

SOURCE WATER

All water systems start with a source. The three categories of source water include: RAIN – Roof Collection, GROUND – Bore, SURFACE – River/Lake, Shallow Well, Spring.

Your water may come from one or more of these sources.

Every source is unique and will vary based on; Location, Quality, Quantity and Environment. Each source option has its own merits, depending on end use requirements. Is it to be used for horticulture, industrial, agriculture or domestic/human drinking-water?

The following outlines the Pro's and Con's of each source type;

RAINWATER – roof water (The collection of water off building roofs)

Location of site:

- Prune foliage
- Stop debris contamination
- Secure tank entries

Advantages

- Simple treatment, FIRST FLUSH
- Low cost
- Infiltration controls

Disadvantages

- Limited by rainfall
- Pressure pump needed
- Tank size and water quality



GROUNDWATER – bores (A well drilled into a secure below ground water source, usually deeper than 30mtr)

Location of site:

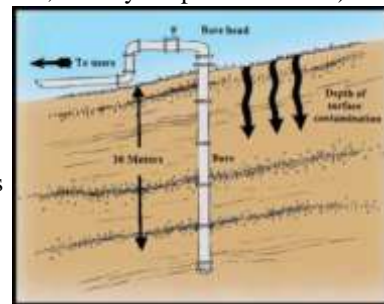
- Use local knowledge and Regional Council for information
- Needs to be secure from surfacewater influence
- A 24hr pump test will show QUANTITY
- A suite of tests will indicate QUALITY and possible treatment needs
- Consult Regional Council for drilling permits and consent requirements

Advantages

- Low contamination risk if secure
- Reliable quantity and quality
- Protected from contamination if secure

Disadvantages

- Variable treatment costs depending on quality
- Unknown initial cost – how deep do you go?
- Reliant on electricity



SURFACE WATER – river/stream, well, spring, (Water collected from a source easily influenced by land activities)

Location of site:

- Choose low risk catchment
- Screen at collection e.g. weir/dam or pump intake
- Easy to access for maintenance

Advantages

- Many collection methods
- Can use gravity
- Use of ram pumps, GLOCKEMANN

Disadvantages

- Higher risk of contamination
- Usually affected by heavy rain or drought
- Difficult to protect catchment



SOURCE GENERAL

For the welfare of human and animal health all sources should (where possible) be protected from: Disease causing Micro-Organisms eg Protozoa (cryptosporidiosis “crypto” and giardia), Bacteria (E.coli, faecal coliforms, “human/animal waste”), Viruses and Helminths, and Hazardous Chemicals eg pesticides, heavy metals, nitrates.

Aesthetics are also important in a water supply ie Flavour and Appearance eg turbidity “dirt”, colour, taste/odour.

A regular monitoring and maintenance program is required for each of these sources.

Next month's topic – FILTRATION

By Damian Lawsen source2tap@alphapipelines.co.nz