



LEAKAGE MONITOR

Complex solution for Leakage and Non-Revenue-Water reduction and optimization

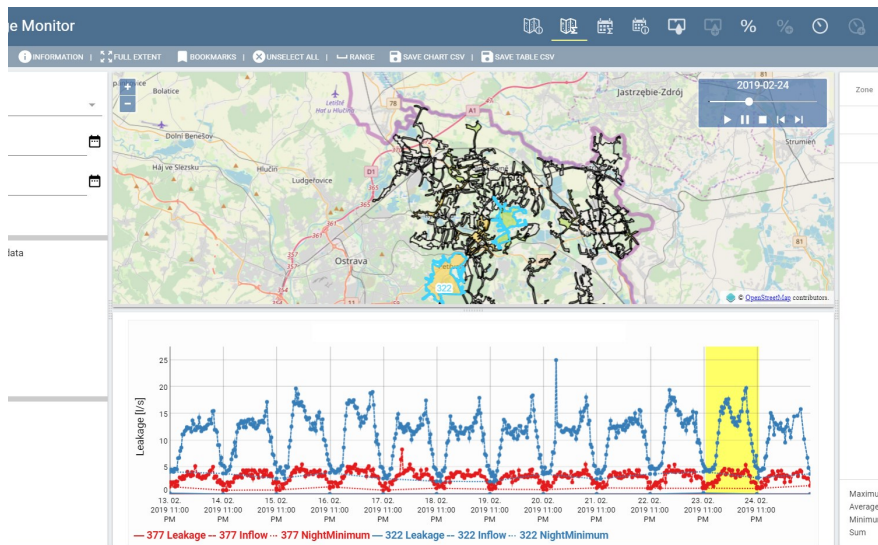
Leakage Monitor is an application (and implementation) designed for a complex data collection, solving tasks related to leakage and NRW evaluation with focus on leakage optimization.

CHARACTERISTIC

The Leakage Monitor is an information system with a solution for technical and economical optimization. It provides an automatic data collection and evaluation of indicators, alarming and reporting in a way that doesn't need to be done by service personnel. The results are available in detailed and clear form through the user interface application or automatically created reports.

DATA COLLECTION AND EVALUATION PRINCIPLES

Leakage monitor runs all analysis and prepares all outputs automatically at chosen time (i.e. 6 AM). Evaluation of leakage in DMAs is based on analyses of measurement data by the SCADA system as well as by GSM and GPRS devices. The night inflow is summarized from all inflow/outflow sensors and used for leakage evaluation. Consumption of big night customers as well as night consumption of other customers are considered. Invoiced water data are imported from CIS or SMART METERING summary outputs.



Preview of multiple zones tab (Web application) © DHI

CLIENT

- Waterworks operators
- Owners of urban infrastructure

BENEFITS

- Processing on-line and off-line data
- IWA methodology compliant
- Economic evaluation module
- Provides the most cost-effective leakage reduction plan
- Advanced user interface
- Automatic reporting
- Leakage and event management
- Sensor data pre-processing
- User defined corrections
- Historical data management

EVALUATION OF

- Leakage
- NRW
- Technical KPI's (Unit leak, ILI, percent)
- Economical KPI's (ELL, return period, return period index)
- Exceeding of present limits
- Sensor failures

GOALS

- Saving of operator time
- Process and output standardization
- Advanced automated reports
- Consider leakage economy
- Long term history database
- Event manager and solver
- Operator support
- Leakage and NRW savings
- Operational savings

SOLUTION

Advanced Client-Server application automatically collecting input data, preparing results and alarms stored in a database. Data accessible by web user interface and automatically generated reports.

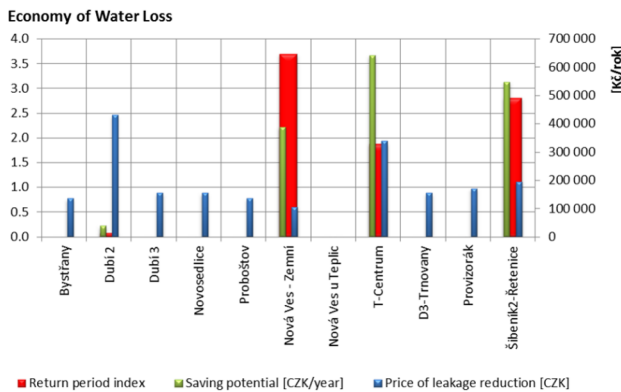
Leakage Monitor automatically evaluates comprehensive set of leakage and NRW key performance indicators such as NRW and leakage %, unit leakage per network length and per service connection, ILI, etc. Inputs and results are stored in a central database providing actual outputs as well as a long-term history of leakage and NRW results. The results are accessible by the Leakage Monitor user interface and automatically generated reports.

ASSESSMENT OF ECONOMICAL LEVEL OF LEAKAGE

The Economical level of leakage in a DMA is calculated automatically based on the balance between possible cost savings on leaking water and costs of leakage reduction works. The evaluation of the possible cost savings on leaking water considers actual level of leakage in a supply zone, achievable leakage level of by leakage reduction actions, marginal price of leaking water and dynamics of the leakage growth.

The costs of leakage reduction works is calculated based on evaluation of unit price of the typical leakage detection and repair actions and the extent of such actions needed in a DMA.

All economic indicators are presented in a complex but simple outputs and serve for effective planning of leakage detection works.



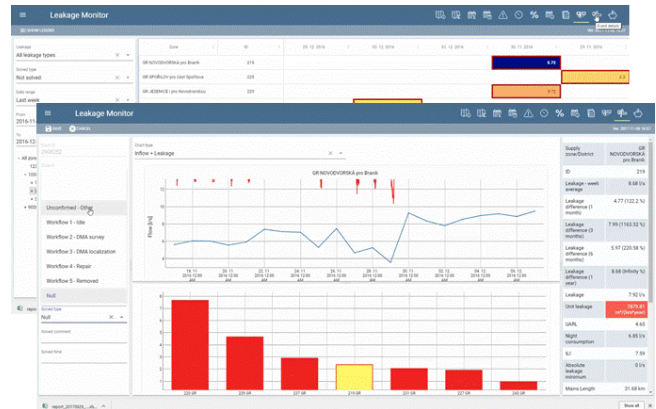
Economical evaluation in Leakage Monitor © DHI

ADVANCED LEAKAGE AND NRW EVALUATION FUNCTIONS

The Leakage Monitor automatically observes the change of leakage level in DMAs and based on sensitivity parameters indicates new leakages. The system differentiates short time oscillations and real leakage events. Also the gradually developing leakages are indicated.

System automatically evaluates new leakages, exceeding of pre-set limits and sensor failures. All the events are stored in the Leakage Monitor database and appropriately visualized, reported and can trigger an alarm. System includes event management used for operation support.

Summary of performance indicators in superior zones as well as event management indicators are available for system performance overview.



Event indication, visualization and management screen © DHI

SO WHY USE LEAKAGE MONITOR BY DHI?

- Automatic data collection evaluation and reporting
- Sensor data pre-processing
- Fast identification of critical DMAs with highest saving potential
- Tools for detailed leakage analysis in the DMAs
- Automatic assessment of economical level of leakage enables leakage maintenance at low and economically optimal level
- Leakage and other event automatic indication, reporting and management
- Advanced user interface
- Leakage and NRW history
- Standardization
- Long term successful implementations
- DHI provides experienced team to prepare a specific and personalized solution

What the Client says: "We appreciate massive decrease in the level of leakage together with the pressure optimization due to effective network zoning design. Important factor for us is a proven long term leakage level stability, supported and maintained by the Leakage Monitor application. The project itself was pay off by a consequence of early savings comes from water production reduction." Says Karel Eminger, SCVK a.s., Regional dispatching centre manager

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