

# Technology Brief

## Bioball

**Description:** A new technology to determine sewer lateral location is being tested for use via toilets in residential customer homes to assist in damage avoidance in areas of new gas construction

**Status:** Field testing of the Bioball in different funders' territories is nearing completion. This testing allows evaluation of the Bioball in a range of live conditions and the tests may result in additional design revisions for wider use of the technology

### BENEFITS

Damage to sewer lines can sometimes occur when gas construction operations, such as directional drilling, are performed in areas where it is believed that there is no surrounding infrastructure. There are occasions where sewer laterals are not accurately located and then a gas line can be driven into a sewer lateral. (See Figure 1.) While some technologies exist to find sewer laterals, concerns about the ability to use those technologies quickly and accurately in some conditions has led to a search for other technologies that can provide full accuracy and reliability. Given those circumstances, a gas distribution company, Enbridge of Toronto invented the Bioball to better reveal the position of the sewer laterals to increase safety of gas construction activities and reduce risk of new gas construction in dense residential areas.

### BACKGROUND

Residential sewer lines are 4" – 6" in diameter and buried 4' – 7' underground. Sewer lines are primarily plastic and clay and not electrically conductive. When sewer lines are located, various methods are used. In some conditions, methods such as line locators and potholing have shown limitations. The method of using a sewer camera with a sonde deployed from a residential cleanout or a robotic platform are not applicable when there are too many bends, p-traps, inaccessible cleanouts or too much flow in the sewer system.



Fig. 1: Cross bore of sewer lateral with gas main



Fig 2: Bioball Prototype

Bioball is a patent pending, ball-shaped wire spool used to temporarily insert tracer wire into a sewer lateral. See Figure 2. It can be flushed down a toilet or an external sewer lateral cleanout and as it travels to the sewer main with the flow of water, it unwinds a thin, traceable wire in the sewer lateral. The sewer main can then be located from above ground. This is analogous to installing tracer wire adjacent to a PE pipe except the BioBall deploys inside the sewer lateral, location measurements are recorded and then the wire is extracted.

## TECHNICAL APPROACH

NYSEARCH funders' objective for this project is to conduct a broad test program to determine viability, accuracy and repeatability of BioBall in locating existing sewer pipes over a broad range of residential/sewer applications. In that process, the funders will determine what, if any, improvements are needed.

The project activities include: 1) completing numerous tests at NYSEARCH member companies to test an array of sewer and directional drilling situations, 2) determining practicality of tests through database investigation, and, 3) soliciting volunteers for tests in areas where there is likely to be or trenchless activity is planned. In the numerous tests conducted in different service territories with varying sewer and residential conditions, the team is also verifying the capability of Bioball with use of other multiple techniques (cameras, line locators where possible). Conditions that are being tested include issues such as accuracy and locatability of the tracer wire, optimal wire strength for ability to retrieve the wire while also maintaining flexibility, and biodegradability of the ball in varying conditions.



**Fig. 3 Sonde locate of Bioball**



**Fig 4 Residential Test Area with gas construction**

## PROGRAM STATUS

Building on lessons learned from Enbridge who invented Bioball and conducted previous testing, NYSEARCH funders have tested the Bioball in a range of territories with an experienced locate technician. Figures 3 and 4 show scenes from testing in a funders' territory conducted in 2012. Accuracy of the Bioball sewer locate has been defined and is being compared to other sewer lateral locate techniques.

In recent tests, the results of the BioBall indications corresponded well with actual location of sewer laterals in seven different residential locations.

NYSEARCH funders are examining the collective test database and will determine any necessary next steps.

For more information contact:  
[admin@NYSEARCH.org](mailto:admin@NYSEARCH.org)