



Water Loss Management Solutions

Improving efficiency, reliability and accountability in clean water transmission and distribution systems.



BLACK & VEATCH



BV brings specialized knowledge to help clients reduce water losses, enhance revenues, optimize resources and decrease environmental footprint.

Driving Resilience by Valuing Every Drop

Facing challenges from aging infrastructure, funding and supply, water utilities can improve delivery efficiency, conserve resources and mitigate revenue shortfalls through holistic non-revenue water (NRW) management strategies.

Water loss control programs help utilities identify and reduce NRW resulting from aging infrastructure and metering/billing inefficiencies, all while protecting public health. Water loss control programs also help reduce utility carbon footprints and improve local sustainability. These programs are often being leveraged as part of “net zero” climate goals and this expertise can be leveraged worldwide.

Black & Veatch professionals bring specialized planning experience that integrates water loss control programs, systems and data integration, and asset management to help water utilities manage resources more efficiently.

A vendor-agnostic consultant, we provide project management and implementation services, helping our clients reduce water losses, enhance revenues, optimize resources and decrease their environmental footprint.

Detailed Water Audit

A detailed water audit is the first step toward managing demand and improving water conservation. This step analyzes a utility's transmission and distribution systems, customer metering and billing practices to determine water usage, the amount of water lost and the cost of non-revenue water to the utility.

By incorporating our knowledge of water loss, water conservation, rate structure development, asset management and capital improvement planning, Black & Veatch professionals give our clients an overarching analysis of where the utility requires funding and how to cost-effectively implement water loss reduction programs.

BV staff members were the initial visionaries and developers of the AWWA Free Water Audit Software, which is used across North America and is the most widely used reporting tool for NRW.





Leakage Detection

With Black & Veatch, you can leverage tailorable programs, encompassing both simple active leakage detection ground surveys

and advanced water loss control with district metered areas and pressure management, to identify problem areas and optimize operations and maintenance (O&M).

***Right Here, Right Now:** Network management tools and software, such as our **Smart Water Analytics** package, allow real-time analysis of system operations to improve system efficiency and monitor and reduce water loss.*



Pressure Management

The pressure used to move water through a distribution system contributes to water main leakage.

At Black & Veatch, we use it to your advantage. Using pressure management, we've helped clients worldwide develop active leakage control programs, reduce the volume and number of leaks and achieve network improvements.

***Use Case in Hong Kong:** Using advanced pressure management and other tools, such as district metering design and implementation, Black & Veatch helped the Water Supplies Department in Hong Kong significantly reduce breaks and leaks. In the program's first 11 years, the total main breaks decreased by more than 85% and the number of other leakage cases was cut nearly in half.*



Water Meter Accuracy

Are your meters painting the correct picture based on actual flow data?

Our team analyzes the accuracy of production (master) and residential

and commercial/industrial meters and then helps you calculate a performance-based return on investment of meter replacement or renewal. With systems knowledge in with automatic meter reading (AMR) and advanced metering infrastructure (AMI), our integration teams build the business case and implementation models for meter replacement, AMR, AMI and other revenue enhancement projects for utilities of any size.



Forensic Billing Analysis

Black & Veatch evaluates the entire billing system, and through forensic billing analysis, provides a stepwise

process to help utilities evaluate meter reading and billing system data accuracy/accountability and correct identified issues, all while reducing costs. We analyze a statistically valid subset of data records, record anomalies and billing exceptions, audit and deploy remedies to the whole set of billed data.



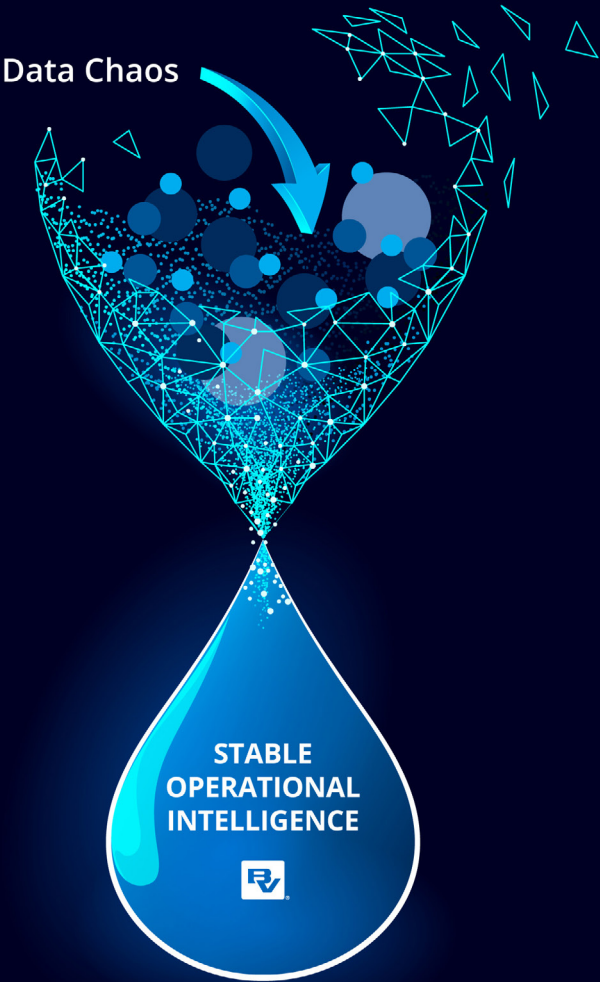
Condition Assessment

A system of active condition assessment and monitoring, annual program audits and reprioritization is the most proactive way to

maintain a system, maximize asset life and stay on top of system health with an early warning of looming challenges.

Black & Veatch keeps you ahead of the curve. We leverage state-of-the-art technology, methodologies and analytical techniques to evaluate and improve the efficiency of transmission and distribution systems. Our teams analyze business risk and consequences associated with the condition of assets.

BV turns data chaos into intelligence you can use



Project Highlights



KC Water *Kansas City, MO*

Since 2011, Black & Veatch has provided leak control, AWWA audit services and NRW key performance

indicators in evaluating real water losses and carbon footprint impacts for KC Water. In one district metered area (a small pressure zone), the work Black & Veatch conducted helped the utility save 650 gallons per minute and more than \$100,000 in 2020 alone.



Kansas City Board of Public Utilities *Kansas City, KS*

Using Black & Veatch's analytics platform, we helped KC BPU manage a pilot program aimed at leakage control in a partition – or district metered areas (DMA) – of its vast service area. Through the pilot, BPU saved \$117,000 in the zone (20% of its system) over one year and cut leakage in the zone by more than half. The financial savings were a result of a reduction in power consumption, reduced waste and pump workloads, and improved operating margins. The Asset Performance Analysis software also allowed BPU to easily visualize and share benefit and distribution system health in real time.



Great Lakes Water Authority *Detroit, MI*

In 2017, Black & Veatch began work with GLWA on one of the largest

non-revenue water analysis and fieldwork projects currently under way in the United States. The project provides GLWA and its member partners with data on use and losses focused on the non-master metered communities of Detroit, Dearborn and Highland Park. The data is then used in the units of service financial model to derive cost shares allocated to each community.



Texas Water Development Board *Austin, TX*

In early 2021, Black & Veatch, in conjunction with the TWDB, led

a voluntary water loss audit pilot program to validate audits for utilities and confirm applicability of third-party water loss programs in the state. The pilot program featured desktop audits for four of the 10 volunteer utilities and an advanced audit for one. Upon conclusion, the program provided best management practices for water loss mitigation, validated water losses to enable the utilities to better plan for water loss reduction and related expenditures, as well as third-party validation to help them understand and mitigate water losses.

What Can We Do for You?

