

## Appendix 6:

### Test result record sheets for chlorine residual, nitrate and turbidity

Water quality will always be influenced by the local environment, affordability of treatment and the preferences of the people. Testing is one method used to manage water supplies as part of a management plan. The frequency and type of testing needed will vary between water supplies. In every case, the first priority is to comply with the risk management principles of having multiple barriers, monitoring the supply regularly and taking prompt action in response to any hazard or water contamination event.

The test result record sheets included here for chlorine residual, nitrate and turbidity can be used to record on-site test results for communities with a service provider. It is critical to understand normal conditions for a water supply so that, if there are any changes, the cause can be investigated and the appropriate action can be taken.

The record sheets indicate threshold levels for action. Residual chlorine, nitrate and turbidity were chosen here because they require immediate action when thresholds are exceeded. But the same format could be applied to almost any parameter.

#### Chlorine residual

If the residual chlorine level is maintained, it is unlikely that any micro-organisms will survive in the water supply. Levels of residual chlorine can change quickly, especially in surface-water supplies.

The target chlorine residual is 0.5 mg/L on the record sheet. The service provider can advise on any adjustment needed for the target level.

#### Nitrate

High levels of nitrate can cause methaemoglobinaemia (blue-baby syndrome). Nitrate levels in surface water can change quickly but this is less likely to occur in groundwater.

#### Turbidity

Turbidity can interfere with disinfection. Changes in turbidity may require an adjustment to water treatment. Turbidity tends to change slowly in groundwater.

# CHLORINE RESIDUAL

COMMUNITY NAME: \_\_\_\_\_ MONTH: \_\_\_\_\_

NAME OF OPERATOR: \_\_\_\_\_ SAMPLE POINT (USE THE SAME PLACE EVERY DAY): \_\_\_\_\_

NOTIFY SERVICE PROVIDER	ABOVE 1.1 mg/L																															
	1.0 mg/L																															
	0.9 mg/L	NOTIFY SERVICE PROVIDER																														
	0.8 mg/L																															
	0.7 mg/L																															
OKAY	0.6 mg/L																															
	0.5 mg/L	OKAY																														
	0.4 mg/L																															
NOTIFY SERVICE PROVIDER	0.3 mg/L																															
	0.2 mg/L	NOTIFY SERVICE PROVIDER																														
	0.1 mg/L																															
SHUT DOWN	0 mg/L	SHUT DOWN																														
	DATE ►	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

The Australian Drinking Water Guidelines say that chlorination is most effective when:

- Contact time is at least 30 minutes
- Chlorine residual is 0.5 mg/L
- Water temperature is below 18°C
- Turbidity is less than 1 NTU
- Water pH is between 6.8 and 7.2

Chlorine needs time to kill all micro organisms in the water; at least 30 minutes of contact time is recommended.

Chlorine residual is measured in milligrams per litre (mg/L). Chlorine residual is the amount of chlorine that is left in the water after the contact time. Too low, and the treated water is not protected against micro organisms in storage tanks or pipes. Too high, and the water will taste bad.

# NITRATE

COMMUNITY NAME: \_\_\_\_\_ MONTH: \_\_\_\_\_

NAME OF OPERATOR: \_\_\_\_\_ SAMPLE POINT (USE THE SAME PLACE EVERY DAY): \_\_\_\_\_

<b>SHUT DOWN</b> Notify service provider	150 mg/L	<b>SHUT DOWN</b> <b>NOTIFY SERVICE PROVIDER</b>																														
	140 mg/L																															
	130 mg/L																															
	120 mg/L																															
	110 mg/L																															
<b>BOTTLE FED BABIES LESS THAN 3 MONTHS OLD SHOULD DRINK BOTTLED WATER</b>	100 mg/L	<b>BOTTLE FED BABIES LESS THAN THREE MONTHS OLD SHOULD DRINK BOTTLED WATER</b>																														
	90 mg/L																															
	80 mg/L																															
	70 mg/L																															
	60 mg/L																															
<b>OKAY</b>	50 mg/L	<b>OKAY</b>																														
	40 mg/L																															
	30 mg/L																															
	20 mg/L																															
	10 mg/L																															
DATE ►	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	

**The Australian Drinking Water Guidelines for nitrate are:**

- **Adults: less than 100mg/L**
- **Babies: less than 50mg/L**

Nitrate is measured in milligrams per litre mg/L.

Nitrate is a measure of the amount of nitrogen present in the water as both nitrogen and oxygen.

Nitrates in groundwater can be caused by natural rock formations, fertilizers, septic systems or manure.

The Australian Drinking Water Guidelines suggest that drinking water should be less than 50 mg/L for babies under 3 months of age because it can cause 'blue baby' syndrome. In communities where the nitrate level is above 50mg/L, bottle fed babies that are less than 3 months of age should drink bottled water. Water with up to 100mg/L nitrate is safe to drink for adults.

# TURBIDITY

COMMUNITY NAME: \_\_\_\_\_ MONTH: \_\_\_\_\_

NAME OF OPERATOR: \_\_\_\_\_ SAMPLE POINT (USE THE SAME PLACE EVERY DAY): \_\_\_\_\_

SHUT DOWN	25 NTU	SHUT DOWN
	24 NTU	
	23 NTU	
	22 NTU	
	21 NTU	
	20 NTU	
	19 NTU	
	18 NTU	
	17 NTU	
	16 NTU	
NOTIFY SERVICE PROVIDER	15 NTU	NOTIFY SERVICE PROVIDER
	14 NTU	
	13 NTU	
	12 NTU	
	11 NTU	
	10 NTU	
	9 NTU	
	8 NTU	
OKAY	7 NTU	OKAY
	6 NTU	
	5 NTU	
	4 NTU	
	3 NTU	
	2 NTU	
	1 NTU	
	0 NTU	
	DATE ►	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

## Australian Drinking Water Guidelines for Turbidity:

- **5 NTU is fine**
- **less than 1 NTU is best**

Turbidity is measured in NTU or Nephelometric Turbidity Units.

Turbidity is a measure of the cloudiness of the water.

The higher the turbidity the dirtier the water looks and the harder it is to disinfect.

Turbidity can be caused by algae, dust, stirred up sediments and runoff amongst other things.