“Having this opportunity to leverage the knowledge of technical experts to aid in recommending solutions that could lower operating, maintenance and debt service expense is critical. This is why we feel confident that our work with Moonshot Missions can help us improve. We have already made great progress and seen the benefits to our community.”

- Staff at City of Toledo, OH
MOONSHOT MISSIONS IS A NON-PROFIT DEDICATED TO CLEAN AND HEALTHY WATER AND WATERWAYS IN UNDERSERVED COMMUNITIES.

We are committed to achieving environmental and social justice within the water sector.

Moonshot Missions sends expert utility advisors into the field to assess conditions and identify, select, and develop technically and financially sound projects that transform utilities and the communities they serve by helping to deliver clean and affordable water at the tap and in local waterways.

OUR MISSION

Moonshot Missions serves as a trusted peer advisor for communities to secure safe, accessible, and affordable drinking water and clean waterways, regardless of zip code.

OUR VISION

To be a catalyst for transformative investment in our nation's water infrastructure to establish a foundation for thriving and resilient communities and natural environments for future generations.

Our Values

Being INQUISITIVE by practicing humble listening with the understanding that everyone can teach us something of value.

Being INNOVATIVE by identifying creative solutions to optimize outcomes for our clients and the efficiency of our team.

Being COLLABORATIVE by incorporating the ideas of all our team members and the communities we serve.

Being COLLEGIAL by supporting, respecting, and encouraging each other and embracing the strength of our diversity.

Being GRATEFUL for the opportunity to serve as trusted advisors and to attract, develop and retain the best talent.
Moonshot Missions was formed in 2019 based on two realities: first, field-tested practices that enhance the efficiency of water utilities, lower expenses, and boost revenue exist; and second, many of these practices remain inaccessible to utilities facing significant challenges. This is largely due to the same factors that created those challenges: lack of personnel and lack of financial resources.

The result, despite the heroic efforts of those working in these places, is often a downward spiral of performance as the limited resources are insufficient to address the challenges of aging infrastructure, extreme weather events, and emerging contaminants. These communities face direct threats to public health and the environment.

Moonshot Missions believes that people in every community deserve clean water at the tap and in local waterways. Moonshot Missions was formed based on an approach we believe is instrumental in achieving this goal.

In 2023, we are pleased to report that this approach, what we call the “Moonshot Method,” is demonstrating success – a proof of concept - in every region of the United States.

In this, our first annual report, we highlight the features of the Moonshot Method and how it delivers hands-on assistance to under-resourced communities. We evaluate what has worked and our continuous improvement. We conclude with a brief look on how we plan to build on this proof of concept to scale up our services in 2024 to meet a deep and compelling national need.

In parallel, after several start-up years under a fiscal sponsor, 2023 was our first year as a stand-alone 501c3 non-profit organization. We recognized that to help communities access clean water, we needed to support our team with a progressive, vibrant, and diverse organizational culture with competitive benefits. We also highlight how we have undertaken this internal work in 2023, underscoring the significance of our team's culture and diversity in shaping our future. I wish all of you could witness the passion, camaraderie, and sense of family we have fostered and cherish. Perhaps some of you may consider joining us in the days ahead.

I am excited for you to review our progress in 2023 and hope that you will engage with us in return – as a supporter, employee, client seeking assistance, volunteer expert, or just a good friend and colleague! We enthusiastically welcome any comments to help us learn and improve: info@moonshotmissions.org, or our website www.moonshotmissions.org, and via our social media with the links below.

Sincerely,

George Hawkins,
CEO and Founder

moonshotmissions.org
Every community we served in 2023 meets the classification of disadvantaged, small, or tribal. This is Moonshot’s Mission.
Moonshot seeks to ensure that every community benefits from practices and technologies that deliver clean and affordable water. We know, however, that any utility faces natural obstacles to change, which are magnified many times over for under-resourced communities. Only a clear understanding of these obstacles can help us target effective solutions. For a deeper dive, see our paper here.

**WHAT DIFFERENTIATES MOONSHOT?**

- Moonshot is comprised of veteran utility leaders and professionals, providing an ideal perspective to offer trusted, expert advice to peers in under-resourced utilities.

- Moonshot’s leaders have experienced most issues facing the water sector and are able to quickly diagnose and suggest transformative solutions that are field-tested and ready to implement.

- Moonshot provides access to world-class technologies, financial and management practices, and communication expertise to enable under-resourced utilities to plan, design, and adopt transformative projects.

- Moonshot’s robust network includes subject matter experts with expertise in almost every issue facing water utilities today.
Founded on building a trusted relationship with utility leaders and staff, Moonshot deploys a six-step approach, which relies on careful homework and humble listening:

- **PROFILE**: We do our homework. From day one, we have a good sense of your community, operations, budget and management systems.
- **ASSESSMENT**: We practice humble listening with staff to identify challenges and opportunities for improvement.
- **MENU**: We deliver a menu of potential projects that improve performance and reduce costs.
- **MAP**: We consult with utility leadership to choose a manageable set of projects and develop a customized roadmap to implementation.
- **LAUNCH**: We help utilities through implementation, by providing model documents, change management approaches and financing mechanisms.
- **REPLICATE**: We model what we learn from hands-on experience to develop replicable modules to speed the evaluation of common challenges and adoption of solutions.

Training and Technical Assistance Program for Rural, Small, and Tribal Wastewater Systems:

“I think that you guys have a great program and I just love the way everyone brainstorms to come up with solutions it is very “Justice League of the utility sector!!” There doesn’t seem to be anything that at least one of you doesn’t have insight or experience with. Yours may very well be the most worthwhile organization around!”

- Staff at City of Beggs, OK

To learn more about our method and areas of impact, visit: [https://www.moonshotmissions.org/method](https://www.moonshotmissions.org/method)
MOONSHOT’S MISSION: PROGRAMS, IMPACT AND LESSONS LEARNED.

In 2023 we implemented the Moonshot Method in partnership with 79 communities in 28 states and 2 territories. We learned two important lessons. The first is that the Method works! Our team of utility and public sector veterans can develop trusted relationships with utility personnel quickly to diagnose challenges and implement solutions. The second is that the Method is only a guide – and that conditions in each case are unique and require our team to remain flexible and adaptable.

We highlight examples of the work we have accomplished in four categories based on the range of programs and support we have received to engage in this work:

- TRIBAL FOCUS
- REGIONAL FOCUS
- EPA WATER TECHNICAL ASSISTANCE (TA)
- TRUSTED PEER ADVISOR
TRIBAL FOCUS

Purpose: Tribal communities that lack access to safe drinking water and sewage services. An estimated 48% of homes on tribal land, representing about 660,000 Native American people, lack access to adequate drinking water, sewage, or solid waste services. While tribal work is included across Moonshot’s project portfolio, we have partnered with organizations that share this mission to develop programs for tribal communities.

Xylem Watermark

Thanks to the generous support of Xylem Inc., Moonshot sent experienced team members out to tribal communities facing challenges with basic water access.

- **Moonshot’s Role:** Moonshot collaborated with the Bodaway Gap Chapter and Hidden Springs Mission on the Navajo Nation to understand community’s priorities.

- **Impact Highlights:**
  - Dedicated funding and completed construction of a pipeline to a filling station for the estimated 60% of residents without access to readily available potable water.

- **Lessons:** Building trust is an essential threshold step before any assistance can be offered to Tribal Communities. Past utility experience helps, but the trust is strengthened by peer relationships between members of the tribal community. We are fortunate to have been joined by Margo S., a member of the Navajo Nation, and just in early 2024, Lionel P., a senior member of the Hopi Tribe.

Clean Backyards Project

In September of 2023, Moonshot launched an initiative to address the sanitation crisis on the San Carlos Apache Reservation in rural Arizona. With over 700 failing septic systems posing health risks to almost a third of the community on the reservation, many families require immediate financial assistance to eliminate sewage backups into their backyards and mitigate potential drinking water contamination. We have received important contributions to this effort from individual donors and Liquid IV.

- **Moonshot’s Role:** With guidance from the Tribe, Moonshot contracted with septic haulers to pump out septic tanks. The pump outs fill an immediate need to protect public health while Moonshot works with TA providers to explore long-term solutions for safe and affordable sanitation.

- **Impact Highlights:**
  - Septic tank pump outs at residential homes provided immediate relief for families facing wastewater backups in their homes and yards.
  - Public outreach and education to educate families on septic tank maintenance and troubleshooting.

- **Lessons:** At times, initial field work highlights that immediate action is needed, even prior to working through the components of the Method to a long-term solution.
Purpose: Deploy our network of utility experts to solve drinking and clean water challenges in different regions of the country while sharing best practices nationally. From the Great Lakes watershed to the Shenandoah Valley, our interconnected approach allows us to embed team members locally while learning and sharing knowledge. This emphasizes a key component of the Method: our work depends on hands-on learning at the regional and local level, and in parallel, our work is improved by sharing lessons and best practices across regions and on a national basis.

Forging New Pathways to Improved Water Quality and Climate Resiliency in the Great Lakes

Funded by the Great Lakes Protection Fund, our work aims to transform the management of utilities in the Great Lakes region. This includes addressing issues like Combined Sewer Overflows (CSOs) and nutrient reductions that pose public health risks to the world’s most important freshwater resources.

• Moonshot’s Role: Moonshot partners with utility leaders to identify, plan, and implement world-class technologies and management approaches. As we identify common improvements, we are developing a playbook to share with a Community of Practice Network.

• Impact Highlights:
  • Assisting the City of Lima, Ohio develop a plan aimed at achieving a 63% reduction in phosphorus discharge to meet anticipated regulatory changes.
  • Partnering with Michigan EGLE to develop a guidance document aimed at reducing phosphorus discharge by 20 communities in the western Lake Erie basin.
  • Helping City of Gary develop a comprehensive fund development strategy for 30 priority capital upgrade projects.
  • Successfully established collaboration between City of Akron and EPA Office of Research and Development to test new technologies to treat combined sewer overflow (CSO).

• Lessons: Utility leaders value unbiased advice from experienced peers without any financial stake in the outcome. The greatest challenge, though, is the limited time of understaffed agencies. We focus on delivering easy to digest reports focused on action and impact.
Improving Water Systems in the Shenandoah Valley Region

Building upon a multi-year grant from the Agua Fund, Moonshot provided hands-on support to drinking water systems in the Shenandoah Valley Region in Virginia. For many small to medium size utilities, infrastructure is aging, the cost to deliver services is rising, climate change threatens source water quality and reliability.

- **Moonshot’s Role:** Once we identified communities with significant drinking water compliance concerns, our team partnered with four systems to provide solutions that improve performance, reduce costs, and achieve regulatory compliance to provide safer drinking water.

- **Impact Highlights:**
  - Reviewed groundwater studies and provided a plan for the Town of Strasburg to secure a back-up supply of source water for use in case of Shenandoah River contamination.
  - Assisted the Town of Elkton by updating their asset management inventory, creating a capital improvement plan, and procuring a rate study analysis.
  - Recognizing the common threat to surface water treatment facilities along the Shenandoah River from Harmful Algal Blooms, researched and developed practical advice and resources to this group of utilities.

- **Lessons:** Working with utilities in a region identifies both unique and common challenges. Moonshot must be prepared to help in both cases.
Harmful Algal Blooms Toolkit – Virginial Department of Health (VDH)

Moonshot learned first-hand from utilities in the Shenandoah Valley that Harmful Algal Blooms (HABs) are one of the most significant threats to public water supplies. HABs are algae growth that occur in the sea and freshwater because of nutrient pollution. HABs can produce dangerous toxins that pose risks to human and animal health and raise the costs of treating drinking water. The Virginia Department of Health learned of our work and engaged Moonshot to develop a statewide tool kit to monitor Virginia’s waters for harmful algae and prevent potential illness.

- **Moonshot’s Role:** Our team convened a HABs stakeholder group to understand the challenges and best practices in addressing HABs events. Alongside experts from the Virginia Department of Health, we published a comprehensive HABs Toolkit made available to Virginia utilities.

- **Impact Highlights:**
  - Developed the HABs Toolkit, a free resource for utilities that includes techniques for addressing HABs, recommendations for treatment options, guidance for planning for emergencies, and communications strategies.
  - Hosted a training webinar in collaboration with Virginia Department of Health, engaging 40+ leaders across 23 different water utilities.

- **Lessons:** The best and most practical tool kits for widespread use are grounded on practical experience in the field.
Chesapeake Bay Wastewater Utility Technical Assistance

In 2010, the EPA established the Chesapeake Bay Total Maximum Daily Load (TMDL), a regulation to limit the amount of phosphorus, nitrogen, and sediment entering the Bay. With financial support from the Campbell Foundation to address this regulation, Moonshot provides technical assistance to tackle discharge violations that protect the biologically diverse Chesapeake Bay Watershed.

- **Moonshot’s Role:** Moonshot worked with state agencies to coordinate solutions and reduce the access gap to funding opportunities for communities with failing systems.

- **Impact Highlights:**
  - Created a decommission strategy for Dorchester County’s failing component of onsite sewage disposal systems. The remaining components will be replaced with funding successfully secured from the Maryland State Revolving Fund.
  - Facilitating efforts with the Maryland Department of Environment to prepare FEMA grant applications for hazard mitigation and climate resiliency projects.
  - Prepared a prioritized list of capital upgrade projects for Chesapeake Beach to improve performance and build climate resiliency, to be used for upcoming SRF applications.

- **Lessons:** Partnerships with state agencies are essential to our success. These agencies usually have the best understanding of communities in need and can help with introductions based on years of interactions.
Purpose: Funded by US EPA, Moonshot provides cost-free Technical Assistance (TA) to environmental justice communities with compliance challenges that need help but lack access to federal and state funding. The US Environmental Protection Agency provides funding to enable free Water Technical Assistance (WaterTA) services to support communities to identify water challenges, develop plans, build capacity, and develop application materials to access water infrastructure funding. Moonshot is honored to partner with the EPA as a technical assistance provider for multiple flagship WaterTA Programs.

Training and Technical Assistance Program for Rural, Small, and Tribal Wastewater Systems

Provides TA to improve rural, small, and tribal wastewater system operations. Moonshot joined the team led by the Southwest Environmental Finance Center.

- **Moonshot’s Role:** Moonshot conducted outreach to rural, tribal utilities to identify systems interested in receiving assistance. Our team conducted on-site and remote assessments of the current conditions of 42+ systems in 10 states and collaborated to create a prioritized list of projects that bring systems back into compliance, making them more sustainable and resilient.

- **Impact Highlights:**
  - Devised an interim operational plan for restoration and action plan to meet consent order requirements in Beggs, Oklahoma. Facilitated funding discussions with the Oklahoma Water Resources Board and Oklahoma Emergency Management Agency.
  - Collaborated with the Virginia Department of Environmental Quality to bring the Town of Victoria’s treatment plant into compliance, saving the Town from undergoing a costly treatment upgrade.
  - Provided both remote and hands-on wastewater process control training to operators in four small treatment plants in Virginia, enabling them to become self-sufficient in facility operations and sustaining environmental compliance.
  - Performed compliance reviews of 13 wastewater treatment plants and completed site assessments for five plants across the Tennessee State Park system, resulting in strategies to bring several plants back into compliance.

- **Lessons:** The trusted peer approach works well with state agency personnel as well, which is a relationship essential to identify communities in need and provide both history and local introductions.
Environmental Finance Centers

The Bipartisan Infrastructure Law delivers more than $50 billion water infrastructure dollars to the EPA, mostly allocated through Clean Water and Drinking Water State Revolving Funds (SRF). Environmental Finance Centers (EFC) help underserved communities access these funds by providing TA to identify infrastructure needs and develop funding applications. In June of 2023, Moonshot was selected as one of four National EFCs and supports five Regional EFCs.

- **Regional Partners:** University of Maine, Syracuse University, University of Maryland, University of New Mexico, Rural Community Assistance Corporation

- **Moonshot’s Role:** Moonshot commenced work as a National EFC in July of 2023. Over the next five years, our goal is to provide direct TA to 50+ disadvantaged communities each year. The EFC team collaborates with utility officials to diagnose compliance and performance challenges, translating aspirations into a roadmap of concrete steps to apply to SRF funding.

- **Impact Highlights:**
  - Participated in regional dialogues to ensure coordination of TA initiatives across states, paving the way for the scalable implementation of the EFC program in 2024.
  - Increased awareness about the TA available to communities by fostering relationships with state agencies. Initiated the inaugural cohort of communities, coordinating with city leadership and water operators to conduct site visits and listening sessions.

- **Lessons:** Most disadvantaged communities have many operational challenges that must be resolved prior to developing complex funding SRF applications.

Moonshot also completed two EPA WaterTA pilot initiatives this year. These pilots served as a hands-on learning opportunity to help guide national WaterTA programming. Under Closing America’s Wastewater Access Gap Pilot Program led by the University of New Mexico and the H2O Community Solutions Team Pilot Program led by the University of North Carolina and Sacramento State University, Moonshot provided TA to communities with significant decentralized water needs or no wastewater infrastructure at all. These pilots lay groundwork for Regional and National Environmental Finance Centers aimed at assisting disadvantaged communities in accessing federal and state funding.
**Purpose:** Provide fee-for-service consulting services to large and mid-size utilities, which directly benefit low-income customers. Revenue helps diversify and stabilize Moonshot financial resources and can help fund work for utilities that are not able to pay.

### Miami-Dade County Strategic Planning

Miami-Dade County Water and Sewer Department (WASD), the largest water and sewer utility in the southeastern United States, contracted Moonshot in 2022 to conduct an employee-led strategic planning process that is accessible, adaptable and resilient. After the successful completion of the [WAVE Five-Year Strategic Plan](#), Moonshot is assisting WASD in implementing a change management strategy.

**Impact Highlights:**

- Engaged with over 6500 stakeholders in development of the WAVE (Water: A Vision for Excellence) strategic plan including WASD employees, County elected officials, partner agencies, regional leaders, construction contractors and wholesalers.

- Developed a branded and memorable design centered on the WAVE Compass under which all future projects and programs are oriented.

- Developed a WAVE implementation communication plan focused on three stages of change management, “Catch the WAVE”, “Build the WAVE” and “Ride the WAVE.”

- Built a comprehensive staffing model for WAVE implementation to shake up the organization’s current hierarchy, integrating operators, field staff, and other employees not typically at the decision-making table to WAVE project management teams.

- Organized nine “Catch the WAVE” Roadshow events to launch the WAVE internally, engaging with all staff in their own locations, bringing excitement for change and a unified voice behind the effort.

**Lessons:** Utility leaders value advice from utility veterans who have direct experience in utility management and operations and can provide unbiased advice and recommendations.

**In my entire 40 year career, I’ve been involved in dozens of these type of exercises and this was hands down the best! I came to the workshop expecting a boring and mundane process and never expected to be so delightfully surprised!”**

- Staff at Miami-Dade County Water and Sewer Department, FL

### Finance and Oversight Board of Puerto Rico Advisory Services

The Financial Oversight and Management Board of Puerto Rico, which oversees the Puerto Rico Aqueducts and Sewers Authority (PRASA), contracted Moonshot to complete a technical, managerial, financial review of utility operations and capital improvement plan – including non-revenue water, maintenance and repairs, electricity and green energy alternatives, and chemical optimization.

**Impact Highlights:**

- Reviewed the proposed capital improvement plan and provided recommendations that reduced capital cost requirements by millions of dollars, including alternative metering technology for improvement of the drinking water system.

- Proposed green energy projects to improve system resiliency and reliability, while also reducing operational costs at both drinking water and wastewater facilities.

**Lessons:** Independent peer advice can often identify not only what projects should be considered, but also projects that may be worth reconsidering or changing. Moonshot through advice of this nature has been able to save PRASA precious operating and capital funds.
MOONSHOT’S PEOPLE: ORGANIZATION, HEALTH AND WELLBEING

Moonshot’s ability to serve is founded on providing a supportive and nurturing environment for our team, from paid employees to contractors and expert volunteers. With generous support from Spring Point Partners, Xylem, the Robert Wood Johnson Foundation, and Liquid IV, Moonshot embarked on a comprehensive effort to establish a progressive and supportive framework. In 2023, we nurtured a culture of inclusivity, learning, and service, while also fostering family-like friendships, passion, and fun. By prioritizing our team’s growth and internal operations, we lay the foundation for sustained impact and the ability to deliver the highest standard of service.

ORGANIZATIONAL HEALTH

In 2023, Moonshot became a stand-alone 501c3 organization after our start-up years under a fiscal agent. This transition required the development of comprehensive administrative, human resource and financial services - memorialized in an employee handbook and online HR services. This intensive process was initiated by listening and learning from staff at our first staff retreat.

RETREAT

Moonshot gathered for a staff retreat in Washington, DC for the first time since its inception. The retreat was hosted at the Reservoir Center for Water Solutions, a collaborative meeting space for water sector non-profits. As an organization that recruits highly regarded water professionals from all over the country, we operate a remote workplace and value the need to engage in-person. Facilitated by Generative Consulting Partners, the retreat served as an integral part of our strategic planning effort, defining our shared values and mission, and establishing comradery across our team. The Retreat also allowed us to hear from our team about priorities for financial, health, and other benefits. After careful review, we adopted a competitive benefits package, retirement plan, financial and program management systems, and a regular cadence of programmatic meetings. We were pleased to also add a Wellness Benefit later in the year.

WEBSITE & SOCIAL MEDIA

We understand that our success at Moonshot is also premised by how well we tell our story – to encourage excellent candidates to consider joining us, to help agencies and communities in need alike to understand the content and value of our services, and to demonstrate to current and potential funders that their support is driving meaningful results.

To help tell our story, in the final quarter of 2023, we launched a new viewer-friendly website in parallel to a fresh social media strategy on LinkedIn, X, Instagram and Facebook. We are grateful for support from First Station Media and SKS Creative to manage our social media engagements and further develop our website. Look at some of the analytics that highlight our efforts to get our message out:

- Revived our Facebook and Instagram, reached 6.1K people
- 26,000+ impressions on LinkedIn
- 400 new LinkedIn followers

Check us out at www.moonshotmissions.org
In 2023, we added 11 new employees to our team. We made an intentional investment in the future of water leadership by welcoming aboard a cohort of early to mid-career professionals, harnessing their fresh perspectives and energy to propel our mission forward. To respond to the needs of utilities across the country, we added employees in ten states and every region. Look at what our team has to say about working at Moonshot!

- Mike S., Managing Director – “Moonshot’s staff is unique – almost all of us have at least 10 years’ experience in the water industry. We can say “we have been in your shoes.”

- Nathan C., Senior Utility Advisor- “We have an opportunity to lock arms with front line water warriors and charge up the hill of challenges regardless of zip code. We are utility people, helping utilities without borders. We have an opportunity to live out our passion for water and people all at the same time.”

- Genevieve M., Utility Advisor - “I am absolutely thrilled at the opportunity to learn from and about the unique and diverse communities all across our country.”

- Kyle G., Intern Summer 2023 – “Moonshot is a team of service-minded people working to remedy a crucial human and environmental issue: water equity.”

See the breakdown of our team by race & ethnicity.

See the professional background of our team members.
Me too! I am proud that in 2023 we both established the organizational structure and culture that encourages and enables our team to do this work, and on that basis, successfully proved the concept in communities in all regions of the country.

Looking forward to 2024, we are determined to build upon this success to significantly expand our reach to improve water quality at the tap and in local waterways for communities in need. Some of our goals:

- Double the number of communities we reach with either topic specific solutions or soup-to-nuts assistance to improve water services.
- Engage with communities in at least 40 states and territories.
- Identify more than $100 million in cumulative savings from projects that are customized and accessible to communities with limited budgets and personnel.
- Identify measurable reductions in nutrient and combined sewer discharges due to projects and approaches developed in the Moonshot process.
- Identify and initiate projects that achieve measurable reductions in utility energy use and carbon footprint, including cost savings and anticipated revenue from generation of renewable clean energy.
- Help more than 50 families resolve long-standing failing septic systems, moving from immediate improvements to long-term solutions.

And for our team:

- Continue to add experienced and diverse personnel across the country, with an emphasis on the Eastern and Southern states.
- Produce a fun and appealing newsletter to keep our friends and allies up to date on our actions.
- Expand our internship program to the West Coast, and strengthen our externship program with Xylem, Inc.
- Develop a staff training and professional development program to ensure our team is continually learning and improving.

And most important, we seek to hear from you – as friends, potential team members, colleagues in communities seeking help, and supporters of our cause and approach. We love to listen and learn and always strive to get better at this work.

There is so much to do, and ultimately, we succeed only if we work and learn together.

Onward!
George Hawkins, March 7, 2024
“We truly love having you visit - both for the work you are doing and the time we get to spend together. We cannot thank you enough for all that you are doing in our community. I so appreciate your hard work, determination, and steadfastness. It is such an encouragement to me and will be a real benefit to Bodaway.”

— Staff at Hidden Springs Mission, Navajo Nation

Key Partner: Xylem Watermark