

INDEPTH LEAK DETECTION

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CONTENT

- The company policy
- Unaccounted for water
- Effects of leaks
- Water auditing
- Leak Detection and repair strategy
- Benefits of leak detection
- Repair of Leak detection/ other activities
- Case study
- Company brochure



COMPANY STATEMENT

- Detect underground leaks
- Liaise with businesses and water providers

UNACCOUNTED FOR WATER

- Primary cause
- Types of leaks
- Causes of leaks
- Water conditions



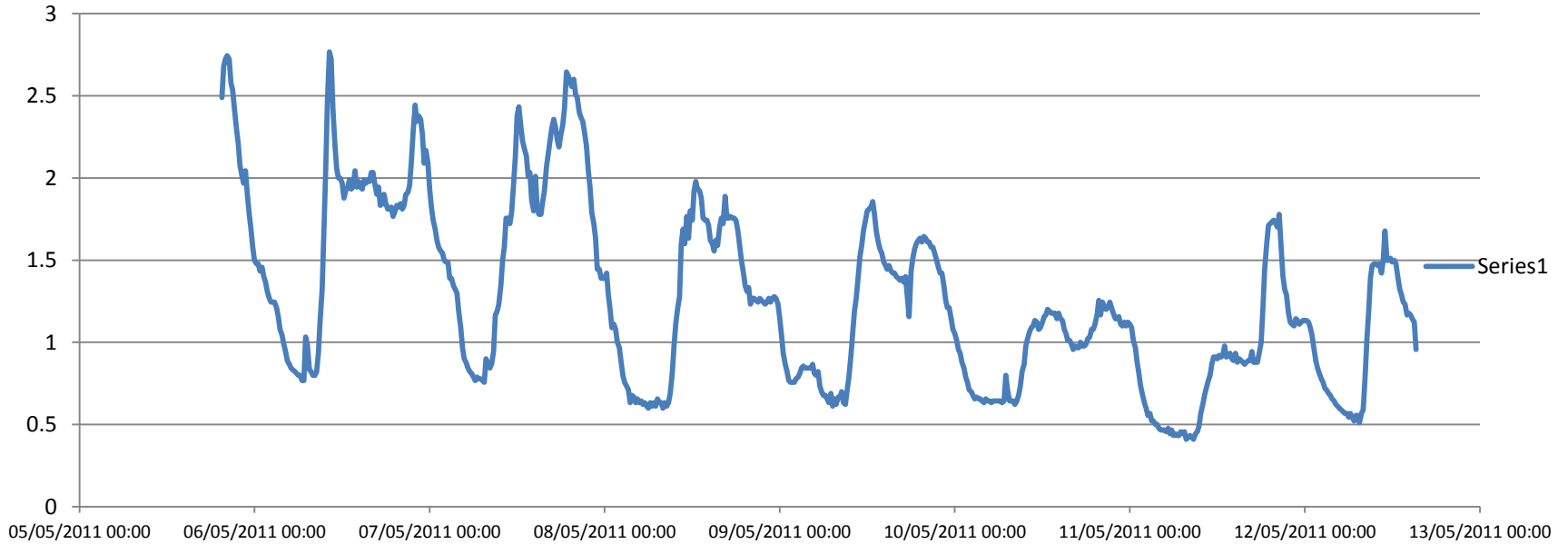
WATER AUDITING

- Involves calculating costs, leakage and quantity of “unaccounted for water”
- Fitting of a logger device
- Leakage recorded over (**night line periods**) low demand
- A cost analyst

Water auditing
Water auditing
SURVEY RESULTS:



7-day data logging of the bulk meter supplying the site.



COMMENTARY / CONCLUSION

That the minimum Night Flow Reading is 0.411L/S.

This is a loss or "Unaccounted for Water" of approx 1479L/Hr. or 35.5m³/day

DATE	DAILY RECORDED FLOW	MINIMUM NIGHT FLOW
06/05/2011	143M³	0.767 L/S
07/05/2011	146M³	0.767 L/S
08/05/2011	107M³	0.600 L/S
09/05/2011	102M³	0.611 L/S
10/05/2011	82M³	0.644 L/S

LEAK DETECTION



LEAK DETECTION AND REPAIR STRATEGY

- Sonic leak detection equipment
 - Pinpoint listening devices
 - Geophones
- Correlate devices
- Infra red camera system
- Tracer gas and locator equipment



Avoid the extensive cost, flipping and damage to property that using traditional methods of exposing and fixing leaks can lead to, as pictured above :



By using tracer gas, leaks can be sourced with minimal disruption, minimal digging and minimal cost to the property owner by comparison.

BENEFITS OF LEAK DETECTION & REPAIR

- Increase knowledge about the water supply system.
- To ensure fire hydrants comply with statutory water safety and pressure standards.
- To identify the need for replacement of pipe work.

BENEFITS

- Reduce property damage, reduce legal liability, and reduce insurance
- Reduce risk of contamination
- Improve environmental quality

COORDINATING LEAK DETECTION REPAIR & OTHER ACTIVITIES

- Other water utility activities include:
- Inspect hydrants and valves in a distribution system
- Update distribution system maps
- Using remote sensor and telemetry technologies
- Inspecting pipes, cleaning, lining and maintenance

GREATEST EXPECTED PROBLEMS

AREA'S ;

- with a history of **excessive leak** and breakage rates;
- where leaks and breaks can result in the **heaviest property damage**;
- where system pressure is high;
- exposed to stray **electric current & traffic vibration**;
- where loads on pipe **exceeds design loads**.

BENEFITS OF LEAK DETECTION



BENEFITS OF LEAK DETECTION MONITORING

- Economic benefits of leak detection
 - Reduced property damage
 - Advanced metering technology- early warning alerts & 24 hour monitoring
 - Meter technology send daily flow reports to laptop and leak alerts to designated phone numbers.



CASE STUDY: SHOPPING CENTRE



SHOPPING CENTER

- Leakage rate 4600l/hr
- Over 110,400l/day
- Cost of leak €250/day
- Yearly €92,680
- Leaking for 6 months. (first notified by increased water utility bill)
- Structural damage was imminent
- Monitoring system would notify within hours.
- Priceless



Leak Detection - Commercial

Leak Detection - Commercial

Water leaks are a headache at any time, but it is estimated that 40% of treated water is lost due to leaks and deterioration of water mains. The biggest loss of water does not happen daily. The water is contained in lines with very pressure resistance & local isolation to effectively detect leaks, where an isolation, and water logger.

All locations equipped with:

- Sound Meters & Loggers
- Pressure Loggers
- Flow Meter Loggers
- Invert Loggers
- PMS (Data Flow Logger)
- Corrosion
- Hydrogen Sulfide
- Pipe Locator (Pipe & Metal)
- Wire Line Detector
- Man 5 (Invert Loggers)
- Pipe Locator (Pipe & Metal)

We are equipped to carry water meters and detect any of associated water. We can provide water leak in a variety of locations. Allowing the user to minimize disruption, excavation or damage to property, which could save thousands in property repair costs.



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Leak Detection Domestic



Do you have a leak in your home or office?

WE CAN FIND LEAKS ON WATER MAINS AND HEATING SYSTEMS WITH MINIMAL DISRUPTION

Unnoticed leaks of varying size from water leaks can lead to excessive damage and cost, or present a serious fire or health risk being which increases the damage and expense involved through the lifetime.

Many advanced tracking systems we can locate the position of the pipes underground with very little noise. In addition we have range of flow meters, a special die or beam gas and locate equipment to avoid the need to dig holes in underground pipe work. This reduces the amount of damage to flooring and paving.

Our method can be carried out on both hot and cold water pipe systems. The gas is injected into the pipe leak and allowed to flow to the site of the leak. It then permeates up to the surface through soil, gravel, concrete and joint types of floor finishes. The tracer gas InDepth used is both odorless but also approved for use in occupied water pipes.

InDepth Leak Detection can not just determine leaks quickly and efficiently but also if there is a leak it can determine the location of the problem and to properly repairs.



Most conventional methods of pipe and sewage locators rely on the pipe emitting a sound or vibrating which can be easily overlooked.



Using our gas InDepth we can locate both hot and cold water, heating, cooling and natural gas under pipes in walls and floors.



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24hr service available for all leaks and gas leaks. InDepth Leak Detection Ltd.
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Water Audits



Water Auditing

The objective of the audit is to:

- 1) Locate the maximum night flow to help us identify any leaks and then to compare it to the maximum flow (MFM) or flow rate of the system to help us identify any leaks.

Case Study

Case Study: A large site requiring a full water supply audit.



CONSERVING WATER

The peak flow rate is 10 litres per second (LPS) and the night flow rate is 4.5 LPS.

Flow Rate (LPS)	Flow Rate (GPM)	Flow Rate (MGD)
10	15	0.00015
4.5	6.75	0.0000675

This is a flow of 10 litres per second (LPS) or 15 GPM.

From the graph it is clear that there is a significant leak in the system. The Night Flow Meter (NFM) clearly shows a leak of water, and the maximum flow rate (MFR) is 10 LPS and the minimum flow rate (MFL) is 4.5 LPS. The graph of the night flow rate is also displayed in the report. From the graph, the maximum flow rate can be calculated and the minimum flow rate can be calculated. The 'maximum flow rate' is 10 LPS and the 'minimum flow rate' is 4.5 LPS.



Night Flow Meter (NFM) is used to measure the flow rate of water during the night.



Water Supply Meter (WSM) is used to measure the flow rate of water during the day.



The data collected from the NFM and WSM is used to identify any leaks in the system.





Pressure Testing Fire Hydrant Testing

Pressure Testing

Pressure testing comprises a variety of tests used to determine the integrity of a pipe to be tested. All pipes are pressure tested and are fitted with pressure relief valves which are set in place to be replaced for pressure. All are subjected to the same complex testing for determining the maximum size of pipe to be tested on-site. Knowledge of the test procedure has been acquired.

Fire Hydrant Testing

We also offer a fire hydrant test service which involves the pressure test stations. Because fire hydrants are tested a fixed volume test and report cycle water hydrant is part of your annual maintenance programme. It is required that all fire hydrants are tested on a regular basis. The purpose of this test is to verify the ability of hydrants to be used and then installing a flow meter to measure pressure and flow rate.

A detailed report from the testing of the hydrant will be available upon the test.



Flow meters are used to measure the volume of water flowing through the hydrant. This is done by measuring the flow rate and the pressure of the water.



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Pipe/Utility Tracing



Pipe Tracing

We can determine exact location of pipe during equipment for identification of tracing of water systems. We trace all pipe materials such as PVC, PE, AC, cast iron, steel etc. The pipe tracing system consists of a receiver and an electronic probe generator which is connected to a water pipeline or its a hybrid. This system shows location of horizontal pipe, ranging up to 2 meter below the surface. The pipe materials are marked by their own unique ID number system.

The Pipe Tracing system is used for both, new and old water systems. Also, the system can be used for both water and sewer systems. Also, the system can be used for both water and sewer systems.

In addition to the PTW we also have a trace unit which allows the operator to accurately locate and locate services and with a built in depth sensor can accurately survey the depth of the service.

Utility Tracing

In order for location of underground services are not accurately marked up service location may cause lower utility cost. In order to locate underground services we use the pipe tracing system which can track to various depths to service and may well as apply to services of its location.

In order to locate underground services we use the pipe tracing system which can track to various depths to service and may well as apply to services of its location.

The Ground Penetration Radar is used in various service location equipment can identify underground services and also provide a picture of the underground services and also provide a picture of the underground services and also provide a picture of the underground services.



- Red Exclamation
- Blue Exclamation
- Yellow Exclamation
- Green Exclamation
- Purple Exclamation
- Orange Exclamation
- Pink Exclamation
- Grey Exclamation



Reservoir Restoration Concrete Injection ROV Camera Surveys



Reservoir Restoration

The primary objective of potable water management is the protection of high-quality water. To do this, water storage tanks, pipes, treatment plants and associated structures all need to meet the very highest standards of hygiene and durability. Regular inspection and adequate air monitoring is vital to ensure the integrity of the structure and, most importantly, to prevent pollution in cases where leaks from deterioration or building deterioration of pipes or tanks will be required.

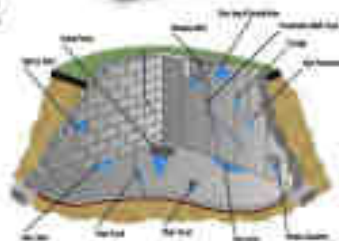
Using our state-of-the-art ROV CAMERA units for powerful lighting and video we are capable of inspecting the interior walls of reservoirs and tanks. The detailed survey allows you to identify cleaning and maintenance problems and discuss measures and budgets with confidence. The survey will identify any structural problems such as cracks or deterioration the structure is experiencing and we can advise on the best way to deal with them.

Concrete Injection Repair

Crack in water pipelines is a source of water loss and requires repair to maintain systems. Our highly trained team with specialist equipment can identify and repair such leaks. Our repair techniques allow us to locate and repair the problem from the surface of the pipe, with minimal disruption to the public and traffic. Our repair is applied under high pressure and high performance bonding conditions.

For greater information please contact:

- 01273 571 010
- 01273 571 011



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**Thank You for Your
Attention**

