

Gas Leak Detection Based on Smallworld GIS

Stadtwerke München (Munich City Utilities)

The gas leak detection solution "SeCuRi SAT" has been an integral part of the range of products provided by Mettenmeier GmbH for over five years. Since the introduction of this solution numerous gas suppliers have been equipped with this patented procedure and they now benefit from the advantages offered by automated mains examination. In 2007 alone, seven additional companies have chosen this solution.

Stadtwerke München (Munich City Utilities) used the GPS-supported "SeCuRi SAT" procedure for the first time this year. Those responsible for gas utilities were able to witness the benefits offered by the solution from the initial test examinations conducted in 2006. The gas pipelines of the Bavarian state capital are now systematically examined for leaks without the need for a guide.

In addition to the optimisation of the gas detection service, the internal operational procedures have also been improved. The processing of paper plans for areas being examined has been replaced by an IT-supported procedure: Maintenance cycles are created in SAP for the individual test areas. Before the inspection, a process order is created for each test area in the NIS (Network Information System based on Smallworld GIS).

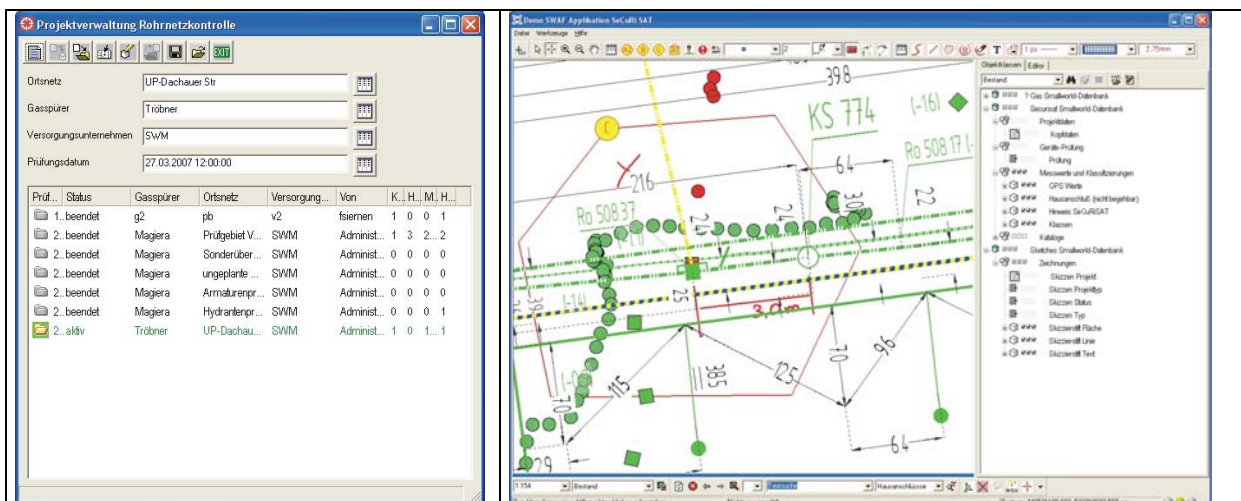
The examination is conducted exclusively in the NIS, which contains the graphic and alphanumeric data for the 4,500 km gas network, and it thus forms the basis of the solution. The results of the examination are also stored in the NIS and secured in an archiving system.

The Smallworld Client has been specially adapted for the pipeline examination. This means that data can be transferred between the NIS and the gas detector's robust Tablet PC "colibri X6" without a data interface. Any necessary follow-up actions as well as the costs associated with the examination, if applicable, are administered in SAP.

The implementation of the solution has been effected for the high and low pressure areas in the gas network after a six-week field test. A highly precise GPS with SAPOS-reference system ensures the accuracy of the examination even in high-density city areas. The well-proven Sewerin measurement technology guarantees the reliability of the documented gas concentration. Increased values are visually highlighted in the graphic display and the intelligent software component continuously supports the work conducted by the gas detector. This means that if leaks are detected or in non-accessible areas due to buildings (e.g. barns) or plantings the appropriate object classes "planted area", "non-accessible routes" or "leaks" are captured and a periphery search is initiated automatically. A selection list of all neighbouring buildings is therefore available directly for allocation.

If leaks are detected, sketches can be compiled on-site on the pen-computer by using the redlining function and special symbols. These are issued as damage sketches and attached to the messages initiated in SAP. Hereby, the follow-up process of repair or renewal is also optimally supported.

After a successful introductory phase the solution can also be used for other examinations, such as control and instrument inspection or hydrant examination. From 2008, a total of five gas detectors will be equipped with the SeCuRi SAT solution, which will enable all network areas to be examined efficiently and continuously.



All header data for the examination (local network, gas detector, test date, etc.) is prepared before the examination in the project management department at Stadtwerken München. In the future, the project management element will be completed directly from SAP orders.

SeCuRi SAT Smallworld Client

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A complete Smallworld Client has been made available for the first time in a mobile configuration, which has been specially adapted for the work conducted by the gas detector. Companies which use Smallworld GIS are provided with interface-free data transfer between office staff and field staff. The gas detection service utilises all of the functions which have been proven over the years in the SeCuRi SAT Conic Client.

Object class “test area” for the efficient planning and implementation of the pipeline examination

The data model SeCuRi SAT Smallworld Server includes the object class “test area”, through which corresponding thematic maps can be generated for the implementation and surveillance of the pipeline inspection. The object class also contains data for planning, organisation and accounting of the inspections. The test areas are plotted depending on the test cycle together with details of the pipe lengths for each test area and number of house

connections (LP, MP, HP). In the future test areas will be able to be specified much more precisely on the basis of damage rates and network characteristics, which will enable the overall costs associated with the examination to be reduced even further.

Uses and functions:

- Linking to the order (e.g. SAP)
- Querying of which test areas are to be examined
- Calculation of pipe lengths for each test area
- Quantifiable damage per test area
- Damage rates per test area
- Assignment of the new test cycle after conclusion and evaluation of the inspection

Further information:

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