Fast and reliable gas leak detection ensures safety and warmth for Ahr Valley residents

Bad Neuenahr-Ahrweiler, Germany
Bad Neuenahr-Ahrweiler was hit particularly hard by the flooding.

An advanced gas detection system from ABB has helped restore gas supplies to the flooded Ahr Valley in Germany. The vehicle mounted system uses lasers to rapidly detect gas leaks, allowing quick restoration of supplies to residents. The flood disaster in the Ahr Valley in Rhineland-Palatinate, Germany, caused major disruption to the gas supply. Restoring it before the winter is a major priority, particularly in the city of Bad Neuenahr-Ahrweiler, one of the worst hit towns.

Over the past few months, the local gas network operator, Energienetze Mittelrhein, has managed to rebuild the severely impaired and partly destroyed gas network, restoring it to almost full operation. Safe commissioning requires checking the entire gas pipeline network for leaks.
The old town of Ahrweiler suffered particularly badly from the flooding. Which caused a lot of damage to gas pipes that cannot be seen with the naked eye. Since security is a top priority in gas supply, it is vital that the gas network is absolutely reliable and, above all, tight. This means that leaking pipes must be found and rectified quickly.

At the beginning of November, a team from ABB’s Measurement & Analytics business visited Ahrweiler equipped with the ABB Ability MobileGuard™ advanced laser-based gas detection system, which enables even the smallest leaks to be quickly detected.

The ABB Ability MobileGuard™ is a comprehensive, easy-to-use, and economical system for the detection, quantification and mapping of natural gas leaks. The measuring system can be mounted on vehicles and is ready for use within minutes.

Based on a patented laser measurement technology, the gas leak detection solution is faster, more accurate and more transparent than previous techniques. It offers impressive performance, covering 10 to 25 times more area per hour and with a sensitivity 1,000 times that of conventional methods.

The system consists of an analyzer for the rapid measurement (up to 5 Hz) of methane and ethane, a high-resolution GPS system, an ultrasonic anemometer to measure local wind speed, a wireless 4G router and a tablet with its own software. The data is stored both on the analyzer and in the cloud and is always available.

Operators using the ABB Ability MobileGuard™ needed only a few hours to check both the new network sections in the district of Ahrweiler and the damaged gas network in the old town. In contrast to conventional leak detection methods, the MobileGuard™ does not have to be directly above the gas line. The MobileGuard™ equipped vehicle is driven into the area, and the solution collects data such as the concentration of methane and ethane, the wind direction and speed, as well as GPS data, linking them together by the software.

In this way, leaks in entire streets can be found easily and reliably up to 150 meters away, while the car can be driven at speeds of up to 90km/h. Unlike other measurement methods, MobileGuard™ is not affected by the tanks of propane gas that were used as a temporary measure to supply households cut off from the natural gas grid.

Thanks to the detailed evaluation, identified leaks could be quickly and reliably located by the maintenance teams and then remedied to ensure the safe operation of the gas network and the restoration of heating to the city’s residents.

The Managing Director of Energienetze Mittelrhein, Dr. Andreas Hoffknecht, is impressed by the results:

„The use of this modern technology helps us to find leaks quickly. With the cold season approaching, there is no time to lose when restoring the gas supply in the Ahr Valley. That’s why we chose to use the ABB vehicle and are very impressed by the precise results.“