HydroScope

THE WORLD’S FIRST FIELD PROVEN IN-LINE INSPECTION SERVICE FOR CORROSION EVALUATION OF CAST AND DUCTILE IRON WATER AND WASTE WATER MAINS

PICA Pipeline Inspection and Condition Analysis Corp
The HydroScope tool is a new technology providing direct measurement of pipe wall thickness, continuing along the length of the waterline; it detects corrosion, pitting, wall thinning and graphitization.

The HydroScope Advantage

The HydroScope was developed to satisfy an urgent need for cost effective management of water and waste water distribution infrastructure. Accurate determination of pipe condition permits knowledgeable scheduling of expensive rehabilitation activities with planned risk management.

Asset Management Benefits

Operating Costs:
- Pipe condition baseline surveys
- Planned vs unplanned repairs
- Identify high risk failure locations
- Avoid relining or replacing sound pipe prematurely
- Identify alternate rehabilitation method parameters
- Extend service life of low risk pipe

Asset Management:
- System acquisition evaluation
- Waterline life extension
- Risk management
- Enhanced water conservation measures
- Selective replacement
- Long term capital planning
As the tool passes through the waterline it senses changes in the wall thickness, using “Remote Field Technology” which measures changes in an electromagnetic signal as it passes through corroded areas of the pipe. Data is transmitted to a computer where the information is displayed in Real Time and stored for analysis using sophisticated user friendly software.

**HydroScope Tool**
Advanced digital signal processor controlled tool. Operates from within the waterline.

**Wireline Unit**
Distance measurement and data acquisition features. Variable operating parameters to accommodate varying pipe properties.

**Analysis Software**
Based upon unique voltage plane analysis combined with pattern recognition.

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**The System**

The **HydroScope** is a strong flexible inspection tool which can be inserted through fire hydrants with minimum service distribution. It is designed to detect changes in water main wall thickness due to corrosion.

The HydroScope tool consists of a series of stainless steel pressure housings close-coupled with universal joints containing digital signal processors and electronic sensors. It is flexible enough to negotiate elbows, valves and tees, yet rugged enough to withstand the rigors of passing through a waterline. Flexible centralizers minimize disturbance of internal scale.
Technical Advantages

- Easy access through hydrant or tee adapters
- Non-contact electromagnetic method for wet or dry lines
- Able to evaluate thick walled cast and ductile iron pipe
- Flexible and rugged mechanical design (ability to negotiate 90° elbows and tees)
- Operates in varying pipe sizes
- Sensitive to internal and external flaws, and able to detect graphitization
- Tests through mortar or plastic linings, and internal scale
- Fast, repeatable and reliable

Graphical representation of the wall thickness readings for one spool length

Scatter graph showing the depth and position of the pitting along the length of the pipe
PICA Corporation

Is creating technology solutions to meet the information and decision making demands of Municipal engineers and infrastructure managers.

The original Hydroscope technology was developed and patented by Russell NDE Systems in the mid 1990’s. It has since been used by many cities across Canada, the U.S.A., Australia, New Zealand, Holland, UK., Norway and other countries to inspect cast and ductile-iron water mains.

Similar tools are also manufactured by Russell NDE Systems to inspect oil and gas and sewer mains including steel pipelines.