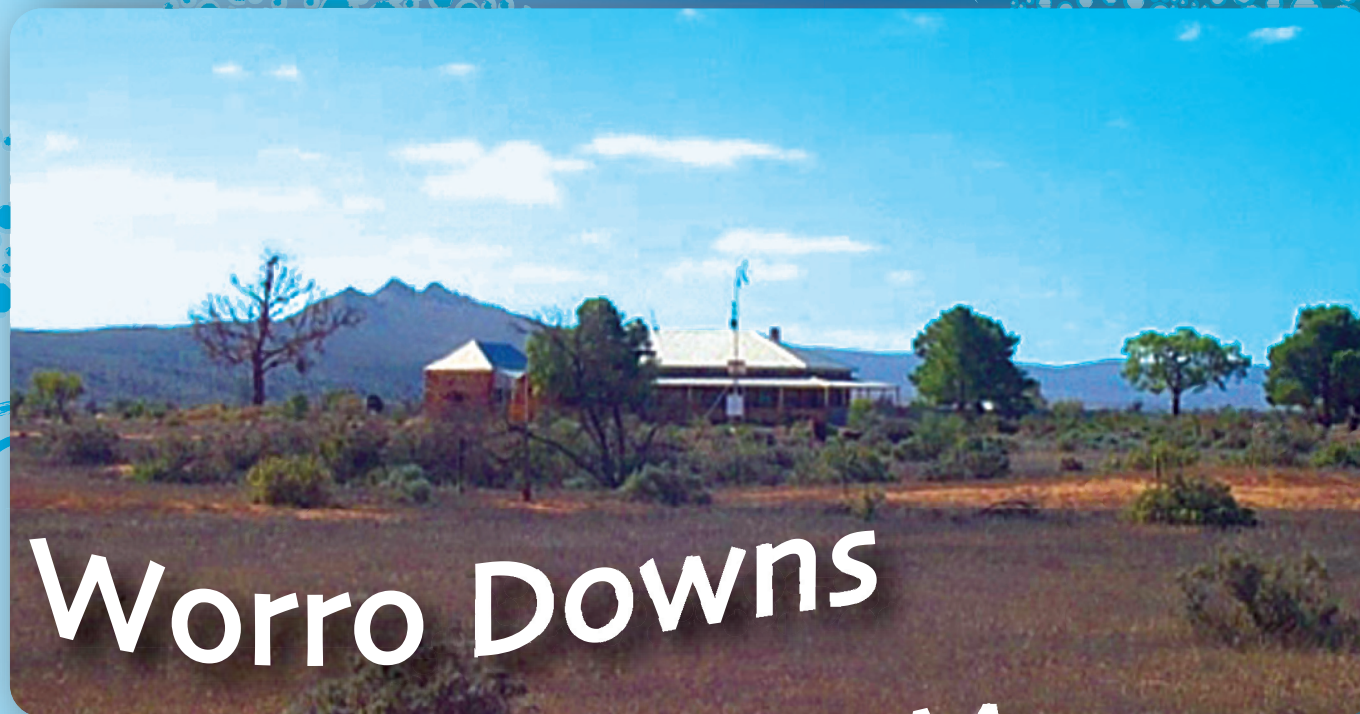




Worro Downs

Water Supply Manual
2006

Contributing author information

Robyn Grey-Gardner is from the Commonwealth Department of Families, Community Services and Indigenous Affairs and is the project leader for the Desert Knowledge CRC Remote Community Water Management project. Robyn is an environmental and social scientist and has a range of water industry experience that includes monitoring environmental and urban water supplies, analysing water in chemical and microbiological laboratories and working with Indigenous communities on water management programs.

Dainis Skabe is a project officer working with the SA communities involved in the Desert Knowledge CRC Remote Community Water Management project. Dainis is from the South Australian Water Corporation and works within SA Water's Environmental Management and Remote Communities Groups. Dainis has a Degree in Environmental Management (Hons) from the Flinders University of South Australia.

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For additional information please contact

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Acknowledgements

The Desert Knowledge Cooperative Research Centre (DK-CRC) is an unincorporated joint venture with 24 partners whose mission is to develop and disseminate an understanding of sustainable living in remote desert environments, deliver enduring regional economies and livelihoods based on Desert Knowledge, and create the networks to market this knowledge in other desert lands.

Desert Knowledge CRC, Publications Officer, PO Box 2111, Alice Springs, NT 0871 Australia
Telephone +61 8 8950 7130 Fax +61 8 8950 7187
www.desertknowledge.com.au/crc

FaCSIA:

The Department of Families, Community Services and Indigenous Affairs (FaCSIA) is the Government's principal source of advice on social policy issues. We also have responsibility to effectively and efficiently manage a diverse range of programs and services to improve the lives of Australians. Our whole-of-government approach brings with it many opportunities to build effective relationships with other government and non-government organisations.
www.facsia.gov.au

CAT:

The Centre for Appropriate Technology is Australia's national Indigenous science and technology organisation. We work to increase the access of Indigenous people to a range of technical services that enable them to live safely and happily in communities, often in remote locations.
www.icat.org.au

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Australian Government

Department of Families, Community Services
and Indigenous Affairs



Worro Downs System Schematic July 2006



BORE

22.4 metres deep
Full length cased with PVC pipe
0.6 L/sec yield
Electric submersible pump
with mains power



RAINWATER TANK

19,000 Litre poly tank
Piped to the kitchen



HOMESTEAD



STORAGE TANK

27 000 litre poly tank



STOCK TROUGH

Stock trough with float valve



IRRIGATION

Outside tap to irrigation around the house



Worro Downs System Hazards and Rectifications July 2006



BORE

Protect bore with concrete slab

The slab should be 2 metres in diameter and slope away from borehead.

Protect bore with fencing



RAINWATER TANK

Seal overflows with screens

Keep tank lid fitted securely

Clear roof area and gutters



HOMESTEAD



SEPTIC TANK

Inspect tank for signs of leaks



ANIMAL BUTCHERING AREA

Ensure area is cleaned up after butchering to prevent contamination of the area.

For example, rotting scraps carried onto the roof by birds



IRRIGATION AROUND HOUSE

Check overflows,
install timer on tap



STOCK TROUGH

Check float valve for operation and ensure air gap between valve outlet and water surface in trough.

Replace if necessary



STORAGE TANK

Fit a valve to tank to control storage if necessary

Keep pipes buried.

Seal tank overflows with screens

Ensure tank lid is fitted and fixed in place

Worro Downs Water Supply Weekly to Monthly Checks



BORE

Check fencing is in tact
Keep livestock and wild animals away from the borehead



RAINWATER TANK

Check water quantity is above 5000 litres
Visual inspection for leaks
Check screens and lid are in place and in tact
Clear roof area and gutters



STORAGE TANK

Check water storage capacity
Look for any water leaks
Check screens and lids are in place and in tact



STOCK TROUGH

Check overflow and operation of float valve



HOMESTEAD

Check taps, showerhead and toilet for leaks



PRESSURE PUMP

Check pressure pump for operation
Clean/flush out sand etc.



IRRIGATION AROUND HOUSE

Check for pooling around house or areas
which are continuously wet or damp

NOTE:

Look for any leaks in all
taps, showerheads and
toilets.
Check for any pooling of
water around taps outside.

Worro Downs Water Supply Monthly to Yearly Checks



BORE

NOTE:
Check and
maintain hot
water services.



RAINWATER TANK

Check roof area, repair any faults in roof.
Clean roof area and gutters of any leaves and debris



STORAGE TANK



STOCK TROUGH



HOMESTEAD

Check taps, showerhead and toilet for leaks



PRESSURE PUMP

Check pressure pump for operation
Flush out any sand or debris



IRRIGATION AROUND HOUSE

Worro Downs Water Supply Special Events and Emergencies



BORE

After earth tremor check borehead concrete apron and pipes to tanks for evidence of movement like cracks, splits and leaks. Check that the pipes to the storage tank stay covered with soil. After a big rain event check around bore and look for any areas where the soil may have eroded away. Check surface water is not pooling around borehead and flowing into the bore. Check that the pipes to the storage tank stay covered with soil.

If a chemical or fuel spill occurs next to the bore, soak up immediately with sawdust or similar absorbent material. Remove the sawdust and any contaminated soil (careful not to disturb bore apron and casing) and take it well away from the area (preferably at council landfill).



STORAGE TANK

Check pipeline to storage tank for leaks and any places where the pipe may be uncovered



STOCK TROUGH



IRRIGATION AROUND HOUSE



RAINWATER TANK

If people are making complaints:
1. Boil water or
2. Disinfect tank with chlorine or bleach



HOMESTEAD

When using pesticides or herbicides around the house make sure it is done on a calm day. Spot spray only to prevent any chemicals getting on the roof and into the rainwater tank.



SEPTIC TANK

After earth tremor or big rain event check for any leaks or overflows.

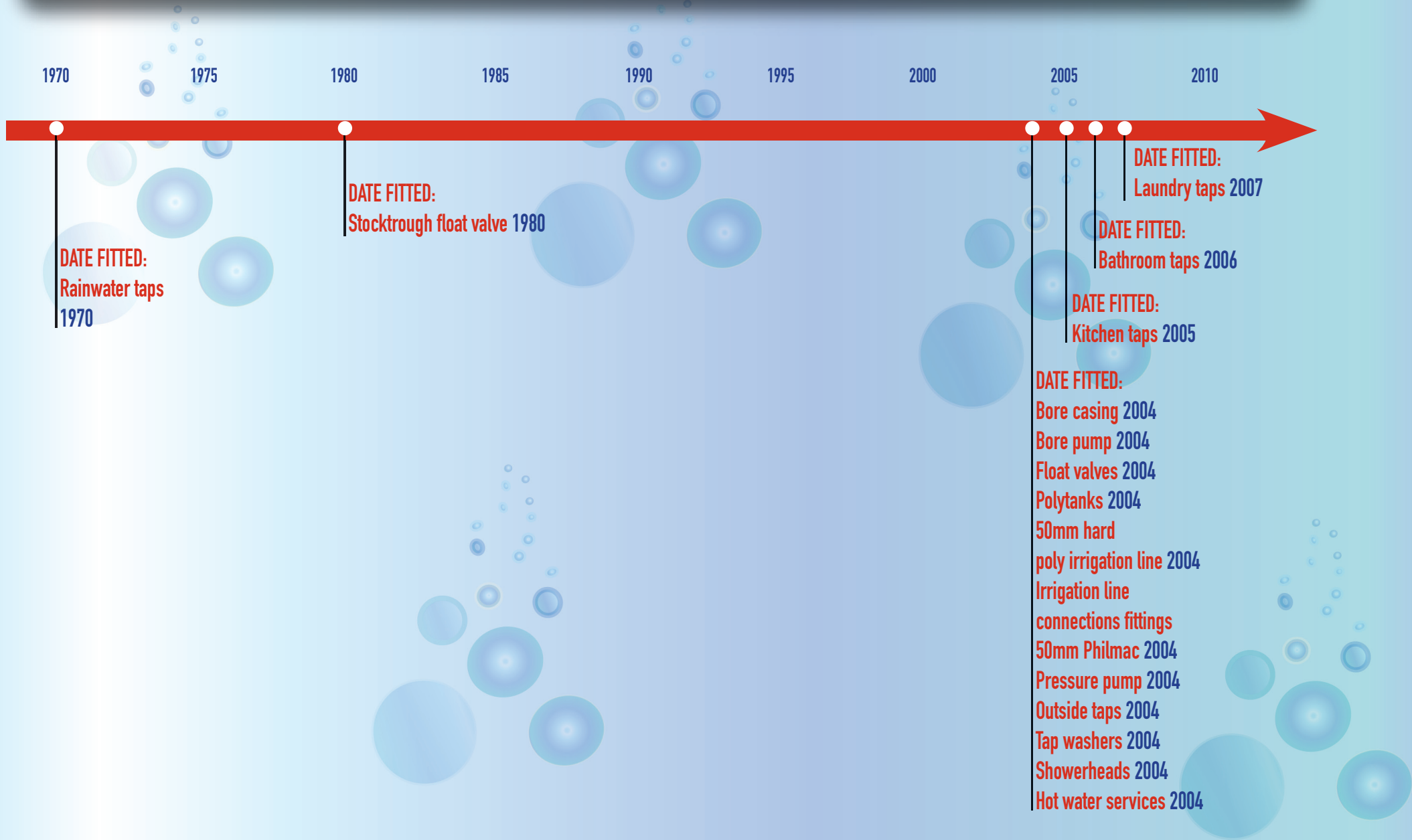
List of Contacts

Agency	Details	Contact Number
SA Health Department	Department of Environmental Health	(08) 8226 7107
Local Council	Flinders Ranges Council 1 Seventh Ave, QUORN SA 5433	(08) 8648 6031
SA Water	General Queries Hotline, Adelaide	1800 650 950
Police	Hawker Police	(08) 8648 4028
Fire	Hawker CFS Emergency number	(08) 8648 4065
Ambulance	SA Ambulance, Hawker Volunteer Station	000
Yartawarli	Yartawarli Aboriginal Corporation Resource Agency 52 Arkaba St, Hawker	(08) 8648 4047
Philip Stuart	Hawker	(08) 8648 4303
Smulders Electrical Contracting	30 Elder Tce, Hawker	(08) 8648 4020

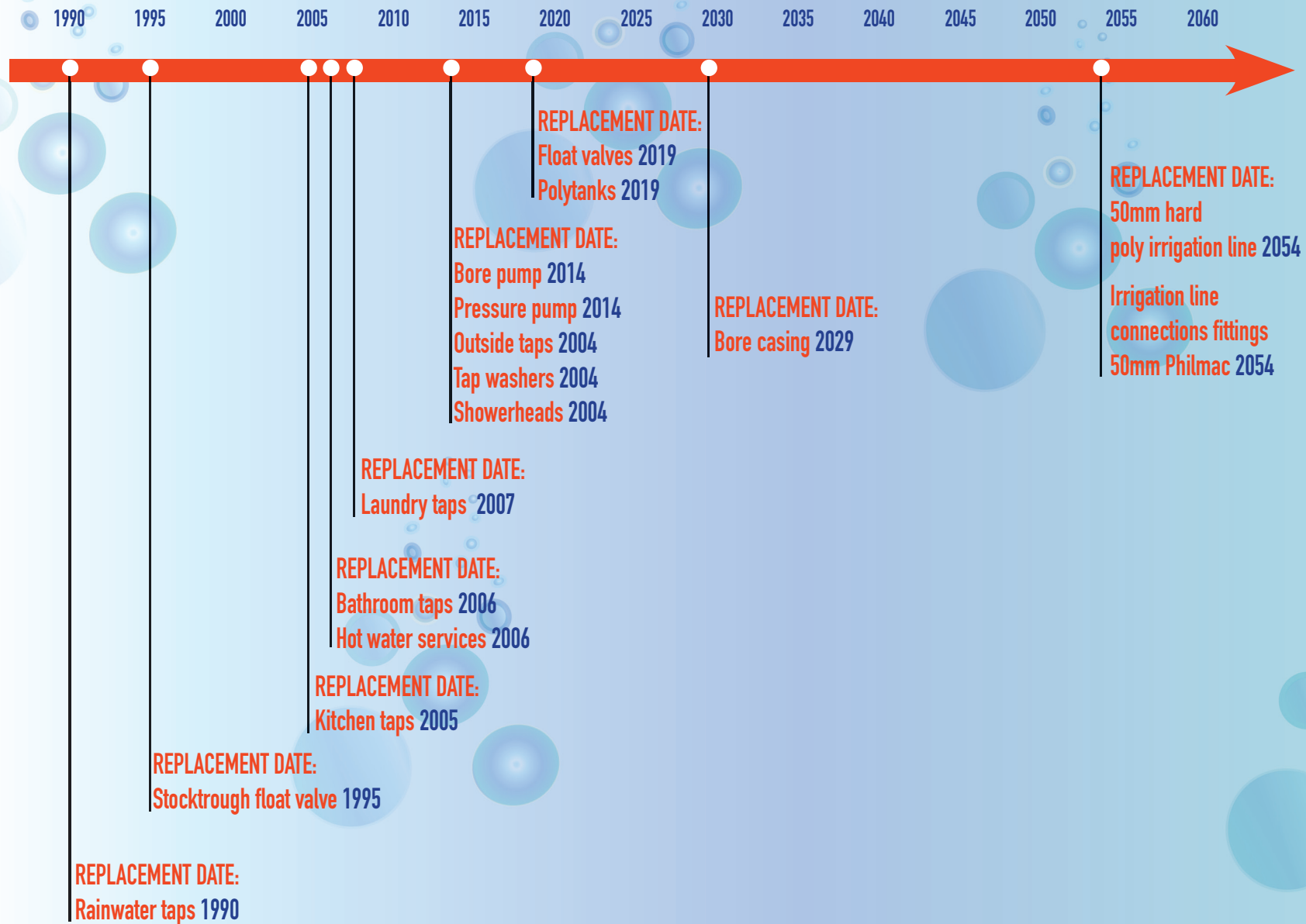
When to Replace Parts

Fixture	Quantity	Date fitted	Operational lifespan (years)	Anticipated replacement date	Approx replacement cost	Comments
Bore casing	1	2004	25	2029	\$66/m	
Bore pump	1	2004	10	2014	\$1000-\$2800	
Float valves	2	2004	15	2019	\$45.00	
Polytanks	2	2004	15	2019	\$3,000.00	
50mm hard poly irrigation line	2000m	2004	50	2054	\$3.10	Cost per metre
Irrigation line connections fittings						
50mm Philmac	30?	2004	50	2054	\$20-\$35	Varies on type of connection
Pressure pump	1	2004	10	2014	\$1,300.00	
Stocktrough float valve	1	1980	15	1995	\$45.00	
Outside taps	4	2004	1-2	2004	\$11.77	Per tap (half inch, brass)
Kitchen taps	3	2005	1-2	2005	\$75.00	To replace 2 taps
Bathroom taps	4	2006	1-2	2006	\$117.70	Basin set-2 taps and spout
Laundry taps	2	2007	1-2	2007	\$75.00	To replace 2 taps
Rainwater taps	2	1970	10	1990	\$11.77	Per tap (brass)
Tap washers	15	2004	1-2	2004	\$0.50	
Showerheads	1	2004	1-2	2004		9L/minute with inbuilt restrictor
Hot water services	1	2004	2-3	2006	\$1,119.00	Rheem single element 315 Litres serves 4-6persons

When Parts Were Fitted



Anticipated Replacement Dates



Chlorinating your Water Tank

You may want to chlorinate your water tank if:

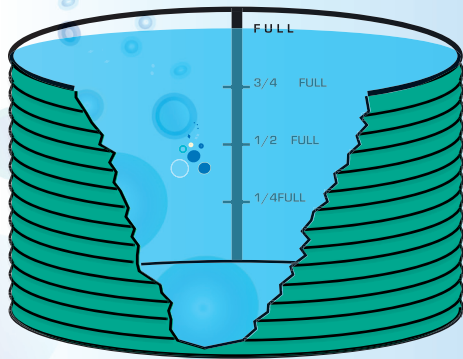
- A new tank has been installed.
- People are complaining that the water may have made them sick or a dead animal has been found on the roof or in the tank.
- There has been a special event like maintenance – such as emptying sludge from bottom of a tank.

Regular chlorination of the tank should not be necessary.

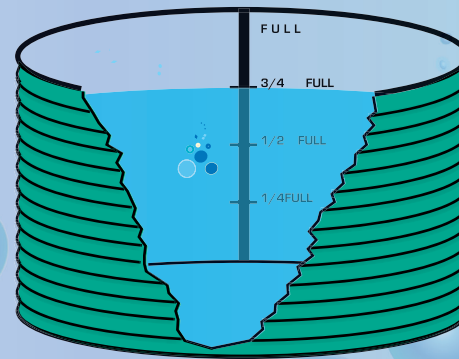
Follow these steps:

- Determine how much water is in the tank. Measure the water level in the tank. The size of the tank is in the community water manual.
- **Note:** when dealing with chlorine or bleach ensure you are wearing rubber gloves and goggles to protect you eyes.
- Determine the amount of chlorine or bleach needed. For every 1000 litres of water in the tank use approximately 40 ml of liquid pool chlorine or 125 ml of bleach.
- **IMPORTANT:** use a non perfumed chlorine bleach such as White King. Do not use stabilized pool chlorine or tablets (chlorine cyanurates).
- Dilute the chlorine/bleach in a bucket. **Note: ALWAYS ADD THE CHLORINE TO THE WATER NOT THE WATER TO THE CHLORINE!**
- Use a jug or similar to spread the chlorine or bleach across the whole surface of the tank using a casting motion to ensure it is distributed evenly.
- Stir the tank (if possible) to mix in the chlorine/bleach.
- Let stand for about 24 hrs.
- Test the water in the tank using pool chlorine test strips. If it turns pale pink it is OK. If it turns purple, wait 12 hours and retest. Keep testing until the test strip turns pink.

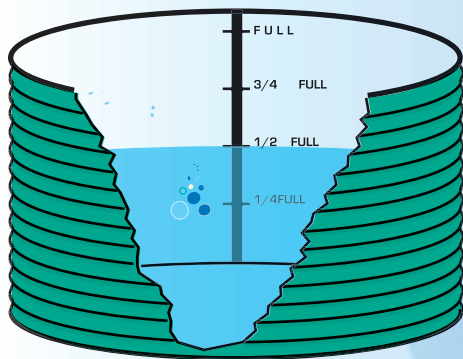
Chlorinating your Water Tank



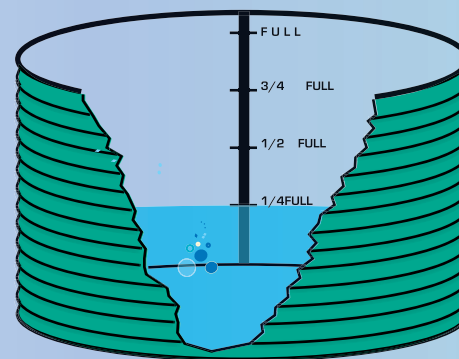
Amount of water in the rainwater tank:
Full (19,000 litres)
Height of water level: 2.5m
Amount of pool chlorine to use: 760 ml (approx 3 cups)
Amount of bleach to use: 2.375 litres (approx 1 bottle and a cup)



Amount of water in the rainwater tank:
Three quarters full (14,250 litres)
Height of water level: 1.95m
Amount of pool chlorine to use: 570 ml
Amount of bleach to use: 1.8 litres



Amount of water in the rainwater tank:
Half full (9,500 litres)
Height of water level: 1.3m
Amount of pool chlorine to use: 380 ml
Amount of bleach to use: 1.2 litres



Amount of water in the rainwater tank:
Quarter full (4750 litres)
Height of water level: 65cm
Amount of pool chlorine to use: 190 ml
Amount of bleach to use: 588 ml (approx 2 cups)

