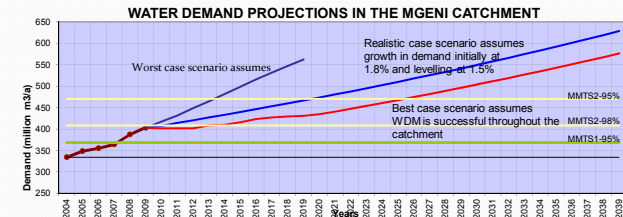


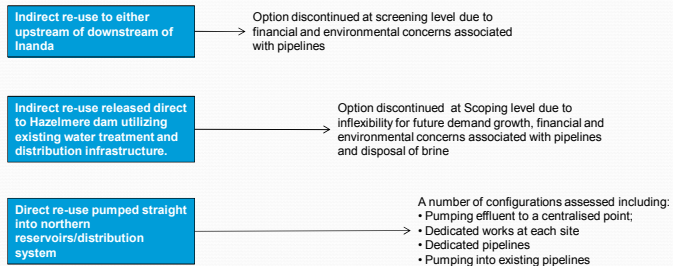
Ethekwini water re-use project

Project Rationale



- Ethekwini Municipality initiated a study in early 2009 to assess the techno-economic feasibility of treated effluent reclamation and re-use as the basis for water supply augmentation.
- Ultimate future development through 2031 has focused plans on the north of the city.
- The proposed wastewater reclamation scheme therefore involves the collection of treated sewage effluent from the north of Durban at the KwaMashu and Northern Waste Water Treatment Plants (WWTPs).

Broad-scale re-use options



Technical feasibility, financial considerations, environmental and social

Conclusion of options analysis

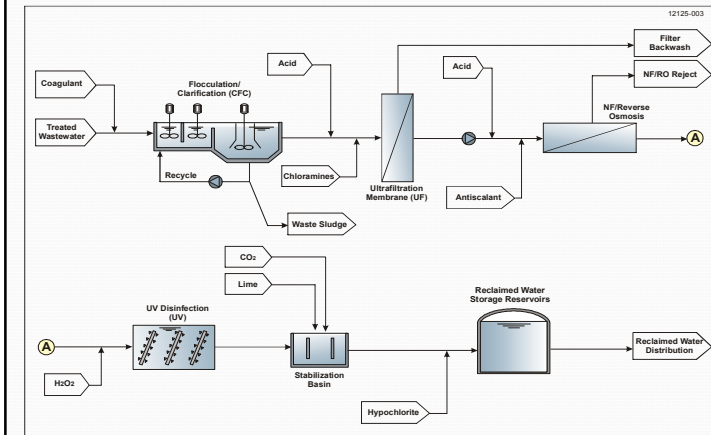
- Treated sewage effluent from the KwaMashu and Northern WWTW's, is reclaimed and treated to potable standard. The potable water from KwaMashu potable water reclamation plant is discharged into the existing trunk main of the northern aquaduct in the vicinity of Duff's Road while the potable water from the Northern WWTW is discharged to the northern aquaduct in the at the nearest point approximately 3.5 km from the works.

Direct re-use technology options

- Robust & able to deal with variable treated sewage effluent qualities from the existing sewage treatment plants;
- Multiple barriers of treatment to deal with all categories of pollutants;
- Energy requirements for treatment processes;
- Operating & maintenance cost; and
- Proven technology with full scale reference plants

Ozone/GAC treatment	Membrane Treatment
Coagulant dosing; Coagulation/flocculation; Clarification; Ozone disinfection; Biologically Activated Carbon Columns; Granular Activated Carbon Columns; Ultra filtration; UV disinfection; and Chlorine based disinfection.	Coagulant dosing; Coagulation/flocculation; Clarification; Ultra filtration; Reverse osmosis; UV disinfection; Stabilisation; and Chlorine based disinfection.

Membrane treatment train addresses concerns regarding EDC's



Northern WWTW

- A potable water reclamation treatment plant utilising membrane technology located at Northern WWTW treating all treated sewage effluent from Northern WWTW to a potable standard.
- A pumping station located at the Northern potable water reclamation plant will pressurise the potable water to emulate the pressure regime created by Durban Heights WTW (280 m above msl) and introduce the water into the northern aquaduct trunk main as near to the site as practical through a 3.5 kilometre steel pipeline.



KwaMashu

- A potable water reclamation treatment plant membrane technology located at KwaMashu WWTW treating all treated sewage effluent from KwaMashu WWTW to a potable standard.
- A pumping station located at the KwaMashu potable water reclamation plant will pressurise the potable water to emulate the pressure regime created by Durban Heights WTW (280 m above msl) and introduce the water into the northern aquaduct trunk main in the vicinity of Duffs road via a 900mm, 1,9 kilometre steel pipeline.

