

Khayelitsha – Leakage Reduction through Pressure Management Project

LOCATION: Cape Town, South Africa

PROJECT TITLE: Khayelitsha – Leakage Reduction through Pressure Management Project

CUSTOMER: City of Cape Town

Postal Address: City of Cape Town, Private Bag X93, Bellville, 7535

Contact Person: Mr Tertius de Jager, Head District 3, Water and Sanitation Department, Water Reticulation Section

Phone: +27 (21) 360 1192, Fax: +27 (21) 360 1255, e-mail: Tertius.deJager@capetown.gov.za

STATUS: Completed in 2001: DURATION FROM JUNE 2000 TO JULY 2001

OBJECTIVE: To reduce water leakage and levels of wastage in the water distribution system.

CHALLENGE: In 2000, the level of leakage in the Khayelitsha township was estimated, from night-time water use, to be almost three-quarters of the water supplied to the area. The City of Cape Town Municipality wished to implement a major WDM intervention program to facilitate water savings in the Khayelitsha area.

DESCRIPTION

Khayelitsha is one of the largest townships in South Africa and is located approximately 20 km from Cape Town. There are approximately 43 000 serviced sites with both internal water supply and water borne sewage while there are a further 27 000 low-cost housing units which are supplied from communal standpipes supporting a population of approximately 450,000.

In 2000, the water supplied to Khayelitsha was almost 22 million m³/a. The level of leakage was estimated from the night-time water use to be almost three-quarters of the water supplied to the area. The Minimum Night Flow (MNF) was measured to be in excess of 1 600 m³/hr.

The main source of the leakage was identified as the household plumbing fittings which have been badly damaged through constant exposure to a relatively high pressure of 80m. Such leakage results in very high water consumption in most properties and high levels of non-payment since the customers could not afford to pay for new taps and toilet fittings, let alone the high water bills. The Khayelitsha Pressure Management Project was therefore proposed in 2001 to improve the level of service to the Khayelitsha community by reducing the excessive water pressure and pressure fluctuations in the reticulation system.

COMMERCIAL CONSIDERATIONS

- The project currently saves in excess of 9 million m³/year representing a financial saving of approximately R30 million (\$4 million) per year. The project cost approximately R 7.5 million (\$1 million) to construct in 2001 and produced a pay-back of less than 3 months to the City of Cape Town.

RESULTS

Benefits to the Municipality - Water, Wastewater and Energy Savings:

- Following the construction and commissioning of the pressure management installation, the average daily flow was reduced from 2 500 m³/hr to 1500 m³/hr representing an annual saving of 9 million m³/yr or approximately 40% of the original water use. The Minimum Night Flow was reduced from 1 600 m³/hr to 750 m³/hr.

Expanding the Lifespan of the Network:

- After two years of operation, the Khayelitsha pressure management installation continues to deliver in the form of massive water savings. The savings have been maintained at the original commissioning levels and there has been no visible deterioration in the performance of the installations

Benefits to the Community:

- As a result of the success of the Khayelitsha Pressure Management Project, the City of Cape Town is currently embarking on a second and slightly larger pressure management installation in Mitchells Plain which was operational by August of 2008.



The project received many national awards for technical excellence