



Quality Inspector for SeCuRi SAT – Analysis of service connections that were not inspected



With SeCuRi SAT you can provide a preliminary damage drawing onsite. Damage found is documented, classified and is handed over to the reporting system and/or to maintenance planning.



# SeCuRi<sup>®</sup> SAT – Gas Leak Detection without a Guide

Most gas supply companies have invested large sums, especially in the digitisation of maps and plans. However, the resulting potential is often not exploited to best advantage. When checking gas pipe networks, enormous cost is incurred, for example, in copying and folding plans and in the employment of a guide. This cost does not apply when using digital maps based on a mobile Geographic Information System (GIS) and the patented SeCuRi SAT method. For pipe network monitoring alone, an internal cost reduction of approx. 15-30% can be achieved relative to the total cost.



### The SeCuRi® SAT method involves the following components:

- Gas detection device with serial interface to the mobile GIS
- Mobile GIS software
- GPS satellite receivers for both the gas detector position and the reference data
- Field computer
- Carrying system

The gas detection device is connected to the mobile computer via an interface and is remotely controlled. The measurements from the gas detection device are stored once per second, with a time stamp georeferenced to the current GPS position on the site map.

### Stadtwerke Düsseldorf AG

SeCuRi SAT is used for the first time this year by the Stadtwerke Düsseldorf AG. The gas pipelines of the North-Rhine/ Westphalian state capital are systematically examined for leaks.

The basis is the 1,461 km long low pressure gas network, which is documented in Smallworld GIS and stored on a colibri Tablet PC. The mobile devices are connected directly to gas leak detection technology (PortaFID) and to a GPS unit. With SeCuRi SAT the gas leak detection profits from the fact that no more paper maps must be carried and that all measured values are automatically documented. Increased values are visually highlighted in a chart.

"We expect a particular advantage from the digital collection and documentation of the pipeline inspection in accordance with DVGW worksheet G465" explains Ulrich Karl of Stadtwerke Düsseldorf. The results of the inspections are downloaded into the Smallworld GIS over an integrated interface and are available for the planning of preventive maintenance work and redevelopment planning. In Smallworld GIS the SeCuRi SAT Smallworld Server is used as a complement to the mobile solution.

The test intervals are also optimised: "In the inspection districts that we have formed we are now able to differentiate between districts with high and low damage rates in a manner that can stand up in court and we can adapt

inspection intervals to actual line conditions. If you consider that in the past, in districts with an increased damage rate the entire district was always subject to shortened intervals between inspections, this saves substantial effort. Today this only applies to the actual areas involved. We are completely in conformance with the G465".

### Cosvegaz s. a., ERECA

Cosvegaz s. a. from Cossonay (Switzerland) supplies 52,000 inhabitants with 572 km of pipelines. The pipeline inspections are performed by ERECA, a local service company. 2006 was the first time that the gas network was inspected with the SeCuRi SAT automated digital procedure from Sewerin and Mettenmeier, who for the first time supplied a French version. The Tablet PC as central control unit and the gas leak detection technology is installed on a so-called Quad. This agile vehicle is not only best suited for trips into hard-to-travel terrain. It has also proved itself within the city and on streets with high downward gradients and substantially simplifies the work of the gas leak inspectors.

### Smallworld SI and Quality Inspector support the analysis

SeCuRi SAT records the measured values in seconds and documents them in the chart. The enormous amounts of data that thereby develop can be evaluated with the Smallworld analysis product "Spatial Intelligence (SI)" and the results representation in various ways via its report functions. For example, through the graphic possibilities of SI, main sections with increased leak frequency can be visualised. The analysis product "Quality Inspector" from Mettenmeier was also upgraded for the inspection of gas pipeline networks. In this upgrade a special test was implemented that searches for service connections that were not inspected or were not correctly inspected. For example, it determines whether the gas leak inspectors set a site inspection point in a defined radius around the service connection. If this was not done, a renewed inspection is necessary. The flexibly configurable Quality Inspector is available with Smallworld 4.0 and can also be made available, including gas leak detection, for versions 3.1 and 3.2.1.

### SeCuRi SAT is system-independent and today processes almost all GIS data formats:

- Smallworld GIS
- ESRI / Shape exchange format
- Autodesk over DXF
- Bentley MicroStation over DGN
- Intergraph Geomedia over DGN

#### Information:

Joachim Magiera

Mettenmeier GmbH

joachim.magiera@mettenmeier.de