 in. (133 mm)	1-5/8 in. (41 mm)	5 in. (127 mm)	5-1/2 lb (2.5 kg)
3/4 in. (20 mm)		9 in. (229 mm)	5-1/4 in. (133 mm)	1-5/8 in. (41 mm)	5 in. (127 mm)	5-3/4 lb (2.6 kg)
3/4 in. x 1 in. (20 mm)		9 in. (229 mm)	5-1/4 in. (133 mm)	1-5/8 in. (41 mm)	5 in. (127 mm)	6 lb (2.7 kg)
1 in. (25 mm)	55	10-3/4 in. (273 mm)	6 in. (152 mm)	2-1/32 in. (52 mm)	6-1/4 in. (159 mm)	8-3/4 lb (3.9 kg)
1 in. (25 mm)	70	10-3/4 in. (273 mm)	6-1/2 in. (165 mm)	2-5/16 in. (59 mm)	7-3/4 in. (197 mm)	11-1/2 lb (5.2 kg)

REGISTERS / ENCODERS

Standard—Sweep-Hand Registration

The standard register is a straight-reading, permanently sealed magnetic drive register. Dirt, moisture, tampering and lens fogging problems are eliminated. The register has a six-odometer wheel totalization display, 360° test circle with center sweep hand, and flow finder to detect leaks. Register gearing is made of self-lubricating engineered polymer, which minimizes friction and provides long life. The multi-position register simplifies meter installation and reading. The register capacity is 10,000,000 gallons (1,000,000 ft³, 100,000 m³).

A Model 25 register is used in the following example:



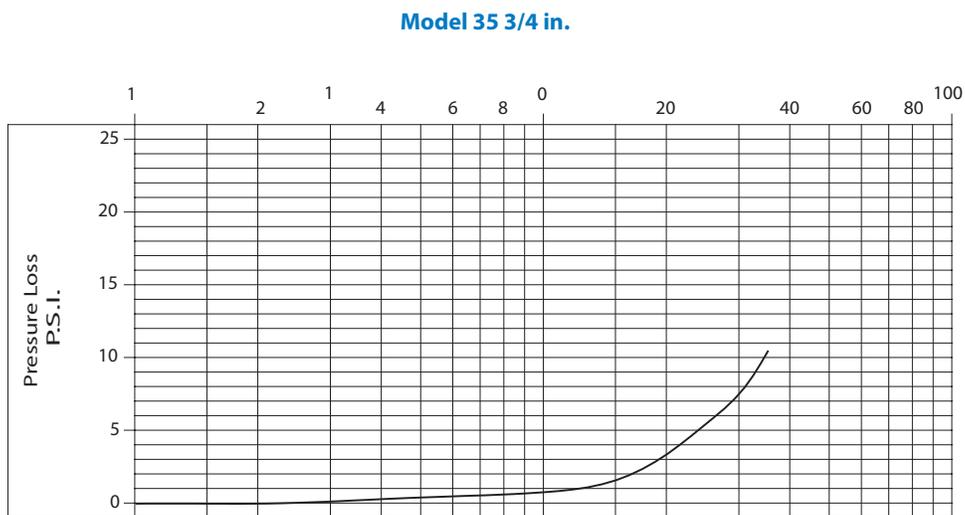
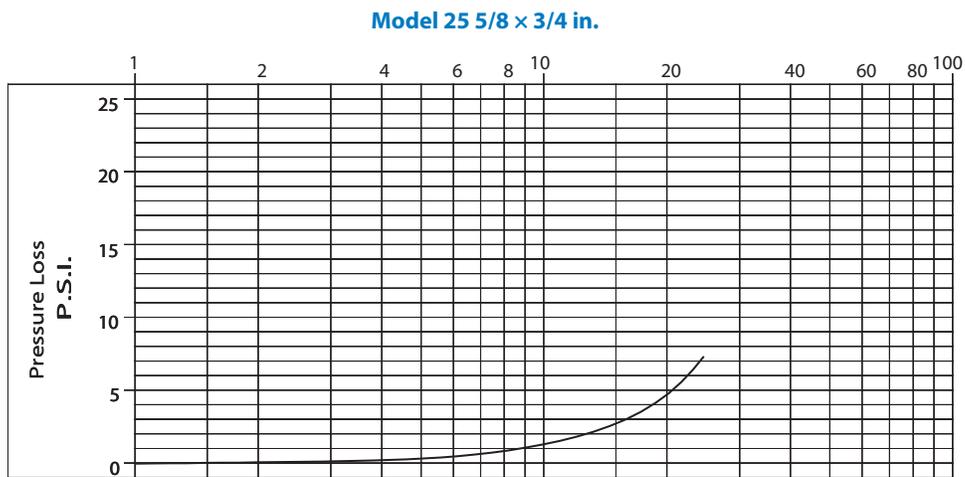
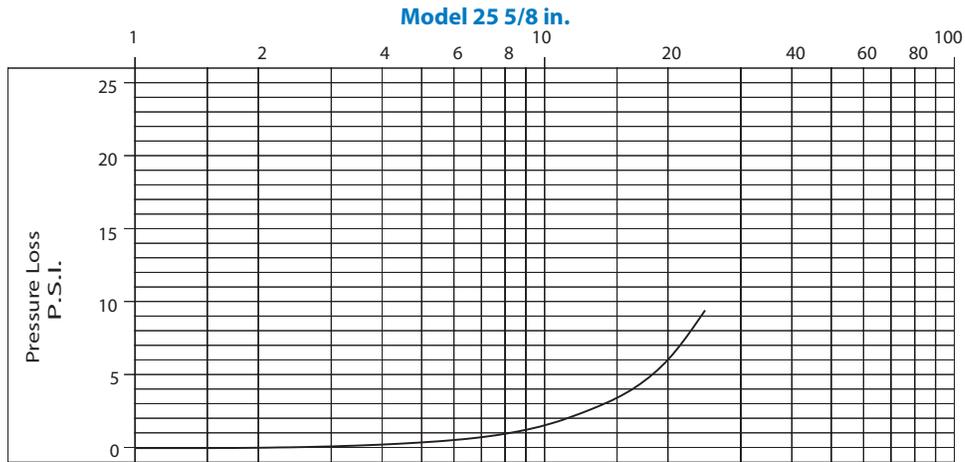
Model	Gallon	Cubic Feet	Cubic Meter
25 (5/8 in.)	10	1	0.1/0.01
25 (5/8 x 3/4 in.)	10	1	0.1/0.01
35	10	1	0.1
55	10	1	0.1
70	10	1	0.1

Optional—Encoders for AMR/AMI Reading Solutions

AMR/AMI solutions are available for all Recordall Disc Series meters. All reading options can be removed from the meter without disrupting water service. Badger Meter encoders provide years of reliable, accurate readings for a variety of applications. See details at www.badgermeter.com.

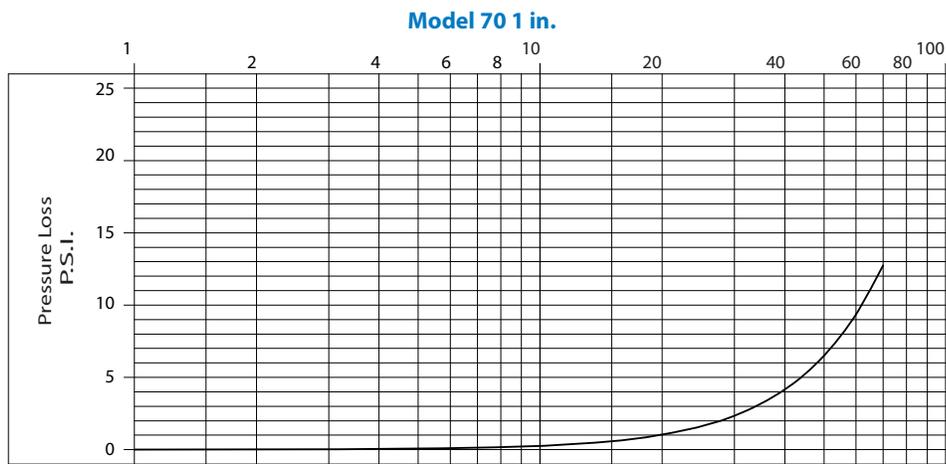
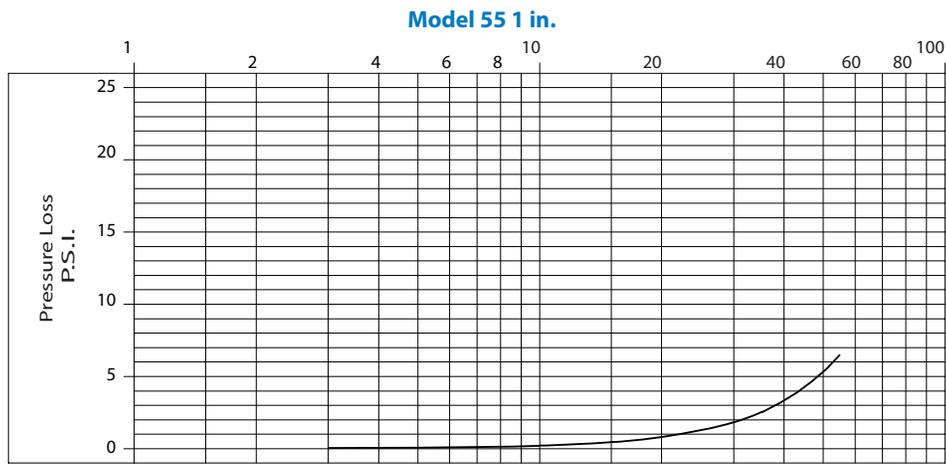
PRESSURE LOSS CHARTS

Rate of Flow in Gallons per Minute



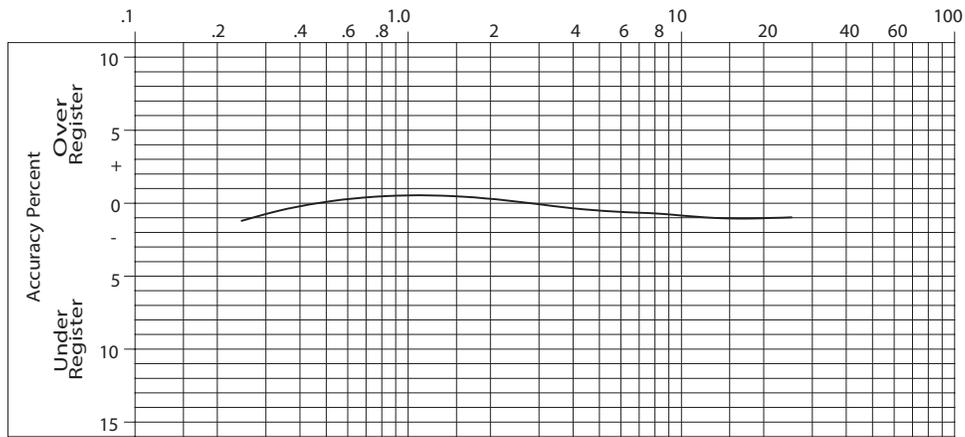
PRESSURE LOSS CHARTS (CONTINUED)

Rate of Flow in Gallons per Minute

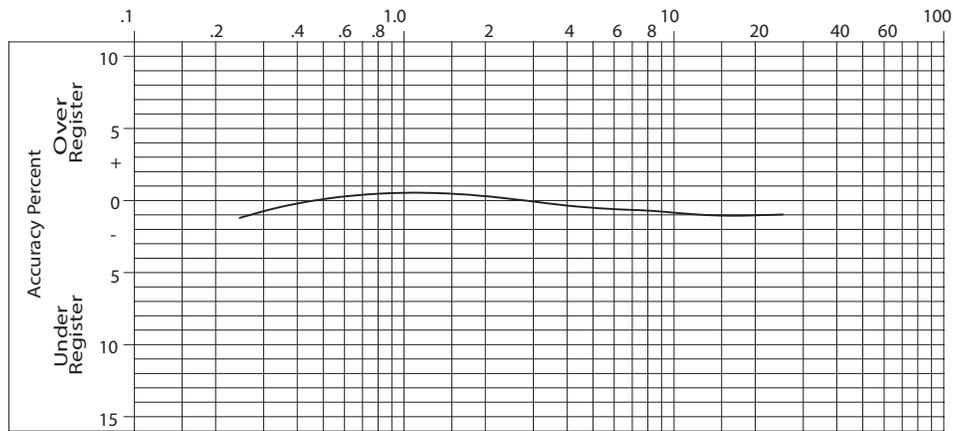


ACCURACY CHARTS

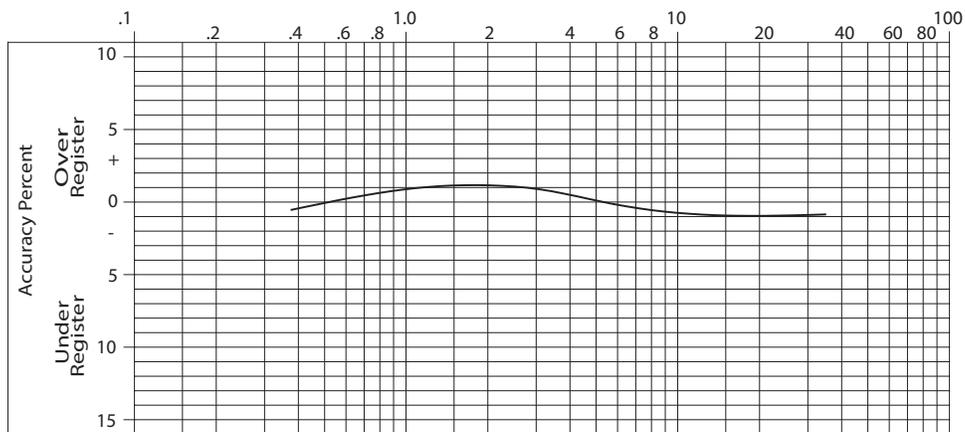
Model 25 5/8 in.



Model 25 5/8 x 3/4 in.

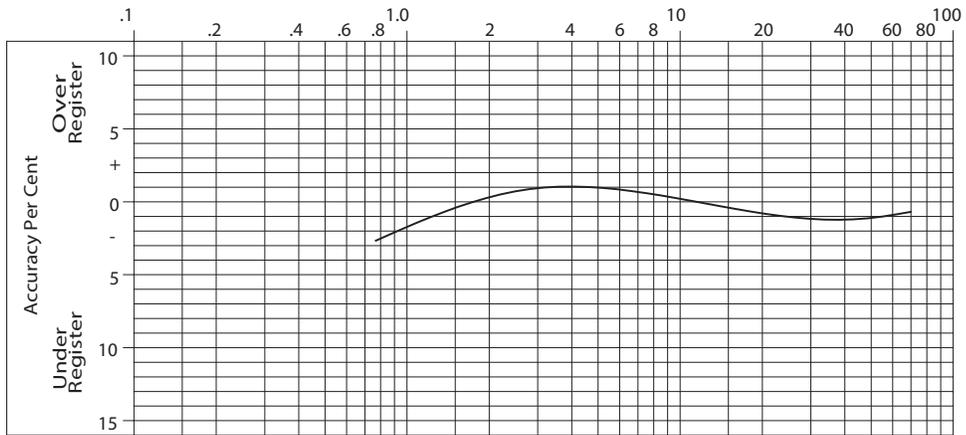


Model 35 3/4 in.

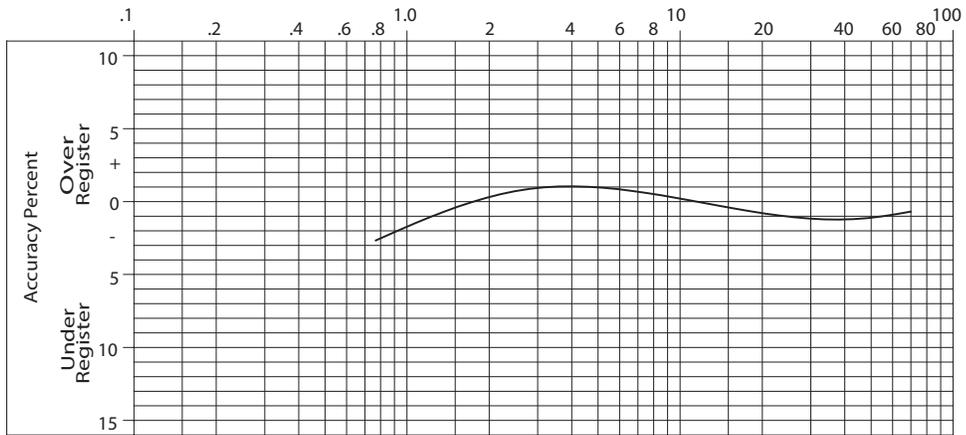


ACCURACY CHARTS (CONTINUED)

Model 55 1 in.



Model 70 1 in.



Making Water Visible®

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Badger Meter

Recordall® Disc Meters

Lead-Free Bronze Alloy Models 120 & 170, Sizes 1-1/2" (40 mm) & 2" (50 mm), NSF/ANSI Standards 61 and 372 Certified

DESCRIPTION

The Recordall Models 120 and 170 Disc Series meters meet or exceed the most recent revision of AWWA Standard C700 and are available in a lead-free bronze alloy. Both meters comply with the lead-free provisions of the Safe Drinking Water Act, are certified to NSF/ANSI Standards 61 and 372 (Trade Designations: M120-LL and M170LL) and carry the NSF-61 mark on the housing. All components of the lead-free bronze alloy meter (housing, measuring element, seals, and so on) comprise the certified system.

Applications: For use in measurement of potable cold water in residential, commercial and industrial services where flow is in one direction only.

Operation: Water flows through the meter's strainer and into the measuring chamber where it causes the disc to nutate. The disc, which moves freely, nutates on its own ball, guided by a thrust roller. A drive magnet transmits the motion of the disc to a follower magnet located within the permanently sealed register. The follower magnet is connected to the register gear train. The gear train reduces the disc nutations into volume totalization units displayed on the register or encoder face.

Operating Performance: The Recordall Disc Series meters meet or exceed registration accuracy for the low flow rates (95%), normal operating flow rates ($100 \pm 1.5\%$), and maximum continuous operation flow rates as specifically stated in AWWA Standard C700.

Construction: Recordall Disc meter construction, which complies with ANSI/AWWA standard C700, consists of three basic components: meter housing, measuring chamber, and permanently sealed register or encoder. The water meter is available in a lead-free bronze alloy. A corrosion-resistant engineered polymer material is used for the measuring chamber.

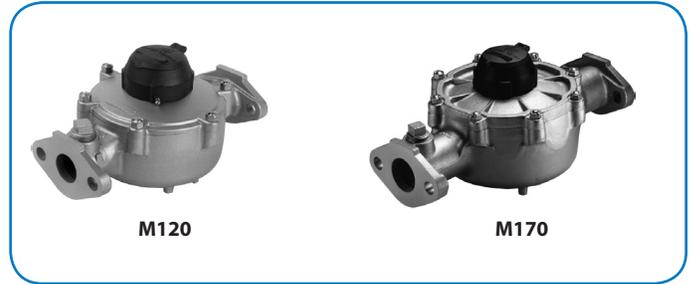
Magnetic Drive: Direct magnetic drive, through the use of high-strength magnets, provides positive, reliable and dependable register coupling for straight-reading or AMR/AMI meter reading options.

Tamper-Proof Features: Unauthorized removal of the register or encoder is inhibited by the option of a tamper detection seal wire screw, TORX® tamper-resistant seal screw or the proprietary tamper-resistant keyed seal screw. Each can be installed at the meter site or at the factory.

Maintenance: Badger Meter Recordall Disc Series meters are designed and manufactured to provide long-term service with minimal maintenance. When maintenance is required, it can be performed easily either at the meter installation or at any other convenient location.

To simplify maintenance, the register, measuring chamber, and strainer can be replaced without removing the meter housing from the installation. No change gears are required for accuracy calibration. Interchangeability of parts among like-sized meters minimizes spare parts inventory investment. The built-in strainer has an effective straining area of twice the inlet size.

Connections: Companion flanges in cast iron or NL bronze are available as options. Straight connection sets are available in NL bronze.



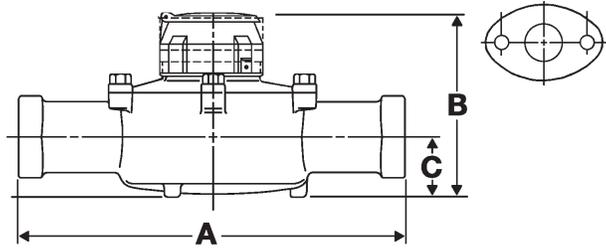
SPECIFICATIONS

Meter Model	M120	M170
Typical Operating Range (100% ± 1.5%)	2.5...120 gpm (0.57...27 m ³ /hr)	2.5...170 gpm (0.57...39 m ³ /hr)
Low Flow (Min. 95%)	1.25 gpm (0.28 m ³ /hr)	1.5 gpm (0.34 m ³ /hr)
Maximum Continuous Operation	80 gpm (18 m ³ /hr)	100 gpm (23 m ³ /hr)
Pressure Loss at Maximum Continuous Operation	4.8 psi at 80 gpm (0.33 bar at 18 m ³ /hr)	3.3 psi at 100 gpm (0.23 bar at 23 m ³ /hr)
Maximum Operating Temperature	80° F (26° C)	80° F (26° C)
Maximum Operating Pressure	150 psi (10 bar)	150 psi (10 bar)
Measuring Element	Nutating disc, positive displacement	Nutating disc, positive displacement
Meter Connections	1-1/2" AWWA two-bolt elliptical flange, drilled or 1-1/2...11-1/2 NPT internal pipe threads	2" AWWA two-bolt elliptical flange, drilled or 2...11-1/2 NPT internal pipe threads
Test Plugs	Optional 1" NPT test plug (TP)	Optional 1" NPT test plug (TP)

Materials

Meter Housing	Lead-free bronze alloy
Housing Top Plates	Lead-free bronze alloy
Measuring Chamber	Engineered polymer
Disc	Engineered polymer
Trim	Stainless steel
Strainer	Engineered polymer
Disc Spindle	Stainless steel
Magnet	Ceramic
Magnet Spindle	Stainless steel
Register Lid and Shroud	Engineered polymer, bronze

DIMENSIONS



Meter Size	Meter Model	A Laying Length	B Height Reg./RTR	C Centerline Base	Width	Approx. Shipping Weight
1-1/2" (40 mm)	120 EL, Hex 120 EL, TP	12-5/8" (321 mm)	7" (178 mm)	2-3/8" (60 mm)	8-3/4" (222 mm)	19 lb (8.6 kg)
1-1/2" (40 mm)	120 ELL 120 ELL, TP	13" (330 mm)	7" (178 mm)	2-3/8" (60 mm)	8-3/4" (222 mm)	19 lb (8.6 kg)
2" (50 mm)	170 EL, Hex 170 EL, TP	15-1/4" (387 mm)	8" (203 mm)	2-7/8" (73 mm)	9-1/2" (241 mm)	30 lb (13.6 kg)
2" (50 mm)	170 ELL 170 ELL, TP	17" (432 mm)	8" (203 mm)	2-7/8" (73 mm)	9-1/2" (241 mm)	30 lb (13.6 kg)

EL = Elliptical

ELL = Elliptical Long

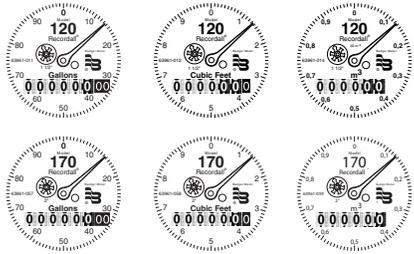
Hex = Hexagon, 1-1/2...11-1/2" NPT Thread

TP=Test Plug 1"

REGISTERS / ENCODERS

Standard—Sweep-Hand Registration

The standard register is a straight-reading, permanently sealed magnetic drive register. Dirt, moisture, tampering and lens fogging problems are eliminated. The register has a six-odometer wheel totalization display, 360° test circle with center sweep hand, and flow finder to detect leaks. Register gearing is made of self-lubricating engineered polymer, which minimizes friction and provides long life. The multi-position register simplifies meter installation and reading. The register capacity is 10,000,000 gallons (1,000,000 ft³, 100,000 m³).



Meter Model	Gallon	Cubic Feet	Cubic Meter
120	100	10	1/0.1
170	100	10	1

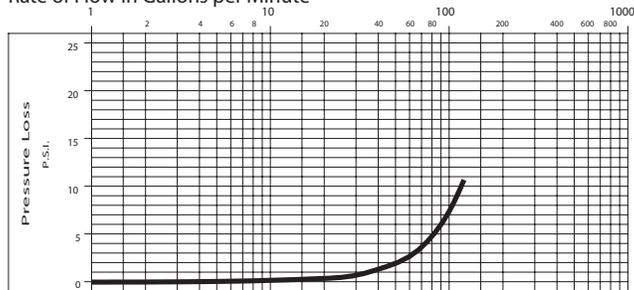
Optional—Encoders for AMR/AMI Reading Solutions

AMR/AMI solutions are available for all Recordall Disc Series meters. All reading options can be removed from the meter without disrupting water service. Badger Meter encoders provide years of reliable, accurate readings for a variety of applications and are also available pre-wired to Badger Meter approved AMR/AMI solutions. See details at www.badgermeter.com.

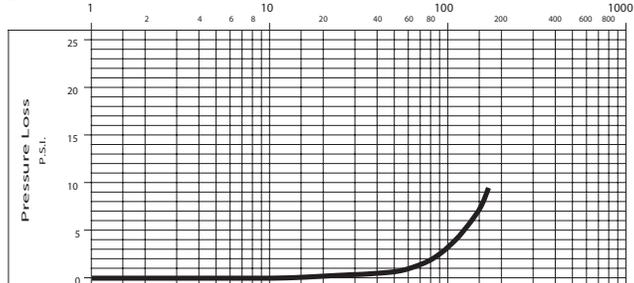
PRESSURE LOSS CHARTS

1-1/2" Meter

Rate of Flow in Gallons per Minute



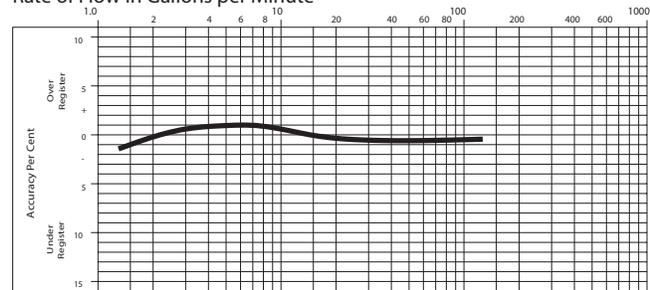
2" Meter



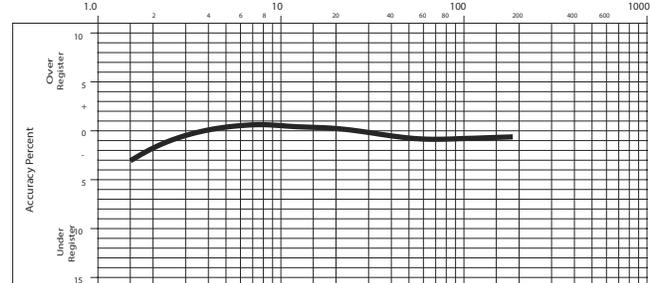
ACCURACY CHARTS

1-1/2" Meter

Rate of Flow in Gallons per Minute



2" Meter



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Legacy Document Numbers: RDM-DS-00071-EN and RDM-DS-00072-EN



Badger Meter

Recordall® Turbo Series Meters

Models 160 (1-1/2 in.), 200 (2 in.), 450 (3 in.), 1000 (4 in.), 2000 (6 in.), 3500 (8 in.), 5500 (10 in.) and 6200 (12 in.)
NSF/ANSI Standards 61 and 372 Certified

DESCRIPTION

Recordall Turbo Series meters meet or exceed the most recent revision of AWWA Standard C701 Class II Standards and are available in a lead-free bronze alloy for sizes 1-1/2 in. through 10 in. and cast iron for 12 in. meters. Turbo Series meters comply with the lead-free provisions of the Safe Drinking Water Act. Sizes 1-1/2 in. through 10 in. meters are also certified to NSF/ANSI Standards 61 and 372 (Trade Designation: Turbo Series LL-NS) and carry the NSF-61 mark on the housing. All components of the lead-free alloy meter (housing, measuring element, seals and so on) comprise the certified system.

Models 160 through 6200 are designed for 1-1/2 in. through 12 in. applications. These meters feature:

- Direct coupled turbine based on an exclusive “floating rotor” design that reduces bearing friction—and associated wear and tear.
- Low pressure loss for improved system efficiency.
- Exceptional registration accuracy across low flow rate, normal operating flow rate and maximum continuous operation flow.
- Permanently sealed, tamper-resistant register or encoder.
- Integral strainer helps protect your system from damaging debris and related downtime. Integral strainer is standard on 1-1/2 in. meter, and optional on 2 in. through 4 in. meters.
- Meters and encoders are compatible with Badger Meter AMR/AMI meter reading systems and other approved reading technologies.

Applications: Recordall Turbo Series meters are designed for cold water, commercial and industrial applications where flows are consistent medium to high flows. Applications include hotels, apartment buildings, irrigations centers and manufacturing and processing plants. Turbo Series meters help reduce day-to-day maintenance costs while delivering accurate and efficient performance.

Operation & Performance: Direct magnetic drive is achieved when the magnet carrier is driven by a gear train coupled to the rotor. The gear train consists of two sets of gears connected by a vertical transmission shaft. One gear set is at the magnet carrier, the other is a worm gear set at the rotor shaft. When water flows into the Turbo Series meter measuring element, it contacts the multi-vaned rotor. The resulting rotor rotation is then transmitted by magnetic coupling to a sealed register or encoder. The direct magnetic drive is built to provide a reliable meter-to-registration coupling.



Tamper-Proof Features: Unauthorized removal of the register or encoder is inhibited by the option of a tamper detection seal wire screw, TORX® tamper-resistant seal screw or the proprietary tamper-resistant keyed seal screw. Each can be installed at the meter site or at the factory.

Construction: The Recordall Turbo Series meter is constructed in compliance with ANSI and AWWA C701 standards. It consists of the following basic components: meter housing, interchangeable, unitized measuring element and permanently sealed direct reading registers or encoders.

The measuring element consists of the transmission coupling, rotor, inlet and outlet straightening vanes with nose cones, and calibration ring assembly. The unique inlet and outlet straightening vanes minimize swirl from piping arrangements upstream as well as downstream.

A strainer is recommended to help ensure optimal flow conditioning and protection for the measuring element. The integral strainer is standard on the 1-1/2 in. meter and an available option on the 2 in. through 4 in. meters. The stainless steel strainer is built into the inlet end and includes a removable cover plate to permit easy access for routine cleaning. External strainers are available in sizes 2 in. through 12 in.

To simplify maintenance, the registers or encoders and measuring elements can be removed without removing the meter housing. Interchangeability of certain parts between meters also minimizes spare parts inventory investment.

Meter Installation: The meter is designed for installations where flow is in one direction only. Companion flanges for installation of meters on various pipe types and sizes are available in cast iron or NL bronze as an option. See the *Recordall Turbo Series Meters User Manual* available at www.badgermeter.com for specific instructions.

SPECIFICATIONS

Turbo Series Model	160 1-1/2 in. (40 mm)	200 2 in. (50 mm)	450 3 in. (80 mm)	1000 4 in. (100 mm)	2000 6 in. (150 mm)	3500 8 in. (200 mm)	5500 10 in. (250 mm)	6200 12 in. (300 mm)
Meter Flanges AWWA 125 Pound Class	Elliptical	Elliptical or Round	Round	Round	Round	Round	Round	Round AWWA 125 lb class
Typical Operating Range (100% ± 1.5%)	4...200 gpm (0.9...45.4 m ³ /h)	4...310 gpm (0.9...70.4 m ³ /h)	5...550 gpm (1.1...124.9 m ³ /h)	10...1250 gpm (2.3...284 m ³ /hr)	20...2500 gpm (4.5...568 m ³ /h)	30...4500 gpm (6.8...1022 m ³ /h)	50...7000 gpm (11.4...1590 m ³ /h)	90...8800 gpm (20.5...1998 m ³ /h)
Typical Low Flow (95% min.)	2.5 gpm (0.6 m ³ /h)	2.5 gpm (0.6 m ³ /h)	4 gpm (0.9 m ³ /h)	6 gpm (1.4 m ³ /h)	12 gpm (2.7 m ³ /h)	20 gpm (4.5 m ³ /h)	30 gpm (6.8 m ³ /h)	65 gpm (14.8 m ³ /h)
Max. Continuous Flow	160 gpm (36 m ³ /h)	200 gpm (45.4 m ³ /h)	450 gpm (102.2 m ³ /h)	1000 gpm (227.1 m ³ /h)	2000 gpm (454 m ³ /h)	3500 gpm (795 m ³ /h)	5500 gpm (1250 m ³ /h)	6200 gpm (1408 m ³ /h)
Maximum Intermittent Flow	200 gpm (45.4 m ³ /h)	310 gpm (70.4 m ³ /h)	550 gpm (124.9 m ³ /h)	1250 gpm (284 m ³ /h)	2500 gpm (568 m ³ /h)	4500 gpm (1022 m ³ /h)	7000 gpm (1590 m ³ /h)	8800 gpm (1988 m ³ /h)
Pressure Loss at Max. Continuous Flow	3.8 psi (0.26 bar)	3.1 psi (0.21 bar)	1.8 psi (0.12 bar)	7.3 psi (0.50 bar)	4.8 psi (0.33 bar)	2.5 psi (0.17 bar)	1.6 psi (0.11 bar)	0.8 psi (0.05 bar)
Pressure Loss at Max. Continuous Flow: With Integral Strainer	9.9 psi (0.68 bar)	8.3 psi (0.57 bar)	5 psi (0.43 bar)	17.8 psi (1.2 bar)	—			
Max. Operating Pressure	150 psi (10 bar)							
Max. Operating Temperature	120° F (49° C)							
Integral Strainer	Optional on 2 in. through 4 in. meters. Built into inlet end. Removable cover plate permits access to strainer for cleaning.				—			
Optional External Strainer	—	Available for Models 200, 450, 1000, 2000, 3500, 5500 and 6200.						
Test Plug	Standard with integral strainer; optional for other models.				Optional for Models 2000 and 3500.		—	

MATERIALS

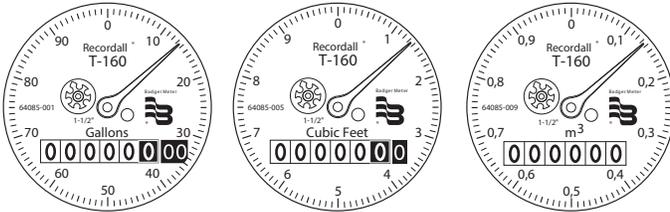
Meter Housing	Lead-free alloy (EXCEPTION: Model 6200 meter housing is blue epoxy-coated cast iron)
Turbo Head	Lead-free alloy
Nose Cone & Straightening Vanes	Thermoplastic
Rotor	Thermoplastic
Rotor Radial Bearings	Lubricated thermoplastic
Rotor Thruster Bearing	Sapphire jewels
Rotor Bearing Pivots	Passivated 316 stainless steel
Calibration Mechanism	Stainless steel & thermoplastic
Magnet	Ceramic
Trim	Stainless steel
Register Housing & Cover	Thermoplastic or bronze
Integral Strainer & Trim	Stainless steel

REGISTERS / ENCODERS

Standard—Sweep-Hand Registration

The standard register is a straight-reading, permanently sealed magnetic drive register. Dirt, moisture, tampering and lens fogging problems are eliminated. The register has a six-odometer wheel totalization display, 360° test circle with center sweep hand, and flow finder to detect leaks. Register gearing is made of self-lubricating engineered polymer, which minimizes friction and provides long life. The multi-position register simplifies meter installation and reading. The register capacity for the 1-1/2 in., 2 in., 3 in. and 4 in. meters is 100,000,000 gallons (10,000,000 ft³, 1,000,000 m³). The register capacity for the 6 in., 8 in., and 10 in. meters is 1,000,000,000 gallons (100,000,000 ft³, 10,000,000 m³). The high-flow register capacity for the 12 in. meter is 10,000,000,000 gallons (1,000,000,000 ft³, 10,000,000 m³).

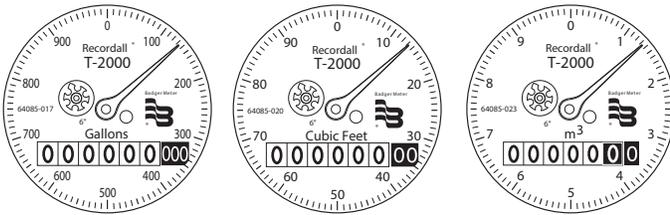
Registers for 1-1/2 in., 2 in., 3 in. and 4 in. Meters



Sweep Hand Revolution

Meter Model	Gallon	Cubic Feet	Cubic Meter
160	100	10	1
200	100	10	1
450	100	10	1
1000	100	10	1

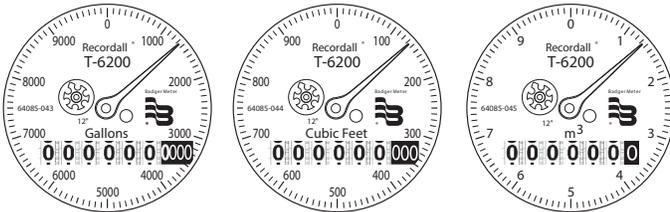
Registers for 6 in., 8 in. and 10 in. Meters



Sweep Hand Revolution

Meter Model	Gallon	Cubic Feet	Cubic Meter
2000	1000	100	10
3500	1000	100	10
5500	1000	100	10

Registers for 12 in. Meters



Sweep Hand Revolution

Meter Model	Gallon	Cubic Feet	Cubic Meter
6200	10000	1000	10

Optional—Encoders for AMR/AMI Reading Solutions

AMR/AMI solutions are available for all Recordall Disc Series meters. All reading options can be removed from the meter without disrupting water service. Badger Meter encoders provide years of reliable, accurate readings for a variety of applications and are also available pre-wired to Badger Meter approved AMR/AMI solutions. See details at www.badgermeter.com.

PHYSICAL DIMENSIONS OF METERS WITHOUT STRAINER

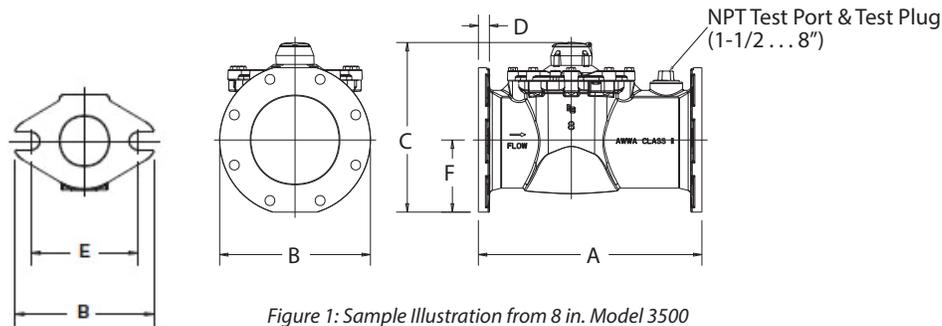


Figure 1: Sample Illustration from 8 in. Model 3500

Turbo Series Model	200	200	450	1000	2000	3500	5500	6200
Meter Flanges	2 in. Elliptical	2 in. Round	3 in. Round	4 in. Round	6 in. Round	8 in. Round	10 in. Round	12 in. Round
Meter & Pipe Size	2 in. (50 mm)	2 in. (50 mm)	3 in. (80 mm)	4 in. (100 mm)	6 in. (150 mm)	8 in. (200 mm)	10 in. (250 mm)	12 in. (300 mm)
Net Weight	14.9 lb (6.8 kg)	17.4 lb (7.9 kg)	31 lb (14.1 kg)	40 lb (18.1 kg)	77 lb (35 kg)	123 lb (55.7 kg)	210 lb (95.3 kg)	262 lb (118.8 kg)
Shipping Weight	16.4 lb (7.4 kg)	18.9 lb (8.6 kg)	34 lb (15.4 kg)	45 lb (20.4 kg)	89 lb (40.4 kg)	147 lb (66.6 kg)	235 lb (106.6 kg)	286 lb (129.7 kg)
Qty. of Bolts	2	4	4	8	8	8	12	12
NPT Test Port & Test Plug (optional)	1-1/2 in. (40 mm)	1-1/2 in. (40 mm)	2 in. (50 mm)	2 in. (50 mm)	2 in. (50 mm)	2 in. (50 mm)	—	—
Length (A)	10 in. (254 mm)	10 in. (254 mm)	12 in. (305 mm)	14 in. (356 mm)	18 in. (457 mm)	20 in. (508 mm)	26 in. (660.4 mm)	19-11/16 in. (500 mm)
Width (B)	5-27/32 in. (148 mm)	6 in. (152 mm)	7-1/2 in. (191 mm)	9 in. (229 mm)	11 in. (280 mm)	13-1/2 in. (343 mm)	16 in. (406.4 mm)	19 in. (482 mm)
Height (C)	6-1/2 in. (165 mm)	7-3/32 in. (180 mm)	8-11/16 in. (220 mm)	9-21/32 in. (245 mm)	13-5/16 in. (338 mm)	15-3/16 in. (385 mm)	17-15/32 in. (443 mm)	19-11/16 in. (500 mm)
Flange (D)	25/32 in. (20 mm)	5/8 in. (16 mm)	3/4 in. (19 mm)	13/16 in. (21 mm)	7/8 in. (22 mm)	1 in. (25 mm)	1-1/16 in. (27 mm)	1.26 in. (32 mm)
Bolt Circle (E)	4-1/2 in. (114 mm)	4-3/4 in. (121 mm)	6 in. (152 mm)	7-1/2 in. (191 mm)	9-1/2 in. (241 mm)	11-3/4 in. (298 mm)	14-1/4 in. (362 mm)	17 in. (432 mm)
Centerline (F)	2-1/16 in. (52 mm)	2-5/8 in. (67 mm)	3-11/32 in. (85 mm)	4-5/16 in. (109 mm)	5-1/4 in. (133 mm)	6-3/8 in. (162 mm)	7-7/8 in. (199.4 mm)	8-7/8 in. (226 mm)

PHYSICAL DIMENSIONS OF METERS WITH INTEGRAL STRAINER

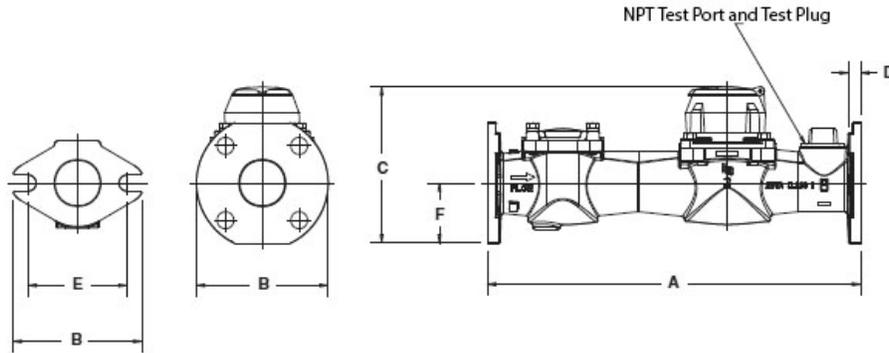
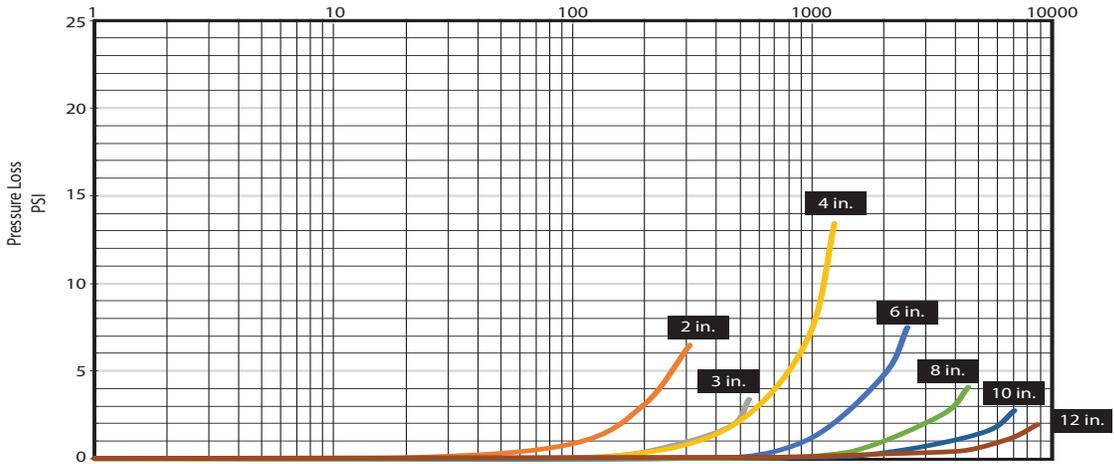


Figure 2: Physical dimensions

Turbo Series Model	160	200	200	450	1000
Meter Flanges	Elliptical	Elliptical	Round	Round	Round
Meter & Pipe Size	1-1/2 in. (40 mm)	2 in. (50 mm)	2 in. (50 mm)	3 in. (80 mm)	4 in. (100 mm)
Net Weight	14.3 lb (6.5 kg)	24 lb (11 kg)	26 lb (12 kg)	49 lb (22 kg)	60 lb (27.22 kg)
Shipping Weight	16.8 lb (7.6 kg)	28 lb (13 kg)	30 lb (14 kg)	55 lb (25 kg)	70 lb (31.75 kg)
Number of Bolts	2	2	4	4	8
NPT Test Port & Test Plug (Standard)	1 in. (25.4 mm)	1-1/2 in. (40 mm)	1-1/2 in. (40 mm)	2 in. (50 mm)	2 in. (50 mm)
Length (A)	13 in. (330 mm)	17 in. (432 mm)	17 in. (432 mm)	19 in. (483 mm)	23 in. (584 mm)
Width (B)	5-7/32 in. (133 mm)	5-27/32 in. (148 mm)	6 in. (152 mm)	7-1/2 in. (191 mm)	9 in. (229 mm)
Height (C)	6-9/32 in. (159 mm)	6-1/2 in. (165 mm)	7-3/32 in. (180 mm)	8-15/16 in. (227 mm)	9-21/32 in. (245 mm)
Flange (D)	51/64 in. (20 mm)	27/32 in. (47 mm)	5/8 in. (16 mm)	27/32 in. (21 mm)	13/16 in. (21 mm)
Bolt Circle (E)	4 in. (102 mm)	4-1/2 in. (114 mm)	4-3/4 in. (121 mm)	6 in. (152 mm)	7-1/2 in. (191 mm)
Centerline (F)	1-27/32 in. (47 mm)	2-1/16 in. (52 mm)	2-5/8 in. (67 mm)	3-19/32 in. (91 mm)	4-5/16 in. (109 mm)

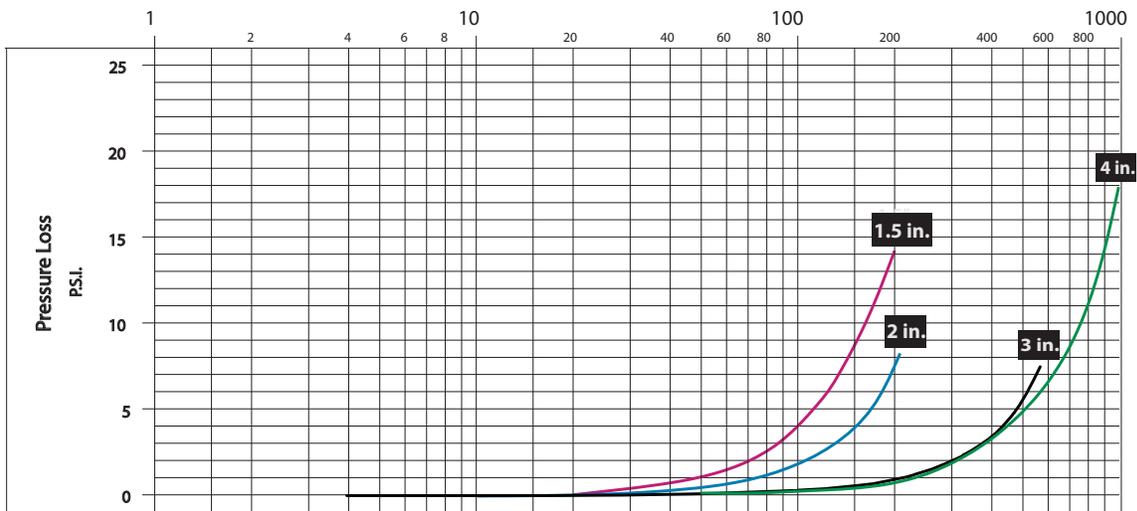
PRESSURE LOSS CHART FOR METERS WITHOUT STRAINER

Rate of flow in gallons per minute (gpm)



PRESSURE LOSS CHART FOR METERS WITH INTEGRAL STRAINER

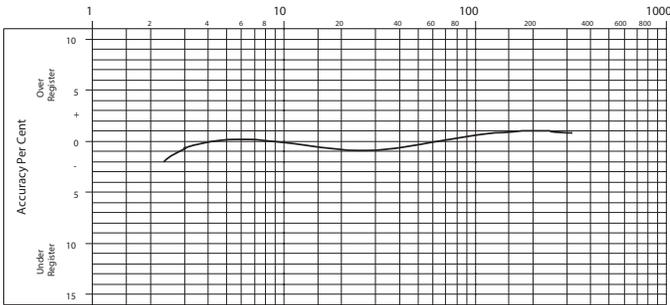
Rate of flow in gallons per minute (gpm)



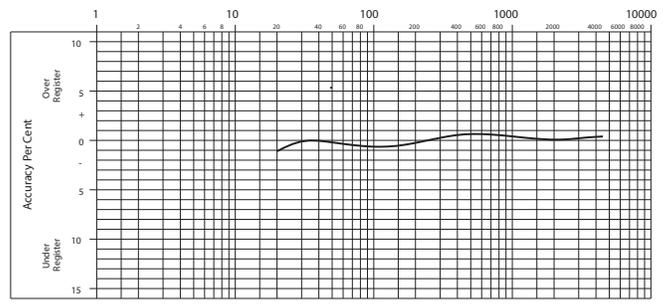
ACCURACY CHARTS FOR METERS WITHOUT STRAINER

Rate of flow in gallons per minute (gpm)

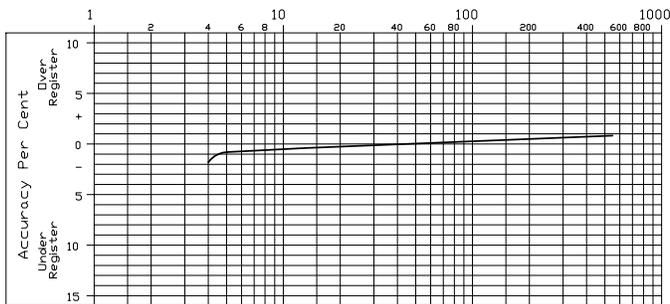
2 in. Meter



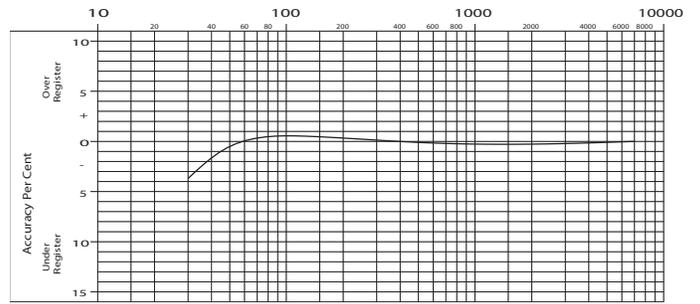
8 in. Meter



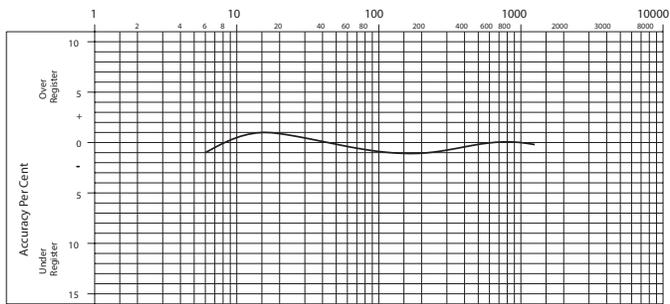
3 in. Meter



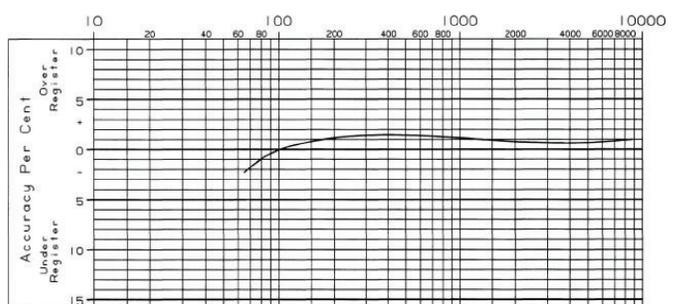
10 in. Meter



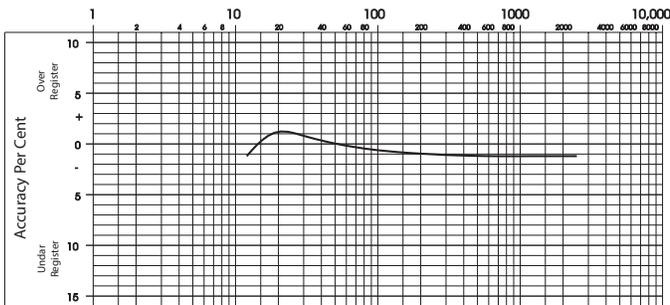
4 in. Meter



12 in. Meter



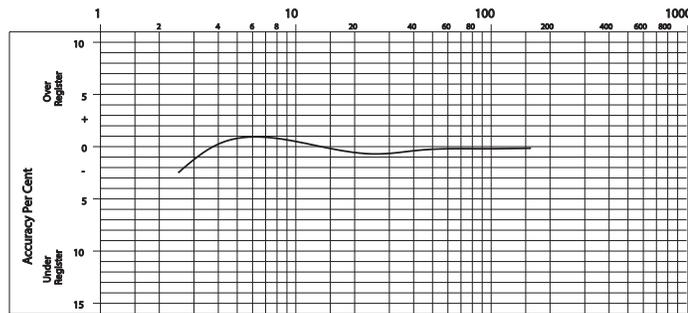
6 in. Meter



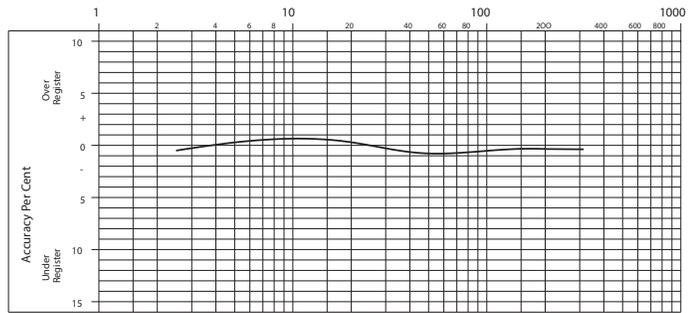
ACCURACY CHARTS FOR METERS WITH INTEGRAL STRAINER

Rate of flow in gallons per minute (gpm)

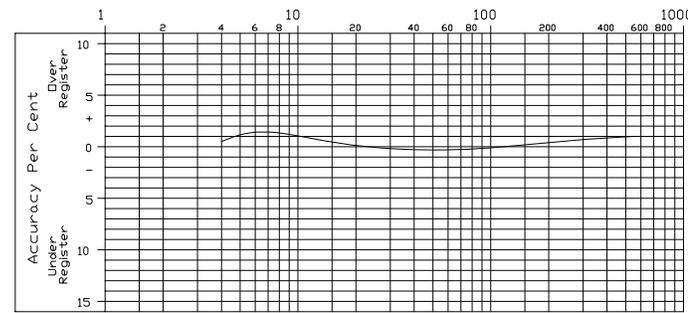
1-1/2 in. Meter



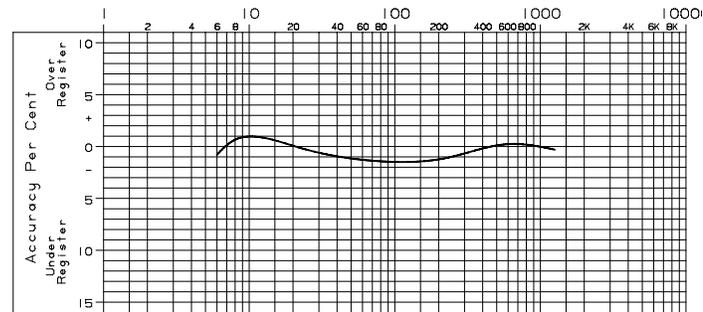
2 in. Meter



3 in. Meter



4 in. Meter



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Legacy Document Numbers: RTS-T-1-1/2, 3, 4, 6, 8, 10 and 12; RTS-T-1-1-1/2, 2, 3, and 4

AMI SYSTEM COMPONENT DATASHEETS



Aclara RF 3400 Water MTU

On-Demand Meter Transmission Unit



The new 3400 On-Demand Meter Transmission Unit (MTU) for water uses the efficient, low-power, high performance two-way Aclara RF Network technology to transmit hourly, interval usage data to the utility. The MTU supports up to nine-digit registers and delivers time-stamped reads on a time-synchronized network, allowing for advanced water distribution management. Enhanced features such as on-demand reads, firmware over the air, on-board storage of readings, market leading security, meter-generated alarms and flags and remote shut-off valve control bring market-leading AMI capabilities to the Aclara RF Network.

OVERVIEW

Hourly, time-stamped reads from Aclara MTUs virtually eliminate estimated billing and errors, provide detailed water usage information, improve revenue management, and reduce customer service calls.

The 3400 family takes full advantage of the Aclara RF two-way network with enhanced features such as on-demand reads and firmware downloads over the air. Full market leading security – including AES 256 bit encryption - ensures that customer data is secure.

FEATURES AND BENEFITS

- Detailed, hourly, time-stamped reads provide water consumption data for accurate billing and identifying anomalies such as leaks and meter tampering
- The MTU transmits up to nine digits of meter-reading data guaranteeing the most accurate meter reads
- Use of FCC licensed 450- to 470-MHz radio frequencies improves propagation and reduces interference with other devices
- On-demand reads give utilities complete control over access to consumption data
- Two-way fixed network allows utilities to remotely update MTU configurations and push firmware upgrades
- Flexible installation configurations to fit all meter locations
- Time synchronization ensures a complete system read snapshot at a single point in time to reconcile the amount of water entering the system to the billable water consumed
- Redundant readings transmissions and collection paths assures the highest read success rate in the industry
- Battery powered MTUs and collectors means readings and collections continue even during power outages. Stored readings in the DCU are automatically uploaded to the head-end when power is restored, while readings stored in the MTU can be remotely recovered by request
- A 20-year lithium-ion battery offers long-lasting performance
- Market leading security for all communications including AES 256 encryption and authentication
- Optional remote shutoff valve controlled over the network eliminates truck rolls and simplifies turn-on/turn-offs
- Gain more insight into conditions at the meter through support for enhanced meter flags and alarms

Aclara RF 3400 Water MTU

On-Demand Meter Transmission Unit

MTU SPECIFICATIONS

Network type	Two-way ¹
Transmit/receive frequency	450-470 MHz (FCC licensed)
Installation locations	Interior or exterior wall mount, pit/vault, remote antenna through-the-lid ²
Scheduled read interval	Hourly top-of-the-hour readings (default, configurable)
Scheduled transmit interval	Four times per day (default, configurable)
Security	AES 256 encryption and authentication
Inputs	Single or dual port
On-board storage	96 days of hourly readings and alarms – per port
Connection to register	Bare wire (splice), or industry-standard connectors
Remote shut-off	Open, close, partially closed – controlled from head-end software ³
Battery life	20 years ^{4, 5, 7}
End point to end point synchronization	< 1 min
Physical characteristics	6.38”w x 4.25”h x 1.44”d; 1 lb; color: gray
Operating temperature	-40°C to +70°C
Operating humidity	0%-100% non-condensing
Storage temperature	-40°C to +85°C
Approvals	FCC part 90; Industry Canada RSS-119
Warranty	20 years ^{6, 7}
Meter compatibility	All major manufacturers of water meters
Meter flags	Supports extended flags and alarms from multiple meter manufacturers ⁸
Network topology	Network (point to multi-point)
Network compatibility	Aclara DCU II
Meter interface	Pulse or encoder
Data resolution	4–9 digits ⁹

¹Two-way communication for time synchronization, remote configuration, on-demand reads, historical data log retrieval, valve control, and firmware over the air downloads

²Pit/vault installation under non-metallic lid, or under metallic lid using through-the-lid remote antenna

³Contact factory for specific valves supported

⁴Battery life is stated at default settings

⁵Standard range MTU model

⁶Refer to Aclara standard warranty for details

⁷Battery life warranty invalid if MTU stored more than 1 year before installation and activation

⁸Contact factory for specific meters and flags/alarms supported

⁹Reports all digits that are electronically available from register

Specifications are subject to change without notice.

Aclara RF Network Data Collector Unit II (DCU)



The Aclara RF Network Data Collector Unit II (DCU) for water and gas utilities enhances your AMI network by providing reliable and flexible, two-way communications for water and gas meters.

THE BACKBONE OF AN AMI NETWORK

The Aclara RF Network DCU II is the backbone of an AMI network, communicating to meter transmission units (MTUs) over individually FCC licensed 450 to 470 MHz radio frequencies, and to the Aclara RF Network head-end software using a network backhaul of choice. The device communicates over cellular, fiber-optic, Ethernet, Wi-Fi, and WiMAX on public or private networks.

FEATURES AND BENEFITS

- Network design is redundant, ensuring the 98.5% or better read-rate required for billing accuracy
- DCUs are tuned to a unique frequency, minimizing external interference from other sources
- Point-to-multipoint design does not require add-on repeaters or similar devices
- Message encryption, passphrase for DCU console access and DCU door access and tamper notifications offer multiple levels of security
- The DCU transmits meter reads and alarms data to the utility and sends commands back to the MTUs
- Detailed diagnostic data for calls, alarms, system redundancy, location, battery charging current and temperature allows utilities to maintain total control over their system
- Remote firmware upgrades for ease of network management
- Priority reporting of error conditions, data-collector door access, and tamper notifications guarantee that data is accurate and secure
- On-board battery can sustain full operation for up to 8 days during power outages
- Power save mode and memory data retention protects important data indefinitely
- Flexible installation using either solar or AC power to maintain DCU batteries
- DCU stores up to 28 days of hourly MTU reads in the case of a backhaul failure. Stored data is automatically uploaded when the backhaul is restored
- Rugged, weatherproof design installs on poles, rooftops, buildings, or water towers

Aclara RF Network Data Collector Unit II (DCU)

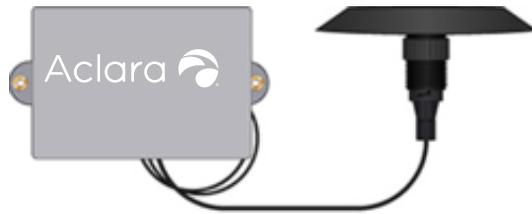
DCU SPECIFICATIONS

External enclosure:	316 stainless steel, NEMA 3R
Internal electronics enclosure:	NEMA 4X
Dimensions:	22"h x 14"w x 8.25"d
DCU weight:	55 lbs.
Nominal voltage:	12VDC
Power consumption:	5 watts average
Approval	FCC Part 15 and 90, Industry Canada RSS-119
Seismic	Zone 4
Operating temperature	-40oC to +70oC
Storage temperature:	-40oC to +85oC
Battery:	Nominal power: 12 volts; capacity: 28 A-h
Antenna:	Two 38.4" antennas spaced 48" apart; weight: 10 lbs. 31.3"h x 26.5"w x 2"d; weight: 28 lbs.
Solar Panel Option:	Power output: 65 or 100 watts; nominal power: 12 volts
Cellular Technology:	LTE



Aclara RF Network

Through-the-Lid Antenna



Aclara's through-the-lid antenna lets you install Aclara Meter Transmission Units (MTUs) while retaining metal pit lids. Our flexible install options mean our MTUs will work whether you reuse current metal lids or replace them with RF-permeable ones.

OVERVIEW

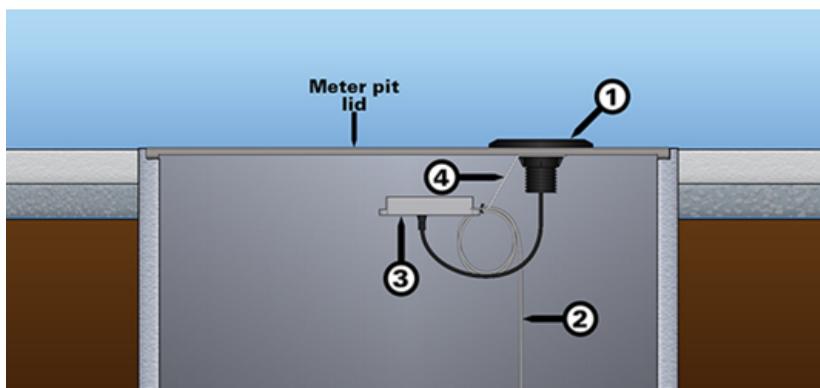
Aclara's through-the-lid antenna adds a remote antenna capability to your MTU install options. With a high-performing, 450-470 MHz antenna mounted on top of a metal lid (meter pit, vault, etc.) and a signal cable passing through the lid to the MTU mounted below, RF propagation is no longer a concern when a metal lid cannot be replaced. A variety of mounting brackets gives you flexibility as to where to mount the MTU below the lid. Multiple bracket styles mount on the antenna stem and are held in place by the antenna nut to let the MTU be mounted to the lid as a single package.

FEATURES AND BENEFITS

- Gives ultimate flexibility in MTU deployment
- Installs easily through an industry-standard 1 3/4" hole in the lid
- Integrates seamlessly to the RF network
- Provides the highest read rates in the industry
- Allows reuse of current metal lids
- Complies with Americans with Disabilities Act requirements



THROUGH THE LID ANTENNA CONFIGURATION



REFERENCES:

1. Antenna
2. MTU to meter coupler or register cable
3. MTU
4. MTU mounting bracket (optional)



Aclara RF Network

Through-the-Lid Antenna

SPECIFICATIONS

- MTU compatibility Single or dual port, standard and extended range MTU with remote antenna connector
- Hazard rating ADA compliant
- Ingress protection rating IP67
- Lid thickness ¼" to 2"
- Lid-hole diameter 1¾ inches
- Antenna diameter 5.82"
- Antenna height 0.48"

Specifications are subject to change without notice.

Aclara RF ZoneScan II

Correlated Acoustic Leak Detection System



Find and fix leaks fast with the Aclara ZoneScan II leak-detection system. The industry's leading, remotely correlated acoustic leak-detection system cost-effectively identifies small leaks before they become major problems, and will give you immediate insight into non-revenue water losses in your water distribution network.

OVERVIEW

The Aclara ZoneScan II system combines acoustic data loggers from Gutermann International with Aclara's advanced RF Network technology to provide fully integrated leak detection through fixed-network advanced metering infrastructure (AMI). Time-synchronized sound recordings are initiated through the ZoneScan II Meter Transmission Unit (MTU), which sends the resulting data back through fixed-network infrastructure to the utility for analysis, presentation, and notification. Web-based application software correlates the data between loggers and provides visual identification of high probability leak locations.

FEATURES AND BENEFITS

- **Pinpoint accuracy:** Identify precise leak locations with correlated, time-synchronized sound recordings
- **Hands-off operation:** Perform automated data collection with minimal attention by operators
- **Added value:** Add leak detection easily to two-way Aclara RF Network AMI systems
- **Software and Analytics:** Intuitive software with built-in leak detection and correlation algorithms identify and display leaks and can push notifications to key personnel
- **Easy Installation:** Fitting in valve stacks, the ZoneScan II endpoint installs quickly in the field and is setup remotely from Aclara's head-end software
- **Rugged and reliable:** Boasting a battery lifetime greater than 8 years and a fully encapsulated design, the ZoneScan II endpoint will operate maintenance free its entire lifetime
- **High Performance:** Excellent RF performance makes the ZoneScan II suitable for adding to any Aclara RF deployment
- **System-wide Correlation:** All MTUs are tightly time synchronized to each other allowing accurate correlation between all MTUs in the system
- **Advanced Diagnostics:** Regular self-diagnostics and health-check reporting keeps the ZoneScan II operating at peak performance and quickly notifies operators of any issues
- **Pipe Material Compatibility:** The ZoneScan II system works with pipes made of a range of materials including metal, concrete, and non-metallic types



Aclara RF ZoneScan II

Correlated Acoustic Leak Detection System

MTU SPECIFICATIONS

Network type	Two-way ¹
Transmit/receive frequency	450-470 MHz (FCC licensed)
Installation locations	Standard valve stacks
Battery life	8 years ^{2,4}
End point to end point synchronization	< 1 millisecond difference
Physical characteristics	2.8" w x 5.5" h x 1.8" d; 1.5 lb; color: black
Operating temperature range	-40°C to +70°C
Operating humidity	0%-100% non-condensing, IP68 rated
Storage temperature range	-40°C to +85°C
Approvals	FCC part 90; Industry Canada RSS-119
Warranty	8 years ^{3,4}
Network topology	Aclara RF Network (point to multi-point)
Network compatibility	Aclara DCU II or better
Software requirements	AclaraONE™ head-end and sensor module

¹Two-way communication for on-demand reads, remote configuration, and firmware over the air

²Battery life is stated at default settings of recordings performed once per day for 12 seconds and transmitted once per day

³Refer to Aclara standard warranty for details

⁴Battery life warranty invalid if MTU stored more than 1 year before installation and activation

Specifications are subject to change without notice.

Visit us at Aclara.com, phone 800 297 2728 or contact us at info@aclara.com and follow us on Twitter @AclaraSolutions.



Mobile Programmer Application and Wireless Field Programming Coil



Aclara water and gas Meter Transmission Units (MTUs) are deployed using the Aclara RF Mobile Programmer app running on iOS, Android or Windows platforms connected to the Wireless Field Programming Coil (puck). The puck's design and accompanying hanger clip allow "hands-free" operation with all Aclara water and gas MTUs as well as Sensor Transmission Units (STUs) for instruments.

OVERVIEW

The Mobile Programmer app is built around easy to understand commands and common-sense programming steps. The app and programming puck allows the operator to confirm correct connectivity to both the endpoint and the Data Collector Unit (DCU) network, as well as assure the collected meter reading matches the meter index dials. Adding or replacing MTUs or meters are simple functions that are also included.

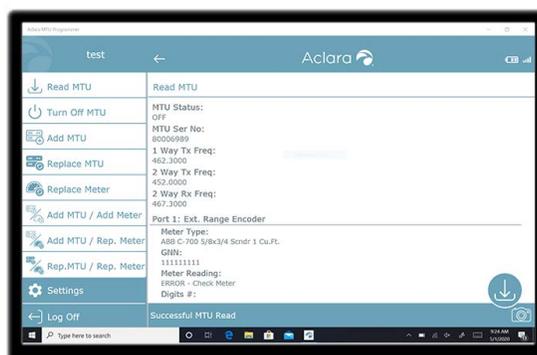
Third party Work Order Management Software (WOMS) can be supported in scripted mode.



Initial Screen



Main Menu



Windows Read MTU Screen

Mobile Programmer Application and Wireless Field Programming Coil



MOBILE PROGRAMMER APPLICATION AND WIRELESS FIELD PROGRAMMING COIL

Dimensions	1.875" x 1.6875" x 2.25
Weight	2.2 oz
Drop survival	4 feet
Operating temperature range	-20°C to +60°C
Charging temperature range	-0°C to +45°C
Operating humidity range Storage	35 to 95% noncondensing
humidity range	35 to 95% noncondensing
Ingress protection	IP65
Allowable tilt	Up to +/- 20° from MTU coil axis
Allowable misalignment	Up to +/- 0.5" from MTU coil center

OPERATING SYSTEMS AND HARDWARE

Android

OS	8.1 or later
Bluetooth	4.1 or later
MEM	Minimum 2GB
GPS	Required

IOS

OS	IOS 13 or later
Bluetooth	4.0 or later
MEM	Minimum 2GB
GPS	Required

Windows

OS	Windows 10 version 1809 or later
Bluetooth	4.2 or later
MEM	Minimum 4 GB
GPS	Required

Specifications subject to change without notice.

Visit us at Aclara.com, phone 800 297 2728 or contact us at info@aclara.com and follow us on Twitter @AclaraSolutions.



AclaraONE Software Solutions

One Network for Everyone



To be ready for anything, you need a partner with a wide range of solutions; but not just any solutions. You need that will stay effective for years to come.

Unlock, analyze and apply critical meter and device data with the AclaraONE™ (One Network for Everyone™) platform. With a single, customizable interface for utility personnel, AclaraONE allows you to manage distribution infrastructure, integrate key business processes, optimize operations, improve reliability and position your utility for future success.

OVERVIEW

AclaraONE is a powerful platform that enables Aclara's communications technology and adds comprehensive solutions to transform business operations, increase efficiencies, reduce costs and increase customer satisfaction. Built to provide actionable insights and the situational awareness required to handle growing distribution challenges,

AclaraONE allows gas, water, and electric utilities to securely, reliably, and efficiently operate their distribution networks. From meter to cash, network management, distribution operations, sensors, analytics, and consumer engagement, AclaraONE delivers the broad set of functionalities utilities require to monitor, optimize and improve the operation of their infrastructures under a single platform. Equipped with robust, scalable, next-generation AclaraONE smart infrastructure solution (SIS) software, network operators can react faster and more effectively while improving the technical and economical operation of their distribution grids.

BENEFITS

- **Meter-to-cash** software offers a single, centralized enterprise service featuring consumption-based analytics, billing analytics and a portal and tools for customer service representatives.
- **Network management** functions link securely to critical business systems through a single, centralized head end for gas, water and electric devices on Aclara's RF, powerline communications and cellular networks.
- **Distribution operations** software provides distribution automation capabilities that rapidly shed load during peak periods, pinpoint outages on low-voltage power lines using analysis of meter data, and analyze data from smart grid sensors to detect and locate faults, classify various line disturbances, and monitor power quality across all three phases of medium-voltage distribution networks.
- **Analytics** in AclaraONE allow utilities to extract information from the data they collect from meters and sensors on their distribution networks, providing real-time insights, alerting utilities to events affecting operations and enabling quick response to identified problems.
- The **Aclara Adaptive Consumer Engagement (Aclara ACE®)** solution works with AclaraONE to provide customers with an omnichannel experience and personalized and actionable insights that heighten energy-cost awareness, promote energy and water efficiency, boost utility program enrollment, and increase customer satisfaction scores.



AclaraONE Software Solutions

One Network for Everyone

FEATURES

The AclaraONE platform offer you the software you need to manage distribution operations, sensors, and analytics.

Distribution Operations

- The AclaraONE™ platform offers you the insights and confidence to safely monitor, manage, and control distribution grid assets in the most challenging of circumstances.
- Innovative load control operates the grid at optimum efficiency, and rapidly manages and sheds load during peak periods.
- Distribution automation solutions help you deliver these outcomes by providing standards-based (i.e. DNP3) communications and control to both intelligent electronic devices and older analog devices.
- The Aclara Grid Monitoring platform detects faults and integrates with data historians as well as SCADA, OMS, or DMS systems.

Sensors and Analytics

Our robust, solutions analyze data collected from sensors on your existing gas and water networks and deliver targeted, actionable insights that help you improve operations and maximize customer benefits.

- The Aclara ZoneScan solution collects data from sensors monitoring points located throughout the water distribution system and correlates it at your office, providing visual identification of probable leak locations.
- Non-revenue water loss, conservation and customer service challenges are solved with Aclara's suite of software and water analytics.
- Sanitary sewer overflow (SSO) solution alerts utilities to any potential or actual sanitary sewer overflow, which can send contaminated water onto streets or into lakes, rivers or streams.
- Pressure Monitoring actively monitors your distribution networks, collecting detailed, accurate and actionable data on water and gas pressures.

Consumer Engagement

The Aclara Adaptive Consumer Engagement (Aclara ACE®) platform offers data-driven tools that will propel your consumer engagement programs for success. Aclara ACE helps utilities engage customers online, on their tablets, or through their mobile devices.

Network Management

AclaraONE performs network management and securely links to critical business systems via a single, centralized head end for gas, water, and electric devices on our RF, power line communications, and cellular networks.

- Installs, recognizes, and administers electric, gas, and water devices and their pairings with Aclara communication modules through a common, easy-to-use interface and user experience.
- Supports secure roles-based access, including single-sign-on, user authentication, and integration with Microsoft Active Directory®.
- Provides over 100 health-alarms and software-generated analytics alerts.

Meter-to-Cash

AclaraONE™ meter-to-cash software provides a single, centralized enterprise service that delivers billing data accuracy. The AclaraONE MDM system supports end-to-end data validation, estimation, and editing (VEE), integrated reads, and billing determinant delivery, providing customer service and network management employees with the tools they need to deliver efficient service.

Aclara ACE[®] Water Solutions

Consumer Engagement



Thanks to the increased prevalence of advanced metering infrastructure (AMI) and other smart infrastructure solutions (SIS) as well as the evolving demands of the utility consumer, an effective consumer engagement (CE) strategy has become a critical component of a utility's overall service offering for their customers. Without an effective CE strategy in place, utilities could fall short of their customers' expectations, thus leading to consequences such as lower customer satisfaction, higher call center volumes, and a higher cost to serve. To respond, utilities require a reliable CE solution that can adapt to their objectives, enabling them to meet their customers' expectations, and position the utility to better serve their customer base.

OVERVIEW

Aclara's Adaptive Consumer Engagement (Aclara ACE[®]) portal was architected at every layer to be flexible and configurable, allowing for our solutions to adapt to each of our utility partner's needs. Whether your utility is focused on bill/cost awareness, utility program adoption, water conservation or AMI data presentment, the Aclara ACE portal can be configured with content that is in direct alignment with you utility's priorities.

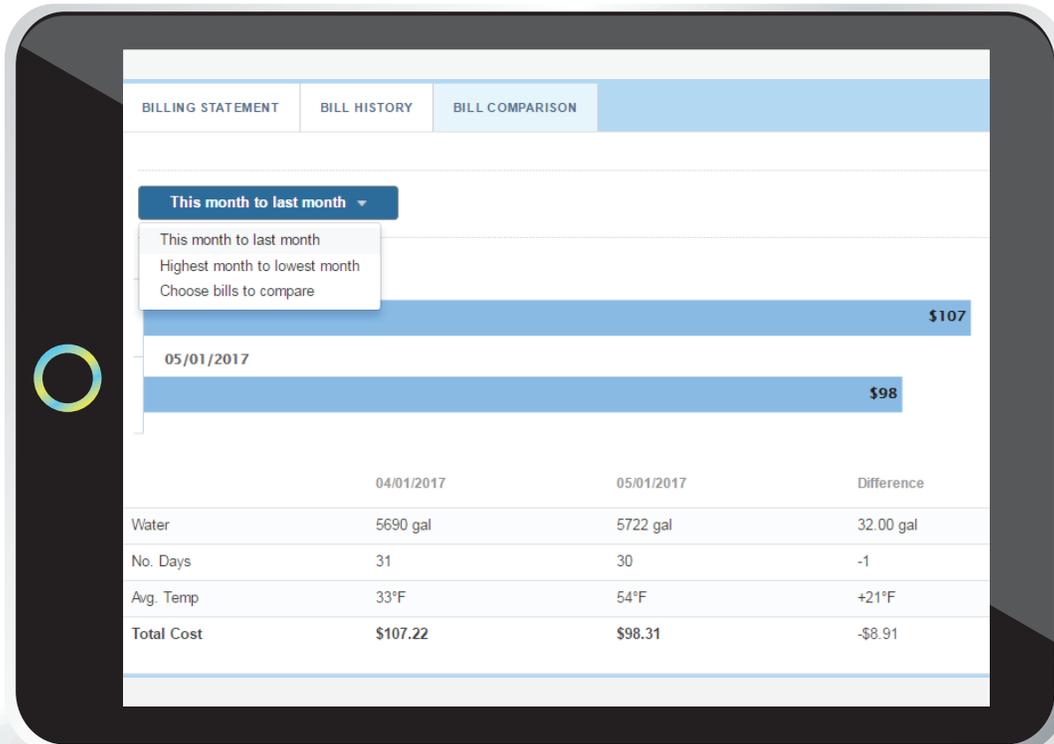
Aclara ACE equips utility customers with personalized content that enables them to better understand their utility bill and changes to their costs (My Bills), transparency into their consumption (My Usage), and tools/information to reduce their overall costs (My Savings). Additionally, our Insights engine generates succinct, direct, and personalized messages for each user that keeps them informed of changes to their costs due to weather or other factors, consumption patterns, and promotion of Ways to Save to help the user control their costs.

BENEFITS

- Have the ability to configure your solution to meet your CE goals.
- Proactively notify customers about leak detection.
- Reduce call center volumes by equipping your customers with the tools and information to self serve.
- Improve customer satisfaction by providing your customers with the transparency into their costs and consumption.
- Drive program adoption by effectively targeting your users with information about utility-sponsored programs that are relevant to that customer.
- Personalize your customers' online experiences through our direct messaging and Insights engine.
- Support your customers by equipping your customer service representatives (CSRs) with a "360° view" of your customers.
- Meet program goals by providing your customers with the tools to heighten cost awareness and adoption of cost-reducing tools.
- Reach your customers on their channel of choice. Aclara's ACE content is available online, on smart phones or tablets, through text messages or e-mail alerts or through mailers.

Aclara ACE[®] Water Solutions

Consumer Engagement



FEATURES

- **My Bills** – Enables users with the tools to self serve and answer their billing-related questions themselves.
- **My Usage** – Provides users with complete transparency into consumption through dynamic charts, graphs, and visualization.
- **My Savings** – Equips users with tools such as an online audit, recommendations library (Ways to Save), the ability to set goals; create an action plan to save on their utility costs. Available for residential to small/medium businesses.
- **Load Disaggregation** – Inform your customers about their home’s consumption to help them identify Ways to Save on their costs or promote utility programs.
- **Responsive Design** – Makes all Aclara ACE content accessible on any smart phone or tablet.
- **Alerts** – Delivers actionable text message or e-mail alerts to help customers control their costs.
- **CSR Tools** – Provides customer service representatives with a “360° view” of customers and the exact same user experience to enable them to efficiently and effectively serve your customers.
- **Content Management System** – Configure the Aclara ACE portal for promotions, messaging and cost savings recommendations to match your goals.
- **API-widget design** – Offers flexibility to configure the Aclara ACE portal and also enables utilities to integrate our widgets/content into their portals.

Aclara Technologies LLC is a world-class supplier of smart infrastructure solutions (SIS) to more than 780 water, gas, and electric utilities globally. Aclara SIS offerings include smart meters and other field devices, advanced metering infrastructure and software and services that enable utilities to predict and respond to conditions, leverage their distribution networks effectively and engage with their customers. Aclara Technologies LLC is owned by an affiliate of Sun Capital Partners.

Visit us at Aclara.com, phone 800 297 2728 or contact us at info@aclara.com and follow us on Twitter @AclaraSolutions.



Water Meter Extended Alarms

READING METER GENERATED ALARMS WITH THE ACLARA RF AMI SYSTEM

- The Aclara series 3450 –XB, -XBW, and –XBW-A MTUs will read and transmit meter generated alarms from the following meters/registers:
 - Neptune E-coder and Pro-Coder registers, and Mach-10 meters
 - Badger E-series meters and HRE-LCD registers
 - DIEHL Hydrus meters
 - Kamstrup FlowIQ 2100 and 3101 meters

NEPTUNE EXTENDED METER ALARMS

(E-CODER, PRO-CODER, MACH 10)

- No Leak
- Leak Detection Between 1st & 2nd Thresholds
- Leak Detection > 2nd Threshold
- Days of Leak Detection
- Days of No Flow
- Reverse Flow



MTU/Software Alarms vs. Neptune Meter Alarms



ALARM TYPE	Standard Alarms: baseline system		Extended Alarms: meter generated*
	MTU generated alarms	AclaraONE™ software generated alarms	E-coder, ProCoder, Mach 10, TRU/MAG
Endpoint program attempt	●		
Endpoint Cut-wire Tamper	●		
Encoder Communication Error	●		
MTU Time Sync error	●		
MTU Battery Life Indicator	●	●	
Reverse Flow		●	●
No Leak		●	●
Days of No Flow		●	●
Leak between 1 st and 2 nd threshold		●	●
Leak greater than 2 nd threshold		●	●

* These alarms require appropriate alarm-enabled meters and meter alarm-enabled MTUs

BADGER EXTENDED METER ALARMS

ALARMS	E-SERIES	HRE-LCD
Battery Life Indicator	●	●
Meter/Encoder Programmed	●	●
Reverse Flow	●	●
Potential Leak	●	●
30-Day No Usage	●	●
Meter Empty Pipe	●	
Meter Sensor Error	●	
Meter Temperature	●	
Meter Exceeding Max Flow	●	
Encoder Removed		●
Encoder Magnetic Tamper		●



MTU/Software Alarms vs. Badger Meter Alarms



ALARM TYPE	Standard Alarms: baseline system		Extended Alarms: meter generated*	
	MTU generated alarms	AclaraONE™ software generated alarms	Badger E-SERIES alarms	Badger HRE-LCD alarms
Endpoint program attempt	●			
Endpoint Cut-wire Tamper	●			
Encoder Communication Error	●			
MTU Time Sync error	●			
MTU Battery Life Indicator	●	●		
Reverse Flow		●	●	●
Potential Leak		●	●	●
30-Day No Usage		●	●	●
Meter Battery Life indicator			●	●
Meter/Encoder Programmed			●	●
Meter Empty Pipe			●	
Meter Sensor Error			●	
Meter Temperature			●	
Meter Exceeding Max Flow			●	
Encoder Removed				●
Encoder Magnetic Tamper				●

* These alarms require appropriate alarm-enabled meters and meter alarm-enabled MTUs

DIEHL EXTENDED METER ALARMS

- Air in the pipe
- Low temperature
- Battery too low
- No usage
- Reverse flow
- Measurement error
- Checksum error
- Temperature Measurement error
- Communication not possible
- Leakage



MTU/Software Alarms vs. DIEHL Meter Alarms



	Standard Alarms: baseline system		Extended Alarms: meter generated*
ALARM TYPE	MTU generated alarms	AclaraONE™ software generated alarms	Hydrus Meter
Endpoint program attempt	●		
Endpoint Cut-wire Tamper	●		
Encoder Communication Error	●		
MTU Time Sync error	●		
MTU Battery Life Indicator	●	●	
Reverse Flow		●	●
Leakage		●	●
No usage		●	●
Air in the pipe			●
Low temperature			●
Meter battery too low			●
Measurement error			●
Checksum error			●
Temperature measurement error			●
Communication not possible			●

* These alarms require appropriate alarm-enabled meters and meter alarm-enabled MTUs

KAMSTRUP EXTENDED METER ALARMS

- Reverse flow – active and historic (last 30 days)
- Dry pipe – active and historic (last 30 days)
- Burst pipe – active and historic (last 30 days)
- Encoder setup changed
- Leak – active and historic (last 30 days)
- Minimum Meter Temp Since Midnight:
- Maximum Meter Temp Since Midnight:
- No Usage Detected for Last 35 Days



MTU/Software Alarms vs. Kamstrup Meter Alarms



ALARM TYPE	Standard Alarms: baseline system		Extended Alarms: meter generated*
	MTU generated alarms	AclaraONE™ software generated alarms	FlowIQ 2100 and 3101
Endpoint program attempt	●		
Endpoint Cut-wire Tamper	●		
Encoder Communication Error	●		
MTU Time Sync error	●		
MTU Battery Life Indicator	●	●	
Reverse Flow		●	●
Leak		●	●
No usage		●	●
Dry pipe			●
Burst pipe			●
Minimum meter temperature			●
Maximum meter temperature			●
Encoder setup changed			●

* These alarms require appropriate alarm-enabled meters and meter alarm-enabled MTUs

ACLARAONE SCREENS

The screenshot displays the AclaraONE web interface. At the top, there is a navigation bar with a 'Menu' icon, the 'AclaraONE' logo, and the user name 'ACLARATECH\cmdato'. Below the navigation bar is a sidebar on the left with menu items: 'MTU Information', 'Battery Voltage', 'Settings', 'Transmission History', 'Communication History', 'Installation History', and 'Events'. The main content area shows a date range filter set to '07/06/2019 to 08/06/2019' and an 'Auto refresh' button set to '5 min'. Below this is a table with the following columns: 'Date/Time', 'Event', 'Value', and 'Group'. The table contains 9 rows of event data. At the bottom of the table, there is a pagination control showing '1' of 9 items, a dropdown for '10' items per page, and buttons for 'CSV' and 'Export'.

Date/Time	Event	Value	Group
07/11/2019 08:24:54 AM	PCI Tamper Set		Tamper Alarm
07/11/2019 08:24:54 AM	PCI Tamper Clear		Tamper Alarm
07/11/2019 08:24:46 AM	PCI Tamper Set		Tamper Alarm
07/11/2019 08:24:40 AM	Error E7 Set (Air In Pipe)	Port: 1 Tamper Stats: 00-10	Diehl Alarm
07/11/2019 08:24:38 AM	Time Sync Request	00	Two Way Alarms
07/11/2019 08:24:36 AM	PCI Tamper Clear		Tamper Alarm
07/11/2019 08:24:36 AM	PCI Tamper Set		Tamper Alarm
07/11/2019 08:24:31 AM	PCI Tamper Clear		Tamper Alarm
07/11/2019 08:24:31 AM	PCI Tamper Set		Tamper Alarm

ACLARAONE SCREENS

MTU - 813131221

Serial Number 813131221

Type Series 345x 2-Way, On-Demand Water, Dual Port, Advanced Alarms, Extended Range

Firmware Version 1.2.12

MTU Information

Battery Voltage

Settings

Transmission History

 07/23/2019 to 08/23/2019

Auto refresh 1 min
Last refreshed: 1:36:13 PM

Date/Time ↓	Event	Value	Group
08/23/2019 01:34:49 PM	Burst - Active - Set	Port: 2 Tamper State: 00-10	Kamstrup Alarm
08/23/2019 01:32:33 PM	Leak - Active - Clear	Port: 2 Tamper State: 00-00	Kamstrup Alarm

ACLARAONE SCREENS

AclaraONE™ Aclara Support Logout Help

Event List

Search on Device Search

Filters Saved Views

Save View Clear Filters

Date Range
Last 7 days
02/01/2019 to 02/07/2019

Report Group
All Accounts Group

Event Group
Network Health

Event Type

- Abnormal Consumption
- Constant Consumption
- Consumption Edited
- DCU Connection Error

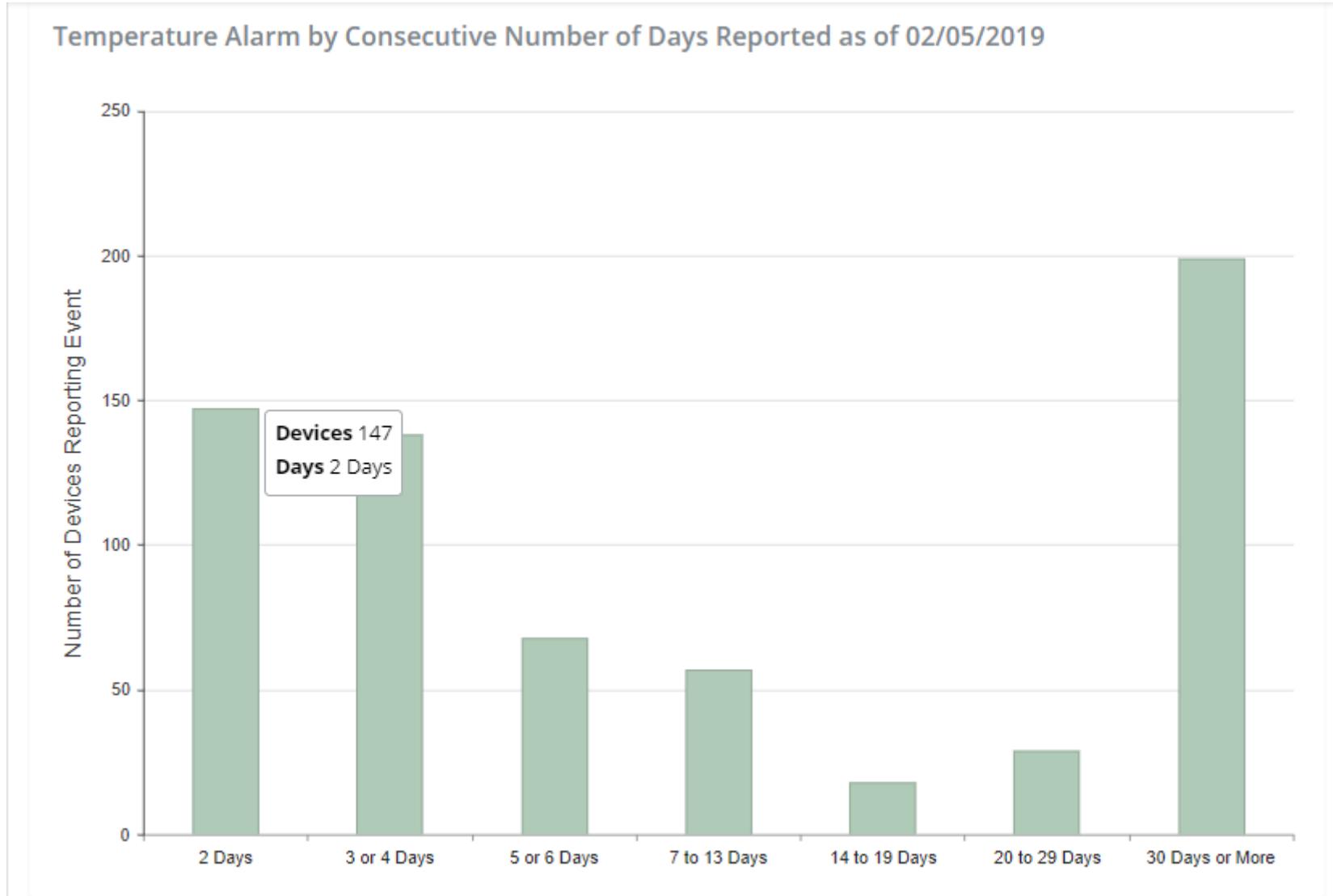
List Map

Date/Time	Event	Value	Unit Of Measure	Type	Device	Severity	Account Number
02/07/2019 03:00:00 AM	Pipe Burst		Cubic Feet	MTU	73571396	Severe	066285
02/07/2019 03:00:00 AM	Pipe Burst		Cubic Feet	MTU	77258323	Severe	073575
02/07/2019 03:00:00 AM	Negative Consumption	-3	Cubic Feet	MTU	73548254	Warning	003352
02/07/2019 03:00:00 AM	Negative Consumption	-3	Cubic Feet	MTU	73571396	Warning	066285
02/07/2019 03:00:00 AM	Air-In-Pipe		Cubic Feet	MTU	77258323	Warning	073575
02/07/2019 03:00:00 AM	Air-In-Pipe		Cubic Feet	MTU	75158032	Warning	065885
02/07/2019 03:00:00 AM	Negative Consumption	-1	Cubic Feet	MTU	01514356	Notice	037832
02/07/2019 03:00:00 AM	Negative Consumption	-1	Cubic Feet	MTU	73571396	Notice	066285

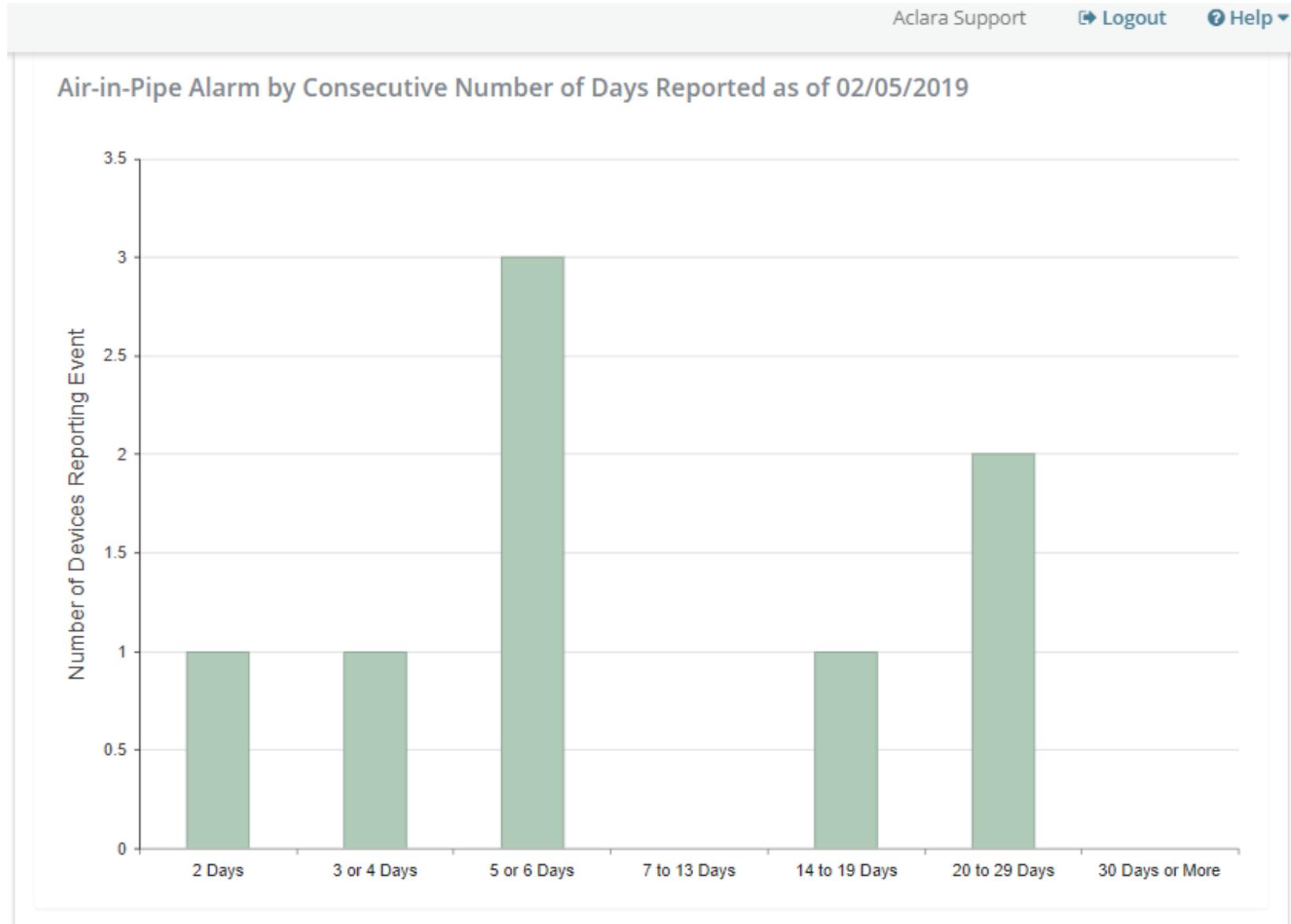
ACLARAONE SCREENS

The screenshot displays the AclaraONE Event List interface. At the top, the AclaraONE logo is on the left, and navigation links for Aclara Support, Logout, and Help are on the right. The main heading is "Event List". Below this is a search bar with the text "Search on Device" and a "Search" button. On the left side, there is a "Filters" panel with a "Saved Views" tab. The filters include: "Save View" and "Clear Filters" buttons; "Date Range" set to "Last 7 days" (02/01/2019 to 02/07/2019); "Report Group" set to "All Accounts Group"; "Event Group" set to "Network Health"; and "Event Type" with checkboxes for "Suspected Leak Alarm" (checked), "Constant Consumption", "Consumption Edited", and "DCU Connection Error". The main area shows a map view of the Perris and Menifee region, with several event markers (red and blue pins) overlaid on the map. The map includes labels for various locations like Perris, Menifee, Lake Elsinore, and Canyon Lake, as well as major roads like I-15 and SR-74.

ACLARAONE SCREENS

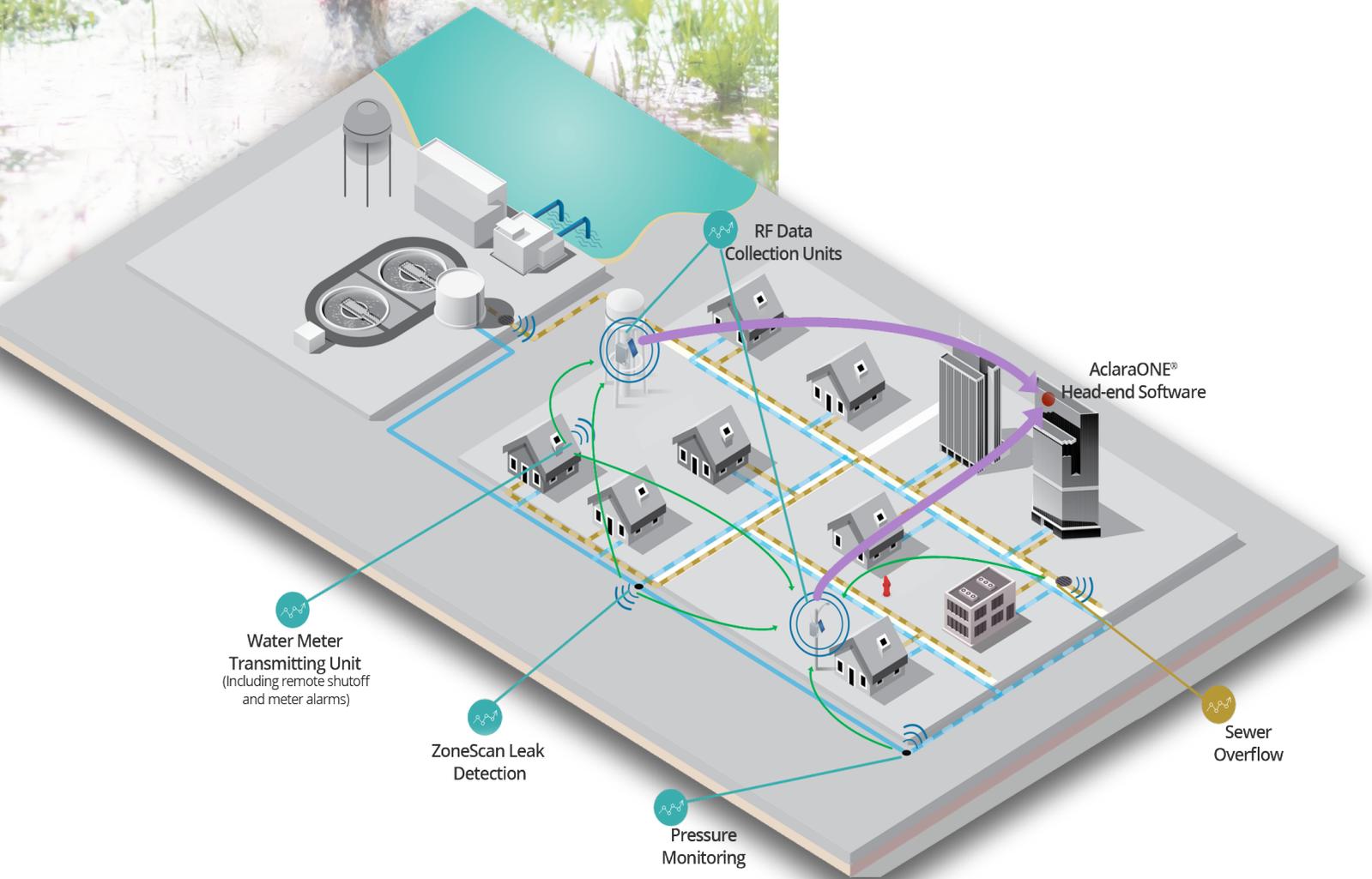


ACLARAONE SCREENS



Aclara RF™ Network for Water Utilities

With its long track record of innovation driven by changing customer needs and enhanced features, for more than 20 years water utilities have chosen the Aclara RF Network.



Aclara RF™ Network for Water Utilities

The Aclara RF Network for water utilities offers fixed network, two-way AMI communications that go beyond AMR by securely and accurately reading water meters electronically – without meter readers, drive-by vehicles, or handhelds. Our solution provides hourly, time-stamped, and time-synchronized meter readings that can help large and small water utilities improve their business operations.

The Aclara RF Network's AMI radio topology consists of three components:

- Meter Transmission Unit (MTU)
- Data Collector Unit (DCU)
- AclaraONE® (One Network for Everyone)

SERIES 3400 WATER METER TRANSMISSION UNIT (MTU)

At the heart of the Aclara RF Network for water utilities is the series 3400 MTU. It provides the water utility with accurate, and timely meter reading data to support revenue management by reducing reading and billing errors, and is tested compatible with virtually all AMI-ready water meters available in North America. The series 3400 MTU provides a complete system read with all the necessary information to reconcile the amount of water entering the system to the billable water that is consumed, thus identifying the probability of system leaks.

DATA COLLECTION UNITS (DCU)

The DCU will help utility staff maintain the reliability of aging infrastructure and improve efficiency and capacity through enhanced asset management, monitoring, and timely communication.

The DCU transmits and receives data over individual 450 to 470 MHz radio frequencies. Powered by a solar panel or AC power supply (with on-board battery backup), the DCU time stamps, processes, and stores diagnostic information and data collected from MTUs.

DCUs decode and error-check the received data before storing it in local memory, as well as transmitting data for further processing to the AclaraONE headend software and sends commands and alerts back out to the MTUs. DCUs can use a variety of backhaul communications technologies such as cellular, Ethernet, and fiber optic.

DCUs are installed throughout the service territory on a wide variety of assets, including municipal and utility building roofs, water or other towers, street lights, and utility poles. One Aclara RF Network DCU can support tens of thousands of meters in a typical urban area.

ACLARAONE® HEADEND SOFTWARE

AclaraONE is a powerful headend software platform that enables Aclara's communications technology and adds comprehensive solutions to transform business operations, increase efficiencies, reduce costs, and increase customer satisfaction. Built to provide actionable insights and provide the situational awareness required to handle growing distribution challenges, AclaraONE allows water utilities to securely, reliably, and efficiently operate their distribution networks.

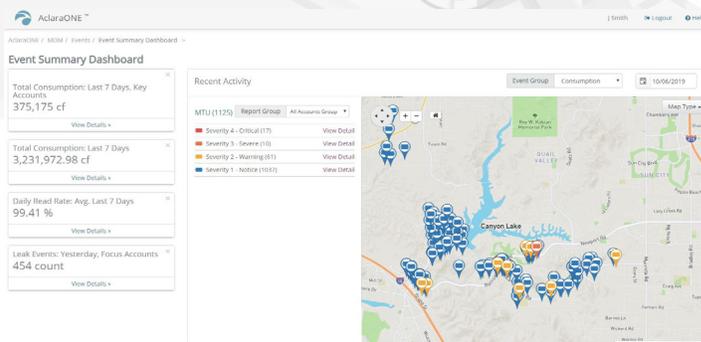


Fig. 1 – AclaraONE platform

From meter to cash, network management, distribution operations, sensors, analytics, installation services, and consumer engagement, AclaraONE delivers a broad set of functionalities utilities require to monitor, optimize, and improve the operation of their infrastructures. Operating as a single platform for networks ranging in size from a few hundred meters to millions of meters, AclaraONE also integrates smart infrastructure solution applications so network operators can react faster and more effectively while managing their distribution network.

The AclaraONE platform supports the complete lifecycle of an advanced metering infrastructure network through a headend that:

- Handles device installation, network messaging, and device management and control. It supports secure roles-based access, including single-sign-on, user authentication, and integration with Microsoft Active Directory®, so network messaging on the AclaraONE platform is reliable, robust, and secure.
- Drives persistent consumer engagement leading to higher customer satisfaction scores and increases program adoption rates. with our Aclara Adaptive Consumer Engagement (ACE®) platform. The Aclara ACE customer portal is adaptable and flexible enough to mold solutions to meet your utility's needs, whether you want to deploy a behavioral program, showcase AMI data, redefine your customer's digital experience, inform users with advanced load-disaggregation models, or leverage alerts to keep customers engaged.
- Engages your customers online, on their tablets, or through their mobile device with our full suite of Aclara ACE features, thanks to our modern, responsive web design. Provide your customers with 24x7 access to billing, consumption, and conservation tools to drive customer self-service through our My Bills, My Usage, and My Savings modules.

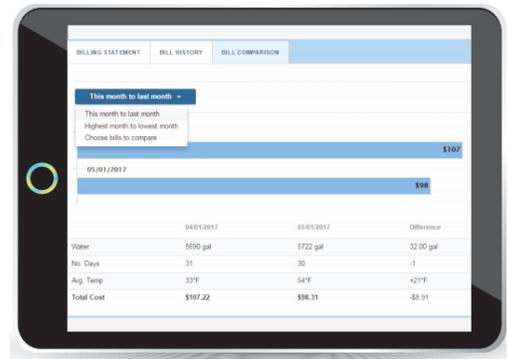


Fig. 2 – 24x7 access to Aclara ACE features online, on your tablet, or mobile device.

VALUE ADDED APPLICATIONS

The Aclara RF Network can do far more than read water meters. Adding the ZoneScan acoustic leak detection system – which uses the same communication network and headend software – to identify and locate leaks in water distribution systems can drastically reduce non-revenue water and extend the life of aging infrastructures. Pressure monitoring and sewer overflow applications also leverage the already installed network to give deep near-real-time insights into operation of a water network.



BENEFITS OF THE ACLARA RF NETWORK

For more than 20 years water utilities have chosen the Aclara RF Network, and for good reason. Utilities value Aclara's integrated solution suite, which can take the utility from meter reading to customer service to analytics and beyond. Meter shop managers and information technologists appreciate the RF Network's flexible and elegant design and easy scalability. A long track record of innovation driven by changing customer needs and enhanced features – while not stranding previously installed hardware – keeps Aclara at the leading edge of AMI solutions. High levels of redundancy, resiliency, and superior RF performance due to the underlying 450-470 MHz communications frequencies lead to the best-read success rates in the industry and a long-term deployment that just works.

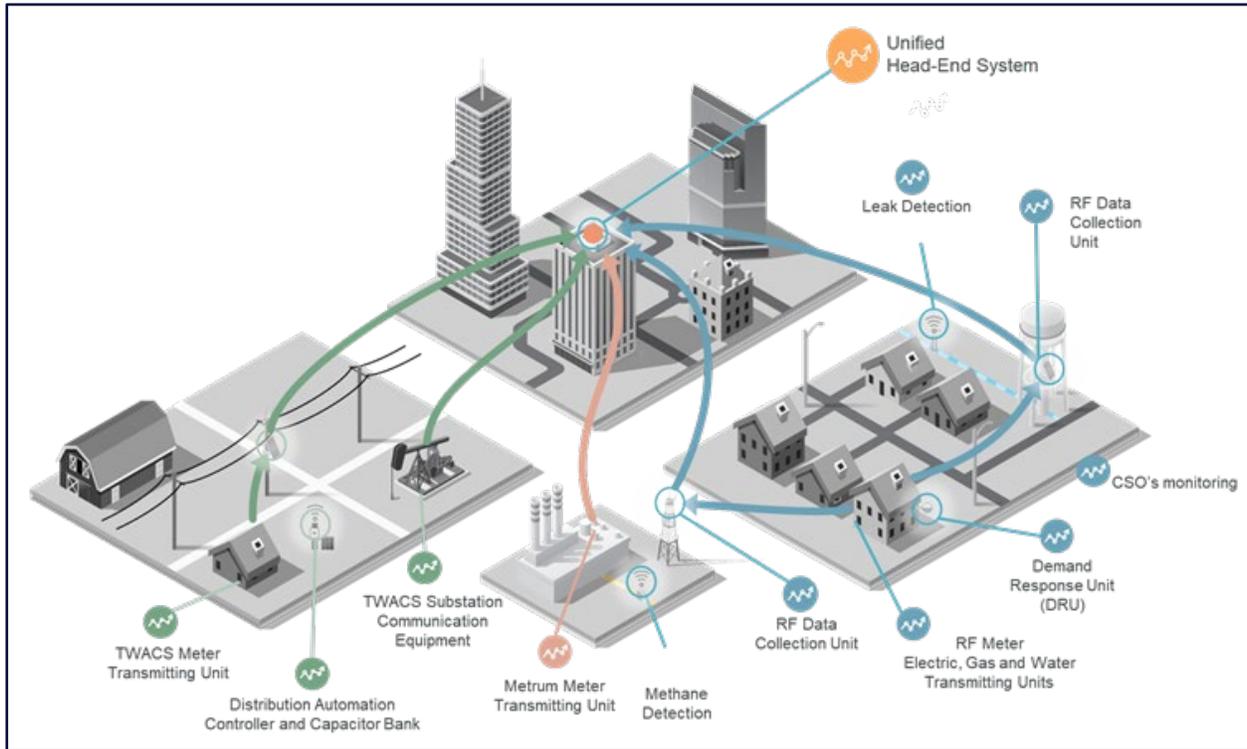
ACLARA'S RF NETWORK IS A PROVEN AMI TECHNOLOGY DESIGNED TO MEET TODAY AND TOMMORROW'S NEEDS:

- **Reduce distribution** costs with scalable and automated meter reading, distribution management, and service quality.
- **Enhance consumer engagement** with immediate data that provides customers the information they need to understand and make consumption decisions.
- **Lower operating costs** with tools to plan and optimize investments in maintenance and capital upgrades.
- **Create a data-driven solution** to develop and expand the utility's ability to serve customers.
- **Support sustainability efforts** to protect our environment and conserve our natural resources.

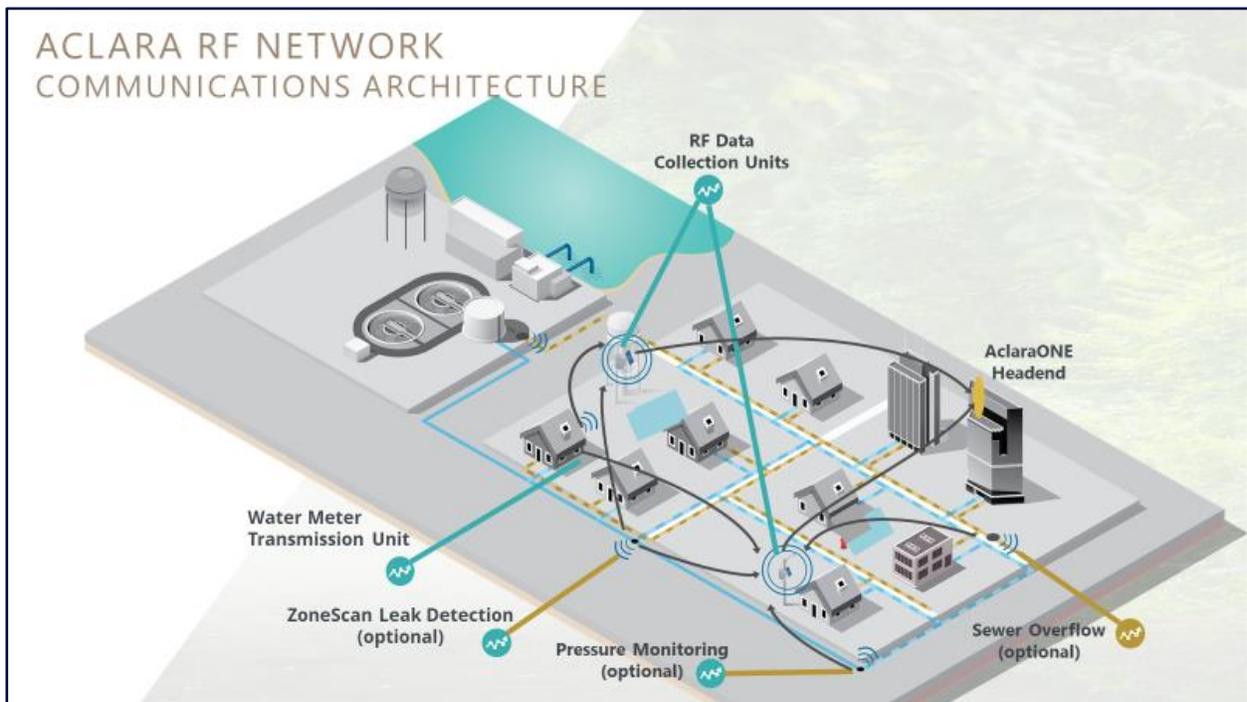
ACLARA RF NETWORK **SYSTEM DIAGRAMS**



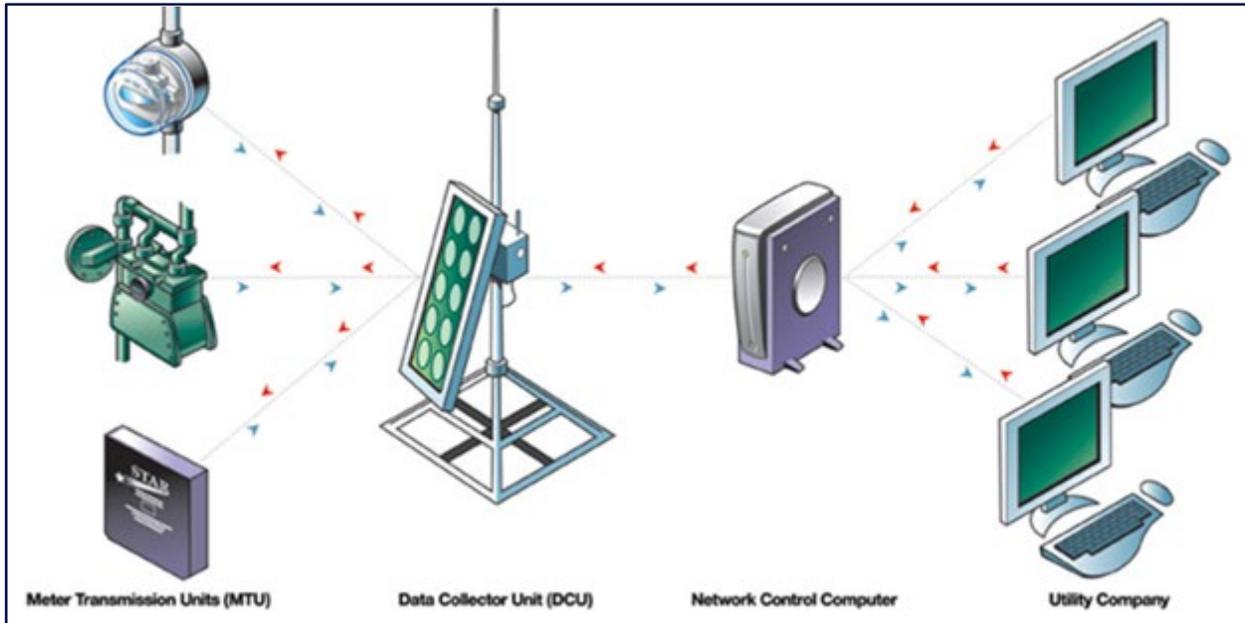
ACLARA RF WATER NETWORK – FULL ARCHITECTURAL DIAGRAM



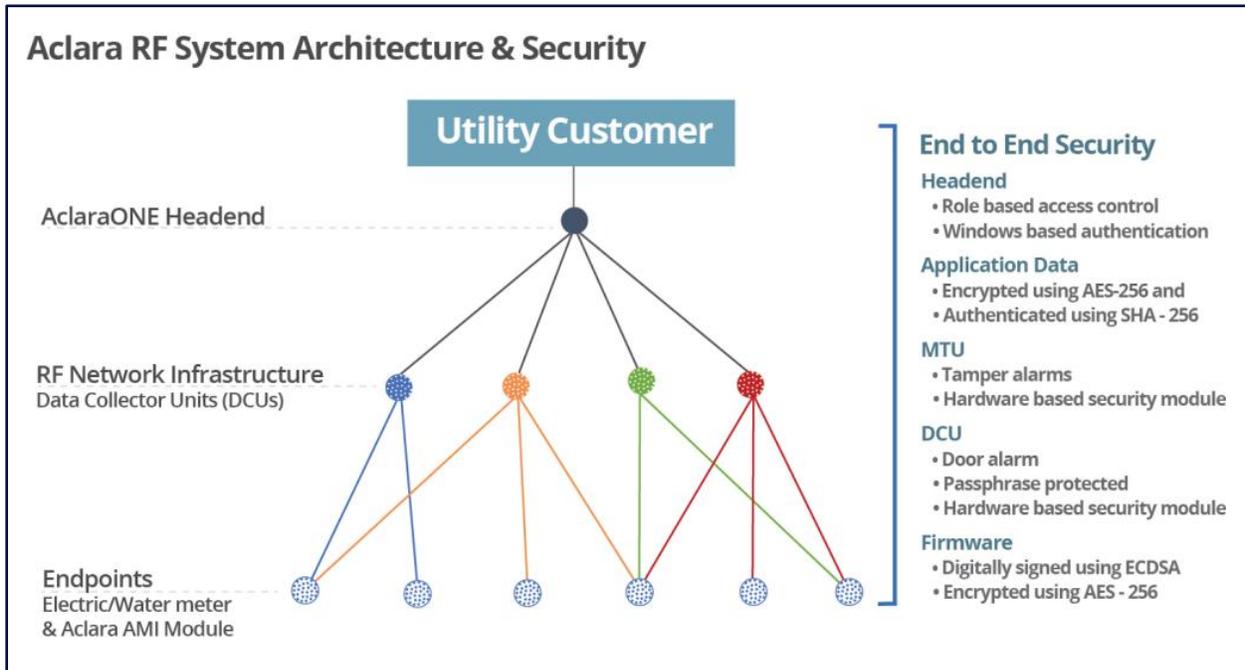
ACLARA RF WATER NETWORK – COMMUNICATIONS ARCHITECTURE DIAGRAM



ACLARA RF WATER NETWORK – DATA FLOW DIAGRAM



ACLARA RF WATER NETWORK – SYSTEM ARCHITECTURE & SECURITY DIAGRAM



ACLARA WATER METER **COMPATIBILITY CHART**





Water Meter Compatibility Chart

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Manufacturer	Meter Model	Register Type / Model	Ports	Register Output	Meter Type	
Badger	Recordall	RTR	Single	Pulse	Disc, Turbo	
	Recordall Compound Series	Dual RTR	Dual		Compound	
	Recordall	ADE (6 Dial)	Single	Encoder	Disc, Turbo	
	Recordall Compound Series		Dual		Compound	
	Recordall	HR-E LCD ⁷ , HR-E Mechanical (8 Dial)	Single	Encoder	Disc, Turbo	
	Recordall Compound Series		Dual		Compound	
	E-Series		RTR (Pulse Emulation)	Single	Pulse	Ultrasonic
			ADE (6 Dial Emulation)	Single	Encoder	Ultrasonic
			HR-E (9 Digit Emulation)	Single	Encoder	Ultrasonic
		M2000, M5000		Single	Encoder	Electromagnetic

Manufacturer	Meter Model	Register Type / Model	Ports	Register Output	Meter Type
Diehl / Sappel	Aquarius	IZAR, Pulsar	Single	Pulse	Single-jet
	HYDRUS (LCD, 8 Digit)		Single	Encoder	Ultrasonic
Elster/AMCO/ABB	AquaMaster ⁸ (Metal Case)		Single	Pulse	Electromagnetic
	AquaMaster 3 FET200 ⁵			Single	
	MagMaster		Single	Pulse	Electromagnetic
Elster/AMCO/ ABB/Kent	C700, T3000, T4000	Digital	Single	Pulse	Positive Displacement, Turbine
		Scancode, InVISION		Encoder	
	C3000, C4000	Digital	Dual	Pulse	Compound
		Scancode, InVISION		Encoder	
Elster/ Severn Trent	SmartMeter SM700		Single	Encoder	Fluidic Oscillation
			Single	Pulse	Fluidic Oscillation
Elster / AMCO	V100 (PSM-T), V110		Single	Pulse	Positive Displacement
	evoQ4 Mag		Single	Encoder	Electromagnetic
	SM150E, Q200			Single	
Endress + Hauser	Proline Promag 10		Single	Encoder	Electromagnetic
Hydreka	HydINS 2 EO		Single	Pulse	Electromagnetic
Infinity	MJ Series	RSR	Single	Pulse	Multi-jet
Istec	Flowmeter	1700 & 1800 Series	Single	Pulse	Single jet
Itron/Actaris	Flostar	Cyble Sensor	Single	Pulse	Single Jet
		Cyble Coder		Encoder	
Kamstrup	FlowIQ 2100 and 3101		Single	Encoder	Ultrasonic
Krohne	Waterflux	3070 and IFC 070 ⁴	Single	Pulse	Electromagnetic
Master Meter	Octave		Single	Encoder	Ultrasonic
	Sonata		Single	Encoder	Ultrasonic
	Classic Multi-Jet Series, Flexible Axis Meters (FAM)	Dialog, AccuLinx, eLinx	Single	Encoder	Multi-jet
		Reed	Single	Pulse	

Manufacturer	Meter Model	Register Type / Model	Ports	Register Output	Meter Type
McCrometer	Marsh Multi-Mag 285		Single	Pulse	Electromagnetic
	Ultra Mag		Single	Pulse	Electromagnetic
Metron-Farnier	Spectrum, Enduro 2000 and 2800	OER	Single	Encoder	Single jet
		innov8			
Mueller/Hersey	400/500 Series, MVR, Horizon	ER with ER-2 Sensor	Single	Pulse	Positive Displacement, Vertical Turbine
		Translator, SSR ¹⁰		Encoder	
	MCT II, MFM II	ER with ER-2 Sensor	Dual	Pulse	Compound
		Translator, SSR ¹⁰		Encoder	
HbMAG		Single	Encoder	Electromagnetic	
Neptune/ Schlumberger	T-10, HP Turbine	Tricon	Single	Pulse	Positive Displacement, Turbine
	T-10, HP Turbine and Fire Service	ARB-V/VI ¹ , ProRead ¹ , ProRead AutoDetect ¹ , E-Coder ^{2, 12} , ProCoder ²	Single	Encoder	Positive Displacement,
	TruFLO Compound, Protectus		Dual		Compound
	T-10, HP Turbine and Fire Service	E-Coder, ProCoder (Plus Mode, 8 Digit Reading, Alarm Flags and Alarms)	Single	Encoder	All
	TruFLO Compound, Protectus		Dual		Compound
	Mach 10		Single	Encoder	Electromagnetic
	TRU/MAG		Single	Encoder	Electromagnetic
RG3	All	Tomahawk	Single	Pulse	All
				Encoder	

Manufacturer	Meter Model	Register Type / Model	Ports	Register Output	Meter Type
Sensus / Invensys / Rockwell	PMM Series	PMM	Single	Pulse	Multi-jet
	All	ECR, ER56, ICE, ICE-Opto	Single Dual	Encoder	All
	OMNI C2, F2, H2, R2, and T2	OMNI	Single	Encoder	Turbine
	SR11 / accuSTREAM	E-Register ⁶	Single	Encoder	Positive Displacement
	iPERL ³		Single	Encoder	Electromagnetic
	accuMAG		Single	Encoder	Electromagnetic
Siemens	Mag 8000 CT		Single	Encoder	Electromagnetic
	SITRANS LUT430 and 440 ¹¹		Single	Pulse	Ultrasonic
Toshiba	LF622 Mag Meter		Single	Pulse	Electromagnetic
Zenner / Performance Meter / Hendey	All	ETR-DS	Single	Encoder	All
		ETR-EN		Pulse	All

NOTES:

- Series 2000 and 3000: products available with special connectors and different wire lengths.
 - Series 3000: part numbers ending in '-A' indicate a remote antenna (through the lid). Meter compatibility is identical with non '-A' version.
 - Series 501: part numbers assume standard cable. Contact Product Management for special connector requirements.
 - All products listed are compatible with both single and dual port MTUs.
 - Sub-metering meter types not included.
 - N/A = not applicable
 - **Aclara reserves the right to change products, model numbers and specifications without notice.**
- Four (4)-Digit Mode & Six (6)-Digit Mode
 - Series 501: E-Coder six (6) digit reading only; no alarm flags. Series 23XX/33XX/34XX: E-Coder and ProCoder eight (8) digit reading only; no alarm flags; requires MTU V35 or higher; North America only.
 - Three (3)-wire version only. Meter FW version 1.XX and 2.17 or higher required.
 - The Krohne 3070 and IFC 070 must be programmed with a pulse output low time of ten (10) ms.
 - Meter FW version 01.02.01 only.
 - E-Register Firmware version 1.0.08 or higher is required.
 - Requires Aclara MTU V35 & HR-E LCD version 9/2015 or greater; MTU V38 is compatible with all HR-E LCD versions.
 - AquaMaster with metal case (old design) encoder output is not compatible with Series 2/3K.
 - Requires MTU V37 or 38 firmware.
 - Requires work around, leave register disconnected, auto-detect fails, select register from available meters.
 - Requires external Potter & Brumfield Relay KHAU-17D16-24 & 24VDC power supply connected to Volume Totalizer pulse output relay.
 - Neptune E-coder in basic eight (8)-digit reading mode turns meter annunciators off (register LCD indicators).

PROPAGATION STUDY



PROPAGATION STUDY

To provide a robust network, Aclara's Propagation Study Team has determined that the Aclara AMI Network for full deployment will consist of three (3) data collector units (DCUs) that will cover 100% of the Town of Federalsburg's water meters.

In addition to the full deployment propagation study, Aclara certifies the following:

- Single Redundancy at 100% of meter transmission units (MTUs) that will be heard by one (1) DCU
- Double redundancy at 100% of MTUs that will be heard by at least two (2) DCUs
- Triple redundancy at 68.50% of MTUs that will be heard by at least three (3) DCUs

The locations for DCUs are based on the information that was provided by the Town of Federalsburg—which is portrayed in the Propagation Study Map below.



FULL DEPLOYMENT PROPAGATION STUDY

Extended Pit Endpoints

PREDICTED COVERAGE	
Predicted Redundancy	Overall Coverage (%)
Single	100.00%
Double	100.00%
Triple	68.50%

DCU COUNT	
DCU Site Type	DCU Count
Customer Sites	Two (2)
Aclara Proposed	One (1)
Total DCUs	Three (3)

DCU QUANTITY & INSTALL TYPE		
DCU Site Type	DCU Count	Antenna Height (ft)
Electric Pole	N/A	N/A
Non-Transmission Pole	N/A	N/A
Roof Mount	N/A	N/A
Tank / Tower	Two (2)	Varied
Lattice Tower	N/A	N/A
Aclara Proposed Pole	One (1)	30
Total DCUs	Three (3)	Varied

CUSTOMER DATA			
Type	Provided Count	Modeled Count	Customer Data Used (%)
Meters	1,247	1,208	100%
Customer Assets (Non-Poles)	Two (2)	Two (2)	100%
Customer Poles	N/A	N/A	N/A

ENVIRONMENTAL FACTORS	
Solar Panels Required	One (1)
Solar Panel Tilt	48.5
Area Wind Rating > 120MPH	Yes
Antenna Type	EM Wave

COVERAGE TERRITORY	
Metric	Value
Total Area (SqMi)	Three (3)
Average MTU per SqMi	403
Average MTU per DCU	403
Highest DCU Elevation	40
Lowest DCU Elevation	30

FINANCIAL ANALYSIS



iii. The Submitter is to complete a financial analysis that will detail the expected financial benefits that the Utility can expect to realize. The Submitter shall project the analysis for 15 years. All assumptions used in the financial analysis must be clearly explained.

We have conducted our standard analysis of the many financial benefits that will be experienced once the services have been executed. For this financial analysis, we were provided with a set of parameters—which were utilized as the basis for water distribution system performance.

- *The parameters have been listed in the table portrayed to the right and include all corresponding values.*

This data was utilized to confirm that the total non-revenue water for the Town of Federalsburg is currently at **24%**. Based on this value, we attribute a percentage of that water loss to both the type and age of the existing meters in the system—per all AWWA standards. Given the age of the existing meters, we would conservatively estimate a revenue enhancement to be **10%** of the current **24%** of non-revenue water in association with the water meter system replacement program.

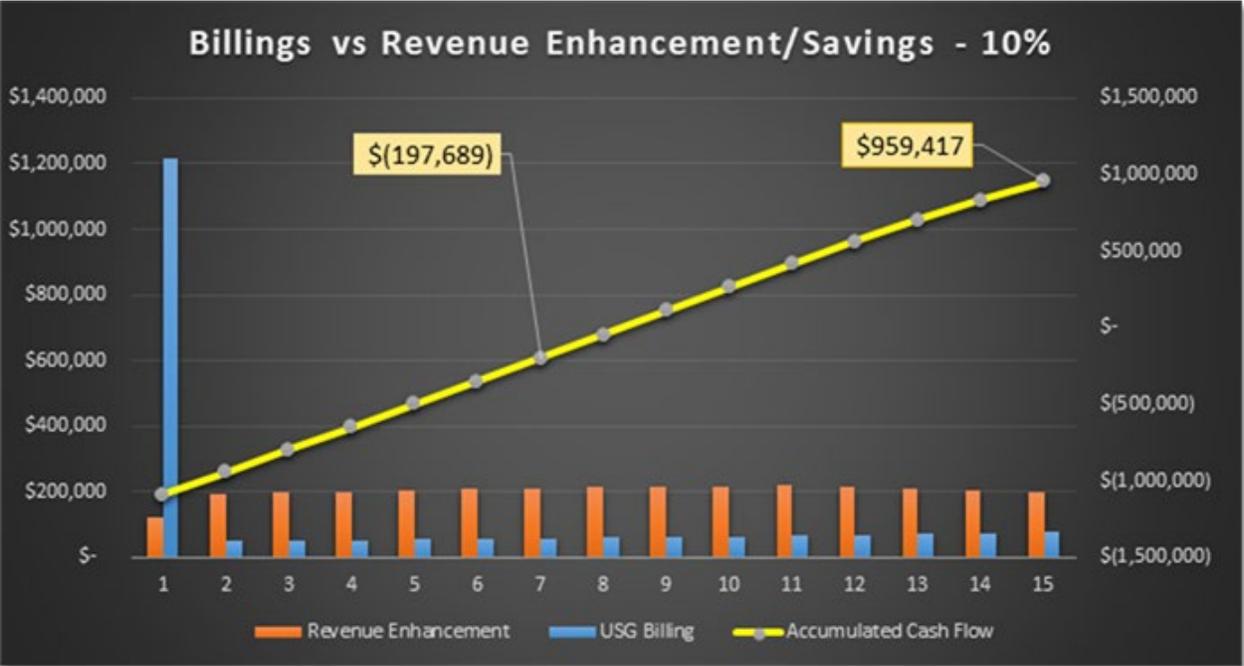
Also, please note that every municipality’s water system is different, and—as such—actual results may vary substantially from the estimates provided in the subsequent financial justification diagrams.



ASSUMPTIONS	QUANTITY	UNIT
Number of Water Meters	1,246	Meters
Population Served	2,450	Consumers
Average Consumption	204.08	GPCD
Water Rates	\$3.15	\$ / Kgal
Sewer Rates	\$5.27	\$ / Kgal
Age of Meters	20	Years
Non-Revenue Water	24%	Percent
Meter Reading Cost	\$2.00	\$ / Read
Number of Customer Service Calls	55	Customer Calls
Cost for Customer Service Call	\$50.00	\$ / Call
Number of Move Ins/Outs	Five (5)	Move Ins/Outs
Move In/Out Cost	\$50.00	\$ / Work Order
Water Produced / Year	182,500,000	Gal / Year
Water Billed / Year	138,700,000	Gal / Year
Gallons Produced / Month	15,000,000	Gal / Month
Non-Revenue Water / Month	3,600,000	Gal / Month
Revenue Water / Month	11,400,000	Gal / Month
Metering Non-Revenue Water / Month	1,500,000	Gal / Month
Billing Units	1,500	Units / Kgal
Water Underbilling	\$4,725.00	\$ / Month
Sewer Underbilling	\$7,905.00	\$ / Month
Total Revenue Enhancement	\$12,630	\$ / Month
Meter Reading Cost	\$831.00	\$ / Month
Customer Service Calls	\$2,750.00	\$ / Month
Total Cost Savings	\$3,581.00	\$ / Month
Total Financial Benefit	\$16,211.00	\$ / Month
Annual Financial Benefit	\$194,528.00	\$ / Year

- *Please find the Financial Justification Diagram—Billings vs Revenue Enhancement/Savings—on the following page of this response.*

FINANCIAL JUSTIFICATION DIAGRAM



SUBCONTRACTOR INFORMATION



SUBCONTRACTOR RESOURCES: VANGUARD UTILITY SERVICE, INC.



Vanguard Utility Service, Inc. (Vanguard) is a leader in both AMR and AMI installations; water, gas, and electric meter changeouts; testing; and repair. With over 200 years in combined experience from their senior management, Vanguard is an exceptionally well-managed company. As one (1) of the largest independent installation providers of measurement and AMR devices, they are experienced with all meter manufacturers—offering the expertise necessary for utility meter management.

As a vendor-neutral company, Vanguard is not bound to any meter or AMR system—allowing for flexibility in designing a project to suit unique needs. This qualifies Vanguard to recommend the system upgrades appropriate for a client’s system and budget.

Vanguard offers state-of-the-art technology to update, repair, and build data management systems for any utility company. With custom-built trucks, Vanguard can test, repair, and recalibrate meters on site—as well as fully replacing industrial and commercial meters. Vanguard’s mobile testing units are fully equipped to field test up to 24-inch meters.

With a portfolio that includes some of the nation’s largest—and smallest—cities, Vanguard and its trained field of technicians and managers work from coast to coast installing and changing out residential and commercial systems. By training crews first in-house and on-site, Vanguard offers a unique field of workers prepared for problem solving and trained with state-of-the-art technology.

MANAGEMENT EXPERIENCE

- Vanguard’s senior management personnel includes professionals from the water, gas, and electric industries with 20-50 years of experience each—or more. Some of Vanguard’s Project Managers have up to 35 years of experience in the field.

INDEPENDENT CONTRACTOR

- Vanguard is an independent provider with no ties to a single Meter or AMR/AMI Manufacturer
- Vanguard has installed systems of all sizes
- Vanguard’s role has been as both a Prime Contractor and Subcontractor

VANGUARD PROFESSIONAL SERVICES

- Vanguard installs water and electric meters of all sizes and brands
- Vanguard has installed AMR Systems, Automatic Meter Reading (Drive-by) and AMI Systems, and Advanced Meter Infrastructure (Fixed Network)
- Vanguard retrofits gas and water meters of all sizes and brands
- Vanguard installs large water meters—including vault replacement or repair
- Vanguard provides on-site test, repair, and recalibration of industrial/commercial water meters
- Vanguard’s fully equipped mobile testing units can field test up to 99-inch source services
- Surveys of large meters
- Independent Auditing Services

AMR & AMI INSTALLATION

Vanguard implements cost-effective, state-of-the-art wireless communication devices to establish accurate, effective AMI and AMR. With a team of expert technicians, Vanguard creates a turnkey infrastructure designed to save time and money.

METER REPLACEMENT

As a vendor-neutral company, Vanguard offers the reliability to replace any meter or valve system. Vanguard is experienced in replacing obsolete meters with the most state-of-the-art technology to ensure both accuracy and efficiency.

METER RETROFITS

To avoid overhauling the entire meter system, Vanguard can retrofit existing meters and AMRs with the most state-of-the-art technology to ensure every meter is registered accurately.

TURNKEY PROJECTS

Vanguard works to create user-friendly systems—designed for companies to resume daily activity without a hiccup of interruption. Turnkey projects eliminate hassle and maintain seamless progress.

REVENUE ANALYSIS

With over 200 years of combined experience amongst Vanguard's team of project managers, data experts, and field technicians, Vanguard offers reliability in income projection. Vanguard's elite data-management system provides world-class accuracy—leaving companies with a peace of mind.

SYSTEM PROFILING

Vanguard's team of expert technicians is skilled at evaluating meters and systems to prepare the most effective course of action to repair or retrofit meters. Trained in-house with years of hands-on experience, Vanguard's work force is the leading meter service crew in the nation. Professional, dependable, and efficient, Vanguard creates and maintains a steady flow of work to achieve its goals.

SYSTEM MAPPING

Vanguard can provide maps of the meters installed to ensure the reliability of the meter locations.

GPS METER LOCATION

Vanguard utilizes Trimble equipment to collect sub-meter GPS coordinates if the client requests to further establish the reliability of the meters and the data collected.

IN-FIELD TEST & REPAIR

Unique, mobile test units allow Vanguard to test, calibrate, repair, replace, and maintain meters onsite.

SITE & SETTING REBUILDS

Vanguard's trained field technicians are experienced in building a vault from scratch—or rebuilding a damaged or out-of-date vault. Vanguard can rebuild any vault for any meter system.

SITE & SETTING UPGRADES

Sometimes, simply upgrading the existing infrastructure is adequate in regard to bringing a utility meter system up-to-date. Vanguard is adept at installing, upgrading, and repairing cutting-edge technologies in the meter industry. Remaining at the forefront of the industry requires continuous education and experimentation with new products and equipment. Vanguard takes the time to learn about new products and understand what equipment works best within a variety of environments.

PILOT PROJECTS

Vanguard can implement pilot projects to identify savings and revenue sources—which can develop a cost projection for the overall system change. Experience is Vanguard’s guiding force—ultimately allowing project managers to oversee a project from start to finish. This way, managers can guide the work to a completion that is on time and within budget. Technology is the future of utility meter systems, AMRs, and data management. Vanguard does not only stay ahead of the curve; they set the curve in implementing the newest, most dependable, and most streamlined technologies.

NATIONWIDE SERVICES

As the industry leader, Vanguard maintains a large clientele—ranging from small, rural cities with only a few thousand residents to large metropolises. Vanguard is a respected name among meter manufacturers. Vanguard’s umbrella of services encompasses one (1) of the largest numbers of meter and data management capabilities in the nation.

ADDITIONAL VANGUARD SERVICES

- Electronic Work Order Management System
- Installation of AMI collection devices on tanks, towers, and poles
- Collection of GPS—standard to sub-meter—and call center management
- In-house test bench for all size meters
- Insurance Coverage
 - General Liability—up to \$5M
 - Automobile Liability—up to \$5M
 - Workers Compensation—up to \$5M
- Bonding Capacity: \$25M to \$30M
- OSHA 300 Logs—available

REFERENCES

- Vanguard offers an extensive list of utilities we have worked with in the past and encourage you to contact our past and present customers—available upon request
- Vanguard prides itself on successfully completing all projects within the contract term
- Vanguard has installed over one (1) million water endpoints
 - Phoenix, AZ | Kingsport, TN | Charlotte, NC | Ft. Worth, TX
- Vanguard has installed over three (3) million electric meters
 - Florida Power & Light | Westar Energy

CLIENT REFERENCES



f. REFERENCES

i. Include a list of at least three references for similar asset management projects

CLIENT REFERENCES (SUEZ)	
Client & Address	Town of Greensboro, MD 113 Main Street, Greensboro, MD 21639
Contact Information	Name: Wendy Dixon Phone: (410) 482-6222 Email: wdixon@greensboromd.com
Project Name	Services for Water Meter System Replacement
Contract Term	15 Years
Final Contract Price	\$1M+/-
Number of Meters	820 Meters
AMI & Billing System	Aclara RF AMI System Continental Billing System
Work Performed As	Prime Contractor
Details of Work Performed	<ul style="list-style-type: none"> ▪ Installation of AMI System and new water meters ▪ 15-year metering asset maintenance program w/ five (5)-year spread payment option ▪ Delay of first payment until project completion
Client & Address	City of Concordia, MO 618 South Main Street, Concordia, MO 64020
Contact Information	Name: Dale Klussman Phone: (660) 463-2228 Email: concordiaadmin@ctcis.net
Project Name	Services for Water Meter System Replacement
Contract Term	15 Years
Final Contract Price	\$1.25M+/-
Number of Meters	1,124 Meters
AMI & Billing System	Aclara RF AMI System Data Tech Billing System
Work Performed As	Prime Contractor
Details of Work Performed	<ul style="list-style-type: none"> ▪ Installation of AMI System and new water meters ▪ 15-year metering asset maintenance program w/ five (5)-year spread payment option ▪ Delay of first payment until project completion
Client & Address	City of Thomasville, AL 559 West Front Street North, Thomasville, AL 36784
Contact Information	Name: Kevin Heartsill Phone: (334) 637-3357 Email: kheartsill@thomasvilleal.com
Project Name	Services for Water Meter System Replacement
Contract Term	15 Years
Final Contract Price	\$2.0M+/-
Number of Meters	2,500 Meters
AMI & Billing System	Aclara RF AMI System Casselle Billing System
Work Performed As	Prime Contractor
Details of Work Performed	<ul style="list-style-type: none"> ▪ Installation of AMI System and new water meters ▪ 15-year metering asset maintenance program w/ five (5)-year spread payment option ▪ Delay of first payment until project completion



CLIENT REFERENCES (ACLARA TECHNOLOGIES LLC)	
Client	City of Wooster, OH
Address	538 North Market Street, Wooster, OH 44691
Contact Name/Title	Darrell Moser
Contact Phone	(330) 263-5216
Contact Email	dmoser@woosteroh.com
Project Name	City of Wooster, OH
Number of MTUs/DCUs	10,000 MTUs 14 DCUs
System	Aclara RF
Work Performed As	Prime Contractor
Details of Work Performed	Aclara AMI Solution with CIS Integration
<hr/>	
Client	City of Newark, OH
Address	40 West Main St., Newark, OH 43055
Contact Name/Title	Andrea Beichler
Contact Phone	(740) 670-7944
Contact Email	abeichler@newarkohio.net
Project Name	City of Newark, OH
Number of MTUs/DCUs	19,000 MTUs Nine (9) DCUs
System	Aclara RF
Work Performed As	Prime Contractor
Details of Work Performed	Aclara AMI Solution with CIS Integration
<hr/>	
Client	City of Middletown, OH
Address	1 Donham Plaza, Middletown, OH 45042
Contact Name/Title	Ray Tolson, Superintendent
Contact Phone	(513) 425-7834
Contact Email	rayt@cityofmiddletown.org
Project Name	City of Middletown, OH
Number of MTUs/DCUs	22,000 MTUs 21 DCUs
System	Aclara RF
Work Performed As	Prime Contractor
Details of Work Performed	Aclara AMI Solution with CIS Integration



CLIENT REFERENCES (VANGUARD UTILITY SERVICE, INC.)	
Client	Lee County Board of County Commissioners
Address	2120 Main Street, Fort Myers, FL 33901
Contact Information	Name: Bill Tartaglia Phone: (682) 220-8605 Email: btartaglia@muellerwp.com
Project Name	Water Meter Replacement Project
Contract Term	January 2017 – August 2019
Final Contract Price	\$2,284,082.00
Number of Meters	78,000 Meters
System	Mueller MiNet and Mueller Water Meters
Billing System	Orcom's E-CIS
Work Performed As	Subcontractor
Details of Work Performed	Installed approximately 78,000 residential water meters ranging in size from 3/4", 5/8", and 1".
Client	Charleston Water System
Address	1256 Supply Street, North Charleston, SC 29405
Contact Information	Name: Jon Dizon Phone: (843) 308-8231 Email: dizonPJ@charlestoncpw.com
Project Name	Automated Meter Installations
Contract Term	January 2016 – Ongoing (as of 2019)
Final Contract Price	\$1,235,500.00 (as of March 2019)
Number of Meters	Approximately 42,600 Meters (as of March 2019)
System	Neptune
Billing System	Custom
Work Performed As	Prime Contractor
Details of Work Performed	Installation of water meters and registers (5/8" to 1") and/or registers within the water service area of Charleston Water System. These installations included both domestic and commercial accounts.
Client	City of Pontiac, MI
Address	2100 Pontiac Lake Road, Waterford Township, MI 48328
Contact Information	Name: Craig Tiell Phone: (248) 858-1083 Email: tiellc@oakgoc.com
Project Name	Pontiac Water Meter Replacement Program – Phase II
Contract Term	2015 – 2019 (Phase I and II—currently working onsite)
Final Contract Price	\$1,115,594.39
Number of Meters	20,000 Meters
System	Neptune R900
Billing System	Harris Northstar
Work Performed As	Prime Contractor
Details of Work Performed	Approximately 6,800 meters during phase I (1) and 11,428 (5/8"–2") meters and MIU installations including wiring to MIU, removal and salvaging of existing meters, and miscellaneous appurtenances.

SUMMARY RESUMES



ROBERT MOURLAS

WATER SYSTEM CONSULTANT (STATE OF MARYLAND)



YEARS OF EXPERIENCE

- 25 Years Total
- 20 Years in the Water and Wastewater Industry
- Two (2) Years in Asset Maintenance

EDUCATION

- M.S., Environmental Engineering, Johns Hopkins University.
- B.S., Civil Engineering, Johns Hopkins University.

AREAS OF SPECIALIZATION

- Lis Water System Consulting
- Asset Mgmt/Maintenance
- Condition Assessments
- Water Distribution Systems
- Storage Tanks
- Civil Engineering
- Environmental Engineering
- Consulting | Training
- Contract Management
- Supervision

PROFESSIONAL ASSOCIATIONS

- Pennsylvania Rural Water Association (PRWA)
- Maryland Rural Water Association (MRWA)
- Delaware Rural Water Association (DRWA)
- AWWA (Chesapeake Region)
- LEED (Green Associate)
- ASPE

PROFESSIONAL TRAINING

- Occupational Safety and Health Administration (OSHA) 10-Hour Program

OFFICE ADDRESS

- Long Point Road, Grasonville, MD 21638

KEY QUALIFICATIONS

Mr. Robert Mourlas serves as a dedicated Water System Consultant (WSC) in the northern region of the United States for SUEZ Advanced Solutions | Utility Service Co., Inc. The respective states he serves include the following territories:

- South Central Pennsylvania
- State of Maryland
- State of Delaware
- District of Columbia

He is readily available to the municipalities he serves for any project consultation, to answer questions, provide information about other services, and serve as a constant resource in all aspects of water system asset maintenance. Mr. Mourlas specializes in supporting both municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet established deadlines, ultimately providing specialized services in a method that will produce the high-quality results expected from SUEZ's many valued clients. His extensive experience qualifies him to conduct the work associated with the requested services.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS | UTILITY SERVICE Co., Inc.

Water System Consultant (State of Maryland)

2019–Present

- Develops and implements effective strategies to capitalize on opportunities in his territory
- Utilizes all products and services available to create SUEZ separation from the competition
- Lead-generation and creation of opportunities through the established SUEZ Advanced Solutions | Utility Service Co., Inc. Sales Process
- Performs industry-standard condition assessments on all types of potable water assets
- Manages existing customer base utilizing relationships to grow new business accounts
- Creates and implements new marketing promotions and strategies to gain market share
- Works directly between Line of Business (LOB) team(s) for each product line and client to close deals and identify opportunities
- Comprehensive knowledge of asset management and maintenance programs for the potable water, wastewater, and utility industry
- Sales development, planning, and management for water, wastewater, municipal, industrial, and commercial customers
- Track and manage existing and potential opportunities through Salesforce
- Forecast accuracy through strong business relationships
- Understand the client's needs and time-lines for sales

PROJECT EXPERIENCE

Direct experience with water storage tank asset management and maintenance services for an abundance of clients within both the industrial and municipal water and wastewater industries; some of these clients include:

- City of Lebanon Authority (PA), Manheim Area Water and Sewer Authority (PA), Dover Township (PA), and Borough of Bonneauville (PA)
- Queen Annes County Sanitary District (MD), Town Of Walkersville (MD), Town Of Thurmont (MD), Town Of Brunswick (MD), and Town of Greensboro (MD)
- Town of Laurel (DE), Town of Smryna (DE), and Town of Bridgeville (DE)

TIM SCHWARTZ, PMP

PROJECT MANAGER (AMI METERING SERVICES)



YEARS OF EXPERIENCE

- Over 15 Years in Related Fields
- Five (5) Years in the Water and Wastewater Industry
- Over Ten (10) Years in the Asset Maintenance Industry

EDUCATION

- Masters of Business Administration (MBA), Dallas Baptist University, 2013.

AREAS OF SPECIALIZATION

- Water and Gas AMI Expert
- Water and Gas AMR Expert
- Meter Data Management and Billing Software Expert

PROFESSIONAL CERTIFICATIONS

- Project Management Professional (PMP)
- Lean Six Sigma Yellow Belt

PROFESSIONAL ASSOCIATIONS

- Project Management Institute (PMI) Member

PROFESSIONAL TRAINING

- Occupational Safety and Health Administration (OSHA) 10
- Various American Water Works Association (AWWA) Training and Contact Hours
- Lean Methodology
- Project Management Professional (PMP) Training and Contact Hours

OFFICE ADDRESS

- 535 General Courtney Hodges Boulevard, Perry, GA. 31069

KEY QUALIFICATIONS

Mr. Timothy Schwartz serves as a Project Manager (AMI Metering Services) for SUEZ Advanced Solutions | Utility Service Co., Inc. He is responsible for the project execution of all advanced metering infrastructure (AMI) projects in the southern region of the United States. Mr. Schwartz specializes in supporting both municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet established deadlines, ultimately providing specialized services in a method that will produce the high-quality results expected from SUEZ's many valued clients. His extensive experience qualifies him to conduct the work associated with the requested services.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS | UTILITY SERVICE Co., INC.

Project Manager (AMI Metering Services) 2019–Present

- AMI Project Lead over six (6) projects in the southern region of the United States
- AMI Infrastructure subject matter expert (SME): AMI Metering, Acoustic Leak Detection, Remote Disconnect Devices, AMR/AMI Hybrid Systems, Business Process Transformation, and Change Management.
- Software SME: Billing Software, GIS, Asset Management, and Work Order Management.

ARCOSA, INC.

Project Manager (Value Stream Infrastructure) 2018–2019

- Responsible for over \$45,000,000 in annual client project spend.
- Clients Managed: Florida Power & Light, Nextera, CPS Energy.
- Reviewed and signed off on complex Electrical Infrastructure Statement of Works.

CITY OF FORT WORTH, TEXAS

AMI Administrator | Field Superintendent 2017–2018

- Project lead over the field deployment of 255,000 AMI enabled water meters.
- Responsible for over \$63,000,000 in metering inventory and AMI Infrastructure budget.
- Managed a team of 15 support employees.

PROJECT EXPERIENCE

Direct experience with water AMI meter implementations, asset management, and asset maintenance services for an abundance of clients within both the industrial and municipal water and wastewater industries; some of these clients include:

- Town of Pembroke, NC
- City of Fort Worth, TX
- City of Round Rock, TX
- City of Mansfield, TX
- City of Covington, TN
- City of Thomasville, AL
- City of Richmond, MO

ERIC MERITHEW, PHD

SERVICE CENTER MANAGER (BRIDGEWATER, MA)



YEARS OF EXPERIENCE

- Ten (10) Years Total

EDUCATION

- PhD, Biochemistry, University of Massachusetts, 2005.
- B.S., Biotechnology, Worcester Polytechnic Institute, 1997.

AREAS OF SPECIALIZATION

- Water Distribution Systems
- Water Storage Systems
- Water Treatment Systems
- Water Quality Management
- Water Quality Compliance
- Network Asset Management

OFFICE ADDRESS

- 128 Elm Street, Bridgewater, MA 02324

KEY QUALIFICATIONS

Mr. Eric Merithew serves as a Service Center Manager (Bridgewater, MA) for SUEZ Advanced Solutions | Utility Service Co., Inc. He has extensive experience in the design, planning, and management of municipal water system services. He is the principal-in-charge of projects involving water quality services in the North Region of the United States, including:

- Water Storage Tanks & Active Mixing Systems
- Chemical Cleaning & Trihalomethane (THM) Removal Systems (TRS)
- Water Quality & Ice Piggings
- Maintenance & Pipe Distribution Systems

Mr. Merithew also has extensive experience in the assessment, construction, and rehabilitation of potable water storage tanks, treatment and filtration systems, and additional water system resources. He coordinates projects for both the Water Quality and Network Asset Management (NAM) lines of business with the regional service centers, including the design, procurement, and delivery of projects. He also participates in budget planning, development of installation and delivery best practices—as well as technological innovation. Mr. Merithew specializes in supporting municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet established deadlines, ultimately providing clients valued with specialized services in a method that will produce the high-quality results expected. His extensive experience qualifies him to conduct the work associated with the requested services.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS | UTILITY SERVICE CO., INC.

Service Center Manager (Bridgewater, MA)

- Manages all aspects of the Bridgewater, MA, Service Center
- Primary responsibilities include planning and coordination of all water storage tank asset maintenance contracts in New England, New York, and the Mid-Atlantic states
- Responsible for crew coordination and delivery for water systems services including tank mixing and TRS solutions, valve/hydrant maintenance, well rehabilitation/maintenance, and specialty services
- Responsible for initial evaluations of existing water tanks and structures to determine general conditions of coatings and structure
- Establishment of rehabilitative methodology scheduling, job costing, and specification writing to ensure current AWWA, SSPC, NACE and all state requirements are fulfilled

PROJECT EXPERIENCE

Direct experience with water storage tank asset management and maintenance services for an abundance of clients within both the industrial and municipal water and wastewater industries; some of these clients include:

- Aquarion Water Company (City of Bridgeport, CT)
- City of Tiffin, OH
- Village of Ottawa, OH
- City of Wilmington, DE

PIERCE A. LAW, JR.

SERVICE CENTER MANAGER (BRIDGEWATER, MA) | PROJECT MANAGER



SUEZ

YEARS OF EXPERIENCE

- 30 Years Total

AREAS OF SPECIALIZATION

- Asset Maintenance
- Asset Management
- Project Management
- Facility Management
- Personnel Supervision
- Tank Renovations & Repairs

PROFESSIONAL CERTIFICATIONS

- Certified Welder
- Class A Commercial Driver's License
- Certified Worksite Traffic Supervisor

PROFESSIONAL AFFILIATIONS

- American Society of Mechanical Engineers (ASME)
- American Traffic Safety Services Association (ATSSA)
- Occupational Safety and Health Administration (OSHA)

PROFESSIONAL TRAINING

- OSHA Safety Training
- First Aid | CPR

OFFICE ADDRESS

- 128 Elm Street, Bridgewater, MA 02324

KEY QUALIFICATIONS

Mr. Pierce Law, Jr. serves as a Service Center Manager and Project Manager for SUEZ Advanced Solutions | Utility Service Co., Inc. He is responsible for presenting, managing, and supervising the renovation and maintenance of water system assets. Mr. Law specializes in supporting both municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet established deadlines, ultimately providing specialized services in a method that will produce the high-quality results expected from SUEZ's many valued clients. His extensive experience qualifies him to conduct the work associated with the requested services.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS | UTILITY SERVICE Co., INC.

Service Center Manager (Bridgewater, MA) | Project Manager 2013–Present

- Manages the New York Service Center—same location as Bridgewater, MA, Service Center
- Assess project and resource requirements
- Coordinate and schedule the work with owners
- Ensure that all health and safety regulations are adhered to
- Supervision of the mechanical repairs, upgrades, painting and coating portions of projects

ROCKWOOD CORPORATION

Operations Manager 2002–2013

- Specialized in potable water storage tank maintenance
- Responsibilities included sales, safety, and quality control (QC)
- Assisted with financial planning and cost estimating
- Responsible for multiple projects as the project management
- Minority Business Enterprise (MBE) and Women Business Enterprise (WBE) Compliance

VARIOUS EMPLOYERS

Freelance Field Supervisor 1996–2002

- Organized a facility specializing in the repair, sandblasting, and painting of heavy trucks and semitrailers; clients included large fleet owners—such as P&C Food Markets and Niagara – Mohawk Power Corporation

Freelance Superintendent (Bridge & Steel Tank Painting) 1987–1996

- Supervised \$850,000 projects
- Responsible for ten (10) crew members
- Certified to perform lead abatement projects with full Class A Containment
- Qualified for bridge maintenance projects where complex traffic control is necessary

LAW BROTHERS CONTRACTING CORP.

Project Manager 1980–1986

- Responsible for all rigging, steel repair, sandblasting, and steel painting operations; clients included New York State Department of Transportation (DOT), New York State Thruway Authority, St. Lawrence Seaway Authority, and the United States Army

General Construction

- Carpentry, concrete work, and equipment maintenance
- Millwright work, welding, and rigging

ANDRE NOEL

DIRECTOR OF REVENUE MANAGEMENT & METERING SERVICES



YEARS OF EXPERIENCE

- 30 Years Total
- 30 Years in the Water and Wastewater Industry
- Three (3) Years in the Asset Maintenance Industry

EDUCATION

- M.B.A., Troy University.
- Instrumentation & Control (I&C) Engineering Technology, Lambton College, Sarnia, ON.

AREAS OF SPECIALIZATION

- Subject Matter Expert (SME)
- Water Distribution
- Industrial, Commercial, and Institutional Metering
- Instrumentation, Process Control, and SCADA
- Advanced Metering Infrastructure (AMI)
- Automatic Meter Reading (AMR)
- Revenue Management
- Meter Testing/Troubleshooting
- Training

PROFESSIONAL CERTIFICATIONS

- American Water Works Association (AWWA)
- National Institute of Standards and Technology (NIST)
- National Type Evaluation Program (NTEP)
- Certified Engineering Technologist (CET)

PROFESSIONAL ASSOCIATIONS

- AWWA | NTEP
- National Conference of Weights and Measures (NCWM)
- Ontario Association of Certified Engineering Technicians and Technologists (OACETT)

PROFESSIONAL TRAINING

- Occupational Safety and Health Administration (OSHA)
- First Aid | CPR

OFFICE ADDRESS

- 1230 Peachtree St NE, Suite 1100, Atlanta, GA 30309

KEY QUALIFICATIONS

Mr. Andre Noel serves as the Director of Revenue Management & Metering Services for SUEZ Advanced Solutions | Utility Service Co., Inc. He is responsible for providing both oversight and resources to the Project Managers to ensure that each project is managed in a way that brings complete satisfaction and high-quality results to the client. Mr. Noel brings with him over 30 years of industrial, commercial, and residential metering experience from around the world—having worked for one (1) of the largest metering manufacturers in North America. He is also renowned as a leading specialist and technical expert in the selection, installation, testing, and troubleshooting of AMI/Metering products and services in water distribution. Mr. Andre Noel specializes in supporting both municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet established deadlines, ultimately providing specialized services in a method that will produce the high-quality results expected from SUEZ's many valued clients. His extensive experience qualifies him to conduct the work associated with the requested services.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS | UTILITY SERVICE CO., INC.

Director of Revenue Management & Metering Services

2019–Present

- Lead business planning and strategy development
- Manage an entire service line life-cycle—strategic planning, P&S-products and services development, sales, service delivery, etc.
- Deliver revenue management services projects that involve CIS, Billing Metering / Smart Metering / Metering Services projects, coordinating all the activities developed by the project teams and other areas involved in the projects—such as sales and operations
- Execute sales / sales support activities—including the development of service proposals
- Manage pricing strategy and subcontractor proposals/pricing
- Manage relationships with partners—CIS, Billing Software Providers, AMI Technology Providers, Water Meter Manufacturers, etc.
- Technology, supply chain, and operations teams

Metering Services Product Manager

2016–2018

- Subject Matter Expert (SME) in metering products and associated AMR/AMI technology
- Responsible for Product Development and Market Strategy for Smart Metering, AMI, AMR, and the Metering Services Line of Business—from sales to delivery
- Deliver Metering / Smart Metering projects; coordinated all activities developed by the project teams
- Manage, support, and provide resources to AMI/Metering Project Managers
- Ensure the quality of products and services supplied
- Responsible for regulatory compliance of projects
- Manage an entire service line life-cycle—strategic planning, P&S-products and services development, sales, service delivery, etc.

HB&G BUILDING PRODUCTS, INC

Product Marketing Manager

2014–2016

NEPTUNE TECHNOLOGY GROUP INC

Sr. Product Marketing Manager

1990–2013

- Subject Matter Expert (SME) in metering products and associated AMR/AMI technology for North America and ROW.

FRANK SUBLETT

DIRECTOR OF METERING IMPLEMENTATION SERVICES



YEARS OF EXPERIENCE

- 25 Years Total
- Five (5) Years in the Water and Wastewater Industry

EDUCATION

- B.S., Mechanical Engineering, Ohio University, 1982.
- B.S., Chemical Engineering, Ohio University, 1982.

OFFICE ADDRESS

- 1230 Peachtree Street NE, Suite 1100, Atlanta, GA 30309

KEY QUALIFICATIONS

Mr. Frank Sublett serves as a Director of Metering Implementation Services for SUEZ Advanced Solutions | Utility Service Co., Inc. He is responsible for the delivery of all AMI implementation in North America. Mr. Sublett specializes in supporting both municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet all established deadlines, ultimately providing specialized services in a method that will produce the high-quality results expected from SUEZ's many valued clients. His extensive experience qualifies him to conduct the work associated with the requested services.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS / UTILITY SERVICE Co., INC.

Director of Metering Implementation Services

2019–Present

- Implemented contract management process using stage-gates to accurately track program
- Developed east-to-update and understand project reporting charts
- Revised client contract language to alleviate/address common implementation liabilities
- Adjusted project implementation process to deliver projects more efficiently

ACLARA TECHNOLOGIES

Sales Director (Southeast Region)

2016–2019

- Responsible for sales of all solutions to utilities within GA, AL, FL, and MS
- Obtained order for combo electric/water AMI contract at Dothan Utilities for \$8.6MM
- Negotiated sole source contract with Tupelo Water & Light for \$3MM
- Obtained order for Leak Detection Pilot at Orlando Utilities Commission in Florida
- Obtained Electric AMI contract at Andalusia Utilities for \$900K
- Obtained \$1MM order for combo electric/water AMI at Opportunity Utilities at premium over competition

Director, Enterprise Sales

2015–2016

- Responsibilities for new business development for utilities exceeding 100,000 customers
- Led efforts resulting in successful engagement for pilot project at Philadelphia Water Department preceding full deployment
- Point person for engagement with Miami-Dade WASD managing all efforts related to \$200 Million AMI project with Request for Proposal (RFP)

ADVANCED CONTROL SYSTEMS

Vice President (International Sales)

2014–2015

- Assigned to build International Sales
- Obtained first ACS order for stand-alone OMS at KW Hydro for \$320K
- Obtained initial IVVC Pilot from JEPSCO for \$426K
- Increased International Sales Funnel to \$13MM in first six (6) months

JASON N. STONEBACK

PRODUCT MANAGER (METERING SERVICES)



YEARS OF EXPERIENCE

- 18 Years in Advanced Meter Reading (AMR) Asset Management
- 18 Years in Advanced Metering Infrastructure (AMI) Asset Management

AREAS OF SPECIALIZATION

- AMI Project Implementation
- AMI Network Deployment
- AMI Network Troubleshooting
- Meter Installations
- Meter Troubleshooting
- AMI/Metering Subject Matter Expert (SME)

EDUCATION

- M.B.A., Saint Leo University, 2013.
- B.S., Business Marketing, Auburn University at Montgomery (AUM), 2008.

PROFESSIONAL ASSOCIATIONS

- American Water Works Association (AWWA)

OFFICE ADDRESS

- 1230 Peachtree Street NE, Suite 1100, Atlanta, GA 30309

KEY QUALIFICATIONS

Mr. Jason N. Stoneback serves as a Product Manager (Metering Services) for SUEZ Advanced Solutions | Utility Service Co., Inc. He is responsible for product pricing and product marketing—as well as AMI and metering subject matter expertise. Mr. Stoneback primarily supports the Metering Line of Business (LOB) and its clients in providing the technology that best supports their business model. He specializes in supporting both municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet established deadlines—ultimately providing specialized services in a method that will produce the high-quality results expected from our many valued clients. Mr. Stoneback's extensive experience qualifies him to conduct the work associated with the requested services.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS / UTILITY SERVICE Co., INC.

Product Manager (Metering Services)

2020–Present

- Subject Matter Expert (SME) in metering products and associated AMR/AMI technology
- Responsible for Product Development and Market Strategy for Smart Metering, AMI, AMR, and the Metering Services LOB—from sales to delivery
- Deliver metering and smart metering projects
- Coordinate all activities developed by the project teams
- Manage, support, and provide resources to AMI/Metering Project Managers
- Ensure the quality of products and services supplied
- Responsible for regulatory compliance of projects
- Manage an entire service line life-cycle—strategic planning, products and services (P&S) development, sales, service delivery, etc.

FERGUSON WATERWORKS

AMR/AMI Metering Specialist (State of Alabama)

2017–2020

- Responsible for AMR/AMI Marketing and Sales
- Subject Matter Expert (SME) in metering products and associated AMR/AMI technology

CONSOLIDATED PIPE

AMR/AMI Metering Specialist (Eastern Tennessee, Kentucky, & West Virginia)

2014–2017

- Responsible for AMR/AMI Marketing and Sales
- Subject Matter Expert (SME) in metering products and associated AMR/AMI technology

RHEEM MANUFACTURING

Product Manager

2013–2014

- Responsible for Marketing and Development of Gas Tank and Tankless Water Heaters
- Subject Matter Expert (SME) in Gas Water Heaters and associated technology

NEPTUNE TECHNOLOGY GROUP

AMR/AMI Metering Specialist

2003–2013

- Subject Matter Expert (SME) in metering products and associated AMR/AMI technology

MICHAEL KIMMELMAN, PMP

PROJECT MANAGER (METERING IMPLEMENTATION SERVICES)



YEARS OF EXPERIENCE

- 41 Years Total
- 22 Years in the Water, Wastewater, and Asset Maintenance Industry

EDUCATION

- B.S., Business Management, Park University, 2000.
- A.S., Avionics Technology, Community College of the Air Force.

AREAS OF SPECIALIZATION

- Advanced Metering Infrastructure (AMI)
- AMI Project Management
- AMI Project Development
- AMI Project Deployment

PROFESSIONAL CERTIFICATIONS

- Six Sigma (Green Belt)
- Project Management Professional (PMP) Certified

PROFESSIONAL ASSOCIATIONS

- American Water Works Association (AWWA)
- Professional Meters, Inc. (PMI)

PROFESSIONAL TRAINING

- PMP

OFFICE ADDRESS

- 1230 Peachtree Street NE, Suite 1100, Atlanta, GA 30309

KEY QUALIFICATIONS

Mr. Michael Kimmelman, PMP, serves as a Project Manager (Metering Implementation Services) for SUEZ Advanced Solutions | Utility Service Co., Inc. He is responsible for ensuring both the quality and successful outcome of SUEZ's Advanced Metering Infrastructure (AMI) projects by managing the details of the projects, including—but not limited to—the vendors, supplies, field operations, performance, and maintenance. Mr. Kimmelman specializes in supporting both municipal and industrial water system clients with a sense of urgency to accomplish all tasks in a timely manner and meet established deadlines—ultimately providing specialized services in a method that will produce the high-quality results expected from our many valued clients. His extensive experience qualifies him to conduct all of the work associated with the requested services.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS | UTILITY SERVICE CO., INC.

Project Manager (Metering Implementation Services)

2021–Present

- Provide AMI expertise in all aspects of the project life cycle
- Manage project budgets, inventory and equipment sourcing, procurement, development of AMI networks and endpoints, and development of software interfaces between the AMI systems and customer billing systems
- Create and manage project plans based on contracts and the scope of work (SOW)

METERSYS

Senior Project Manager

2019–2021

- Created and maintained project plans and developed budgets based on contracts and SOW
- Designed and implemented AMI network infrastructure—providing complete coverage for all smart meter installations
- Partnered with clients to identify and implement business process changes to enhance AMI benefits

MUELLER SYSTEMS

Senior Project Manager

2013–2019

- Created and maintained project plans and developed budgets based on contracts and SOW
- Designed and implemented AMI network infrastructure—providing complete coverage for all smart meter installations
- Partnered with clients to identify and implement business process changes to enhance AMI benefits

PROJECT EXPERIENCE

Direct experience with water storage tank asset management and maintenance services for an abundance of clients within both the industrial and municipal water and wastewater industries; some of these clients include the:

- Town of Valdese, NC – AMI Water
- Town of Sawmills, NC – AMI Water
- City of Lexington, SC – AMI Water
- City of Fort Mill, SC – AMI Water
- Town of Colonial Beach, VA – AMI Water
- Spotsylvania County, VA – AMI Water
- City of Tallahassee, FL – AMI Water, Gas, and Electric; Energy Efficiency; Smart Grid

CHARLES WILLIAMS

TECHNICAL SERVICES MANAGER



YEARS OF EXPERIENCE

- 30 Years in the Water and Wastewater Industry
- Four (4) Years in the Asset Maintenance Industry

EDUCATION

- B.S. Chemical Engineering, Georgia Institute of Technology, 1992.

AREAS OF SPECIALIZATION

- Regulatory Compliance
- Water Loss Audits
- Energy Conservation
- Internet of Things (IoT) Integration
- Application Design
- Emergency Operations
- Mutual Aid Organizations

PROFESSIONAL ASSOCIATIONS

- American Water Works Association (AWWA)
- Water Environment Federation (WEF)
- Georgia Rural Water Association (GRWA)
- Georgia Association of Water Professionals (GAWP)
- Georgia Water/Wastewater Agency Response Network (GAWARN)

PROFESSIONAL TRAINING

- Federal Emergency Management Agency (FEMA) Incident Command System (ICS)
- AWWA Water Loss Control
- First Aid | CPR

OFFICE ADDRESS

1230 Peachtree Street NE,
Suite 1100, Atlanta, GA 30309

KEY QUALIFICATIONS

Mr. Charles Williams serves as a Technical Services Manager for SUEZ Advanced Solutions | Utility Service Co., Inc. He is responsible for maintaining the smart meter infrastructure for the metering line of business (LOB). Mr. Williams specializes in supporting both municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet established deadlines, ultimately providing specialized services in a method that will produce the high-quality results expected from SUEZ's many valued clients. His extensive experience qualifies him to conduct the work associated with the requested services.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS / UTILITY SERVICE Co., INC.

Technical Services Manager

2019–Present

- Manage smart metering infrastructure to ensure timely and accurate meter reads
- Coordinate asset management activities to prevent downtime and minimize non-revenue water in the client's water distribution system
- Use state-of-the-art data analytics to reduce non-revenue water and keep the smart metering systems operating as accurately as possible

Project Manager

2016–2019

- Implement advanced analytics for water loss control systems
- Lower water pumping energy use through hydraulic modeling / water use trend prediction
- Provide integration of various technical services providers to deliver an integrated system

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

Program Manager

1999–2014

- Ensure compliance with drinking water standards for all public water systems in Georgia
- Certify all environmental laboratories in the Georgia
- Serve as the Public Works Coordinator for GEMA

Environmental Engineer

1993–1999

- Approve water system and water plant designs
- Perform detailed inspections for water plants
- Provide detailed guidance for water plant operations optimization

PROJECT EXPERIENCE

Direct experience with smart water metering asset management and maintenance services for an abundance of clients within both the industrial and municipal water and wastewater industries; some of these clients include:

- City of Bayonne, NJ
- Town of Greensboro, MD
- City of Lockwood, MO

ED FAUST

SENIOR VICE PRESIDENT (NORTH REGION)



YEARS OF EXPERIENCE

- 30 Years Total

EDUCATION

- M.B.A., Marketing, University of Connecticut, 1983.
- B.S., Chemistry, New York State University, 1978.

AREAS OF SPECIALIZATION

- Strategic Marketing
- Tactical Marketing
- Business Planning
- Product Management
- Business Development
- Technology Assessment
- Technology Deployment
- Product Commercialization
- Operations Management
- Market Development
- Market Research
- Innovative Product Development
- Joint Ventures & Partnerships
- Sales Management
- Relationship Building
- Account Cultivation
- Ethnographic Research
- Voice of the Customer
- Manufacturing Operations
- Manufacturing Processes
- Leadership Skills
- Talent Development
- Metrics-Based Performance Measurement

PROFESSIONAL TRAINING

- Stage Gate-based Product Development
- Six (6) Sigma Green Belt
- Continuous Improvement
- Lean Concepts
- Voice of the Customer
- Sales and Operations Planning (S&OP)

OFFICE ADDRESS

- 461 From Road, Suite 400, Paramus, NJ 07652

KEY QUALIFICATIONS

Mr. Ed Faust serves as a Senior Vice President (North Region) for SUEZ Advanced Solutions | Utility Service Co., Inc. He is an accomplished professional in areas such as strategic marketing, product management, business development, and sales with broad based business to business (B2B), business to government (B2G), and business to consumer experience (B2C). Mr. Faust specializes in supporting municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet established deadlines—ultimately providing specialized services in a method that will produce the high-quality results expected from SUEZ's many valued clients. He has proven expertise in profit and loss (P&L) management—as well as an impressive track record of success in both the identification and commercialization of new technologies, products, and services gained through managing projects for more than 55 new product offerings and 15 new service offerings.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS | UTILITY SERVICE CO., INC.

Senior Vice President (North Region)

2014–Present

- Responsible for all sales and operations activities in the 16 comprising the North Region of SUEZ—including five (5) service centers providing products and services to enhance the distribution and treatment systems for municipal water and wastewater handling assets and a 14-person sales team of territory managers and in-field technical personnel

SIEMENS DRIVES TECHNOLOGIES

Manager (Product Market Assessment & Planning)

2011–2014

- Responsible for business case development, market assessment, new product road-map strategy, development of product market requirement specifications
- Responsibility extends to full portfolio of medium voltage drive products; products are marketed into oil/gas, chemical/petrochemical, metals, mining, and water/wastewater

Manager (Global Strategic Marketing)

- Implement new program to provide market intelligence and develop strategic insights to guide direction of Siemens Drive technologies to improve both strategic planning and development new business opportunities
- Lead a staff of four (4) Marketing Analysts and Project Managers with support from regional companies around the globe
- Efforts span all regions and all markets on a global basis.
- Concentration on oil and gas, power generation, metals, mining, water and wastewater, pulp and paper
- Led strategic efforts to identify, develop, and implement improvements to the process that addresses customer support, marketing, sales process and external communications
- Accelerated progress and reduced planned project completion by over six (6) months

SIEMENS WATER TECHNOLOGIES

Project Manager & Construction Engineer

2010–2011

- Responsible for strategy development and cross-functional implementation across the marketing, sales and product management activities
- Held lead and sponsorship roles in development of new programs to drive revenues, critical and actionable market information, product portfolio and product positioning and directional drive

CHRIS QUINN

DIRECTOR OF SALES (NORTH REGION)



YEARS OF EXPERIENCE

- 25 Years Total

EDUCATION

- B.S., Business Administration, Delaware Valley University, PA.

AREAS OF SPECIALIZATION

- Sales
- Operations
- Management
- Lines of Business
 - Water
 - Wastewater
 - Environment
 - Energy
 - Oil
 - Gas
 - BioSolids
 - Manufacturing
 - Intake Systems
 - Electrocatalytic
 - Dewatering
 - Mining-Filter
 - Chemicals
 - Government
 - Municipal
 - Private Sector

PROFESSIONAL CERTIFICATIONS

- Siemens M201E Certification
- Counselor Sales Person Training Certification

PROFESSIONAL TRAINING

- Siemens Management Training for Experienced Managers
- Counselor Sales Person Training

OFFICE ADDRESS

- 461 From Road, Suite 400, Paramus, NJ 07652

KEY QUALIFICATIONS

Mr. Chris Quinn serves as a Director of Sales (North Region) for SUEZ Advanced Solutions | Utility Service Co., Inc. He is a senior-level executive manager with results-driven experience in sales and operations. He specializes in supporting municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet established deadlines, ultimately providing specialized services in a method that will produce the high-quality results expected from SUEZ's many valued clients. His extensive experience qualifies him to conduct the work associated with the requested services and it has proven his demonstrated ability to build world class sales and operations teams that exceed goals and objectives.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS | UTILITY SERVICE CO., INC.

Director of Sales (North Region)

2018–Present

- Manage seven (7) Water System Consultants in the North Region of the United States—MD, DE, Eastern PA, NJ, NY, RI, MA, NH, CT, VT, and ME
- Develop/execute tactical and strategic sales plans for the municipal/industrial markets
- Promote asset management solutions for steel and concrete tank rehabilitation, water pipe condition assessment and rehabilitation, water wells maintenance programs, and water meter AMI maintenance programs
- Use product and service training to maintain technical competency of the sales team
- Utilize CRM to accurately forecast sales and monitor status of opportunities in the region

CURTISS-WRIGHT

Area Sales Manager (EST Group)

2016–2018

- Responsible for driving the sales in a 14-state region—as well as western Canada—by working with eight (8) regionally based manufacturer's representative organizations, local distributors, and directly selling to end user customers.
- Proactively promote/sell tube pressure testing and plugging equipment within the power generation, petrochemical/refining, oil/gas, and modular plant construction market

EVOQUA WATER TECHNOLOGIES

Director of Sales | Product Manager (OEM Parts & Services)

2015–2016

- Managed combined after-market and service sales teams for Separation Technologies division—including the Dewatering and Mining-Filter Press, Intake Systems, and Intake Dive Services Sales Teams
- Accurately forecasted monthly bookings and revenue sales results
- Managed and coached a team of nine (9) Account Representatives to exceed sales targets
- Used CRM to manage sales funnel for entire sales team
- Maintained sales using key performance indicators to ensure that goals were in alignment with the company's greater strategic objectives
- Developed marketing strategies for the Intake Product line
- Defined and executed research and development projects while staying within budget
- Established and maintained Marketing and Communications budgets
- Conducted customer surveys to enhance and improve global product offerings
- Performed competitive profiles and monitored customer analytics

SIEMENS AG

Sales Manager (MTO Industrial Group)

2001–2004

- Managed the entire industrial after-market sales team within Siemens Water Technologies Division—including five (5) product lines: Intake Systems, Electrocatalytic, Dewatering and Mining-Filter Press, Chemical Dosing Products, and Waste Water
- Developed/coached a team of twelve (12) Account Representatives to exceed sales targets

MARK COOSE

DIRECTOR OF OPERATIONS (NORTH REGION)



YEARS OF EXPERIENCE

- 30 Years Total

EDUCATION

- Bachelor of Science, Biology, Old Dominion University.

AREAS OF SPECIALIZATION

- Executive Operations Management
- Profit and Loss (P&L)
- Strategic Planning
- Organizational Building
- Process Improvement
- Process Efficiency
- Operational Efficiency
- Visionary Leadership
- Collaboration
- Organizational Restructuring
- Innovative Problem-Solving
- Digital Integration
- Team-Building
- Margin Improvement
- Partnership Development

PROFESSIONAL ASSOCIATIONS

- Environmental Health & Safety (EH&S) Award for Innovation (2008)

PROFESSIONAL TRAINING

- General Electric (GE) Management Development Training – Crotonville Leadership Training
 - Managers Development (Three [3]-Week Course)
 - Leadership Innovation
 - Leadership Growth
 - Public Relations Leadership

OFFICE ADDRESSES

- 517 Terrace Avenue, Virginia Beach, VA 23451

KEY QUALIFICATIONS

Mr. Mark Coose serves as a Director of Operations (North Region) for SUEZ Advanced Solutions | Utility Service Co., Inc. He is accomplished executive manager with domestic and Caribbean experience in operations, profit and loss (P&L) oversight, organizational building, and process efficiencies using digital integration in start-up and growth operations. Mr. Coose specializes in supporting both municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet established deadlines, ultimately providing specialized services in a method that will produce the high-quality results expected from SUEZ's many valued clients. His extensive experience qualifies him to conduct the work that is associated with the requested services.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS / UTILITY SERVICE Co., INC.

Director of Sales (North Region)

2019–Present

- Effectively manages North Region operations to provide quality water storage tank services
- Responsible for the performance of the North Region service centers
- Provides coaching/assistance to optimize operational efficiency/quality of service delivery
- Ensures service centers administer yearly safety training and follow the proper safety protocols throughout all work stages and processes
- Introduces and sustains operational efficiencies while managing operational costs

SUEZ WATER TECHNOLOGIES AND SOLUTIONS (FORMERLY GE WATER)

Senior Network Asset Management (NAM) Fulfillment Director

2016–2018

- Provide assessment of antiquated department supporting 120 million in sales revenue
- Developed and created the customer loyalty concept and restructured the department to a more customer centric, profitable and efficient organization
- Developed a customer loyalty organization through a process of assess, visual, and plan; executed delivery and an operational department in 12 months
- Developed digital and human interface to better support clients and regain market share
- Increased growth with two (2) largest back-to-back quarters for total sales in the mobile water division in seven (7) years.

GE WATER

NAM & Caribbean Service Leader

2007–2016

- Orchestrated the integration of a \$45M service division by combining five (5) acquired service departments—Ecolochem, Ionics, Glegg, Betz, and Zenon—into one (1) highly efficient service organization
- Combined/developed service organization for 350 employees—including regional, area, and site managers; EH&S; technical service; procurement; and training
- Provide and lead vision, direction, safety, and change management during transition
- Provide OCPH reduction and margin increases in two (2) major product lines
- Continued process improvements and productivity once the organization stabilized
- Integrated digital tools for better operations and cost savings
- Created "human performance" field model to allow remote workers to peer-manage themselves and ultimately improve work quality and safety
- Managed a team of 90 field service personnel supporting various product lines
- Delivered operating plan and improvements for product lines within GE water
- Created process improvements that allowed continuous productivity gains and visibility to operations plan
- Developed several tools—membrane push device and cap remover—to speed repairs and decrease safety risk

BRYAN MORROW

DIRECTOR OF QUALITY (NORTH REGION)



YEARS OF EXPERIENCE

- 21 Years Total

PROFESSIONAL CERTIFICATIONS

- National Association of Corrosion Engineers (NACE) Level III (3) Certified Coatings Inspector (#9135)
- NACE Certification for the Coatings Inspector Program for all certification levels—including Peer Review
- NACE Level II (2) Protective Coating Specialist (Advanced)
- Administration Certification for Subsurface Boring, Sampling, and Testing
- Geotechnical Engineering Certified Level I (1) Inspector
- Society for Protective Coatings (SSPC) C3 Competent Lead Removal Supervisor

PROFESSIONAL TRAINING

- Occupational Safety and Health Administration (OSHA) Compliance
- SSPC C-5 Trained Supervisor/Competent Person for the De-leading of Industrial Structures

OFFICE ADDRESS

- 6150 Center Road, Lowellville, OH 44436

KEY QUALIFICATIONS

Mr. Bryan Morrow serves as the Director of Quality (North Region) for SUEZ Advanced Solutions | Utility Service Co., Inc. He is responsible for the effective execution of the Quality Assurance/Quality Control (QA/QC) Program within the North Region of the United States. Mr. Morrow has extensive experience in operations, QA/QC, management, and industry technical knowledge in both the potable water and asset management industry. He is passionate about both quality and client satisfaction, and he has a proven record of improving efficiency from end-to-end delivery for maximum profitability and consistency. Mr. Morrow specializes in supporting both municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet established deadlines—ultimately providing specialized services in a method that will produce the high-quality results expected from SUEZ's many valued clients. He has been in the industry for over 21 years working in production—as well as 18 years in QA/QC. His extensive experience qualifies him to conduct the work associated with the requested services.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS | UTILITY SERVICE CO., INC.

Director of Quality (North Region)

2020–Present

- Responsible for the effective execution of the QA/QC Program in the North Region of the United States—including the District of Columbia and the following states: Connecticut, Delaware, Massachusetts, Maryland, Maine, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Wisconsin, Illinois, Indiana, Michigan, Ohio, and Northern West Virginia.

Regional Inspection Manager (North Region)

2005–2020

- Manages the day-to-day operations of inspection and condition assessment teams
- Technical reviews of inspection and condition assessment reports
- Writes paint and repair specifications
- Assisting in the design of the new SUEZ Safety & Health Program
- Provides technical assistance for all SUEZ inspectors dealing with field-related issues
- Provides guidance for successful completion of NACE and computer-related issues
- Developed companywide computer-based forms to transition to a paperless operation to reduce budget spending and quickly streamline the flow of paperwork to clients
- Inspected complex military installation and Department of Corrections (DOC) projects

TANK INDUSTRY CONSULTANTS

Field Inspector | Quality Assurance

2003–2005

- Aided in the successful completion through inspection, site supervision, and technical assistance of several complex projects—each worth over \$600,000

NAVARRO & WRIGHT CONSULTING ENGINEERS

Field Inspector

2003–2005

- Successful completion—on time and in budget—of numerous water tower rehabilitation projects as both a site supervisor and inspector
- Supervised and inspected several complex DOC and hazardous lead abatement jobs
- Participated as a key speaker at Pennsylvania Rural Water meetings and conferences

MID-SOUTH TANK CONSULTANTS

Field Inspector

2003–2004

- Gained the respect of senior management while working for CPS as both a foreman and supervisor on Mid-South's projects throughout the years

JONATHAN CATO

SENIOR VICE PRESIDENT (LINES OF BUSINESS, OPERATIONS, & ENGINEERING)



YEARS OF EXPERIENCE

- 25 Years Total
- 15 Years in Water Storage Tank Asset Maintenance and Management
- Ten (10) Years of Chemical Engineering – Mining Industry

EDUCATION

- B.S. Materials and Fiber Engineering, Georgia Institute of Technology.

AREAS OF SPECIALIZATION

- Steel Water Storage Tank Asset Management and Maintenance
- Concrete Asset Management and Maintenance
- Construction Management and Maintenance
- Contract Management
- Financial Analysis
- Financial Estimating

PROFESSIONAL ASSOCIATIONS

- American Water Works Association (AWWA)
- Society for Protective Coatings (SSPC)
- National Association of Corrosion Engineers (NACE)
- American Concrete Institute (ACI)

OFFICE ADDRESS

- 1230 Peachtree Street NE, Suite 1100, Atlanta, GA 30309

KEY QUALIFICATIONS

Mr. Jonathan Cato serves as a Senior Vice President (Lines of Business [LOBs], Operations, and Engineering) for SUEZ Advanced Solutions | Utility Service Co., Inc. His experience pertaining to all aspects of executive and project management—coupled with his engineering background and tank maintenance experience—provide him with the ability to manage multiple areas of existing product offerings and direct clients toward the future and SUEZ’s new service offerings. Mr. Cato specializes in supporting both municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet established deadlines, ultimately providing specialized services in a method that will produce the high-quality results expected from SUEZ’s many valued clients. His extensive experience qualifies him to conduct the work associated with the requested services.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS | UTILITY SERVICE CO., INC.

Senior Vice President (Lines of Business, Operations, & Engineering) 2019–Present

- Responsible for all lines of business, operations, and engineering services across all regions of the company

Senior Vice President (Lines of Business) 2012–2019

- Responsible for all lines of business across all regions of the company

Vice President (Operations) 2009–2012

- Responsible for the operations of all Service Centers across all regions of the company

General Manager (Contracting Division) 2002–2009

- Responsible for all estimating and project management for publicly bid tank projects nationwide

Project Manager | Lead Estimator 2000–2002

- Responsible for all estimating and project management for publicly bid tank projects nationwide

THIELE KAOLIN COMPANY

Chemical Process Engineer 1990–1999

- Process improvement, new product development, and new process development—as well as water and wastewater environmental management

PROJECT EXPERIENCE

Direct experience with water storage tank asset management and maintenance services for an abundance of clients within both the industrial and municipal water and wastewater industries; some of these clients include:

- City of Atlanta, GA
- Birmingham Water Works Board, AL
- City of Philadelphia, PA

ROBERT WEAVER

DIRECTOR OF ENVIRONMENTAL HEALTH & SAFETY (EH&S)



YEARS OF EXPERIENCE

- 15 Years Total
- 15 Years in the Water, Wastewater, and Asset Maintenance Industry

EDUCATION

- B.S., Engineering, Southern Polytechnic University.

AREAS OF SPECIALIZATION

- Safety Practices
- Qualifying Party for Holding General Contractor's License for 15 States
- Lead Removal Competency License

PROFESSIONAL CERTIFICATIONS

- National Association of Corrosion Engineers (NACE) Level III (3) Certified Coating Inspector (#17372)
- Society for Protective Coatings (SSPC) C-3 & C-5 Supervisor/Competent Person for Deleading of Industrial Structures (#99461)

PROFESSIONAL ASSOCIATIONS

- NACE
- SSPC

OFFICE ADDRESS

- 535 Courtney Hodges Blvd, Perry, GA 31069

KEY QUALIFICATIONS

Mr. Robert Weaver serves as the Director of Environmental Health & Safety (EH&S) for SUEZ Advanced Solutions | Utility Service Co., Inc. He is primarily responsible for all aspects and standard practices regarding EH&S. Mr. Weaver specializes in supporting both municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet established deadlines, ultimately providing specialized services in a method that will produce the high-quality results expected from SUEZ's many valued clients. His extensive experience qualifies him to conduct the work associated with the requested services.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS / UTILITY SERVICE Co., INC.

Director of Environmental Health & Safety (EH&S)

2014–Present

- Responsible for all aspects and standard practices regarding EH&S
- Implements safety practices and procedures across the entire company

Director of Operations (South Region)

2012–2014

- Responsible for the performance of the South Region Service Centers
- Managed South Region operations to provide quality water storage tank services
- Provided coaching/assistance to optimize operation efficiency/quality of service delivery
- Ensured South Region Service Centers administer yearly safety training and follow the proper safety protocols throughout all work states and processes
- Introduced and sustained operational efficiencies while managing operational costs
- Worked closely with many clients to verify that all project needs are met as a foundation for business growth

Engineering Technical Manager & Safety Director

1998–2012

- Managed all maintenance programs—over 6,000 included analyzing annual inspection reports, quality, and safety for all of the paint renovations

PROJECT EXPERIENCE

Direct experience with water storage tank asset management and maintenance services for an abundance of clients within both the industrial and municipal water and wastewater industries; some of these clients include the:

- City of Atlanta, GA | Eight (8) Tank Renovation Package
- City of Raleigh, NC | Twenty-Two (22) Tanks on Maintenance Program

JASON G. SAYLOR, P.E.

DIRECTOR OF ENGINEERING



LICENSED PROFESSIONAL ENGINEER

- State of Maryland
➢ #47037

YEARS OF EXPERIENCE

- 26 Years in Water, Wastewater, and Asset Maintenance

EDUCATION

- B.S., Civil Engineering, Pennsylvania State University (Penn State), 1995.

AREAS OF SPECIALIZATION

- Asset Management/Maintenance
- Infrastructure Improvement
- Construction Engineering
- Demolition/Field Engineering
- Building/Facility Engineering
- Quality Assurance/Quality Control (QA/QC)
- Budgeting & Cost Controls
- Contract Development
- Bidding/Contract Management
- Environmental Permitting
- Personnel Supervision

PROFESSIONAL CERTIFICATIONS

- Construction Specifications Institute (CSI) Construction Document Technologist

PROFESSIONAL ASSOCIATIONS

- American Water Works Association (AWWA)
- Georgia Association of Water Professionals (GAWP)
- American Society of Civil Engineers (ASCE)
- Water Environment Federation (WEF)

PROFESSIONAL TRAINING

- Occupational Safety and Health Association (OSHA) Construction Safety and Health Compliance
- Confined Space Awareness
- Hazardous Communications
- First Aid | CPR

OFFICE ADDRESS

- 1230 Peachtree Street NE, Suite 1100, Atlanta, GA 30309

KEY QUALIFICATIONS

Mr. Jason Saylor, P.E., serves as the Director of Engineering for Utility Service Co., Inc. He is responsible for leading and directing the engineering team in supporting both municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet established deadlines, ultimately providing engineering support services that produce the high-quality results expected from our many valued clients. Mr. Saylor and the engineering team provide full support of asset management and maintenance programs through:

- Assisting clients with completion of required documents to gain local, state, and federal approvals of projects.
- Developing technical and operational improvements to enhance delivery of services.
- Preparation and review of project designs, specifications, installation details, engineering reports, and condition assessment reports.
- Review and support of both operational and project delivery plans
- Coordinating the engineering department with the Lines of Business (LOBs), Product Managers, and Regional Management Teams to develop project plans.
- Coordinating the procurement, design, and improvement of specialized equipment with the LOB Leaders and the Director of Operations (DOS).
- Assisting the LOB Leaders and Sales Teams to negotiate project scope, specifications, and costs with external and internal customers, engineering firms and others.
- Reviewing permits, submittals, drawings, and providing PE approval.
- Developing departmental budgets and monitoring performance to budget.

PROFESSIONAL EXPERIENCE

UTILITY SERVICE Co., INC.

Director of Engineering

2013–Present

- Direct oversight and leadership of engineering team
- Technical support for asset management/maintenance projects
- Corporate engineering engagement in LOB development, project delivery, QA/QC, capital improvements, and operational planning.

HERBERT, ROWLAND, AND GRUBIC, INC.

Regional Service Group Manager

2001–2013

- Provided oversight and leadership to regional engineering team for project planning, proposal development, project designs, and project delivery.
- Provided oversight and direction to project field personnel for construction project delivery
- Developed company-wide standards and documents for control and management of construction projects.

PROJECT EXPERIENCE

Mr. Jason Saylor, P.E., has direct experience with water storage tank asset management and maintenance services for an abundance of clients within both the industrial and municipal water and wastewater industries. He and his engineering team provide related engineering services for all aspects of the asset management program, including—but not limited to:

- Condition Assessments
- Evaluation of Asset Performance
- Development of Asset Maintenance and Repair Plans
- QA/QC of Asset Maintenance/Management Project Scopes

CHRISTIE L. HOUSEMAN, P.E.

PROJECT ENGINEER II (2)



YEARS OF EXPERIENCE

- Seven (7) Years in the Water, Wastewater, and Asset Maintenance Industry

EDUCATION

- M.S., Environmental Engineering, Mercer University, 2015.
 - GPA: 3.812
- B.S., Environmental Engineering, Mercer University, 2015.
 - Minor: Sociology
 - GPA: 3.884

AREAS OF SPECIALIZATION

- Gravity Sewer Design
- Industrial Pretreatment
- Proposal Drafting
- Utility Permitting
- Process Experience
- Strong Technical Writing
- Erosion, Pollution, and Sediment Control
- Construction Plan Production

PROFESSIONAL CERTIFICATIONS

- Licensed Professional Engineer (P.E.)
- Georgia Soil and Water Conservation Commission (GSWCC) Level II (2) Certified Plan Reviewer

SOFTWARE PROFICIENCIES

- AutoCAD (Computer-Aided Design)
- ArcGIS (Geographic Information System)
- Civil 3D
- Microsoft Office

OFFICE ADDRESS

- 1230 Peachtree Street NE, Suite 1100, Atlanta, GA 30309

KEY QUALIFICATIONS

Mrs. Christie Houseman serves as a Project Engineer II (2) for Utility Service Co., Inc. She is an ambitious, hardworking, and dependable project engineer with four (4) years of experience in the municipal sector. Mrs. Houseman consistently completes projects within budget and ahead of schedule. She has also officially earned her Professional Engineer (P.E.) designation after passing the P.E. Exam in 2019. Mrs. Houseman specializes in supporting both municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet established deadlines, ultimately providing specialized services in a method that will produce the high-quality results expected from SUEZ's many valued clients. Her extensive experience qualifies her to conduct the work associated with the requested services.

PROFESSIONAL EXPERIENCE

UTILITY SERVICE Co., INC.

Project Engineer II (2)

2018–Present

- Prepare project designs, technical documents, drawings and permit applications
- Evaluate regulatory standards related to principle businesses and communicate with Operations and Service Centers to convey necessary utility renovations/rehabilitation
- Support implementation of Engineering Department strategies to standardize processes, procedures, and designs
- Work directly with State agencies to obtain approvals for proposed utility construction
- Assist utilities with project management of capital improvement projects

RINDT-McDUFF ASSOCIATES, INC. (RMA)

Project Engineer I (1) – Municipal Water & Wastewater

2017–2018

- Served the design and drafting needs of several project managers within the municipal water and wastewater team
- Developed construction designs, drawings and utility system maps
- Accompanied project managers on site visits, bid openings, and client meetings
- Assembled competitive proposals to win additional work for the team
- Prepared programs, reports, and ordinances, as requested by clients
- Coordinated with and provided instruction to electrical and mechanical subcontractors
- Worked with vendors to select equipment best-suited for project designs

INTEGRATED SCIENCE AND ENGINEERING, INC. (ISE)

Engineer I (1) – Water & Wastewater

2016–2017

- Worked under the direction of project manager to address the research and design needs of both government and private clients
- Developed construction designs and drawings
- Conducted field investigations and prepare reports
- Participated in the research and selection of design equipment
- Prepared contract documents and technical specifications for bid
- Developed project cost estimates, as requested by client
- Secured all necessary permits, including—but not limited to—EPD permit for erosion, sedimentation, and pollution control, as well as railroad permits for utility crossings
- Assisted project manager in preparing preliminary assessments and designs to secure new company clients

KERRI DEFRIESS

CUSTOMER SERVICE MANAGER



YEARS OF EXPERIENCE

- 16 Years Total
- 16 Years in Customer Service
- One (1) Year in the Water and Wastewater Industry
- Seven (7) Years in Asset Maintenance
- 15 Years in Sales and Marketing
- 14 Years in Accounting, Finance, and Contract Management
- Seven (7) Years in Capital Projects and Expenses Management

EDUCATION

- B.B.A., Marketing, University of Georgia, 2004.

AREAS OF SPECIALIZATION

- Customer Service
- Sales
- Marketing
- Contract Management
- Accounting
- Finance
- Capital Projects
- Expenses Management
- Process Improvement
- Project Management

PROFESSIONAL CERTIFICATIONS

- Certified Apartment Manager (CAM)
- Real Estate License
- Fair Housing

PROFESSIONAL TRAINING

- First Aid

OFFICE ADDRESS

- 535 General Courtney Hodges Boulevard, Perry, GA 31069

KEY QUALIFICATIONS

Ms. Kerri deFriess serves as a Customer Service Manager for SUEZ Advanced Solutions | Utility Service Co., Inc. She is responsible for managing our team of Customer Account Specialists—who serve all SUEZ clients across all regions of the United States. Ms. deFriess specializes in supporting municipal and industrial water system clients with a sense of urgency to accomplish tasks in a timely manner and meet all established deadlines—ultimately providing specialized services in a method that will produce the high-quality results expected from our many valued clients. Her rather extensive experience qualifies her to conduct the work associated with the requested services.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS / UTILITY SERVICE Co., INC.

Customer Service Manager

2020–Present

- Guide a team of Customer Account Specialists in evaluating client needs and encouraging a client-focused approach in problem solving
- Create and provide training resources and develop new tools to improve efficiency
- Collaborate with all other departments to streamline processes and develop or improve policies and procedures that ultimately improve our effectiveness in meeting client needs
- Create reporting to communicate client activity to upper management team and sales to provide data that will be of value in terms of trends, strategy, and financial impact

Site Management Coordinator

2013–2020

- Contracted management for telecommunication collocations on water tower structures—including reviewing and processing contracts, amendments, exhibits, and addendums
- Performed accounts receivable (AR), accounts payable (AP), collections, reconciliations, and invoicing functions—in addition to managing annual, multi-million-dollar client split
- Streamlined processes and reduced costs in order to increase operational efficiency

ELEMENT NATIONAL MANAGEMENT / RAM PARTNERS, LLC

Property Manager

2006–2013

- Performed all aspects of multi-family real estate management—including the staffing, finances, accounting functions, marketing, customer relations, vendor bids, negotiations, training, resolving conflicts, and capital project management
- Managed revenue and expenses to meet controllable net operating income (CNOI) goals and adhere to approved budgets
- Identified all new developments and evaluated existing competition to compare property performance and adjust business strategies to remain competitive

JOB CORPS

Career Transition Specialist

2004–2006

- Provided post-program career services, transition assistance, and follow-up for the Job Corps graduates—servicing 70-100 graduates in up to 26 countries
- Evaluated the graduates' job skills and readiness and made recommendations for their successful transition into the workforce, school, or military
- Networked with local employers to facilitate placement opportunities for graduates

MONSERRAT WILKERSON

CUSTOMER ACCOUNT SPECIALIST (NORTH REGION)



YEARS OF EXPERIENCE

- Over 20 Years

EDUCATION

- B.S., Business Management, University of Phoenix, 2021.

AREAS OF SPECIALIZATION

- Communication
- Interpersonal Skills
- Leadership
- Problem Solving
- Budget Planning
- Regulatory Reporting
- Regulatory Compliance
- Sense of Urgency
- Ability to Accomplish Tasks
- Ability to Meet Deadlines
- Strong Verbal Skills
- Strong Writing Skills
- Issue Assessment
- Proactive Solutions

OFFICE ADDRESS

- 535 Courtney Hodges Boulevard, Perry, GA 31069

KEY QUALIFICATIONS

Ms. Monserrat Wilkerson serves as a dedicated Customer Account Specialist (North Region) for SUEZ Advanced Solutions | Utility Service Co., Inc. She is responsible for providing all financial information based on each client's fiscal year to aid with budget planning. She also serves as the point of contact for emergency repairs and service requests outside of regularly scheduled maintenance services. Ms. Wilkerson provides insurance, inspection reports, service records, contract documents, and safety information—as well as any additional documentation to assist clients with all regulatory reporting and compliance. Mrs. Griner specializes in supporting both municipal and industrial water system clients with a sense of urgency to accomplish all tasks in a timely manner and meet established deadlines—ultimately providing specialized services in a method that will produce the high-quality results expected from SUEZ's valued clients. Her extensive experience qualifies her to conduct the work associated with the requested services.

PROFESSIONAL EXPERIENCE

SUEZ ADVANCED SOLUTIONS | UTILITY SERVICE CO., INC.

Customer Account Specialist (North Region)

2021–Present

- Respond to all client inquiries—external and internal—for information
- Provide additional support to Customer Service Team and Sales Team
- Provide customized support and specialized, effective solutions
- Keep client information current in IT systems and conduct proactive programs to ensure client satisfaction with products and service offerings
- Enter tasks in ERP (Oracle) and CRM (Salesforce) immediately after contact with client to ensure all departments have current info on clients.
- Prepare budget letters and send six (6) months prior to each client's fiscal year
- Provide forms of documentation to assist clients with regulatory reporting and compliance
- Prepare welcome letters to new clients
- Liaise with Sales Representatives to provide needed information to satisfy existing and prospective clients
- Incorporate salvaging efforts for clients considering canceling business
- Expedite the scheduling of any requested client meetings
- Liaise with Field Account Managers to ensure all needed actions are provided to satisfy clients' needs
- Follow up on complaints to ensure corrective actions are defined and the client is aware of our planned actions within 48 hours of complaint
- Liaise with Accounts Receivable and contact clients about delinquent billing
- Proactively contact clients according to standard operating procedures
- Prepare and monitor completion of needed addendums to contracts
- Liaise with the Operations Team—including Service Centers—as appropriate
- Perform administrative tasks for the department and the Sales Development Manager
- Provide reporting of Customer Service-related items to Manager on monthly basis
- Continually educate internal clients and peers on best practices

MASTERBUILT MANUFACTURING

Customer Service Manager

2017–2020

- Manage all operations for the company's customer care center
- Manage over 20 employees with various roles and functions
- Workforce management—delegating tasks and setting goals and deadlines
- Establishing key performance indicators (KPIs), standard operating procedures (SOPs), and service levels

Ken Logozar

VP, Professional Services

Years of Experience

7 years with Aclara
12 Years Industry Experience

Recent Project Experience

Southern California Gas Co.
STAR® Gas AMI Deployment

- 4.9 M endpoints

New York City
STAR® Water AMI Deployment

- 890, endpoints

City of Toronto
STAR® Water AMI Deployment

- 470,000 endpoints

American Water - Missouri
STAR® Water AMI Deployment

- 385,000 endpoints

Cooke County, TX
STAR® Electric AMI Deployment

- 16,000 endpoints

Professional Development and Achievements

University of Toledo, 2003

- Bachelor of Science, Computer Science, and Computer Engineering



Experience Summary

Mr. Ken Logozar, Vice President, Professional Services has 12 years industry experience overseeing installations for millions of endpoints for gas, water, and electric. He has 38 full-time Aclara staff supporting project execution and client programs and is responsible for managing his team of experts during the hands-on field service support, including back-office system set-up and initialization, through on-site DCU commissioning. Ken serves as senior level program oversight and point of escalation during the life cycle of a project.

Aclara Professional Experience

Vice President, Professional Services (Current)

Responsible for the implementation and progress of 4 distinct pillars of service and areas of expertise which include:

1. Project Management Office - provides consistent, scalable, and repeatable solution delivery.
2. Solution Architecture & System Integration - provides technical definitions, direction, integration and implementation required to have a solution transition from a signed contract to client execution.
3. Solution Performance and Network Design - the technical arm and delivery process providing subject matter expertise to design, build, analyze and optimize the networks supporting the Aclara products.
4. Managed Services - provides ongoing analysis, reporting and operation of the systems and products contracted between Aclara and the client for either hosted or ongoing network management.

Senior Director, Professional Services STAR (2012 - 2016)

- Oversight to a team of project and deployment managers, as well as technical implementation specialists
- A framework for successful requirements elicitation, translation and implementation
- Project related issue resolution as the top-level project escalation point

Director, Software Engineering and Systems Development (2009-2012)

- Leading a team of software developers and systems engineers
- Authoring, implementing and maintaining engineering processes
- Architecting customer solutions between STAR and the Utility enterprise



Tyson B. Turner

Program Manager

Years of Experience

11 years with Aclara
11 Years Industry Experience

Recent Project Experience

American Water - Missouri
STAR® Water AMI Deployment

- 385,000 endpoints

Andalusia, AL

- 4,700 L+G Focus AL and S4E Electric MTUs and Meters;
- 5,425 water MTUs with Badger retrofit; 24 DCU Network

Auburn University, AL

- 320 water MTU endpoint retrofit, 106 gas MTU endpoint retrofit, 260 electric endpoint replacement, 6 DCU Network

Barnard Impregilo Healy Construction in San Francisco, CA

- 45 water Zonescan Leak Detection Logger and MTU endpoints, 3 DCU Network

Boston Water and Sewer Commission, MA

- STAR Network System Upgrade
- 62 DCU Network and 65,000 new water MTU endpoints



Experience Summary

Mr. Tyson Turner has over 11 years of experience with new STAR AMI Network customers as well as long-term system users. He is fully knowledgeable of the benefits that delivery of AMR/AMI can provide to large and small municipalities and utilities. Tyson maintains an excellent understanding of the STAR AMI Network both from a product and training perspective, as well as the effect on users. Tyson has successfully managed more than a dozen water, electric, and gas projects during his tenure as a Project Manager. He is very detail oriented and is committed to exceeding customer expectations.

Aclara Professional Experience

Program Manager – Water/Gas, Professional Services, 2016 – Present

- Lead PMO participant held accountable for ensuring strategic accomplishments through oversight of multiple project activities
- Provides the scope definition, management, organization and budgeting for water and gas projects
- Responsible for tracking key performance indicators that support messages of program success and identify areas of required continuous improvement
- Serves as initial point of escalation for project issues and risks; leverages experience and best practice in leading project managers toward resolution and recovery planning
- Drives internal escalation and recovery plans for issues having impact on program or project success
- Manages review of internal project support teams, including setting of priorities and direction as to best facilitate the success of the program as a whole
- Provides review and approval for individual implementation plans, change orders and no-cost orders as needed for projects
- Ownership of contracts to the extent measurable KPIs and milestones are pertinent for project and ultimately program success

Tyson Turner

Program Manager

Recent Project Experience

City of Munroe Falls, OH

- 2,000 water MTU endpoints with Badger E-Series Meters w/ HR-E LCD Registers, 5 DCU Network

City of Toronto Water, ON, CA

- 470,000 water MTU endpoints
- 282 DCU Network, system upgrade in-progress STAR MTU readiness

Kansas City, MO

- 160,000 water MTU endpoints;
- 197 DCU Networks

New York City DEP, NY

- 890,000 water MTU endpoints
- 350 DCU Network, system upgrade in-progress for next-gen STAR MTU readiness

Professional Development and Achievements

Heidelberg College, Tiffin, OH, 1999

- Bachelor of Science in Biological Sciences



Aclara Professional Experience - *continued*

Project Manager, 2007 – 2016

- Primary interface with customers to plan and implement Synergize™ RF network deployment
- Performs risk assessment throughout the duration of the project while evaluating any impact to deadlines, resources, cost, or scope
- Oversight of planning, installation, and training phases of deployment schedule
- Ongoing customer support and managing system maintenance and upgrades
- Documenting completion of project stages and reporting project progress both internally and to customers
- Working closely with customer management to ensure that a high level of customer satisfaction is promoted through appropriate communications and effective project management practices
- Implementation of Synergize RF network systems from inception to completion, including overseeing daily project details to conducting field audits of MTU installations through customer training sessions

Product Trainer, 2006 – 2007

- Developed training materials and provided technical training for Aclara RF customers.
- Conducted installation and maintenance training in both classroom and field environments on Aclara RF's STAR Network for utilities ranging in size from Berea, Ohio Water Utility to the larger scale New York City Department of Environmental Protection (NYCDEP).
- Developed multimedia training materials covering the Synergize RF network and transmitter installation procedures for water and gas meters.
- Updated and expanded Aclara RF's user documentation to include stand-alone installation instructions for a wide variety of water, electric, and gas meters.

Benjamin Farrell

Project Manager – Professional Services

Years of Experience

16 Years' Experience as a lead Project Manager

AMI Project Experience

City of Findlay OH

Aclara Water Deployment (active implementation)

- 20,000 Water MTUs
 - 11 DCU Network
- ZoneScan Leak Detection

City of Mansfield OH

Aclara Water Deployment

- 19,000 Water MTUs
- 1,800 Remote Disconnect
 - 18 DCU Network
 - AclaraACE CEP

City of Covington TN

Aclara Water & Gas Deployment

- 4,400 Water MTUs
- 3,000 Gas MTUs
- 7 DCU Network

City of Thomasville AL

Aclara Water Deployment

- 2,250 Water MTUs
 - 8 DCU Network
- ZoneScan Leak Detection

City of Stallion Springs CA

Aclara Water Deployment

- 1,450 Water MTUs
- 4 DCU Network
- AclaraACE CEP

Professional Development and Achievements

University of Toledo

- BS - Civil Engineering

State of Ohio

Professional Engineer

- PE #76413



Experience Summary

Ben is an experienced Project Manager providing seamless project implementation execution, while also supporting Aclara's clients for their installation, upgrade, and on-going maintenance projects. With over 16 years of experience in project management across advanced metering infrastructure (AMI), municipal, and utility engineering projects, Ben's cross-functional skillset and attention to detail ensures Client satisfaction, project accuracy, and completion.

Aclara Professional Experience

Project Manager – Professional Services (2018 - Current)

Leads the efforts to implement new technology and services for our clients. Working in municipal and utility markets on data collection and AMI presentment. Ben works to ensure that his clients are well-informed and educated on the equipment and software that we bring to them and that they are satisfied with the support and direction they receive.

- Successfully manages complex project plans, tasks, deliverables, correspondence and resource requirements to ensure project schedules are met
- Escalates issues to designated team contacts and/or cross-functional teams to ensure implementation issues are addressed promptly

Other Professional Experience

City of Columbus, OH – Department of Public Service

CIP Project Manager (2016-2018)

- Prepare scopes of work for programmed improvements to City infrastructure and assist with the selection of and negotiation with consultants
- Guide consultants through the design and approval process for major capital transportation projects costing upwards of \$20 million

EMH&T Civil Engineers

Design Project Manager (2005-2016)

- Lead design team to prepare the plans and specifications for major transportation and energy projects

Todd Aznavorian

Director, Engineering & System Performance

Years of Experience

3 years with Aclara
14 Years Industry Experience

Professional Development and Achievements

Oakland University, Auburn
Hills, M

- Master of Business Administration, Concentration in Entrepreneurship

Lawrence Technological University, Southfield, MI

- Bachelor of Science in Electrical Engineering

U.S. Patent No: 8,606,454,

- System and Method for Synchronized Control of a Harvester and Transport Vehicle.

U.S. Patent No: 8,694,382,

- System and Method for Automatic Guidance Control of a Vehicle



Experience Summary

Lead technical arm of Professional Services delivery team, providing subject matter expertise to design, build, analyze and optimize the networks that support the targeted performance of Aclara products.

Aclara Professional Experience

Director of Engineering – RF System Performance

2015-Present

Manage multiple functional groups, RF Engineering, RF Test, GIS and Product Performance, to create a cohesive development process that ensures optimized designs of wireless proprietary communication networks. Deliver network designs and technical support to Sales, Account Management, Professional Services and Product Managers for RFP/Qs. Provide product launch performance analysis, reports, and in-field technical support/problem resolution.

- Drove RF testing from manual process to fully automated test suites, improved development timelines, test quality, report generation and reduced demand on critical resources.
- Redefined Propagation Modeling Process, resulting in improved network models specific to customer needs, improved relationship with internal customers, and meeting all delivery schedules.
- Moved antenna design team to 100% simulation prior to product build events, resulting in team meeting all project timing requirements with more efficient antennas.
- Created metrics and tests to validate RF network propagation models, allowing reduction in network infrastructure cost and improving network coverage.

Director of Engineering – Hardware, RF and Product Performance

2014-2015

Led all hardware and RF engineers for corporate new product initiatives and product upgrades. Provided all hardware and antenna project delivery information for cost and timing. Directed design research projects for future product development and cost reductions. Managed all current product systemic problems to

resolution. Gathering requirements for custom components of Aclara's MDMS solution for electric, gas, and water utility clients.

- Implemented hardware and RF development process that included focus on design reviews and simulation analysis, ensuring ability to meet project timelines and reducing circuit board redesign.
- Created cross functional team review to coordinate current product investigation, resulting in 90% reduction in open customer cases.
- Developed software and hardware tools to aid in development of projects, diagnosis and profiling of network and/or product issues, increased teams ability to quickly identify failures in new product launch, as well as, Alpha and Beta test phases.

CNH Industrial, Burr Ridge, IL

Senior Engineering Manager – Precision Solutions and Telematics, 2011–2014

Managed product development and engineering activities for a global 20+ member team consisting of UI/UX designers, systems, integration, test/evaluation, hardware and software engineers. Provided cost analysis and project timelines for an annual \$17M budget. Prioritized product development initiatives and ensured alignment with larger organizational goals. Managed and fostered relationships with external partners/suppliers. Ensured projects met strict deadline, cost, and engineering requirements. Recruited, hired and motivated high-performing team and set group priorities.

- Transitioned teams from Waterfall to Agile methodology, improving project planning and ability to meeting key application delivery targets.
- Led coordination effort with software, system, validation and quality teams to establish new software development cycle that improved Quality for unique systems that need to mesh into a traditional mechanically focused development cycle.
- Initiated two product redesigns that upon introduction will have annual cost savings of \$35M.
- Created a flexible architecture that met both high-speed Aftermarket and sophisticated Wholegoods marketing requirements allowing realization of product growth strategy.



Sylvester Moshiro

Director, Professional Services

Years of Services

9 years with Aclara
16 Years Industry Experience

Recent Project Experience

Blue Ridge Electric Cooperative (BREMCO)
Implementation of Meter Data Management solution

Commonwealth Edison (ComEd)
Delivery of AMI Device Management solution to support 4.1 million metering devices

Lafayette Utilities System
Implementation of a new Meter Data Management System

Professional Development and Achievements

George Washington University

- Masters Degree, Engineering Management

University of Dar-es-Salaam

- Bachelors Degree, Civil Engineering



Experience Summary

Sylvester Moshiro is a dynamic leader with experience in multiple areas of information technology delivery including technology consulting, project management, product management, and business development focused on energy and utility companies. Sylvester is currently responsible for overseeing professional services engagements for the Aclara MDM and ADM product lines, as well as providing sales support for the acquisition of new business. Prior to Aclara, Sylvester was a Senior Consultant with a global consulting firm where he worked with utility companies in the US to help them achieve operating excellence and increased revenue growth through business and technology solutions.

Aclara Professional Experience

Director, Professional Experience, 2011 - Present

- Oversight and direction of services engagements for delivery of MDM and ADM software products to manage project timelines, mitigate risks, and provide an escalation path for clients.
- Directs customer support functions for MDM, ADM, and Consumer Engagement software with responsibility for meeting customer SLA's.
- Joint business development to support product licenses.
- Leadership, development, mentoring, and hiring of business analysts, systems engineers, and project managers involved in implementation and support of Aclara technology solutions at multiple utilities.
- Implementation of internal processes and methodologies required for successful implementations with a high level of client satisfaction.

Senior Product Manager, 2008 – 2010

- Oversees strategic direction and tactical execution of the ADM software product, from requirements through release launch, including product positioning, and sales support.

Other Professional Experience

Senior Consultant, 2004 – 2007 - Global Technology Services Firm
Consultant, 2000 – 2003 - Utility Consulting Practice:

Ian Hockaday

Manager Software, Implementation Services,
Technical Services

Years of Experience

8 Years with Aclara
10+ Years Industry Experience
37 Years Career

Recent Project Experience

Boston Water

- Daily Consumption process rewrite for efficiency and accuracy

New York City

- Star Water AMI Deployment 875,000 endpoints
- Daily Reads process rewrite for efficiency and accuracy

City of Toronto

- Star Water AMI Deployment 450,000 endpoints

SoCal Gas System

- Implementation of 4.94 million endpoint AMI system
- Shared Network implementation for multiple water utilities sharing the Southern



Experience Summary

Mr. Ian Hockaday, Director, Professional Services, has 10 years of industry experience and 37 years of experience with database design, data analysis, project management and systems development. He manages a team system developers focused on integration development and data analysis, and a team of system engineers performing customer software builds and upgrades. Ian has also been responsible for managing large implementations for RF advanced meter projects.

Aclara Professional Experience

Director, Professional Services (current)

- Supports software engineers focusing on database interface development
- Customer billing systems interface customizations
- Data analysis and optimization projects for efficient access to periodic meter reading data
- Customer CIS data integration with the Aclara NCC database
- Server setup and software installation for new customer implementations
- Server upgrades for Operating Systems, SQL database updates and NCC version progression
- Process improvement for Professional Services collaboration both internally and customer facing

Network Manager, 2009 – 2016

- Managed the system implementation for major RF advanced meter projects. Including ongoing system maintenance, system performance, development of daily and weekly status reports, supervision of software implementation and testing staff, supervision of field technical engineers
- Scope of work development for major RF advanced meter project utilizing a headend collection system feeding a meter data management system and customer presentment software

Ian Hockaday

Manager Software
Implementation Services,
Technical Services

Professional Development and Achievements

Control Data Institute
Birmingham, England

- Computer Programming
and Systems Analysis

Sutton Coldfield College,
Sutton Coldfield, England

- OND Business Studies

Aclara Professional Experience- *continued*

- Customer liaison overseeing system acceptance testing, performance testing, system training and data input and extraction operations for client systems integration
- Microsoft SQL Server database management and performance improvements for customer data processing
- Oversee customer hardware operations from Synergize RF based transmitters to Ethernet or cell phone based collector units into IP based data pre-processors and database insertion

Other Professional Experience

Managing Consultant, 2006 – 2009

- Microsoft SQL Server database processing 350 million records per day, with over 10 billion records held in one database for history and processing use
- Successfully demonstrated required database processing performance to assist client meet and exceed contractual obligations
- Technical lead for magazine publisher ERP system development
- Web based application with Microsoft SQL Server database and VB.net user interface
- Successful design, development and deployment of complete system to replace mainframe application. Mainframe system was discontinued in December 2007 saving approximately \$20,000 per month



John E. Gedris

Sr. Manager Technical Support

Years of Experience

11 years with Aclara
11 Years Industry Experience

Professional Development and Achievements

Southern Illinois University
Edwardsville 2002

- Bachelor of Science,
Electrical Engineering



Experience Summary

Mr. John Gedris manages a team of 18-22 specialists, representatives, engineers and DBAs supporting Aclara's Powerline, RF, Cellular and Software products. He defines metrics and goals that align with the Customer Support Experience and tracking progress.

Aclara Professional Experience

Sr. Manager of Technical Support (Current)

- Conduct quarterly and annual performance reviews with team members to maintain alignment with goals.
- Write and improve job descriptions to clearly define roles and support new responsibilities.
- Foster an environment of accountability and high-performance; mentor and coach up, or coach out as necessary.
- Led the development of our team charter which sets clear expectations, encourages conflict resolution and promotes challenging discussions. Tied the items in our charter to our performance reviews – we're rated on what we all agree makes us a successful team.

Manager of Technical Support (2012-2015)

- Managed a team of 12 – 15 specialists, representatives, engineers and DBAs supporting Aclara's Powerline products.
- Conducted formal annual performance reviews with all team members.
- Led an internal team to develop a knowledgebase founded on the principles of Knowledge-Centered Support (KCS) within Salesforce.

Technical Support Supervisor (2009-2012)

- Supervised Tier 1 support - a team of 4-8 Technical Support Representatives and Technical Support Engineers.
- Created and maintained an internally-available document with solutions to common problems.
- Implemented feedback from Tier 2 support on issue resolutions into the solution repository and Tier 1 responses.

Lead Technical Support Engineer (2008-2009)

- Technical lead for a team of four engineers.
- Approved timesheets, time-off requests and delegated responsibility.
- Ensured SLA metrics with respect to Response time were met.
- Worked with Customer Care Representatives to document solutions and store them within shared network locations.

Technical Support Engineer (2006-2008)

- Worked on a team of 15-18 representatives and engineers to troubleshoot issues with Aclara's power-line-carrier AMI system.
- Interfaced with Customers on support cases and field visits.
- Installed/upgraded software and firmware.
- Ensured SLA metrics with respect to response time were met.
- Troubleshooting of the following:
 - Head-end (Aclara interface, Windows server, Oracle database)
 - Communication links (serial radio, fiber, TCP/IP)
 - Substation equipment
 - Remote Communication modules
 - Third-party software/hardware



Mark Fredebaugh

Technical Training Manager

Years of Service

4 years with Aclara
12 Years Industry Experience

Recent Project Experience

Experience Summary

Mr. Fredebaugh is adept at implementing software needs to match a client's internal business process and standards. Keen ability to multi-task and manage multiple training processes and implementations simultaneously. Accomplished at training individuals and large groups in both web-based and in-person settings. Demonstrated success in conveying software and hardware capabilities to facilitate the learning and understanding of students towards their utilization of a product in their daily job functions.

Aclara Professional Experience

Technical Training Manager (Current)

Managed training department comprised of four technical trainers to ensure successful and complete training delivered water, gas, and electric industry customers. Administered a company-wide, and customer accessible, LMS system to provide an additional avenue for on-demand training to occur.

Technical Training Lead (January 2016 – April 2016)

Prioritized training schedules, course development projects and training department personnel for the various training trips, webinars and classroom lead trainings provided to customers in the water, gas, and electric industry.

Technical Training Specialist (2014 – 2016)

Delivered training virtually and in-person to customers in the water, gas, and electric industry. Trainings covered not only the utilization of software related to various AMI systems but also the hardware involved to provide information to the various customers in the utility space.

Other Professional Experience - *continued*

MRI Software, LLC (2013 -2014)

SaaS Project Manager

Coordinated various projects within the Software as a Service (SaaS) department of the company to aid in various hard and software project updates. Documented new business processes needed as standard, best practice use within the SaaS group as well as provided insight into process improvement.

Professional Development and Achievements

Baldwin Wallace College,
2003

- Bachelor of Arts with a Business Major



Other Professional Experience - *continued*

Main Sequence Technologies (2005 - 2013)

Software Training Consultant

Train new and existing clients in utilizing PCRecruiter applicant tracking software for integration within their established operating processes both in web meetings sessions as well as travel to client locations for in-person sessions (domestic and international)

Project Manager – Data Conversions

Managed, facilitate and document data migration and conversion projects for new and existing clients with data to be converted or imported into PCRecruiter applicant tracking software

Customer Service Representative

Support new and existing clients via phone, email and web-based meeting software (GoTo Meeting and WebEx) for general questions, technical issues, best practice recommendations and new feature requests. Created training and support videos currently located on the support website using Captivate.



Justin Willman

Sr. Systems Administrator – SAAS Operations

Years of Experience

6 years with Aclara

11 Years Industry Experience

Experience Summary

- Professional, customer centric Sr. System Administrator with solid background in Server/Network design, support, configuration, set-up and troubleshooting.
- Skilled in helpdesk, desktop, Server and network support of Server 2008, Server 2012, Server 2016 , MS Office and troubleshooting internet connectivity issues,
- Background includes Active Directory, Azure Active Directory, Group Policy, adding new user and PC account to the domain and resetting passwords, moving and modifying existing user accounts as well as assigning static TCP/IP addresses, managing DNS/DHCP and managing group policy.
- Skilled in hardware troubleshooting and hardware network management, network cabling and server installation.
- Energetic professional that is capable of managing many diverse responsibilities simultaneously, with high attention to detail.

Aclara Professional Experience

Sr. Systems Administrator – SAAS Operations (Current)

- Domain Administrator for multiple domains - Azure AD and Windows AD
- Group Policy Administrator for multiple domains
- Administrator for private and public clouds
- Microsoft Azure administrator - IAAS and PAAS
- Windows IIS web server administrator - Security Certificates and Infrastructure
- Provide design and architectural guidance for Aclara's hosted environments
- Provide technical leadership for all Aclara's SaaS hosted servers including installation, maintenance, documentation and troubleshooting of hardware and software
- Assist in the overall health, performance, security, and patching of all SaaS environments
- Provide detailed troubleshooting, resolution and root cause analysis to assure SLA compliance for our customers

Professional Development and Achievements

University of Missouri

St. Louis

- Bachelor of Science – BS, Management Information Systems, General

Other Professional Experience

CIO Services 2013 -2014

System Administrator

- Manage over 12 clients servers using a central management tool.
- Build and Setup DHCP,DNS and Domain Controller servers.
- Administer Veeam, Replay/Appassure and Backup Exec 2012 servers
- Build and configure ESXi hosts using ESXi 4 – 5.5
- Build and manage VMWARE virtual machines and datastores
- Handle escalations from help desk and on site techs.
- Create and assign group policy
- Install and configure SonicWall and Cyberoam firewalls including VPN setups

Aclara 2010- 2013

PC Tech II

- FTP and Print server engineer / administrator.
- Setup and administrate FTP, SFTP and FTPS sites.
- Create / Modify user accounts through active directory with Powershell and Exchange tools.
- Complete all user terminations
- Create / Manage distribution lists and security groups through active directory
- Created / administer Win 7 image through Microsoft AIK and Deployment toolkit
- Microsoft SCCM administrator responsible for software packages and collections
- Completed monthly reports on access badge usage and expiration.
- Complete helpdesk tickets and answer helpdesk calls.
- Main point of contact for all technical issues for Aclara customer conference
- Work helpdesk tickets and helpdesk calls



CERTIFICATE OF INSURANCE



ISO 9001:2015 CERTIFICATION





BUREAU
VERITAS

Bureau Veritas Certification

SUEZ ADVANCED SOLUTIONS (UTILITY SERVICE)

1230 Peachtree St NE, Suite 1100 Atlanta, GA 30309 USA

This is a multi-site certificate, additional site(s) are listed on the next page(s)

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organization has been audited and found to be in accordance with the requirements of the management system standards detailed below

ISO 9001:2015

Scope of certification

PROVIDES REHABILITATION SERVICES AND ASSET MAINTENANCE PROGRAMS FOR MUNICIPAL AND INDUSTRIAL WATER DISTRIBUTION SYSTEMS

Original cycle start date:	12-January-2018
Expiry date of previous cycle:	11-January-2021
Certification / Recertification Audit date:	29-October-2020
Certification / Recertification cycle start date:	11-January-2024
Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on:	11-January-2024

Certificate No.:	US014911	Version:	2	Issue Date:	23-February-2021
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Brian Sanders



0008

Certification Body Address: 5th Floor, 66 Prescott Street, London, E1 8HG, United Kingdom

Local Office: 16800 Greenspoint Park Drive, Suite 300S, Houston, TX 77060, USA

Further clarifications regarding the scope and validity of this certificate, and the applicability of the management system requirements, please call: +(800) 937-9311





BUREAU
VERITAS

Bureau Veritas Certification

SUEZ ADVANCED SOLUTIONS (UTILITY SERVICE)

ISO 9001:2015

Scope of certification

Site Name/Location	Site Address	Site Scope
SUEZ ADVANCED SOLUTIONS (UTILITY SERVICE)	1230 Peachtree St NE, Suite 1100 Atlanta, GA 30309 USA	PROVIDES REHABILITATION SERVICES AND ASSET MAINTENANCE PROGRAMS FOR MUNICIPAL AND INDUSTRIAL WATER DISTRIBUTION SYSTEMS
USCI - ARKANSAS	12748 US Hwy 70 Proctor Proctor, AR 72376 USA	
USCI - CALIFORNIA	711 W Esplanade Ave, Suite G San Jacinto, CA 92582 USA	
USCI - GEORGIA	141 Hicks Drive Perry, GA 31069 USA	
USCI - ILLINOIS & MAXCOR	900 Country Creek Drive New Lenox, IL 60451 USA	
USCI - JPI	6150 Center Road Lowellville, OH 44436 USA	
USCI - KANSAS	1259 S 220th Street Pittsburg, KS 66762 USA	
USCI - MA / MERITHEW	128 Elm Street Bridgewater, MA 02324 USA	

Certificate No.: **US014911**

Version: **2**

Issue Date:

23-February-2021

Brian Sanders



0008

Certification Body Address: 5th Floor, 66 Prescott Street, London, E1 8HG, United Kingdom

Local Office: 16800 Greenspoint Park Drive, Suite 3005, Houston, TX 77060, USA

Further clarifications regarding the scope and validity of this certificate, and the applicability of the management system requirements, please call: +(800) 937-9311



SUEZ ADVANCED SOLUTIONS (UTILITY SERVICE)



BUREAU
VERITAS

Bureau Veritas Certification

ISO 9001:2015

Scope of certification

Site Name/Location	Site Address	Site Scope
USCI - NEW YORK	128 Elm Street Bridgewater, MA 02324 USA	PROVIDES REHABILITATION SERVICES AND ASSET MAINTENANCE PROGRAMS FOR MUNICIPAL AND INDUSTRIAL WATER DISTRIBUTION SYSTEMS
USCI - NORTH CAROLINA	200 Old Covered Bridge Road Madison, NC 27025 USA	
USCI - PERRY OFFICE	535 Courtney Hodges Blvd Perry, GA 31069 USA	
USCI - TEXAS	16002 Kitzman Road Cypress, TX 77429 USA	

Certificate No.: **US014911**

Version: **2**

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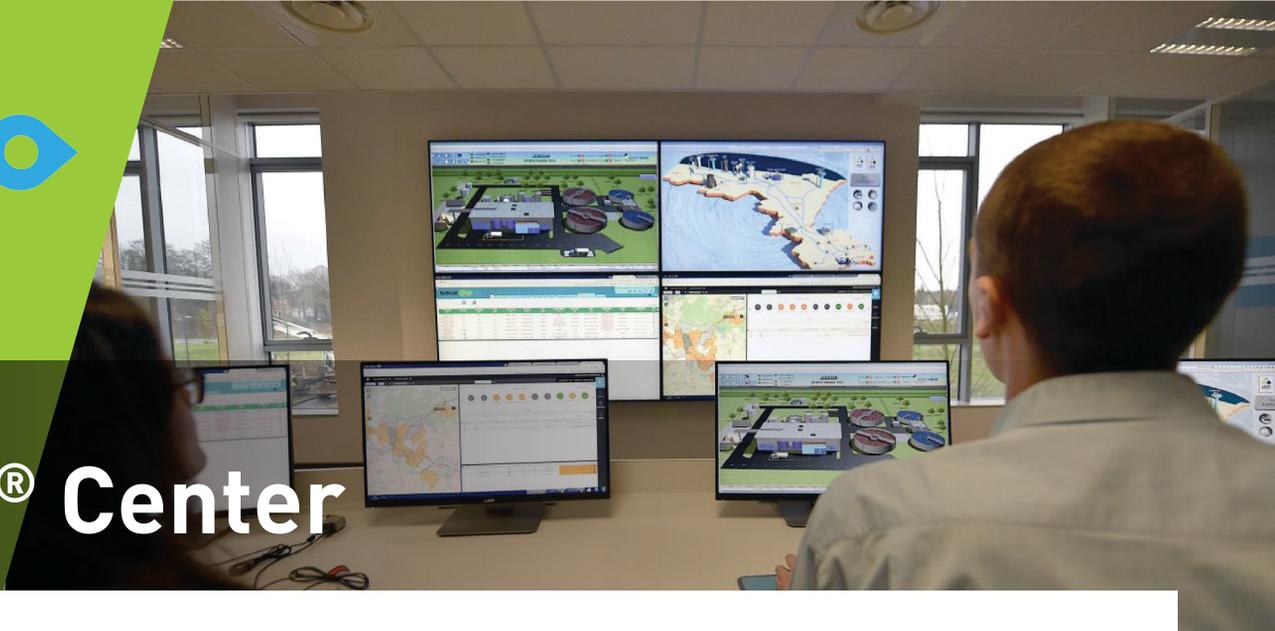


VISIO[®] CENTER BROCHURE





VISIO® Center



SUEZ VISIO® Center located in Atlanta, GA is a hub, gathering real time data from the AMI systems of our clients nationwide. The center is staffed with a team of AMI specialists who use their proven expertise and a suite of innovative digital tools, including a powerful Asset Management/Work Order Management System, to continuously analyze the data received in order to monitor and ensure the reliable operations of the AMI systems.

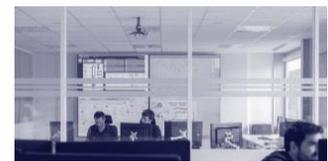
Our VISIO® experts analyze real time data, translate it into dashboards and use it to optimize the effectiveness and efficiency of your AMI system. They monitor alarms, trouble-shoot potential problems as they arise and issue work orders when necessary to the field crews in our Service Centers to manage your assets (Meters, Transmitters, and Collectors) over the life of your system. Our experts also provide on-going Client support and Reporting.



Remote Monitoring



Real Time Monitoring Tools



Data Management & Communication



Responsiveness & Traceability



Logistical Scheduling



Crisis Analysis & Management

Get the expert help you need.

Call +1 (855) 526-4413 or visit

www.suez-na.com

Utility Service Co., Inc.

1230 Peachtree Street NE
Suite 1100 | Promenade Building
Atlanta, GA 30309



An ISO 9001:2015 Quality Assured Company

UTILITY SERVICE CO., INC. (A SUEZ COMPANY)

1230 Peachtree Street NE, Suite 1100

Atlanta, GA 30309

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