Fernwasserversorgung Franken
Franconia Water Supply, Germany

FWF, established in 1951, supplies drinking water in excellent quality to private households, industry and commerce in cities and municipalities in 6 rural provinces in Bavaria's Lower- and Center Franken area, through a distribution network, 1.100 km long. ~17,5 Mio m³ of water are provided annually.

The Task:
To improve efficiency and customer service through AMR (Automatic Meter Reading)

Until recently 640 bulk water meters in sub-surface manholes had to be read within the last two days of every month by 8 teams of two people each, a labour and cost intensive effort, prone to error and dangers, particularly in winter. And yet no consumption information was available between two readings. AMR should solve the problem.

The Solution:
An ADCON Telemetry UHF radio network

Initial trials with GSM devices had brought only limited success. Too many sites were beyond cell phone coverage. The ADCON UHF RTUs solved the problem.

Starting in 2005 FWF built a network of 570 ADCON UHF telemetry stations to automatically retrieve data from bulk meters. Despite the size of the supply area (4.700 km²) even the most remote meter is now connected, with the ADCON RTU network routing such data from station to station back to base. Every 15 minutes the company's control center at Uffenheim (see red circle on the map) receives current data right into its SCADA system, largely reducing the training effort for the staff.

Fig. 1: FWF's area of distribution, 4.700 km²

Since 2006 large customers of FWF can get real-time access to their data through an internet connection, logging onto FWF's addVANTAGE Pro server with their own username and pass-word. This direct access enables them to react much faster to unusual consumption patterns, fix leaks faster to reduce their monthly water bill, while also eliminating supply ruptures and saving valuable water.

The Application:

The Adcon network could successfully achieve all objectives of the project:

- Read and transmit all data from bulk meters in 15-minute intervals
- provide consumption totals by 12pm on the last of every month,
- link the data directly into FWF's industrial SCADA system
- facilitate annual consumption profile comparisons to better analyze changes in consumption patterns,
- use manpower more efficiently for maintenance and other more important tasks.

Fig. 2: Main Control Center at FWF's HQ

The ADCON product range deployed:

1. A850 Telemetry Gateway: several regional plus a central A850 Telemetry Gateway at the Uffenheim control center (see Fig. 2)
2. A753 addWAVE UHF: 570 RTUs with 540mA solar panels
3. A751 addRELAY UHF: a few scattered repeaters improve signal strength in times of fog, snow or heavy rainfall
4. ADCON addVANTAGE Pro 6.x Client / Server Software

Fig. 3: A850 Telemetry Gateway

Fig. 4: A753 and A751 UHF RTUs

The companies Managing Director, Mr. J. Rautenberg, sums it up:

- For our customers it is of utmost importance to receive an accurate and timely statement of water quantities supplied by us – data and invoices they can rely on. Running such a large water supply operation economically and safely requires a lot of effort for inspection and maintenance. By using the Adcon radio system we have managed to free up valuable time of our staff that is now invested in maintenance work. Furthermore the system has largely facilitated our monthly invoicing procedures; collecting data automatically has sped up processing significantly while at the same time avoiding errors caused by manually reading and entering data.

- But the system not only operates to our, but also to our customers advantage. Being able to retrieve their own data in real-time via the internet they enjoy a number of benefits: no need for frequent inspections of their pipeline access points, no need for their own data loggers to read their meters, fast reaction to leakages in their own distribution area, and thus large savings at the end of the month.