CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

THE RISKS OF GROUNDWATER QUALITY

June 2019

Making progress possible. Together.

Groundwater introduction

Groundwater comes from below the earth's surface. People use groundwater mainly from boreholes, wellpoints and springs, and also basement water. It can be a valuable source of alternative water in times of water scarcity, but needs to be used responsibly, safely and legally.

This leaflet highlights the risks associated with the quality of groundwater, not the quantity-related risks e.g. over-abstraction or the need to replenish the source.

For the rules regarding the use of groundwater – including registration, authorisation, signage, metering, consumption reporting and backflow prevention with the reduced pressure zone (RPZ) valve – go to the City's Guidelines for Installation of Alternative Water Systems at http://cct.gov.za/AIBNI

Groundwater quality is a risk because:

- The quality of groundwater is unpredictable, ever-changing and has significant health impacts. Underground sewer spills or other factors that may not be obvious from above the ground can rapidly affect the quality of groundwater and cause very serious health problems.
- The variability of water quality from groundwater sources is huge, even within one property.
- Poorly installed systems can contaminate the municipal drinking water system.
- Groundwater often contains corrosive minerals that can damage plumbing equipment.
- It may cause discolouration and damage to paintwork.

Groundwater contamination is a real danger

Contaminants may infiltrate and pollute the groundwater that you are extracting.

- In urban areas, groundwater can contain pollutants and chemicals from human, commercial and industrial processes and waste, including:
  - factory waste
  - graveyards
  - open pit latrine/toilets (e.g. in informal settlements or used by the homeless)
  - illegal dumping; and
  - sewer pipe leaks.
- During drought periods, there is less rain water to dilute all the contaminants.
- Water moves underground like a slow-moving stream and can neutralise or dilute contaminants. However, it can also bring contaminants to your extracting point.
- Stagnant waters in ponds or wetlands are likely to have high microbiological determinants (high pathogens and bacteria level) and may contaminate local groundwater.

Protect yourself and the City – test your water regularly

- The quality of groundwater may be affected by land use activities such as agriculture, landfill sites and waste dumping.
- There is no guarantee that groundwater is uncontaminated, or may not become contaminated at any time. To confirm your groundwater quality, get it tested against the full SANS 241:2015 drinking water quality standard at any SANAS-accredited laboratory.
- Check the results against the table in Annexure 1 in the Guidelines for Installation of Alternative Water Systems.
- Groundwater quality changes over time. What tested fine last month may be different today. Regular testing is strongly recommended. The treatment of groundwater varies depending on the quality, but often includes de-ionising or similar methods to remove metal content.

With the relevant permission (e.g. for plumbing installation compliance) and authorisation (for the actual taking of the water) as well as sufficient level of treatment, groundwater may be used with caution for:

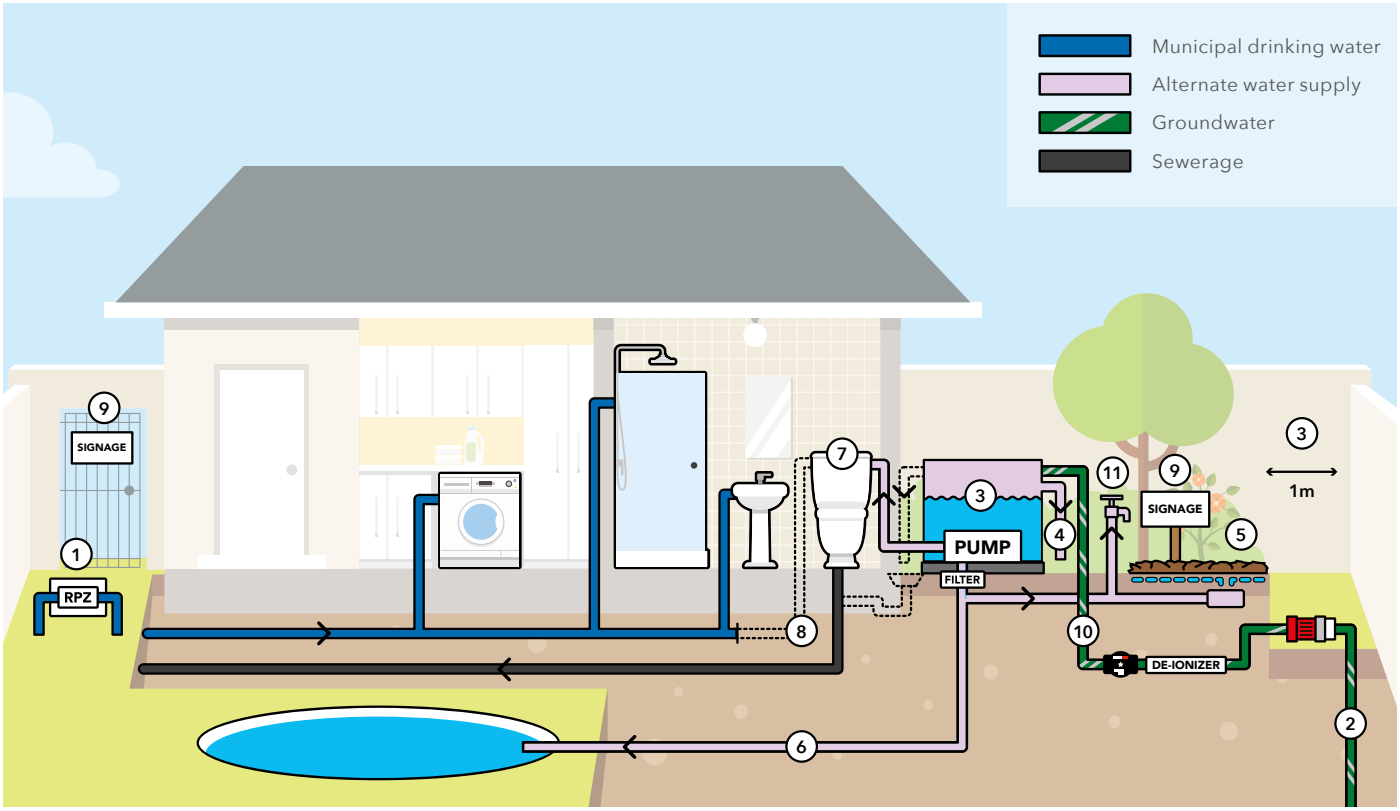
- washing of clothes
- indoor surface cleaning
- cleaning vehicles, bins and outdoor surfaces
- topping up of swimming pools and ponds
- water features
- water-cooled air-conditioning systems (HVAC)

Use groundwater only for what is allowed, and only with permission

- The main uses for groundwater are irrigation and toilet flushing.
- If connecting to your plumbing system, it is mandatory to install a reduced pressure zone (RPZ) valve backflow preventer. Specialist advice needs to be sought.
- According to the City's Water Bylaw, no groundwater (treated or untreated) may be used for drinking, cooking and food preparation or ablution (body washing). Only some large consumers contracted with the City to operate as water service intermediaries may do this, and only under strict conditions.

Remember the following when considering a borehole or wellpoint:

- Different rock types tend to have different chemical makeup and compositions.
- Highly permeable rock types, like alluvial sediments and fractured sandstones, usually have better groundwater quality.
- The less permeable rock types like shale or its weathered clay material generally tend to have very poor water quality.
- Generally, the deeper the borehole, the better the groundwater quality.



QUESTIONS TO ASK BOREHOLE PROVIDERS

Ask the following questions before contracting any service provider to drill a borehole or well point on your property:

- How many other boreholes or well points have you drilled in this area?
- Do you know what the likely water quality will be?
- How much does it cost to go deeper to get better water quality?
- Do you know about the rules for registering a borehole or well point within the City?
- What are the requirements for groundwater authorisation from the national Department of Water and Sanitation (DWS)? Can you supply and install the required meter so that I can report my usage to the national DWS?

For more information please visit
http://cct.gov.za/AIBNI

REPORT WATER-RELATED ISSUES

e.g. burst pipes, water wastage, sewer blockages, etc.

Choose ONE of the ways below:

TEXT SMS **31373** (maximum 160 characters)

Call **0860 103 089**

Visit a walk-in centre
www.capetown.gov.za/facilities

Email **water@capetown.gov.za**

Online
www.capetown.gov.za/servicerequests