

NEWS RELEASE

Black & Veatch and iVapps MoU: New partnership makes material contribution to enhanced network health

Agreement brings together smart valve technology with leading-edge data analytics and decision-making tools to enable data-driven network management

Redhill, UK (8th October 2020) – Ensuring networks are healthy is a significant step towards cutting customer complaints and the risk of regulatory sanction. Recognising this, Black & Veatch and iVAPPS have signed a memorandum of understanding (MoU) with the potential to make a material contribution to better network health.

Black & Veatch's leading-edge data analytics and decision-making tools will be coupled, following the MoU, with iVAPPS' Smart Cartridge Valves - which gather and transmit critical network performance data such as pressure, flow, turbidity and conductivity.

"We are helping clients open a window onto their networks. Valves will remain a ubiquitous feature across networks for the foreseeable future. Our MoU means that from now on they can offer much more than flow control. By analysing and interpreting data gathered by iVAPPS' Smart Cartridge Valves we can help clients make the data-driven decisions necessary to ensure network health," said Chris Steele, Head of Data Science and Analytics for Black & Veatch Europe.

This approach negates the need for installing sensors across networks, critical data can now be harvested and analysed from any point where a valve is necessary. Healthy networks have steady flows, constant pressure and consistent turbidity. Unhealthy networks, with problems that may escalate into customer complaints, are likely to exhibit unsteady flows, transient pressure incidents, and fluctuating turbidity. Knowing when and where unhealthy characteristics are presenting in near real time, and understanding what the data means, allows utilities to respond swiftly, reducing significantly the likelihood of customer complaints or regulatory sanction.

"There is a recognition that networks need to be better managed in order to meet Ofwat's stringent leakage targets, and latest quality and service goals. But the path to making the right enhancements is not always clear, coupling Smart Cartridge Valves to powerful analytics tools helps make the journey more straightforward," Steele added.

Under the MoU iVAPPS will act as valve supplier, and Black & Veatch will provide the data analytics tools and IT interoperability that converts data from the valves into actionable information. The easy-to-install sensor cartridges within the valves can measure single or multiple data streams, making it easy to start gathering information about what is happening at pain points within the network. The intelligent pressure sensors, for instance, can differentiate between leaks and bursts as well as pinpointing the location of the problem.

Black & Veatch will utilise its industry leading ECO-X cloud-based digital and data ecosystem to gather sensor data and provide interoperability with clients' IT systems and other Black & Veatch digital network management services such as Serene - which combines smart sensors, analytics and

leakage expertise to provide dynamic DMA health insights that help reduce leakage and improve resilience.

Editor's Notes:

- Other recent examples of Black & Veatch Europe's strategy to partner with the best leading-edge technology companies include:
 - Partnering with Inflowmatix to offer digitally enabled water network management.
 - Partnership with Narrative Wave to demystify the creation of smart analytics, affording a significantly greater degree of co-creation with clients than off-the-shelf systems.
 - Partnering with Rezatec to develop decision support tools to enable asset operators to make intelligent, business critical decisions using geospatial analytics.
- ECO-X is Black & Veatch's own cloud-based digital ecosystem that enables integration with our clients' and partners systems and tools in order to provide digitally enabled asset delivery and management support.

About Black & Veatch

Black & Veatch is an employee-owned engineering, procurement, consulting and construction company with a more than 100-year track record of innovation in sustainable infrastructure. Since 1915, we have helped our clients improve the lives of people in over 100 countries by addressing the resilience and reliability of our world's most important infrastructure assets. Our revenues in 2019 were US\$3.7 billion. Follow us on www.bv.com and on social media.

About iVAPPS

iVAPPS is a green disruptive smart technology company, providing a technological leap forwards in the monitoring and control of digital flow networks. Established in 2015 iVapps offer the world's first rapid exchangeable smart telemetry cartridge and valve solution which can revolutionise the pipeline industry through the digitisation of the pipeline networks and the connection to the (IIOT). This technology enables the user to measure temperature, flow, turbidity, pressure and all from within the telemetry or valve cartridge and can be fully integrated with the customer's individual sensor requirements and current data platforms. Providing a fast, friendly and flexible hardware solution to facilitate real-time monitoring and control. www.ivappstech.com

The iVapps solution can also be serviced without shutting down the pipeline and without excavating any road surfaces, enabling all sensor, monitoring changes and or innovative future upgrades performed and delivered in under 10 minutes, eliminating the costly process of shutdowns.

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