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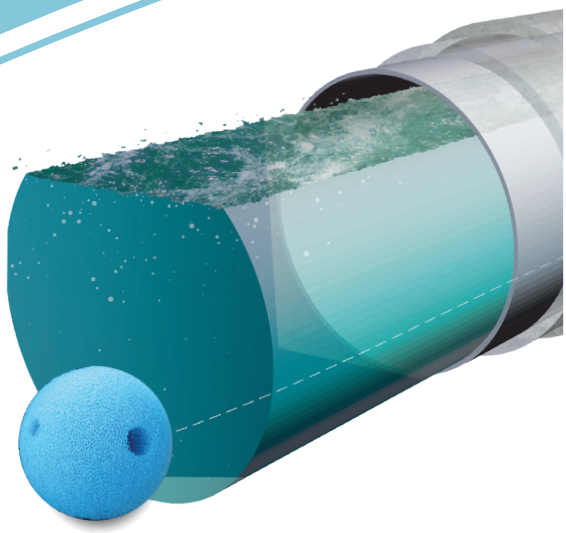
SmartBall® Technology

A FREE SWIMMING TOOL FOR LONG DISTANCE WATER AND WASTEWATER INSPECTIONS



How SmartBall Works

The SmartBall® platform is a free-flowing tool for the assessment of pressurized water and wastewater pipelines 8 inches and larger. It can complete long assessments in a single deployment without disruption to regular pipeline service.

The tool is inserted into a live pipeline and travels with the product flow for up to 21 hours while collecting pipeline condition information. It requires only two access points for insertion and extraction, and is tracked throughout the inspection at predetermined fixed locations on the pipeline.

Applications

Owners of water and wastewater pipelines deal with a variety of infrastructure challenges; the SmartBall platform can collect a variety of pipeline condition information in a single deployment that helps owners manage their assets more effectively.

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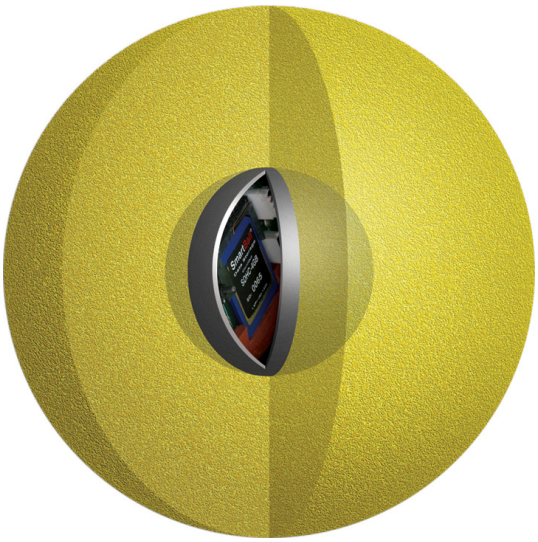

Leak Detection

The tool is equipped with a highly sensitive acoustic sensor that can detect pinhole-sized leaks on pressurized pipelines. The SmartBall platform has been able to identify leaks as small as 0.028 gal/min (0.11 liters) and has a typical location accuracy of within 6 feet (1.8 meters).

Gas Pocket Detection

The acoustic sensor is also able to identify the sound of trapped gas within pressurized mains. The presence of trapped gas can adversely affect pipeline flow or lead to degradation of the pipe wall in sewer force mains.

Inspection Benefits

- Easy to deploy through existing pipeline features
- No disruption to regular pipeline service
- Can complete long inspections in a single deployment
- Highly sensitive acoustic sensor that can locate very small leaks
- Can identify features relevant to the operation and mapping of the pipeline
- Indicates the position of leaks, and gas pockets relative to known points

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What is the SmartBall inspection platform?
SmartBall is an inline inspection platform that measures the acoustic sounds related to leaks and gas pockets and pinpoints their location. The SmartBall platform includes mapping capabilities that utilize accelerometer and gyroscope technology to calculate directional data that generates an X and Y map of the pipeline location.

How does the SmartBall tool work?

The free-swimming SmartBall tool is inserted into a water or wastewater line while still in service and goes with the flow of the product. The tool can navigate butterfly valves and bends in the pipeline, making it ideal for long distance inspections; it has a battery life of 21 hours. It is tracked with above-ground sensors installed along the pipeline to help determine the location of the tool as well as pinpoint any leaks picked up by the acoustic sensors.

How is the SmartBall tool inserted and extracted?
The tool is inserted while the line is still in service and can be done in several ways. Ideally the SmartBall is inserted into a 4-inch tap using a claw that drops the ball into the line once the flow is ideal, the ball is then retrieved using a net, also through a 4-inch tap.

Alternatively, if the line is depressurized, the SmartBall can be inserted into an open-air valve and/or a hydrant. Another extraction method is through a reservoir, where a tethered ROV (Remotely Operated Vehicle) is deployed to grab the SmartBall.

How small a leak can the tool detect?
SmartBall's highly sensitive acoustic sensor can detect pinhole-sized leaks and gas pockets and report within a typical location accuracy of approximately plus or minus 6 feet.

Upon completion of the survey, the data is evaluated to report the presence, approximate size, and location of leaks and gas pockets by our in-house data analysis team.

How long is a typical long run?
Typical long runs for SmartBall would include an inspection that lasts 12 or more hours (which is the approximate battery life), and how far it gets depends on the flow rate, the ball typically rolls at about 70 percent of the flow rate.

What's the SmartBall benefit to a client?

Unlike traditional acoustic leak detection tools which are suitable for smaller diameter pipes, SmartBall is an inline free-swimming tool that is suitable for a larger diameter because it takes the sensor directly to the leak.

By being able to travel long distances and locate the smallest of leaks, utilities can take action to makes repairs before they become a major problem.

Inline tools like SmartBall are very good at finding leaks in larger diameter pipes where correlators, which are traditionally used in smaller diameter pipes, are less effective. For transmission mains and larger diameter pipes, SmartBall is an effective tool to help reduce your non-revenue water by finding those leaks.

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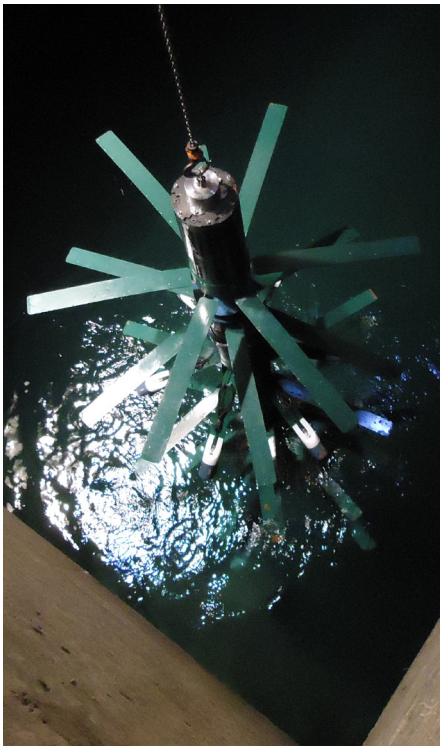
PipeDiver® Condition Assessment

AN INNOVATIVE, FREE-SWIMMING CONDITION ASSESSMENT TOOL THAT OPERATES WHILE A PIPELINE REMAINS IN SERVICE



The PipeDiver platform is ideal for critical large-diameter pipelines that cannot be removed from service due to lack of redundancy or operational constraints. It can be effectively deployed for long inspections on several types of pipe to determine baseline condition; on concrete pressure pipe, the tool can identify and locate broken wire wraps, which are the main indication that this type of pipe will eventually fail; for metallic pipes that utilize a steel cylinder as the main structural component, the tool can locate and detect areas of corrosion and cylinder defects.

When inserted into a live pipeline through a hot tap connection, an existing access or a submerged tank, the tool travels with the product flow and is able to navigate most butterfly valves and bends in the pipeline.

Inspection Benefits

- No disruption to regular pipeline service
- Long inspection distances can be covered in a single deployment
- Accurate results that pinpoint areas of distress help optimize repair planning
- Effective on a variety of pipe materials
- More cost-effective than methods that require shutdown and dewatering

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What is the PipeDiver Condition Assessment inspection platform?

The PipeDiver platform is a free-swimming condition assessment tool deployed in critical pipelines that cannot be removed from service due to a lack of redundancy or operational constraints. The flexible, non-destructive tool can be deployed for long inspections on several types of pipe materials and pipe sizes to determine a baseline condition including identifying and locating broken wire wraps in PCCP pipes and pinpointing corrosion and areas of distress on metallic pipe. The PipeDiver is also equipped with cameras that collect video data of the pipe, which gives an additional layer of condition assessment data.

How does the PipeDiver tool work?

The free-swimming PipeDiver tool is inserted into a water or wastewater line while still in service. It is neutrally buoyant and able to float with the product flow. The tool can navigate butterfly valves and other apertures and has a battery life of up to 30 hours, making it ideal for long distance inspections, having travelled up to 29 miles in a single run.

How is the PipeDiver tool inserted and extracted?

The tool is inserted into a live pipeline through a hot tap connection, an existing access or a submerged tank, typically within one hour if conditions are met. There are various ways the tool can be extracted from the pipeline, including a pressurized connection, using a net to stop it, or extracting it from a reservoir.

What information is provided during and after a PipeDiver inspection?

The tool's recording battery delivers condition assessment data, be it electromagnetic data or sonar data. In concrete pressure pipes, the tool is equipped with electromagnetic sensors to identify and locate broken prestressing wire wraps, which are the main indicators that this type of pipe will fail. In metallic pipelines, PipeDiver can be equipped with enhanced electromagnetic technology to pinpoint corrosion and cylinder defects on metallic pipes.

PipeDiver can also be deployed in wastewater and can be equipped with pipe profiling SONAR to locate areas of sedimentation. The tool is also equipped with cameras that provides visual feedback on the condition of the pipe.

After the inspection, the data is downloaded from the tool and our analysts carefully go through the data to identify areas of damage in the pipe wall and locating it along the length of the pipeline.

How can PipeDiver inspection information contribute to asset management programs?

The data gathered is analyzed to make recommendations on short-term repair and long-term replacement decisions using structural analysis and remaining useful life calculations. This information allows clients to make confident and defensible decisions about the management of their pipelines, often at a fraction of the cost of the replacement value.

What are some of the benefits of using PipeDiver condition assessment?

PipeDiver is a trusted, long-long free-swimming tool. It is significantly safer and more cost-effective than methods that require shut-down and dewatering, and since its introduction has successfully been used to assess more than 1,000 miles of pipelines around the world.

FOR IMMEDIATE RELEASE
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GREAT LAKES WATER AUTHORITY LAUNCHES PROGRAM TO ASSESS CONDITION OF WATER TRANSMISSION MAINS USING NEW INNOVATIVE TECHNOLOGY

Pilot program to focus on an eight mile stretch of pipe impacted during last year's 14 Mile Road main break

DETROIT— Today, the Great Lakes Water Authority (GLWA), in partnership with Pure Technologies, announced the launch of a program designed to assess the condition of its water transmission mains using two technologies: the SmartBall and PipeDiver. The launch of the pilot program, which will initially examine eight miles of water transmission pipe along 14 Mile Road in Oakland County, comes just one year after the Oakland County water main break that impacted nearly 300,000 residents in 11 communities. This latest innovation is a part of GLWA's commitment to move from a preventative to a predictive maintenance and asset management strategy.

"The sustainability of the regional system is one of GLWA's top priorities," said Sue F. McCormick, Chief Executive Officer, GLWA. "Our commitment to the use of best practices and innovative technologies is central to our ability to ensure that our system functions at its optimal level - now and into the future. The use of this groundbreaking technology will allow us to do just that."

The SmartBall technology, which will be utilized first, employs acoustic technology to detect leaks and gas pockets. The PipeDiver technology assesses the pipes to detect structural weaknesses. Both SmartBall and PipeDiver operate while the pipes remain pressurized and in operation, which is what makes it so state-of-the-art.

The data collected from testing will allow the Authority to predict where an area of main might be weak and intercede before a break ever happens. This early detection of leaks and structural defects is expected to result in cost savings, by allowing for cost effective repairs and avoiding emergency situations, that will benefit all GLWA customer communities.

"Since being launched in 2016, GLWA has been working to assess the condition of its assets throughout the regional system," said Cheryl Porter, Chief Operating Officer – Water and Field Services, GLWA. "Earlier this year, and in just 24 months, we completed the assessment of more than 190 miles of the sewer collection system, a task that was expected to take seven years. The partnership and technology we've announced today supports our

mission to continually innovate solutions that will minimize disruptions and assist us in taking another step forward in our shift to a predictive maintenance and asset management strategy."

Developed by Pure Technologies, the PipeDiver and SmartBall technologies are being used by several peer utilities throughout the country. GLWA is the first utility in Michigan to use the PipeDiver technology.

Weather permitting, GLWA expects to begin the pilot assessment program before the end of the year.

"These two technologies [shown today] have helped other utilities nearly eliminate large diameter main breaks, like the one that happened here last year along 14 Mile Road," said Michael Higgins, Senior Vice President, Pure Technologies. "Improving the integrity of these pipelines allows water suppliers like GLWA to maintain reliability in providing water to all of its member partners."

For more information on the Authority, please visit www.glwater.org.

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About the Great Lakes Water Authority (GLWA)
The Great Lakes Water Authority (GLWA) is the provider of choice for water and wastewater services to 127 municipalities in seven Southeastern Michigan counties. With the Great Lakes as source water, the GLWA is uniquely positioned to provide its customers water of unquestionable quality. GLWA has capacity to extend its service to other Southeastern Michigan communities. The authority offers a Water Residential Assistance Program (WRAP) to assist low-income residential customers throughout the system. The GLWA board includes one representative each from Oakland, Macomb and Wayne counties as well as two representatives from the City of Detroit, and one appointed by the governor of Michigan to represent customer communities outside the tri-county area.

STATEMENT REGARDING THE BEGINNING OF CONDITION MAIN ASSESSMENT WORK ALONG 14 MILE ROAD

December 19,2018

In conjunction with its commitment to move from a preventative to a predictive maintenance and asset management strategy, GLWA is launching a pilot program designed to assess the condition of its water transmission mains using two innovative new technologies: the SmartBall and PipeDiver.

GLWA will begin this pilot program in Oakland County, examining the eight miles of water transmission pipe along 14 Mile Road from Inkster Road to Walled Lake.

All work is being conducted in the late evening/early morning hours in an effort to avoid any impact on GLWA's member communities. However, short periods of low pressure could be observed.

The work will begin in January 2019 and is expected to take up to three weeks to complete.