

## Drakenstein achieves significant water loss reduction after installing HDPE pipes

Under a 20-year master plan to replace old or aging asbestos pipes with HDPE pipes, the Drakenstein Local Municipality in Paarl, Western Cape has achieved significant successes in reducing water loss throughout the area.

With water losses at 34% by 1999 and increasing, the municipality was forced to investigate the reasons for the high water losses and find ways to mitigate these on a broader front.

It began prioritising projects that included pipe replacements, the replacement of bulk and domestic water meters, pressure management, leak detection and repair, public awareness and upgrading information and management tools. Reaction time to attend to burst pipes was also reduced to less than one hour. These initiatives have brought water losses down to an average of 16% – and 11% at its lowest.

The lower losses enabled the municipality to delay the construction of reservoirs and large pipelines for several years. There was also a decrease in the occurrence of burst pipes. However, the reduction in residual pressures in various pressure zones had the biggest water saving effect.

### Replacing aging pipes with HDPE pipes



Steel screws show corrosion

The municipality has placed significant emphasis on replacing 14.2km of old asbestos pipes with new HDPE pipes, at a value of R120m.

“Prior to embarking on the project, we carefully compared steel pipes with HDPE pipes. We were fully convinced that the latter offered us significantly more advantages and impressive cost saving benefits. Taking the lifecycle of the HDPE pipe as a material into account, it surpasses most other pipe materials. The pipes can also handle the fluctuation in water pressure and flow characteristics within the pipe design limits better than any other flexible pipe systems. If correctly designed, and with proper installation, an HDPE system – together with the fittings – will provide the lowest maintenance compared to any other pipe material system,” explains André Kowalewski, senior engineer: water services for the Drakenstein Municipality.

He adds that the most attractive advantage of HDPE is a pipe system without pipe joints. “We no longer have the issue of corrosion, failing joints or costly maintenance issues due to downtime, as most of the fittings used in HDPE systems are moulded out of polyethylene material.



Willem Liebenberg and Andre Kowalewski of Drakenstein Municipality

Other fittings used by the municipality include flanges and tee-pieces predominately manufactured using grade 316 stainless steel.

“The philosophy behind the use of a high-grade material is to have a total system where the pipe material and fittings, when used together, will guarantee a useful operating life that surpasses 50 years. It means that the chemical resistance and durability of the fittings must be the same as those of the pipes,” states Kowalewski.

## SAPPMA and IFPA certification

“Workmanship is very important when it comes to the manufacturing of HDPE pipes,” Kowalewski says. He explains that they’ve had incidents in the past where pipes not bearing a mark of quality failed soon after installation.

“It is almost impossible to identify whether or not a pipe is of inferior quality prior to installation and purely based on appearances. However, we have learned through trial and error and the school of hard knocks that unless a pipe bears a SAPPMA mark, it will not meet the quality standards of certification bodies such as the SABS or SATAS.”

“For this reason, we have changed our tender specifications by insisting that all suppliers of HDPE pipes are members of SAPPMA, and that all welders and installers of the pipelines are IFPA certified. When we see the SAPPMA mark on the pipes or the IFPA stamp on the welds, we know that the pipeline will stand the test of time and that we have recourse if it fails to deliver,” he concludes.