INDEPTH LEAK DETECTION
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www.indepth.ie
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 annalist
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

<table>
<thead>
<tr>
<th>DATE</th>
<th>DAILY RECORDED FLOW</th>
<th>MINIMUM NIGHT FLOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/05/2011</td>
<td>143M³</td>
<td>0.767 L/S</td>
</tr>
<tr>
<td>07/05/2011</td>
<td>146M³</td>
<td>0.767 L/S</td>
</tr>
<tr>
<td>08/05/2011</td>
<td>107M³</td>
<td>0.600 L/S</td>
</tr>
<tr>
<td>09/05/2011</td>
<td>102M³</td>
<td>0.611 L/S</td>
</tr>
<tr>
<td>10/05/2011</td>
<td>82M³</td>
<td>0.644 L/S</td>
</tr>
</tbody>
</table>
LEAK DETECTION

I think I found it...
LEAK DETECTION AND REPAIR STRATEGY

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

Water leaks cost thousands of homes per year. It is estimated that 75% of all water is lost due to leaks and deterioration of water mains. The InDepth team of experts have developed equipment that can detect and locate leaks. Our technicians are trained to take water pressure, temperature, & flow rate data to efficiently detect leaks, advise on treatments, and carry out repairs.

All vans are equipped with:
- General Equipment & Generators
- Pressure Loggers
- Flowmeter Loggers
- Acoustic Loggers
- PWG (Pipe Water Generators)
- Leak detector
- Hydrogen Gas Injection
- Pipe Locator (Plastic & Metal)
- Ultrasonic Locator
- Man & Entry in Drainage
- Pipe Locator (Plastic & Metal)

We are equipped to survey water networks and detect areas of unaccounted water. We can pin-point water leaks in a specific area, thereby eliminating the need for unnecessary exploratory, excavation or damage to property, which could save thousands in property repairs.

InDepth
Leak Detection
Do you have a leak in your home or office?

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

Conventional methods of exposing and tracking of water leaks can lead to excessive damage and cost, so proceed with caution. We at InDepth find leaks which minimize the damage and expense incurred through this method.

Using airtight camera systems, we can locate the position of the pipes underground and directly above your property. In addition to a vehicle capable of driving downpipes, a specialized mix of tracer gas and locating equipment is used to find leaks in underground pipe work. This reduces the amount of damage to flooring and property.

This method can be carried out on both hot and cold water pipe systems. The gas is injected into the pipe work and allowed to flow to the area of the leak. It then permeates up to the surface through soil, trees, concrete and most types of floor tiles. The tracer gas, hydrogen sulfide or leak detecting gas, has been approved for use in public water supply.

InDepth leak detection can identify locations and quickly and efficiently to resolve them. It is not an intruder not leak, ensuring the potential cost of property damage.

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By installing gas, leaks can be removed but additional detection, removal digging out related cost to the proper prevents any issues.

Avoid the excessive cost, digging and damage to property that using an exterior method of repairing an existing leak can lead to, as pictured above.
Water Audits

Case Study:

Night Flow meter from 7-day store logging of all information supplying the site:

Graph shows the maximum Night Flow Reading of DMT 1.55 and the readings for
water use:

- **Date:** 30/06/2013
- **Minute:** 6
- **Flow:** 8.41 L/s

**Commentary/Conclusion**

This graph shows the maximum Night Flow Reading of DMT 1.55 and the readings for
water use.

This is less than 1% unaccounted for water of approx 14 MFL/s.

From this graph, it is clear that there is substantial water leakage in the mains.

The Night Flow Reader (NFR) measures flow from a variety of water meters, and
records the accumulated total flow, daily total flow and windowed flow (from
the historical data for the survey period. A graph of the findings indicating the minimum night flow is displayed in the report. From this, the
average daily use can be calculated and minimum night flow recorded showing the
unaccounted for water or leakage at any given time.

**InDepth Leak Detection**
Pressure Testing

Pressure testing is completed using a series of hydraulic test pumps. The pumps are specifically designed for the type and size of pipe to be tested. All pumps are pressure variable and are filled with pressure whilst values which are set at one to the required test pressure. All pumps are filled with test water. The test valve is open and the pump is used to raise the pressure to the required level. The pump is left on the test valve for a period of time and the results are then recorded. The test result is then recorded on a data sheet and the test valve is closed.

Fire Hydrant Testing

We also offer a fire hydrant testing service which measures the pressure and maximum flow rate from the hydrant. We operate a team who can test and inspect any water hydrant as part of your annual maintenance programme. It is required that all fire hydrants are tested at least once in a year. The hydrant is located at the end of the road and then attaching a flow meter to measure pressure and flow rates. A complete report from the testing of the hydrant will be completed as part of the survey.

InDepth
Leak Detection
Pipe Tracing

Wine and water connections using pipe tracing equipment for the installation or tracing of water meters. We trace all pipe materials such as PVC, PE, AL, cast iron, and steel. The pipe tracing system consists of a receiver and an electronic pulse generator with 3 connections a water pipeline or a hydrant. This system allows the location of non-metallic pipes running up to 3 meters below the surface. The pipe section does not need to be shut down during the location process.

The PulseWave Generator system can help to track, locate, and chart lines, and it can be used both in and over the ground. A pipe and valve can be located quickly and reliably with this system.

In addition to the PVD, we also have a system that allows the operator to access the underground service and with a built-in depth tester can accurately survey the depth of the service.

Utility Tracing

Often the location of underground services are not accurately recorded on service location maps and in some cases not at all. Accidental damage in drilling or excavation can lead to services that can result in serious damage to services and may result in injury to employees and the public.

Indeepth carry out utility tracing using cutting edge technology to accurately trace and map the location of underground services.

Our Surveying Team, as well as various service location equipment can identify underground services to ensure a safe passage of service networks eliminating the potential risk of facility damage to property or others.
Reservoir Restoration

The primary objective of reservoir restoration is the provision of high-quality water. To do this, water storage tanks, pipes, treatment plants and associated structures all need to meet the very high standards of hygiene and durability. Regular inspection and maintenance are necessary in order to prevent the integrity of these structures and, most importantly, exposed surfaces, from breaking down because of physical stresses or environmental effects.

Using our new ROV UNDERWATER CAMRA with its powerful lighting and video camera, we are capable of inspecting reservoirs while they remain in service. Our detailed surveys allow us to identify cracks and maintenance priorities and allocate resources and budgets with confidence. The survey will identify any structural problems such as cracks in the concrete or corrosion of the steel reinforcement bars.

Concrete Injection Repair

Concrete injection is a method of repairing cracks in concrete structures. Our highly trained teams with specialist equipment are trained to carry out such repairs. The repair service we offer can be used on any size project, new or existing, underground or on surface, or actual or potential problems. We have applied to dry, water-bearing and high pressure un-water-bearing conditions.

Our specialist teams have been trained in:
- CONTAINED SPACE
- UNDERWATER
Thank You for Your Attention