

VAG Pressure Management reduces real water loss by up to 40% in Ain Al Basha near Amman

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VAG On-site

11/09

Amman, capital of the
Kingdom of Jordan

'If we don't drastically change the way we use water and reduce the amount we consume, Jordan's water deficit will continue to grow – with inconceivable consequences for the people and the environment!' explains Dieter Rothenberger, Project manager at GTZ.

To counter that, the globally active development organisation PPP set up a pilot project in Gouvernorat Balqa, near the capital Amman.

The aim of this project was to:

- Considerably reduce real water loss in the project area selected by Jordan's regional water works
- Gather and document customer and consumption data
- Bring experts and managers up to speed on the latest developments in technology and management
- Initiate the long-term and efficient operation of water supply systems.

GTZ (German Agency for Technical Cooperation) is an international cooperation enterprise for sustainable development. The sole shareholder of the non-profit organisation is the Federal Republic of Germany.

gtz

Project overview

Project:

Pilot project to tangibly reduce real water loss in 3 districts of the city's water supply system in Gouvernorat Balqa in through effective pressure management

Services:

Plan and implement the VAG solution and help build a training centre in Amman

Project duration:

January 2007 to July 2008

Project partner:

GTZ (German Agency for Technical Cooperation)
WAJ Water Authority of Jordan



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VAG-Armaturen GmbH in Mannheim was found to be the best cooperation partner for this complex job. VAG, one of the world's leaders in water supply solutions, was more than happy to be part of this project.

'We see it as our social and political duty to support such not-for-profit projects in developing and threshold countries as we've done in Sao Paulo, Nova Lima and Sana'a. Water is the most precious resource in the world. Its frugal use, especially in these regions, is crucial to our survival and that of our descendants,' is how Robert Fellner-Feldegg, Managing Director of VAG, explains the valve manufacturer's mission.

In November 2006, three VAG experts travelled to Gouvernorat Balqa. Together with staff from the WAJ, they inspected the supply system and selected districts for the pilot project. They agreed to send the data they gathered on water consumption and pressure fluctuations over a period of three months to VAG's headquarters in Germany. The experts there used the data to analyse the situation, do a feasibility study and determine where and how many sensors and pressure-regulating valves needed to be installed. They also determined where the control cabinets should be set up and how the data should be transferred. And last but not least, the information enabled them to draw up a detailed project plan.

Following the selection of the neighbourhoods (Ain Al Basha, Hai Al Almeer (Prince Ali) and Hai Qutai-beh) and the placement of the last order, the three VAG RIKO® Plunger Valves went into production. They arrived in Amman in August 2007 together with the electrotechnical accessories.

VAG's pressure management is based on three solutions, which the VAG specialists choose - and often combine - according to the specific situation.

1. Time-based pressure reduction

This is the simplest and most cost-effective solution: because less water is generally used at night, the pressure in the supply system increases. Reducing the pressure for a few hours reduces real water loss.





The valves, sensors, transmitters and control cabinets were installed at the specified locations under the supervision of VAG in September and October. Data collection and pressure management were ready to start.

VAG's project engineer, Jörg Baader, was happy with the results. 'The on-site work was very educational and culturally enriching - there was a great team atmosphere. There were no glitches or moments of panic. We successfully completed the work in July 2008 and handed over the project to WAJ.'

What effect would installing VAG's pressure management system have on the pressure and real water loss in the supply system?

The evaluation of the data soon showed impressive results:

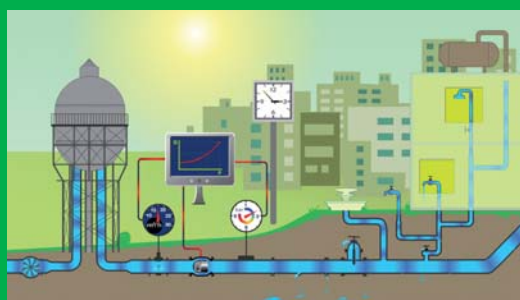
In the three areas, the nightly pressure was reduced by up to 60%. In Ain Al Basha, this pressure reduction (from 5.5 to 2 bar) reduced the nightly flow rate by up to 18m³ per hour. In Hai Al Almeer, the nightly consumption was even reduced by 50%.

An analysis carried out 12 months later revealed savings in Ain Al Basha and Hai Qutaibeh of 137m³/day, which corresponds to the water demand of 1,142 people. In Hai Al Almeer, 274m³/day could be saved, which corresponds to the water demand of 2,283 people.

Reducing the pressure doesn't only reduce the real water loss, it's good for the whole supply system because it reduces the number of pipe breaks and hence the amount of money that needs to be reserved to maintain and repair the system.

2. Quantity and flow based

Controlling the flow rate reduces additional real water loss and pipe breaks. Analysing the consumption during a specific period enables a value curve to be created to define flow rates and minimum pressures.



3. Remotely controlled from the critical point

This highly effective method consists of measuring the pressure at critical points with sensors (farthest distance, highest position, etc.) and using telecontrol to transmit the results back to headquarters. This highly accurate, flow-based pressure reduction evens out the pressure and protects the supply system all the way down to the weakest perimeters. Real water loss and pipe breaks are reduced as much as possible.





The second phase of the project was awarded to VAG following the documented success of the first phase. The goal of the projects GTZ carries out is to build local knowledge so the local partners can continue operating the new systems; a kind of 'help to help yourself.'

In March and April 2008, WAJ managers and trainers attended an intensive training course at VAG's headquarters in Mannheim.

At the same time, VAG helped to improve a training centre for water engineers in Amman. The facilities are equipped with training valves and wall charts, and will be used to teach 400 to 600 engineers a year how to use water valves.

VAG trained the Jordanian trainers during a one-week 'Train-the-Trainer' seminar. A lot of the time was spent on practical and theoretical training on the valves, at the end of which the trainers had the opportunity to practice what they learned. Assisted by VAG experts, they trained engineers and technicians with the nextly supplied VAG valves.

On the occasion of the project's final acceptance, Mr Fellner-Feldegg (left) and Mr Rothenberger (centre) gave the director of the water works in Gouvernorat Balqa, Mr Ahmed Househ (right), a certificate of completion as a symbolic gesture.

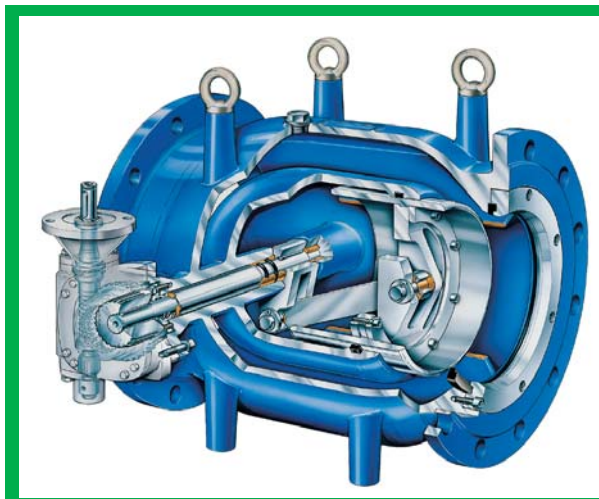


Your VAG contact
for this project is:
Dirk Recktenwald,
d.recktenwald@
vag-group.com



VAG-Armaturen GmbH

Carl-Reuther-Strasse 1
68305 Mannheim
Germany
Phone +49-(0)621 7 49-0
Fax +49-(0)621 7 49-2153
www.vag-group.com
info@vag-group.com



The heart of VAG's Pressure Management is the VAG RIKO® Plunger Valve.

With an accuracy like no other, it regulates the supply system's pressure while ensuring the flow remains constant - the quantity of water and the pressure are always in perfect harmony.