KANPA Water Supply Manual

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.

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For additional information please contact

Desert Knowledge CRC

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.
http://www.facs.gov.au/

Australian Government
Department of Families, Community Services and Indigenous Affairs

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.
http://www.icat.org.au

Centre for Appropriate Technology

DESERT KNOWLEDGE CRC

We would also like to acknowledge the financial and technical support of the CRC for Water Quality and Treatment (CRCWQT).

We would like to thank Ngaanyatjarra Services and the Kanpa community for their tremendous support and involvement during the project. We would like to make special mention to Preston and Beverley Thomas for their contribution.

CRC AUSTRALIA

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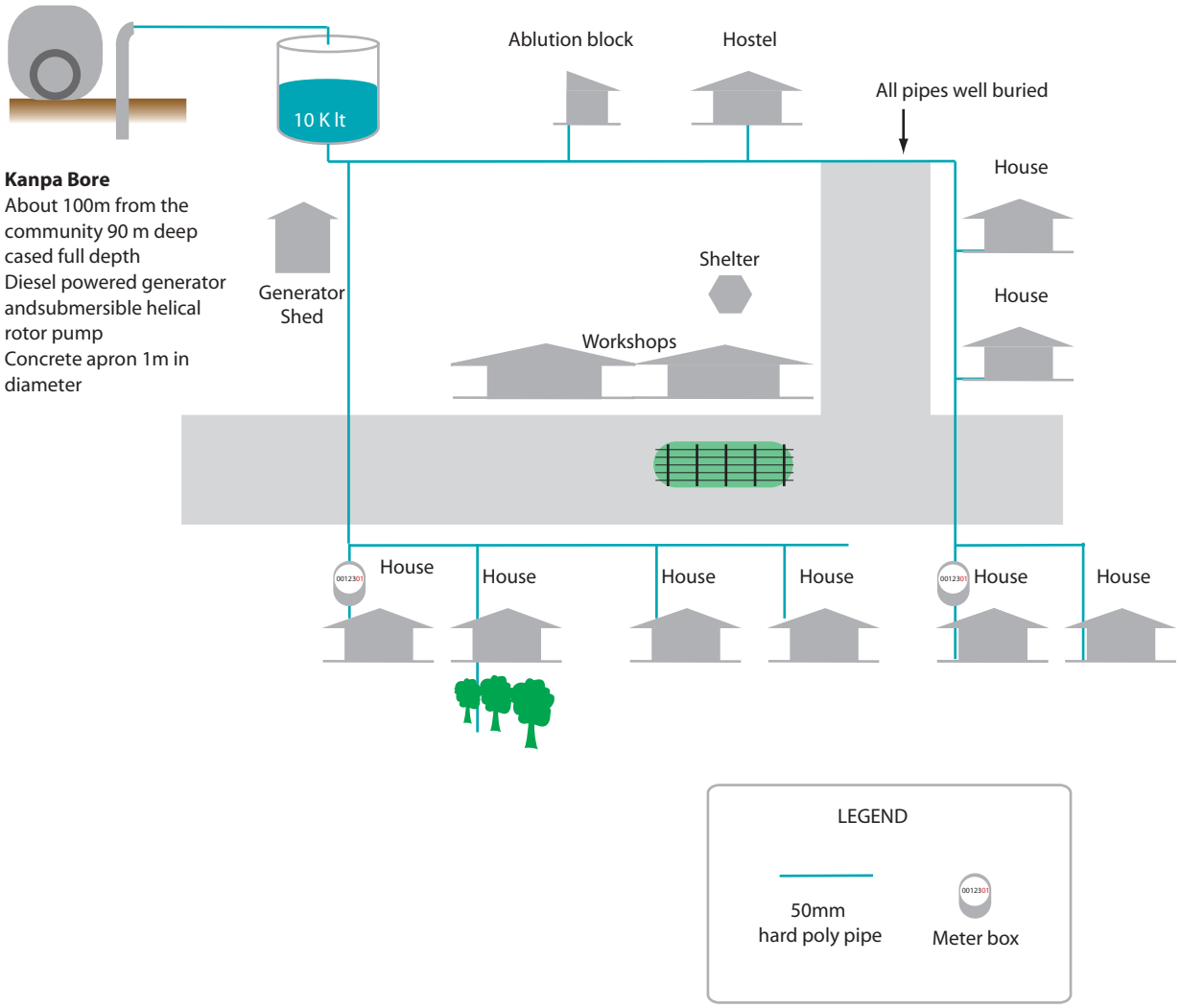
KANPA WATER SYSTEM

Schematic



Kanpa Bore
About 100m from the community 90 m deep cased full depth
Diesel powered generator andsubmersible helical rotor pump
Concrete apron 1m in diameter

Official bore records are not available. Bore is gravel packed and screened and during pump tests 2270 L/Sec was drawn for 24 hours. There was no detectable drawdown.

KANPA WATER SYSTEM

Hazards and Rectifications August 06

Kanpa Bore

(1) Fence to be constructed around borehead, preferably with a 50 metre protection zone.

(2) Uncapped bores to be capped and sealed (approx 8).

(3) Install a water meter at borehead.

Tank

4 Protect base of tank with concrete slab, ensure overflow is diverted away from tank.

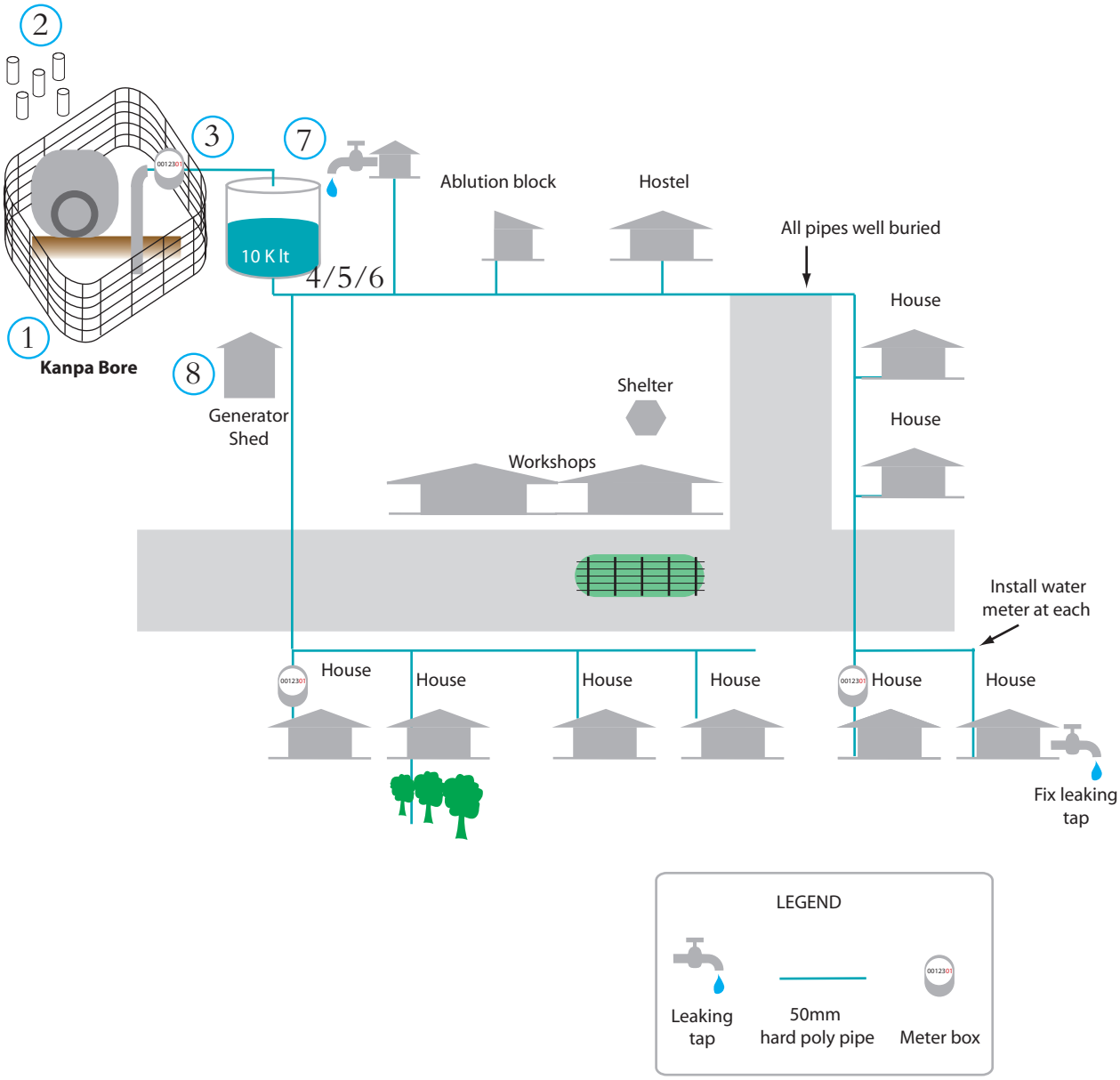
5 Install an automatic shut off valve.

6 Install backflow restrictor.

(7) Build a trough for horses 100m away from storage tank.

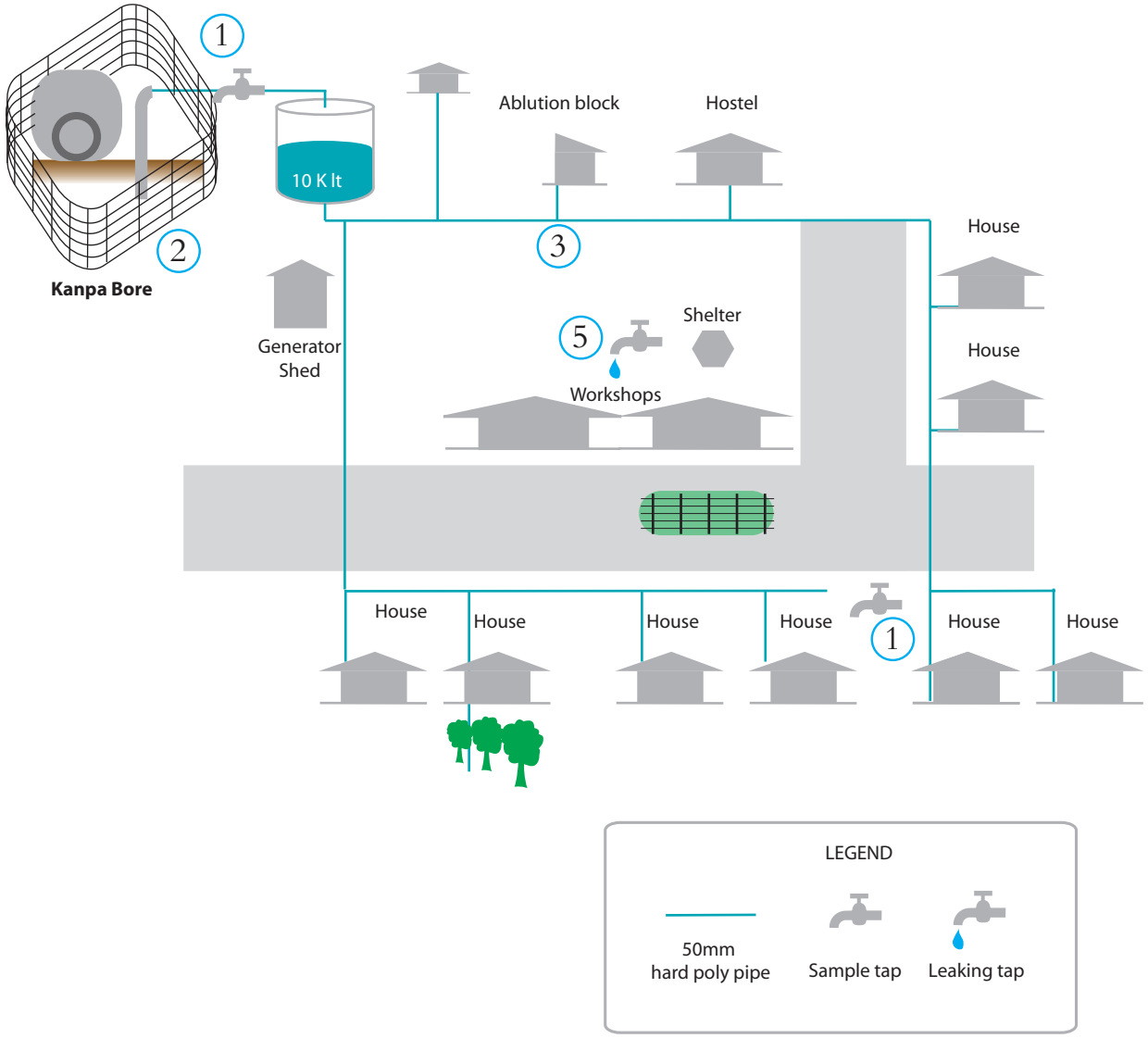
Generator Sheds

(8) Ensure all diesel and chemicals have bunding to prevent spills.



KANPA WATER SYSTEM

Weekly/Monthly Checks

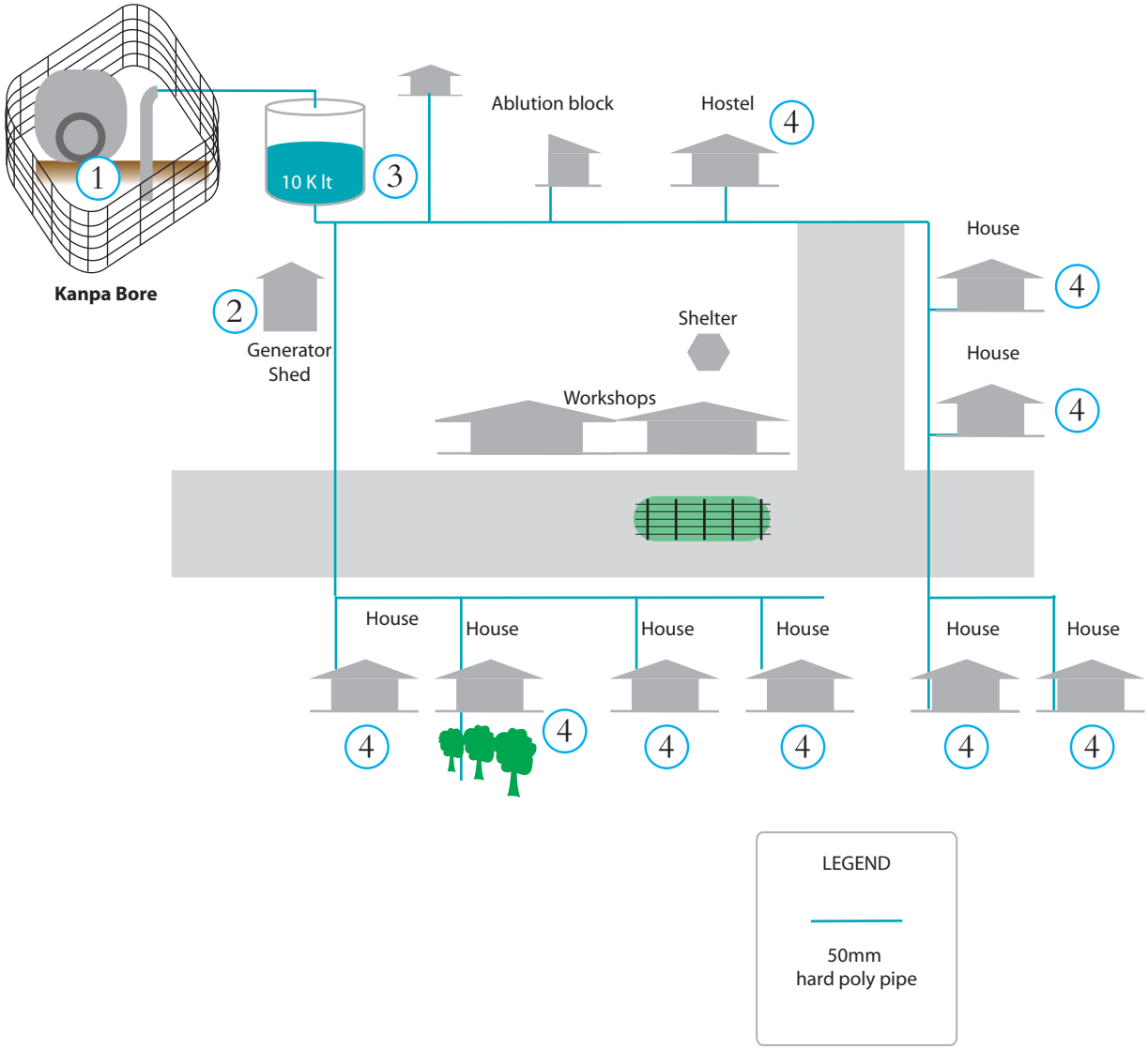


1. Test bore water monthly for TDS (conductivity) if it changes, repeat test. If concened call Ngaanyatjarra Services for help.
2. Check borehead fencing.
3. Check pipeline for any wet spots or leaks.
4. Read water meters and record results.
5. Change washers in any leaking taps.

KANPA WATER SYSTEM

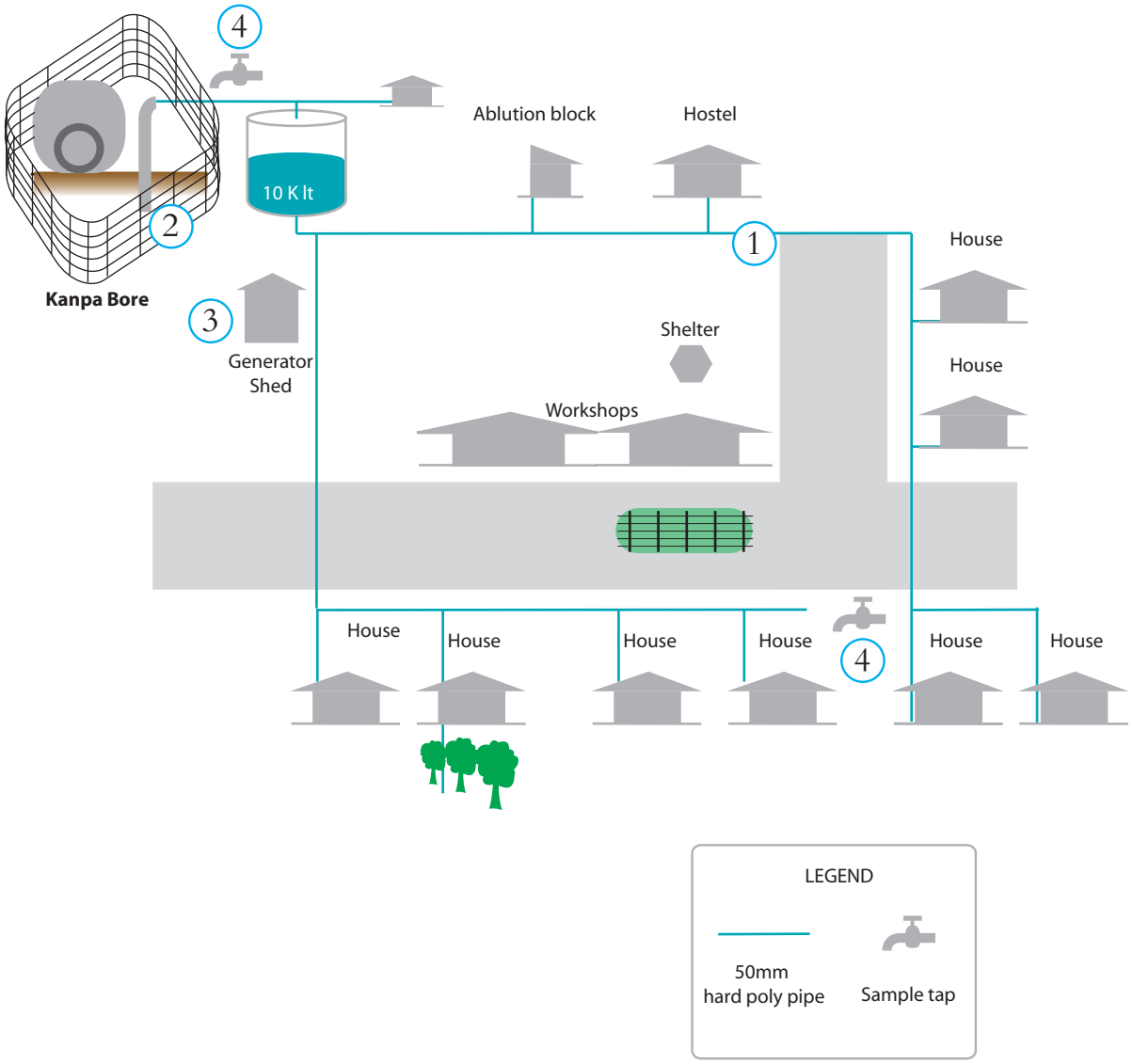
Annual Checks

1. Check borehead apron for any signs of cracks.
2. Check all chemicals and diesel storages have not leaked.
3. Check tank for damage, erosion and check overflow is drawn away from tank.
4. Check hot water systems and flush out any scale.



KANPA WATER SYSTEM

Emergencies or Special Events

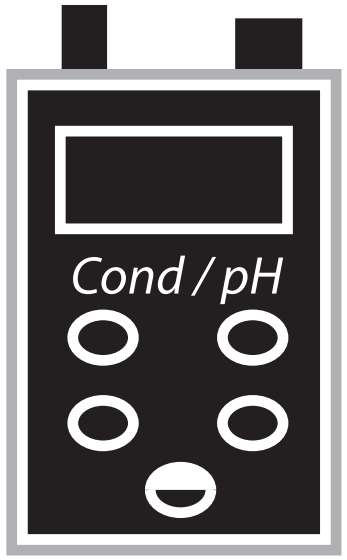


1. If there has been an event at Kanpa check that all rubbish and septic areas are clean.
2. After a big rain, check that water is not pooling around the borehead.
3. If a chemical or diesel spill occurs near the bore soak up immediately using sawdust or absorbant material (newspaper). Remove all absorbant material and any contaminated soil and dispose of well away from community or at Warburton dump.
4. If people are making complaints of sickness, boil water and take a sample and have it tested at Pathwest Lab (Ngaanyatjarra Council may be able to arrange).

KANPA WATER SYSTEM

Kanpa Contact List

AGENCY	DETAILS	CONTACT NUMBER
State Health Department	WA Department of Health 3rd Floor A Block 189 Royal Street East Perth WA 6004 PO Box 8172 Perth Business Centre WA 6849	1800 022 222 Emergency After Hours Number 08 9328 0553
Local Council	Gary Tuffin Ngaanyatjarraku Shire Council Tyulyuru Cultural and Civic Centre Warburton	08 8956 7966
Regional Council	Ngaanyatjarra Council Ngaanyatjarra Services Essential Services Division	08 8950 1711
State Agency responsible for drinking water supply	WA Department of Housing and Works 99 Plain Street East Perth WA 6004 Private Bag 22 East Perth WA 6892	08 9222 4900
Police	Warburton Police Station	08 8956 7638
Fire	Ngaanyatjarraku Shire Council	08 8956 7966
Ambulance	Ngaanyatjarra Health Warburton	08 8956 7685



KANPA WATER SYSTEM

Water testing

Regular water testing at Kanpa for pH, temperature and electrical conductivity will help you to see if the water quality is changing and prevent problems. Measure the electrical conductivity, total dissolved solids, pH and temperature each month at the bore and at the end of the pipeline. Pick the sampling sites and stick to them every time

Calibrate the handheld Conductivity-TDS-pH-Temperature Meter using distilled water first then the standard solutions. The instructions are in the TPS Handbook.

ELECTRICAL CONDUCTIVITY and TOTAL DISSOLVED SOLIDS

Electrical Conductivity (EC) and Total Dissolved Solids (TDS) are a measure of the salts in water. TDS can be made up of sodium, potassium, calcium, magnesium, chloride, sulphate, bicarbonate, carbonate, silica, organic matter, fluoride, iron, manganese, nitrate and nitrite and phosphate. Sometimes groundwater salinity is recorded as 'Parts per Million' (ppm), this is the same as Milligrams per Litre (mg/L).

TEMPERATURE

Temperature is important because it plays an important role in the potential for micro organisms or bacteria to grow. It will automatically be measured when you test for pH. Recording it will allow you to look for trends over time in the relationship between temperature and other indicators such as taste, odour and pH.

pH

pH is a measure of how 'aggressive' the water may be and can be a warning for corrosion or fouling. pH can change quite quickly in the pipes and can lead to problems., so measure pH at the bore and in the pipe system or at the houses.
The pH scale ranges between 0 and 14, with 7 considered neutral. Numbers less than 7 are acidic and numbers higher than 7 are alkaline.

CONTACT

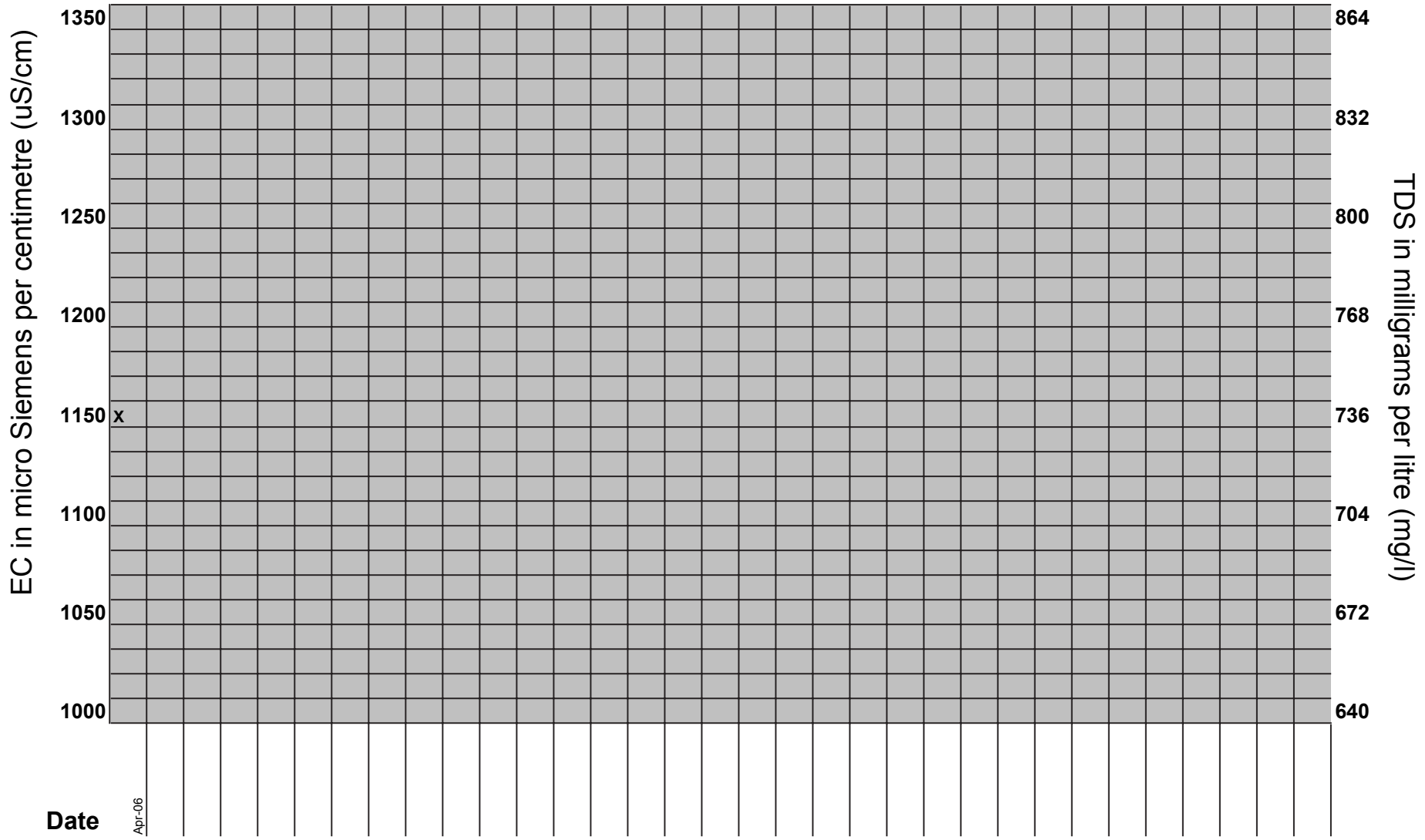
Handheld Meter Model:
Aqua - CP Conductivity – TDS – pH – Temperature Meter.

The supplier is:

TPS Pty Ltd
4 Jamberoo St
Springwood Qld 4127
Phone: (07) 3290 0400
Fax: (07) 3808 4871
Email: tps@tps.com.au
Web: www.tps.com.au

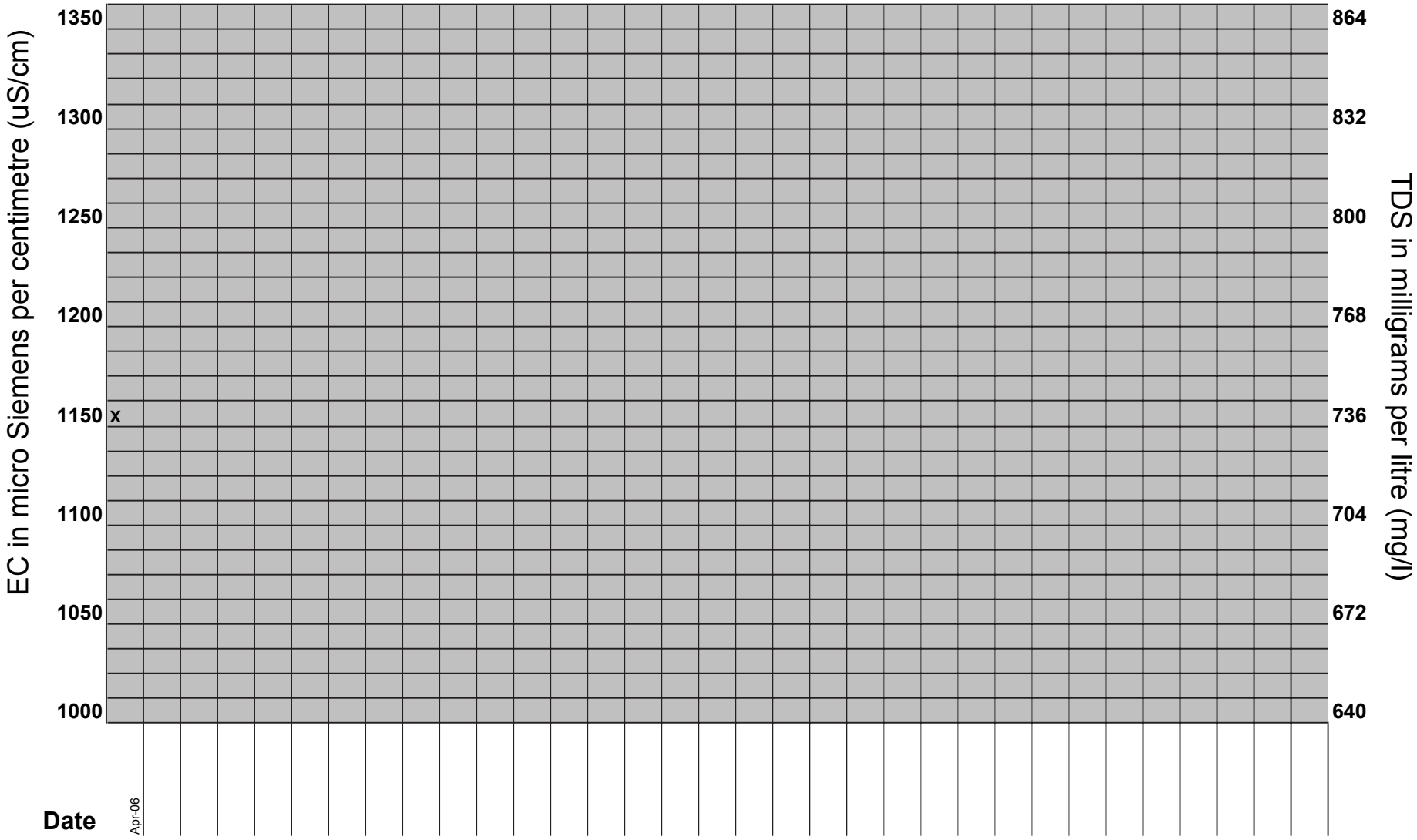
KANPA WATER SYSTEM

EC measurement Bore



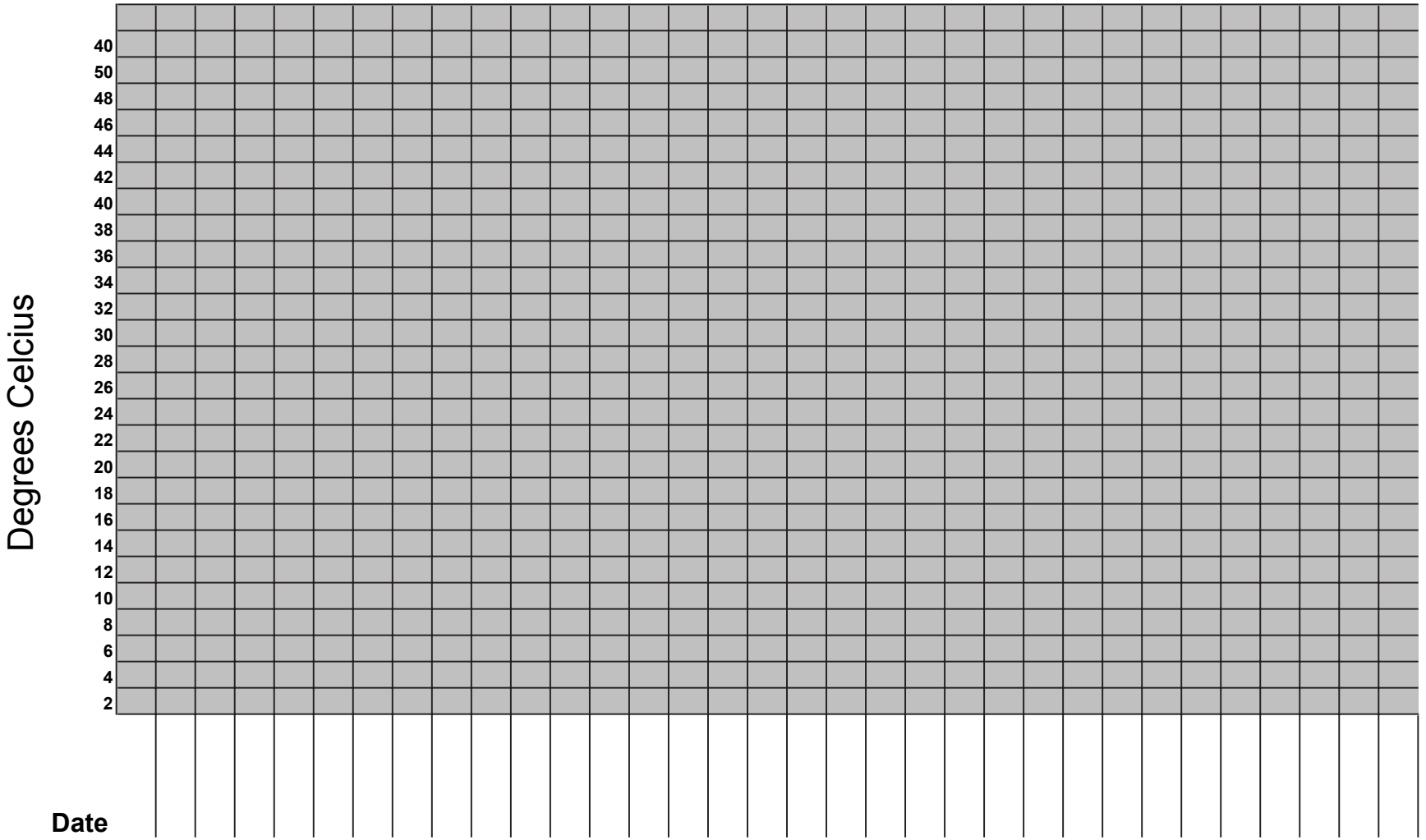
KANPA WATER SYSTEM

EC measurement Sample tap



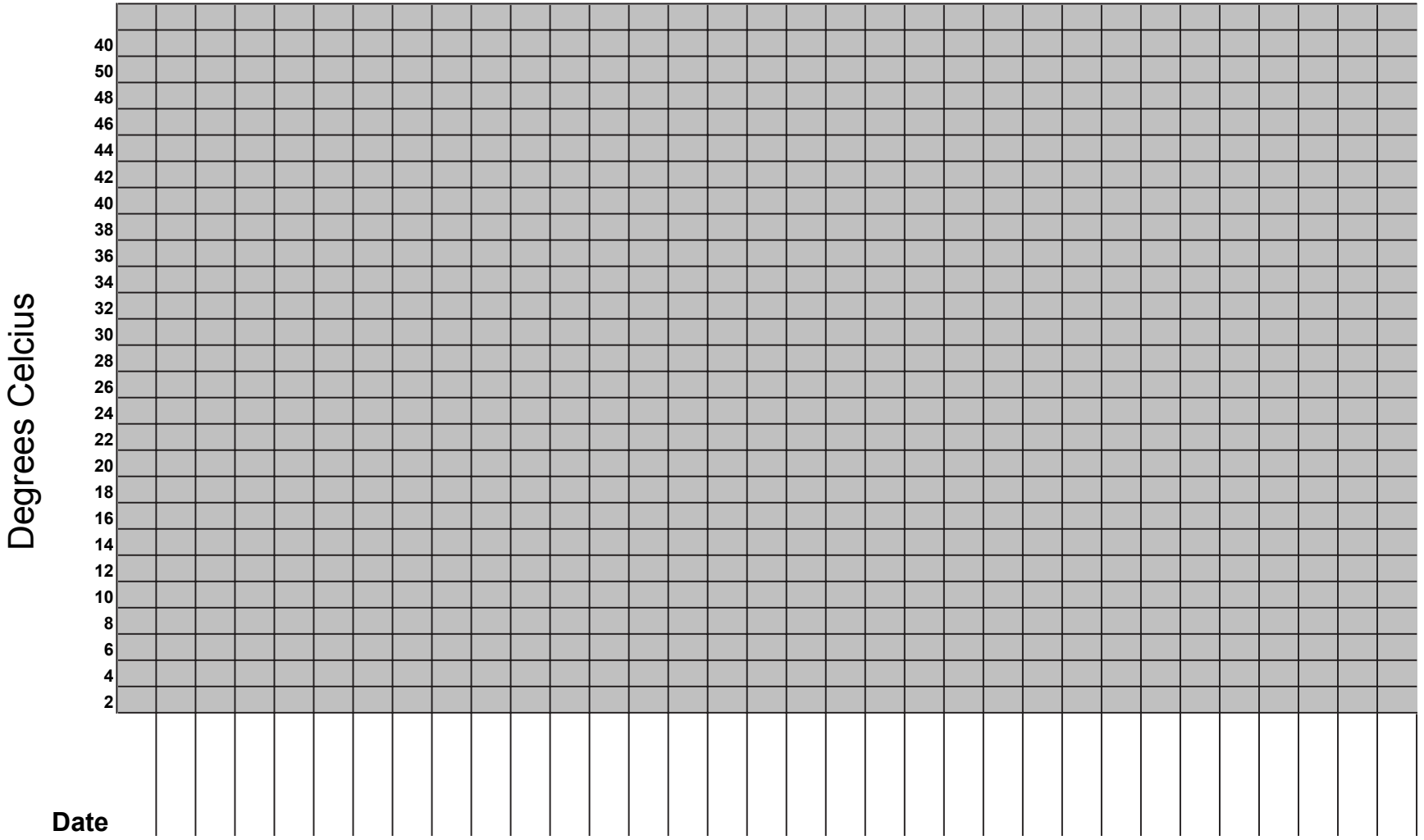
KANPA WATER SYSTEM

Temperature Bore



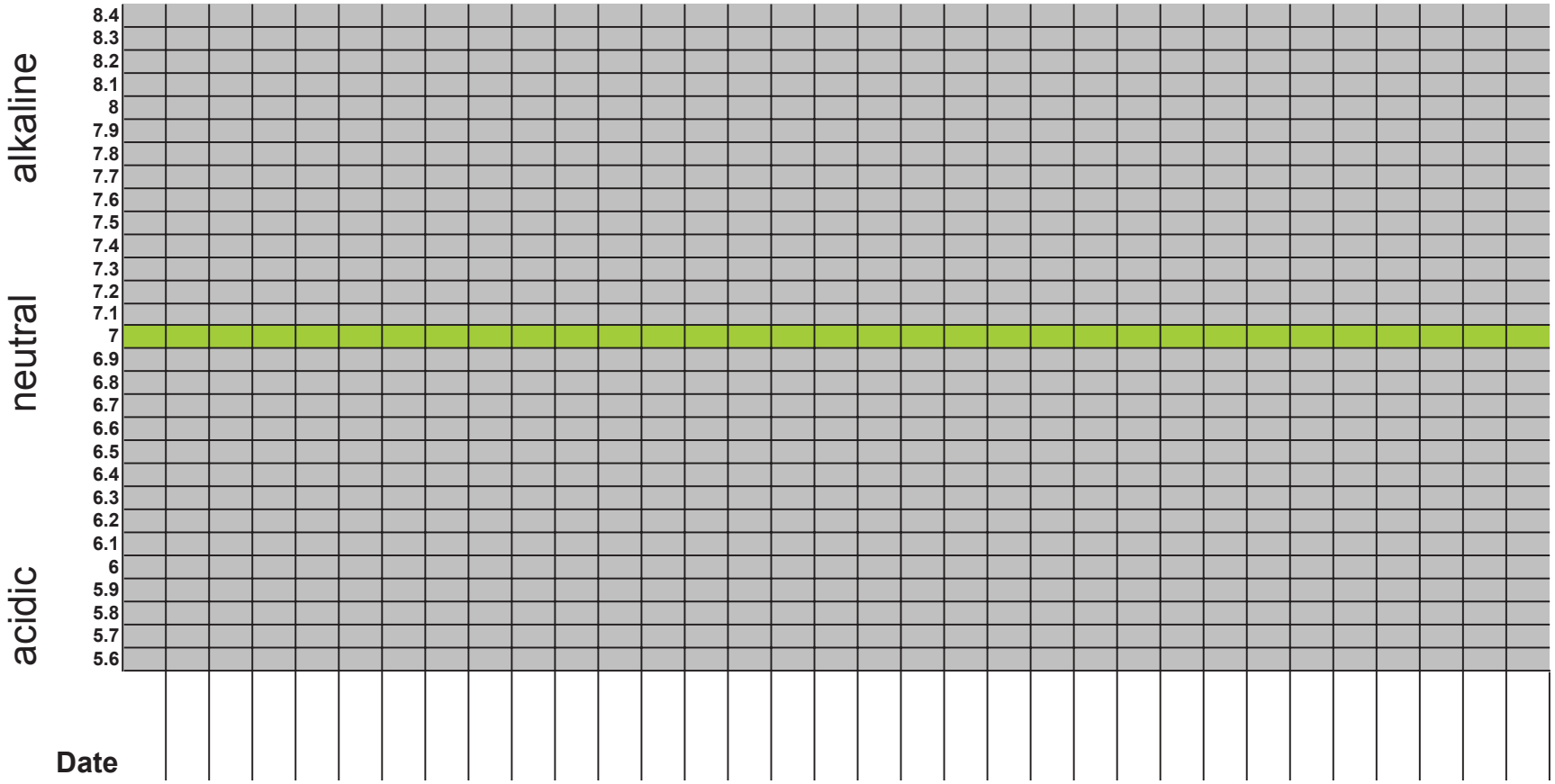
KANPA WATER SYSTEM

Temperature Sample tap



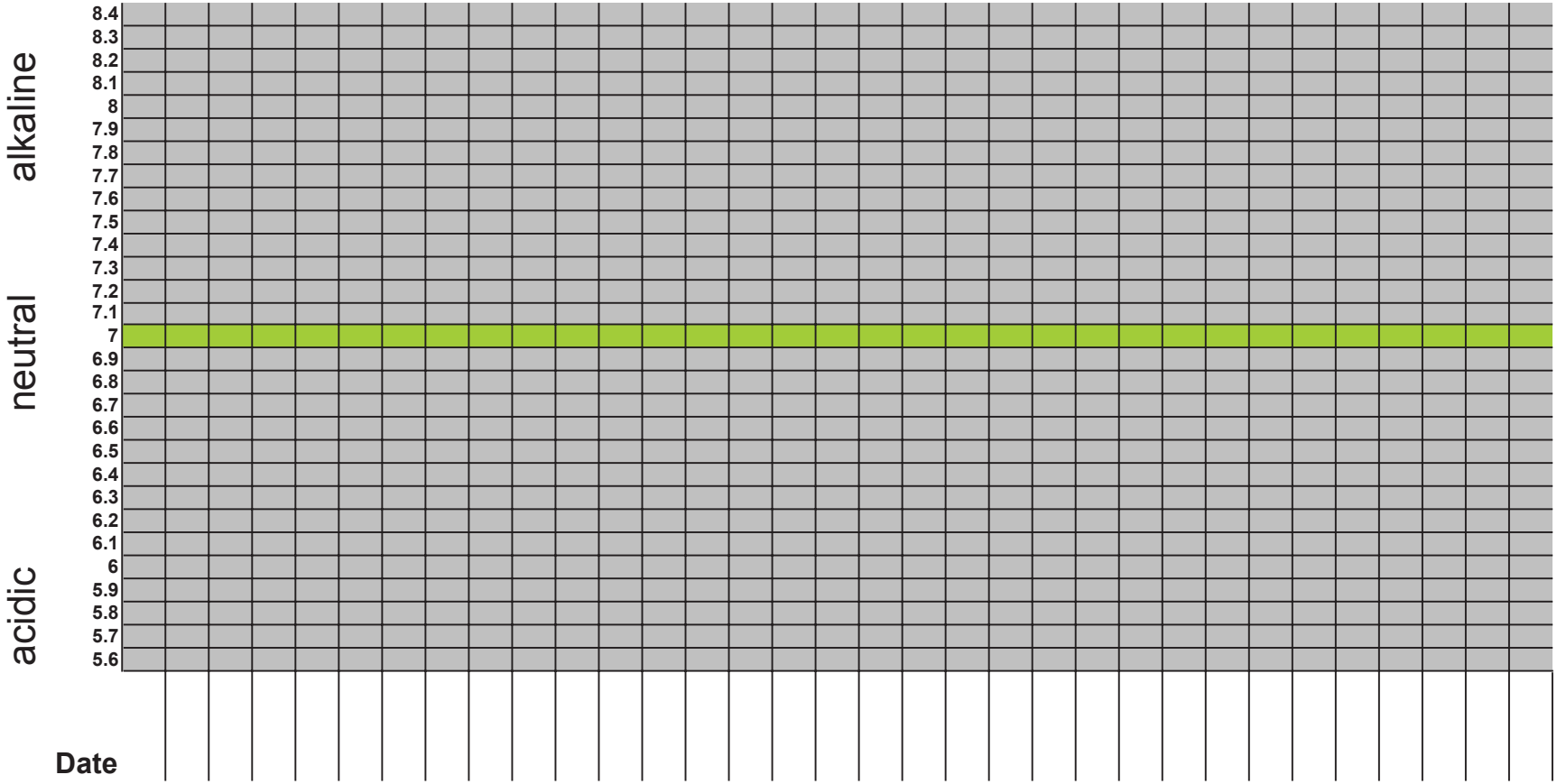
KANPA WATER SYSTEM

pH Bore



KANPA WATER SYSTEM

pH Sample tap



KANPA WATER SYSTEM

Bore Meter Reading

Date	Reading	Notes

KANPA WATER SYSTEM

Meter Reading

Date	Reading	Notes

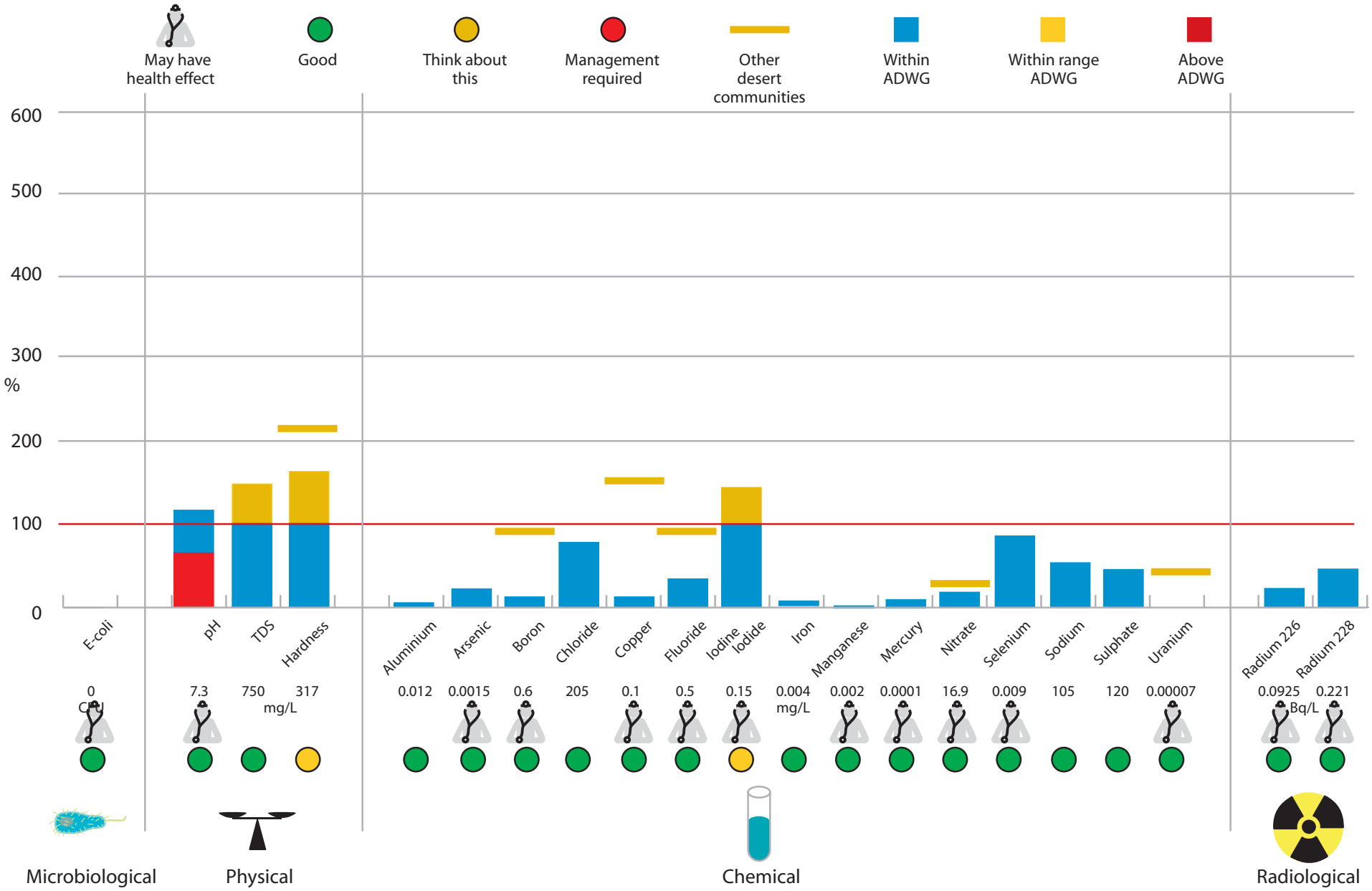
KANPA WATER SYSTEM

Meter Reading

Date	Reading	Notes

KANPA WATER SYSTEM APRIL 2006

Water quality Kanpa and spot data from average of selected desert communities



Location of Kanpa