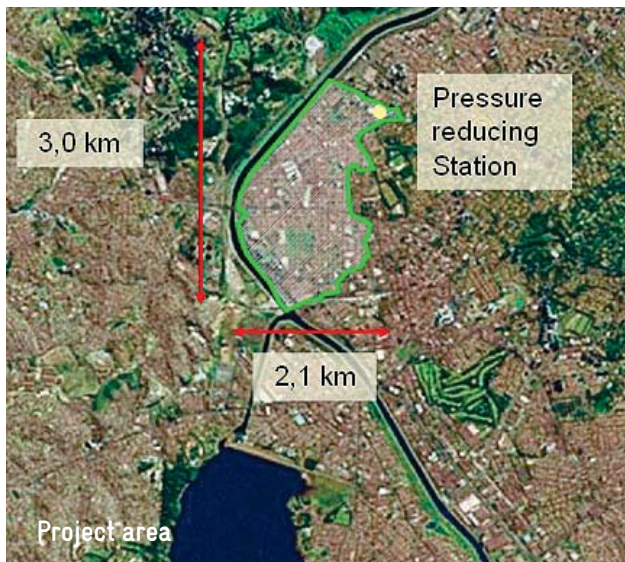




Installation of a pressure reducing valve (PRV)



Reducing water losses by pressure management – the example of Santo Amaro, Brazil

Project title	Sustainable water and natural resources management in São Paulo
Name of areas	Santo Amaro, São Paulo, Brazil
Inhabitants	36,000
Service connections	8,895
Length of distribution pipes	83 km
Water losses	
01/2005 – 09/2005	301,702 m ³ /month
10/2005 – 01/2006	203,947 m ³ /month
02/2006 – 06/2006	178,039 m ³ /month
Project period/ status	March 2004 – June 2006

Background

Water consumption is continuously increasing in the metropolitan area of São Paulo. Today, the state-owned water utility Companhia de Saneamento Básico do Estado de São Paulo (SABESP) faces the challenge of meeting the demand of over 17 million inhabitants and ensuring a constant and sufficient supply of potable water in sufficient quantities. Despite the high quality of service provided by SABESP, periods of rotational supply sometimes occur due to a lack of resources during a dry period.

One reason for a lack of water supply is the high volume of water losses that occur during operation due to leakage at critical points, such as the mains and fittings.

Process development

A pilot site was installed in the district of Santo Amaro, consisting of a state-of-the-art water loss reduction system that included pressure regulating valves, control panels, telemetry installations and the supporting software. (Oppinger, 2009)

Two technologies were implemented: firstly, time-based modulation and secondly, remote node-based modulation (critical point flow modulation). Flow modulation is expected to yield better results as the PRV is continuously adjusting pressure so that the pressure stays as close as possible to the set value at the critical point.

Results and good practice

The results obtained with both installed technologies are summarised in the Table below, showing water savings of up to 41%. Furthermore, new pipe breaks were reduced by approximately 50%. The project had a payback time of approximately four to five months.

E. Paracampos (SABESP) reported his observations from the central business unit of SABESP in 2007: break frequencies at mains and services were around 10 per km/year in the 180 zones with pressure management. However, according to Thornton, break frequencies were almost double in areas without pressure management (approximately 19 per km/year).

Lessons learned

This pilot site has demonstrated that modulated pressure management significantly reduces both the volume of water loss and the frequency of new pipe breaks. For the

Technology	Period	Water losses [m ³ /month]	Water savings [%]
Without PM	01/2005 – 09/2005	301,702	
Time-based modulation	10/2005 – 01/2006	203,947	-33%
Remote node-based modulation	02/2006 – 06/2006	178,039	-41%

Results obtained in the district of Santo Amaro between January 2005 and June 2006

district of Santo Amaro, this means a reduction of up to 50% in new pipe breaks and 30% more available volume of water, which is sufficient to supply an additional 800 people with potable water. This is of particular significance in a fast-growing metropolis like São Paulo.

References

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