

NYSEARCH Pipeline Periscope Project Results in New High-Resolution Visual Inspection System

A year after the NYSEARCH committee and ULC Robotics began work on the new system, NYSEARCH is pleased to announce that the successful completion of the Pipeline Periscope project. This project has resulted in a commercially available video inspection system for large diameter gas mains. The Pipeline Periscope is a high-resolution, stationary zoom camera that can identify cracks, damaged pipe, joints, branches and taps within live gas mains sized at 8" or larger.

Project Exceeds Specs within Budget & Ahead of Schedule

By 2001, it had become clear to NYSEARCH that equipment was need for visual inspection of large diameter gas mains in order to make decisions regarding maintenance, rehabilitation and safety without interrupting service to customers. Upon further assessment the need was more clearly defined as a short-range, high-resolution inspection system that would be easy to deploy while being safe, effective, and cost efficient.

In early 2002, NYSEARCH entered into a contract with ULC Robotics of Deer Park, New York for the research and development of the Pipeline Periscope video inspection system. ULC Robotics applied its experience in the development of trenchless gas main rehabilitation technology and a number of key performance criteria were identified:

- No-blow operation in low- to medium-pressure mains (this spec was exceeded: actual performance is rated for 60 psi)
- High-resolution video imaging in 12- to 48-inch mains (this spec was also exceeded: pipes as small as 8 inches can be imaged)
- Ability to produce images of features as small as 1 inch, 100 feet from point of entry
- Compatibility with existing drilling and tapping equipment
- 4-inch diameter entrance hole drilled vertically at a 90-degree angle to top of pipe
- Utilization of completion plug to complete main

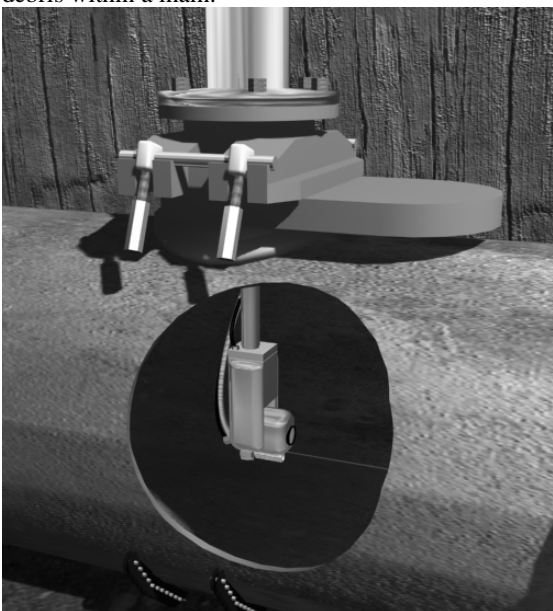
Five companies funded the project: Con Edison, KeySpan, PECO, PSE&G and Niagara Mohawk. The Pipeline Periscope video inspection system was designed, built and bench tested over a period of five months—including a novel, fiber-optic lighting system that includes a 300-watt light source, a liquid light guide, and a collimating lens. After field tests, a number of key improvements were made to the prototype. The Pipeline Periscope met and exceeded all performance criteria and was completed ahead of schedule and within the original budget.



Pipeline Periscope entry tube mounted on control valve on 20-inch, 60-psi cast iron gas main during field test with PSE&G [NGA: Please note how image is cropped to maximize size of key elements]

Pipeline Periscope Facilitates Trenchless Rehabilitation

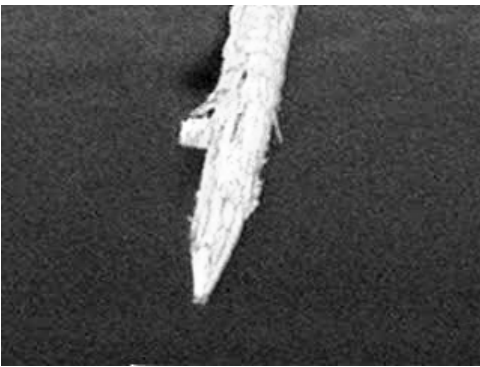
The Pipeline Periscope's core component is its stationary pan/tilt/zoom camera, which enters the main through a conventional, 4-inch tapped hole. This camera provides detailed video data that may be used to identify a wide range of conditions within a cast iron or steel gas main. It is proving to be especially useful for pre-inspecting mains to assess the suitability of trenchless rehabilitation technologies. In addition, this system can minimize the cost and risk associated with locating cracks; sources of water infiltration; dysfunctional valves; and joints, branches and taps. It can also help accurately determine the amount of debris within a main.



Pipeline Periscope Pan tilt-zoom camera head with collimating lens and liquid light guide (inside gas main)
[NGA: Please note how image is cropped to maximize size of key elements]



Inspection of welded joint



Identification of wooden plug in 12-inch main at 60 psi

ULC Robotics offers the current, patent-pending Pipeline Periscope system as an off-the-shelf system or as a comprehensive service. For more information please call 631-491-7473 or e-mail gpenza@ulcrobotics.com.