

Clearwater Technology



Private Recycled Water Schemes

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WHAT? ME WORRY? -Alfred E. Neuman

- Aristotle 384-322 BC

“Conserve and Secure the City’s Water Supply, – We are under siege!”

- Are we not under siege too????

Climate Change

Global Warming

Over-allocation

Pollution

Waste

Energy



Purifies greywater, and/or sewage for toilet flushing, gardens, playing fields etc.

Recycles 50-90% of the water used in an average residential or commercial building

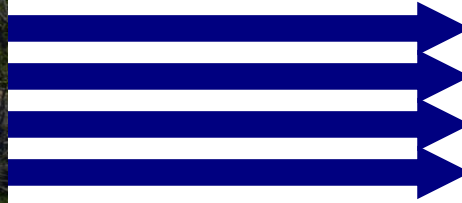
Over 5 years intensive research and development

Membrane bioreactor process

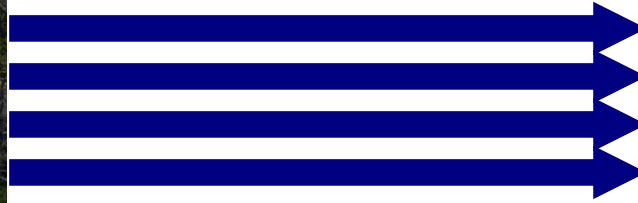
For ***non-drinking*** purposes

Wot's in a name/acronym?

BASIX **GREENFIELD** **NRWQG**
WICA **NEWwater** **WMP** **EPA**
Section 68 **GREEN STAR** **LGA**
etc. etc. **etc. etc.**



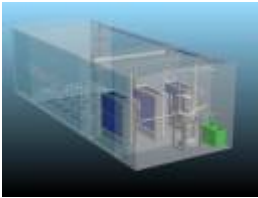
Past scenario - no recycling



Large-scale recycling



Aquacell recycling



THE MEMBRANE BIOREACTOR PROCESS [MBR]

- **SCREENING**
- **AERATION [BIOLOGY TANK]**
- **AERATION [MEMBRANE TANK]**
- **ULTRAFILTRATION [MEMBRANE TANK]**
- **UV DISINFECTION**
- **CHLORINATION**



Typical approval process – Victoria

1. Recycling Scheme nominated in planning application
2. Water balance
3. Design, HAZOP, HACCP
4. Dialogue with EPA/DHS preceded works approval application
5. 4-month statutory approval process prior to installation
6. Construction of Water Recycling Plant
7. Management plans submitted to EPA/DHS
8. Endorsement of management plans
9. Process validation
10. Ongoing operation/service/maintenance

In summary - Allow time!!



Regulatory Compliance

Manufacture and Process to ISO Principles

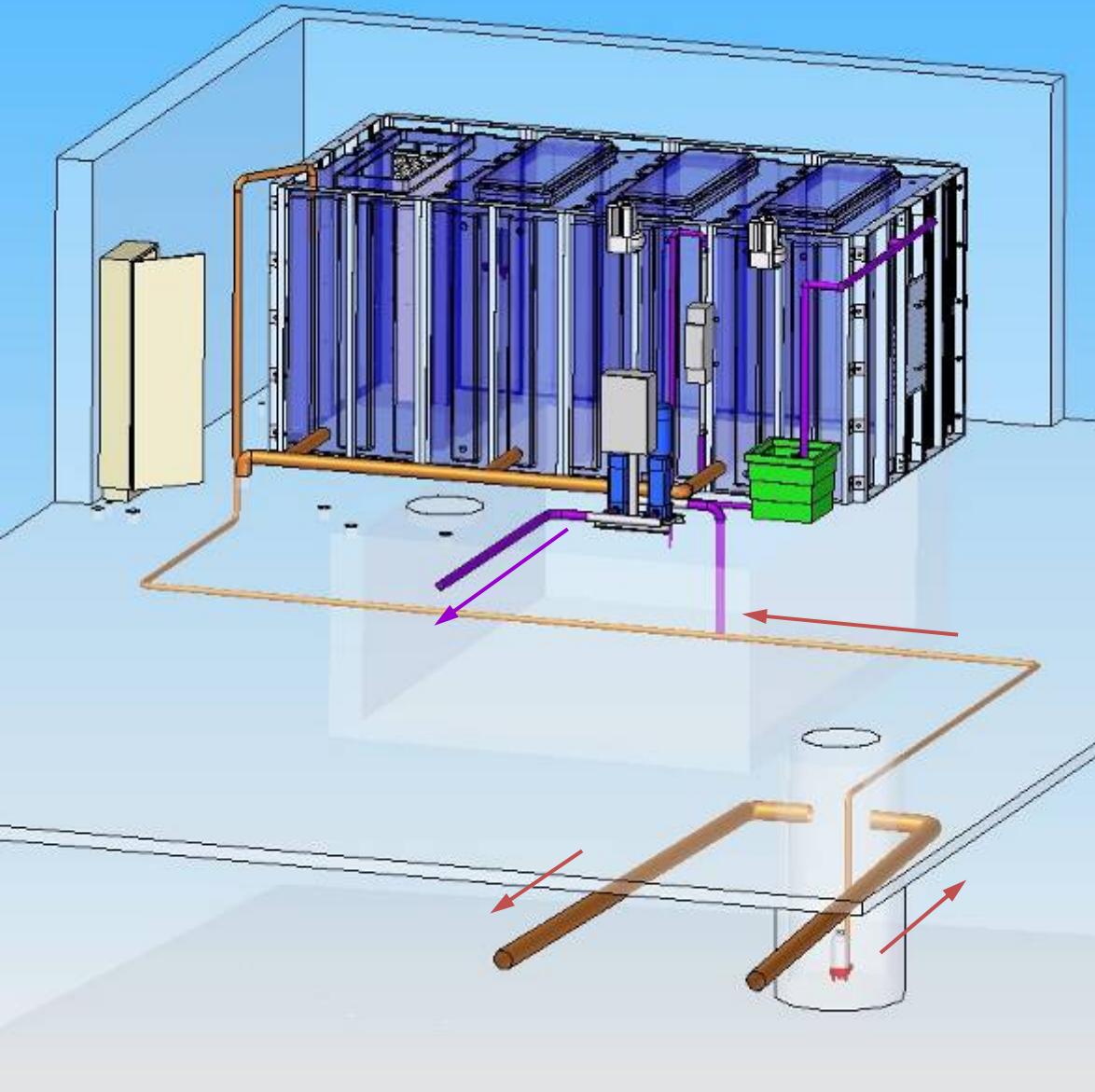
Ongoing monitoring regime to Australian Recycled Water Guidelines (exceeds most state levels)

On-line monitoring - web-based operator interface

Operations and maintenance contract

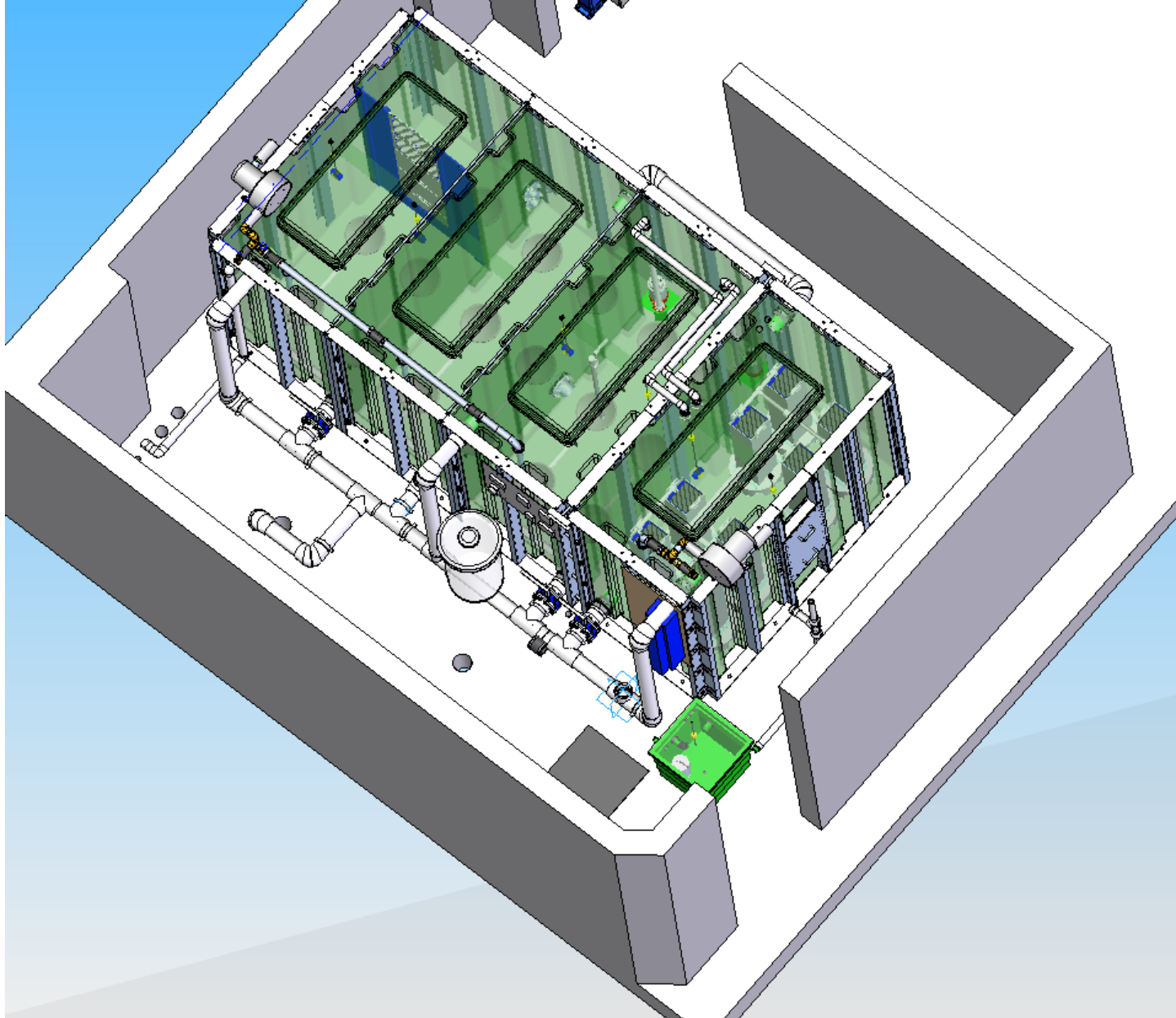
Regular sampling by NATA Laboratory

Quality Assurance & Confidence



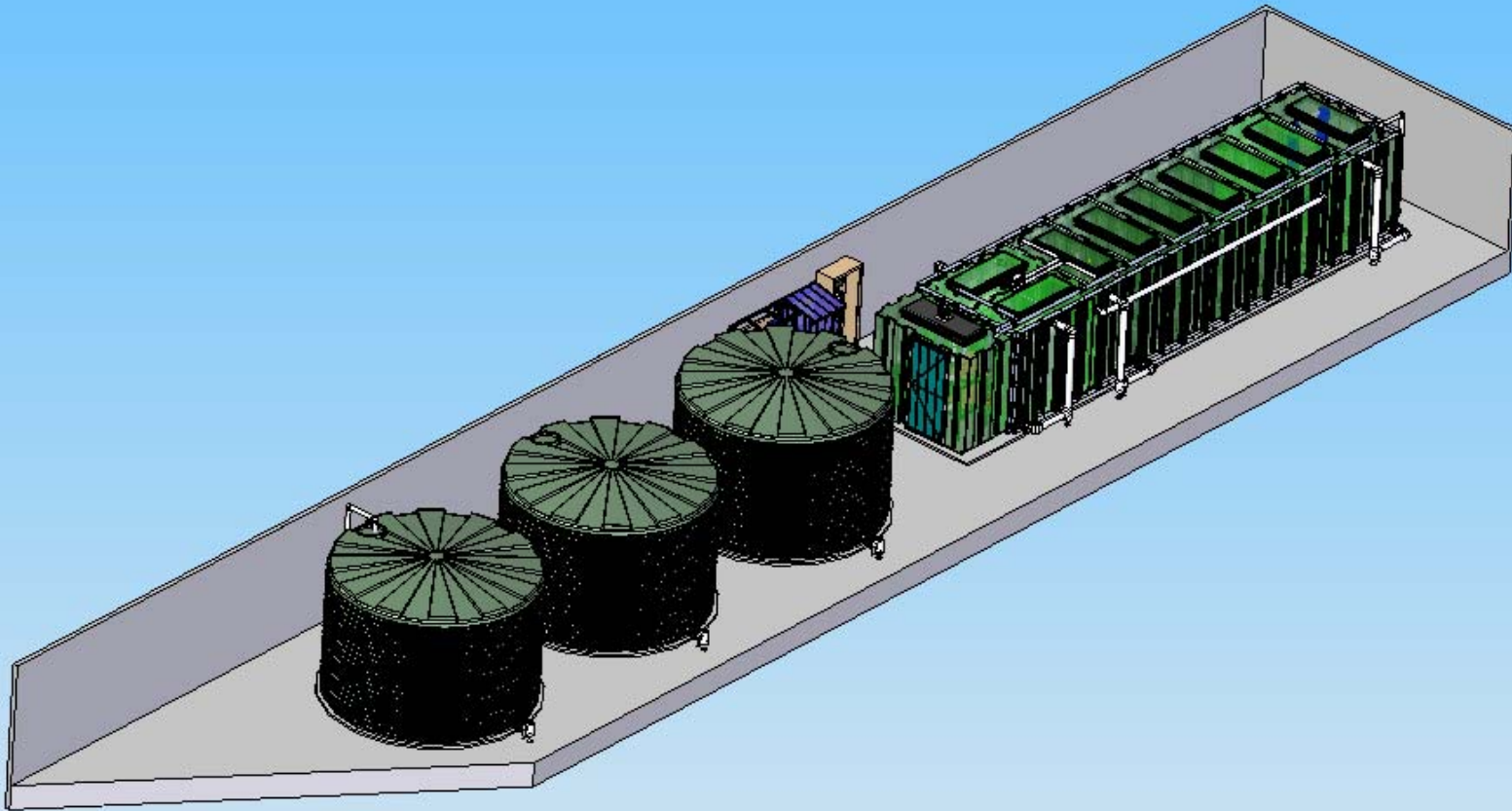
How it works – multiple dwellings

Sewered areas



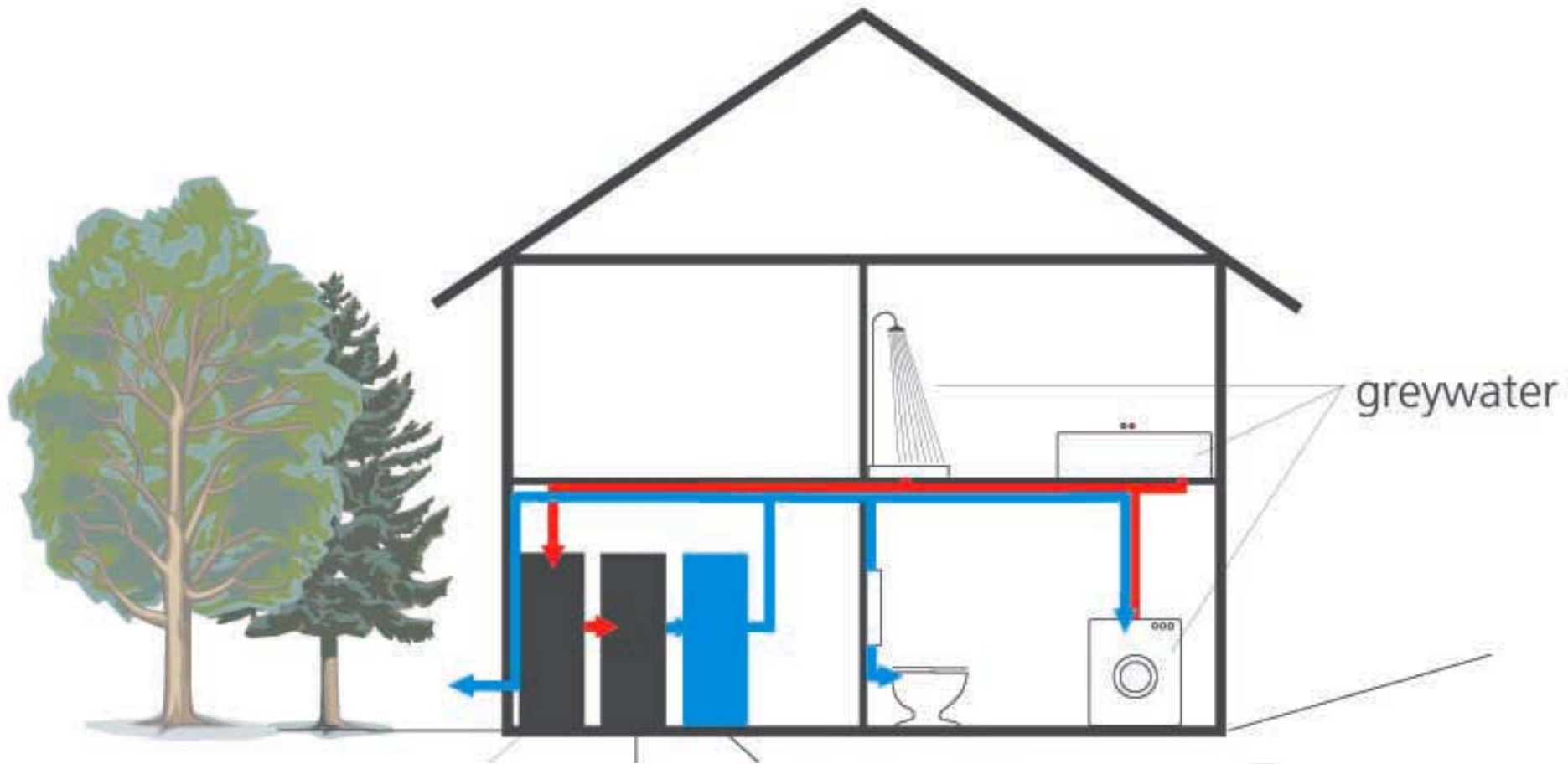
Typical basement installation

Prince Henry at Little Bay, NSW



Typical outdoor installation

Majura Office Precinct, ACT



How it works – single dwelling greywater system

Sewered areas





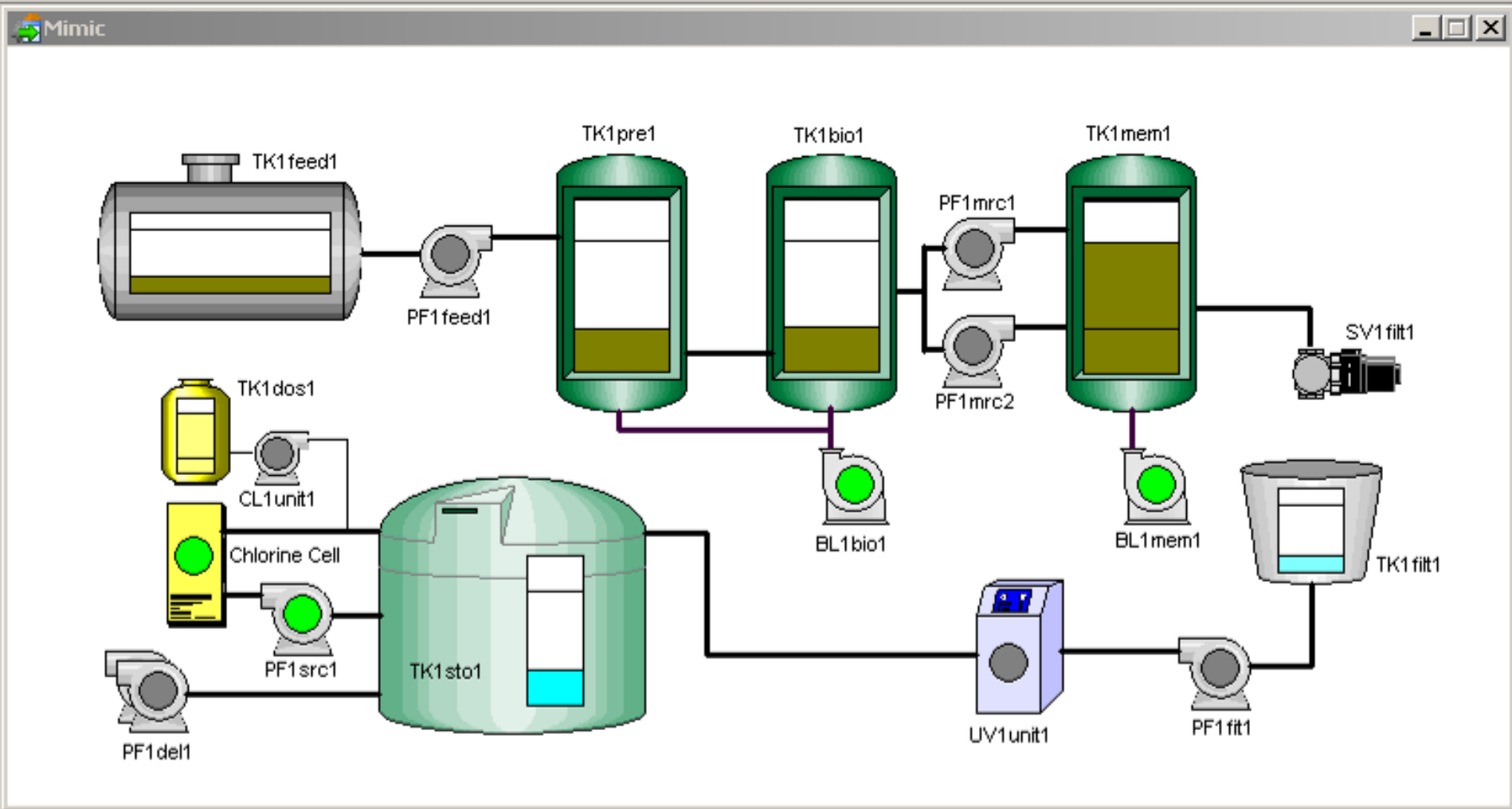
aquacell
water recycling systems

Single Dwellings

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Treated Water Quality



Remote monitoring



Resorts

Joalah Holiday Park, Murramarang N.P

Sensitive Environments



Residential Developments

K2 Sustainable Housing Project - Melbourne



K2 Sustainable Housing Project - Melbourne



Sports field irrigation

Blacktown Workers Sports Club, NSW





Sports field irrigation

*100 kl/day blackwater recycling system
Blacktown Workers Sports Club, NSW*



Sports field irrigation

Blacktown Workers Sports Club, NSW





Public Projects

Brindabella Business Park – Canberra International Airport





Schools

Birrigai Outdoor School, ACT





Office Buildings

Majura Office Park, ACT





Recycled Water Plumbing requirements

- Lilac pipe and fittings
- Backflow prevention devices
- Methods to prevent cross-connections



Clearwater Technology



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